

## Public Perception of Mileage-Based User Fees

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# NCHRP

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NATIONAL  
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HIGHWAY  
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### Public Perception of Mileage-Based User Fees

***A Synthesis of Highway Practice***

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**NCHRP SYNTHESIS 487**

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**Public Perception of  
Mileage-Based User Fees**

***A Synthesis of Highway Practice***

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## FOREWORD

Highway administrators, engineers, and researchers often face problems for which information already exists, either in documented form or as undocumented experience and practice. This information may be fragmented, scattered, and unevaluated. As a consequence, full knowledge of what has been learned about a problem may not be brought to bear on its solution. Costly research findings may go unused, valuable experience may be overlooked, and due consideration may not be given to recommended practices for solving or alleviating the problem.

There is information on nearly every subject of concern to highway administrators and engineers. Much of it derives from research or from the work of practitioners faced with problems in their day-to-day work. To provide a systematic means for assembling and evaluating such useful information and to make it available to the entire highway community, the American Association of State Highway and Transportation Officials—through the mechanism of the National Cooperative Highway Research Program—authorized the Transportation Research Board to undertake a continuing study. This study, NCHRP Project 20-5, “Synthesis of Information Related to Highway Problems,” searches out and synthesizes useful knowledge from all available sources and prepares concise, documented reports on specific topics. Reports from this endeavor constitute an NCHRP report series, *Synthesis of Highway Practice*.

This synthesis series reports on current knowledge and practice, in a compact format, without the detailed directions usually found in handbooks or design manuals. Each report in the series provides a compendium of the best knowledge available on those measures found to be the most successful in resolving specific problems.

## PREFACE

*Jon M. Williams*  
Program Director  
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This study concerns proposals to replace the current motor fuel tax with a road usage charge assessed on vehicle-miles traveled, often called a mileage-base user fee (MBUF). The study identifies and assesses various measures of public opinion on the MBUF concept. Three sources of public opinion were studied: qualitative research studies, such as focus groups; quantitative public opinion surveys; and media stories.

Key findings from this study include: the majority of the public does not yet support MBUFs; many believe there is no compelling reason to replace the current fuel tax and would favor raising the fuel tax before implementing a MBUF program; and there is some evidence that support for MBUFs may be rising over time. Privacy issues and fairness are two concerns that emerged in public opinion about MBUFs. Another concern is distrust of the technology and government capacity to administer a MBUF program.

Asha Weinstein Agrawal and Hilary Nixon, San Jose State University, and Ashley M. Hooper, University of California, Irvine, collected and synthesized the information and wrote the report. The members of the topic panel are acknowledged on the preceding page. This synthesis is an immediately useful document that records the practices that were acceptable within the limitations of the knowledge available at the time of its preparation. As progress in research and practice continues, new knowledge will be added to that now at hand.





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*Note:* Many of the photographs, figures, and tables in this report have been converted from color to grayscale for printing. The electronic version of the report (posted on the web at [www.trb.org](http://www.trb.org)) retains the color versions.

# PUBLIC PERCEPTION OF MILEAGE-BASED USER FEES

**SUMMARY** In recent years, the real value of fuel tax revenues has declined significantly as a result of increasing vehicle fuel efficiency, failure to adjust tax rates to keep up with inflation, and fewer miles driven. This decline in the purchasing power of the revenues collected has led to ongoing funding challenges for transportation infrastructure and increased uncertainty about future funding options. In the face of these challenges, interest has grown in the potential for replacing the current fuel tax with a new road usage charge assessed on miles traveled. This revenue option is referred to as a mileage-based user fee (MBUF), road usage charge (RUC), vehicle miles traveled (VMT) fee, or per-mile tax. As of April 2015, 26 U.S. states were exploring MBUFs in some way, whether finalizing plans for a small-scale program (Oregon), designing a pilot (California), conducting a study, or through membership in the Western Road-Usage Charge Consortium or Mileage-Based User Fee Alliance.

To help fill the gaps in knowledge about public opinion of MBUFs, this synthesis study was designed to address the following questions:

1. What research has been conducted that identifies U.S. public opinion on MBUFs, including surveys and focus groups?
2. What is public opinion about mileage fees?
3. How does public opinion vary according to such factors as geography, respondent demographics, time, and common themes, trends, and factors that influence public acceptance or rejection?
4. What additional research is needed to address gaps in the current understanding of public opinion regarding MBUFs?

To answer these questions, this report analyzes three sources of information on public opinion about mileage fees: (1) qualitative research studies, such as focus groups; (2) quantitative public opinion surveys; and (3) media stories covering mileage fees.

Twelve qualitative studies were identified that explore perceptions about mileage fees, all conducted since 1995. Ten of the studies used focus groups as their primary research method, one used interviews as its primary research method, and one used a “deliberative forum” process in which participants listened to presentations, took part in group conversations, and answered survey questions. Results from the qualitative studies were analyzed to identify participants’ opinions about 13 themes. The themes fell into three categories: (1) concerns related to administering MBUFs, (2) concerns about how they will affect drivers, and (3) other issues.

Thirty-eight public opinion surveys conducted between 1995 and 2015 were identified that, collectively, included 167 unique questions about MBUFs. For each survey, data were

collected on such general characteristics as geographic scope, survey mode, sampling frame, survey sponsor type, year the survey was conducted, and how the MBUF was framed. In addition, where possible, information was gathered about the survey respondents: gender, age, income, education, race/ethnicity, and political affiliation. (In many cases, respondent characteristics were unavailable.) The survey data were then analyzed through a meta-analysis process, looking for patterns in opinion that arise when the results from many surveys are combined.

The third source of information for this synthesis study is media stories about MBUFs. A total of 359 media stories were found for the years 2010 to 2014. The stories came from national newspapers, online business journals, online industry blogs, magazines, and technology blogs. A content analysis process was used to analyze the stories both quantitatively and qualitatively. The media analysis found few media stories that presented the opinions of the general public (only 5% of all stories) or discussed the topic of public support for MBUFs (3% of all stories). Thus, the media story analysis results do not provide direct evidence about public opinion on MBUFs. However, the media stories provide rich detail about the types of issues that interest the transportation professionals and decision makers interviewed for the stories.

When considering all three data sources—focus groups, surveys, and media stories—several key findings emerge.

First, the data show that the majority of the public does not yet support an MBUF system. For example, across the 33 poll questions that asked about support for an MBUF (without specifying that the fee would replace the gas tax), mean support was only 24%, with a range from 8% to 50%. The qualitative research supports the more generalizable survey findings that most participants did not support the MBUF concept. All the qualitative studies reported in depth on many respondent concerns about MBUFs, whereas the studies discussed far fewer positive opinions.

Related to the question of whether people support the general concept of an MBUF is the question of whether they support replacing the gas tax with an MBUF. Both the survey and qualitative studies found that participants saw no compelling reason to replace the gas tax. The average support across the 23 survey questions that addressed replacing the gasoline tax with an MBUF system (which was presented as a hypothetical scenario) was 23%. Support ranged from 8% to 42%. Complementing this finding, the authors of many of the qualitative studies concluded that the public saw no reason to replace the gas tax with an MBUF.

The study results provide tentative evidence that MBUF support might rise over time, especially if new pilot programs or other activities familiarize people with the MBUF concept. The meta-analysis of survey data shows that mean support for replacing the gas tax with an MBUF has increased slightly over time, and surveys of participants in two MBUF pilot programs found relatively high support levels, suggesting that direct experience with an MBUF noticeably increases support for these fees. Also, the media story analysis found that the percentage of stories taking a positive tone toward MBUFs gradually increased from 2010 to 2014. These various pieces of evidence suggesting that MBUF support could increase over time align with evidence from social psychology research that message repetition is a key factor in changing public opinion and attitudes toward an issue.

The qualitative studies and media story analyses provide a rich and detailed picture of the factors that most likely influence the lack of public support for MBUFs, and in a few cases, survey evidence indicates that these factors matter to the public at large. Privacy and fairness were two of the themes discussed most often.

Privacy was a prominent theme in both the focus group studies and media stories. The topic was discussed in virtually all the qualitative studies evaluated, and the authors of several of these studies highlighted privacy as one of the main objections to an MBUF system. Participants were most alarmed by technology that collected data on the location or time of travel, but even simple odometer-based systems raised concern. The media coverage analysis supports the notion that privacy is a common concern; half of the media stories discussed privacy issues in some way. As for the survey data, responses to seven of the 10 privacy questions showed that at least half of the respondents believed that privacy was a concern.

A second prominent theme in the qualitative studies and media stories was fairness, with the MBUF system framed as both fair and unfair. For example, many focus group participants were concerned that fuel-efficient vehicle owners would pay comparatively more in MBUFs than they pay under the gas tax system, while owners of less fuel-efficient vehicles would pay comparatively less. These people thought it was unfair that a switch from the gas tax to an MBUF would penalize those who were “doing their part” to protect the environment and reduce greenhouse gas emissions. On the other hand, some people thought an MBUF was fairer than the gas tax because with an MBUF *all* drivers, including drivers of fuel-efficient and alternative-fuel vehicles, would pay similar amounts of tax to maintain roads. Yet other fairness discussions centered on the impact MBUFs would have on lower-income drivers, rural drivers, truckers, and commuters, and whether an MBUF system would allow some unethical drivers to cheat the system by avoiding payment altogether. The survey data do not provide clear evidence about which fairness issues are most important to individuals, but the data do support the notion that fairness is a serious concern.

Concerns about administering MBUFs were widespread in the qualitative studies. The most common worries centered on distrust of either the technology to be used or the ability of government to administer an MBUF program. Respondents predicted that both factors would cause billing errors. To a lesser extent, study participants also expressed concern about the cost of the program and the logistics associated with billing in-state drivers who drive out-of-state miles or charging out-of-state drivers who drive in the MBUF state.

The media stories and qualitative research revealed additional concerns as well, although these were not as widespread as privacy and fairness. One of these concerns focused on the loss of the gas tax as a policy tool to incentivize the purchase of fuel-efficient vehicles. Another concern was the challenge a household would face in paying the MBUF if it were charged periodically in large amounts (compared with gas taxes, which drivers pay frequently in small amounts). Further, MBUFs with a congestion pricing component were often viewed as unfairly expensive for people with inflexible work hours. Finally, the relative complexity of a mileage fee also emerged as an issue in the media stories and focus groups; if there is going to be an MBUF, people would prefer a simple structure.

Woven throughout the discussion of these concerns was a general preference for raising the gas tax instead of implementing an MBUF. Not only did many participants believe that the gas tax still performed adequately, they believed that it avoided many disadvantages of an MBUF, from high administrative costs to privacy concerns to charging hard-to-pay lump sum amounts to preserving cost savings for drivers of fuel-efficient vehicles. People also appreciated the simplicity of a gas tax compared with the complexity of even the most straightforward MBUF system.

While the focus groups, media stories, and surveys highlighted a number of concerns in implementing a mileage fee system, potential benefits of an MBUF emerged as well. In particular, the qualitative studies and media stories suggested a few reasons why the public might support transitioning to a mileage-based system. Some people liked that MBUFs could ensure that drivers of electric and fuel-efficient vehicles pay their fair share of road

maintenance costs. Further, in the media stories some people described the MBUF system as a possible “solution” to the problem of funding transportation infrastructure into the future and others described MBUFs as a “sustainable” or “innovative” revenue source.

When considering the findings described previously, it is important to take two contextual factors into account. One is a point raised by the authors of almost all the qualitative studies: members of the public know virtually nothing about current sources of transportation revenue. Most study participants had no idea what fuel tax rates might be or how much Americans pay per year in fuel taxes. Thus, people do not form their opinions about MBUFs with a good understanding of how that revenue option might compare with a fuel tax option. The second contextual point to keep in mind is that, especially in the surveys, respondents are stating their preference regarding a concept they likely do not understand well at all. The MBUF concept is complex, and the survey questionnaires do not provide respondents with a highly detailed explanation of how the MBUF would function. Further, because most people have not experienced an MBUF before, they do not have prior knowledge to help them understand the survey questions about MBUFs.

The findings from this synthesis study point to a number of useful avenues for future research, including the following:

1. The specific perceptions of populations of special concern, as defined by federal civil rights regulations and guidance documents, should be the focus of new qualitative and survey research. The groups in question are typically low-income and minority residents. Very little existing research documents MBUF opinions among these groups.
2. New survey research is required to thoroughly explore many issues identified in the qualitative research studies and media stories, such as concerns about privacy and the difficulty people might face in paying large, infrequent MBUF bills. These topics have been studied inadequately in generalizable surveys.
3. Survey and qualitative research is needed to explore how additional factors known to influence support for other transportation revenue options might influence MBUF support. These factors include a respondent’s prior knowledge about existing transportation revenue options, educating respondents about current revenue sources and trends, and telling respondents that MBUF revenues would be dedicated to specific types of transportation programs. The results of this study will help policymakers design and explain MBUFs in ways that do not generate unnecessary opposition.
4. Multivariate analysis of survey results is required to better understand how factors such as demographic characteristics, travel behavior, vehicle type owned, and attitudes toward public policy issues influence public opinion on MBUFs. Most existing survey research studies present only descriptive statistics or simple, bivariate analyses that cannot capture the joint influence of multiple factors on public opinion regarding MBUFs.
5. There is a need for a large-sample-size, longitudinal, state or national survey that delves in detail into public opinions about mileage fees. Such a survey would reveal how specific population subgroups (e.g., low-income, minority, rural) perceive MBUFs and would permit thorough exploration of a wide range of topics related to MBUFs. A longitudinal survey would also reveal how public opinion about MBUFs changes in response to changes in the economy, vehicle technology, and transportation funding policy.
6. To help agencies that wish to gather survey data on how the public perceives mileage fees, it would be useful to conduct the research needed to develop a brief guidance

document that offers advice on how to design a survey questionnaire, sampling plan, and data analysis plan.

7. Research is needed to identify an appropriate design and management model for an online resource through which all MBUF public opinion research could be made publicly available. Future researchers would benefit greatly from having a single location where all surveys and qualitative studies on public opinion of MBUFs are located.
8. More pilot programs would provide valuable survey and qualitative research opportunities. The survey research reviewed in this report shows that participating in an MBUF pilot changes participants' opinions; additional pilot studies could confirm whether personal exposure to an MBUF increases support. Thus, additional pilot programs would help policymakers better predict how the public would react if an MBUF were implemented.
9. Additional media story analysis is needed for states that have tested MBUFs, such as Oregon and Minnesota. Culling media stories directly from the archives of relevant local periodicals or websites would result in a more thorough collection of relevant media stories than was possible for this study.
10. There is potential value in analyzing social media commentary about mileage fees. This data source, which could prove useful as a complement to other research methods, has not been used to understand public perception of MBUFs.





## CHAPTER ONE

**INTRODUCTION****STUDY MOTIVATION AND RESEARCH QUESTIONS**

In recent years, the real value of fuel tax revenues has declined significantly as a result of increasing vehicle fuel efficiency, failure to adjust tax rates to keep up with inflation, and fewer miles driven. This decline in the purchasing power of the revenues collected has led to ongoing funding challenges for transportation infrastructure and increased uncertainty about future funding options. The long-term sustainability of motor fuel taxes has come into question in view of increasing fuel efficiency and possible shifts to alternative fuel vehicles. Interest has grown in the potential of replacing the current fuel tax—assessed at the federal level and in many states as a flat fee per gallon—with a new road usage charge assessed on all miles traveled. This method is often referred to as a mileage-based user fee (MBUF), road usage charge (RUC), vehicle miles traveled (VMT) fee, or per-mile tax.

As of 2015, many states are exploring MBUFs as a possible revenue source. Twenty-six states have taken some proactive measure along these lines, whether starting a small-scale program (Oregon), designing a pilot (California), conducting a study, or joining the Western Road-Usage Charge Consortium or Mileage-Based User Fee Alliance (Sloane 2015).

Public agencies and academic organizations have produced a small but growing body of public opinion research about MBUFs, reflecting the growing interest in this promising new revenue source. Several pilot demonstrations of MBUF initiatives at the state and local levels have included surveys and other assessments of the responses of the general public—and of the pilot participants themselves. Academic researchers and public interest groups also have conducted public opinion research on the subject. However, a synthesis study was critically needed because the information on public opinion of MBUFs is scattered and time-consuming to find, and a detailed and comprehensive assessment of the full body of research was lacking. In particular, we need to understand how opinions have varied (or not) according to demographic and other characteristics across multiple surveys.

To help fill the gaps in knowledge about public opinion of MBUFs, this synthesis study was designed to address the following research questions:

1. What research, including surveys and focus groups, has been conducted to identify U.S. public opinion on MBUFs?
2. What is public opinion about mileage fees?
3. How does public opinion vary according to such factors as geography, respondent demographics, time, and common themes, trends, and factors that influence public acceptance or rejection?
4. What additional research is required to address gaps in the current understanding of public opinion regarding MBUFs?

This report is intended to be useful for transportation policymakers and planners who are seriously considering the implications of potential major changes in transportation user fees, given the need to establish sustainable transportation funding programs. The synthesis is also intended to be helpful in developing technological and institutional strategies to appropriately deal with public concerns about a future transition from fuel taxes to MBUFs.

**OVERVIEW OF STUDY METHODS**

To answer the research questions, this report analyzes three sources of information on public opinion about mileage fees: qualitative research studies, such as focus groups; quantitative public opinion surveys; and media stories that cover mileage fees.

To identify and collect both qualitative research studies and quantitative public opinion surveys, Internet-based public opinion poll archive databases were searched, including Rasmussen Reports, SurveyUSA, and PollingReport.com. This work was supplemented by using research-oriented online databases (e.g., Google Scholar, Web of Science, and ScienceDirect.com) and general search engines (e.g., Google Web). Information describing each of these resources can be found in Appendix C. Also, researchers were contacted for additional information if their poll or qualitative study was referenced in the text or references section of another report or article.

An initial list of identified surveys and research studies was distributed to the members and affiliates of TRB's Congestion Pricing Committee and Revenue and Finance Committee in January 2015, with a request that members inform the study team about any surveys or studies that were missing from the list. This request yielded a few items to add to the list.

A set of 12 qualitative studies was identified, mostly conducted using focus groups. These were analyzed to identify participants' opinions about 13 themes. The themes fell into the general categories of concerns related to administering MBUFs, concerns about how MBUFs would affect drivers, and other issues.

A set of 38 surveys was assembled for analysis. For questions on two themes—general support for an MBUF and support for replacing the gas tax with an MBUF—there was a large enough set of questions and response data to prepare simple, descriptive statistics. These survey questions were analyzed according to criteria of two types:

1. Characteristics of the surveys themselves: geographic scope, survey mode, sampling frame, survey sponsor type, year survey was conducted, and how the MBUF question was framed.
2. Characteristics of the survey respondents: gender, age, income, education, race/ethnicity, and political affiliation.

Finally, 359 national media stories from 2010 through 2014 were collected using LexisNexis, ProQuest Newsstand, and Google News online databases. Media stories were coded and evaluated with a content analysis process and descriptive statistics. Themes analyzed included geography, intended audience, tone, and publication type. The stories were also analyzed to determine the prevalence of quotes (by professionals, elected officials, and members of the public) as well as the specific issues discussed (e.g., privacy or fairness).

#### **PUTTING MILEAGE-BASED USER FEE PUBLIC OPINION IN CONTEXT: RESEARCH EVIDENCE ON PUBLIC SUPPORT FOR OTHER TRANSPORTATION TAXES AND FEES**

A fair amount of public opinion research has been conducted about transportation revenue sources other than MBUFs, including gasoline taxes, sales taxes dedicated for transportation, and both flat-rate and congestion-priced tolls. Almost all of this research consists of surveys.

A 2008 NCHRP synthesis study looked at public opinion surveys related to tolling and other forms of road pricing. Zmud and Arce (2008) analyzed the findings from 110

sources, mostly surveys, and concluded with eight summary findings, including that the public prefers tolls to road taxes, wants to see revenues used in specific ways, and tends to become more supportive of the concept of tolling after a tolled facility is introduced into a region.

So far, Agrawal and Nixon (2015) have compiled the most comprehensive collection of public opinion research on gasoline taxes. They compiled data from 108 surveys that asked about support for an increase in the gasoline tax. One key finding was that support is higher than might be predicted if one reads news media reports, which tend to emphasize public dislike of gas taxes. Among the 108 surveys, 17% found majority support for a gas tax increase and a third reported support at 40% or higher. In their own national survey of public opinion about transportation taxes and fees, Agrawal and Nixon found that support increases if respondents are told that the new revenues will be spent for a specific type of transportation program or project (e.g., maintenance, safety improvements, or environmental improvements), rather than saying that the revenues will be spent on transportation in general.

Local and state sales taxes levied to support specific transportation projects or programs have proven to be more acceptable to the public than gas taxes. Agrawal and Nixon (2015) looked at 50 polls assessing support for sales tax increases with revenues dedicated to transportation. They found that about one-third of the polls had majority support for a sales tax with revenue dedicated to transportation purposes. More evidence of the relative favorability of sales tax comes from looking at how local ballot propositions have fared. As of 2014, 18 California counties had approved sales tax increases dedicated to providing transportation revenues (California Department of Transportation, Division of Transportation Planning, Economic Analysis Branch 2014). Most of these sales taxes received super-majority approval.

#### **OVERVIEW OF REPORT CONTENTS**

Chapter two presents a brief overview of public opinion research methods. Chapter three describes the methods, analysis, and findings of qualitative research data on mileage fees. Chapter four presents the same information for public opinion survey research, and chapter five presents this information for the review of media coverage on mileage fees. Chapter six concludes with a summary of key findings and suggestions for future research into public opinion on mileage fees. The report has four appendices. Appendix A presents detailed information about each survey, including the specific text of all MBUF-related questions; Appendix B presents all MBUF survey questions in table format, with the tables organized by question type; Appendix C provides descriptions of the databases used in searching for polls, surveys, focus group studies, and media content; and Appendix D presents the coding scheme used for the media story analysis.

## CHAPTER TWO

## SETTING THE STAGE: OVERVIEW OF PUBLIC OPINION RESEARCH METHODS

This chapter sets the stage for the detailed analysis of MBUF research that follows in later chapters by presenting a very brief explanation of various methods for researching public opinion.

Public opinion research can be categorized into two general approaches: (1) collecting opinions directly from the public and (2) systematic review of primary documents produced externally to any research project. Examples of the former are polls or surveys, interviews, and focus groups. Examples of the latter include systematic collection and analysis of election results, media coverage, social media activity, and letters from constituents.

An important consideration in evaluating public opinion research is to understand the potential biases that may exist in the collected information, as well as the strengths and weaknesses of different approaches. This report analyzes public opinion documented through formal research (particularly surveys and focus groups) as well as public opinion as revealed in media stories. The remainder of this chapter presents a brief overview of key factors to consider in evaluating studies produced using those methods. In addition, the chapter explains the meta-analysis process used to evaluate the complete body of research synthesized in the report.

### PUBLIC OPINION SURVEYS

Most formal assessment of public opinion is collected quantitatively, using surveys. These can be conducted face-to-face, by mail, by telephone, or electronically, and each method has its pros and cons. The survey mode itself—particularly whether it is self-administered or administered by an interviewer—can result in differences in responses, especially for personal or controversial topics (Pew Research Center 2015). For example, many people are less likely to admit to socially unacceptable opinions or behaviors if they are talking to a live interviewer than if they are recording their responses on paper or electronically. Also, individuals talking to a live interviewer are less likely to reveal information they consider personal, such as income (Agrawal et al. 2015).

The ability to generalize survey findings to the full population is often the key advantage of a survey compared with qualitative public opinion research methods. A central challenge for survey research is ensuring that the sample of

individuals surveyed accurately reflects the population of interest. If this challenge is met successfully with a probability sampling method (often achieved with a random sampling design), the survey findings can be assumed with confidence to represent the views of the whole population under study. However, if the sampling design does not collect a representative sample of the population under study, the study findings cannot be assumed to reflect the views of the full population of interest. According to Cook (2011), it is becoming increasingly difficult, even among the top polling firms, to ensure a representative sample and an adequate response rate.

Another key factor to consider when assessing the results of a survey is the specific language used in asking questions. The way a person answers a question can change with even very small changes in the words or grammatical structure used, the question format (e.g., yes/no versus ranking), or even the order in which response options are presented. Thus, it is important to pay careful attention to the exact language used in survey questions in order to understand the precise opinions that respondents are expressing.

### QUALITATIVE RESEARCH

Qualitative methods, which can include focus groups and semi-structured interviews, are other direct research methods often used to learn about public opinion. This study identified primarily focus group studies, an approach in which a moderator poses questions and guides discussion among a small group of participants.

Qualitative methods can be very effective for obtaining a detailed understanding of what peoples' opinions are, as well as nuances about why they hold those opinions. Luntz (1994) notes that in contrast to surveys and other quantitative research, "Focus groups are centrally concerned with *understanding* attitudes rather than *measuring* them." (Although Luntz refers to focus groups specifically, his comment applies to any qualitative method.) Compared with surveys, qualitative research designs can probe more deeply into participants' experiences, perceptions, and feelings; the opinions they hold; and their knowledge of a topic (Patton 2002). However, unlike well-designed survey research, the findings from qualitative studies are not generalizable

to a larger population. For this reason, qualitative research is often conducted before a survey to develop survey topics and questions.

#### **CONTENT ANALYSIS OF MEDIA COVERAGE**

Another source of information that can be used to uncover public opinion on a topic is the media coverage of that issue. Decision makers often look to the media to learn what the public thinks about an issue. Media are also important because of what news the editors choose to cover and how they cover it. Editorial decisions define what issues are important and how those issues are framed (Terkidsen and Schnell 1997). While earlier research on the role of media in influencing public opinion concluded that the media simply reinforced existing public opinion, more recent research suggests that the role is far more nuanced and powerful—

that the media both reflect and shape public opinion (Terkidsen and Schnell 1997). Media content analysis can be either quantitative (i.e., the number of times a topic is addressed) or qualitative (i.e., interpreting the themes and messages in the content) (Macnamara 2011).

#### **SECONDARY ANALYSIS OF EXISTING PUBLIC OPINION RESEARCH**

Another approach used to understand public opinion (see chapters three and four) is meta-analysis. In a meta-analysis, the researcher conducts a comprehensive analysis of studies on a particular topic to identify findings that emerge across multiple studies. A meta-analysis of survey data is quantitative, while a meta-analysis of focus groups or other qualitative research is conducted qualitatively. Both kinds are used in this report.

## CHAPTER THREE

## LEARNING FROM QUALITATIVE PUBLIC OPINION RESEARCH ON MILEAGE-BASED USER FEES

This chapter presents an analysis of 12 qualitative research studies that explored mileage fees with members of the public. The first section describes basic details about the studies, such as the methods used and the geographic locations where they were conducted. The second section presents detailed findings organized into 13 themes. A concluding section summarizes key findings.

As noted in chapter two, qualitative studies are used to generate nuanced understanding about public opinions, including allowing exploration of why individuals hold particular views. Because the sample sizes are small (and often nonrandom), one cannot extrapolate the findings to the full population. It is also unwise to place much emphasis on how many times a particular opinion is expressed in a study. The value of a meta-review of qualitative studies is that it identifies the issues people have raised in connection with MBUFs. This information can then be used to establish hypotheses that can be further explored through more generalizable research methods, such as surveys.

### METHODS FOR FINDING AND ANALYZING QUALITATIVE RESEARCH STUDIES

For this report, many search strategies were used to identify and collect surveys and polls for purposes of analysis. Internet-based public opinion poll archive databases were searched (e.g., Rasmussen Reports, SurveyUSA, and PollingReport.com) as well as research-oriented online databases (e.g., Google Scholar, Web of Science, and ScienceDirect.com) and general search engines (e.g., Google Web). (Additional information regarding these resources is available in Appendix C.) In all the searches, the following key words/phrases (and variations) were used: mileage-based user fee, vehicle miles tax, MBUF, VMT, poll, survey, road usage charge, and public opinion. Finally, individual researchers were contacted for additional information if their poll was referenced in the text or references section of another report or article but not described in detail.

A list of identified surveys and research studies was distributed to the members and affiliates of the TRB's Congestion Pricing Committee, Revenue and Finance Committee, and Mileage-Based User Fee Subcommittee, with a request that members inform the study team about any surveys or

studies that were missing from the list. This request yielded a few items to add to the list.

For each of the 12 qualitative studies identified, the researchers were contacted to collect additional information not available in published documents (e.g., interview guides) if they were willing to share such information. Once the complete set of qualitative studies had been collected, the study team used a combination of deductive and inductive methods to select important themes, and the reports on each study were coded to identify all observations related to each theme. The deductive process involved choosing themes that the team anticipated would be important (e.g., privacy concerns), while the inductive approach involved reading the study reports several times to identify issues that arose across multiple studies.

The findings are analyzed and reported for all qualitative research participants as a whole, because there were too few examples of any specific subgroup (e.g., rural residents or low-income residents) to draw meaningful conclusions across subsets of participants.

### DESCRIPTION OF QUALITATIVE STUDIES IDENTIFIED FOR ANALYSIS

Twelve qualitative studies were identified that explored perceptions about mileage fees. Table 1 presents summary information about the sponsorship, time frame, geography, and methods used in each study. Nine studies were sponsored by government agencies, two were academic research studies, and one was sponsored by a nonprofit think tank. Data for more than half the studies have been collected since 2009 or even more recently, although the oldest study's focus groups were conducted in 1995.

Nine of the studies drew their participants from a single state, while three looked regionally. All four U.S. Census regions are represented, though only one study looked at the Northeast. Minnesota, Texas, and Oregon each had two or three studies; California, Wisconsin, Colorado, Massachusetts, and the District of Columbia each had one.

In terms of methodology, the studies were all focus groups, except for one set of interviews and one deliberative

TABLE 1  
SUMMARY OF QUALITATIVE RESEARCH STUDIES

Study Sponsor or Funder/ (and author, if different)	Publication Year	Sponsor Type	Year Data Collected	Method	Geography	Census Region	Sampling Frame	Number of Participants
Minnesota DOT, Metropolitan Council, and FHWA (Strgar et al.)	1995	Government	1995	Focus groups	State—MN	Midwest	Adults	Unknown (13 groups)
Oregon DOT (Whitty and Imholt)	2005	Government	2004	Focus groups	State—OR	West	Adults	20 (1 group)
Minnesota DOT (Dieringer Research Group)	2007	Government	2007	Focus groups	State—MN	Midwest	Adults	84 (10 groups)
Minnesota DOT (Dieringer Research Group)	2008	Government	2008	Focus groups	State—MN	Midwest	Adults	60 (9 groups)
University Transportation Center for Mobility (Baker, et al.)	2008	Academic	2008	Focus groups	Region—Northeast TX	South	Adults	14 (2 groups)
Mineta Transportation Institute (Agrawal et al.)	2011	Academic	2009	Interviews	Local—San Jose, CA	West	Low-income adults	73
Texas DOT (Baker and Goodin)	2011	Government	2010	Focus groups	State—TX	South	Adults	47 (5 groups)
Wisconsin DOT (Nelson and Petchenik)	2012	Government	2012	Focus groups	State—WI	Midwest	Licensed drivers 18+	26 (4 groups)
Oregon DOT (DMH Research)	2013	Government	2013	Focus groups	State—OR	West	Registered voters	45 (6 groups)
Colorado DOT (Ungemah et al.)	2013	Government	2013	Focus groups	State—CO	West	Adults	28 (3 groups)
National Capital Region Transportation Planning Board (Swanson and Hampton)	2013	Government	2011 and 2012	Deliberative forums	Local—Washington, DC	South	Adults	310 (5 forums)
MassINC (Koczeła and Parr)	2014	Think-tank	2012	Focus groups	State—MA	Northeast	Registered voters	90* (9 groups)

\*Estimate.

forum process (a series of half-day events in which participants listened to presentations, took part in group conversations, and answered survey questions). Most of the studies recruited adult participants, though two selected registered voters, one selected licensed drivers, and the interview study worked specifically with low-income adults. Typical of qualitative research, the sample sizes were small, with fewer than 100 participants in all studies except for the deliberative forum project, which included 310 participants.

The studies recorded participant views at different levels of detail. Many studies made and analyzed verbatim transcripts, while some relied on less systematic methods, such as recording key discussion points on flip charts during the focus groups. A few of the studies also had respondents complete surveys or written exercises, and these materials were collected for analysis.

The objectives of the studies varied. More than half were focused primarily on eliciting opinions about mileage fees alone. The rest looked at mileage fees in combination with other topics: public knowledge about transportation funding; preferences among various transportation revenue options; public opinion on road pricing in general, with mileage fees as one option alongside others, such as tolling; public opinion on a variety of options to reduce congestion; and ques-

tions about how transportation costs affect travel choices for low-income people.

The way mileage fees were presented to respondents varied. Ten of the 12 studies presented a mileage fee as a theoretical possibility, one sought public opinion about the design of an Oregon pilot project, and the last presented mileage fees for alternative-fuel vehicles as proposed state legislation in Oregon. Along another dimension, seven studies gave a single description of how a mileage fee might work, while the others presented two or three scenarios that might be used for the technology and administrative processes, usually to identify participants' preferred approach.

Two of the 12 studies discussed mileage fees only briefly. The focus groups conducted by MassInc (2015) were summarized in just a sentence, and the interview project by Agrawal et al. (2011) touched only peripherally on mileage fees, so the discussion in the report is only a page.

Many of the studies (e.g., Baker and Goodin 2011) combined focus groups with members of the general public with interviews or other types of interactions with stakeholder representatives. This report analyzes only the results of studies focused on the general public.

Only one study provided a review of previous qualitative research on mileage-based fees. Baker et al. (2008) reviewed four earlier studies that probed perceptions of mileage fees.

## FINDINGS BY THEME

The qualitative study reports were analyzed according to 13 themes. Some themes, such as equity and privacy, were selected deductively: researchers and transportation agency staff know that the public worries about these issues. Other themes were selected inductively because they appeared in multiple studies, suggesting that many people may share these opinions.

TABLE 2  
THEMES RELATED TO MBUFs, BY QUALITATIVE RESEARCH STUDY

Theme (and number of studies discussing it)	MN DOT, et al. (Strgar-Rosco-Faush et al.) 1995	OR DOT (Whitty and Imholt) 2005	MN DOT (Dieringer Research Group) 2007	MN DOT (Dieringer Research Group) 2008	University Trans'n Center for Mobility (Baker et al.) 2008	Mineta Trans'n Institute (Agrawal et al.) 2011	Texas DOT (Baker and Goodin) 2011	WI DOT (Nelson and Petchenik) 2012	OR DOT (DMH Research) 2013	CO DOT (Ungemah et al.) 2013	Nat'nal Capital Region Trans'n Planning Board (Swanson and Hampton) 2013	MassInc (Koczela and Parr) 2014
<i>Concerns about administering MBUFs</i>												
Technology and administrative problems (8)	√	√	√	√			√		√	√	√	
Fraud (8)	√	√	√		√		√	√		√		√
High administration costs (8)	√		√	√	√		√	√		√		√
Charging the MBUF on out-of-state miles (5)	√			√				√	√	√		
Out-of-state vehicles won't pay their share (4)	√						√			√		√
<i>Concerns about how MBUFs impact drivers</i>												
MBUFs invade privacy (11)		√	√	√	√	√	√	√	√	√	√	√
MBUFs are unfair (9)	√	√	√	√	√		√		√	√		√
MBUFs eliminate the incentives/rewards for purchasing fuel-efficient vehicles (6)	√	√	√	√			√		√			
Lump-sum MBUF payments are a hardship (5)					√		√	√	√			√
<i>Other</i>												
Benefit: Efficient vehicles pay their share (3)							√		√	√		
Views on MBUF with congestion-pricing (4)		√	√	√								√
Want simplicity/dislike complexity (7)	√		√	√	√		√			√		√
Prefer to raise gas tax instead (8)	√		√		√		√	√	√		√	√

Table 2 lists the themes and shows which ones were addressed in each study. The set of themes has been grouped into the following broad categories:

- Concerns about administering MBUFs
- Concerns about how MBUFs will affect drivers
- Other issues.

### Concerns About Administering MBUFs

In virtually every study, people worried that an MBUF system would be impractical to administer. Swanson and Hampton (2013) summed up the general sentiments expressed across all the studies:



Many felt that implementation would be costly and bureaucratic—a “nightmare,” according to one participant. And many felt that enforcement would be impossible. . . . The scenario seemed fraught with opportunities for evasion, fraud and poor implementation. (p. 45)

### *Technology and Administrative Problems*

A central concern was that a system as complex as an MBUF could not accurately collect the fees and that people would therefore be charged incorrectly. The following quote sums up the general sense of unease about an MBUF system’s ability to work correctly, comparing the collection of an MBUF with the process for collecting gas taxes:

The thing I don’t like is, say you’re filling up your car. You can see how many gallons you’re putting in and you can see if the tax rate is being billed correctly on the thing. But if you’re being sent a bill at the end of the month, it’s like this unknown. It’s like, how many miles did you really drive and are you going to keep track of that to make sure you can match the two up? I mean how do you put your head around how many miles you’re actually driving a month and are they actually recording it right. (Dieringer Research Group 2008, p. 37)

The cause of the mischarging was occasionally expressed as a result of government administrative incompetence, but many respondents worried about the technology itself. A number of respondents explained their distrust in the technology by referencing other government or private sector systems that did not perform as expected. For example, the authors of the earliest study explained,

Many people expressed concern that the computer systems required to run the system would not be glitch-free and would cause headaches for the motorist. Several examples of large computer systems failing to live up to expectations were cited, including the Mn/DOT drivers license system, the Minneapolis water billing system, and the Ramsey County Department of Social Services. (Strgar-Rosco-Faush, Inc. et al. 1995, p. 12)

In a more recent study, the failures of GPS technology were used to illustrate the fear that an MBUF system would not perform properly: “A participant in the Brush focus group stated that the GPS device he currently uses got him lost on the way to the focus group session” (Ungemah et al. 2013, pp. 84–85).

Despite the many concerns expressed, an occasional respondent had faith in the technology. Baker and Goodin (2011) noted that one participant commented that the information being gathered is already collected to some extent by cellular operators and used in commercial navigation devices. “It seems like this could be handled by private information providers like AT&T” (p. 45).

### *Fraud*

A second primary concern related to administration was fraud—that drivers would evade payment. This issue came up in

the same number of studies as the technology concerns, but the discussion of fraud tended to be longer and more detailed. People believed that drivers would find ways to tamper with odometers or other onboard mileage-tracking devices. One respondent described an MBUF system as a “hacker’s dream” (Baker et al. 2008, p. 42). Another, reflecting on an odometer-based scheme, asked, “[H]ow many people are going to try to turn back their odometer?” (Nelson and Petchenik 2012, p. 48). Yet another respondent noted, “There are websites devoted to cracking/hacking anything” (Dieringer Research Group 2007, p. 37).

### *Administration Costs*

Many people expressed concerns about how much an MBUF program would cost to implement, for both government and drivers. Specific costs mentioned included government employees (salary and benefits), installing and maintaining onboard equipment, the technology and infrastructure used to collect data from drivers and manage the system, and the billing system.

Many of these cost concerns came up in the context of comparing MBUF and gas tax collection costs, and people simply did not see the need for the more expensive system. As one participant put it,

Because if we start doing this, we start employing a bunch of new people, private companies, government, etc. You still have to pay their retirement, their health insurance, so how much is that really going to cost you? Just jack it up at the pump is the way I see it. (Dieringer Research Group 2007, p. 24)

### *Concern About Drivers Paying for Out-of-State Travel*

In five of the studies, participants discussed the fact that they were worried about being charged for out-of-state miles they might travel. Although this theme did not come up in the majority of studies, the authors of the DHM Research study in Oregon pointed out that although participants did not volunteer concern about this issue, “once brought up in discussion, it was desirable to many and mattered a lot to some people” (DHM Research 2013, p. 14).

Although the various studies all proposed an MBUF as a statewide or regional initiative, one respondent saw the potential for added complications if the system were replicated on a larger scale, asking, “How would it handle multi-state travel? If I go on a trip, and I’m going to the West Coast, and you’re keeping track of every road I’m on, am I going to get a bill from every state? Or is this going to be a national system?” (Dieringer Research Group 2008, p. 34).

### *Concern About How to Charge Out-of-State Vehicles*

Contrary to concerns about unfairly charging a state MBUF for miles driven outside the state, in four studies, partici-

pants voiced a concern that out-of-state drivers would escape paying the fee. In a study focused on Colorado, a state with a major tourist industry, the authors said,

A final criticism that was levied against the GPS-based system in all three sessions was that the system would not capture revenue from drivers from outside Colorado. Participants did not believe that it was fair for Colorado drivers to solely bear the burden for infrastructure development, particularly given the state's popularity among tourists. (Ungemah et al. 2013, p. 85)

### Concerns About How MBUFs Affect Drivers

#### *MBUFs Invade Privacy*

The theme of privacy was discussed in virtually all the studies, and a number of the summary reports highlighted privacy concerns as one of the participants' key objections to MBUFs. MBUF schemes that relied solely on an odometer check did not generate undue concern, but MBUF systems described as using any technology that collected data on the location or time of travel alarmed many participants, even if they were explicitly told that drivers' travel details would not be transmitted off their own vehicles.

People worried about being "tracked," and many studies quoted participants using the term "Big Brother." One fear was that the government or firm collecting the mileage would use the location data, even if they were not supposed to. Specific fears were that the police would use the travel data or that the information would be sold if a private firm was used to administer the MBUF. Some people worried that the data would not be secured and could be stolen. Others talked about a "slippery slope" scenario in which the government would initially promise not to track vehicles but would later change the policy to permit tracking. One person explained these concerns as follows:

They will try to make it anonymous, but it won't be. You start to set the precedent on tracking your car. The next thing you know, your insurance company says if you want insurance we are going to add that device, and now we're going to start tracking other aspects of you. I think it feels too Big Brother-ly. (Dieringer Research Group 2007, p. 39)

And another person said,

Vehicle miles traveled: it's more Big Brother. The cable boxes now know what channels you're watching and when you're watching. You call them and they're, "I see you're watching channel 5 now." Ridiculous. (Nelson and Petchenik 2012, p. 47)

All this said, a few participants were explicitly unconcerned about the privacy issue when it came up in the discussions. For example, Baker and Goodin (2011, p. 44) quoted one participant who said, "Privacy is not an issue. We have

credit cards and use the Internet." and another, an OnStar user, who pointed out, "My car already tracks me."

#### *MBUFs Are Unfair*

The question of fairness, which appeared in most of the studies, threaded through the conversations about many other themes discussed here. Most of the discussions reflected on fairness by comparing these fees with the gas tax. Although a majority of people thought the MBUF was less fair than gas taxes, the opinion was not at all unanimous. Also, several study authors in their analysis concluded that fairness was a secondary concern for participants rather than a primary one. Swanson and Hampton (2013) concluded, "Participants said that fairness mattered, but it does not appear these concerns were pivotal in determining levels of support for different congestion pricing scenarios" (p. 8).

People who were concerned about fairness discussed the issue primarily in terms of different classes of vehicles and drivers: Would the switch from gas taxes to MBUFs be more or less fair for particular groups? The most common of these concerns centered on the relative cost impacts for different vehicle types. People worried that switching from a gas tax to a flat-rate MBUF would be unfair to people who drove more fuel-efficient vehicles, because they would pay comparatively more in MBUFs and those who drove less fuel-efficient vehicles would pay comparatively less.

Similar concerns were expressed about the fact that the fee would be the same for lighter and heavier vehicles, even though people believed that lighter vehicles caused less road damage. In studies that discussed the option of an MBUF scheme that charged different rates for different vehicle types, people responded positively, saying that such a scheme was fairer. One participant said this about a variable-rate MBUF:

I love the idea . . . It is very user-based, with those utilizing the highways to a greater extent paying a greater amount. Also, with the size or weight of the vehicle being factored in, these vehicles that cause more destruction to highways are paying for it. (Dieringer Research Group 2007, p. 36)

Concerns about different vehicle types were not the only fairness issues discussed. One person worried that drivers would unfairly evade the tax just as many people evade vehicle inspection and registration requirements. Also, a couple people worried that the scheme might raise costs for personal travel and lower costs for business travel, to the benefit of businesses. Other studies reported some concern expressed about whether the shift to MBUFs would be unfair to rural drivers compared with urban ones, or to low-income drivers, or to people who drive long distances for work, such as truckers. In considering the fairness concerns expressed about how an MBUF would affect people who drive long dis-

tances, Baker and Goodin (2011, p. 39) point out that people might not fully understand that drivers are already paying a fuel tax that falls more heavily on people who drive long distances and is regressive in the same way as an MBUF.

The studies that presented a congestion-priced version of an MBUF elicited additional discussion about fairness. Some people worried that drivers who could not change their schedules to avoid the peak hours would end up paying an unreasonably high amount.

Finally, it is important to note that although fairness concerns about MBUFs were prominent in the research, they were not universal. Some study participants believed that MBUFs did not raise fairness concerns, while others believed that the MBUF was fair because everyone who uses the system would be paying, including those driving vehicles that currently pay no or very little fuel tax. One participant stated that the MBUF system was fair enough, given that no system is perfectly fair to everyone: “If I drive, I should pay. We can’t say that everything we have is fair or equitable, we’re just used to it to some degree” (Fichtner and Riggleman 2008, p. 37). Ungemah et al. noted that participants in one of their focus groups believed that an MBUF would actually be fairer than the current system (p. 81).

#### *MBUFs Eliminate the Incentives/Rewards for Purchasing Fuel-Efficient Vehicles*

For many participants, a clear benefit of switching from a gas tax to an MBUF was the fact that drivers of every vehicle would contribute to road costs, including drivers of electric and fuel-efficient vehicles. However, even more commonly expressed was a concern that switching to an MBUF would remove an important financial reward for drivers who have chosen an efficient vehicle, whether electric, hybrid, or simply an internal-combustion vehicle with good fuel efficiency. Strgar-Rosco-Faush, Inc. et al., the authors of the earliest study, summed up the issue as follows:

All of the focus groups discussed the inequity of the gas tax related to fuel efficiency. But everyone who commented on this felt it was a good thing to reward those who choose more fuel-efficient vehicles. The mileage-based tax was seen as a “step backward” in the government’s stated policy of promoting fuel efficiency. (1995, p. 13)

The authors of a recent study (DHM Research 2013) noted that this issue raised emotions among participants. They illustrated the point with the following quote:

“This penalizes vehicle owners who have reduced fuel consumption because of their values or desire to economize,” said a Roseburg woman. “People who choose to drive low-fuel-mileage vehicles are free to do so, but they should pay accordingly. They not only waste fuel but contribute much more air pollution.” (p. 11)

#### *Lump-Sum Payments Are a Hardship*

In five studies, participants expressed concern about paying infrequent but large MBUF bills rather than the gas tax, which is charged in small, frequent increments at the time of gas purchase. Participants believed that many people would find it challenging to budget for larger, less-frequent payments. As Swanson and Hampton (2013) described the issue, participants “were concerned about the burden of ‘another unknown bill at the end of the month.’ It seemed to represent one more hassle in lives that are already too difficult” (p. 45).

This theme often came up in the context of discussing various MBUF administrative structures, comparing pay-at-the-pump options and other variations with a billing structure. One participant explained, “The thing is that everybody in this country is a bad saver of money” and expressed a preference for an MBUF system designed so that “at the end of the year all of a sudden we don’t get this huge bill and we don’t have the money to pay it” (DHM Research 2013, p. 14). Several other people agreed that they would prefer frequent billing to annual billing, or even a pay-at-the-pump option. One explained, “I would rather pay the fee at the gas pump because individuals who are not budgeting can’t afford this. The way it is now, you drive whenever you can afford to” (Baker and Goodin 2011, p. 46).

#### **Other Issues**

##### *One Perceived MBUF Benefit: Electric and High-Mileage Vehicles Pay Their Share of Road Costs*

Although many participants disliked the idea that fuel-efficient vehicles would pay more under an MBUF system than with the gas tax, this same point was also the one and only benefit that some participants saw in mileage fees. The discussion relates to the fairness issue, but because it is the single benefit mentioned by people across different studies, it is important to highlight the finding separately from the fairness discussion.

A subset of the research participants believed it would be appropriate—or fair—to collect revenue from all drivers, including those who drive fuel-efficient vehicles. This point was raised in three studies. Baker and Goodin (2011) explained that their focus groups contained a good number of participants who—

. . . believed all cars should pay for use of the roadway network (outside of fixed fees such as registration fees), stating:

- “But they are using our roads. They should pay what we are paying.”
- “Every car puts wear and tear on the road, and they [electric vehicles] should be paying for roads somehow.”

(p. 38)

Similarly, the DHM study authors concluded,

Support for a fee on miles came from those who understood the impact on roads and transportation revenue of high-mileage vehicles and wanted to correct for it. “It helps everyone pay their fair share,” said a Roseburg participant. A Bend resident said, “If you have an all-electric vehicle right now, you’re not paying a gas tax. You’re driving on the roads, and maybe you have studs, or maybe you’re just driving a lot on the roads. You’re creating wear and tear, and you’re not funding that through a gas tax.” (DHM Research 2013, p. 11)

#### *Views Related to Mileage Fees with a Congestion Pricing Component*

In four of the studies, respondents discussed an MBUF concept that included congestion pricing. In all cases the authors concluded that this was an unpopular MBUF option, at least for most participants. The issue discussed at most length (and in every study) was the belief that congestion pricing is unfair to people whose jobs require them to commute during peak hours. As one respondent put it,

I think the congestion part of it would be grossly unfair. A lot of people have to go to and from work at the same time every day, so they have to drive during congested hours. People who are tied into a job and forced to drive during rush hours—I think it would unfairly cut against them. (Dieringer 2008, p. 36)

#### *Desire for Simplicity, Dislike of Complexity*

More than half the study authors concluded that their participants preferred simplicity and disliked complexity with respect to road-use charges. Reasons for preferring simplicity varied. One point raised numerous times was that a more complex administrative system would be more expensive to operate. Other people stressed that they wanted a system that drivers themselves would find simple to understand. Swanson and Hampton (2013) explained this view in their discussion of how people reacted to a GPS-based MBUF system:

Visualizing the scenario seemed to make some participants feel weary and overwhelmed. Personal trip planning would be difficult (“You can’t research the price of every road before you drive it”) and . . . [people wanted to] reduce the hassle of paying attention to additional costs. (p. 45)

#### *Prefer Increasing the Gas Tax to Implementing an MBUF*

Woven throughout the discussions of most of the themes was a recurring preference for raising the gas tax instead of implementing an MBUF. Not only did many participants feel that the gas tax still performed adequately but they believed that it avoided many disadvantages of an MBUF, from high administrative costs to privacy concerns to charging hard-to-pay lump sum amounts to preserving a cost savings for drivers of fuel-efficient vehicles. The gas tax felt simple

compared with the complexity of even the most straightforward MBUF system.

The view that there was simply no significant benefit to swapping out the gas tax for an MBUF held true even in the many studies in which participants were explicitly educated about the falling productivity of gas tax revenues as a result of inflation and the growing number of high-mileage and electric vehicles paying little or no gas tax. Baker and Goodin (2011), whose study included such an educational component, commented,

While participants saw potential value in the system in terms of halting the decline in the fuel tax’s purchasing power, many simply felt that such a system was unnecessary. As one participant stated, “You’re reinventing the wheel. Why introduce a huge bureaucratic element to this?” (p. 41)

Other reasons that one or more studies found people prefer the gas tax are—

- They prefer a simple system.
- They prefer a familiar system (Baker et al. 2008, p. 43).
- The gas tax is “invisible” to people, which makes it less objectionable than a very visible MBUF (DHM Research 2013, p. 5).
- People do not believe gas prices will go down if the gas tax is removed (Swanson and Hampton 2013, p. 45).

#### **INTERPRETING THE FINDINGS IN CONTEXT: RESPONDENTS DO NOT UNDERSTAND CURRENT SOURCES OF TRANSPORTATION REVENUE**

In considering these discussions, it is important to take into account a contextual factor raised by the authors of most of the studies: most people know virtually nothing about the current system of transportation finance. In three-quarters of the studies, the researchers explored whether or not respondents knew anything about current sources of transportation revenues or the factors that have led to falling gas tax revenues. Across the studies, the researchers found that most respondents had almost no knowledge of the subject. People believed that they paid far more in transportation-related taxes than they actually do, and they were unaware of even the basic details of the gas tax, such as the actual per-gallon state or federal tax rates they paid or how much they might pay per year in fuel taxes.

One result of this lack of understanding about the gas tax is that MBUFs felt like a “new” or additional fee to respondents, even though they might not necessarily pay more under an MBUF scheme than they do under their current state gas tax. As one respondent explained, “The gas tax really, to your daily driver, is invisible. You go to the gas pump. It’s there. It is completely invisible, so in a way,

we don't feel like we are paying a tax" (DHM Research 2013, p. 10).

In only one study (Swanson and Hampton 2013) did the researchers test public opinion both before and after educating respondents about the current gas tax rate and the reasons for declining transportation revenues. This study, which reported on a series of lengthy deliberative forums that included presentations and facilitated small-group discussions, found that opposition to an MBUF grew over the course of the forums, while support for raising the gas tax rate rose.

### SUMMARY OF KEY FINDINGS

This chapter analyzed 12 qualitative studies that explored perceptions about mileage fees, 10 of which investigated the topic in great detail. Nine studies were sponsored by government agencies, two were academic research studies, and one was sponsored by a nonprofit think tank. Data for more than half the studies were collected fairly recently, since 2009, although the oldest study's focus groups were conducted in 1995. Looking geographically, nine of the studies drew their participants from across a single state, while three looked regionally. All four U.S. Census regions are represented. In terms of methodology, the studies were all focus groups, except for one set of interviews and one deliberative forum process. Typical of qualitative research, the sample sizes were usually small.

The objectives of the studies varied somewhat. More than half focused primarily on eliciting opinions about MBUFs alone, while the others looked at MBUFs in combination with other topics related to transportation taxes and fees. MBUFs were presented to respondents in various ways. Ten of the 12 studies presented an MBUF as a theoretical possibility, one sought public opinion about the design of an Oregon pilot project, and one presented mileage fees for alternative-fuel vehicles as proposed state legislation in Oregon. More than half of the studies offered a single description of how an MBUF might work, while the others presented two or three scenarios for the technology and administrative processes that would be used, usually to identify participants' preferred approach.

Analytic review of the qualitative studies revealed 13 key themes that appear across multiple studies. These themes fall into three categories: (1) concerns about administering MBUFs, (2) concerns about how MBUFs affect drivers, and (3) other issues. The thematic analysis discusses all the studies as a whole. Because of the very small number of studies, it was not meaningful to compare findings for studies of different types (e.g., studies designed to test relative preference

for different MBUF designs versus studies that asked about only one type of MBUF).

Concerns about administering MBUFs were widespread and most commonly centered on distrust of either the technology to be used or the ability of government to administer an MBUF program; both factors were seen as likely to create billing errors. Another central focus of the discussions was a presumption that administering an MBUF program would be very expensive for government and for drivers (if the latter had to install and maintain on-vehicle equipment). Somewhat less frequently, people brought up the issues of charging a state MBUF on out-of-state miles and charging out-of-state drivers for their travel in the MBUF state.

Four primary concerns arose about how MBUFs would affect drivers. The issue of privacy came up in virtually every study, and study authors often commented that this was one of the biggest concerns. Again and again in these discussions, participants referred to "Big Brother" or "tracking." Fairness issues arose almost as often as privacy concerns, although some study authors suggested that these were less pressing. Fairness was discussed in various ways, including the likelihood that some people would evade the MBUF and the fact that an MBUF would charge the same rate to drivers of fuel-efficient and fuel-inefficient vehicles. A third, related concern was that replacing the gas tax with an MBUF would cause the government to lose a policy tool that incentivizes people to purchase fuel-efficient vehicles. Finally, participants worried that drivers would have a hard time paying periodic MBUF charges, compared with the relative ease of paying the gas tax in smaller, frequent increments.

A handful of other themes popped up frequently as well. One was the sole perceived benefit to MBUFs that was mentioned several times: the belief that it would be fair to charge electric vehicles and fuel-efficient vehicles for their road use. Several studies explored MBUFs with a congestion pricing component, and participants objected on the grounds that these would be unfair to people who could not adjust their work hours to avoid rush hour. Two other related themes were that respondents wanted a simple road-charging system rather than a complex one and that they saw no compelling reason to replace the gas tax with an MBUF. In fact, throughout the discussion of virtually every theme, participants compared MBUFs with gas taxes and found the latter generally more appealing.

Finally, the authors of most of the studies emphasized that when people responded to the MBUF concept, many did so without any clear understanding of the current structure of fuel taxes used to raise transportation revenues. Most study participants did not have any idea what fuel tax rates were or how much people pay per year in fuel taxes.

## CHAPTER FOUR

## LEARNING FROM PUBLIC OPINION SURVEY RESEARCH ON MILEAGE-BASED USER FEES

This chapter presents the findings from a meta-analysis of 38 public opinion surveys that, collectively, included 167 unique questions about mileage-based user fees. The first section describes the methods used for finding and analyzing the polls; the following section describes the characteristics of the polls and the main categories of questions focused on MBUFs. Next, an analysis of general support for MBUFs is presented, including a discussion of how support varies by respondents' demographic and socioeconomic characteristics. Support for questions that focus on replacing the gas tax with an MBUF is analyzed, followed by analyses of questions asking about privacy and fairness related to MBUFs and a brief mention of MBUF-focused questions framed around other topics. The chapter concludes with a summary of key findings.

### METHODS FOR FINDING AND ANALYZING SURVEY RESEARCH

#### Identifying and Obtaining Surveys for Analysis

Many search strategies were used to identify and collect relevant surveys and polls. Internet-based public opinion poll archive databases were searched (e.g., Rasmussen Reports, SurveyUSA, and PollingReport.com) as well as research-oriented online databases (e.g., Google Scholar, Web of Science, and ScienceDirect) and the general search engine Google Web. (Additional information regarding these resources is available in Appendix C.) In all the searches, the following key words and phrases (and variations) were used: mileage-based user fee, vehicle miles tax, MBUF, VMT, poll, survey, road usage charge, and public opinion. Finally, individual researchers were contacted for additional information if their poll was referenced in the text or references section of another report or article.

A list of identified surveys was distributed to the members and affiliates of TRB's Congestion Pricing Committee, Revenue and Finance Committee, and Mileage-Based User Fee Subcommittee, with a request that members inform the study team about any additional surveys or polls that were missing from the list. This request yielded a few items to add to the list.

These search methods produced a total of 38 public opinion polls that included 167 questions on mileage-based user fees.

For each survey identified, the researchers were contacted to request additional information not available in published documents, including crosstabs, data sets, and survey questionnaires. Many authors were willing to share additional information beyond what they had formally published.

#### Determining Analysis Criteria

For the quantitative meta-analysis of survey findings, numerous criteria hypothesized to be relevant for understanding public opinion about MBUFs were reviewed. This larger list was narrowed down to those variables for which data existed in enough of the surveys to permit meaningful analysis. The criteria ultimately selected for analysis fall into two categories:

1. Characteristics of the surveys themselves: geographic scope, survey mode, sampling frame, survey sponsor type, year survey was conducted, and how the MBUF question was framed.
2. Characteristics of the survey respondents: gender, age, income, education, race/ethnicity, and political affiliation.

#### Compiling Data Sets for Analysis

Three primary challenges arose in compiling the data sets for the meta-analysis. First, the surveys framed questions about MBUFs very differently. Second, the structure and availability of the survey data were inconsistent. Third, the surveys did not provide consistent data about respondent characteristics, and many surveys did not provide this information in any usable form at all.

The first challenge was that questions about MBUFs were phrased very differently across the surveys. Only two categories of questions were identified that were asked with similar enough wording to make a quantitative analysis of the responses feasible: questions asking very generally about support for an MBUF and questions asking about support for *replacing* the gas tax with an MBUF. Questions related to privacy and fairness were separated out, but they were framed so differently in different surveys that a quantitative analysis of the responses would be meaningless. (For example, one question might ask whether privacy was a concern,

while another question asked how privacy ranked compared with other potential MBUF concerns.) Finally, a large set of questions on other topics was compiled into a table to create a database of question-wording ideas, but they were not analyzed because the topics were so different.

The second challenge was that the structure and availability of the survey data were inconsistent. In some cases the survey authors generously shared a complete raw data set, allowing us to analyze the response data by subgroups of respondents (e.g., men versus women) and to recode variables as necessary for comparison across surveys. However, in most cases the data were available only in the form of topline frequencies or a summary document with a few key statistics from the poll. In the latter cases, it was often impossible to perform analysis according to a respondent characteristic of interest, even if the survey included a question asking about that characteristic. For example, if a survey asked about household income but did not report the results by those categories and no data set was provided, the study findings could not be analyzed by income group.

A third challenge was that surveys used very different methods to collect demographic and socioeconomic information about respondents. Some surveys collected a wide range of information, while others collected only a few pieces of such information or none at all. In addition, the response options provided were not consistent across surveys, so it was often impossible to identify a common set of responses for analysis. For example, many surveys asked people what age category they fell into, but the categories varied among surveys. As Table 3 shows, only 20 surveys at most provided the data required to analyze responses by particular sociodemographic characteristics; in most cases, far fewer surveys provided the needed data.

Because of the limited number of surveys providing data by subgroups, it was not possible to test whether certain survey or respondent characteristics are statistically significantly correlated with support levels. Several statistical approaches were considered, including the test of two proportions (comparing each group to a base case for that category) and the multivariate test of means. However, given the small sample size and relatively small differences in mean support across categories, none of the statistical tests considered would provide reliable results. Thus, while the findings presented here can be considered potentially significant patterns, more surveys on MBUFs will be necessary to confirm that the findings are statistically valid.

#### DESCRIPTION OF MILEAGE-BASED USER FEE PUBLIC OPINION POLLS AND QUESTIONS ANALYZED

A total of 38 unique public opinion polls were identified that included questions on MBUFs. The polls were pub-

TABLE 3  
SUMMARY OF NUMBERS OF SURVEYS WITH COMPLETE DATA ON RESPONDENT SUPPORT, BY DEMOGRAPHIC VARIABLE

Variable	Variable Subgroups <sup>a</sup>	Number of Surveys with Complete Data
Gender	Female	20
	Male	20
Age	Young (18–24 years; 18–29 years; 18–34 years)	20
	Middle (25–54 years; 30–49 years; 30–59 years; 35–54 years)	17
	Older (50+ years; 55+ years; 60+ years)	17
Race/Ethnicity	White	16
	Black	14
	Asian	8
	Hispanic	10
	Other	9
Income	Lower (<\$40K annually; <\$50K annually)	15
	Middle (\$40–100K annually; \$50–100K annually)	15
	Higher (\$100K+ annually, \$110K+ annually)	18
Education	High school or less	12
	More than high school	11
Political affiliation <sup>b</sup>	Democrat/Liberal	13
	Republican/Conservative	13
	Independent/Moderate/Other/ Decline to State	13

<sup>a</sup> Text in parentheses indicates different ranges that were grouped together to form a single subgroup. Efforts were made to create subgroups that were as consistent as possible across surveys in order to increase the sample size while still maintaining data integrity.

<sup>b</sup> Political affiliation was most often presented in the following subgroups: Democrats, Republicans, Independents, and Decline to State. In addition, some surveys used groupings as follows: (1) Democrat, Republican, and Independent; (2) Democrat, Republican, and Other, including Independent; (3) Democrat, Republican, and Other; and (4) Liberal, Conservative, and Moderate.

lished from 1995 to 2015. Table 4 provides an overview of the polls based on geography, survey mode, sampling base, and type of poll sponsor. Nearly half of the polls have a national focus, while approximately a third focus on the state level. Among the non-national polls, the most frequently surveyed region of the country is the West. A detailed summary of all 38 polls is available in Table A1 in

TABLE 4  
CHARACTERISTICS OF THE PUBLIC OPINION SURVEYS  
ANALYZED

Category	Number of Surveys <sup>a</sup>
<b>Geographic focus</b>	
Local	3
National	18
Regional	2
State	15
<b>Census region<sup>b</sup></b>	
Midwest	4
Northeast	1
South	5
West	9
Midwest/West <sup>c</sup>	1
<b>Survey mode</b>	
In-person	1
Mail	1
Multiple modes	4
Online	10
Phone	22
<b>Sampling frame</b>	
Adults	28
Registered voters	8
MBUF pilot program participants	2
<b>Sponsor type</b>	
Academic	11
Government agency	14
Industry trade group/firm	3
News organization	2
Polling firm	4
Other (philanthropy, political organization, or think tank)	3
<b>Year data collected<sup>d</sup></b>	
1995	1
2006	1
2008	1
2009	3
2010	4
2011	7
2012 <sup>e</sup>	6
2013	4
2014	6
2015	1

*Note:* Total number of surveys = 38. The poll is still live, but based on reader comments, the vast majority of respondents seem to have participated in 2012. Therefore, this study treats the poll data as coming from 2012.

<sup>a</sup> Numbers within each category may not sum to 100% due to rounding.

<sup>b</sup> For the 20 non-national polls.

<sup>c</sup> One regional poll extended over two census regions.

<sup>d</sup> Data provided for only 34 polls. Four polls either did not indicate the polling year or collected data over multiple years.

<sup>e</sup> One poll administered in 2012 was an online, convenience sample poll conducted with readers of a newspaper article.

Appendix A, and additional information about every poll follows the table.

The majority of polls were conducted by phone (58%), with one-quarter using online survey modes, although in some cases the online surveys use survey panels initially recruited by phone.

The vast majority of polls recruited among all adults, while a minority surveyed only registered voters and a few polled only individuals who had participated in an MBUF pilot program.

Nearly two-thirds of the polls identified were conducted by either academic organizations (29%) or government agencies (37%). The remaining polls were conducted by industry groups, news outlets, polling firms, and other types of organizations.

The peak year for polling on MBUFs was 2011, when 21% of all identified polls were conducted. The most recent 5-year period (2011–2015) saw more than twice as many polls as the previous 5-year period (2006–2010).

The 38 polls included 167 unique survey questions about MBUFs (see Table 5). The average number of MBUF-focused questions per poll was four, with 53 as the maximum number of questions and one as the minimum. Twenty-one polls had just one question.

TABLE 5  
MBUF SURVEY QUESTION THEMES

Question Themes	Percentage of Survey Questions	<i>N</i>
General support for an MBUF	20	33
Support for <i>replacing</i> the gas tax with an MBUF	16	27
Privacy	7	11
Fairness	8	14
Other topics	49	82

*Note:* Total number of survey questions on mileage-based user fees = 167.

The content of the questions falls into five main areas:

1. Questions that focus on general support or opposition to mileage-based user fees. These questions assessed support for the general concept of MBUFs. They do not specify whether the MBUF would replace the existing gas tax.
2. Questions that specifically focus on support or opposition to *replacing* the existing gas tax with a mileage-based user fee.
3. Questions related to privacy.



4. Questions related to fairness.
5. Other types of questions focusing on mileage-based user fees.

The thematic areas most commonly tested were general support (20% of questions) and support for replacing the existing gas tax with an MBUF. Approximately half the survey questions fell into the “other” category.

The wording and basic response frequencies for each MBUF question can be found in Tables B1 through B5 in Appendix B. Each table focuses on questions from one of the five themes.

#### ANALYSIS OF GENERAL SUPPORT FOR A MILEAGE-BASED USER FEE

A total of 33 poll questions asked about general support or opposition to mileage-based user fees without specifying that the fee would replace the existing gas tax (see Table B1 in Appendix B for a list of all questions and a summary of responses). Average support was 24%, with a range from 8% to 50%.

#### Support by Personal Characteristics

Table 6 shows how support for general MBUF survey questions varies according to respondents’ personal characteristics. The most striking finding is that there is very little

TABLE 6  
SUPPORT FOR GENERAL MBUF SURVEY QUESTIONS, BY RESPONDENT CHARACTERISTICS

Variable	Mean Support (%)	Minimum Support (%)	Maximum Support (%)	N <sup>a</sup>
Overall <sup>b</sup>	24	8	50	33
<b>Gender</b>				
Female	26	7	56	25
Male	26	10	45	25
<b>Age<sup>c</sup></b>				
Young	30	8	58	25
Middle	27	8	50	22
Older	27	7	50	22
<b>Race/Ethnicity</b>				
White	26	11	47	18
Black	28	6	53	16
Asian	45	19	72	11
Hispanic	30	13	54	12
Other	29	8	49	12
<b>Income<sup>d</sup></b>				
Lower	29	1	54	20
Middle	28	12	52	20
Higher	28	5	49	22
<b>Education</b>				
High school or less	28	6	52	16
More than high school	26	8	50	17
<b>Political affiliation<sup>e</sup></b>				
Democrat/Liberal	32	15	57	16
Republican/Conservative	21	6	43	16
Independent/Moderate/Decline to State/Other	23	9	44	16

Note: Total number of survey questions focused on general support for mileage-based user fees = 33.

<sup>a</sup> Sample size varies across the variables because some polls did not provide data for all demographic categories or did not provide data in a way that could be coded for analytical purposes.

<sup>b</sup> “Support” included responses in the following categories: strongly support or support; 8–10 on a 10-point Likert scale (1 to 10) with 10 = strongly support; and 7–10 on an 11-point Likert scale (0 to 10) with 10 = strongly support.

<sup>c</sup> “Young” included responses in the following categories: 18–24 years, 18–29 years, and 18–34 years. “Middle” included responses in the following categories: 25–54 years, 34–54 years, 30–49 years, and 30–59 years. “Older” included responses in the following categories: 50+ years, 55+ years, and 60+ years.

<sup>d</sup> “Lower” included responses in the following categories: less than \$50,000, less than \$40,000. “Middle” included responses in the following categories: \$50,000–\$100,000 and \$40,000–\$100,000. “Higher” included responses in the following categories: \$100,000+ and \$110,000+.

<sup>e</sup> Political affiliation was categorized differently in different surveys, using the following groupings: (1) Democrats, Republicans, Independents, and Decline to State; (2) Democrat, Republican, and Independent; (3) Democrat, Republican, and Other, including Independent; (4) Democrat, Republican, and Other; and (5) Liberal, Conservative, and Moderate.

variation in mean support by sociodemographic characteristics. Mean support among males and females is identical, and there is virtually no difference on the basis of age. Looking at race and ethnicity, whites express the lowest mean support for MBUFs, but the difference between whites and most other racial or ethnic groups is very small. Asians express the highest mean support, but only 11 survey questions were included in the analysis; results from such a small sample size should be interpreted with caution. There are virtually no differences in mean support on the basis of income or education.

The one exception to the overall lack of variation according to personal characteristics is that Democrats and liberals are more supportive of MBUFs compared with Republicans, conservatives, independents, moderates, those with other political affiliations, and those who declined to state a political affiliation.

### Support by Survey Characteristics

Support for the MBUF survey questions was also examined on the basis of a variety of characteristics of the surveys themselves, including the sponsoring agency, mode of survey administration, geography, and sampling frame. Results are shown in Table 7.

There is a noticeable difference in mean support for general MBUF questions depending on the type of entity that sponsored the survey. Specifically, support tends to be highest when the sponsor is an academic institution or government agency (27% and 25%, respectively). The lowest mean support level (11%) was found for surveys conducted by a firm or industry trade group, although the sample size here was quite small, so whether this pattern would hold across a larger number of surveys is uncertain.

Turning to survey administration mode, random-digital phone surveys and online surveys had very similar support levels. The mail surveys had the lowest mean support, while the single mixed-methods survey showed a dramatically higher level of support than all the other surveys. An important caveat about this finding is that only a few polls were conducted by mail, online, or mixed methods, so whether this pattern would hold across a larger number of surveys is uncertain.

Looking at geography, there are some differences correlated with Census region and possibly with geographic scale. In terms of Census regions, the highest mean support occurred in the West (37%), while the lowest mean support level occurred in the Northeast and Midwest (both at 17%). Support levels varied little whether the survey was a broad national survey or focused more narrowly on a specific region or state. Support levels were noticeably higher for the one poll conducted at the local level, but one cannot confirm a meaningful correlation based on a single poll.

TABLE 7  
SUPPORT FOR GENERAL MBUF SURVEY QUESTIONS, BY SURVEY CHARACTERISTICS

Survey Characteristic	Mean Support (%)	<i>N</i>
<b>Sponsor type</b>		
Academic institution	27	18
Government agency	25	9
Industry/Industry trade group	11	2
Polling firm	15	3
Other	17	1
<b>Census region</b>		
Midwest	17	5
Northeast	17	1
South	27	2
West	37	7
Midwest/West <sup>a</sup>	20	5
<b>Geography</b>		
National	23	13
Regional	20	5
Local	33	1
State	26	14
<b>Survey administration mode</b>		
Mail	20	5
Online	26	2
Phone	25	23
Multiple	44	1
<b>Sampling frame</b>		
Adults	25	30
Registered voters	16	3

Note: Total number of survey questions focused on general support for mileage-based user fees = 33.

<sup>a</sup> One poll with five unique MBUF-related questions extended over two census regions.

A noticeable difference in mean support was also found depending on the sampling frame. When surveys are broadly directed toward all adults, support levels are higher than support in surveys that focus on registered voters. However, sample size makes this finding uncertain, because only three surveys sampled registered voters.

Another area considered for analysis was whether support varied according to whether the survey presented the MBUF as a hypothetical scenario or survey participants were directly involved in a pilot program. However, none of the survey questions framed as general support for MBUFs were part of a pilot program, so that particular analysis was not possible for this theme.

### Support Over Time

Another question explored was whether any potential trends in support exist over time. Figure 1 shows the percentage

support for MBOFs by the year the poll was conducted. A trend line is also shown. The figure shows that the data are quite dispersed, with only a very slight upward trend. The correlation coefficient between the two variables is only 0.002, suggesting that there is no trend in support over time. Of course, small sample size hampers our ability to generalize this finding with confidence.

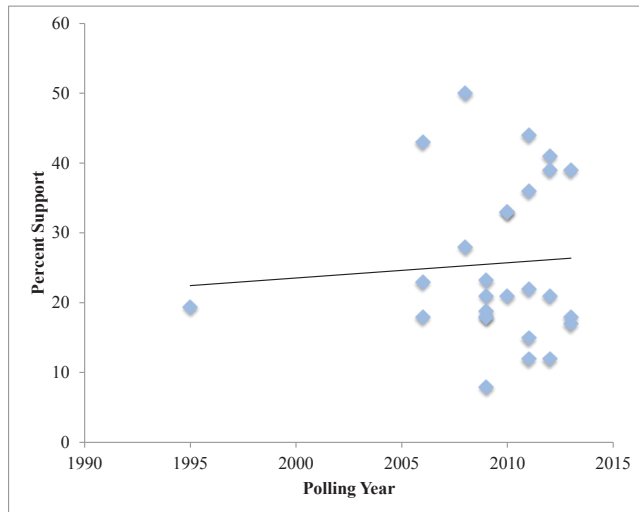


FIGURE 1 Percentage of support for MBOF by polling year. *Note:* Sample size = 28. Five questions on general support for MBOFs are excluded from this figure because the poll extended over multiple years or the information on the year the poll occurred was unavailable.

#### ANALYSIS OF MILEAGE-BASED USER FEE QUESTIONS FOCUSED ON REPLACING THE GAS TAX

Mean support for MBOFs was also examined when the survey question specifically asked about replacing the current gas tax with an MBOF (see Table B2 in Appendix B for the wording and response frequencies for all these questions). A total of 27 survey questions focused on replacing the gas tax with an MBOF. Four of the questions were from surveys conducted as part of a pilot program, and those four are excluded from the following analysis unless otherwise noted. These questions were excluded because pilot participants cannot be compared with the general population for various reasons. Because they are in the pilot, participants are much better educated than the general population about how MBOFs function. Also, they may have unusually positive opinions because many are paid small amounts of money in exchange for their participation.

Mean support across the 23 survey questions that presented an MBOF as a hypothetical scenario was 23%, with a range from 8% to 42%. These values are very similar to support levels for the general MBOF questions discussed in the previous section.

#### Support by Personal Characteristics

Table 8 presents results for an analysis of support for replacing the gas tax with an MBOF, breaking respondents into groups according to various personal characteristics. As in the analysis of survey questions asking generally about support or opposition to MBOFs, the small sample size prevented us from conducting reliable statistical testing, but some trends emerged that could be further explored as more survey data become available.

As in the previous analysis, there is little variation on the basis of demographic and socioeconomic characteristics. No strong correlation emerges between mean support for replacing the gas tax with MBOFs and gender, income, or race/ethnicity. Younger adults appear slightly more supportive, as do people with lower levels of formal education. Finally, as with general support for MBOFs in Table 6, Democrats and liberals are more supportive than Republicans, conservatives, independents, moderates, those with other political affiliations, and those who declined to state a political affiliation.

#### Support by Survey Characteristics

Table 9 presents data on mean support for replacing the gas tax with a mileage-based user fee on the basis of various overall survey characteristics such as sponsor, geography, mode of administration, sampling frame, and whether the MBOF was presented as a hypothetical scenario or as part of a pilot program. Findings should be interpreted with caution given the small sample sizes; in many cases, only a single survey question representing a particular survey type was available for analysis.

Support levels did not vary a great deal by sponsor type. The highest support levels for replacing the gas tax with an MBOF occurred when the sponsor was a polling firm, but this finding is based on only a single question. The next highest level of support was found when the sponsor was a government agency. Lower support levels were found in surveys conducted by academic institutions and news organizations (although the latter is based on only a single question).

In terms of geography, support was highest in the West, followed by the South and then the Midwest. Looking at geographic scale, there was little variability depending on whether the survey was conducted at the state or national level. One survey conducted at the regional level had a noticeably lower support level; however, that finding should be interpreted with caution because it is based on a single data point.

Looking across survey administration modes, the highest level of support was found for online surveys, with the lowest support level coming from a single survey that used multiple modes. With a single data point, results may relate more to other characteristics of that particular survey rather than to the mode alone.

TABLE 8  
SUPPORT FOR REPLACING THE GAS TAX WITH AN MBUF,  
BY RESPONDENT CHARACTERISTICS

Variable	Mean Support (%)	Minimum Support (%)	Maximum Support (%)	N <sup>a</sup>
Overall <sup>b</sup>	23	8	42	23
Gender				
Female	30	12	37	6
Male	28	14	43	6
Age <sup>c</sup>				
Young	32	17	40	6
Middle	26	12	40	6
Older	30	13	41	6
Race/Ethnicity				
White	21	12	28	3
Black	24	15	33	3
Asian	26	18	35	2
Hispanic	25	15	33	3
Other	21	16	26	2
Income <sup>d</sup>				
Lower	30	14	38	5
Middle	31	12	42	5
Higher	29	13	64	6
Education				
High school or less	27	16	37	6
More than high school	20	12	28	2
Political affiliation <sup>e</sup>				
Democrat/Liberal	26	16	38	3
Republican/Conservative	19	10	26	3
Independent/Moderate/Decline to State/Other	21	15	28	3

*Note:* Total number of survey questions focused on replacing the gas tax with mileage-based user fees using a hypothetical scenario as opposed to a pilot program = 23. Including the four questions from a pilot program increases the overall mean support to 27%, with a range from 8% to 71%.

<sup>a</sup> Sample size varies across the variables because some polls did not provide data for all demographic categories or did not provide data in a way that could be coded for analytical purposes. Key demographic information associated with the four questions from pilot programs was not available, so the data presented here is only from survey questions using a hypothetical scenario.

<sup>b</sup> “Support” included responses in the following categories: strongly support or support; 8–10 on a 10-point Likert scale (1 to 10) with 10 = strongly support; and 7–10 on an 11-point Likert scale (0 to 10) with 10 = strongly support.

<sup>c</sup> “Young” included responses in the following categories: 18–24 years, 18–29 years, and 18–34 years. “Middle” included responses in the following categories: 25–54 year, 34–54 years, 30–49 years, and 30–59 years. “Older” included responses in the following categories: 50+ years, 55+ years, and 60+ years.

<sup>d</sup> “Lower” included responses in the following categories: less than \$50,000, less than \$40,000. “Middle” included responses in the following categories: \$50,000–\$100,000 and \$40,000–\$100,000. “Higher” included responses in the following categories: \$100,000+ and \$110,000+.

<sup>e</sup> Political affiliation was categorized differently in different surveys, using the following groupings: (1) Democrats, Republicans, Independents, and Decline to State; (2) Democrat, Republican, and Independent; (3) Democrat, Republican, and Other, including Independent; (4) Democrat, Republican, and Other; and (5) Liberal, Conservative, and Moderate.

TABLE 9  
SUPPORT FOR MBUF SURVEY QUESTIONS FOCUSED ON  
REPLACING THE GAS TAX, BY SURVEY CHARACTERISTICS

Survey Characteristic	Mean Support (%)	N
Sponsor type		
Academic institution	20	9
Government agency	26	11
News organization	20	1
Polling firm	30	1
Other	23	1
Census region		
Midwest	17	5
South	27	5
West	35	3
Geography		
National	21	10
Regional	15	1
Local	—	0
State	26	12
Survey administration mode		
Online	26	14
Phone	19	8
Multiple	13	1
Sampling frame		
Adults	23	21
Registered voters	21	2

*Note:* Total number of survey questions focused on replacing the gas tax with mileage-based user fees using a hypothetical scenario = 23.

There was very little variation in support on the basis of whether the surveys sampled all adults or only registered voters, although only two questions were asked of the latter.

### Support Over Time

Figure 2 shows the trend in percentage support for replacing the gas tax with an MBUF according to the year the poll was conducted. As with the previous analysis of general support for MBUFs (see Figure 1), the data points are quite scattered. However, in this case, the trend line is noticeably positive and the correlation coefficient between the two variables is 0.30, suggesting that support for replacing the gas tax with an MBUF is increasing over time.

This trend of support increasing over time aligns with social psychology literature that finds message repetition to be a key factor in changing public opinion and attitudes toward an issue. Research suggests that repeated exposure to a particular message can lead to more positive attitudes (Zajonc 1968), although Cacioppo and Petty (1989) suggest that the message repetition theory is nuanced; repetition allows more opportunities to scrutinize the argument, and strong arguments lead to more favorable opinions than weak arguments.

It is important to note, however, that repeated negative messaging can lead to decreased support, as shown by Fernandes' (2013) analysis of negative political messaging.

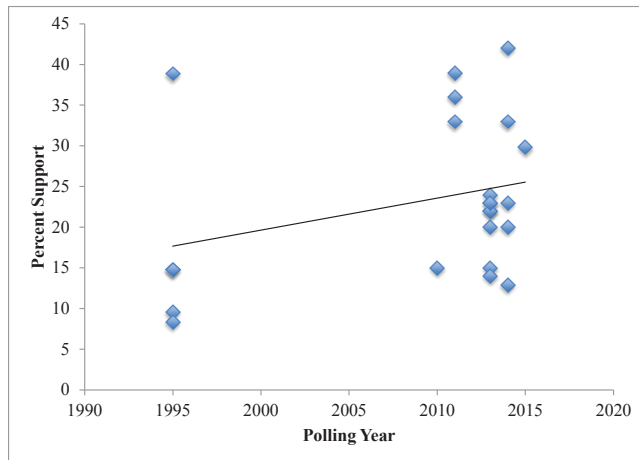


FIGURE 2 Percentage of support for replacing the gas tax with an MBUF by polling year. *Note:* Sample size = 23. Four questions on support for replacing the gas tax with an MBUF were excluded from the analysis because they are drawn from pilot programs instead of presenting the MBUF as a hypothetical scenario. Support for these four questions ranged from 37% to 71%.

#### Support Among Pilot Program Participants for Replacing the Gas Tax

As noted earlier, our analysis in this section focused primarily on questions that presented the MBUF as a hypothetical scenario (the vast majority of the questions asked about replacing the gas tax). However, four questions of this type were asked of participants in two separate pilot programs. Support among pilot participants ranged from 37% to 71%, with a mean of 51%. In one pilot program, respondents were surveyed three times (at the beginning, middle, and end of the pilot), with the highest support level (71%) at the end of the program. Even at the beginning of the program, 42% of participants supported replacing the gas tax with an MBUF. This is considerably higher than the mean support levels among individuals responding to questions posed as hypothetical scenarios. The high level of support at the beginning of the pilot suggests that these participants already had significant interest in MBUFs. In addition, pilot participants are often provided with some type of incentive for participating in the program, which might generate positive feelings.

#### ANALYSIS OF MILEAGE-BASED USER FEE QUESTIONS ABOUT PRIVACY

Only four surveys asked questions related to MBUFs and privacy. Among them, they posed a total of 11 questions, six of which came from a single survey. (Table B3 in Appendix B presents the specific wording and responses to each

of these.) The questions focused on very different aspects of privacy issues, making comparisons across questions almost impossible. However, the questions can be organized into the following general categories:

- Questions asking whether collecting mileage data from drivers is an invasion of privacy (two questions, from one survey).
- Question asking whether respondents dislike a GPS-based MBUF because the government can monitor their driving patterns (one question).
- Questions asking how privacy issues rank compared with other issues as a concern with MBUFs (two questions, from two surveys).
- Questions asking whether certain program design features would reduce privacy concerns (four questions, from three surveys).
- Questions about outsiders accessing government-held data on GPS mileage (two questions, from one survey).

The responses to the 10 questions for which the survey authors provided response data show that privacy is a serious concern. For seven of the 10 questions, more than half of the respondents indicated that privacy was a concern or that they preferred an MBUF program structure that did not collect information on where they drove. One other question asked respondents to rank five factors they liked least about MBUFs, and privacy was the factor chosen most often (by 40% of respondents). The last of the 10 questions asked whether a specific program structure designed to reduce privacy concerns would make the MBUF acceptable; only 15% said yes.

#### ANALYSIS OF MILEAGE-BASED USER FEE QUESTIONS ABOUT FAIRNESS

Six surveys asked about issues of fairness and equity, with a total of 14 questions on this theme. Table B4 presents the wording and responses to these questions. The surveys probed issues of fairness with MBUFs in a variety of contexts:

- Fairness to all drivers:
  - Is an MBUF a fair way to raise transportation revenues? (two questions, from two surveys)
  - Is an MBUF more or less fair than a gas tax? (four questions, from four surveys; there were two pairs of annual surveys)
- Is an MBUF fair because it charges in direct proportion to highway use? (one question)
- Fairness to certain classes of drivers:
  - Is an MBUF fair to people who drive vehicles that use little or no gasoline? (three questions, from two surveys)
  - Is an MBUF fair to rural drivers? (two questions, from two surveys)

- Is an MBUF fair to people who drive long distances for work? (one question)
- Is it fair to charge a higher MBUF rate for heavy vehicles, because they cause more wear and tear on roads? (one question)

Most respondents did not see MBUFs as a fair way to raise revenue. In response to the two questions that asked this in the most general way, only 33% and 45% of respondents said that MBUFs are fair. In response to the four questions asking respondents whether they thought MBUFs were fairer than gas taxes, only 15% to 38% said yes. One survey asked this question both before and after giving respondents information about MBUFs, and the percentage of respondents who thought the MBUF was fairer than gas taxes rose 7 percentage points, from 31% to 38%.

When respondents were asked how fair they thought MBUFs are to certain classes of drivers, majorities thought they were not fair. For example, in one survey, 79% of respondents believed that an MBUF is unfair to people who live in rural areas because they have to drive long distances, while 73% of respondents thought MBUFs are unfair to people who drive a lot for work. The second survey that asked if an MBUF is fair to rural drivers did so in the context of comparing an MBUF with a gas tax; in this survey, 57% of respondents believed that the MBUF is “less fair” than the gas tax.

With respect to drivers of alternative-fuel or high-efficiency gasoline vehicles, somewhat fewer respondents had fairness concerns. From 31% to 56% of respondents believed an MBUF was unfair, depending on the survey. One survey asked two questions on this topic, phrased in slightly different ways, and it is illustrative to note how differently respondents answered each question. Thirty-one percent of respondents agreed with the statement “Fees based on miles traveled are fair because they require drivers of vehicles that use little or no gasoline to also pay their fair share for using roads and bridges.” This is considerably less than the 46% who agreed with the statement “A vehicle-miles-traveled use fee program is one solution that is flexible enough to work with all vehicles so that they pay their fair share for use of the roadway system— high mileage vehicles, gas-electric hybrids, ethanol- and biofuel-powered vehicles, plug-in vehicles and other technologies.”

#### **MILEAGE-BASED USER FEE QUESTIONS ON OTHER TOPICS**

The remaining 82 MBUF questions contained in the surveys (about half the total number of questions) did not relate to any of the key themes. These questions ranged widely from probing respondents’ familiarity with MBUFs to asking whether such a fee system would affect transit use to asking whether

fees should vary depending on time of day or type of street. Table B5 presents the exact wording and responses for all these questions, as a resource for future survey researchers.

## **CONCLUSIONS**

### **Quantity and Type of Surveys Conducted and Data Availability**

A key conclusion from this study is that only limited polling data about mileage fees are available to policymakers and researchers. An extensive search using many academic and preferred databases and search engines, plus direct communication with knowledgeable members of the transportation finance community, netted only 38 surveys with MBUF questions. This is far smaller than the known number of surveys on other transportation revenue sources such as gas taxes or tolls. By comparison, Agrawal and Nixon (2015) collected 108 surveys asking about gas taxes, and Zmud and Arce (2008) collected 110 surveys asking about tolls.

For the 38 surveys with MBUF questions, data were collected on general survey characteristics including geographic scope, survey mode, sampling frame, survey sponsor type, the year the survey was conducted, and how each MBUF question was framed. In addition, information about survey respondents—such as gender, age, income, education, race/ethnicity, and political affiliation—was gathered whenever possible. In a large number of cases, however, respondent characteristics were unavailable.

The surveys were conducted between 1995 and 2015, with more than half between 2011 and 2015. The majority of surveys were conducted by academic organizations or government agencies, used a random-digit-dialing phone method, and sampled adults at the national or state level.

The 38 polls included a total of 167 unique survey questions that focused on MBUFs. The average number of MBUF-focused questions per poll was four, with 53 as the maximum number of questions and one as the minimum. The questions fall into five main categories: (1) questions that focus on general support or opposition to mileage-based user fees, (2) questions that focus on support or opposition to *replacing* the existing gas tax with mileage-based user fees, (3) questions related to privacy, (4) questions related to fairness, and (5) other types of questions focusing on mileage-based user fees. The two thematic areas most commonly tested were general support for an MBUF (20% of questions) and support for replacing the gas tax with an MBUF (16% of questions).

### **Support for MBUFs**

The surveys confirmed what the qualitative research on MBUFs suggested: support for MBUFs rarely reached 50%.

Looking across the 33 polls that asked very generally about support for an MBUF, the mean support was only 24%, with a range from 8% to 50%. Only six questions had support near to 40% or higher, and four of these came from an annual series of polls that repeated the same question each year.

The analysis of whether support for MBUFs varies by personal characteristics revealed very little variation in mean support by sociodemographic characteristics. For example, there are virtually no differences in mean support based on gender, age, income, or education. The one exception to the striking finding of how little support varied by the personal characteristics examined is that Democrats had higher mean support levels for MBUFs (32%) than Republicans (21%) or independents (23%).

Support levels did not differ much according to whether a poll question was framed as general support for MBUFs or, more specifically, as replacing the gas tax. However, there is some limited evidence to suggest that support for replacing the gas tax with an MBUF is increasing over time.

Several key findings emerge from the analysis of how the characteristics of the surveys themselves might correlate with support for the general MBUF survey questions that did not specifically discuss replacing the gas tax. Factors that revealed little clear correlation with support levels were survey year, geographic scale of the survey, and survey administration mode. On the other hand, the survey administration factors in the bulleted list below did correlate with support levels, although the number of surveys used for comparison was sometimes very small, so it is unwise to generalize from these results without additional research to confirm them:

- Survey sponsor type: Support tended to be highest when the sponsor was an academic institution or government agency (27% and 25%, respectively). The lowest mean support level (11%) was found for surveys conducted by industry or industry trade groups. An important caveat about this finding is that the number of industry-sponsored polls was quite small, so whether this pattern would hold across a larger number of surveys is not at all clear.
- Census region: Surveys from the West had the highest mean support levels (37%), while those from the Northeast and Midwest had the lowest mean support (17% each). An important caveat about this finding is that the number of polls from the Northeast and Midwest regions was small.
- Sampling frame: Surveys sampling among all adults had higher support levels (25%) than those that focused on registered voters (16%). However, because only three surveys sampled registered voters, it is unclear whether this correlation reflects a real difference in views between registered voters and all adults.

When survey questions about support for replacing the gas tax with an MBUF were analyzed to look for correlations with survey administration and personal characteristic factors, the patterns that emerged were generally the same as those for the questions on general MBUF support, with two exceptions. First, support for replacing the gas tax with an MBUF appears to be increasing modestly over time. Second, when support levels were considered on the basis of whether the MBUF was presented as a hypothetical scenario or in the context of a pilot program, support was much higher among respondents in a real pilot program. Support was as high as 71% for one survey question administered to program participants at the end of a pilot program. A key caveat to this finding is that three of the four questions directed toward pilot participants came from the same pilot project, which surveyed participants multiple times.

### Views on Privacy and Fairness

The issues of privacy and fairness were prominent in the qualitative studies, but the surveys asked few questions related to either issue. Therefore, a meta-analysis of the survey questions provides only a tentative sense of how generalizable these concerns might be. Also, the surveys provide virtually no details about the specific reasons people worry about fairness and privacy or the types of program design features that might reduce such worries.

Only four surveys asked any questions related to MBUFs and privacy. Collectively, the surveys posed a total of 11 questions, six of which came from a single survey. The responses to the questions show that privacy is a serious concern. For seven of the 10 questions for which response data were available, more than half of the respondents indicated that privacy was a concern or that they preferred an MBUF program structure that did not collect information on where they drove. One other question asked respondents to rank five factors they liked least about MBUFs, and privacy was the factor chosen most often (by 40% of respondents).

Six surveys asked about issues of fairness and equity, with a total of 14 questions on this theme. The questions fell into two categories: (1) Are MBUFs fair to all drivers? and (2) Are MBUFs fair to certain classes of drivers? (The groups explored were rural drivers, people who drive long distances for work, and people who drive vehicles that use little or no gasoline.) Comparing responses across surveys is challenging because the questions are framed so differently, including the fact that some ask if an MBUF is “fair,” some ask if it is “unfair,” and yet others ask respondents to decide whether an MBUF is more or less fair than a gas tax. However, the overall picture that emerges from the surveys is one of concern about fairness. Fewer than half of the respondents thought MBUFs were a fair way to raise transportation funds, whether in general or compared with the gas tax. Also, the survey questions asking about fairness to specific

classes of people found no strong support for the claim that MBUFs are fair.

#### **Possible Concerns That the Surveys Failed to Explore**

The qualitative research on public opinion revealed a number of issues that seriously concerned the participants, none of which was addressed by enough surveys to make a meta-analysis possible. These issues included concerns that—

- Billing errors would be created because of problems with technology or incompetence on the part of the government agency administering an MBUF program.
- Administering an MBUF program would be costly for the government and for drivers (if the latter had to install and maintain on-vehicle equipment).
- In-state drivers would inaccurately be charged an MBUF on out-of-state miles.
- Out-of-state drivers would not be charged for their travel in an MBUF state.

- Drivers would have a hard time paying periodic MBUF charges, compared with the relative ease of paying the gas tax in small, frequent increments.
- Replacing the gas tax with an MBUF would cause the government to lose a policy tool that incentivizes the purchase of fuel-efficient vehicles.
- An MBUF with a congestion pricing component would be unfairly expensive for people with inflexible job schedules.

In addition to these concerns, three other issues came up in the qualitative research that were not explored in the surveys:

- MBUFs would be desirable because, unlike fuel taxes, MBUFs fairly charge electric vehicles and fuel-efficient vehicles for their road use.
- People prefer a simple road-charging system rather than a complex one.
- People currently see no compelling reason to replace the gas tax with an MBUF.



## CHAPTER FIVE

**LEARNING FROM MEDIA COVERAGE**

Because news media coverage of MBOFs is a primary factor in shaping public opinion, this chapter presents an analysis of how MBOFs were presented in the news media over the five years from 2010 through 2014. A total of 359 media stories from national newspaper articles, online business journals, online industry blogs, magazines, and technology blogs were collected and then evaluated using a content analysis process. Media stories were evaluated by type (i.e., intended audience), geography (i.e., Census region), and publication coverage (i.e., tone of publication as well as types of citations included). In addition, media stories were analyzed in terms of the subjects discussed (i.e., perceived concerns, benefits, and issues raised).

The first section of the chapter discusses the methods used to collect and analyze relevant media stories. The following sections evaluate the stories by source (intended audience), overall tone toward MBOFs, and types of speakers quoted. Then, the chapter discusses the concerns and perceived benefits of MBOFs presented in the media stories, as well as other issues raised that do not fit into any of the major categories. A concluding section summarizes the key findings from the analysis.

**METHODS FOR FINDING AND ANALYZING MEDIA STORIES****Search Methods**

U.S. news media stories from 2010 to 2014 that covered MBOFs were primarily identified through searches in both the LexisNexis and ProQuest Newsstand digital archive databases. As discussed in Appendix C, LexisNexis archives text and media sources from national and international newspapers, magazines, trade journals, broadcast transcripts, medical news, and industry and market news. Similarly, ProQuest Newsstand includes domestic and international media content from newspapers, wire feeds, blogs, podcasts, and websites.

In addition to these databases, Google News was used to collect materials for the year 2014. Google News is a computer-generated news media database that aggregates digital global news headlines and provides a link to the corresponding online media source. Google News archives are limited to 1 year; thus, only news stories for the year 2014 could be collected this way.

To find all relevant media stories without including too many irrelevant ones, a version of the following very broad search term was used in all three databases:

mileage-based user fees OR mileage-based user charge OR mileage-based user tax OR MBOF OR vehicle miles traveled fee OR vehicle miles traveled tax OR road user fee OR road user charge OR road user tax OR mileage-based OR VMT fee OR VMT tax

The actual search term included truncation and Boolean search terms (such as “mile! us! fees”) to capture all terms related to the root of the words searched. To maintain consistency across years, this same search term was copied and pasted into the search engines so that the terms, as well as the order of the terms, would be identical for each year.

Searches in the three databases generated 753 stories. Each story was initially read to determine its relevance to the project. Ultimately, 394 stories were determined to be irrelevant because they were not actually about mileage-based user fees or were exact duplicates of other articles in the data set. This culling process left a sample of 359 unique media stories relevant to the project; these make up the final data set used for analysis.

It should be noted that using digital newspaper archive databases to search for articles provides a large but incomplete set of all media stories on a topic (Weaver and Bimber 2008). This limitation occurs partly because newspaper database archives such as LexisNexis often exclude certain types of material, including stories produced by wire services such as the Associated Press and letters to the editor. In addition, news archive databases exclude many Internet-based news sources that are widely read by the public, such as blogs and online magazines (Weaver and Bimber 2008).

**Coding Methods**

The authors used a combination of deductive and inductive analysis methods to arrive at a final set of 27 themes and related codes used to analyze the media stories. The deductive phase involved selecting themes and codes based on topics that the qualitative research studies indicated might be important, such as privacy and administration concerns. In an additional inductive coding process, the media stories were read quickly to identify additional issues discussed frequently enough to be worth thematic coding and analysis.

The final coding scheme used for analysis is presented in Appendix D. Codes were grouped into six main categories:

1. Codes to summarize the entire story, including publication type, geographic coverage, the type of MBUF program discussed (pilot program or hypothetical future program), and story type (opinion piece or news story).
2. Codes focused on the overall tone the story takes toward MBUFs.
3. Codes for the type of speakers whose views are presented in the story, including professionals, elected officials, and the general public.
4. Codes for concerns about MBUFs, such as privacy, fairness, administration, technology, and cost.
5. Codes for benefits of MBUFs, such as sustainable revenue source, innovative approach, or other types of benefits.
6. Codes for other issues discussed in the story related to MBUFs, including gas tax replacement, fuel efficiency, alternative vehicles, and congestion pricing.

After defining the codes, the study team used select media stories to test intercoder reliability before proceeding with the coding process. To test intercoder reliability, two or more researchers independently coded the same content using the

coding scheme, including theme and code definitions. The coded content from each researcher was then reviewed to determine the extent to which the researchers had selected the same codes for the same content. After minor adjustments to the coding scheme, the media stories were carefully coded according to the 30 codes shown in Appendix D.

The final content analysis process consisted of both a qualitative review of the material coded and a quantitative analysis of coded articles using descriptive statistics.

#### NUMBER OF STORIES, TYPES OF MEDIA SOURCES, AND MILEAGE-BASED USER FEE PROGRAMS DISCUSSED

A total of 359 media stories were analyzed. The number of relevant media stories per year that were identified for analysis increased over the years (Table 10), suggesting that coverage of the MBUF issue has gradually expanded. This trend was reflected in the nationally oriented papers but not in papers with readership specific to a Census region. (However, readers reviewing these statistics should keep in mind that the data set of news sources reviewed is not a perfect universe of all existing sources, as explained earlier.)

In terms of geography, the news media coverage represented the different regions across the United States fairly well, with many media stories coming from nationally read news media such as the *New York Times* (33%). Across all years, the Midwest, Northeast, South, and West Census

TABLE 10  
SUMMARY STATISTICS ABOUT THE MEDIA STORY PUBLISHERS, BY YEAR

Media Story Category	2010 (%)	2011 (%)	2012 (%)	2013 (%)	2014 (%)	All Years (%)
Number of stories	35	46	53	85	140	359
Geography of readership						
National	20	11	21	38	46	33
Midwest	9	15	30	16	11	16
Northeast	37	35	17	12	6	16
South	17	7	11	20	8	12
West	17	33	21	14	29	23
Publication type						
General public	77	85	83	88	80	83
Industry	23	15	17	12	20	17
MBUF type						
Pilot	0	7	2	0	1	1
Hypothetical	80	76	74	81	75	77
Proposed	6	4	15	2	9	7
Multiple types	14	13	9	16	16	14
Story type						
News story	91	80	75	85	90	86
Opinion piece	9	20	25	15	10	14

regions represented the origin of 16%, 16%, 12%, and 23% of media stories, respectively. As illustrated in Table 10, there is some variation in representation by regions from year to year.

The publication type in which each media story appeared was coded by likely readership, either “industry” or “general public.” The source was coded “industry” if readers presumably were reading it for work purposes (e.g., policymakers, transportation infrastructure engineers, or technology professionals). For example, a story published in *The Bond Buyer* (a news organization that focuses on public finance) would be coded as an industry story. However, if a story appeared in local, state, or national newspapers, magazines, or online blogs intended for a general audience, it was coded as general public. Examples of publications coded general public are the *Denver Post* and the *Wall Street Journal*. The majority of media stories appeared in publications geared toward a general audience (83%) rather than professionals (17%). As seen in Table 10, these proportions generally held across years.

The stories were also coded according to whether they discussed the MBUF as a hypothetical option (i.e., a future funding possibility rather than a current policy proposal), a pilot program, an actual policy proposal, or some combination of these. Most of the stories by far (77%) covered hypothetical MBUFs. Proposed MBUF systems (e.g., Oregon’s Road Usage Charge Program) were discussed in just 7% of all stories. Stories that commented on pilot projects without addressing a hypothetical future MBUF were rare (only 1%). Finally, 14% of articles discussed multiple types of MBUFs (pilot programs, hypothetical scenarios, and/or proposed systems).

The stories were then coded as either general news stories or opinion pieces. Fourteen percent of all stories were editorials, opinion pieces, or letters to the editor. To determine whether opinion pieces might have different content than news stories, descriptive statistics evaluating the prevalence of each code across years for all of the media stories collected were compared with statistics for news stories only. The descriptive statistics for these two groups yielded similar results. Differences were typically within 1 percentage point, and no difference was greater than 5 percentage points. Therefore, the analysis in the following sections includes all stories together, rather than comparing findings for opinion-based pieces and news stories.

### STONE OF MILEAGE-BASED USER FEE COVERAGE

Another aspect of the coding looked at the overall tone each story took toward MBUFs. The categories used to code stories were “positive,” “negative,” “mixed,” or “neutral.” A story was coded positive if the author focused on the beneficial outcomes or possibilities of an MBUF, if the author framed the MBUF as a solution or innovative option

for funding transportation infrastructure, or if the author recommended implementing or considering an MBUF. A story was coded negative if the author focused on the negative outcomes or consequences of an MBUF, if the author framed the MBUF as inadequately addressing transportation finance, or if the author explicitly took a stand against an MBUF. A story was coded mixed if it included both positive and negative content. Finally, if the author discussed the MBUF without much detail (positive or negative) or without a clearly positive or negative tone, the story was coded neutral.

Table 11 presents an analysis of the overall tone used to discuss mileage fees. When all stories from all years are combined, the largest percentage of the stories was neutral in tone (39%), and over a quarter (29%) had a mixed tone. Among stories with a clear tone, positive stories were slightly more common (18% of all stories) than negative ones (13%).

TABLE 11  
OVERALL TONE OF MEDIA STORIES TOWARD MBUFs, BY YEAR

Media Story Tone	2010 (%)	2011 (%)	2012 (%)	2013 (%)	2014 (%)	All Years (%)
Mixed	23	30	28	27	32	29
Negative	9	30	13	12	9	13
Neutral	63	26	45	46	31	39
Positive	6	13	13	15	27	18

Looking at how overall article tone changed over time shows that the percentage of positive media stories noticeably increased, from 6% in 2010 to 27% in 2014. Similarly, the proportion of negative media stories fell between 2011 (30%) and 2014 (9%). The percentage of media stories categorized as neutral or mixed remained fairly constant across years.

Story tone by geography was also evaluated (Table 12). The percentages of mixed, neutral, positive, and negative tone stories for national, Northeastern, Midwestern, and Southern stories are similar, but the West is an outlier. Higher proportions of stories from the Western Census region took a positive tone (36%), while fewer took a neutral tone (21%).

TABLE 12  
OVERALL TONE MEDIA STORIES TOOK TOWARD MBUFs, BY GEOGRAPHY

Media Story Tone	National (%)	Midwest (%)	Northeast (%)	South (%)	West (%)	All Regions (%)
Mixed	30	34	23	28	30	29
Negative	13	13	18	9	13	13
Neutral	43	41	49	49	21	39
Positive	14	13	11	14	36	18

## TYPES OF PEOPLE QUOTED IN MEDIA STORIES

The next step in the analysis process looked at the types of people whose opinions were presented in the media stories. Each story was analyzed to identify whether three types of people were quoted: professionals in the field of transportation, politicians, and members of the general public. Stories were also coded according to whether they *described* public opinion as opposed to quoting a member of the public. Tables 13 and 14 show the percentage of stories that included quotes by each type of person or described public opinion, by year and by geography.

TABLE 13  
PERCENTAGE OF STORIES INCLUDING THE VIEWS OF  
DIFFERENT TYPES OF PEOPLE OR DESCRIBING PUBLIC  
OPINION, BY YEAR

Media Story Code	2010 (%)	2011 (%)	2012 (%)	2013 (%)	2014 (%)	All Years (%)
Professional quoted	43	43	36	41	33	38
Elected official quoted	34	22	9	18	21	20
General public quoted	0	7	6	6	4	5
Public opinion described	17	26	8	6	6	10

TABLE 14  
PERCENTAGE OF STORIES INCLUDING THE VIEWS OF  
DIFFERENT TYPES OF PEOPLE OR DESCRIBING PUBLIC  
OPINION, BY GEOGRAPHY

Media Story Code	National (%)	Midwest (%)	Northeast (%)	South (%)	West (%)
Professional quoted	34	12	16	13	25
Elected official quoted	29	18	19	43	84
General public quoted	29	18	0	6	47
Public opinion described	25	17	19	8	31

*Note:* This table presents a breakdown by geography for only those stories coded as quoting each speaker type.

### Professionals

If a media story included a quote from a professional in the field—such as a transportation planner, academic researcher, or transportation business representative—the story was coded under “professional.” Often professionals discussed the problem of relying on gasoline taxes, particularly to explain how increased fuel efficiency reduces gas tax revenues, or else professionals were quoted as recommending MBUFs as an eventual replacement of the gas tax. For example, the *Pittsburgh Tribune* quoted Bob Poole, director of transportation policy at the Reason Foundation, as saying, “The gas tax is clearly on its last legs. . . . The country is going to be

shifting from per-gallon gas taxes to mileage-based user fees” (*Pittsburgh Tribune Review* 2013). Similarly, in reference to MBUFs, James Whitty with the Oregon Department of Transportation’s Office of Innovative Partnerships and Alternative Funding stated in a *US Official News* story:

Our vision is to create a reliable, easy-to-use, low-cost, enforceable, and publicly acceptable open system that replaces the fuel tax. A charge based on measured road use preserves fairness and accountability in supporting the state’s system of roads and highways. (*US Official News* May 2014)

Professionals were also quoted discussing issues related to fairness, privacy, administration, and technology. As an example from the *Daily News*, Barry Schoch, president of the Pennsylvania Highway Information Association, said, “We have to go to a mileage-based system. It’s the only fair way” (Snyder 2010). In a *MidWest Energy News* story, Howard Learner, executive director of the Environmental Law and Policy Center, expressed his opinion in favor of a gasoline tax over a vehicle mileage tax: “A VMT is delinked from pollution. There’s a saying—if the wheel ain’t broke, don’t fix it” (Lydersen 2014). Professionals also described details of pilot projects and programs they were managing.

Overall, quoting a professional’s opinion about MBUFs was fairly common; over a third (38%) of media stories included a quote from a professional in the field. There was little variation across years. By geography, of the stories with comments from professionals, the Western (25%) and national (34%) sources most often quoted professionals.

### Elected Officials

Typically, elected officials were cited explaining their personal support or opposition for MBUFs, or listing mileage fees as one transportation revenue option among many under consideration. Officials often expressed concerns related to privacy and fairness. For example, in *The News-Item*, Representative Matt Baker (R-Pa.) opposed an MBUF, saying, “I think it’s unfair to rural areas” (*The News-Item* 2010). Other officials, however, expressed a willingness to consider the mileage tax. For example, in the *Daily Press*, Delegate Joe T. May (R-Loudon, Va.) stated, “I think a mileage-based revenue source is the direction of the future. We have to go that direction, we have little other choice” (Cawley 2011). Elected officials also discussed other issues related to the MBUF system, such as administration and technology. Representative Earl Blumenauer, a Democrat from Oregon, was quoted in the *National Journals* saying (in reference to MBUFs), “The technology works. It only costs a couple million bucks to go out and test the technology. If we get four or five states, we can fine tune it” (Johnson 2014).

Politicians were cited less frequently than professionals; only 20% of media stories included a quotation by

at least one elected official. There was some variation in how often politicians were cited across the years but no clear trend. Looking at geography, national media sources (29%) and Western sources (26%) quoted elected officials more than those from the Northeast (19%), Midwest (18%), or South (7%).

### General Public

The stories quoting members of the public presented their opinions on the issues of privacy, equity, cost, or replacing the gasoline tax with an MBUF. For a *US Official News* (October 2013) story, for example, Danny James responded to the idea of a black box tracking miles by saying, “I don’t like it. I think it’s too intrusive.” On the matter of cost, Yellow Checker Cab driver Kevin Spencer expressed his concern in the *Contra Costa Times* after hearing that a VMT tax could cost up to 10 cents per mile. He said,

Are you kidding me? It’s ludicrous. Some of the families, blue-collar people just trying to make a living, could have to decide whether to pay their mortgage or drive. (Rosenberg 2012)

Other people were quoted discussing fairness. For example, in the *Register Guard* (2014), Carleen Reilly described the MBUF system as being more equitable, stating, “We certainly live on a limited income, but do believe we need to pay our fair share to keep the roads up. We are not stingy.” Along the same lines, after Jesus Velez was told that alternative and fuel-efficient vehicle owners pay less in gas taxes, he told a *Los Angeles Times* reporter that the mileage-fee system would “make it fairer for everyone” (Weikel 2014).

While professionals and elected officials were often cited in the media stories, the views and opinions of members of the general public were not well represented. Only 5% of all media stories contained at least one quote from the general public. This pattern held across all years. By geography, sources from the Midwest and South had the lowest percentage of stories quoting the public (17% and 8%, respectively).

### Discussion of Public Opinion About MBUFs

To further explore how the media stories covered public opinion, each story was coded for whether or not it *described* public opinion about MBUFs. This analysis shows that media stories do not commonly discuss the general public; only 10% of stories mentioned opinions of the general public. The percentage of media stories that included discussions of public opinion was consistently low across the 5 years, although it was somewhat higher in 2010 and 2011. Looking by geography, however, among those stories discussing public opinion, the national and Western news media represented the greatest share of such stories.

## CONCERNS ABOUT MILEAGE-BASED USER FEES

Table 15 summarizes the frequency with which specific MBUF concerns were raised in media stories, by year. Table 16 shows the percentage of stories discussing each topic, broken down by the geography of the media source. Five primary areas of concern were identified: privacy, fairness, administration, technology, and cost.

TABLE 15  
CONCERNS ABOUT MBUFs RAISED IN MEDIA STORIES, BY YEAR

Media Story Code	2010 (%)	2011 (%)	2012 (%)	2013 (%)	2014 (%)	All Years (%)
Privacy	49	46	55	46	51	50
Fairness	37	17	28	25	35	30
Administration	14	33	15	9	6	12
Technology	17	20	8	16	4	11
Cost	6	4	8	5	4	5

TABLE 16  
CONCERNS ABOUT MBUFs RAISED IN MEDIA STORIES, BY GEOGRAPHY

Media Story Code	National (%)	Midwest (%)	Northeast (%)	South (%)	West (%)
Privacy	35	14	13	13	24
Fairness	38	11	13	11	26
Administration	18	27	11	16	27
Technology	38	21	18	10	13
Cost	17	11	11	17	44

*Note:* this table presents a breakdown by geography for only those stories coded for each concern.

### Privacy

As with the findings from the qualitative studies, privacy emerged as a prominent theme in the news media coverage. Half of all media stories discussed privacy. Within the broader theme of privacy, four subthemes were identified:

1. General concern: privacy is explicitly mentioned as a concern but without detailed commentary.
2. Tracking: privacy is implicitly evoked through a neutral mention of tracking miles or vehicles, typically in reference to GPS technology.
3. Alarmist: privacy concerns reference “Big Brother” or “Orwellian” surveillance.
4. Mitigating: mention of privacy concerns is followed by recommendations for MBUF program designs that would reduce invasive practices.

Of the media stories that discussed privacy, 19% explicitly mentioned it as a general concern but gave little or no detail on why MBUFs are a privacy concern. For example, a story in *US Official News* stated,

A few states are experimenting with some kind of odometer fee—also known as a VMT or vehicle-miles-traveled tax—that charges drivers by the miles they travel. A VMT tax involves unproven technology and raises privacy questions, and it carries its own issues of fairness. (*US Official News* August 2013)

Seventeen percent of stories mentioned “tracking” motorists but did so in language that did not specifically describe the issue as a problem. Tracking came up often in stories about MBUFs that use GPS technology. For example, a Washington State media source, *Peninsula Gateway*, noted, “Mileage-based fees are another possible source of future transportation revenue. That method would entail using new technology to track drivers’ mileage and charge fees accordingly” (Davis 2012).

Another common subtheme of privacy, which appeared in 24% of stories, was the use of an alarmist tone to describe a mileage fee as a threat to civil liberties. Often evoking Big Brother or Orwellian imagery, these comments tended to suggest that a VMT tax was one step on a “slippery slope” toward complete government surveillance. For example, an opinion piece in the *Contra Costa Times* stated,

The idea of taxing drivers, by following them with GPS transponders, is possibly the most dangerous violation of personal liberties that I have ever seen. This is an Orwellian “1984” concept that borders on a totalitarian oppression of individuals to benefit a regime (the government). Is Big Brother watching? (Waldron Aug. 2, 2012)

Finally, 40% of stories that discussed privacy provided information about methods to reduce privacy concerns. Often privacy would be mentioned as a concern, but the story would discuss the option of reporting miles through odometers rather than GPS technology or suggest that a third party be responsible for mileage data. For example, a story from *The Examiner* explained,

Speaking at the first meeting on Friday of California’s commission studying the issue, [James] Whitty said the key is to provide choices to the public, to protect the privacy of the data and be open about the program with motorists. The devices Oregon intends to employ track mileage and gasoline consumption. They send the information electronically from the car to private contractors like Azuga, which provide motorists with a monthly bill. The state then refunds drivers for any gas taxes accrued. (Lengell 2014)

The prevalence of stories mentioning privacy was relatively consistent across years and by publication type (58% of industry publications and 48% of general public publications). By geography, the percentage of media stories coded

for privacy concerns varied somewhat; just over a third (35%) of stories mentioning privacy came from national sources compared with Western (24%), Midwestern (14%), Southern (13%) and Northeastern (13%) sources.

### Fairness

As with the theme of privacy, several subthemes emerged under the theme of fairness. In some cases, an MBUF system was presented as being more equitable or fairer than the current gasoline tax. These discussions often described gas taxes as giving alternative and fuel-efficient vehicle owners a “free ride” or described those vehicle owners as not paying “their fair share” to fund road infrastructure. For example, a *Deseret Morning News* story said,

As better mileage becomes commonplace, motorists won’t need to buy as much gasoline or diesel.... The only way to raise adequate revenue and charge all users fairly is to restructure the road tax so it is based on miles driven, rather than fuel burned. (Whitty 2011)

Gary Gallegos, executive director of the San Diego Association of Governments, was quoted making a similar comment regarding fuel-efficient vehicles: “It’s the idea of no free lunches. Everybody’s got to pay their share of the usage that they’re getting” (Cubbison 2014).

On the other hand, some people expressed a concern that a switch from the gas tax to an MBUF would penalize alternative and fuel-efficient vehicle owners who were doing their part to protect the environment and reduce greenhouse gas emissions. For example, the *Los Angeles Times* quoted a member of the general public:

Teresa Gutierrez wished she was pumping fuel into a gas-sipping hybrid instead of her hulking GMC Yukon. She was nevertheless cool to the idea that the state [of California] might start raising money for highway repairs by replacing the traditional gasoline tax with a fee based on how far people drive. Penalizing owners of hybrids and electric cars doesn’t feel right, Gutierrez said. “It defeats their green purpose.” (Weikel 2014)

Media stories described an MBUF system as being inequitable for a number of other reasons, as well. These reasons included arguments related to socioeconomic status (e.g., an MBUF could mean higher costs for low-income drivers), distance (e.g., the MBUF is unfair to rural drivers who must drive long distances), and damage to roads (e.g., trucks and heavy vehicles should pay more per mile than lighter vehicles, because heavier vehicles do more damage). For example, with respect to trucking, the Southern California Council of Governments’ Sharon Neely was quoted saying,

The user would feel this [mileage fee] is more equitable. The question would be the truckers who say this is their livelihood. Some would argue they have more impact on the highway system than cars. (Scuzillo 2014)

Regarding equity issues related to out-of-state trips, the *Providence Journal* stated,

[O]ne way to collect a vehicle-miles-traveled-tax, or VMT, is to check vehicle odometers, perhaps when their owners renew their registrations. But that would be unfair to motorists who often drive outside the state, because those miles would be counted and taxed, too. (Landis 2011)

As another example, Amy Worth, a member of the Metropolitan Transportation Commission said in the *Contra Costa Times*, “[My concern] is that you’re going to charge somebody for living a long distance from work. The VMT is an inequitable approach that focuses the cost of 50 years of development on a single group of people” (Barnidge 2012).

However some stories took a more positive tone, offering recommendations to address these equity issues. One transportation columnist argued, “Unlike the gas tax, which is regressive, a mileage system could even be tailored to charge low-income families (who tend to drive older, less fuel-efficient vehicles) a lower per-mile rate” (Richards 2014).

Many stories discussed equity and fairness issues, though this theme appeared less frequently than privacy. Fairness was discussed in 30% of all of the media stories examined. The frequency with which fairness was mentioned varied from year to year, from a low of 17% of stories in 2011 to a high of 37% in 2010. Looking geographically, national sources were most common for stories that mentioned fairness (38%), followed by the West (26%), Northeast (13%), South (11%), and Midwest (11%).

### Technology

Stories were coded for technology if they discussed whether or not technology is available and ready for implementing an MBUF system. For example, one media source noted, “Technology already is available to allow for the collection of basic mileage data from vehicles. Successful pilot programs already have been conducted in Oregon, Washington, and Georgia” (Cawley 2011).

The prevalence of stories was fairly low. Only 11% of media stories explicitly discussed technology. The majority of stories that discussed technology were found in national media sources (38%), followed by Midwestern (21%), (Northeastern (18%), Western (13%), and Southern (10%).

### Administration

A number of media stories discussed concerns that an MBUF system would create administrative burdens by being too costly or too difficult to implement. For example, the costs associated with administration were discussed in a letter published in the *Wisconsin State Journal*: “Just implementing such a proposal

[for mileage fees] would probably create another government office to just keep up with it” (*Wisconsin State Journal* 2013). Another writer stated a year later, “The VMT tax requires [that] fairly costly new technology be installed in vehicles and a new administrative system be created. The costs of operating and auditing a VMT system are higher than collecting gas taxes” (*State Journal–Register* 2014).

Administration concerns were not very prevalent: only 12% of the media stories discussed concerns related to the administrative costs of collecting a mileage fee or the lack of administrative capacity for enforcing such a fee. There was some variation across years: 33% of stories discussed mileage fees in 2011, falling to 6% in 2014. The West and Midwest accounted for the majority of stories with administration comments (27%), followed by national (18%), Southern (16%), and Northeastern (11%) media stories.

### Cost

Few media stories included a statement that a VMT tax would be too costly for drivers: only 5% of the stories explicitly discussed the price of an MBUF as too high. When this issue did arise, it was usually mentioned in the context of low-income drivers, though some stories raised the concern with relation to rural drivers, taxi drivers, or truckers. Illustrating the sentiments expressed about low-income drivers, a story from the *Government Executive* stated,

The primary opposition to the VMT tax is that it will increase transportation costs, which may curb a slow and fragile economic recovery. It will have the worst impact on low-income individuals and families who drive long distances to work, usually out of necessity. Also, it is unclear as to whether the taxpayer or the government will pay for purchasing and installing the tracking equipment. For businesses, the increased cost of compliance will likely be passed on to consumers through higher prices. (Jaffe 2014)

The majority of comments related to cost came from Western media sources (44%), followed by national and Southern (17%), and Northeastern and Midwestern (11%).

### BENEFITS OF MILEAGE-BASED FEES

The media coverage did discuss benefits of mileage fees, although these comments were less common than those expressing concern. Two benefits mentioned were included in the original coding scheme: describing the MBUF system as sustainable or innovative. Tables 17 and 18 show the analysis of these two codes by year and Census region.

Various other benefits were mentioned in 9% of the media stories collected but were not uniquely coded. These benefits included describing the MBUF system as efficient, discussing possible environmental benefits (e.g., reductions in greenhouse gas emissions and pollution), and commenting

on social benefits (e.g., reducing traffic congestion, reducing automobile use, and increasing transportation funding revenues). Finally, some stories framed the MBUF system as the “solution” to transportation funding. Because relatively few stories addressed any one of these benefits, the following analysis does not discuss trends by region or year.

TABLE 17  
BENEFITS DISCUSSED IN MEDIA STORIES, BY YEAR

Media Story Code	2010 (%)	2011 (%)	2012 (%)	2013 (%)	2014 (%)	All Years (%)
Sustainable revenue source	11	9	11	12	13	12
Innovative or forward thinking system	9	13	11	5	6	8

TABLE 18  
BENEFITS DISCUSSED IN MEDIA STORIES, BY GEOGRAPHY

Media Story Code	National (%)	Midwest (%)	Northeast (%)	South (%)	West (%)
Sustainable revenue source	38	10	7	19	26
Innovative or forward thinking system	41	11	11	0	37

Note: this table presents a breakdown by geography for only those stories coded for each benefit.

### Sustainable

One MBUF benefit mentioned in the media coverage is the possibility for MBUFs to serve as a sustainable and long-term revenue source for transportation infrastructure. For example, the *Chicago Tribune* described Representative Bill Shuster (R-Pa.) as seeing the mileage fee system “as the most viable long-term alternative” (Halper 2013).

Discussions of the MBUF as a sustainable revenue source were relatively uncommon in the media stories. Only 12% of the articles discussed the mileage fee as being a sustainable or long-term source of revenue. The percentage of stories presenting MBUFs as a sustainable source of revenue remained fairly consistent over the 5-year period, but there was some variation across regions. The majority of stories that described the MBUF system as sustainable came from national media (38%), followed by media in the West (26%), South (19%), Midwest (10%), and Northeast (7%).

### Innovative Revenue Source

Another positive framing in the media coverage was the use of the terms “innovative” or “forward-thinking” to describe an MBUF. For example, one national media source stated, “It is time for transportation interests at all levels of government and throughout the country to work together to identify

an alternative and innovative funding mechanism, such as a VMT system, to help support dwindling gas tax revenues” (*US Official News* April 2014).

It was uncommon for media stories to describe the MBUF system as innovative; only 8% did so. There is relatively little variation by year. Geographically, the national media published the highest percentage of media stories describing the VMT tax as innovative (41%), followed by media in the West (37%), Midwest (11%), Northeast (11%), and South (0%).

### Other Benefits

Several other benefits of an MBUF system were discussed in various media stories, but these issues did not appear frequently enough to warrant formal coding or analysis by year or region.

A few stories discussed the MBUF system as being “efficient.” For example, a transportation columnist stated, “The most promising, efficient, and fair alternative is a fee based on the number of miles you drive in a year—often referred to as a mileage-based user fee” (Richards 2014). And the *Wall Street Journal* stated, “A new policy of charging drivers based on the miles they travel would make the system more equitable and efficient” (Geddes and Wassink 2014).

Several articles discussed how an MBUF system might benefit the environment. Some noted the decrease in greenhouse gas emissions and pollution that could result if an MBUF reduced total vehicle miles traveled. For example, a story from the *Chicago Tribune* commented,

Analysts call it a “mileage-based user fee.” Not surprisingly, the idea appeals to some liberals, as the taxes could be staggered to change driving patterns in ways that could help reduce congestion and greenhouse gases, for example. California planners are looking to the system as they devise strategies to meet the goals laid out in the state’s ambitious global warming laws. (Halper 2013)

Another online media story noted,

At the end of the day, less driving and/or driving more fuel-efficient cars and trucks points toward fewer emissions produced overall. If a VMT tax results in fewer produced emissions and more money becomes available for infrastructure improvement work, then this type of revenue-generating and air-quality-improvement mechanism would seem, at minimum, well worth further consideration. (Kandel 2014)

A few stories framed the MBUF system as a tool to change behavior and reduce automobile use. As a story in *Government Executive* explains,

[T]he greatest potential of Oregon’s [MBUF] program is its ability to change the way Americans think about the cost of driving. Right now the cost of road maintenance



is hidden in the price of fuel. In a mileage-based funding system, such as Oregon's, drivers would receive monthly statements showing their driving activity and road expenses. The entire funding system becomes more like a utility—like an electricity or cable bill—enabling people to adjust their behavior in response to their expenses. In other words, people would think more proactively about their road consumption. Right now, like too many representatives in Washington, they don't. (Jaffe 2014)

Other media stories discussed the possible revenue benefits of implementing an MBUF. The *Bond Buyer* claimed, "Mileage-based systems could yield revenues between three and eight times higher than the gas taxes currently used to maintain the public road system and back bonds" (Glazier 2012).

Finally, several stories framed an MBUF as a potential "solution" to current or future problems funding transportation infrastructure. For example, a story in *USA Today* quoted Jaime Rall, a senior policy specialist, as saying, "We're seeing a lot of interest in VMT as one of the potential solutions to transportation funding gaps that states are dealing with" (Copeland and Overberg 2012).

## OTHER ISSUES

A number of other issues related to mileage fees were evaluated through the coding process. Table 19 shows how often these additional themes appeared by year, and Table 20 shows the percentage of stories about each issue that appeared in the different regions. These issues are ordered in the table and discussed in the following text according to descending prevalence in the media coverage.

### Fuel Efficiency

The issue of fuel efficiency and fuel-efficient vehicles was sometimes raised to illustrate the importance of a new source of transportation revenue (in effect setting up the argument for a discussion of shifting to an MBUF). For example, a story in the *Las Vegas Review* stated,

Fuel taxes have not increased since 1993. That, combined with an increasing number of fuel-efficient vehicles and higher costs to build roads and bridges, weakens the purchasing power of gas tax revenues. . . . If motorists pay fees for miles traveled, fuel taxes, which amount to 52 cents per gallon, would go away. (Packer 2010)

Alternatively, fuel efficiency was sometimes discussed in the same sentence or paragraph as mileage fees. For example, a story in the *US Official News* explained, "Better fuel mileage, hybrids and electric cars are contributing to a decline in fuel tax revenue. VMT would attempt to reverse that decline by charging motorists for the miles they drive rather than a flat tax at the pump" (*US Official News* August 2013).

TABLE 19  
OTHER ISSUES DISCUSSED IN MEDIA STORIES, BY YEAR

Media Story Code	2010 (%)	2011 (%)	2012 (%)	2013 (%)	2014 (%)	All Years (%)
Fuel efficiency	34	30	43	45	49	43
Replacing the gas tax with a mileage fee	46	59	34	36	33	38
Alternative (electric) vehicles	14	37	23	8	25	21
Research conducted	29	54	17	11	16	21
Research underway	23	15	23	16	16	18
Describing the VMT tax as a user fee	14	15	8	8	19	14
Political will	26	22	11	14	6	13
Congestion pricing	14	13	8	6	8	9
Research needed	11	17	4	2	4	6
Trucks or trucking industries/professionals	3	4	4	2	7	5
Need for public support/acceptance	3	5	8	2	1	3

TABLE 20  
OTHER ISSUES DISCUSSED IN MEDIA STORIES, BY GEOGRAPHY

National	National (%)	Midwest (%)	Northeast (%)	South (%)	West (%)
Fuel efficiency	15	33	14	13	24
Replacing the gas tax with a mileage fee	31	14	14	14	26
Alternative (electric) vehicles	32	14	13	11	30
Research conducted	24	13	21	15	27
Research underway	27	13	10	14	37
Describing the VMT tax as a user fee	30	14	12	10	36
Political will	35	13	20	11	22
Congestion pricing	29	14	33	5	19
Research needed	11	17	4	2	4
Trucks or trucking industries/professionals	24	29	12	6	29
Need for public support/acceptance	20	10	10	10	50

Note: This table presents a breakdown by geography for only those stories coded for each issue.

Fuel efficiency was a prominent issue in the media stories. Forty-three percent of all media stories collected discussed

the impact of improving fuel efficiency on gas tax revenues; this percentage fluctuated by year from a low of 34% in 2010 to a high of 49% in 2014. The majority of stories discussing fuel efficiency came from national sources (33%), followed by media sources in the West (24%), Midwest (15%), Northeast (14%), and South (13%).

### Replacing the Gasoline Tax with an MBUF

Replacing the gasoline tax with an MBUF at the state or federal level was commonly mentioned in the media coverage. For example, one source stated, “Replacing federal and state gasoline taxes as the prime source of transportation spending with a system of mileage-based charges may eventually be technically and politically feasible” (Watts 2014).

Discussion of replacing the gas tax was fairly prevalent, with 38% of all stories commenting on replacing it with an MBUF. This topic appeared in a third to half of stories from each year. Looking across all years, of those stories discussing MBUFs as a replacement for fuel taxes, most of these stories came from national (31%) and Western (26%) media sources.

### Alternative Vehicles

Another prominent theme—alternative (e.g., electric) vehicles—was discussed in 21% of the media stories. As with fuel efficiency, alternative vehicles were often discussed in the context of reduced gas tax revenues creating a need for an MBUF or other source of revenue. For example, a story in the *Virginia Pilot* stated, “As increasing numbers of high-fuel-mileage vehicles (hybrids, electric, etc.) reach the highways, alternative methods of raising revenues will be necessary. A mileage-based tax is appropriate, with miles driven obtained through factory-installed remote odometer-monitoring devices” (Hallam 2010). Alternative vehicles were also discussed in terms of fairness and equity (i.e., the need for owners of alternative vehicles to pay their share to maintain road infrastructure).

Nearly a quarter of all media stories discussed alternative vehicles, although there was some variation across years. National media sources and sources from the West accounted for a majority of those stories (32% and 30%, respectively).

### Research Conducted

Another theme looked at stories that referred to completed MBUF research. Discussion of this topic varied from brief mention to in-depth discussion of results from a particular study. For example, one story from the *Journal of Commerce* reported in depth on research, stating,

Payment on the basis of VMT has been successfully carried out in pilot projects in Oregon (the U.S. leader in

transportation funding) and on heavy trucks in Germany. Oregon is laying the groundwork for drivers to pay a “mileage-based user fee” rather than the traditional gas tax. In 2012, the state successfully completed a Road Usage Charge Pilot Program. It found that providing users with options for recording the number of miles travelled (including at least one option that did not use GPS technology so as to assuage drivers’ privacy fears) contributed to the success of the program. (Furchtgott-Roth 2014)

Completed research projects (e.g., pilot projects, surveys, or cost-benefit analyses) were mentioned in nearly a quarter of all stories (21%). There was little variation across regions in the percentage of stories discussing completed research. Across years, discussion of completed research fell slightly over time.

### Research Under Way

Several stories discussed ongoing research projects, such as MBUF pilot projects, in varying detail. For example, a story from the *Christian Science Monitor* reported,

The University of Iowa’s Public Policy Center is testing a VMT in a \$16.5 million federally funded research project. Nevada just launched a three-year VMT study. Most authorities on the subject believe a transition to a VMT would take several years. (Cassidy 2010)

Fourteen percent of all stories discussed the importance of more research. There was little variation across years. Of the stories that mentioned current research projects, the majority came from Western sources (37%).

### “User Fee” Terminology

Overall, 14% of the media stories explicitly referred to the VMT tax as a “user fee.” A story from the *Daily Camera* compared an MBUF to utility user fees:

We need to charge for transportation more like water, so that the pricing of both the “tap fee” and the “user fees” provide both adequate funding and useful incentives. Gas taxes, vehicle-mileage fees, tolls, etc. are either impractical or illegal for a city to do on its own, but one “user fee” approach that can be implemented is parking fees. Parking fees are not perfect—they do not reflect mileage, for example. But at least they provide a way to directly price actual usage of the system. (Pomerance 2012)

Describing the MBUF as a user fee was not very common (14%), and there was little variation across years. However, the percent of stories describing the MBUF as a user fee varied somewhat by geography: media from the West accounted for the greatest percentage of articles discussing user fees (36%), followed by the Northeast and Midwest (14% and 12%, respectively), and the South (10%). Thirty percent of the sources that mentioned user fees were from the national news media.

### Political Will

Thirteen percent of media stories included statements about whether elected officials did or did not have the political will to support an MBUF. Most commonly, the stories discussed a lack of political will, especially at the federal level. For example, a story in the *Bond Buyer* noted,

[Senator Barbara] Boxer also said she would support a tax on vehicle miles traveled, as long as the data was reported on the honor system rather than recorded by devices installed in vehicles. But she added that she doesn't think a VMT tax would be widely supported by other Congress members. (Jagoda 2013)

On the other hand, the same publication later printed an article arguing that political will might be greater at the state than federal level:

A federal VMT tax is “highly unrealistic,” says Joshua Schank, president of the Eno Center for Transportation, a nonpartisan think tank in Washington, D.C. But he says such taxes are likely at the state level in coming years. (Copeland 2014)

National media sources accounted for a greater percentage of stories mentioning political will (35%) compared with Western (22%), Northeastern (20%), Midwestern (13%), and Southern (11%) sources. The discussion of political will declined over the years, falling from 26% in 2010 to 6% in 2014.

### Congestion Pricing

When discussed, the possibility of congestion pricing was often offered as a benefit to switching to a mileage-based user fee system. For example, one story from the *Wall Street Journal* stated, “Mileage-based fees can also be adjusted to discourage motorists from driving on the most congested roads or at the busiest times of day” (Totty 2012).

Mention that MBUFs that might incorporate congestion pricing was uncommon; only 9% of the media stories mentioned congestion pricing, a percentage that held fairly consistently over the years. The majority of these discussions appeared in Northeastern sources (33%) followed by national (29%), Western (19%), Midwestern (14%), and Southern (5%) sources.

### Research Needed

The media stories were coded to determine how often the need for additional MBUF research was discussed. For example, one story calling for additional research stated, “Taxing drivers by the mile won't be easy. . . . The first step is more research, preferably at the state or regional level” (*Christian Science Monitor* 2010).

Overall, only 6% of stories discussed the need for additional research, and this topic appeared much more often in

2010 and 2011 than in later years. The majority of the stories came from Northeastern media sources (33%).

### Trucking

Only 5% of media stories discussed mileage fees in conjunction with trucking. Typically, the stories either argued that heavy trucks be assessed for additional damage to road infrastructure or presented the concerns of trucking industry representatives or professionals. For example, one media source stated, “Subcommittee member Fred Burns, owner of a Marlinton-based trucking company, said those in his industry would prefer a fuel tax increase to fees based on load weight and miles traveled, or increases in Turnpike tolls” (Kabler 2013).

There was little variation across years in the frequency with which MBUF media stories mentioned trucking. Geographically, the majority of stories discussing trucking issues came from Western, Midwestern, and national sources.

### Importance of Public Support

Stories were also analyzed to see whether they discussed the need for public acceptance in order to implement an MBUF. Public support was occasionally brought up by professionals or elected officials. For example, a *US Official News* story noted that Paul Enos of the Nevada Trucking Association “expressed serious doubts whether a skeptical public will ever accept a vehicle miles traveled tax” (*US Official News* Aug. 20, 2013).

Discussion of the need for public support of a mileage fee was consistently low across all years (3%); the majority of comments discussing public support came from Western sources.

### SUMMARY OF KEY CHAPTER FINDINGS

A total of 359 media stories from 2010 through 2014 were reviewed to assess how MBUFs are portrayed in the news media. To analyze the media coverage, stories were first evaluated by publication type (i.e., intended for the general public or for industry professionals) and geography (national versus a particular Census region). Next, the stories were analyzed in terms of their overall tone toward MBUFs, the kinds of people whose opinions were quoted (professional, elected official, or member of the general public), and the frequency and nature of comments on a wide variety of themes, including perceived problems and benefits of an MBUF.

Overall, the media stories discussing MBUFs represented the different regions of the United States fairly well, although more articles came from the West (23%), Midwest (16%), and Northeast (16%) than from the South (12%). Thirty-three percent of the stories were published in national news media such as the *New York Times* or *US Official News*.

The majority of media stories were geared toward a general audience (83%) rather than industry professionals (17%). In terms of overall tone toward MBUFs, media stories tended to be neutral (39%) or mixed (29%); stories with a clearly positive (18%) or negative (13%) tone were less prevalent.

The general public's preferences and opinions related to MBUFs are poorly represented in the news media coverage analyzed; the views of the general public appeared only rarely. For example, only 5% of media stories incorporated quotes from the general public and only 10% mentioned the opinions or views of the public. By contrast, media stories often quoted professionals (38%) and elected officials (20%) who offered opinions, clarification, and information related to MBUFs. Presenting information related to mileage fees and the opinions of professionals and elected officials certainly informs public opinion, but what the public thinks about mileage fees cannot be well understood from the media coverage. In addition, while public support is clearly an important factor in implementing a mileage fee, only 3% of stories explicitly addressed the need for public acceptance.

By far the most common concern discussed in the media stories was privacy (50% of stories). This issue was framed in many ways, including government surveillance (e.g., Big Brother or Orwellian imagery), general concern, and implicit concerns related to technology and tracking. A majority of stories that discussed this topic included suggestions for designing MBUFs to minimize the invasion of privacy (e.g., using odometer-reading technology or having the private sector collect mileage data).

The issue of fairness also was raised often in media stories (30%), although it did not come up as often as privacy. Some people expressed concern that a switch from the gas tax to an MBUF would penalize owners of alternative and fuel-efficient vehicles who were doing their part to protect

the environment and reduce greenhouse gas emissions. A countering opinion was that MBUFs are fairer than the gas tax because they ensure that drivers of alternative and fuel-efficient cars will pay their fair share to support transportation infrastructure. Other fairness issues focused on how MBUFs would affect rural and low-income drivers.

Some issues that appeared frequently in the qualitative research analyzed for this study did not come up as often in the media stories; for example, technology came up in only 11% of stories, administration in 12%, and cost in 5%.

Some media stories described MBUFs in terms of their benefits, primarily as a revenue source that was sustainable (8% of stories) and innovative (12% of stories). Environmental and fiscal benefits were discussed as well, and the idea of an MBUF was sometimes described as a possible solution to the problem of funding transportation infrastructure in the future.

Finally, various other concerns were identified in the media stories. Many stories (43%) discussed increasing fuel efficiency to justify switching from fuel taxes to an MBUF, for purposes of revenue generation or fairness. Replacing the gasoline tax with a mileage fee was another prevalent theme (38% of stories), as was discussing alternative vehicles in relation to the MBUF system (21%). Media stories discussed previous research (21%) and current research projects (18%). Political will (usually mentioned in reference to a lack of will for enacting an MBUF system) was discussed in 13% of the stories. The stories less commonly described the mileage fee explicitly as a user fee (14% of stories), mentioned congestion pricing (9%), commented on the need for future research (6%), or discussed the trucking industry (5%). Of all the themes explored, the one that appeared in the smallest percentage of stories (3%) was the need for public support in order to enact an MBUF system.

## CHAPTER SIX

## CONCLUSIONS: KEY FINDINGS AND RECOMMENDATIONS FOR FUTURE RESEARCH

Declining real-value fuel tax revenues has led to interest in the viability of mileage-based user fees (MBUFs) as a replacement for fuel tax revenues. This NCHRP synthesis report identifies existing U.S. public opinion research on MBUFs and presents a meta-analysis of the results to assess what the public thinks about these fees. Using three primary sources of information—qualitative research studies, public opinion surveys, and media coverage—the study team identified the primary themes that emerge about public opinion and MBUFs.

### SUMMARY OF KEY STUDY FINDINGS

This chapter summarizes the types and nature of research and media about MBUFs that were identified and presents the key conclusions drawn about public opinion on MBUFs. Chapters three, four, and five presented the findings from analyses of qualitative studies, quantitative studies, and media content, respectively. This summary covers insights that emerge when one considers the findings from all three data sources together.

#### Availability of Research and Media Coverage on MBUF Public Opinion

For this report, the study team evaluated qualitative studies, public opinion polls, and published media stories to determine public perceptions of MBUFs. The research identified a modest number of qualitative studies about MBUF opinion (12) and a somewhat larger number of surveys (38). Collectively, these works provide reasonably clear evidence about the general level of support for an MBUF. The qualitative studies and media stories offer strong hints about particular issues that concern the public, though the survey evidence does not make it possible to confirm that the wider public shares the specific concerns discussed in the qualitative research and media stories. Finally, the survey evidence provides evidence about the general support level among some population subgroups of interest (e.g., by age or region of the country).

The researchers also collected 359 media stories about MBUFs that were published from 2009 to 2014. These media stories were assessed through a content analysis process to determine how mileage fees themselves, as well as public opinion *about* mileage fees, were described in the media.

The analysis revealed that media stories rarely included the views of members of the public or discussed the nature of public opinion about MBUFs. However, the specific issues discussed provide clues about the topics likely to be of interest to the general public.

#### Public Opinion About MBUFs: Key Themes

##### *Level of Support for Mileage-Based User Fees*

All three sources of data analyzed—the qualitative research, surveys, and media stories—suggest that there is not yet majority support among the public for MBUFs. Looking across the 33 surveys that asked very generally about support for the concept of an MBUF (without specifying that the fee would replace the gas tax), mean support was only 24%. Support levels ranged from 8% to 50% and were fairly consistent across a wide range of demographic and socioeconomic characteristics. However, the small number of surveys done with pilot program participants suggests that direct experience with an MBUF through participation in a pilot program noticeably increases support for these fees. Support among pilot participants ranged from 37% to 71%.

All the qualitative study reports described in depth the many concerns respondents had about MBUFs, whereas the reports discussed far fewer positive opinions. Thus, the meta-analysis of the qualitative research supports the more generalizable survey research finding that most participants did not support the MBUF concept.

Related to the question of whether people support the general concept of an MBUF is the question of whether they support replacing the gas tax with an MBUF. Both the surveys and the qualitative studies found that participants saw no compelling reason to replace the gas tax. The average support across the 23 survey questions addressing the replacement of a gasoline tax with an MBUF system (presented as a hypothetical scenario) was 23%, with a range of 8% to 42%. Complementing this survey finding, the authors of many of the qualitative studies concluded that the public saw no reason to replace the gas tax with an MBUF.

The synthesis results provide tentative evidence that MBUF support may rise over time, especially if there are new pilot programs or other activities that familiarize people

with the MBUF concept. First, the meta-analysis of survey data shows that mean support for replacing the gas tax with an MBUF has increased slightly over time. Second, surveys of participants in two MBUF pilot programs found relatively high support levels, suggesting that direct experience with an MBUF noticeably increases support for these fees. (The act of participating in a pilot might, in and of itself, raise support.) Third, the media story analysis found that the percentage of stories taking a positive tone toward MBUFs has gradually increased, from 6% in 2010 to 27% in 2014. These various pieces of evidence suggesting that MBUF support may increase over time align with existing social psychology research, which suggests that message repetition is a key factor in changing public opinion and attitudes toward an issue.

#### *Specific Issues of Concern with Mileage-Based User Fees*

The analyses of qualitative studies and of media stories provide a rich and detailed picture of the factors that most likely are causing low support for MBUFs, and in a couple of cases, survey evidence indicates that these factors do indeed matter to the public at large.

Privacy was a prominent theme in the focus group studies and media stories. The topic was discussed in virtually all the qualitative studies evaluated, and the authors of several studies specifically called out privacy as one of the main objections to an MBUF system. Participants were most alarmed at the idea of technology that collected data on the location or time of travel, but even simple odometer-based systems raised concern. The media story analysis supports the notion that privacy is a common concern: half of the stories discussed privacy issues in some capacity. As for the survey data, responses to seven of the 10 privacy questions asked showed that at least half of the respondents considered privacy to be a concern.

A second prominent theme in the qualitative studies and media stories was fairness, with the MBUF system framed as both fair and unfair. For example, many focus group participants were concerned that fuel-efficient-vehicle owners would pay comparatively more taxes under an MBUF scheme than they would under a gas tax system, while owners of less fuel-efficient vehicles would pay comparatively less. These people thought it was unfair that a switch from the gas tax to an MBUF would penalize those who were doing their part to protect the environment and reduce greenhouse gas emissions. Others thought an MBUF would be fairer than the gas tax, because *all* drivers would pay to support road costs, including drivers of fuel-efficient and alternative-fuel vehicles. Yet other fairness discussions focused on how MBUFs would affect lower-income drivers, rural drivers, truckers, and commuters, and on whether an MBUF system would allow some unethical drivers to cheat the system by avoiding payment altogether. The survey data do not provide clear evidence about which fairness issues are most important to

people, but the data do support the conclusion that fairness is a serious concern.

The focus group analysis revealed concerns related to administering MBUFs. People distrusted the technology itself or the government's ability to administer the program accurately, without billing errors. Other administrative concerns focused on program cost and, to a lesser extent, on the logistics associated with billing for a state driver's travel in other states or an out-of-state driver's travel within an MBUF state.

Additional issues that emerged across the focus groups, media stories, or both were that people worry that switching from the gas tax to an MBUF would remove a policy incentive to stimulate the purchase of fuel-efficient vehicles. Participants also voiced objections to MBUF programs with a congestion pricing component and expressed concern that an MBUF would require drivers to make large, infrequent payments that stressed household budgets more than fuel taxes that are paid frequently in small amounts. The studies and media stories also indicated that people object to the potential complexity of a structure for collecting these fees; if there is to be an MBUF at all, they want a simple structure.

#### *Perceived Benefits of Mileage-Based User Fees*

The qualitative studies and media stories suggested a few reasons that people might support MBUFs. Some people liked the fact that MBUFs could charge electric and fuel-efficient vehicles for their road usage. Further, the media story analysis showed that some people viewed the MBUF system as a "sustainable" or "innovative" revenue source, and an MBUF was sometimes described as a possible "solution" to the problem of funding transportation infrastructure into the future.

### **FUTURE RESEARCH NEEDS**

The results of this study suggest several research gaps, which are discussed here along with possible avenues for filling those gaps.

#### **Additional Survey and Qualitative Research**

One gap in the public opinion research is that existing studies do not look carefully at the opinions of important subgroups within the population. For example, there is very little research identifying the specific perceptions held by populations of special concern as defined by federal civil rights regulations and guidance documents, such as low-income and minority residents. Among all the qualitative and survey studies reviewed, only one specifically explored the views of a population of special concern (Agrawal et al. 2011). Further, few surveys or qualitative studies present findings for

subsets of respondents defined by income, race, or ethnicity, and the survey projects that do report findings for these groups often have sample sizes too small to permit generalizing the results to the larger group of interest. Therefore, it would be valuable to conduct additional qualitative and then survey research to understand the perceptions of low-income and minority residents. This research would provide high-quality information that government agencies could use to complete environmental justice analyses of potential mileage fee programs.

Also, there is a perception that MBUFs may have different impacts on rural versus urban residents, because rural residents usually have fewer travel alternatives to driving. It would be useful to design surveys that compare the perception of urban and rural residents to confirm whether or not this perception holds among the full population or among members of one of those groups.

In addition to looking at the opinions of key population subgroups, more research is needed with the full population. One research gap is that a number of issues and concerns identified in the qualitative research studies have not been thoroughly addressed in quantitative public opinion surveys. Most of these surveys asked only about support or opposition to MBUFs in general. Numerous opinions and concerns revealed in the qualitative research and media coverage have not been well tested in survey research, so it is impossible to know whether the larger public shares these views. A few surveys have included privacy and fairness issues, as well as a limited number of questions on topics related to administration or technology, but more surveys are needed to develop a broader understanding of public opinion on these and other issues raised in the qualitative research and media stories.

The following additional topics could be usefully explored through survey research:

- How does a respondent's knowledge about current transportation revenue options influence support for MBUFs?
- Does educating people about current transportation issues change support for MBUFs? The qualitative studies found that most participants had almost no accurate understanding of how governments pay for transportation or of the links between road usage and road construction and maintenance costs. Surveys could be designed to measure support before and after respondents receive education about these issues. Surveys could also compare the impact of various educational messages on MBUF support.
- How does messaging influence public opinion on MBUFs? For example, does opinion vary depending on whether people are told what the annual cost would be for a typical driver? Or if they are told that the revenue raised will be dedicated to specific purposes? Survey

research evidence suggests that support for gas taxes rises when people are given this type of information, so it would be worth investigating whether the same pattern holds for MBUFs.

Turning to a different aspect of survey research, most existing survey studies present only descriptive statistics or simple bivariate analysis. There is a need for multivariate analysis to better understand how factors such as demographic characteristics, travel behavior, vehicle type owned, and attitudes influence public opinion on MBUFs.

Finally, there is no large-sample-size, longitudinal state or national survey that delves in detail into public opinions about mileage fees. Such a survey would be useful for a variety of purposes. First, if the sample size were large enough, it would be possible to compare attitudes in different regions of a state or country. Second, such a survey could be designed to ensure enough responses from populations of special concern, or urban versus rural residents, so that the opinions of those groups could be identified with confidence. Third, a survey focused primarily on opinions related to MBUFs could explore many of the issues raised in the qualitative research that have so far not been thoroughly covered in survey research, including concerns about administration and people's ability to pay infrequent, lump-sum MBUF bills. Fourth, a longitudinal survey would reveal whether and how public opinion fluctuates over time in response to changes in the economy, vehicle technology, and transportation funding policy.

#### **Research on Guidance on Most Effective Practices for MBUF Survey Research**

To help agencies that wish to survey the public about mileage fees, it would be useful to conduct the research needed to develop a brief guidance document that outlines advice on how agencies can design a survey questionnaire, sampling plan, and data analysis plan. The guide could include topics such as these:

- Contextual questions that would help interpret findings on MBUFs. For example, surveys could include questions that probe support for alternative funding mechanisms such as higher gas taxes or tolling and questions that determine what respondents know about the gas tax rates and annual dollar amounts they currently pay.
- Sampling strategies to ensure that there are enough respondents from populations of special interest so that their responses can be generalized to the full subgroups in question (e.g., low-income, minority, or rural residents).

#### **Research into Creating an MBUF Public Opinion Research Clearinghouse**

It would be extremely useful to future researchers to have a single online location for all surveys and qualitative studies

on public opinion of MBOFs. Ideally, this resource would include survey questionnaires, raw and cleaned data files, and summary reports describing the findings from each study. Researchers and professionals could use an MBOF clearinghouse for many purposes, from analyzing the data in new ways to gathering ideas for wording research and survey questions.

Research is necessary to identify an appropriate design for such a web resource, an entity to host it, and ongoing funding to maintain and update the resource over time. One example of such a clearinghouse, which could be used as a starting point for further investigation, is the Metropolitan Travel Survey Archive (<http://www.surveyarchive.org/about.html>).

#### **Additional Research on Pilot Program Participants**

Relatively little information is available about MBOF pilot program participants. This synthesis found that support for MBOFs appears to rise after people have had direct experience with the concept through a pilot program. Therefore, it would be helpful to conduct more pilot programs that include extensive public opinion research, as the views of these participants could be particularly useful for predicting how the public would react if an MBOF were actually implemented.

#### **Additional Media Story Analysis Research**

Because major news media databases such as the ones used for this study (Lexis-Nexis and Proquest) do not capture all relevant stories on a topic, additional media analysis using different search methods would be useful. The databases used (and other comparable ones) omit certain types of stories presented in the sources covered. For example, some letters to the editor or wire stories might not be included. Also, the databases exclude smaller media sources, such as community papers, as well as influential public interest blog sites. Therefore, it would be valuable to conduct more focused media analysis in states, such as Oregon and Minnesota, that have seriously debated or experimented with MBOFs. Such work would require identifying a set of relevant local media sources and gathering news stories through a search of each one's archives.

#### **Research Using Data from Social Media**

To date there is no analysis of social media commentary about mileage fees, a data source that could prove useful as a complement to other research methods. With the tremendous proliferation of social media outlets such as Facebook, Twit-

ter, blogging sites, YouTube, and Reddit, the role of these sites in influencing public opinion is likely to expand considerably in the future. Further, social media have significant potential for public opinion research because they provide researchers with fast access to a huge amount of data and do not require recruiting participants to participate in a research process (Murphy et al. 2014).

However, as with any research method, there are potential limitations to social media data analysis, which any research project would need to account for. Probability sampling is not possible with social media research, so findings cannot be generalized to the full population with confidence. Also, significant portions of the population do not participate in these forums, so their opinions would be missed. Yet another issue facing researchers is how to properly assess sentiment using automated sentiment analysis, because the huge quantity of data usually precludes having a person analyze and code every data point (Bialik 2012). While algorithms can be trained to decode what straightforward written language actually means, it is challenging to interpret sarcasm, slang, emoticons, or acronyms such as ROFL (rolling on the floor, laughing). For example, in some cases ROFL might denote a happy, positive sentiment, but it could also mean something very different if used sarcastically in a tweet such as "Our county plans to implement #vmtfee rofl."

## **CONCLUSIONS**

As fuel tax revenues decline in real terms per vehicle mile traveled—and changes in vehicle technology suggest that this trend will accelerate—policymakers are actively exploring the possibility of replacing fuel taxes with MBOFs. Indeed, more than half the states in the country have already taken some action to investigate the potential value of adopting an MBOF. Mirroring this interest within the policy arena, a small but growing body of research has looked at public opinion about MBOFs.

This synthesis documents a number of findings that emerge across the existing research. The majority of the public does not yet support MBOFs. People's key concerns most likely include privacy, fairness, distrust of the technology and administrative capacity needed to collect mileage-based user fees, and a belief that the gas tax still functions better than an MBOF would. The study findings also show that additional research is needed to establish a more nuanced understanding of the public's specific concerns, as well as to understand the concerns of important population subgroups.



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## APPENDIX A

### Summary Information About the Public Opinion Surveys Analyzed

This appendix presents summary information about the 38 surveys analyzed, in two formats. First, a table provides a very brief set of key facts about each survey. Next, the appendix presents detailed information about each survey's methods and the MBUF questions it includes.

TABLE A1  
SUMMARY INFORMATION ABOUT THE SURVEYS ANALYZED

Survey Sponsor or Author	Sponsor Type	Year Published	Year Data Collected	Survey Mode	Geographic Level	Census Region	Sampling Base	Sample Size	Number of Survey Questions
Minnesota Department of Transportation (Wilbur Smith Associates)	Government agency	1995	1995	Phone	State (MN)	Midwest	Adults	500	9
Mineta Transportation Institute (Weinstein et al.)	Academic	2006	2006	Phone	State (CA)	West	Adults	2,705	1
Minnesota Department of Transportation (Dieringer Research Group)	Government agency	2009	2009	Phone	State (MN)	Midwest	Adults	1,302	10
Rasmussen Reports	Polling firm	2009	2009	Phone	National	U.S.	Adults	1,000	1
Mineta Transportation Institute (Agrawal, Dill, and Nixon)	Academic	2009	2008	Phone	State (CA)	West	Adults	1,500	2
Civitas Institute	Government agency	2009	2009	Phone	State (NC)	South	Registered voters	600	1
Mineta Transportation Institute (Agrawal and Nixon)	Academic	2010	2010	Phone	National	U.S.	Adults	1,545	2
HNTB Companies (Kelton Research)	Industry	2010	2010	Online	National	U.S.	Adults	1,064	1
Indian Nation Council of Governments (Collective Strength)	Government agency	2011	2010	Phone	Local (Tulsa, OK)	South	Adults	1,000	1
Federal Highway Administration (Ramfos)	Government agency	2011	2010	Phone	Regional (Washington, DC)	South	Adults	6,629	1
HNTB Companies (Kelton Research) <sup>a</sup>	Private firm	2011	2011	Online	National	U.S.	Adults	1,124	2
Mineta Transportation Institute (Agrawal and Nixon)	Academic	2011	2011	Phone	National	U.S.	Adults	1,516	2
Rasmussen Reports	Polling firm	2011	2011	Phone	National	U.S.	Adults	1,000	1
Washington State Transportation Commission (EMC Market and Opinion Research)	Government agency	2011	2011	Multiple	State (WA)	West	Adults	5,518	1
University of Iowa Public Policy Center (Hanley and Kuhl) <sup>a</sup>	Government agency	2011	Not specified	Multiple	National	U.S.	Program participants	2,650	3
Hart Research Associates & Public Opinion Strategies	Philanthropy	2011	2011	Phone	National	U.S.	Registered voters	1,001	1
Minnesota Department of Transportation (Munnich, Doan, and Schmitt)	Government agency	2012	2011	Online	State (MN)	Midwest	Adults	400	26
Fiscal Research Center (Ellen, Sjoquist, and Stoycheva)	Government agency	2012	2011	Online	State (GA)	South	Adults	2,000	3

Survey Sponsor or Author	Sponsor Type	Year Published	Year Data Collected	Survey Mode	Geographic Level	Census Region	Sampling Base	Sample Size	Number of Survey Questions
Mineta Transportation Institute (Agrawal, Nixon, and Murthy)	Academic	2012	2012	Phone	National	U.S.	Adults	1,519	2
<i>Wall Street Journal</i> <sup>a</sup>	News media	2012	2012	Online	National	U.S.	Adults	1,726	1
HNTB Corporation (Kelton Research)	Industry	2012	2012	Online	National	U.S.	Adults	1,024	1
Rasmussen Reports	Polling firm	2012	2012	Phone	National	U.S.	Adults	1,000	1
Washington State Transportation Commission (EMC Market & Opinion Research) <sup>a</sup>	Government agency	2012	2012	Online	State (WA)	West	Adults	7,897	1
Mineta Transportation Institute (Agrawal and Nixon)	Academic	2013	2013	Phone	National	U.S.	Adults	1,501	2
Indiana University School of Public and Environmental Affairs (Duncan and Graham)	Academic	2013	2013	Online	National	U.S.	Adults	2,087	53
University of Nevada, Las Vegas (Nordland, Paz, and Khan) <sup>a</sup>	Academic	2013	Not specified	In-person	Local (Las Vegas, NV)	West	Adults	173	10
Minnesota Department of Transportation (Rephlo) <sup>a</sup>	Government agency	2013	Not specified	Multiple	Local (Twin Cities Metro Area, MN)	Midwest	Program participants	420	1
MassInc Polling Group	Think-tank	2013	2013	Phone	State (MA)	Northeast	Registered voters	1,506	1
Oregon Department of Transportation (Whitty)	Government agency	2013	2012	Phone	State (OR)	West	Registered voters	900	2
Oregon Department of Transportation (Whitty)	Government agency	2013	2013	Phone	State (OR)	West	Registered voters	300	1
Colorado State University (Ozbek, Albeiruti, and Atadero)	Academic	2014	Not specified	Mail	Regional (CO, ND, SD, UT, and WY)	Midwest/ West	Adults	1,163	10
GfK Public Affairs and Corporate Communications	News media	2014	2014	Online	National	U.S.	Adults	1,044	1
Reason Foundation	Political	2014	2014	Phone	National	U.S.	Adults	1,000	1
Mineta Transportation Institute (Agrawal and Nixon)	Academic	2014	2014	Phone	National	U.S.	Adults	1,502	2
Texas A&M Transportation Institute (Simek and Geiselbrecht)	Academic	2014	2014	Multiple	State (TX)	South	Registered voters	5,545	1
American Trucking Association (Public Opinion Strategies) <sup>a</sup>	Industry	2014	2014	Phone	National	U.S.	Registered voters	800	1
Washington State Transportation Commission (EMC Market and Opinion Research Services) <sup>a</sup>	Government agency	2015	2014	Online	State (WA)	West	Adults	5,190	6
Field Research Corporation (DiCamillo and Field)	Polling firm	2015	2015	Phone	State (CA)	West	Registered voters	1,241	1

<sup>a</sup> The sampling method for these polls was either nonrandom (e.g., a convenience sample) or unknown. All other surveys were conducted using random-digit dialing or other appropriate techniques for obtaining a randomized sample, such as an online panel recruited using random-digit dialing or recruiting households via a mailed postcard.

**Minnesota Department of Transportation (Wilbur Smith Associates)**

*Sponsor or Funder:* Minnesota Department of Transportation

*Authors:* Wilbur Smith Associates

*Pollster:* N/A

*Title:* Congestion/Road Pricing Study: Technical Memorandum No. 5: Results of Statewide Survey on Mileage-Based Tax

*Publisher and/or publication year:* 1995

*Data collection year:* 1995

*Survey mode:* Phone

*Sampling base:* Adults

*Sampling strategy:* Random

*Sample size:* 500

*Geographic level:* State (Minnesota)

*Census region:* Midwest

*Description of the mileage-based user fee:* “the idea of paying tax on the number of miles driven in Minnesota rather than on the amount of gas purchased”

*Questions:*

- 1) “Based on the information I have given you, I would like your opinion of the idea of paying tax on the number of miles driven in Minnesota rather than on the amount of gas purchased. Using a scale of 1 to 10 in which 10 means very acceptable and 1 means totally unacceptable, how would you rate the idea of a mileage-based tax as a method of raising funds for our state-wide transportation system?”

Favorable (7, 8, 9, or 10): 23%

Unfavorable (1, 2, 3, or 4): 50%

- 2) “Why do you rate it a (ANSWER TO B)?”

Positive responses: 26%

“people who use the roads the most would pay more of their fair share”: 11%

“good idea; we need to try something different”: 5%

“provides more money”: 4%

“fuel-efficient cars would pay more of their share”: 3%

“less expensive than gas tax/less expensive than raising the gas tax”: 2%

Negative responses: 66%

“it would penalize those who drive a lot; those who drive for a living or have a long commute; those who live in a rural area”: 18%

“it is too difficult to record mileage; too difficult to collect or enforce the tax”: 15%

“Minnesota is already one of the highest taxed states; dislike adding any new tax”: 8%

“the State/the Department of Transportation is inefficient or irresponsible with money or the use of taxes; inefficient or irresponsible with its budget”: 6%

“it is too costly to create and implement a new system”: 5%

“it would raise taxes or cost me/us more”: 5%

“it discourages incentive to drive fuel-efficient vehicles; it has an adverse impact on pollution; it will encourage wear and tear on roads”: 5%

“the gas tax is simple to collect”: 4%

“it hurts the lower and middle classes and working poor”: 4%

- 3) “Earlier you rated the idea of a mileage-based tax a (READ NUMBER) on a scale of 1 to 10. Now that we have discussed it further, do you want to stay with that answer or would you like to change it? How would you now rate the idea of paying tax on the number of miles driven in Minnesota rather than on the amount of gas purchased? Please use a scale of 1 to 10 in which 10 means very acceptable and 1 means totally unacceptable. RESPONSES ONLY TO THOSE THAT WANT TO CHANGE THEIR ANSWER.”

Respondents who chose to change their initial answer to express more acceptance: 39%

- 4) “Using a scale of 1 to 10 in which 10 means very acceptable and 1 means totally unacceptable, how would you rate a one-cent per mile mileage-based tax as an option to replace the income from license plates and tabs?”

Favorable (7, 8, 9, or 10): 24%

Unfavorable (1, 2, 3, or 4): 48%

- 5) “Using a scale of 1 to 10 in which 10 means very acceptable and 1 means totally unacceptable, how would you rate a one-cent per mile mileage-based tax as an option to replace a portion of the property tax?”

Favorable (7, 8, 9, or 10): 30%

Unfavorable (1, 2, 3, or 4): 46%

- 6) “Using a scale of 1 to 10 in which 10 means very acceptable and 1 means totally unacceptable, how would you rate the idea of a one-cent per mile mileage-based tax to pay for transportation needs that are not currently funded?”

Favorable (7, 8, 9, or 10): 26%

Unfavorable (1, 2, 3, or 4): 48%

- 7) “Using a scale of 1 to 10 in which 10 means very acceptable and 1 means totally unacceptable, how would you rate the idea of a two-cent per mile mileage-based tax to replace both the gas tax and the cost of license plates and tags?”

Favorable (7, 8, 9, or 10): 22%

Unfavorable (1, 2, 3, or 4): 50%

- 8) “Using a scale of 1 to 10 in which 10 means very acceptable and 1 means totally unacceptable, how would you rate the idea of a three-cent per mile mileage-based tax to replace both the gas tax, the cost of license plates and tabs, and a portion of the property tax?”

Favorable (7, 8, 9, or 10): 14%

Unfavorable (1, 2, 3, or 4): 61%

- 9) “Using a scale of 1 to 10 in which 10 means very acceptable and 1 means totally unacceptable, how would you rate the idea of a four-cent per mile mileage-based tax to replace the gas tax, the cost of license plates and tabs, a portion of the property tax, and to pay for transportation needs that are currently not funded?”

Favorable (7, 8, 9, or 10): 12%

Unfavorable (1, 2, 3, or 4): 69%



**Mineta Transportation Institute (Weinstein et al.)**

*Sponsor or Funder:* California Department of Transportation; U.S. Department of Transportation Research and Innovative Technology Administration

*Authors:* Asha Weinstein Agrawal, Jennifer Dill, Tod Goldman, John Hall, Franziska Holtzman, Joe Recker, and Eileen Goodwin

*Pollster:* San José State University Survey and Policy Research Institute

*Title:* Transportation Financing Opportunities for the State of California

*Publisher and/or publication year:* Mineta Transportation Institute (2006)

*Data collection year:* 2006

*Survey mode:* Phone

*Sampling base:* Adults

*Sampling strategy:* Random

*Sample size:* 2,705

*Geographic level:* State (California)

*Census region:* West

*Description of the mileage-based user fee:* “a so-called “mileage fee” based on the number of miles a vehicle is driven”

*Questions:*

- 1) “One idea (another idea) is to eliminate the 18-cents-a-gallon gas tax altogether and replace it with a so-called “mileage fee” based on the number of miles a vehicle is driven. Each driver would pay a fee of one cent per mile for every mile driven within the state. For example, every 100 miles driven would incur a mileage fee of \$1. Each vehicle would be equipped with an electronic means to keep track of miles driven and the fee would be paid at the pump when drivers buy gas.”

For: 23%

Against: 72%

Don't know: 5%

**Minnesota Department of Transportation (Dieringer Research Group)**

*Sponsor or Funder:* Minnesota Department of Transportation

*Authors:* Dieringer Research Group, Inc.

*Pollster:* Dieringer Research Group, Inc.

*Title:* Mileage-Based User Fee Public Opinion Study: Summary Report Phase III

*Publisher and/or publication year:* Minnesota Department of Transportation (2009)

*Data collection year:* 2009

*Survey mode:* Phone

*Sampling base:* Adults

*Sampling strategy:* Random

*Sample size:* 1,302

*Geographic level:* State (Minnesota)

*Census region:* Midwest

*Description of the mileage-based user fee:* “a user fee based on mileage driven”

*Questions:*

- 1) “I am going to read some other solutions that are being considered to help fund roads. If a decision were made to supplement or replace lost funding, how open would you be to each of the following? Please use a 1–10 scale with “1” meaning “Strongly oppose” and “10” meaning “Strongly support”:

  - h. Mileage-based user fee”
  - Strongly oppose: 35%
  - Strongly support: 23%
  - Neutral: 42%

- 2) “Had you ever heard of a user fee based on mileage driven before you received these materials?”

  - Yes: 41%
  - No: 59%

- 3) “How much thought or consideration had you given this idea of a user fee for miles driven, before you received these materials? Would you say...”

  - I gave it no thought at all: 20%
  - I gave it some thought or consideration: 64%
  - I gave it a significant amount of thought or consideration to the idea of a mileage-based user fee: 16%

- 4) “To clarify, a mileage-based user fee is being considered in the U.S. and in other countries as a means to supplement or eliminate the gasoline tax or another type of vehicle fee. Drivers would be charged a fee based on the number of miles driven. Now we’d like to get your opinions specifically on Approach K [GPS device, rates vary by type of travel]. What was your initial reaction to Approach K? Please use a 10-point scale where “1” means “Extremely Negative” and “10” means “Extremely Positive.” \*Approaches refer to the information sheets provided.”

  - (Positive) Rated 8, 9, or 10: 8%
  - (Negative) Rated 1, 2, or 3: 56%
  - (Neutral) Rated 4, 5, 6, or 7: 36%

- 5) “To clarify, a mileage-based user fee is being considered in the U.S. and in other countries as a means to supplement or eliminate the gasoline tax or another type of vehicle fee. Drivers would be charged a fee based on the number of miles driven. Now we’d like to get your opinions specifically on Approach S [odometer readings, rates vary by type of vehicle]. What was your initial reaction to Approach S? Please use a 10-point scale where “1” means “Extremely Negative” and “10” means “Extremely Positive.” \*Approaches refer to the information sheets provided.”

  - (Positive) Rated 8, 9, or 10: 18%
  - (Negative) Rated 1, 2, or 3: 32%
  - (Neutral) Rated 4, 5, 6, or 7: 50%

## 6) “Describe what, if anything, you liked most about this approach? (ENTER ALL THAT APPLY):”

*Approach K* (GPS device)

It is a base for fees (net): 23.5%

It is based on the mileage driven: 16.4%

It is based on the time of day: 4.6%

It is based on the type of vehicle driven: 3.6%

It is based on the weight/size of vehicle: 1.9%

It is easy to use: (net): 15.9%

It is simple/accurate: 12.8%

It is most simple/less complicated: 0.8%

It is easy to keep track of miles driven: 0.8%

It is easy to report/only have to check in once or twice a year: 0.6%

Other: 0.8%

Others (net): 14.8%

It will help reduce congestion: 12.2%

Liked approach (non-specific): 0.2%

Other single mentions: 2.5%

Fairness (net): 13.6%

Fair—road maintenance costs are paid by user: 10.5%

Rewards drivers who are economical: 2.1%

Forces responsible driving: 1.0%

Collection methods (net): 8.8%

Replaces fuel tax/registration fees: 4.4%

Payment method/due date: 3.2%

Can't cheat on reporting/automatic: 1.3%

Self-reporting: 0.4%

Lower costs (net): 4.3%

Low cost: 4.3%

Privacy (net): 0.4%

Less invasive/more private: 0.4%

No positive aspects: 28.4%

Don't know: 1.7%

*Approach S* (Odometer reading, rates vary by type of vehicle)

It is a base for fees (net): 33.5%

It is based on the mileage driven: 24.3%

It is based on the type of vehicle driven: 10.2%

It is based on the weight/size of vehicle: 2.6%

It is easy to use: (net): 11.0%

It is simple/accurate: 2.9%

It is most simple/less complicated: 2.9%

It is easy to keep track of miles driven: 1.2%  
 It is easy to report/only have to check in once or twice a year: 0.9%  
 GPS does not have to be installed: 1.3%  
 It is less invasive: 1.5%  
 Other: 0.6%

Others (net): 8.9%

It will help reduce congestion: 2.1%  
 Liked approach (non-specific): 2.2%  
 Other single mentions: 4.5%

Fairness (net): 16.2%

Fair—road maintenance costs are paid by user: 13.0%  
 Rewards drivers who are economical: 3.8%  
 Forces responsible driving: 0.3%

Collection methods (net): 8.8%

Replaces fuel tax/registration fees: 4.4%  
 Payment method/due date: 3.2%  
 Can't cheat on reporting/automatic: 1.3%  
 Self-reporting: 0.4%

Lower costs (net): 11.1%

Low cost: 9.4%  
 Low cost of administering the tax: 1.9%

Privacy (net): 5.6%

Less invasive/more private: 4.1%  
 No GPS: 2.0%

No positive aspects: 19.5%

Don't know: 0.5%

7) “Describe what, if anything, you liked least about this approach? (ENTER ALL THAT APPLY.):”

*Approach K* (GPS device)

Privacy (net): 41.9%

It is an invasion of privacy: 39.8%  
 Having the GPS: 3.2%

Costs (net): 30.6%

Too expensive: 25.4%  
 Cost/installation of device: 3.1%  
 I don't want to pay all at once: 2.8%  
 Don't want to pay to use the road: 1.0%  
 More taxation: 0.9%

Base for fees (net): 15.8%

It is based on the type of vehicle driven: 1.9%  
 Have to pay more during peak hours: 4.2%

- It is based on the mileage driven: 11.5%
- Uncertainty of outcomes (net): 8.3%
  - There was not enough information: 4.7%
  - Don't want gas tax eliminated: 1.2%
  - Confusing: 1.1%
  - How does it affect my driving out of state: 0.4%
  - Does it apply to others from out of state: 0.4%
  - Doesn't account for miles driven across states: 0.4%
- Convenience (net): 6.0%
  - It will be inconvenient: 4.8%
  - Have to go somewhere/call in mileage: 1.0%
  - Hard to budget for: 0.3%
- Enforcement issues (net): 4.8%
  - People will try to cheat the system: 3.2%
  - Compliance/enforcement issues: 1.0%
  - The implementation will be difficult: 0.6%
- Fairness (net): 1.0%
  - Pay the same no matter what type of vehicle is driven: 0.7%
  - Would impact the poor more: 0.1%
  - No incentive to drive efficient vehicles: 0.1%
  - No incentive to drive at different times: 0.0%
- No negative aspects: 4.8%
- Don't know: 0.7%

*Approach S* (Odometer reading, rates vary by type of vehicle)

- Privacy (net): 41.9%
  - It is an invasion of privacy: 39.8%
  - Having the GPS: 3.2%
- Costs (net): 22.4%
  - Too expensive: 15.7%
  - Cost/installation of device: 0.1%
  - I don't want to pay all at once: 5.5%
  - Don't want to pay to use the road: 0.3%
  - More taxation: 1.6%
- Base for fees (net): 16.2%
  - It is based on the type of vehicle driven: 2.8%
  - Have to pay more during peak hours: 1.4%
  - It is based on the mileage driven: 12.4%
- Uncertainty of outcomes (net): 11.3%
  - There was not enough information: 6.7%
  - Don't want gas tax eliminated: 0.5%
  - Confusing: 0.8%

How does it affect my driving out of state: 2.0%  
 Does it apply to others from out of state: 1.6%  
 Doesn't account for miles driven across states: 0.1%

Convenience (net): 24.5%

It will be inconvenient: 12.3%  
 Have to go somewhere/call in mileage: 12.4%  
 Hard to budget for: 0.3%  
 It is a burden for truckers: 0.6%

Enforcement issues (net): 7.1%

People will try to cheat the system: 6.2%  
 Compliance/enforcement issues: 0.4%  
 The implementation will be difficult: 0.5%

Fairness (net): 5.6%

Pay the same no matter what type of vehicle is driven: 0.4%  
 Would impact the poor more: 0.6%  
 No incentive to drive efficient vehicles: 0.7%  
 No incentive to drive at different times: 3.9%

No negative aspects: 13.1%

- 8) "I'm going to read several statements. For each, please tell me how much you agree or disagree that it describes the idea of a mileage-based user fee as a solution to fill a possible funding gap? Please use a 1 to 10 scale where "1" means "Completely Disagree" and "10" means "Completely Agree." [ADD TO EACH INDIVIDUAL SCREEN]: How much to you agree or disagree that..."

[a mileage-based fee] Is a "fair" method to fund transportation:"

(Agree) Rated 8, 9, or 10: 33%  
 (Disagree) Rated 1, 2, or 3: 28%  
 (Neutral) Rated 4, 5, 6, or 7: 39%

- 9) "I'm going to read several statements. For each, please tell me how much you agree or disagree that it describes the idea of a mileage-based user fee as a solution to fill a possible funding gap? Please use a 1 to 10 scale where "1" means "Completely Disagree" and "10" means "Completely Agree." [ADD TO EACH INDIVIDUAL SCREEN]: How much to you agree or disagree that..."

[a mileage-based fee] Is an acceptable method:"

(Agree) Rated 8, 9, or 10: 29%  
 (Disagree) Rated 1, 2, or 3: 28%  
 (Neutral) Rated 4, 5, 6, or 7: 43%

- 10) "Of the solutions that you just rated, which one do you feel would be most acceptable? (READ LIST IF NECESSARY. PROBE WITH "IF YOU HAD TO CHOOSE ONE, WHICH ONE WOULD YOU CHOOSE?" ENTER ONE RESPONSE.)"

Raising fuel taxes: 19.9%  
 Increasing general sales taxes: 4.9%  
 Increasing income taxes: 3.0%  
 Adding fees to higher emission vehicles: 13.2%

Increasing vehicle registration fees: 10.7%  
Increasing the motor vehicle sales tax: 6.5%  
Adding toll roads to the road system: 19%  
Mileage-based user fee: 19%  
None/Don't know: 3.9%

**Rasmussen Reports**

*Sponsor or Funder:* Rasmussen Reports

*Authors:* Rasmussen Reports

*Pollster:* Rasmussen Reports

*Title:* Toplines—Mileage Tax—February 21–22, 2009

*Publisher and/or publication year:* Rasmussen Reports (2009)

*Data collection year:* 2009

*Survey mode:* Phone

*Sampling base:* 1,000

*Sampling strategy:* Random

*Sample size:* 1,000

*Geographic level:* National

*Census region:* US

*Description of the mileage-based user fee:* “a mileage tax that would tax drivers based on how many miles they drive”

*Questions:*

- 1) “On another topic . . . to help fund the building and repair of roads and bridges, the Obama administration is considering a mileage tax that would tax drivers based on how many miles they drive Do you favor or oppose a mileage tax?”
  - Favor: 18%
  - Oppose: 73%
  - Not sure: 10%

**Mineta Transportation Institute (Agrawal, Dill, and Nixon)**

*Sponsor or Funder:* California Department of Transportation; U.S. Department of Transportation Research and Innovative Technology Administration

*Authors:* Asha Weinstein Agrawal, Jennifer Dill, and Hilary Nixon

*Pollster:* Survey Policy and Research Institute at San José State University

*Title:* “Green” Transportation Taxes and Fees: A Survey of Californians

*Publisher and/or publication year:* Mineta Transportation Institute (2009)

*Data collection year:* 2008

*Survey mode:* Phone

*Sampling base:* Adults

*Sampling strategy:* Random

*Sample size:* 1,500

*Geographic level:* State (California)

*Census region:* West

*Description of the mileage-based user fee:* “a fee based on the number of miles you drive”

*Questions:*

- 1) “One idea (another idea) is to eliminate the eighteen-cents-per-gallon state gas tax altogether and replace it with a fee based on the number of miles you drive. Each driver would pay a fee of one cent per mile for every mile driven within the state. For example, every one hundred miles driven would pay a fee of one dollar. Vehicles would be equipped with an electronic means to keep track of miles driven and the fee would be paid when drivers buy gas. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose that idea?”
  - Strongly support: 12%
  - Somewhat support: 16%
  - Somewhat oppose: 12%
  - Strongly oppose: 52%
  - Don’t know: 7%
  
- 2) “A variation on the mileage fee just described is to have the fee vary depending upon how much the vehicle pollutes. On average, vehicles would pay one cent per mile, but vehicles that pollute the least would pay less and vehicles that pollute the most would pay more per mile. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose that idea?”
  - Strongly support: 25%
  - Somewhat support: 25%
  - Somewhat oppose: 11%
  - Strongly oppose: 35%
  - Don’t know: 5%

**Civitas Institute**

*Sponsor or Funder:* Civitas Institute, North Carolina Legislative Committee

*Authors:* Civitas Institute

*Pollster:* Civitas Institute

*Title:* Civitas Poll

*Publisher and/or publication year:* Civitas Institute (2009)



*Data collection year:* 2009

*Survey mode:* Phone

*Sampling base:* Registered voters

*Sampling strategy:* N/A

*Sample size:* 600

*Geographic level:* State (North Carolina)

*Census region:* South

*Description of the mileage-based user fee:* “a plan that would charge all drivers based on the number of miles they drive in North Carolina each year”

*Questions:*

- 1) “In order to fund transportation projects in North Carolina, a legislative commission has recommended changing the current system to a plan that would charge all drivers based on the number of miles they drive in North Carolina each year. Would you view such a system favorably or unfavorably?”

Favorably: 21%

Unfavorably: 70%

Unsure: 9%

**Mineta Transportation Institute (Agrawal and Nixon)**

*Sponsor or Funder:* California Department of Transportation; U.S. Department of Transportation Research and Innovative Technology Administration

*Authors:* Asha Weinstein Agrawal and Hilary Nixon

*Pollster:* Survey Policy and Research Institute at San José State University

*Title:* What Do Americans Think About Federal Transportation Tax Options? Results from a National Survey

*Publisher and/or publication year:* Mineta Transportation Institute (2010)

*Data collection year:* 2010

*Survey mode:* Phone

*Sampling base:* Adults

*Sampling strategy:* Random

*Sample size:* 1,545

*Geographic level:* National

*Census region:* US

*Description of the mileage-based user fee:* “a new tax based on the number of miles a person drives”

*Questions:*

- 1) “One idea (a DIFFERENT idea) is to adopt a new tax based on the number of miles a person drives. Each driver would pay a tax of 1 cent for every mile driven. For example, someone driving 100 miles would pay a tax of 1 dollar. Vehicles would have an electronic meter to keep track of the miles driven, and the tax would be paid each time drivers buy gas. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose this new mileage tax?”
  - Strongly support: 9%
  - Somewhat support: 12%
  - Somewhat oppose: 15%
  - Strongly oppose: 61%
  - Don’t know: 3%
  
- 2) “A VARIATION on the mileage tax just described is to have the tax rate VARY depending upon how much the vehicle pollutes. On average, vehicles would be charged 1 cent per mile, but vehicles that pollute less would be charged less, and vehicles that pollute more would be charged more. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose THIS new mileage tax?”
  - Strongly support: 14%
  - Somewhat support: 19%
  - Somewhat oppose: 18%
  - Strongly oppose: 46%
  - Don’t know: 3%

**HNTB Companies (Kelton Research)***Sponsor or Funder:* HNTB Companies*Authors:* Kelton Research*Pollster:* Kelton Research*Title:* America THINKS 2010 Sustainability Survey*Publisher and/or publication year:* HNTB Companies (2010)*Data collection year:* 2010*Survey mode:* Online*Sampling base:* Adults*Sampling strategy:* Random*Sample size:* 1,064*Geographic level:* National*Census region:* US*Description of the mileage-based user fee:* “a mileage use tax”

*Questions:*

- 1) “How strongly do you agree or disagree with the following statement: The U.S. should try to reduce transportation greenhouse gas emissions by reducing the number of miles that vehicles travel through a mileage use tax.”

Strongly Agree: 11%

Somewhat Agree: 28%

Somewhat Disagree: 22%

Strongly Disagree: 39%

**Indian Nation Council of Governments (Collective Strength)**

*Sponsor or Funder:* Indian Nation Council of Governments (INCOG)

*Authors:* Collective Strength

*Pollster:* Collective Strength

*Title:* 2010 Tulsa Regional Transportation Survey

*Publisher and/or publication year:* Indian Nation Council of Governments (INCOG) (2011)

*Data collection year:* 2011

*Survey mode:* Phone

*Sampling base:* Adults

*Sampling strategy:* N/A

*Sample size:* 1,000

*Geographic level:* Local (Tulsa, OK)

*Census region:* South

*Description of the mileage-based user fee:* “a small user tax that would be based on the number of miles a vehicle is driven each year”

*Questions:*

- 1) “Please indicate how willing you would be to use the following sources of revenue to help fund public transportation improvements?”

Very Willing: 10%

Somewhat Willing 23%

Not Willing: 65%

Don’t know: 2%

**Federal Highway Administration (Ramfos)**

*Sponsor or Funder:* Federal Highway Administration

*Authors:* Nicholas Ramfos

*Pollster:* LDA Consulting and CIC Research, Inc.

*Title:* 2010 State of the Commute Survey

*Publisher and/or publication year:* National Capital Region Transportation Planning Board Metropolitan Washington Council of Governments (2011)

*Data collection year:* 2010

*Survey mode:* Phone

*Sampling base:* Adults

*Sampling strategy:* Random

*Sample size:* 6,629

*Geographic level:* Regional (Washington, D.C. area)

*Census region:* South

*Description of the mileage-based user fee:* “a per mile charge on vehicle miles driven”

*Questions:*

- 1) “Finally, I’ll read several possible ways to increase transportation funding for the region. Please rate your support for each using a scale of 1 to 5, where 1 means you “strongly oppose” it and 5 means you “strongly support” it as a way to increase transportation funding. How much do you support...

Replacing the gas tax with a per mile charge on vehicle miles driven”

Favor: 15%

Oppose: N/A

Undecided N/A

**HNTB Companies (Kelton Research)**

*Sponsor or Funder:* HNTB Companies

*Authors:* Kelton Research

*Pollster:* Kelton Research

*Title:* HNTB Q1 Survey

*Publisher and/or publication year:* HNTB Companies (2011)

*Data collection year:* 2011

*Survey mode:* Online

*Sampling base:* Adults

*Sampling strategy:* N/A

*Sample size:* 1,124

*Geographic level:* National

*Census region:* US

*Description of the mileage-based user fee:* “annual fee for highway miles traveled, collected at the pump or through a regular inspection or registration process”

*Questions:*

- 1) “Aside from a gas tax, where do you think the government should get additional funds for transportation-related infrastructure projects? Please choose all that apply...”

Annual fee for highway miles traveled, collected at the pump or through a regular inspection or registration process: 12%

- 2) “A Vehicle Miles Traveled (VMT) system uses odometer readings or satellite-based technology to measure how much each vehicle is driven and charges each owner accordingly. What do you think would be the best way to introduce such a system in the United States?”

Introduce it first only with electric vehicle users that do not pay any gas taxes: 29%

Annual fee based on odometer reading through state inspection or registration process: 22%

GPS-based system based on actual miles traveled: 21%

Estimated mileage based on vehicle fuel efficiency or amount of fuel purchased at the pump: 15%

Other: 13%

#### **Mineta Transportation Institute (Agrawal and Nixon)**

*Sponsor or Funder:* California Department of Transportation; U.S. Department of Transportation Research and Innovative Technology Administration

*Authors:* Asha Weinstein Agrawal and Hilary Nixon

*Pollster:* Survey Policy and Research Institute at San José State University

*Title:* What do Americans Think About Federal Transportation Tax Options? Results from Year 2 of a National Survey

*Publisher and/or publication year:* Mineta Transportation Institute (2011)

*Data collection year:* 2011

*Survey mode:* Phone

*Sampling base:* Adults

*Sampling strategy:* Random

*Sample size:* 1,516

*Geographic level:* National

*Census region:* US

*Description of the mileage-based user fee:* “a new tax based on the number of miles a person drives”

*Questions:*

- 1) “One idea (a DIFFERENT idea) is to adopt a new tax based on the number of miles a person drives. Each driver would pay a tax of 1 cent for every mile driven. For example, someone driving 100 miles would pay a tax of 1 dollar. Vehicles would have an electronic meter to keep track of the miles driven, and the tax would be paid each time drivers buy gas. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose this new mileage tax?”
  - Strongly support: 6%
  - Somewhat support: 16%
  - Somewhat oppose: 17%
  - Strongly oppose: 58%
  - Don’t know: 2%
  
- 2) “A VARIATION on the mileage tax just described is to have the tax rate VARY depending upon how much the vehicle pollutes. On average, vehicles would be charged 1 cent per mile, but vehicles that pollute less would be charged less, and vehicles that pollute more would be charged more. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose THIS new mileage tax?”
  - Strongly support: 14%
  - Somewhat support: 22%
  - Somewhat oppose: 18%
  - Strongly oppose: 42%
  - Don’t know: 4%

**Rasmussen Reports**

*Sponsor or Funder:* Rasmussen Reports

*Authors:* Rasmussen Reports

*Pollster:* Rasmussen Reports

*Title:* National Survey of 1,000 Adults

*Publisher and/or publication year:* Rasmussen Reports (2011)

*Data collection year:* 2011

*Survey mode:* Phone

*Sampling base:* Adults

*Sampling strategy:* Random

*Sample size:* 1,000

*Geographic level:* National

*Census region:* US

*Description of the mileage-based user fee:* “taxing people based on how many miles they drive”

*Questions:*

- 1) “The Congressional Budget Office (CBO) has just released a report saying that taxing people based on how many miles they drive is a good way to raise funds for highway maintenance. Do you favor or oppose a mileage tax?”
  - Favor: 15%
  - Oppose: 72%
  - Undecided: 13%

**Washington State Transportation Commission (EMC Market and Opinion Research)**

*Sponsor or Funder:* Washington State Transportation Commission

*Authors:* EMC Market and Opinion Research Services

*Pollster:* EMC Market and Opinion Research Services

*Title:* 2011 Statewide Transportation Survey

*Publisher and/or publication year:* Washington State Transportation Commission (2011)

*Data collection year:* 2011

*Survey mode:* Multiple

*Sampling base:* Adults

*Sampling strategy:* Random

*Sample size:* 5,518

*Geographic level:* State (Washington)

*Census region:* West

*Description of the mileage-based user fee:* “a fee based on the number of miles driven—people who use the system more would pay a higher fee”

*Questions:*

- 1) Below are some ways we could fund our unmet transportation needs. For each one, please tell me whether or not you think that method is a good way to fund increased investment in our transportation system. “Is this a good way to fund increased transportation investment?”
  - a fee based the number of miles driven—people who use the system more would pay a higher fee: 44%

**University of Iowa Public Policy Center (Hanley and Kuhl)**

*Sponsor or Funder:* University of Iowa Public Policy Center

*Authors:* Paul Hanley and Jon Kuhl

*Pollster:* N/A

*Title:* National Evaluation of a Mileage-Based Road User Charge

*Publisher and/or publication year:* 2011

*Data collection year:* N/A

*Survey mode:* Multiple

*Sampling base:* Adults

*Sampling strategy:* N/A

*Sample size:* 2,650

*Geographic level:* National

*Census region:* US

*Description of the mileage-based user fee:* “the idea of replacing the gas tax with a mileage-based road user fee”

*Questions:*

- 1) “How do you feel about the idea of replacing the gas tax with a mileage-based road user fee?”

Baseline:

Very/Somewhat Positive: 41.5%

Very/Somewhat Negative: 19.7%

Don’t know/Neutral: 38.8%

- 2) “How do you feel about the idea of replacing the gas tax with a mileage-based road user fee?”

Interim:

Very/Somewhat Positive: 53.3%

Very/Somewhat Negative: 17.7%

Don’t know/Neutral: 29%

- 3) “How do you feel about the idea of replacing the gas tax with a mileage-based road user fee?”

Exiting:

Very/Somewhat Positive: 70.5%

Very/Somewhat Negative: 17.1%

Don’t know/Neutral: 12.5%

**Hart Research Associates & Public Opinion Strategies**

*Sponsor or Funder:* Hart Research Associates & Public Opinion Strategies

*Authors:* Hart Research Associates & Public Opinion Strategies

*Pollster:* Hart Research Associates & Public Opinion Strategies

*Title:* The Rockefeller Foundation Infrastructure Survey

*Publisher and/or publication year:* Hart Research Associates & Public Opinion Strategies (2011)

*Data collection year:* 2011

*Survey mode:* Phone



*Sampling base:* Registered Voters

*Sampling strategy:* N/A

*Sample size:* 1,001

*Geographic level:* National

*Census region:* US

*Description of the mileage-based user fee:* “works like a user fee instead by charging based on the number of miles driven on the roads it funds”

*Questions:*

- 1) “As you may know, Congress is likely to update the law that deals with our transportation infrastructure. There are a number of things that could be included in this legislation that would change the ways in which transportation dollars are spent. Please tell me whether you would strongly favor, somewhat favor, somewhat oppose, or strongly oppose each of the following changes in transportation funding:”

“Developing a pilot program to allow selected states or localities to test replacing the per-gallon gasoline tax with one that works like a user fee instead by charging based on the number of miles driven on the roads it funds.”

Strongly favor: 16%

Somewhat favor: 24%

Somewhat oppose: 20%

Strongly oppose: 30%

Not sure: 10%

**Minnesota Department of Transportation (Munnich, Doan, and Schmitt)**

*Sponsor or Funder:* Minnesota Department of Transportation

*Authors:* Lee Munich, John Doan, and Matt Schmitt

*Pollster:* Accora Research

*Title:* Mileage-Based User Fee Policy Study: Supporting Technical Information

*Publisher and/or publication year:* Minnesota Department of Transportation (2012)

*Data collection year:* 2011

*Survey mode:* Online

*Sampling base:* Adults

*Sampling strategy:* Random

*Sample size:* 400

*Geographic level:* State (Minnesota)

*Census region:* Midwest

*Description of the mileage-based user fee:* “the concept of paying a road use fee based on the miles you drive”

*Questions:*

- 1) “Before participating in this survey, had you heard about the concept of paying a fee based on the miles you drive?”
  - Yes: 48%
  - No: 52%
  
- 2) “How familiar are you with the concept of paying a fee based on the miles driven?”
  - Very familiar: 21%
  - Not very familiar: 56%
  - Not at all familiar: 12%
  - Only heard the name: 11%
  
- 3) “A vehicle miles traveled fee is one solution that is flexible enough to work with all vehicles so that they pay their fair share for use of the roadway system—even high mileage vehicles, gas–electric hybrids, ethanol-and biofuel-powered vehicles, plug-ins...”
  - (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 46.3%
  - (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 19.3%
  - (Neutral) Rated 4, 5, or 6: 35.4%
  
- 4) “Heavy polluting vehicles should be charged at a higher fee based on miles traveled than light polluting vehicles.”
  - (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 38.5%
  - (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 33.0%
  - (Neutral) Rated 4, 5, or 6: 28.5%
  
- 5) “Large, heavy trucks should be charged a higher use fee rate than regular vehicles; because trucks cause more road and bridge wear than cars.”
  - (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 0.4%
  - (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 25.8%
  - (Neutral) Rated 4, 5, or 6: 73.8%
  
- 6) “The system should have the same rate that does not vary, no matter how big the vehicle is, how much it pollutes, or the time or place where it is driven.”
  - (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 28.0%
  - (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 31.8%
  - (Neutral) Rated 4, 5, or 6: 40.2%
  
- 7) “Environmentally friendly vehicles should be charged a lower fee based on miles traveled.”
  - (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 27.5%
  - (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 38.0%
  - (Neutral) Rated 4, 5, or 6: 34.5%
  
- 8) “Different fees based on miles traveled should be charged based on the size or weight of the vehicle.”
  - (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 25.3%
  - (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 36.0%
  - (Neutral) Rated 4, 5, or 6: 38.7%

- 9) “Each vehicle should be assigned to one of several categories based on fuel efficiency and/or level of criterion emissions as defined by the U.S. Environmental Protection Agency and the state then assigns a different per-mile use rate to each of the vehicle categories.”
- (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 20.8%
  - (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 38.3%
  - (Neutral) Rated 4, 5, or 6: 40.9%
- 10) “There should be a different fee based on miles traveled for driving on rural roads than driving on roads in urban areas.”
- (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 17.5%
  - (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 41.3%
  - (Neutral) Rated 4, 5, or 6: 41.2%
- 11) “Vehicles should be charged more for driving in areas with high traffic volume than areas with low traffic volume.”
- (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 14.0%
  - (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 47.8%
  - (Neutral) Rated 4, 5, or 6: 38.2%
- 12) “All vehicles should be charged more for driving on roadways during rush hour periods (5:30 a.m.–9:00 and 3:00 p.m.–6:00 p.m.) to help reduce traffic congestion.”
- (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 14.8%
  - (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 52.0%
  - (Neutral) Rated 4, 5, or 6: 33.2%
- 13) “Vehicles should be charged the regular rate for driving on city streets and more for driving on state highways and freeways.”
- (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 10.0%
  - (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 49.5%
  - (Neutral) Rated 4, 5, or 6: 40.5%
- 14) “If a vehicle miles use fee program is ever implemented, the driver of a vehicle should always know the cost per mile and the total amount being charged to-date.”
- (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 64.8%
  - (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 13.8%
  - (Neutral) Rated 4, 5, or 6: 21.4%
- 15) “The cost and maintenance of basic devices to collect information about vehicle miles traveled should be the responsibility of the state and federal governments, not the drivers.”
- (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 58.3%
  - (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 25.4%
  - (Neutral) Rated 4, 5, or 6: 16.3%
- 16) “There should be a policy that helps to safeguard against evading fees based on miles traveled.”
- (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 28.7%
  - (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 30.5%
  - (Neutral) Rated 4, 5, or 6: 40.8%

- 17) “If private companies are certified by the state to collect use fee information for vehicle miles traveled, they should be able to offer devices with additional features such as traffic information, global positioning system and other features that improve my safety and driving information.”
- (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 28.0%
  - (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 42.0%
  - (Neutral) Rated 4, 5, or 6: 30.0%
- 18) “Miles traveled on Minnesota roadways should be read from my vehicle’s odometer monthly or when license tabs are paid.”
- (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 23.0%
  - (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 37.5%
  - (Neutral) Rated 4, 5, or 6: 39.5%
- 19) “When I buy motor fuel, a device in my car should tell the pump how many miles have been driven since my last reading and should charge accordingly.”
- (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 14.8%
  - (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 53.3%
  - (Neutral) Rated 4, 5, or 6: 32.2%
- 20) “Miles traveled on Minnesota roadways should be collected on a device in my vehicle that uses Global Positioning Systems (GPS) technology and then transmitted securely to a central location for billing purposes.”
- (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 14.5%
  - (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 53.3%
  - (Neutral) Rated 4, 5, or 6: 33.7%
- 21) “Miles traveled on Minnesota roadways should be collected on a device in my vehicle that uses cellular phone-based technology and then transmitted securely to a central location for billing purposes.”
- (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 10.8%
  - (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 55.5%
  - (Neutral) Rated 4, 5, or 6: 33.7%
- 22) “A non-governmental audit firm should regularly audit the system to ensure private data gathered by the system was being well protected.”
- (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 46.5%
  - (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 21.8%
  - (Neutral) Rated 4, 5, or 6: 31.7%
- 23) “Overall, vehicle miles traveled use fees are fair, because drivers pay according to how much they actually use the road.”
- (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 33.0%
  - (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 30.5%
  - (Neutral) Rated 4, 5, or 6: 36.5%
- 24) “Fees based on miles traveled are fair because they require drivers of vehicles that use little or no gasoline to also pay their fair share for using roads and bridges.”
- (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 31.3%
  - (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 30.8%
  - (Neutral) Rated 4, 5, or 6: 37.9%

- 25) “I would like a high-tech system to collect fees based on miles traveled that also provides driver benefits such as directions, traffic information, location and fuel consumption.”
- (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 23.0%
- (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 34.3%
- (Neutral) Rated 4, 5, or 6: 42.7%
- 26) “I would be willing to accept a high tech collection system if it guarantees privacy protection while ensuring that the user charges collected are being properly sent to the central billing office even though I can’t verify the accuracy of the billing due to the privacy.”
- (Agree with statement) Rated 8, 9, or 10 on a 10-point scale: 15.3%
- (Disagree with statement) Rated 1, 2, or 3 on a 10-point scale: 46.5%
- (Neutral) Rated 4, 5, or 6: 38.2%

**Fiscal Research Center (Ellen, Sjoquist, and Stoycheva)**

*Sponsor or Funder:* Georgia Department of Transportation and the University Transportation Center at the Georgia Institute of Technology

*Authors:* Pam Scholder Ellen, David L. Sjoquist, and Rayna Stoycheva

*Pollster:* Booth Research Services, Inc.

*Title:* Measuring Preferences for and Responses to Alternative Revenue Sources for Transportation

*Publisher and/or publication year:* Fiscal Research Center of the Andrew Young School of Policy Studies (2012)

*Data collection year:* 2011

*Survey mode:* Online

*Sampling base:* Adults

*Sampling strategy:* Random

*Sample size:* 2,000

*Geographic level:* State (Georgia)

*Census region:* South

*Description of the mileage-based user fee:* “a tax based only on the number of miles you drive. In other words, this matches taxes to actual road usage”; “a tax that was based only on the number of miles the car was driven in Georgia”

*Questions:*

- 1) “Imagine that the current state gas tax was eliminated and replaced by a tax that was based only on the number of miles the car was driven in Georgia. Imagine that it was possible to pay this tax at the gas pump just like the current gas tax. So when a driver refueled their car, the total cost would include the cost of the gas plus tax based on how many miles the car had been driven in Georgia since the last gas purchase. In this proposal, everyone who drives 10,000 miles a year in Georgia would pay the same tax, regardless of the fuel efficiency of the vehicle they drove. To create the same revenue for transportation, the new miles-based tax would be 1.35 cents per mile. This means a person who drives a car 10,000 miles per year will pay \$135 in taxes. Would you ...”
- Strongly/Somewhat support this change in how the gas tax is determined: 33%
- Strongly/Somewhat oppose: this change in how the gas tax is determined: 60%
- No opinion: 7%

- 2) “Imagine that the current state gas tax was eliminated and replaced by a tax that was based only on the number of miles the car was driven in Georgia. Imagine that it was possible to pay this tax at the gas pump just like the current gas tax. So when a driver refueled their car, the total cost would include the cost of the gas plus tax based on how many miles the car had been driven in Georgia since the last gas purchase. In this proposal, everyone who drives 10,000 miles a year in Georgia would pay the same tax, regardless of the fuel efficiency of the vehicle they drove. To create the same revenue for transportation, the new miles-based tax would be 1.6 cents per mile. This means a person who drives a car 10,000 miles per year will pay \$160 in taxes. Would you ...”
- Strongly/Somewhat support this change in how the gas tax is determined: 39%
- Strongly/Somewhat oppose: this change in how the gas tax is determined: 55%
- No opinion: 6%
- 3) “Imagine that the current state gas tax was eliminated and replaced by a tax that was based only on the number of miles the car was driven in Georgia. Imagine that it was possible to pay this tax at the gas pump just like the current gas tax. So when a driver refueled their car, the total cost would include the cost of the gas plus tax based on how many miles the car had been driven in Georgia since the last gas purchase. In this proposal, everyone who drives 10,000 miles a year in Georgia would pay the same tax, regardless of the fuel efficiency of the vehicle they drove. To create the same revenue for transportation, the new miles-based tax would be 2.1 cents per mile. This means a person who drives a car 10,000 miles per year will pay \$210 in taxes. Would you ...”
- Strongly/Somewhat support this change in how the gas tax is determined: 36%
- Strongly/Somewhat oppose: this change in how the gas tax is determined: 57%
- No opinion: 7%

**Mineta Transportation Institute (Agrawal, Nixon, and Murthy)**

*Sponsor or Funder:* California Department of Transportation; U.S. Department of Transportation Research and Innovative Technology Administration

*Authors:* Asha Weinstein Agrawal, Hilary Nixon, and Vinay Murthy

*Pollster:* Survey Policy and Research Institute at San José State University

*Title:* What do Americans Think About Federal Tax Options to Support Public Transit, Highways, and Local Streets and Roads? Results from Year 3 of a National Survey

*Publisher and/or publication year:* Mineta Transportation Institute (2012)

*Data collection year:* 2012

*Survey mode:* Phone

*Sampling base:* Adults

*Sampling strategy:* Random

*Sample size:* 1,519

*Geographic level:* National

*Census region:* US

*Description of the mileage-based user fee:* “a new tax based on the number of miles a person drives”

*Questions:*

- 1) “One idea (a DIFFERENT idea) is to adopt a new tax based on the number of miles a person drives. Each driver would pay a tax of 1 cent for every mile driven. For example, someone driving 100 miles would pay a tax of 1 dollar. Vehicles would have an electronic meter to keep track of the miles driven, and the tax would be paid each time drivers buy gas. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose this new mileage tax?”
  - Strongly support: 6%
  - Somewhat support: 15%
  - Somewhat oppose: 17%
  - Strongly oppose: 60%
  - Don’t know: 3%
  
- 2) “A VARIATION on the mileage tax just described is to have the tax rate VARY depending upon how much the vehicle pollutes. On average, vehicles would be charged 1 cent per mile, but vehicles that pollute less would be charged less, and vehicles that pollute more would be charged more. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose THIS new mileage tax?”
  - Strongly support: 17%
  - Somewhat support: 24%
  - Somewhat oppose: 17%
  - Strongly oppose: 40%
  - Don’t know: 2%

**Wall Street Journal**

*Sponsor or Funder:* Wall Street Journal

*Authors:* Wall Street Journal

*Pollster:* Wall Street Journal

*Title: Vote:* What Should Happen to the Gas Tax?

*Publisher and/or publication year:* Wall Street Journal (2012)

*Data collection year:* 2012

*Survey mode:* Online

*Sampling base:* Adults

*Sampling strategy:* N/A

*Sample size:* 1,726

*Geographic level:* National

*Census region:* US

*Description of the mileage-based user fee:* “tax instead by miles driven”

*Questions:*

- 1) “What should be done with the gas tax?”
  - Increase it: 29.8%
  - Tax instead by miles driven: 20.4%
  - Index it to inflation: 16.3%
  - Levy more tolls: 7.9%
  - Add federal registration fee on vehicles: 5.3%
  - Leave as is: 20.3%

**HNTB Corporation (Kelton Research)***Sponsor or Funder:* HNTB Corporation*Authors:* Kelton Research*Pollster:* Kelton Research*Title:* America THINKS 2012 Highway Survey*Publisher and/or publication year:* HNTB Corporation (2012)*Data collection year:* 2012*Survey mode:* Online*Sampling base:* Adults*Sampling strategy:* Random*Sample size:* 1,024*Geographic level:* National*Census region:* US*Description of the mileage-based user fee:* “a vehicle miles driven user fee”*Questions:*

- 1) “If you had to choose one, where would you most prefer the United States get funding for the nation’s interstate projects?”
  - Tolls: 61%
  - A vehicle miles driven user fee: 23%
  - Increased federal gas tax: 16%

**Rasmussen Reports***Sponsor or Funder:* Rasmussen Reports*Authors:* Rasmussen Reports*Pollster:* Rasmussen Reports



*Title:* National Survey of 1,000 Adults

*Publisher and/or publication year:* Rasmussen Reports (2012)

*Data collection year:* 2012

*Survey mode:* Phone

*Sampling base:* Adults

*Sampling strategy:* Random

*Sample size:* 1,000

*Geographic level:* National

*Census region:* US

*Description of the mileage-based user fee:* “taxing people based on how many miles they drive”

*Questions:*

- 1) “Some have suggested that taxing people based on how many miles they drive is a good way to raise funds for highway maintenance. Do you favor or oppose a mileage tax?”
  - Favor: 12%
  - Oppose: 77%
  - Not sure: 10%

**Washington State Transportation Commission (EMC Market & Opinion Research)**

*Sponsor or Funder:* Washington State Transportation Commission

*Authors:* EMC Research

*Pollster:* EMC Research

*Title:* 2012 Statewide VOWS Transportation Survey

*Publisher and/or publication year:* Washington State Transportation Commission (2012)

*Data collection year:* 2012

*Survey mode:* Online

*Sampling base:* Adults

*Sampling strategy:* Convenience

*Sample size:* 7,897

*Geographic level:* State (Washington)

*Census region:* West

*Description of the mileage-based user fee:* “a fee based on the number of miles driven—people pay for what they use by the mile instead of by the gallon”

*Questions:*

- 1) “There are a number of long term funding options being considered to address the state’s long-term transportation financial challenges. For each revenue source, please indicate whether or not you think that method is a good way to help provide future funding for our transportation system:”

“An annual fee on vehicles that get over 50 miles per gallon—people with high MPG vehicles who pay lower gas taxes would be charged an additional fee”

Definitely: 17%

Probably: 21%

Probably not: 19%

Definitely not: 38%

Not sure: 5%

**Mineta Transportation Institute (Agrawal and Nixon)**

*Sponsor or Funder:* California Department of Transportation; U.S. Department of Transportation Research and Innovative Technology Administration

*Authors:* Asha Weinstein Agrawal and Hilary Nixon

*Pollster:* Social Science Survey Center at CSU, Fullerton

*Title:* What do Americans Think About Federal Tax Options to Support Public Transit, Highways, and Local Streets and Roads? Results from Year Four of a National Survey

*Publisher and/or publication year:* Mineta Transportation Institute (2013)

*Data collection year:* 2013

*Survey mode:* Phone

*Sampling base:* Adults

*Sampling strategy:* Random

*Sample size:* 1,501

*Geographic level:* National

*Census region:* US

*Description of the mileage-based user fee:* “a new tax based on the number of miles a person drives”

*Questions:*

- 1) “One idea (a DIFFERENT idea) is to adopt a new tax based on the number of miles a person drives. Each driver would pay a tax of 1 cent for every mile driven. For example, someone driving 100 miles would pay a tax of 1 dollar. Vehicles would have an electronic meter to keep track of the miles driven, and the tax would be paid each time drivers buy gas. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose this new mileage tax?”

Strongly support: 5%

Somewhat support: 13%

Somewhat oppose: 16%

Strongly oppose: 64%

Don’t know: 2%

- 2) “A VARIATION on the mileage tax just described is to have the tax rate VARY depending upon how much the vehicle pollutes. On average, vehicles would be charged 1 cent per mile, but vehicles that pollute less would be charged less, and vehicles that pollute more would be charged more. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose THIS new mileage tax?”
- Strongly support: 16%
  - Somewhat support: 23%
  - Somewhat oppose: 18%
  - Strongly oppose: 42%
  - Don’t know: 2%

**Indiana University School of Public and Environmental Affairs (Duncan and Graham)**

*Sponsor or Funder:* School of Public and Environmental Affairs (SPEA), Indiana University

*Authors:* Denvil Duncan and John Graham

*Pollster:* GfK Custom Research, LLC

*Title:* 2013 IU-SPEA Mileage User Fee Survey

*Publisher and/or publication year:* School of Public and Environmental Affairs (SPEA) (2013)

*Data collection year:* 2013

*Survey mode:* Online

*Sampling base:* Adults

*Sampling strategy:* Semi-random

*Sample size:* 2,087

*Geographic level:* National

*Census region:* US

*Description of the mileage-based user fee:* “a road user-fee based on miles driven”

*Questions:*

- 1) “The government is considering whether to replace the gasoline tax with a road user-fee based on miles driven. In other words, instead of a gasoline tax, each driver will pay a user-fee based on the number of miles he or she drives. The more miles a driver drives, the more he or she will pay. This is sometimes called a mileage user-fee. Before this survey, had you heard or seen information about a mileage user-fee?”
- Yes: 17.8%
  - No: 81.3%
  - Refused: 0.9%
- 2) “Which of the following best describes the information you have heard or seen about the mileage user-fee?”
- Refused: 1.1%
  - The information was mostly favorable: 7.3%
  - The information was mostly unfavorable: 37.5%
  - The information was equally favorable and unfavorable: 54.2%

- 3) “Would you support an effort to replace the gasoline tax with a mileage user-fee?”
- Refused: 0.4%
  - Yes: 22.1%
  - No: 77.5%
- 4) “Please indicate your degree of support for or opposition to the following options:  
Your state replaces its gasoline tax with a state mileage user-fee”;
- Refused: 0.9%
  - Strongly Agree: 3.4%
  - Agree: 21.2%
  - Disagree: 39.5%
  - Strongly Disagree: 35.1%
- 5) “Please indicate your degree of support for or opposition to the following options:  
The federal government replaces its gasoline tax with a federal mileage user-fee”;
- Refused: 0.9%
  - Strongly Agree: 3.1%
  - Agree: 19.8%
  - Disagree: 40.6%
  - Strongly Disagree: 35.6%
- 6) “Please indicate your degree of support for or opposition to the following options:  
The states and the federal government replace their gasoline taxes with mileage user-fees.”
- Refused: 0.9%
  - Strongly Agree: 3.4%
  - Agree: 21.2%
  - Disagree: 39.5%
  - Strongly Disagree: 35.1%
- 7) “Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements about a mileage user-fee:  
A mileage user-fee makes it easy for road users to calculate how much they pay the government for using the roads”;
- Refused: 0.7%
  - Strongly Agree: 5.8%
  - Agree: 46.4%
  - Disagree: 35.5%
  - Strongly Disagree: 11.5%
- 8) “Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements about a mileage user-fee:  
A mileage user-fee is an accurate way to charge road users for the wear and tear they cause on the roads”;
- Refused: 0.6%
  - Strongly Agree: 4.7%

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Agree: 35.3%

Disagree: 39.9%

Strongly Disagree: 19.5%

- 9) “Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements about a mileage user-fee:
- A mileage user-fee is unfair to people living in rural areas because they have to drive more miles to get to places they need to go”;
- Refused: 0.7%
- Strongly Agree: 32.5%
- Agree: 46.3%
- Disagree: 18.7%
- Strongly Disagree: 1.8%
- 10) “Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements about a mileage user-fee:
- A mileage user-fee is unfair to people who drive a lot on the job (for example, truckers, sales people, and taxi drivers)”
- Refused: 0.7%
- Strongly Agree: 32.6%
- Agree: 40.2%
- Disagree: 23.0%
- Strongly Disagree: 3.5%
- 11) “Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements about a mileage user-fee:
- Collecting information about a person’s mileage is an invasion of privacy, unless the collection is voluntary”;
- Refused: 0.6%
- Strongly Agree: 32.4%
- Agree: 41.6%
- Disagree: 21.4%
- Strongly Disagree: 3.9%
- 12) “Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements about a mileage user-fee:
- A mileage user-fee is unfair to people who drive fuel efficient vehicles.”
- Refused: 0.6%
- Strongly Agree: 17.6%
- Agree: 38.3%
- Disagree: 36.0%
- Strongly Disagree: 7.4%
- 13) Below is a list of statements in favor of and against a mileage user-fee administered through odometer readings. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:
- Reporting odometer mileage to the government is an invasion of privacy”;
- Refused: 0.7%

Strongly Agree: 34.0%

Agree: 3.9%

Disagree: 27.0%

Strongly Disagree: 4.4%

- 14) “Below is a list of statements in favor of and against a mileage user-fee administered through odometer readings. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:

Reporting my odometer mileage to the DMV each year will be inconvenient”;

Refused: 0.7%

Strongly Agree: 30.9%

Agree: 38.3%

Disagree: 26.3%

Strongly Disagree: 3.8%

- 15) “Below is a list of statements in favor of and against a mileage user-fee administered through odometer readings. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:

Most people will honestly report the mileage on the odometer in their cars”;

Refused: 0.8%

Strongly Agree: 3.3%

Agree: 38.0%

Disagree: 43.0%

Strongly Disagree: 14.9%

- 16) “Below is a list of statements in favor of and against a mileage user-fee administered through odometer readings. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements.:

A significant number of motorists will tamper with the odometer in their car”;

Refused: 0.8%

Strongly Agree: 16.2%

Agree: 46.1%

Disagree: 33.3%

Strongly Disagree: 3.6%

- 17) “Below is a list of statements in favor of and against a mileage user-fee administered through odometer readings. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:

The audit process will keep most people from tampering with the odometer in their cars”;

Refused: 0.9%

Strongly Agree: 4.4%

Agree: 37.1%

Disagree: 44.4%

Strongly Disagree: 13.3%

- 18) “Below is a list of statements in favor of and against a mileage user-fee administered through odometer readings. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:

The odometer mileage user-fee would be easy to implement since every vehicle already has an odometer”

Refused: 0.8%

Strongly Agree: 6.4%

Agree: 47.2%

Disagree: 30.7%

Strongly Disagree: 15.0%

- 19) “Would you be in support of or opposed to replacing the gasoline tax in your state with a mileage user-fee based on odometer readings?”

Refused: 0.5%

Strongly Support: 2.5%

Support: 19.5%

Oppose: 37.4%

Strongly oppose: 40.1%

- 20) “Would you be willing to take any of the following actions to support an odometer-based mileage user-fee in your state?”

I would sign a petition supporting an odometer-based mileage user-fee as a replacement for the gasoline tax.

Refused: 3.0%

Yes: 60.8%

No: 36.2%

- 21) “Would you be willing to take any of the following actions to support an odometer-based mileage user-fee in your state?”

I would write or email my legislator to express support for an odometer-based mileage user-fee as a replacement for the gasoline tax.

Refused: 4.1%

Yes: 31.9%

No: 64.0%

- 22) “Would you contribute (\$1, \$5, \$10, \$20, \$30, \$40, \$50, >\$50) to a political campaign in support of the odometer-based mileage user-fee described above in your state?”

*Note:* Only those respondents who answer “yes” to the initial amount are asked if they would contribute more. Thus, the number of respondents continues to decrease as the dollar amount increases.

\$10

Refused: 1.7%

Yes: 14.7%

No: 83.6%

\$20

Yes: 32.4%

No: 67.6%

\$30

Refused: 4.5%

Yes: 27.3%

No: 68.2%

\$40

Yes: 66.7%

No: 33.3%

\$50

Yes: 75.0%

No: 25.0%

More than \$50

Yes: 66.7%

No: 33.3%

- 23) “Would you be willing to take any of the following actions to oppose an odometer-based mileage user-fee in your state?”

I would sign a petition opposing an odometer-based mileage user-fee as a replacement for the gasoline tax.

Refused: 1.4%

Yes: 78.9%

No: 19.8%

- 24) “Would you be willing to take any of the following actions to oppose an odometer-based mileage user-fee in your state?”

I would write or email my legislator to express opposition to an odometer-based mileage user-fee as a replacement for the gasoline tax.

Refused: 1.5%

Yes: 57.1%

No: 41.3%

- 25) “Would you contribute (\$1, \$5, \$10, \$20, \$30, \$40, \$50, >\$50) to a political campaign against the odometer-based mileage user-fee described above in your state?”

*Note:* Only those respondents who answer “yes” to the initial amount are asked if they would contribute more. Thus, the number of respondents continues to decrease as the dollar amount increases.

\$10

Refused: 1.0%

Yes: 25.8%

No: 73.2%

\$20

Refused: 1.4%

Yes: 53.0%

No: 45.6%

\$30

Refused: 0.9%

Yes: 59.5%

No: 39.6%



\$40

Refused: 0.8%

Yes: 82.6%

No: 16.7%

\$50

Refused: 0.9%

Yes: 89.9%

No: 9.2%

More than \$50

Refused: 0.9%

Yes: 9.9%

No: 89.1%

- 26) “For this question, please think about a federal level mileage user-fee. Would you be in support of or opposed to replacing the federal gasoline tax with a federal mileage user-fee based on odometer readings?”

Refused: 0.7%

Strongly Support: 1.5%

Support: 17.9%

Oppose: 40.9%

Strongly oppose: 39.0%

- 27) “Below is a list of statements in favor of and against the basic GPS-based mileage user-fee just described. Please tell me whether you strongly agree, agree, disagree, or strongly disagree with the following statements:

GPS systems are accurate in measuring miles of travel.”

Refused: 1.4%

Strongly Agree: 5.0%

Agree: 36.9%

Disagree: 46.2%

Strongly Disagree: 10.4%

- 28) “Below is a list of statements in favor of and against the basic GPS-based mileage user-fee just described. Please tell me whether you strongly agree, agree, disagree, or strongly disagree with the following statements:

It is difficult to tamper with a GPS system.”

Refused: 1.4%

Strongly Agree: 5.0%

Agree: 36.9%

Disagree: 46.2%

Strongly Disagree: 10.4%

- 29) “Below is a list of statements in favor of and against the basic GPS-based mileage user-fee just described. Please tell me whether you strongly agree, agree, disagree, or strongly disagree with the following statements:

Many drivers would tamper with their GPS systems if the government relies on GPS to collect mileage data for the mileage user-fee.”

Refused: 1.2%

Strongly Agree: 16.0%

Agree: 49.8%

Disagree: 30.4%

Strongly Disagree: 2.5%

- 30) “Below is a list of statements in favor of and against the basic GPS-based mileage user-fee just described. Please tell me whether you strongly agree, agree, disagree, or strongly disagree with the following statements:

It would be inconvenient to have to get the GPS device installed in my car.”

Refused: 1.2%

Strongly Agree: 31.8%

Agree: 44.2%

Disagree: 20.2%

Strongly Disagree: 2.8%

- 31) “Below is a list of statements in favor of and against the basic GPS-based mileage user-fee just described. Please tell me whether you strongly agree, agree, disagree, or strongly disagree with the following statements:

It would be easy for someone outside of the government to get access to my GPS mileage data.”

Refused: 1.3%

Strongly Agree: 27.4%

Agree: 52.6%

Disagree: 16.8%

Strongly Disagree: 2.0%

- 32) “Below is a list of statements in favor of and against the basic GPS-based mileage user-fee just described. Please tell me whether you strongly agree, agree, disagree, or strongly disagree with the following statements:

I like that this basic GPS system only tracks the total number of miles driven, so the government cannot monitor when and where I drive.”

Refused: 1.2%

Strongly Agree: 14.4%

Agree: 47.6%

Disagree: 23.1%

Strongly Disagree: 13.6%

- 33) “Below is a list of statements in favor of and against the basic GPS-based mileage user-fee just described. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:

It is a waste of money to buy those GPS devices since all cars already have an odometer”;

Refused: 1.3%

Strongly Agree: 29.1%

Agree: 47.6%

Disagree: 19.6%

Strongly Disagree: 2.4%

- 34) “Below is a list of statements in favor of and against the basic GPS-based mileage user-fee just described. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:

I dislike this basic GPS-based mileage user-fee because I have to pay for the GPS device.”

Refused: 1.1%  
 Strongly Agree: 43.5%  
 Agree: 40.5%  
 Disagree: 12.7%  
 Strongly Disagree: 2.1%

- 35) “Below is a list of statements in favor of and against the basic GPS-based mileage user-fee just described. Please tell me whether you strongly agree, agree, disagree, or strongly disagree with the following statements:

\$250 is too much to pay for the GPS device.”

Refused: 1.2%  
 Strongly Agree: 45.4%  
 Agree: 42.0%  
 Disagree: 9.8%  
 Strongly Disagree: 1.5%

- 36) “Below is a list of statements in favor of and against the basic GPS-based mileage user-fee just described. Please tell me whether you strongly agree, agree, disagree, or strongly disagree with the following statements:

The audit process will keep most people from tampering with the GPS system or the odometer in their cars.”

Refused: 1.3%  
 Strongly Agree: 3.7%  
 Agree: 40.8%  
 Disagree: 42.2%  
 Strongly Disagree: 11.9%

- 37) “Would you be in support of or opposed to replacing the gasoline tax in your state with a mileage user-fee based on this basic/advanced GPS?”

Basic GPS

Refused: 0.5%  
 Strongly Support: 1.1%  
 Support: 13.7%  
 Oppose: 40.7%  
 Strongly Oppose: 43.9%

Advanced GPS

Refused: 0.5%  
 Strongly Support: 1.2%  
 Support: 12.0%  
 Oppose: 37.9%  
 Strongly Oppose: 48.4%

- 38) “Would you be willing to take any of the following actions to support this basic/advanced GPS-based mileage user-fee in your state?”

I would sign a petition supporting this basic GPS-based mileage user-fee as a replacement for the gasoline tax.

Refused: 2.8%  
 Yes: 61.2%

No: 36.0%

I would sign a petition supporting this advanced GPS-based mileage user-fee as a replacement for the gasoline tax.

Refused: 2.8%

Yes: 63.3%

No: 33.8%

- 39) “Would you be willing to take any of the following actions to support this basic/advanced GPS-based mileage user-fee in your state?”

I would write or email my legislator to express support for this basic GPS-based mileage user-fee as a replacement for the gasoline tax.

Refused: 4.4%

Yes: 30.0%

No: 65.6%

I would write or email my legislator to express support for this advanced GPS-based mileage user-fee as a replacement for the gasoline tax.

Refused: 3.6%

Yes: 31.7%

No: 64.8%

- 40) “Would you contribute (\$1, \$5, \$10, \$20, \$30, \$40, \$50, >\$50) to a political campaign in support of this basic/advanced GPS-based mileage user fee described above in your state?”

*Note:* Only those respondents who answer “yes” to the initial amount are asked if they would contribute more. Thus, the number of respondents continues to decrease as the dollar amount increases.

Basic GPS

\$1

Refused: 1.4%

Yes: 17.3%

No: 81.4%

\$5

Refused: 1.6%

Yes: 11.5%

No: 87.0%

\$10

Refused: 3.2%

Yes: 17.0%

No: 79.8%

\$20

Refused: 1.9%

Yes: 29.6%

No: 68.5%

\$30

Yes: 43.8%

No: 56.3%

\$40

Yes: 71.4%

No: 28.6%

\$50

Yes: 80.0%

No: 20.0%

More than \$50

Yes: 75.0%

No: 25.0%

Advanced GPS

\$1

Refused: 2.6%

Yes: 21.9%

No: 75.5%

\$5

Refused: 1.4%

Yes: 9.3%

No: 89.3%

\$10

Refused: 3.2%

Yes: 20.3%

No: 76.5%

\$20

Yes: 33.3%

No: 66.7%

\$30

Yes: 42.1%

No: 57.9%

\$40

Yes: 62.5%

No: 37.5%

\$50

Yes: 80.0%

No: 20.0%

More than \$50

Refused: 25%

Yes: 50.0%

No: 25.0%

- 41) “Would you be willing to take any of the following actions to oppose this basic/advanced GPS-based mileage user-fee in your state?”

I would sign a petition opposing this basic GPS-based mileage user-fee as a replacement for the gasoline tax.

Refused: 1.5%

Yes: 73.5%

No: 25.0%

I would sign a petition opposing this advanced GPS-based mileage user-fee as a replacement for the gasoline tax.

Refused: 1.7%

Yes: 73.4%

No: 24.9%

- 42) “Would you be willing to take any of the following actions to oppose this basic/advanced GPS-based mileage user-fee in your state?”

I would write or email my legislator to express opposition to this basic GPS-based mileage user-fee as a replacement for the gasoline tax.

Refused: 2.0%

Yes: 73.5%

No: 25.0%

I would write or email my legislator to express opposition to this advanced GPS-based mileage user-fee as a replacement for the gasoline tax.

Refused: 2.0%

Yes: 54.4%

No: 43.6%

- 43) “Would you contribute (\$1, \$5, \$10, \$20, \$30, \$40, \$50, >\$50) to a political campaign against this basic/advanced GPS-based mileage user-fee described above in your state?”

*Note:* Only those respondents who answer “yes” to the initial amount are asked if they would contribute more. Thus, the number of respondents continues to decrease as the dollar amount increases.

Basic GPS

\$1

Refused: 1.0%

Yes: 11.4%

No: 87.6%

\$5

Refused: 1.3%

Yes: 8.1%

No: 90.6%

\$10

Refused: 1.2%

Yes: 24.3%

No: 74.5%

\$20

Refused: 0.5%

Yes: 57.7%

No: 41.9%

\$30

Refused: 1.2%

Yes: 63.7%

No: 35.1%

\$40

Refused: 1.9%

Yes: 79.1%

No: 19.0%

\$50

Refused: 0.8%

Yes: 94.4%

No: 4.8%

More than \$50

Refused: 0.8%

Yes: 78.8%

No: 20.3%

Advanced GPS

\$1

Refused: 0.7%

Yes: 10.5%

No: 88.9%

\$5

Refused: 1.1%

Yes: 7.4%

No: 91.5%

\$10

Refused: 1.6%

Yes: 25.7%

No: 72.8%

\$20

Refused: 0.4%

Yes: 58.2%

No: 41.4%

\$30

Refused: 1.9%

Yes: 68.9%

No: 29.3%

\$40

Yes: 82.3%

No: 17.7%

\$50

Refused: 0.7%

Yes: 89.5%

No: 9.8%

More than \$50

Yes: 81.0%

No: 19.0%

- 44) “For this question, please think about a federal level mileage user-fee. Would you be in support of or opposed to replacing the federal gasoline tax with a federal mileage user-fee based on a basic/advanced GPS?”

Basic GPS

Refused: 0.6%

Strongly Support: 1.1%

Support: 12.6%

Oppose: 42.3%

Strongly Oppose: 43.4%

Advanced GPS

Refused: 0.8%

Strongly Support: 1.0%

Support: 11.5%

Oppose: 38.2%

Strongly Oppose: 48.4%



- 45) Below is a list of statements in favor of and against the advanced GPS-based mileage user-fee described above. Please tell me whether you strongly agree, agree, disagree, or strongly disagree with the following statements:
- I like this advanced GPS system because a higher rate could be charged for driving on congested roads.”
- Refused: 1.1%
- Strongly Agree: 4.6%
- Agree: 18.4%
- Disagree: 45.3%
- Strongly Disagree: 30.6%
- 46) “Below is a list of statements in favor of and against the advanced GPS-based mileage user-fee described above. Please tell me whether you strongly agree, agree, disagree, or strongly disagree with the following statements:
- I like this advanced GPS system because the government in each state could charge and collect taxes from every driver who drives in that state (including drivers from other states).”
- Refused: 1.1%
- Strongly Agree: 4.6%
- Agree: 21.4%
- Disagree: 41.2%
- Strongly Disagree: 31.8%
- 47) “Below is a list of statements in favor of and against the advanced GPS-based mileage user-fee described above. Please tell me whether you strongly agree, agree, disagree, or strongly disagree with the following statements:
- I dislike this advanced GPS system because the government will be able to monitor when and where I drive.”
- Refused: 1.0%
- Strongly Agree: 47.2%
- Agree: 33.3%
- Disagree: 14.3%
- Strongly Disagree: 4.1%
- 48) “Below is a list of statements in favor of and against the advanced GPS-based mileage user-fee described above. Please tell me whether you strongly agree, agree, disagree, or strongly disagree with the following statements:
- It would be easy for someone outside of the government to get access to my GPS mileage data.”
- Refused: 1.1%
- Strongly Agree: 30.1%
- Agree: 51.1%
- Disagree: 15.6%
- Strongly Disagree: 2.2%
- 49) “Below is a list of statements in favor of and against the advanced GPS-based mileage user-fee described above. Please tell me whether you strongly agree, agree, disagree, or strongly disagree with the following statements:
- There are likely to be a lot of errors in trying to use location data to charge different fees.”
- Refused: 1.2%
- Strongly Agree: 33.9%
- Agree: 50.6%

Disagree: 12.1%

Strongly Disagree: 2.2%

- 50) “Below is a list of statements in favor of and against the advanced GPS-based mileage user-fee described above. Please tell me whether you strongly agree, agree, disagree, or strongly disagree with the following statements:

The audit process will keep most people from tampering with the GPS system or the odometer in their cars.”

Refused: 1.2%

Strongly Agree: 4.6%

Agree: 37.9%

Disagree: 41.8%

Strongly Disagree: 14.4%

- 51) “Below is a list of statements in favor of and against the advanced GPS-based mileage user-fee described above. Please tell me whether you strongly agree, agree, disagree, or strongly disagree with the following statements:

I dislike this advanced GPS-based mileage user-fee because I have to pay for the GPS device.”

Refused: 1.1%

Strongly Agree: 47.2%

Agree: 36.4%

Disagree: 13.0%

Strongly Disagree: 2.2%

- 52) “Below is a list of statements in favor of and against the advanced GPS-based mileage user-fee described above. Please tell me whether you strongly agree, agree, disagree, or strongly disagree with the following statements:

\$250 is too much to pay for the GPS device.”

Refused: 1.0%

Strongly Agree: 46.9%

Agree: 39.4%

Disagree: 10.2%

Strongly Disagree: 2.5%

- 53) “Below is a list of statements in favor of and against the advanced GPS-based mileage user-fee described above. Please tell me whether you strongly agree, agree, disagree, or strongly disagree with the following statements:

I like the advanced GPS-based mileage user-fee because it would allow me to monitor people who drive my cars.”

Refused: 1.0%

Strongly Agree: 2.9%

Agree: 15.3%

Disagree: 47.5%

Strongly Disagree: 33.3%

**University of Nevada, Las Vegas (Nordland, Paz, and Khan)**

*Sponsor or Funder:* University of Nevada, Las Vegas

*Authors:* Andrew Nordland, Alexander Paz, Alauddin Khan

*Pollster:* Andrew Nordland, Alexander Paz, Alauddin Khan

*Title:* Vehicle Miles Traveled Fee System in Nevada: Public Perceptions & Preferences

*Publisher and/or publication year:* Transportation Research Record (2013)

*Data collection year:* N/A

*Survey mode:* In-person

*Sampling base:* Adults

*Sampling strategy:* Convenience

*Sample size:* 173

*Geographic level:* Local (Las Vegas, Nevada)

*Census region:* West

*Description of the mileage-based user fee:* “A field test is to be conducted with a simple pay at-the-pump system. The system will read the mileage data at the pump and assess the mileage fee from an on-board-unit, which will only keep track of total miles traveled. In order to reduce collection and administration costs and privacy concerns, the study will explore the option of billing drivers for their VMT fee on an annual, bi-annual, or monthly basis, which could be very good for electric vehicles not going to the pump.”

*Questions:*

- 1) “Prior to reading the introduction, what was your familiarity with a Vehicle Miles Travel (VMT) fee system?”
  - Not Familiar: 74%
  - Somewhat familiar: 17%
  - Very Familiar: 9%
  
- 2) “Rank the following VMT components based on personal importance from 1-5 (Five (5) being most important, one (1) being least important)”:
  - Ease of Use
    - 1: 8%
    - 2: 6%
    - 3: 16%
    - 4: 24%
    - 5: 46%
  
- 3) Rank the following VMT components based on personal importance from 1 to 5 [Five (5) being most important, one (1) being least important]:
  - Reliability
    - 1: 5%
    - 2: 7%
    - 3: 20%
    - 4: 24%
    - 5: 43%

- 4) Rank the following VMT components based on personal importance from 1 to 5 [Five (5) being most important, one (1) being least important]:
- Transparency
- 1: 12.7%
  - 2: 13.1%
  - 3: 19.1%
  - 4: 20.2%
  - 5: 34.1
- 5) Rank the following VMT components based on personal importance from 1 to 5 [Five (5) being most important, one (1) being least important]:
- Convenience
- 1: 6%
  - 2: 10%
  - 3: 13%
  - 4: 24%
  - 5: 46%
- 6) Rank the following VMT components based on personal importance from 1 to 5 [Five (5) being most important, one (1) being least important]:
- Privacy
- 1: 17%
  - 2: 13%
  - 3: 13%
  - 4: 16%
  - 5: 41%
- 7) “The emphasis of the field test will be on a simple pay-at-the pump system. The system will read the change in odometer miles at each pump visit, and apply an established rate, without tracking vehicle location. What is your level of comfort with this system?”
- Very comfortable: 11%
  - Somewhat comfortable: 23%
  - Neutral: 33%
  - Somewhat uncomfortable: 25%
  - Very uncomfortable: 8%
- 8) “What is your level of concern over the cost of implementing a replacement system of the fuel tax system?”
- Very concerned: 5%
  - Somewhat concerned: 16%
  - Neutral: 34%
  - Somewhat unconcerned: 28%
  - Very unconcerned: 18%
- 9) “To minimize privacy concerns, cost of collection, cost of administration, and fraud and evasion of revenues, instead of paying at the pump would you be willing to pay the VMT fee (fuel tax) on any the following bases?”
- Annually: 27%

Bi-annually: 9%

Quarterly: 17%

Monthly: 46%

10) “How would a VMT fee affect your use of a transit system (bus, rail, etc.)?”

Significantly more use: 6%

Somewhat more use: 8%

Neutral: 69%

Somewhat less use: 4%

Significantly less use: 14%

**Minnesota Department of Transportation (Rephlo)**

*Sponsor or Funder:* Minnesota Department of Transportation

*Authors:* Jennifer Rephlo

*Pollster:* SAIC (Science Applications International Corporation)

*Title:* Connected Vehicles for Safety, Mobility, and User Fees: Evaluation of the Minnesota Road Fee Test

*Publisher and/or publication year:* Minnesota Department of Transportation (2013)

*Data collection year:* N/A

*Survey mode:* Multiple

*Sampling base:* Program participants

*Sampling strategy:* Random

*Sample size:* 420

*Geographic level:* Local (Twin Cities Metro Area, Minnesota)

*Census region:* Midwest

*Description of the mileage-based user fee:* “mileage-based fees”

*Questions:*

1) “Interviews allowed researchers to ask if, given the participant’s experience in the test, they would prefer to pay mileage-based fees as a replacement for the fuel tax.”

*Note:* The actual survey is not included in this report, and the actual question and response options are not available.

Prefer to pay a MBUF as a replacement to current fuel tax: 37%

Prefer to continue to pay fuel tax instead of a MBUF: 48%

No opinion: 15%

**MassInc Polling Group**

*Sponsor or Funder:* Barr Foundation

*Authors:* MassInc Polling Group

*Pollster:* MassInc Polling Group

*Title:* Massachusetts Statewide Poll of 1,506 Registered Voters

*Publisher and/or publication year:* MassInc Polling Group (2013)

*Data collection year:* 2013

*Survey mode:* Phone

*Sampling base:* Registered voters

*Sampling strategy:* N/A

*Sample size:* 1,506

*Geographic level:* State (Massachusetts)

*Census region:* Northeast

*Description of the mileage-based user fee:* “a new tax based on the number of miles a person drives”

**Questions:**

- 1) “Assuming the Massachusetts state government decided to raise funds for maintaining and improving our transportation system, one option is to adopt a new tax based on the number of miles a person drives. Each driver would pay a tax for every mile driven. The car’s mileage would be read during annual vehicle inspections, and the tax would be paid at that time. Would you support or oppose this idea? And do you strongly (support/oppose) this idea, or somewhat (support/oppose)?”
  - Strongly support: 7%
  - Somewhat support: 10%
  - Somewhat oppose: 11%
  - Strongly oppose: 69%
  - Don’t know: 3%

**Oregon Department of Transportation (Whitty)**

*Sponsor or Funder:* Oregon Department of Transportation

*Authors:* DHM Research

*Pollster:* DHM Research

*Title:* Report on Impacts of Road Usage Charges in Rural, Urban and Mixed Counties

*Publisher and/or publication year:* Oregon Department of Transportation (2013)

*Data collection year:* 2012

100

*Survey mode:* Phone

*Sampling base:* Registered voters

*Sampling strategy:* Random

*Sample size:* 900

*Geographic level:* State (Oregon)

*Census region:* West

*Description of the mileage-based user fee:* “a tax on miles driven”; “a road use tax”; “a road use tax based on the total miles driven”

*Questions:*

- 1) “One idea is to eliminate the tax on gasoline and replace it with a tax on miles driven. Do you believe paying a road usage tax based on the total miles you drive would be more fair, less fair, or about the same as paying a tax on gasoline?”
  - Less fair: 57%
  - More fair: 6%
  - About the same: 32%
  
- 2) What about for residents in rural areas or small towns who often drive long distances? Do you believe paying a road usage tax based on the total miles driven would be more fair, less fair, or about the same as paying a tax on gasoline?
  - Less fair: 46%
  - More fair: 18%
  - About the same: 31%

**Oregon Department of Transportation (Whitty)**

*Sponsor or Funder:* Oregon Department of Transportation

*Authors:* DHM Research

*Pollster:* DHM Research

*Title:* Report on Impacts of Road Usage Charges in Rural, Urban and Mixed Counties

*Publisher and/or publication year:* Oregon Department of Transportation (2013)

*Data collection year:* 2013

*Survey mode:* Phone

*Sampling base:* Registered voters

*Sampling strategy:* Random

*Sample size:* 300

*Geographic level:* State (Oregon)

*Census region:* West

*Description of the mileage-based user fee:* “a tax on miles driven”; “a road use tax”; “a road use tax based on the total miles driven”

*Questions:*

- 1) “One idea is to eliminate the tax on gasoline and replace it with a tax on miles driven. Do you believe paying a road usage tax based on the total miles you drive would be more fair, less fair, or about the same as paying a tax on gasoline?”
  - Less fair: 46%
  - More fair: 18%
  - About the same: 31%

**Colorado State University (Ozbek, Albeirut, and Atadero)**

*Sponsor or Funder:* Colorado State University

*Authors:* Mehmet Ozbek, Nassar Albeirut, Rebecca Atadero

*Pollster:* Mehmet Ozbek, Nassar Albeirut, Rebecca Atadero

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

*Publisher and/or publication year:* 2014

*Data collection year:* N/A

*Survey mode:* Mail

*Sampling base:* Adults

*Sampling strategy:* Random

*Sample size:* 1,163

*Geographic level:* Regional (Colorado, North Dakota, South Dakota, Utah, and Wyoming)

*Census region:* Midwest/West

*Description of the mileage-based user fee:* “Drivers are charged a fee for every mile they drive”

*Questions:*

- 1) “I support the use of Mileage-Based User Fees to fund the highway system.”
  - Reponses from Colorado Participants:
  - Agree/Strongly agree: 18%
- 2) “I support the use of Mileage-Based User Fees to fund the highway system.”
  - Reponses from North Dakota Participants:
  - Agree/Strongly agree: 18%
- 3) “I support the use of Mileage-Based User Fees to fund the highway system.”
  - Reponses from South Dakota Participants:
  - Agree/Strongly agree: 23%



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- 4) “I support the use of Mileage-Based User Fees to fund the highway system.”

Reponses from Utah Participants:

Agree/Strongly agree: 18%

- 5) “I support the use of Mileage-Based User Fees to fund the highway system.”

Reponses from Wyoming Participants:

Agree/Strongly agree: 19%

- 6) “I feel comfortable with having a device in my vehicle that can track when and where I am driving for the purpose of determining the fees I owe.”

Reponses from Colorado Participants:

Agree/Strongly agree: 11%

- 7) “I feel comfortable with having a device in my vehicle that can track when and where I am driving for the purpose of determining the fees I owe.”

Reponses from North Dakota Participants:

Agree/Strongly agree: 11%

- 8) “I feel comfortable with having a device in my vehicle that can track when and where I am driving for the purpose of determining the fees I owe. “

Reponses from South Dakota Participants:

Agree/Strongly agree: 14%

- 9) “I feel comfortable with having a device in my vehicle that can track when and where I am driving for the purpose of determining the fees I owe.”

Reponses from Utah Participants:

Agree/Strongly agree: 11%

- 10) “I feel comfortable with having a device in my vehicle that can track when and where I am driving for the purpose of determining the fees I owe.”

Reponses from Wyoming Participants:

Agree/Strongly agree: 19%

**GfK Public Affairs and Corporate Communications**

*Sponsor or Funder:* GfK Public Affairs and Corporate Communications

*Authors:* GfK Public Affairs and Corporate Communications

*Pollster:* GfK Public Affairs and Corporate Communications

*Title:* The AP-GfK Poll: July 2014

*Publisher and/or publication year:* 2014

*Data collection year:* 2014

*Survey mode:* Internet

*Sampling base:* Adults

*Sampling strategy:* Random

*Sample size:* 1,044

*Geographic level:* National

*Census region:* US

*Description of the mileage-based user fee:* “replace federal gas and diesel taxes with taxes based on how many miles a vehicle is driven”

*Questions:*

- 1) “Here are some ways to pay for transportation projects, such as highway construction, improvements to roads and bridges, and maintenance of public roads. For each, please indicate if you support, oppose or neither support nor oppose it as a way to fund such projects.”

“replace federal gas and diesel taxes with taxes based on how many miles a vehicle is Driven”

Support: 20%

Oppose: 40%

Neither Support nor Oppose: 37%

Refused/No Answer: 3%

#### **Reason Foundation**

*Sponsor or Funder:* Reason Foundation

*Authors:* Reason Foundation

*Pollster:* Princeton Survey Research Associates International (PSRAI)

*Title:* Reason-Rupe Public Opinion Survey: August 2014 Topline Results

*Publisher and/or publication year:* Reason Foundation (2014)

*Data collection year:* 2014

*Survey mode:* Phone

*Sampling base:* Adults

*Sampling strategy:* Random

*Sample size:* 1,000

*Geographic level:* National

*Census region:* US

*Description of the mileage-based user fee:* “a fee based on the number of miles they drive”

*Questions:*

- 1) “Would you favor or oppose a plan to eliminate the gas tax and instead charge drivers a fee based on the number of miles they drive?”
  - Favor: 23%
  - Oppose: 72%
  - Don’t Know/Refused: 4%

**Mineta Transportation Institute (Agrawal and Nixon)**

*Sponsor or Funder:* California Department of Transportation; U.S. Department of Transportation Research and Innovative Technology Administration

*Authors:* Asha Weinstein Agrawal and Hilary Nixon

*Pollster:* Social Science Research Center at California State University, Fullerton

*Title:* What Do Americans Think About Federal Tax Options to Support Public Transit, Highways, and Local Streets and Roads? Results from Year Four of a National Survey

*Publisher and/or publication year:* Mineta Transportation Institute (2013)

*Data collection year:* 2013

*Survey mode:* Phone

*Sampling base:* Adults

*Sampling strategy:* Random

*Sample size:* 1,501

*Geographic level:* National

*Census region:* US

*Description of the mileage-based user fee:* “a new tax based on the number of miles a person drives”

*Questions:*

- 1) “One idea (a DIFFERENT idea) is to adopt a new tax based on the number of miles a person drives. Each driver would pay a tax of one cent for every mile driven. For example, someone driving one hundred miles would pay a tax of one dollar. Vehicles would have an electronic meter to keep track of the miles driven, and the tax would be paid each time drivers buy gas. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose this new mileage tax?”
  - Strongly support: 5%
  - Somewhat support: 12%
  - Somewhat oppose: 15%
  - Strongly oppose: 66%
  - Don’t know: 2%

- 2) “A “VARIATION on the mileage tax just described is to have the tax rate VARY depending upon how much the vehicle pollutes. On average, vehicles would be charged one cent per mile, but vehicles that pollute less would be charged less, and vehicles that pollute more would be charged more. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose THIS new mileage tax?”

Strongly support: 15%

Somewhat support: 22%

Somewhat oppose: 19%

Strongly oppose: 43%

Don't know: 2%

**Texas A&M Transportation Institute (Simek and Geiselbrecht)**

*Sponsor or Funder:* Texas A&M Transportation Institute

*Authors:* Chris Simek and Tina Geiselbrecht

*Pollster:* Texas A&M Transportation Institute

*Title:* Texas Transportation Poll

*Publisher and/or publication year:* Texas A&M Transportation Institute (2014)

*Data collection year:* 2014

*Survey mode:* Multiple

*Sampling base:* Registered voters

*Sampling strategy:* Random

*Sample size:* 5,545

*Geographic level:* State (Texas)

*Census region:* South

*Description of the mileage-based user fee:* “a user fee of 1-cent per mile”

*Questions:*

- 1) “Rate 0–10, 10 being Strongly Support: Replace the state fuel tax with a user fee of 1-cent per mile. “

Average: 2.62

**American Trucking Association (Public Opinion Strategies)**

*Sponsor or Funder:* American Trucking Association

*Authors:* Public Opinion Strategies

*Pollster:* Public Opinion Strategies

*Title:* ATA National Survey

*Publisher and/or publication year:* 2014

*Data collection year:* 2014

*Survey mode:* Phone

*Sampling base:* Registered voters

*Sampling strategy:* N/A

*Sample size:* 800

*Geographic level:* National

*Census region:* US

*Description of the mileage-based user fee:* “using technology to charge drivers a fee for each mile a vehicle is driven”

*Questions:*

- 1) “Some have proposed raising money for transportation by using technology to charge drivers a fee for each mile a vehicle is driven. Would you support or oppose this proposal?”

Definitely support: 4%

Somewhat support: 6%

Somewhat oppose: 10%

Definitely oppose: 79%

Don’t know: 1%

**Washington State Transportation Commission (EMC Market and Opinion Research Services)**

*Sponsor or Funder:* Washington State Transportation Commission

*Authors:* EMC Market and Opinion Research Services

*Pollster:* EMC Market and Opinion Research Services

*Title:* 2014 Statewide VOWS Transportation Survey

*Publisher and/or publication year:* Washington State Transportation Commission (2015)

*Data collection year:* 2014

*Survey mode:* Online

*Sampling base:* Adults

*Sampling strategy:* Convenience

*Sample size:* 5,190

*Geographic level:* State (Washington)

*Census region:* West

*Description of the mileage-based user fee:* “A road usage charge is a different way to fund transportation. It would replace the gas tax and charge drivers by the mile instead of by the gallon.”

*Questions:*

- 1) “A road usage charge is a different way to fund transportation. It would replace the gas tax and charge drivers by the mile instead of by the gallon. Knowing this, do you think a road usage charge is a good way to fund transportation?”
  - Definitely: 17%
  - Probably: 21%
  - Probably not: 19%
  - Definitely not: 38%
  - Not sure: 5%
  
- 2) “Do you think a per mile road usage charge is a fair way to fund transportation?”
  - Very fair: 16%
  - Somewhat fair: 29%
  - Not that fair: 18%
  - Not at all fair: 31%
  - Not sure: 7%
  
- 3) “Which option do you think is more fair, a per gallon gas tax or a per mile road usage charge?”
  - Gas tax is much more fair: 17%
  - Gas tax is somewhat more fair: 22%
  - Road usage charge is much more fair: 20%
  - Road usage charge is somewhat more fair: 10%
  - Both options are the same: 23%
  - Not sure: 7%
  
- 4) “If a road usage charge replaced the gas tax, the cost would be set so that the total amount the average driver would pay would be the same as under the gas tax. Knowing this, in general, do you support or oppose replacing the gas tax with a per mile road usage charge?”
  - Strongly support: 10%
  - Somewhat support: 23%
  - Somewhat oppose: 18%
  - Strongly oppose: 35%
  - Not sure: 14%
  
- 5) “With both the gas tax and the road usage charge, the more you drive the more you pay. The difference is that with a road usage charge everyone pays the same amount no matter what type of vehicle they drive or how fuel efficient it is. Knowing this, in general, do you support or oppose replacing the gas tax with a per mile road usage charge?”
  - Strongly support: 10%
  - Somewhat support: 32%
  - Somewhat oppose: 18%
  - Strongly oppose: 32%
  - Not sure: 7%

- 6) Given the information provided in this survey, which option do you think is more fair, a per gallon gas tax or a per mile road usage charge?

Gas tax is much more fair: 14%  
Gas tax is somewhat more fair: 19%  
Road usage charge is much more fair: 26%  
Road usage charge is somewhat more fair: 12%  
Both options are the same: 21%  
Not sure: 8%

**Field Research Corporation (DiCamillo and Field)**

*Sponsor or Funder:* Field Research Corporation

*Authors:* Field Research Corporation

*Pollster:* Field Research Corporation

*Title:* The Field Poll No. 2502

*Publisher and/or publication year:* Field Research Corporation (2015)

*Data collection year:* 2015

*Survey mode:* Phone

*Sampling base:* Registered voters

*Sampling strategy:* Random

*Sample size:* 1,241

*Geographic level:* State (California)

*Census region:* West

*Description of the mileage-based user fee:* “a fee based on the number of miles driven”

*Questions:*

- 1) Would you support or oppose the installation of an electronic device on your motor vehicle to measure the exact amount of miles that you drive to enable the state to assess an accurate fee for road funding based upon the number of miles driven to replace or eliminate the current gasoline taxes that you pay?”

*Note:* This question was asked of car owners only.

Support: 30%

Oppose: 66%

No opinion: 4%

## APPENDIX B

### Tables Presenting Survey Question Findings, by Theme

This appendix presents five tables showing specific polling questions asked and the responses. The tables each cover questions on a single theme:

Table B1: Survey Questions on General Support for MBUFs

Table B2: Survey Questions Asking About Replacing the Gas Tax with an MBUF

Table B3: Survey Questions on Privacy Issues

Table B4: Survey Questions on Fairness

Table B5: Summary of MBUF Poll Questions Categorized as “Other” than General Support or Focused on Replacing the Gas Tax, Excluding Questions Focused on Privacy or Fairness

TABLE B1  
SURVEY QUESTIONS ON GENERAL SUPPORT FOR MBUFs

Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
Minnesota DOT (Wilbur Smith Associates)	1995	Adults	State	Using a scale of 1 to 10 in which 10 means very acceptable and 1 means totally unacceptable how would you rate the idea of a one-cent per mile mileage-based tax to pay for transportation needs that are not currently funded?	19% of respondents in Minnesota expressed acceptance for the idea of using a 1-cent-per-mile tax to pay for transportation needs that are not currently funded by rating the statement 8 or higher on a 10 point scale.
Mineta Transportation Institute (Weinstein et al.)	2006	Adults	State	One idea (another idea) is to eliminate the 18-cents-a-gallon gas tax altogether and replace it with a so-called “mileage fee” based on the number of miles a vehicle is driven. Each driver would pay a fee of one cent per mile for every mile driven within the state. For example, every 100 miles driven would incur a mileage fee of \$1. Each vehicle would be equipped with an electronic means to keep track of miles driven and the fee would be paid at the pump when drivers buy gas.	23% of respondents said they would “strongly support” or “somewhat support” replacing the state gas tax with a system in which “each driver would pay a fee of 1 cent for every mile driven within the state” and “vehicles would be equipped with an electronic means to keep track of miles driven and the fee would be paid when drivers buy gas.”
Mineta Transportation Institute (Agrawal and Nixon)	2009	Adults	State	A variation on the mileage fee just described is to have the fee vary depending upon how much the vehicle pollutes. On average, vehicles would pay one cent per mile, but vehicles that pollute the least would pay less and vehicles that pollute the most would pay more per mile. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose that idea?	50% of respondents said they would “strongly support” or “somewhat support” a mileage fee in which “on average, vehicles would be charged 1 cent per mile, but vehicles that pollute less would be charged less, and vehicles that pollute more would be charged more.”
Mineta Transportation Institute (Agrawal and Nixon)	2009	Adults	State	One idea (another idea) is to eliminate the eighteen-cents-per-gallon state gas tax altogether and replace it with a fee based on the number of miles you drive. Each driver would pay a fee of one cent per mile for every mile driven within the state. For example, every one hundred miles driven would pay a fee of one dollar. Vehicles would be equipped with an electronic means to keep track of miles driven and the fee would be paid when drivers buy gas. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose that idea?	28% of respondents said they would “strongly support” or “somewhat support” replacing the state gas tax with a system in which “each driver would pay a fee of 1 cent for every mile driven within the state” and “vehicles would be equipped with an electronic means to keep track of miles driven and the fee would be paid when drivers buy gas.”

Table B1 Continued on p.110



Table B1 Continued from p.109

Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
Civitas Institute (NC Legislative Committee)	2009	Registered voters	State	In order to fund transportation projects in North Carolina, a legislative commission has recommended changing the current system to a plan that would charge all drivers based on the number of miles they drive in North Carolina each year. Would you view such a system favorably or unfavorably?	21% of respondents said they would “favorably” view “a plan that would charge all drivers based on the number of miles they drive in North Carolina each year” as a way “to fund transportation projects in North Carolina.”
Minnesota DOT (Dieringer Research Group)	2009	Adults	State	I am going to read some other solutions that are being considered to help fund roads. If a decision were made to supplement or replace lost funding, how open would you be to each of the following? Please use a 1-10 scale with “1” meaning “Strongly oppose” and “10” meaning “Strongly support”. h. Mileage-based user fee.	23% of respondents indicated support for a “mileage-based user fee” as a means “to supplement or replace lost funding” for roads by rating it 8, 9, or 10 on a 10-point scale. 35% indicated opposition to the fee by rating it 1, 2, or 3.
Minnesota DOT (Dieringer Research Group)	2009	Adults	State	Of the solutions that you just rated, which one do you feel would be most acceptable? (READ LIST IF NECESSARY. PROBE WITH “IF YOU HAD TO CHOOSE ONE, WHICH ONE WOULD YOU CHOOSE?” ENTER ONE RESPONSE.)	19% of respondents, when asked to choose from among eight “solutions that are being considered to help fund roads,” said they felt a “mileage-based user fee” would be the “most acceptable.” The fee was only slightly less popular than the top 2 options; 20% chose “raising fuel taxes” and 19% chose “adding toll roads to the road system.”
Minnesota DOT (Dieringer Research Group)	2009	Adults	State	To clarify, a mileage-based user fee is being considered in the U.S. and in other countries as a means to supplement or eliminate the gasoline tax or another type of vehicle fee. Drivers would be charged a fee based on the number of miles driven. Now we’d like to get your opinions specifically on Approach K [GPS device, rates vary by type of travel]. What was your initial reaction to Approach K? Please use a 10-point scale where “1” means “Extremely Negative” and “10” means “Extremely Positive.” *Approaches refer to the information sheets provided	8% of respondents, who were asked to consider a mileage-based user fee that would use a GPS device to collect data and vary rates by time and place of travel, indicated that their “initial reaction” to the approach was positive by rating it 8, 9, or 10 on a 10-point scale. 56% had a negative reaction indicated by rating it 1, 2, or 3.
Minnesota DOT (Dieringer Research Group)	2009	Adults	State	To clarify, a mileage-based user fee is being considered in the U.S. and in other countries as a means to supplement or eliminate the gasoline tax or another type of vehicle fee. Drivers would be charged a fee based on the number of miles driven. Now we’d like to get your opinions specifically on Approach S [odometer readings, rates vary by type of vehicle]. What was your initial reaction to Approach S? Please use a 10-point scale where “1” means “Extremely Negative” and “10” means “Extremely Positive.” *Approaches refer to the information sheets provided	18% of respondents, who were asked to consider a mileage-based user fee that would use odometer readings reported annually and vary rates by type of vehicle, indicated that their “initial reaction” to the approach was positive by rating it 8, 9, or 10 on a 10-point scale. 32% had a negative reaction indicated by rating it 1, 2, or 3.
Rasmussen Reports	2009	Adults	National	On another topic...to help fund the building and repair of roads and bridges, the Obama administration is considering a mileage tax that would tax drivers based on how many miles they drive. Do you favor or oppose a mileage tax?	18% of respondents said they favor “a mileage tax that would tax drivers based on how many miles they drive” in order “to help fund the building and repair of roads and bridges.”
Indian Nation Council of Governments (Collective Strength)	2011	Adults	Local	Please indicate how willing you would be to use the following sources of revenue to help fund public transportation improvements? A small user tax that would be based on the number of miles a vehicle is driven each year	33% of respondents said they would be “very willing” or “somewhat willing” to use “a small user tax that would be based on the number of miles a vehicle is driven each year” to “help fund public transportation improvements.”

Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
Mineta Transportation Institute (Agrawal and Nixon)	2010	Adults	National	A VARIATION on the mileage tax just described is to have the tax rate VARY depending upon how much the vehicle pollutes. On average, vehicles would be charged 1 cent per mile, but vehicles that pollute less would be charged less, and vehicles that pollute more would be charged more. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose THIS new mileage tax?	33% of respondents said they would “strongly support” or “somewhat support” a mileage tax in which “on average, vehicles would be charged 1 cent per mile, but vehicles that pollute less would be charged less, and vehicles that pollute more would be charged more.”
Mineta Transportation Institute (Agrawal and Nixon)	2010	Adults	National	One idea (a DIFFERENT idea) is to adopt a new tax based on the number of miles a person drives. Each driver would pay a tax of 1 cent for every mile driven. For example, someone driving 100 miles would pay a tax of 1 dollar. Vehicles would have an electronic meter to keep track of the miles driven, and the tax would be paid each time drivers buy gas. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose this new mileage tax?	21% of respondents said they would “strongly support” or “somewhat support” the adoption of “a new tax” in which “each driver would pay a tax of 1 cent for every mile driven” and “vehicles would have an electronic meter to keep track of the miles driven, and the tax would be paid each time drivers buy gas.”
HNTB Companies (Kelton Research)	2011	Adults	National	Aside from a gas tax, where do you think the government should get additional funds for transportation-related infrastructure projects? Please choose all that apply.  Relevant option: annual fee for highway miles traveled.	12% of respondents chose an “annual fee for highway miles traveled, collected at the pump or through a regular inspection or registration process,” as a good source for “additional funds for transportation-related infrastructure projects.”
Mineta Transportation Institute (Agrawal and Nixon)	2011	Adults	National	A VARIATION on the mileage tax just described is to have the tax rate VARY depending upon how much the vehicle pollutes. On average, vehicles would be charged 1 cent per mile, but vehicles that pollute less would be charged less, and vehicles that pollute more would be charged more. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose THIS new mileage tax?	36% of respondents said they would “strongly support” or “somewhat support” a mileage tax in which “on average, vehicles would be charged 1 cent per mile, but vehicles that pollute less would be charged less, and vehicles that pollute more would be charged more.”
Mineta Transportation Institute (Agrawal and Nixon)	2011	Adults	National	One idea (a DIFFERENT idea) is to adopt a new tax based on the number of miles a person drives. Each driver would pay a tax of 1 cent for every mile driven. For example, someone driving 100 miles would pay a tax of 1 dollar. Vehicles would have an electronic meter to keep track of the miles driven, and the tax would be paid each time drivers buy gas. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose this new mileage tax?	22% of respondents said they would “strongly support” or “somewhat support” the adoption of “a new tax” in which “each driver would pay a tax of 1 cent for every mile driven” and “vehicles would have an electronic meter to keep track of the miles driven, and the tax would be paid each time drivers buy gas.”
Rasmussen Reports	2011	Adults	National	The Congressional Budget Office (CBO) has just released a report saying that taxing people based on how many miles they drive is a good way to raise funds for highway maintenance. Do you favor or oppose a mileage tax?	15% of respondents said they favor “taxing people based on how many miles they drive” to “raise funds for highway maintenance.”
Washington State Transportation Commission (EMC Market and Opinion Research Services)	2011	Adults	State	Is this a good way to fund increased transportation investment?: a fee based the number of miles driven--people who use the system more would pay a higher fee.	44% of respondents said they thought “a fee based on the number of miles driven” was “a good way to help provide future funding for our transportation system.”
Mineta Transportation Institute (Agrawal and Nixon)	2012	Adults	National	A VARIATION on the mileage tax just described is to have the tax rate VARY depending upon how much the vehicle pollutes. On average, vehicles would be charged 1 cent per mile, but vehicles that pollute less would be charged less, and vehicles that pollute more would be charged more. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose THIS new mileage tax?	41% of respondents said they would “strongly support” or “somewhat support” a mileage tax in which “on average, vehicles would be charged 1 cent per mile, but vehicles that pollute less would be charged less, and vehicles that pollute more would be charged more.”

Table B1 Continued on p.112

Table B1 Continued from p.111

Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
Mineta Transportation Institute (Agrawal and Nixon)	2012	Adults	National	One idea (a DIFFERENT idea) is to adopt a new tax based on the number of miles a person drives. Each driver would pay a tax of 1 cent for every mile driven. For example, someone driving 100 miles would pay a tax of 1 dollar. Vehicles would have an electronic meter to keep track of the miles driven, and the tax would be paid each time drivers buy gas. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose this new mileage tax?	21% of respondents said they would “strongly support” or “somewhat support” the adoption of “a new tax” in which “each driver would pay a tax of 1 cent for every mile driven” and “vehicles would have an electronic meter to keep track of the miles driven, and the tax would be paid each time drivers buy gas.”
Rasmussen Reports	2012	Adults	National	Some have suggested that taxing people based on how many miles they drive is a good way funds for highway maintenance. Do you favor or oppose a mileage tax?	12% of respondents said they favor “taxing people based on how many miles they drive” to “raise funds for highway maintenance.”
Washington State Transportation Commission (EMC Market and Opinion Research Services)	2012	Adults	State	For each revenue source, please indicate whether or not you think that method is a good way to help provide future funding for our transportation system.: "A fee based on the number of miles driven - people pay for what they use by the mile instead of by the gallon"	39% of respondents said they thought “a fee based on the number of miles driven” was “a good way to help provide future funding for our transportation system.”
MassInc Polling Group	2013	Registered voters	State	Assuming the Massachusetts state government decided to raise funds for maintaining and improving our transportation system, one option is to adopt a new tax based on the number of miles a person drives. Each driver would pay a tax for every mile driven. The car’s mileage would be read during annual vehicle inspections, and the tax would be paid at that time. Would you support or oppose this idea? And do you strongly (support/oppose) this idea, or somewhat (support/oppose)?	17% of respondents said they would “support” the Massachusetts state government adopting “a new tax based on the number of miles a person drives,” in which “the car’s mileage would be read during annual vehicle inspections, and the tax would be paid at that time.”
Mineta Transportation Institute (Agrawal and Nixon)	2013	Adults	National	A VARIATION on the mileage tax just described is to have the tax rate VARY depending upon how much the vehicle pollutes. On average, vehicles would be charged one cent per mile, but vehicles that pollute less would be charged less, and vehicles that pollute more would be charged more. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose THIS new mileage tax?	39% of respondents said they would “strongly support” or “somewhat support” a mileage tax in which “on average, vehicles would be charged 1 cent per mile, but vehicles that pollute less would be charged less, and vehicles that pollute more would be charged more.”
Mineta Transportation Institute (Agrawal and Nixon)	2013	Adults	National	One idea (a DIFFERENT idea) is to adopt a new tax based on the number of miles a person drives. Each driver would pay a tax of one cent for every mile driven. For example, someone driving one hundred miles would pay a tax of one dollar. Vehicles would have an electronic meter to keep track of the miles driven, and the tax would be paid each time drivers buy gas. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose this new mileage tax?	18% of respondents said they would “strongly support” or “somewhat support” the adoption of “a new tax” in which “each driver would pay a tax of 1 cent for every mile driven” and “vehicles would have an electronic meter to keep track of the miles driven, and the tax would be paid each time drivers buy gas.”
American Trucking Association (Public Opinion Strategies)	2014	Registered voters	National	Some have proposed raising money for transportation by using technology to charge drivers a fee for each mile a vehicle is driven. Would you support or oppose this proposal?	10% of respondents said they would “definitely support” or “somewhat support” a proposal to raise “money for transportation by using technology to charge drivers a fee for each mile a vehicle is driven.”
Mineta Transportation Institute (Weinstein et al.)	2006	Adults	National	A variation on the mileage fee just described is to have the fee vary depending upon how much the vehicle pollutes. On average, vehicles would pay one cent per mile, but vehicles that pollute the least would pay less and vehicles that pollute the most would pay more per mile. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose that idea?	43% of respondents said they would “strongly support” or “somewhat support” a mileage tax in which “on average, vehicles would be charged 1 cent per mile, but vehicles that pollute less would be charged less, and vehicles that pollute more would be charged more.”

Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
Mineta Transportation Institute (Weinstein et al.)	2006	Adults	National	One idea (another idea) is to eliminate the eighteen-cents-per-gallon state gas tax altogether and replace it with a fee based on the number of miles you drive. Each driver would pay a fee of one cent per mile for every mile driven within the state. For example, every one hundred miles driven would pay a fee of one dollar. Vehicles would be equipped with an electronic means to keep track of miles driven and the fee would be paid when drivers buy gas. Would you strongly support, somewhat support, somewhat oppose, or strongly oppose that idea?	18% of respondents said they would “strongly support” or “somewhat support” the adoption of “a new tax” in which “each driver would pay a tax of 1 cent for every mile driven” and “vehicles would have an electronic meter to keep track of the miles driven, and the tax would be paid each time drivers buy gas.”
Colorado State University (Ozbek, Albeiruti, and Atadero)	2014	Adults	Regional	I support the use of Mileage-Based User Fees to fund the highway system. COLORADO	18% of respondents from Colorado said they “agree” or “strongly agree” with the statement, “I support the use of Mileage-Based User Fees to fund the highway system.”
Colorado State University (Ozbek, Albeiruti, and Atadero)	2014	Adults	Regional	I support the use of Mileage-Based User Fees to fund the highway system. NORTH DAKOTA	18% of respondents from North Dakota said they “agree” or “strongly agree” with the statement, “I support the use of Mileage-Based User Fees to fund the highway system.”
Colorado State University (Ozbek, Albeiruti, and Atadero)	2014	Adults	Regional	I support the use of Mileage-Based User Fees to fund the highway system. SOUTH DAKOTA	23% of respondents from South Dakota said they “agree” or “strongly agree” with the statement, “I support the use of Mileage-Based User Fees to fund the highway system.”
Colorado State University (Ozbek, Albeiruti, and Atadero)	2014	Adults	Regional	I support the use of Mileage-Based User Fees to fund the highway system. UTAH	21% of respondents from Utah said they “agree” or “strongly agree” with the statement, “I support the use of Mileage-Based User Fees to fund the highway system.”
Colorado State University (Ozbek, Albeiruti, and Atadero)	2014	Adults	Regional	I support the use of Mileage-Based User Fees to fund the highway system. WYOMING	19% of respondents from Wyoming said they “agree” or “strongly agree” with the statement, “I support the use of Mileage-Based User Fees to fund the highway system.”

TABLE B2  
SURVEY QUESTIONS ASKING ABOUT REPLACING THE GAS TAX WITH AN MBUF

Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
Minnesota DOT (Wilbur Smith Associates)	1995	Adults	State	Based on the information I have given you, I would like your opinion of the idea of paying tax on the number of miles driven in Minnesota rather than on the amount of gas purchased. Using a scale of 1 to 10 in which 10 means very acceptable and 1 means totally unacceptable, how would you rate the idea of a mileage-based tax as a method of raising funds for our state-wide transportation system?	15% of respondents expressed acceptance for the idea of a replacing the gas tax with a mileage-based tax to raise funds for the transportation system in Minnesota by rating the statement 8 or higher on a 10 point scale.
Minnesota DOT (Wilbur Smith Associates)	1995	Adults	State	Earlier you rated the idea of a mileage-based tax a (READ NUMBER) on a scale of 1 to 10. Now that we have discussed it further, do you want to stay with that answer or would you like to change it? How would you now rate the idea of paying tax on the number of miles driven in Minnesota rather than on the amount of gas purchased? Please use a scale of 1 to 10 in which 10 means very acceptable and 1 means totally unacceptable.	39% of those respondents who changed their answer after learning more about a mileage-based tax expressed acceptance for replacing the gas tax with a mileage-based fee to raise funds for the transportation system in Minnesota, a 19% increase in acceptance.
Minnesota DOT (Wilbur Smith Associates)	1995	Adults	State	Using a scale of 1 to 10 in which 10 means very acceptable and 1 means totally unacceptable, how would you rate the idea of a two-cent per mile mileage-based tax to replace both the gas tax and the cost of license plates and tags?	15% of respondents in Minnesota expressed acceptance for the idea of using a 2-cents-per-mile tax as an option to replace both the gas tax and the cost of license plates and tags by rating the statement 8 or higher on a 10 point scale.
Minnesota DOT (Wilbur Smith Associates)	1995	Adults	State	Using a scale of 1 to 10 in which 10 means very acceptable and 1 means totally unacceptable, how would you rate the idea of a three-cent per mile mileage-based tax to replace the gas tax, the cost of license plates and tabs, and a portion of the property tax?	10% of respondents in Minnesota expressed acceptance for the idea of using a 3-cents-per-mile tax as an option to replace the gas tax, the cost of license plates and tags, and a portion of the property tax by rating the statement 8 or higher on a 10 point scale.
Minnesota DOT (Wilbur Smith Associates)	1995	Adults	State	Using a scale of 1 to 10 in which 10 means very acceptable and 1 means totally unacceptable, how would you rate the idea of a four-cent per mile mileage-based tax to replace the gas tax, the cost of license plates and tabs, a portion of the property tax, and to pay for transportation needs that are currently not funded?	8% of respondents in Minnesota expressed acceptance for the idea of using a 4-cents-per-mile tax as an option to replace the gas tax, the cost of license plates and tags, a portion of the property, and to pay for transportation needs that are currently not funded by rating the statement 8 or higher on a 10 point scale.
FHWA (Ramfos)	2011	Adults	Regional	Finally, I'll read several possible ways to increase transportation funding for the region. Please rate your support for each using a scale of 1 to 5, where 1 means you "strongly oppose" it and 5 means you "strongly support" it as a way to increase transportation funding.  Replacing the gas tax with a per-mile charge on vehicle miles driven; Increasing income taxes; Increasing property taxes; Increasing sales taxes; Replacing the gas tax with a per-mile charge on vehicle miles driven.	15% of respondents supported replacing the gas tax with a per-mile charge on vehicle miles driven.

Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
Fiscal Research Center, Andrew Young School of Policy Studies at Georgia State University (Ellen, Sjoquist, and Stoycheva)	2012	Adults	State	Imagine that the current state gas tax was eliminated and replaced by a tax that was based only on the number of miles the car was driven in Georgia. Imagine that it was possible to pay this tax at the gas pump just like the current gas tax. So when a driver refueled their car, the total cost would include the cost of the gas plus tax based on how many miles the car had been driven in Georgia since the last gas purchase. In this proposal, everyone who drives 10,000 miles a year in Georgia would pay the same tax, regardless of the fuel efficiency of the vehicle they drove. To create the same revenue for transportation, the new miles-based tax would be 1.35 cents per mile. This means a person who drives a car 10,000 miles per year will pay \$135 in taxes. Would you ...	33% of a randomly assigned subset of respondents said they would “strongly support” or “somewhat support” eliminating the Georgia state gas tax and replacing it with a “new miles-based tax” of 1.35 cents per mile driven on Georgia roads that could be paid “at the gas pump.”
Fiscal Research Center, Andrew Young School of Policy Studies at Georgia State University (Ellen, Sjoquist, and Stoycheva)	2012	Adults	State	Imagine that the current state gas tax was eliminated and replaced by a tax that was based only on the number of miles the car was driven in Georgia. Imagine that it was possible to pay this tax at the gas pump just like the current gas tax. So when a driver refueled their car, the total cost would include the cost of the gas plus tax based on how many miles the car had been driven in Georgia since the last gas purchase. In this proposal, everyone who drives 10,000 miles a year in Georgia would pay the same tax, regardless of the fuel efficiency of the vehicle they drove. To create the same revenue for transportation, the new miles-based tax would be 1.6 cents per mile. This means a person who drives a car 10,000 miles per year will pay \$160 in taxes. Would you ...	39% of a randomly assigned subset of respondents said they would “strongly support” or “somewhat support” eliminating the Georgia state gas tax and replacing it with a “new miles-based tax” of 1.6 cents per mile driven on Georgia roads that could be paid “at the gas pump.”
Fiscal Research Center, Andrew Young School of Policy Studies at Georgia State University (Ellen, Sjoquist, and Stoycheva)	2012	Adults	State	Imagine that the current state gas tax was eliminated and replaced by a tax that was based only on the number of miles the car was driven in Georgia. Imagine that it was possible to pay this tax at the gas pump just like the current gas tax. So when a driver refueled their car, the total cost would include the cost of the gas plus tax based on how many miles the car had been driven in Georgia since the last gas purchase. In this proposal, everyone who drives 10,000 miles a year in Georgia would pay the same tax, regardless of the fuel efficiency of the vehicle they drove. To create the same revenue for transportation, the new miles-based tax would be 2.1 cents per mile. This means a person who drives a car 10,000 miles per year will pay \$210 in taxes. Would you ...	36% of a randomly assigned subset of respondents said they would “strongly support” or “somewhat support” eliminating the Georgia state gas tax and replacing it with a “new miles-based tax” of 2.1 cents per mile driven on Georgia roads that could be paid “at the gas pump.”
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Would you support an effort to replace the gasoline tax with a mileage user-fee?	22% of respondents said they would “support an effort to replace the gasoline tax with a mileage user-fee.”
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Please indicate your degree of support for or opposition to the following options: Your state replaces its gasoline tax with a state mileage user-fee;	24% of respondents said they would “strongly support” or “support” their state replacing “its gasoline tax with a state mileage user-fee.”
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Please indicate your degree of support for or opposition to the following options: The federal government replaces its gasoline tax with a federal mileage user-fee;	22% of respondents said they would “strongly support” or “support” the federal government replacing “its gasoline tax with a federal mileage user-fee.”

Table B2 Continued on p.116

Table B2 Continued from p.115

Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Please indicate your degree of support for or opposition to the following options: The states and the federal government replace their gasoline taxes with mileage user-fees.	23% of respondents said they would “strongly support” or “support” the states and federal government replacing “their gasoline taxes with mileage user-fees.”
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Would you be in support of or opposed to replacing the gasoline tax in your state with a mileage user-fee based on odometer readings?	23% of respondents said they would “support” or “strongly support” replacing the gasoline tax in their state “with a mileage user-fee based on odometer readings.”
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	For this question, please think about a federal level mileage user-fee. Would you be in support of or opposed to replacing the federal gasoline tax with a federal mileage user-fee based on odometer readings?	20% of respondents said they would “support” or “strongly support” replacing the federal gasoline tax “with a federal mileage user-fee based on odometer readings.”
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Would you be in support of or opposed to replacing the gasoline tax in your state with a mileage user-fee based on this basic/advanced GPS?	15% of respondents said they would “support” or “strongly support” replacing the gasoline tax in their state with a basic GPS-based mileage user-fee system, in which a GPS device would record and report the number of miles driven each year but would not record location data. 13% said they would “support” or “strongly support” an advanced GPS-based system, in which the device did record location data so that different fees could be “charged for different roads, locations and time of travel.”
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	For this question, please think about a federal-level mileage user-fee. Would you be in support of or opposed to replacing the federal gasoline tax with a federal mileage user-fee based on a basic/advanced GPS?	14% of respondents said they would “support” or “strongly support” replacing the federal gasoline tax with a basic GPS-based mileage user-fee system, in which a GPS device would record and report the number of miles driven each year but would not record location data. 13% said they would “support” or “strongly support” an advanced GPS-based system, in which the device did record location data so that different fees could be “charged for different roads, locations, and time of travel.”
GfK Public Affairs and Corporate Communications	2014	Adults	National	Here are some ways to pay for transportation projects, such as highway construction, improvements to roads and bridges, and maintenance of public roads. For each, please indicate if you support, oppose, or neither support nor oppose it as a way to fund such projects. Relevant option: replace federal gas and diesel taxes with taxes based on how many miles a vehicle is driven.	20% of respondents said they would “support” replacing “federal gas and diesel taxes with taxes based on how many miles a vehicle is driven” as a way to “pay for transportation projects, such as highway construction, improvements to roads and bridges, and maintenance of public roads.”
Reason Foundation	2014	Adults	National	Would you favor or oppose a plan to eliminate the gas tax and instead charge drivers a fee based on the number of miles they drive?	23% of respondents said they would favor “a plan to eliminate the gas tax and instead charge drivers a fee based on the number of miles they drive.”

Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
Texas A&M Transportation Institute (Simek and Geiselbrecht)	2014	Registered voters	State	Rate 0-10, 10 being Strongly Support: Replace the state fuel tax with a user fee of 1 cent per mile.	13% of respondents expressed support for replacing the state fuel tax with “a user fee of 1¢ per mile driven” by rating the statement 7 or higher on a 0-to-10 scale.
Washington State Transportation Commission (EMC Market and Opinion Research Services)	2015	Adults	State	If a road usage charge replaced the gas tax, the cost would be set so that the total amount the average driver would pay would be the same as under the gas tax.  Knowing this, in general, do you support or oppose replacing the gas tax with a per-mile road usage charge?	33% of respondents said they would support “replacing the gas tax with a per mile road usage charge” if “the cost would be set so that the total amount the average driver would pay would be the same as under the gas tax.”
Washington State Transportation Commission (EMC Market and Opinion Research Services)	2015	Adults	State	With both the gas tax and the road usage charge, the more you drive the more you pay. The difference is that with a road usage charge everyone pays the same amount no matter what type of vehicle they drive or how fuel efficient it is.  Knowing this, in general, do you support or oppose replacing the gas tax with a per mile road usage charge?	42% of respondents said they support “replacing the gas tax with a per mile road usage charge” after being told that the difference is that “with a road usage charge everyone pays the same amount no matter what type of vehicle they drive or how fuel efficient it is.”
Field Research Corporation (DiCamillo and Field)	2015	Registered voters	State	Would you support or oppose the installation of an electronic device on your motor vehicle to measure the exact amount of miles that you drive to enable the state to assess an accurate fee for road funding based upon the number of miles driven to replace or eliminate the current gasoline taxes that you pay? (asked of car owners only)	29% of respondents who own a car said they would support “the installation of an electronic device on your motor vehicle to measure the exact amount of miles that you drive to enable the state to assess an accurate fee for road funding based upon the number of miles driven to replace or eliminate the current gasoline taxes that you pay.”
Minnesota DOT (Rephlo)	2013	Program participants	Local	Interviews allowed researchers to ask if, given the participant’s experience in the test, they would prefer to pay mileage-based fees as a replacement for the fuel tax. *Note: The actual survey is not included in this report. The actual question is not available.	37% of participants in a program to test the implementation of a mileage-based fee said they would prefer to replace the current fuel tax with such a fee. 48% said they would prefer to continue paying the fuel tax, and 15% had no opinion or were unsure.
SAFETEA-LU (Hanley and Kuhl)	2011	Program participants	National	How do you feel about the idea of replacing the gas tax with a mileage-based road user fee? THREE-STAGE SURVEY	70% of participants in a field study to evaluate mileage-based charging said they felt “very positive” or “somewhat positive” about “the idea of replacing the gas tax with a mileage-based road user fee” by the end of the study, compared to 41% at the beginning of the study. The percentage of participants with a “very negative” or “somewhat negative” feeling about the idea decreased over the course of the study from 20% to 17%.



TABLE B3  
SURVEY QUESTIONS ON PRIVACY ISSUES

Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
Minnesota DOT (Dieringer Research Group)	2009	Adults	State	Describe what, if anything, you liked least about this approach? (ENTER ALL THAT APPLY.)	40% of respondents, who were asked to consider a mileage-based user fee that would use a GPS device to collect data and vary rates by time and place of travel, said what they “liked least” about the approach was that it would be an invasion of privacy. 25% said it would be too expensive, and 12% said they did not like that it was based on the mileage driven. Asked to consider a different approach that would use odometer readings reported annually and vary rates by type of vehicle, 15% said what they “liked least” was that it was too expensive. 12% said they did not like that they would have to go somewhere or call in to report their mileage, 12% said it would be generally inconvenient, and 12% said they did not like that it was based on the mileage driven.
University of Nevada, Las Vegas (Nordland, Paz, and Khan)	2013	Adults	Local	Rank the following VMT components based on personal importance from 1-5 (Five (5) being most important, one (1) being least important): Privacy	56% of respondents indicated “privacy” was an important component of a VMT system by rating it 4 or 5 on a five-point scale.
University of Nevada, Las Vegas (Nordland, Paz, and Khan)	2013	Adults	Local	To minimize privacy concerns, cost of collection, cost of administration, and fraud and evasion of revenues, instead of paying at the pump would you be willing to pay the VMT fee (fuel tax) on any the following bases (annually, bi-annually, quarterly, monthly)?	
Minnesota DOT (Munnich)	2012	Adults	State	A nongovernmental audit firm should regularly audit the system to ensure private data gathered by the system was being well protected.	46.5% of respondents indicated they agreed with the statement, “A nongovernmental audit firm should regularly audit the system to ensure private data gathered by the system was being well protected,” by rating it 8, 9, or 10 on a 10-point scale. 22% indicated disagreement by rating the statement 1, 2, or 3.
Minnesota DOT (Munnich)	2012	Adults	State	I would be willing to accept a high tech collection system if it guarantees privacy protection while ensuring that the user charges collected are being properly sent to the central billing office even though I can’t verify the accuracy of the billing due to the privacy.	46.5% of respondents indicated they disagreed with the statement, “I would be willing to accept a high tech collection system if it guarantees privacy protection while ensuring that the user charges collected are being properly sent to the central billing office even though I can’t verify the accuracy of the billing due to the privacy,” by rating it 1, 2, or 3 on a 10-point scale. 15% indicated disagreement by rating the statement 8, 9, or 10.
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements about a mileage user-fee:  Collecting information about a person’s mileage is an invasion of privacy, unless the collection is voluntary;	74% of respondents said they “agree” or “strongly agree” with the statement, “Collecting information about a person’s mileage is an invasion of privacy, unless the collection is voluntary.”

Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against a mileage user-fee administered through odometer readings. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements.:  Reporting odometer mileage to the government is an invasion of privacy;	68% of respondents said they “agree” or “strongly agree” with the statement, “Reporting odometer mileage to the government is an invasion of privacy.”
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against the basic GPS-based mileage user-fee just described. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:  It would be easy for someone outside of the government to get access to my GPS mileage data.	80% of respondents said they “agree” or “strongly agree” with the statement, “It would be easy for someone outside of the government to get access to my GPS mileage data.”
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against the basic GPS-based mileage user-fee just described. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:  I like that this basic GPS system only tracks the total number of miles driven, so the government cannot monitor when and where I drive.	62% of respondents said they “agree” or “strongly agree” with the statement, “I like that this basic GPS system only tracks the total number of miles driven, so the government cannot monitor when and where I drive.”
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against the advanced GPS-based mileage user-fee described above. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:  I dislike this advanced GPS system because the government will be able to monitor when and where I drive.	81% of respondents, after hearing a description of an advanced GPS-based mileage user-fee system that would collect location data, said they “agree” or “strongly agree” with the statement, “I dislike this advanced GPS system because the government will be able to monitor when and where I drive.”
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against the advanced GPS-based mileage user-fee described above. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:  It would be easy for someone outside of the government to get access to my GPS mileage data.	81% of respondents, after hearing a description of an advanced GPS-based mileage user-fee system that would collect location data, said they “agree” or “strongly agree” with the statement, “It would be easy for someone outside of the government to get access to my GPS mileage data.”

TABLE B4  
SURVEY QUESTIONS ON FAIRNESS

Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
Minnesota DOT (Dieringer Research Group)	2009	Adults	State	I'm going to read several statements. For each, please tell me how much you agree or disagree that it describes the idea of a mileage-based user fee as a solution to fill a possible funding gap? Please use a 1 to 10 scale where "1" means "Completely Disagree" and "10" means "Completely Agree." [ADD TO EACH INDIVIDUAL SCREEN]: How much to you agree or disagree that...  Is a "fair" method to fund transportation	33% of respondents indicated agreement with the statement that a mileage-based user fee "is a 'fair' method to fund transportation" by rating it 8, 9, or 10 on a 10-point scale. 28% indicated disagreement with the statement by rating it 1, 2, or 3.
Minnesota DOT (Munnich)	2012	Adults	State	Please tell me how much you agree or disagree with each of the following statements. Use a 10-point scale where 1 means you Disagree strongly and 10 means you Agree strongly. You can use any number in between.  A vehicle miles traveled use fee program is one solution that is flexible enough to work with all vehicles so that they pay their fair share for use of the roadway system – high mileage vehicles, gas-electric hybrids, ethanol- and biofuel-powered vehicles, plug-in vehicles and other technologies.	46% of respondents indicated they agreed (rating the statement 8, 9, or 10 on a 10-point scale); 19% indicated disagreement (rating the statement 1, 2, or 3).
Minnesota DOT (Munnich)	2012	Adults	State	Large, heavy trucks should be charged a higher use fee rate than regular vehicles, because trucks cause more road and bridge wear than cars.	26% of respondents indicated they disagreed with the statement, "Large, heavy trucks should be charged a higher use fee rate than regular vehicles, because trucks cause more road and bridge wear than cars," by rating it 1, 2, or 3 on a 10-point scale. Less than 1% indicated agreement by rating the statement 8, 9, or 10.
Minnesota DOT (Munnich)	2012	Adults	State	Please tell me how much you agree or disagree with each of the following statements. Use a 10-point scale where 1 means you Disagree strongly and 10 means you Agree strongly. You can use any number in between.  Overall, vehicle miles traveled use fees are fair, because drivers pay according to how much they actually use the road.	33% of respondents indicated they agreed (rating of 8, 9, or 10 on a 10-point scale.); 30.5% disagreed (by rating the statement 1, 2, or 3).
Minnesota DOT (Munnich)	2012	Adults	State	Please tell me how much you agree or disagree with each of the following statements. Use a 10-point scale where 1 means you Disagree strongly and 10 means you Agree strongly. You can use any number in between.  Fees based on miles travelled are fair because they require drivers of vehicles that use little or no gasoline to also pay their fair share for using roads and bridges.	31% of respondents agreed (rating of 8, 9, or 10 on a 10-point scale); 31% disagreed (rating the statement 1, 2, or 3).
Oregon Department of Transportation (Whitty)	2013	Registered voters	State	One idea is to eliminate the tax on gasoline and replace it with a tax on miles driven. Do you believe paying a road usage tax based on the total miles you drive would be more fair, less fair, or about the same as paying a tax on gasoline?	40% of respondents said they "believe paying a road usage tax based on the total miles [they] drive" would be "less fair" than "paying a tax on gasoline." 15% said it would be "more fair" and 36% said it would be "about the same."
Oregon Department of Transportation (Whitty)	2013	Registered voters	State	What about for residents in rural areas or small towns who often drive long distances? Do you believe paying a road usage tax based on the total miles driven would be more fair, less fair, or about the same as paying a tax on gasoline?	57% of respondents said they "believe paying a road usage tax based on the total miles [they] drive" would be "less fair" than "paying a tax on gasoline" for "residents in rural areas or small towns who often drive long distances." 6% said it would be "more fair" and 32% said it would be "about the same."

Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements about a mileage user-fee:  A mileage user-fee is unfair to people living in rural areas because they have to drive more miles to get to places they need to go;	79% of respondents said they “agree” or “strongly agree” with the statement, “A mileage user-fee is unfair to people living in rural areas because they have to drive more miles to get to places they need to go.”
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements about a mileage user-fee:  A mileage user-fee is unfair to people who drive a lot on the job (for example, truckers, sales people, and taxi drivers)	73% of respondents said they “agree” or “strongly agree” with the statement, “A mileage user-fee is unfair to people who drive a lot on the job (for example, truckers, salespeople, and taxi drivers).”
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements about a mileage user-fee:  A mileage user-fee is unfair to people who drive fuel efficient vehicles.	56% of respondents said they “agree” or “strongly agree” with the statement, “A mileage user-fee is unfair to people who drive fuel efficient vehicles.”
Oregon Department of Transportation (Whitty)	2013	Registered voters	State	One idea is to eliminate the tax on gasoline and replace it with a tax on miles driven. Do you believe paying a road usage tax based on the total miles you drive would be more fair, less fair, or about the same as paying a tax on gasoline?	46% of respondents said they “believe paying a road usage tax based on the total miles [they] drive” would be “less fair” than “paying a tax on gasoline.” 18% said it would be “more fair” and 31% said it would be “about the same.”
Washington State Transportation Commission (EMC Market and Opinion Research Services)	2015	Adults	State	Do you think a per mile road usage charge is a fair way to fund transportation?	45% of respondents said a “road usage charge is a fair way to fund transportation.”
Washington State Transportation Commission (EMC Market and Opinion Research Services)	2015	Adults	State	Which option do you think is more fair, a per gallon gas tax or a per mile road usage charge?	31% of respondents said a “per-mile road usage charge” is “much more fair” or “somewhat more fair” than a “per-gallon gas tax.” 39% said the gas tax was more fair. 23% said “both options are the same.”
Washington State Transportation Commission (EMC Market and Opinion Research Services)	2015	Adults	State	Given the information provided in this survey, which option do you think is more fair, a per gallon gas tax or a per mile road usage charge?	38% of respondents, after hearing more information about “a per mile road usage charge,” said it was “much more fair” or “somewhat more fair” than a “per gallon gas tax,” an increase of 7 points; 34% said it was less fair, a decrease of 5 points; 21% said both options were the same, a decrease of 2 points.

TABLE B5

SUMMARY OF MBUF POLL QUESTIONS CATEGORIZED AS “OTHER” THAN GENERAL SUPPORT OR FOCUSED ON REPLACING THE GAS TAX, EXCLUDING QUESTIONS FOCUSED ON PRIVACY OR FAIRNESS

Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
University of Nevada, Las Vegas (Nordland, Paz, and Khan)	2013	Adults	Local	Prior to reading the introduction, what was your familiarity with a Vehicle Miles Travel (VMT) fee system?	22% of respondents said they were “somewhat familiar” or “very familiar” with a VMT system prior to reading the survey introduction.
University of Nevada, Las Vegas (Nordland, Paz, and Khan)	2013	Adults	Local	Rank the following VMT components based on personal importance from 1-5 (Five (5) being most important, one (1) being least important): Ease of Use	71% of respondents indicated “ease of use” was an important component of a VMT system by rating it 4 or 5 on a five-point scale.
University of Nevada, Las Vegas (Nordland, Paz, and Khan)	2013	Adults	Local	Rank the following VMT components based on personal importance from 1-5 (Five (5) being most important, one (1) being least important): b. Reliability	67% of respondents indicated “reliability” was an important component of a VMT system by rating it 4 or 5 on a five-point scale.
University of Nevada, Las Vegas (Nordland, Paz, and Khan)	2013	Adults	Local	Rank the following VMT components based on personal importance from 1-5 (Five (5) being most important, one (1) being least important): Transparency	43% of respondents indicated “transparency” was an important component of a VMT system by rating it 4 or 5 on a five-point scale.
University of Nevada, Las Vegas (Nordland, Paz, and Khan)	2013	Adults	Local	Rank the following VMT components based on personal importance from 1-5 (Five (5) being most important, one (1) being least important): Convenience	70% of respondents indicated “convenience” was an important component of a VMT system by rating it 4 or 5 on a five-point scale.
University of Nevada, Las Vegas (Nordland, Paz, and Khan)	2013	Adults	Local	The emphasis of the field test will be on a simple pay-at-the pump system. The system will read the change in odometer miles at each pump visit, and apply an established rate, without tracking vehicle location. What is your level of comfort with this system?	33% of respondents said they would be “very comfortable” or “somewhat comfortable” with “a simple pay-at-the-pump system [that] will read the change in odometer miles at each pump visit, and apply an established rate, without tracking vehicle location.”
University of Nevada, Las Vegas (Nordland, Paz, and Khan)	2013	Adults	Local	What is your level of concern over the cost of implementing a replacement system of the fuel tax system?	46% of respondents said they were “very unconcerned” or “somewhat unconcerned” with “the cost of implementing a replacement system of the fuel tax system.”
University of Nevada, Las Vegas (Nordland, Paz, and Khan)	2013	Adults	Local	How would a VMT fee affect your use of a transit system (bus, rail, etc.)? (significantly more use, somewhat more use, neutral, somewhat less use, significantly less use)	69% of respondents said a VMT fee would not affect their “use of a transit system (bus, rail, etc.)” 18% said it would cause them to use transit “significantly less” or “somewhat less,” while 13% said it would cause them to use transit “significantly more” or “somewhat more.”
Colorado State University (Ozbek, Albeirut, and Atadero)	2014	Adults	Regional	I feel comfortable with having a device in my vehicle that can track when and where I am driving for the purpose of determining the fees I owe. COLORADO	11% of respondents from Colorado said they “agree” or “strongly agree” with the statement, “I feel comfortable with having a device in my vehicle that can track when and where I am driving for the purpose of determining the fees I owe.”
Colorado State University (Ozbek, Albeirut, and Atadero)	2014	Adults	Regional	I feel comfortable with having a device in my vehicle that can track when and where I am driving for the purpose of determining the fees I owe. NORTH DAKOTA	11% of respondents from North Dakota said they “agree” or “strongly agree” with the statement, “I feel comfortable with having a device in my vehicle that can track when and where I am driving for the purpose of determining the fees I owe.”

Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
Colorado State University (Ozbek, Albeirut, and Atadero)	2014	Adults	Regional	I feel comfortable with having a device in my vehicle that can track when and where I am driving for the purpose of determining the fees I owe. SOUTH DAKOTA	14% of respondents from South Dakota said they “agree” or “strongly agree” with the statement, “I feel comfortable with having a device in my vehicle that can track when and where I am driving for the purpose of determining the fees I owe.”
Colorado State University (Ozbek, Albeirut, and Atadero)	2014	Adults	Regional	I feel comfortable with having a device in my vehicle that can track when and where I am driving for the purpose of determining the fees I owe. UTAH	11% of respondents from Utah said they “agree” or “strongly agree” with the statement, “I feel comfortable with having a device in my vehicle that can track when and where I am driving for the purpose of determining the fees I owe.”
Colorado State University (Ozbek, Albeirut, and Atadero)	2014	Adults	Regional	I feel comfortable with having a device in my vehicle that can track when and where I am driving for the purpose of determining the fees I owe. WYOMING	9% of respondents from Wyoming said they “agree” or “strongly agree” with the statement, “I feel comfortable with having a device in my vehicle that can track when and where I am driving for the purpose of determining the fees I owe.”
Hart Research Associates and Public Opinion Strategies (Hart Research Associates and Public Opinion Strategies)	2011	Registered voters	National	As you may know, Congress is likely to update the law that deals with our transportation infrastructure. There are a number of things that could be included in this legislation that would change the ways in which transportation dollars are spent. Please tell me whether you would strongly favor, somewhat favor, somewhat oppose, or strongly oppose each of the following changes in transportation funding: Developing a pilot program to allow selected states or localities to test replacing the per-gallon gasoline tax with one that works like a user fee instead by charging based on the number of miles driven on the roads it funds.	40% of respondents said they would “strongly favor” or “somewhat favor” Congress approving the development of “a pilot program to allow selected states or localities to test replacing the per-gallon gasoline tax with one that works like a user fee instead by charging based on the number of miles driven on the roads it funds.”
HNTB Companies (Kelton Research)	2010	Adults	National	How strongly do you agree or disagree with the following statement: The U.S. should try to reduce transportation greenhouse gas emissions by reducing the number of miles that vehicles travel through a mileage use tax.	39% of respondents said they “strongly agree” or “somewhat agree” with the statement, “The U.S. should try to reduce transportation greenhouse gas emissions by reducing the number of miles that vehicles travel through a mileage use tax.”
HNTB Companies (Kelton Research)	2011	Adults	National	A Vehicle Miles Traveled (VMT) system uses odometer readings or satellite-based technology to measure how much each vehicle is driven and charges each owner accordingly. What do you think would be the best way to introduce such a system in the United States?	29% of respondents, choosing from among five options, said the best way to introduce a “Vehicle Miles Traveled (VMT) system” in the United States would be to “introduce it first only with electric vehicle users that do not pay any gas taxes.” 22% chose an “annual fee based on odometer reading through state inspection or registration process,” 21% chose a “GPS-based system based on actual miles traveled,” 15% chose “estimated mileage based on vehicle fuel efficiency or amount of fuel purchase at the pump,” and 13% chose “other.”

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Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
HNTB Corporation (Kelton Research)	2012	Adults	National	If you had to choose one, where would you most prefer the United States get funding for the nation's interstate projects?	23% of respondents chose "a vehicle miles driven user fee" as their preferred method for "funding the nation's interstate projects" from among three options. 61% chose "tolls" and 16% chose "increased federal gas tax."
Minnesota DOT (Dieringer Research Group)	2009	Adults	State	Had you ever heard of a user fee based on mileage driven before you received these materials?	41% of respondents said they had "heard of a user fee based on mileage driven" prior to the survey.
Minnesota DOT (Dieringer Research Group)	2009	Adults	State	How much thought or consideration had you given this idea of a user fee for miles driven, before you received these materials? Would you say...	64% of respondents said they had given the idea of a mileage-based user fee "some thought or consideration" prior to the survey. 16% said they had given it "a significant amount of thought or consideration," and 20% said they had given it "no thought at all."
Minnesota DOT (Dieringer Research Group)	2009	Adults	State	Describe what, if anything, you liked most about this approach? (ENTER ALL THAT APPLY.):	24% of respondents, who were asked to consider a mileage-based user fee that would use a GPS device to collect data and vary rates by time and place of travel, said what they "liked most" about the approach was that it would be a base for fees. 16% said it would be easy to use, and 14% said they liked that it was fair. Asked to consider a different approach that would use odometer readings reported annually and vary rates by type of vehicle, 34% said what they "liked most" was that it would be a base for fees. 16% said they liked the fairness of the approach, 11% said it would be lower cost, and an additional 11% said they liked that it would be easy to use.
Minnesota DOT (Dieringer Research Group)	2009	Adults	State	I'm going to read several statements. For each, please tell me how much you agree or disagree that it describes the idea of a mileage-based user fee as a solution to fill a possible funding gap? Please use a 1 to 10 scale where "1" means "Completely Disagree" and "10" means "Completely Agree." [ADD TO EACH INDIVIDUAL SCREEN]: How much to you agree or disagree that...  Is an acceptable method	29% of respondents indicated agreement with the statement that a mileage-based user fee "is an acceptable method to fund transportation" by rating it 8, 9, or 10 on a 10-point scale. 28% indicated disagreement with the statement by rating it 1, 2, or 3.
Minnesota DOT (Wilbur Smith Associates)	1995	Adults	State	Why do you rate it a (ANSWER TO B)? [This questions refers to an earlier one in the survey that asked: Based on the information I have given you, I would like your opinion of the idea of paying tax on the number of miles driven in Minnesota rather than on the amount of gas purchased. Using a scale of 1 to 10 in which 10 means very acceptable and 1 means totally unacceptable, how would you rate the idea of a mileage-based tax as a method of raising funds for our state-wide transportation system? You may use any number from 1 to 10 to give your answer.]	26% of respondents provided positive comments to explain their previous rating of acceptance for replacing the gas tax with a mileage-based tax in Minnesota, including 11% who stated that "people who use the roads the most would pay more of their share."

Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
Minnesota DOT (Wilbur Smith Associates)	1995	Adults	State	Using a scale of 1 to 10 in which 10 means very acceptable and 1 means totally unacceptable, how would you rate a one-cent per mile mileage-based tax as an option to replace the income from license plates and tabs?	19% of respondents expressed acceptance for the idea of using a one-cent per mile tax as an option to replace the income from license plates and tabs by rating the statement 8 or higher on a 10-point scale.
Minnesota DOT (Wilbur Smith Associates)	1995	Adults	State	Using a scale of 1 to 10 in which 10 means very acceptable and 1 means totally unacceptable, how would you rate a one-cent per mile mileage-based tax as an option to replace a portion of the property tax?	21% of respondents expressed acceptance for the idea of using a one-cent per mile tax as an option to replace a portion of the property tax by rating the statement 8 or higher on a 10-point scale.
Minnesota DOT (Munnich)	2012	Adults	State	Heavy polluting vehicles should be charged at a higher fee based on miles traveled than light polluting vehicles.	39% of respondents indicated they agreed with the statement, "Heavy polluting vehicles should be charged at a higher fee based on miles traveled than light polluting vehicles," by rating it 8, 9, or 10 on a 10-point scale. 29% indicated disagreement by rating the statement 1, 2, or 3.
Minnesota DOT (Munnich)	2012	Adults	State	Before participating in this survey, had you heard about the concept of paying a fee based on the miles you drive?	48% of respondents said they had "heard about the concept of paying a road use fee based on the miles you drive."
Minnesota DOT (Munnich)	2012	Adults	State	How familiar are you with the concept of paying a fee based on the miles driven?	56% of respondents said they were "not very familiar" with "the concept of paying a road use fee based on the miles driven." 21% said they were "very familiar" with the concept, 12% said they were "not at all familiar," and 11% said they had "only heard the name."
Minnesota DOT (Munnich)	2012	Adults	State	The system should have the same rate that does not vary, no matter how big the vehicle is, how much it pollutes, or the time or place where it is driven.	32% of respondents indicated they disagreed with the statement, "The system should have rates that vary according to how big the vehicles is, how much it pollutes, or the time or place where it is driven," by rating it 1, 2, or 3 on a 10-point scale. 28% indicated agreement by rating the statement 8, 9, or 10.
Minnesota DOT (Munnich)	2012	Adults	State	Environmentally friendly vehicles should be charged a lower fee based on miles traveled.	38% of respondents indicated they disagreed with the statement, "Environmentally friendly vehicles should be charged a lower fee based on miles traveled," by rating it 1, 2, or 3 on a 10-point scale. 27.5% indicated agreement by rating the statement 8, 9, or 10.
Minnesota DOT (Munnich)	2012	Adults	State	Different fees based on miles traveled should be charged based on the size or weight of the vehicle.	36% of respondents indicated they disagreed with the statement, "Different fees based on miles traveled should be charged based on the size or weight of the vehicle," by rating it 1, 2, or 3 on a 10-point scale. 25% indicated agreement by rating the statement 8, 9, or 10.

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Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
Minnesota DOT (Munnich)	2012	Adults	State	Each vehicle should be assigned to one of several categories based on fuel efficiency and/or level of criterion emissions as defined by the U.S. Environmental Protection Agency and the State then assigns a different per-mile use rate to each of the vehicle categories.  *Note: This question is pulled from the draft survey and may have been phrased differently in the final survey questionnaire, which was not available.	38% of respondents indicated they disagreed with the statement, "Each vehicle should be assigned to one of several categories based on fuel efficiency and/or level of criterion emissions as defined by the U.S. Environmental Protection Agency and the State then assigns a different per-mile use rate to each of the vehicle categories," by rating it 1, 2, or 3 on a 10-point scale. 21% indicated agreement by rating the statement 8, 9, or 10.
Minnesota DOT (Munnich)	2012	Adults	State	There should be a different fee based on miles traveled for driving on rural roads than driving on roads in urban areas.	41% of respondents indicated they disagreed with the statement, "There should be a different fee based on miles traveled for driving on rural roads than driving on roads in urban areas," by rating it 1, 2, or 3 on a 10-point scale. 18% indicated agreement by rating the statement 8, 9, or 10.
Minnesota DOT (Munnich)	2012	Adults	State	Vehicles should be charged more for driving in areas with high traffic volume than areas with low traffic volume.	48% of respondents indicated they disagreed with the statement, "Vehicles should be charged more for driving in areas with high traffic volume than areas with low traffic volume," by rating it 1, 2, or 3 on a 10-point scale. 14% indicated agreement by rating the statement 8, 9, or 10.
Minnesota DOT (Munnich)	2012	Adults	State	All vehicles should be charged more for driving on roadways during rush hour periods (5:30 am-9:00 am and 3:00 pm -6:00 pm) to help reduce traffic congestion.	52% of respondents indicated they disagreed with the statement, "All vehicles should be charged more for driving on roadways during rush hour periods (5:30 am-9:00 am and 3:00 pm -6:00 pm) to help reduce traffic congestion," by rating it 1, 2, or 3 on a 10-point scale. 15% indicated agreement by rating the statement 8, 9, or 10.
Minnesota DOT (Munnich)	2012	Adults	State	Vehicles should be charged the regular rate for driving on city streets and more for driving on state highways and freeways.	50% of respondents indicated they disagreed with the statement, "Vehicles should be charged the regular rate for driving on city streets and more for driving on state highways and freeways," by rating it 1, 2, or 3 on a 10-point scale. 10% indicated dis/agreement by rating the statement 8, 9, or 10.
Minnesota DOT (Munnich)	2012	Adults	State	If a vehicle miles use fee program is ever implemented, the driver of a vehicle should always know the cost per mile and the total amount being charged to-date.  *Note: This question is pulled from the draft survey and may have been phrased differently in the final survey questionnaire, which was not available. —	65% of respondents indicated they agreed with the statement, "If a vehicle miles use fee program is ever implemented, the driver of a vehicle should always know the cost per mile and the total amount being charged to-date," by rating it 8, 9, or 10 on a 10-point scale. 14% indicated disagreement by rating the statement 1, 2, or 3.

Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
Minnesota DOT (Munnich)	2012	Adults	State	The cost and maintenance of basic devices to collect information about vehicle miles traveled should be the responsibility of the state and federal governments, not the drivers.  *Note: This question is pulled from the draft survey and may have been phrased differently in the final survey questionnaire, which was not available.	58% of respondents indicated they agreed with the statement, "The cost and maintenance of basic devices to collect information about vehicle miles traveled should be the responsibility of the state and federal governments, not the drivers," by rating it 8, 9, or 10 on a 10-point scale. 16% indicated disagreement by rating the statement 1, 2, or 3.
Minnesota DOT (Munnich)	2012	Adults	State	There should be a policy that helps to safeguard against evading fees based on miles traveled.	30.5% of respondents indicated they disagreed with the statement, "There should be a policy that helps to safeguard against evading fees based on miles traveled," by rating it 1, 2, or 3 on a 10-point scale. 29% indicated agreement by rating the statement 8, 9, or 10.
Minnesota DOT (Munnich)	2012	Adults	State	If private companies are certified by the state to collect use fee information for vehicle miles traveled, they should be able to offer devices with additional features such as traffic information, global positioning system and other features that improve my safety and driving information.  *Note: This question is pulled from the draft survey and may have been phrased differently in the final survey questionnaire, which was not available.	30% of respondents indicated they disagreed with the statement, "If private companies are certified by the state to collect use fee information for vehicle miles traveled, they should be able to offer devices with additional features such as traffic information, global positioning system and other features that improve my safety and driving information," by rating it 1, 2, or 3 on a 10-point scale. 28% indicated agreement by rating the statement 8, 9, or 10.
Minnesota DOT (Munnich)	2012	Adults	State	Miles traveled on Minnesota roadways should be read from my vehicle's odometer monthly or when license tabs are paid.	37.5% of respondents indicated they disagreed with the statement, "Miles traveled on Minnesota roadways should be read from my vehicle's odometer monthly or when license tabs are paid," by rating it 1, 2, or 3 on a 10-point scale. 23% indicated agreement by rating the statement 8, 9, or 10.
Minnesota DOT (Munnich)	2012	Adults	State	When I buy motor fuel, a device in my car should tell the pump how many miles have been driven since my last reading and should charge accordingly.	48% of respondents indicated they disagreed with the statement, "When I buy motor fuel, a device in my car should tell the pump how many miles have been driven since my last reading and should charge accordingly," by rating it 1, 2, or 3 on a 10-point scale. 15% indicated agreement by rating the statement 8, 9, or 10.
Minnesota DOT (Munnich)	2012	Adults	State	Miles traveled on Minnesota roadways should be collected on a device in my vehicle that uses Global Positioning System (GPS) technology and then transmitted securely to a central location for billing purposes.  *Note: This question is pulled from the draft survey and may have been phrased differently in the final survey questionnaire, which was not available.	53% of respondents indicated they disagreed with the statement, "Miles traveled on Minnesota roadways should be collected on a device in my vehicle that uses Global Positioning Systems (GPS) technology and then transmitted securely to a central location for billing purposes," by rating it 1, 2, or 3 on a 10-point scale. 14.5% indicated agreement by rating the statement 8, 9, or 10.

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Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
Minnesota DOT (Munnich)	2012	Adults	State	Miles traveled on Minnesota roadways should be collected on a device in my vehicle that uses cellular phone-based technology and then transmitted securely to a central location for billing purposes  *Note: This question is pulled from the draft survey and may have been phrased differently in the final survey questionnaire, which was not available.	55.5% of respondents indicated they disagreed with the statement, "Miles traveled on Minnesota roadways should be collected on a device in my vehicle that uses cellular phone-based technology and then transmitted securely to a central location for billing purposes," by rating it 1, 2, or 3 on a 10-point scale. 11% indicated agreement by rating the statement 8, 9, or 10.
Minnesota DOT (Munnich)	2012	Adults	State	I would like a high-tech system to collect fees based on miles traveled that also provides driver benefits such as directions, traffic information, location, and fuel consumption	34% of respondents indicated they disagreed with the statement, "I would like a high-tech system to collect fees based on miles traveled that also provides driver benefits such as directions, traffic information, location, and fuel consumption," by rating it 1, 2, or 3 on a 10-point scale. 23% indicated agreement by rating the statement 8, 9, or 10.
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	The government is considering whether to replace the gasoline tax with a road user-fee based on miles driven. In other words, instead of a gasoline tax, each driver will pay a user-fee based on the number of miles he or she drives. The more miles a driver drives, the more he or she will pay. This is sometimes called a mileage user-fee. Before this survey, had you heard or seen information about a mileage user-fee?	18% of respondents said they had "heard or seen information about a mileage user-fee" before taking the survey.
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Which of the following best describes the information you have heard or seen about the mileage user-fee?	54% of those respondents who had heard or seen information on mileage user fees prior to taking the survey said "the information was equally favorable and unfavorable." 37% said it was "mostly unfavorable" and 7% said it was "mostly favorable."
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements about a mileage user-fee:  A mileage user-fee makes it easy for road users to calculate how much they pay the government for using the roads;	52% of respondents said they "agree" or "strongly agree" with the statement, "A mileage user-fee makes it easy for road users to calculate how much they pay the government for using the roads."
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements about a mileage user-fee:  A mileage user-fee is an accurate way to charge road users for the wear and tear they cause on the roads;	59% of respondents said they "disagree" or "strongly disagree" with the statement, "A mileage user-fee is an accurate way to charge road users for the wear and tear they cause on the roads."
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against a mileage user-fee administered through odometer readings. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements.:  Reporting my odometer mileage to the DMV each year will be inconvenient;	69% of respondents said they "agree" or "strongly agree" with the statement, "Reporting my odometer mileage to the DMV each year will be inconvenient."

Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against a mileage user-fee administered through odometer readings. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:  Most people will honestly report the mileage on the odometer in their cars;	58% of respondents said they “disagree” or “strongly disagree” with the statement, “Most people will honestly report the mileage on the odometer in their cars.”
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against a mileage user-fee administered through odometer readings. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:  A significant number of motorists will tamper with the odometer in their car;	62% of respondents said they “agree” or “strongly agree” with the statement, “A significant number of motorists will tamper with the odometer in their car.”
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against a mileage user-fee administered through odometer readings. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:  The audit process will keep most people from tampering with the odometer in their cars;	58% of respondents said they “disagree” or “strongly disagree” with the statement, “The audit process will keep most people from tampering with the odometer in their cars.”
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against a mileage user-fee administered through odometer readings. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:  The odometer mileage user-fee would be easy to implement since every vehicle already has an odometer”	54% of respondents said they “agree” or “strongly agree” with the statement, “The odometer mileage user-fee would be easy to implement since every vehicle already has an odometer.”
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	“Would you be willing to take any of the following actions to support an odometer-based mileage user-fee in your state?”	61% of respondents who supported a mileage user-fee as a replacement for their state’s gasoline tax said they would be “willing” to “sign a petition” expressing their support.
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Would you be willing to take any of the following actions to support an odometer-based mileage user-fee in your state?	32% of respondents who supported a mileage user-fee as a replacement for their state’s gasoline tax said they would be “willing” to “write or email [their] legislator” to express their support.
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Would you contribute (\$1, \$5, \$10, \$20, \$30, \$40, \$50, >\$50) to a political campaign in support of the odometer-based mileage user-fee described above in your state?	61% of respondents who supported a mileage user-fee as a replacement for their state’s gasoline tax said they were not willing to contribute any amount “to a political campaign in support” of the fee. Among the 36% who were willing to make a contribution, 60% would contribute \$1–\$5, 37% would contribute \$10–\$20, 2% would contribute \$30–\$50, and 1% would contribute more than \$50.
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Would you be willing to take any of the following actions to oppose an odometer-based mileage user-fee in your state?	79% of respondents who opposed a mileage user-fee as a replacement for their state’s gasoline tax said they would be “willing” to “sign a petition” expressing their opposition.

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Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Would you be willing to take any of the following actions to oppose an odometer-based mileage user-fee in your state?	57% of respondents who opposed a mileage user-fee as a replacement for their state's gasoline tax said they would be "willing" to "write or email [their] legislator" to express their opposition.
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Would you contribute (\$1, \$5, \$10, \$20, \$30, \$40, \$50, >\$50) to a political campaign against the odometer-based mileage user-fee described above in your state?	55% of respondents who opposed a mileage user-fee as a replacement for their state's gasoline tax said they were not willing to contribute any amount "to a political campaign against" the fee. Among the 43% who were willing to make a contribution, 40% would contribute \$1-\$5, 41% would contribute \$10-\$20, 10% would contribute \$30-\$50, and 9% would contribute more than \$50.
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against the basic GPS-based mileage user-fee just described. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:  GPS systems are accurate in measuring miles of travel.	63% of respondents said they "agree" or "strongly agree" with the statement, "GPS systems are accurate in measuring miles of travel."
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against the basic GPS-based mileage user-fee just described. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:  It is difficult to tamper with a GPS system.	57% of respondents said they "disagree" or "strongly disagree" with the statement, "It is difficult to tamper with a GPS system."
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against the basic GPS-based mileage user-fee just described. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:  Many drivers would tamper with their GPS systems if the government relies on GPS to collect mileage data for the mileage user-fee.	66% of respondents said they "agree" or "strongly agree" with the statement, "Many drivers would tamper with their GPS systems if the government relies on GPS to collect mileage data for the mileage user-fee."
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against the basic GPS-based mileage user-fee just described. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:  It would be inconvenient to have to get the GPS device installed in my car.	76% of respondents said they "agree" or "strongly agree" with the statement, "It would be inconvenient to have to get the GPS device installed in my car."
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against the basic GPS-based mileage user-fee just described. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:  It is a waste of money to buy those GPS devices since all cars already have an odometer;	77% of respondents said they "agree" or "strongly agree" with the statement, "It is a waste of money to buy those GPS devices since all cars already have an odometer."
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against the basic GPS-based mileage user-fee just described. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:  I dislike this basic GPS-based mileage user-fee because I have to pay for the GPS device.	84% of a subset of respondents, who were told drivers would be required to pay \$250 for a GPS device to record the number of miles driven, said they "agree" or "strongly agree" with the statement, "I dislike this basic GPS-based mileage user-fee because I have to pay for the GPS device."

Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against the basic GPS-based mileage user-fee just described. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements: \$250 is too much to pay for the GPS device.	87% of respondents said they “agree” or “strongly agree” with the statement, “\$250 is too much to pay for the GPS device.”
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against the basic GPS-based mileage user-fee just described. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements: The audit process will keep most people from tampering with the GPS system or the odometer in their cars.	54% of respondents said they “disagree” or “strongly disagree” with the statement, “The audit process will keep most people from tampering with the GPS system or the odometer in their cars.”
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Would you be willing to take any of the following actions to support this basic/advanced GPS-based mileage user-fee in your state?	61% of respondents who supported a basic GPS-based mileage user-fee (no location data collected) as a replacement for their state’s gasoline tax said they would be “willing” to “sign a petition” expressing their support. 63% of respondents who similarly supported an advanced GPS-based mileage user-fee (location data collected) would be willing to sign a petition.
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Would you be willing to take any of the following actions to support this basic/advanced GPS-based mileage user-fee in your state?	30% of respondents who supported a basic GPS-based mileage user-fee (no location data collected) as a replacement for their state’s gasoline tax said they would be “willing” to “write or email [their] legislator” to express their support. 32% of respondents who similarly supported an advanced GPS-based mileage user-fee (location data collected) would be willing to write their legislator.
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Would you contribute (\$1, \$5, \$10, \$20, \$30, \$40, \$50, >\$50) to a political campaign in support of this basic/advanced GPS-based mileage user fee described above in your state?	56% of respondents who supported a basic GPS-based mileage user-fee (no location data collected) as a replacement for their state’s gasoline tax said they were not willing to contribute any amount “to a political campaign in support” of the fee. Among the 38% who were willing to make a contribution, 55% would contribute \$1–\$5, 39% would contribute \$10–\$20, 3% would contribute \$30–\$50, and 2% would contribute more than \$50. 52% of respondents who similarly supported an advanced GPS-based mileage user-fee (location data collected) were unwilling to contribute. Among the 42% willing to make a contribution, 52% would contribute \$1–\$5, 41% would contribute \$10–\$20, 5% would contribute \$30–\$50, and 2% would contribute more than \$50.
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Would you be willing to take any of the following actions to oppose this basic/advanced GPS-based mileage user-fee in your state?	74% of respondents who opposed a basic GPS-based mileage user-fee (no location data collected) as a replacement for their state’s gasoline tax said they would be “willing” to “sign a petition” expressing their opposition. 73% of respondents who similarly opposed an advanced GPS-based mileage user-fee (location data collected) would be willing to sign a petition.

Table B5 Continued on p.132

Table B5 Continued from p.131

Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Would you be willing to take any of the following actions to oppose this basic/advanced GPS-based mileage user-fee in your state?	53% of respondents who opposed a basic GPS-based mileage user-fee (no location data collected) as a replacement for their state's gasoline tax said they would be "willing" to "write or email [their] legislator" to express their opposition. 54% of respondents who similarly opposed an advanced GPS-based mileage user-fee (location data collected) would be willing to write their legislator.
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Would you contribute (\$1, \$5, \$10, \$20, \$30, \$40, \$50, >\$50) to a political campaign against this basic/advanced GPS-based mileage user-fee described above in your state?	59% of respondents who opposed a basic GPS-based mileage user-fee (no location data collected) as a replacement for their state's gasoline tax said they were not willing to contribute any amount "to a political campaign against" the fee. Among the 38% who were willing to make a contribution, 36% would contribute \$1-\$5, 40% would contribute \$10-\$20, 10% would contribute \$30-\$50, and 14% would contribute more than \$50. 59% of respondents who similarly opposed an advanced GPS-based mileage user-fee (location data collected) were unwilling to contribute. Among the 38% willing to make a contribution, 32% would contribute \$1-\$5, 40% would contribute \$10-\$20, 11% would contribute \$30-\$50, and 16% would contribute more than \$50.
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against the advanced GPS-based mileage user-fee described above. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:  I like this advanced GPS system because a higher rate could be charged for driving on congested roads.  *Note: Follow-up question asked about GPS tracking terrorists and criminals.	76% of respondents, after hearing a description of an advanced GPS-based mileage user-fee system that would collect location data, said they "disagree" or "strongly disagree" with the statement, "I like this advanced GPS system because a higher rate could be charged for driving on congested roads."
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against the advanced GPS-based mileage user-fee described above. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:  I like this advanced GPS system because the government in each state could charge and collect taxes from every driver who drives in that state (including drivers from other states).	73% of respondents, after hearing a description of an advanced GPS-based mileage user-fee system that would collect location data, said they "disagree" or "strongly disagree" with the statement, "I like this advanced GPS system because the government in each state could charge and collect taxes from every driver who drives in that state (including drivers from other states)."
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against the advanced GPS-based mileage user-fee described above. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:  There are likely to be a lot of errors in trying to use location data to charge different fees.	84% of respondents, after hearing a description of an advanced GPS-based mileage user-fee system that would collect location data, said they "agree" or "strongly agree" with the statement, "There are likely to be a lot of errors in trying to use location data to charge different fees."

Poll Sponsor (and author, if different)	Publication Year	Sampling Frame	Geography	MBUF Question	Findings
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against the advanced GPS-based mileage user-fee described above. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:  The audit process will keep most people from tampering with the GPS system or the odometer in their cars.	56% of respondents, after hearing a description of an advanced GPS-based mileage user-fee system that would collect location data, said they “disagree” or “strongly disagree” with the statement, “The audit process will keep most people from tampering with the GPS system or the odometer in their cars.”
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against the advanced GPS-based mileage user-fee described above. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:  I dislike this advanced GPS-based mileage user-fee because I have to pay for the GPS device.	84% of a subset of respondents, who heard a description of an advanced GPS-based mileage user-fee system that would collect location data and require drivers to pay \$250 for the device, said they “agree” or “strongly agree” with the statement, “I dislike this advanced GPS-based mileage user-fee because I have to pay for the GPS device.”
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against the advanced GPS-based mileage user-fee described above. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:  \$250 is too much to pay for the GPS device.	86% of respondents, after hearing a description of an advanced GPS-based mileage user-fee system that would collect location data, said they “agree” or “strongly agree” with the statement, “\$250 is too much to pay for the GPS device.”
SPEA Indiana University (Duncan and Graham)	2013	Adults	National	Below is a list of statements in favor of and against the advanced GPS-based mileage user-fee described above. Please tell me whether you strongly agree, agree, disagree or strongly disagree with the following statements:  I like the advanced GPS-based mileage user-fee because it would allow me to monitor people who drive my cars.	81% of respondents, after hearing a description of an advanced GPS-based mileage user-fee system that would collect location data, said they “disagree” or “strongly disagree” with the statement, “I like the advanced GPS-based mileage user-fee because it would allow me to monitor people who drive my cars.”
Wall Street Journal	2012	Adults	National	What should be done with the gas tax? tax by miles driven	20% of readers who responded to an online poll chose “tax instead by miles driven” from among six options for how to “overhaul” the gas tax. It was the second most popular option after increasing the gas tax.
Washington State Transportation Commission (EMC Market and Opinion Research Services)	2015	Adults	State	A road usage charge is a different way to fund transportation. It would replace the gas tax and charge drivers by the mile instead of by the gallon. Knowing this, do you think a road usage charge is a good way to fund transportation?	36% of respondents said a “road usage charge” that would “replace the gas tax and charge drivers by the mile instead of by the gallon” was “definitely” or “probably” a “good way to fund transportation.”



## APPENDIX C

### Resources for Identifying Public Opinion Research and Media Stories

#### Google Scholar

This online database allows for searching academic literature and sources from academic publishers, university websites, professional society websites, and others. The database includes academic journal articles, graduate student theses and dissertations, abstracts and court opinions, and books.

<https://scholar.google.com/>

#### Google News

Google News is a computer-generated news media database that aggregates digital global news headlines and provides a link to the corresponding online media source. Media sources archived within the database include online sources (blogs, videos, and magazines) as well as traditional newspapers. Content is available for the most recent calendar year.

<https://news.google.com/>

#### Google Web

Owned by Google, Inc., this search engine allows for a more general search of resources. Because the search engine evaluates the entire World Wide Web database when searching for a given keyword or phrase, the resulting search may include reports, blogs, articles, videos, pictures, or any other resource relevant to the keyword(s) entered.

<http://www.google.com>

#### LexisNexis

Founded in 1977, the LexisNexis organization collects legal and public-record-related information. In addition to providing legal content, the database archives text and media sources from national and international newspapers and includes broadcast transcripts, medical news, and industry and market news. In addition, LexisNexis provides full-text sources from magazines and trade journals.

<http://www.lexisnexis.com/>

#### PollingReport.com

This organization is an independent, nonpartisan polling agency specializing in collecting public opinion data in the United States. Polling questions pertain to politics and policy issues, business and economic concerns, and other preferences (e.g., entertainment, technology, sports, and transportation).

<http://www.pollingreport.com/>

#### ProQuest Newsstand

The ProQuest Newsstand database includes domestic and international media content from newspapers, wire feeds, blogs, podcasts, and websites. Accessing over 1,500 newspapers, news websites, and blogs, the database provides archived materials primarily for academic institutions and libraries.

<http://www.proquest.com/>

**Rasmussen Reports**

Established in 2003, this polling company specializes in collecting and publishing public opinion data. These topics polled include opinions about political issues, economic or financial concerns, and other general topics. Rasmussen Reports is a nonpartisan organization offering electronic media subscriptions.

<http://www.rasmussenreports.com/>

**ScienceDirect.com**

This online database provides access to full-text journal articles and book chapters from approximately 2,500 science journals and 26,000 science books. The database provides access to content relating to several scientific fields: physical sciences and engineering, life sciences, health sciences, and social sciences and humanities.

<http://www.sciencedirect.com/>

**SurveyUSA**

This polling firm specializes in conducting market research for corporations and other interest groups. The firm also collects public opinions related to political topics through the use of opinion polls. The firm is a private, for-profit company.

<http://www.surveyusa.com/>

**Web of Science**

This online subscription-based database provides access to citations to academic journal articles, technical papers, editorials, abstracts, books, and other resources across multiple databases, allowing for a cross-disciplinary search of multiple scientific databases and archives. Thomas Reuters Corporation (a media information firm) maintains the site.

<http://wokinfo.com/>

## APPENDIX D

### Media Story Coding Scheme

This appendix presents the coding scheme used to analyze each media story.

#### TYPES OF MEDIA SOURCES COVERING MBUFS

**Publication type:** Who is the intended readership of the article?

- Industry publication: Something people would read as part of their job (e.g., *Bond Buyer*)
- General public: Newspaper, magazine like *Business Week*

**State/national/other:** Where would the MBUF be implemented?

- The name of the state where MBUF would be used
- “US,” if talking about a national MBUF
- “Other,” if neither of the prior categories is accurate

**MBUF type:** Does the article discuss a pilot or hypothetical, future MBUF program?

- Pilot program
- Hypothetical program
- Both (articles discusses both a pilot and a hypothetical future MBUF)

**Tone:** What *overall* tone does the article take toward MBUFs?

- Positive
- Neutral
- Negative
- Mixed (some positive and some negative statements)

**Story type:**

- Opinion piece: Editorial, letter to the editor, or other story expressing the writer’s opinion
- News story: Story that reports on an issue from a more neutral, journalistic viewpoint

#### TYPES OF PEOPLE WHOSE VIEWS ARE PRESENTED IN MEDIA STORIES

##### Professional

- Definition: Article quotes or reports on an opinion(s) held by a *specific person* or organization with a professional or business interest in mileage fees
- Types of people with a “professional” interest: Transportation planners or agency staff, researchers, trucking industry members/representatives, taxi drivers or industry representatives, or automobile clubs (CAAA, etc.)
- Note: Excludes elected officials and members of the public

##### Elected official

- Definition: Article quotes or reports on an opinion held by a specific elected official

## General public

- Definition: Article quotes or summarizes an opinion expressed by a member of the public (someone who is neither a professional nor an elected official)

## Public opinion *described*

- Definition: Statement describing or characterizing public opinion about mileage fees
- Note: Includes statements where the context refers to...
  - Public support or acceptance for an MBUF or likely public support or acceptance for an MBUF
  - Public opposition to or disapproval of an MBUF or likely public opposition to or disapproval of an MBUF
  - The public disliking/hating the idea of MBUFs
  - MBUF is not/will not be popular with the public
  - MBUF is/will be popular with the public

## CONCERNS

### Privacy

- Definition: Statement explicitly mentioning “privacy” or issues of privacy are implied through mentioning the “tracking” or “monitoring” of drivers

### Fairness

- Definition: Statement in which “fairness” or “equity” is explicitly mentioned
- Note: Includes statements if the context of the user refers to...
  - Everyone paying their fair share (e.g., hybrid vehicles)
  - Heavier vehicles paying more of a tax (because they cause more damage to the roads)
  - Hybrid/electric vehicle owners paying an MBUF because they don’t pay a gas tax
  - Hybrid/electric vehicle owners should not be taxed because they are helping the environment/reducing emissions
  - Rural drivers having to pay more because they drive greater distances
  - Commuters have to travel greater distances to work
  - Lower-income commuters already have to travel greater distances to work
  - Funding burden shifting to urban drivers (higher prices for congestion zones)
  - People paying more for the roads if they drive more
  - People cheating the MBUF system (hacking GPS tracking; changing odometer readings)
  - Out-of-state drivers paying for road use as well

### Administration

- Definition: Collecting the fee is too costly and/or difficult
- Note: Could deal with billing/collections OR enforcement

### Technology

- Definition: Statement that technology is or is not ready to implement a mileage fee

### Cost

- Definition: Cost to drivers (is too much)—objection is to paying *more* (rather than the objection being to the *type* of tax itself)
- Note: Could apply to all drivers, or could apply to just one type of driver, like truckers, rural drivers, or taxis

## BENEFITS OF MBUFs

### Sustainable revenue

- Definition: Any statement that mileage fees will produce sustainable revenue streams over time
- Notes:
  - Could say mileage fees are or are not sustainable, but will likely be the former
  - Statement may often compare the mileage fee to fuel taxes

### Innovative

- Definition: Statement explicitly mentioning “innovative” or a synonym in reference to the MBUF
- Notes: If the context refers to...
  - New, novel solution/approach to provide funding for transportation infrastructure
  - “Forward-thinking,” “way of the future,” “cutting edge,” “inventive,” “original,” “experimental,” or any other synonym

### Other

- Definition: Any quotes that seem important but do not fall into one of the other coding themes

## OTHER ISSUES

### Fuel efficiency

- Definition: Statement that discusses fuel efficiency regarding mileage-based user fees

### Gas tax replacement

- Definition: Statement that the mileage fee could be or will be a *replacement* for the gas tax/fuel tax
- Notes: This may often be framed in a positive light, with the mileage fee as a “solution” to the problem of shrinking gas tax revenues

### Alternative vehicles

- Definition: Any statement that mentions alternative-fuel vehicles in connection with a mileage fee

### Research conducted

- Definition: Statement describing a completed research study (e.g., description of survey results)
- Note: Pilot studies are a form of research

### Research underway

- Definition: Statement that some commission/organization/researcher is studying mileage fees (state commission, federal commission, RAND, etc.)

### User fee

- Definition: Statement that a mileage fee is a “user fee”
- Notes: This could be seen as good or bad, but probably the statement will have a positive tone

### Political will

- Definition: Statements that support from politicians for mileage fees is lacking or unlikely

**Congestion pricing**

- Definition: Any statement that combines the ideas of mileage fees and congestion pricing
- Note: Could be a statement explaining how mileage fees could be set up with congestion pricing as part of the system OR a statement that seems to *confuse* the issues of mileage fees and congestion pricing

**Research needed**

- Definition: Statement that (more) research about mileage fees is needed or would be useful

**Trucking**

- Definition: Anything linking mileage fees and trucking
- Note: Could be a statement *by* a trucker or trucking industry representative OR a statement about how mileage fees will impact the trucking industry

**Need for public support/acceptance**

- Definition: Statement that public support will be needed to adopt a mileage fee

*Abbreviations and acronyms used without definitions in TRB publications:*

A4A	Airlines for America
AAAAE	American Association of Airport Executives
AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ACI-NA	Airports Council International-North America
ACRP	Airport Cooperative Research Program
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HMCRP	Hazardous Materials Cooperative Research Program
IEEE	Institute of Electrical and Electronics Engineers
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
MAP-21	Moving Ahead for Progress in the 21st Century Act (2012)
NASA	National Aeronautics and Space Administration
NASAO	National Association of State Aviation Officials
NCFRP	National Cooperative Freight Research Program
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
PHMSA	Pipeline and Hazardous Materials Safety Administration
RITA	Research and Innovative Technology Administration
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)
TCRP	Transit Cooperative Research Program
TDC	Transit Development Corporation
TEA-21	Transportation Equity Act for the 21st Century (1998)
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S.DOT	United States Department of Transportation

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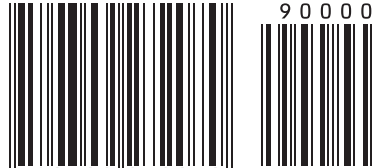
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