

The Virginia NEWS LETTER

Should Virginia Replace the Motor Vehicle Fuels Tax with a Vehicle Miles Traveled Tax?

by George E. Hoffer

Introduction

Like it or not, the financing mechanism that for the last 80 years has been the backbone of our highway user fee tax structure is coming to the end of its life. The motor vehicle fuels tax (primarily on gasoline but also including diesel fuel) has been a major source of funds used to build and maintain our roads and highways. This article will examine pros and cons of a widely studied alternative method of imposing a user tax—a vehicle miles traveled tax (VMT) that will take into account increasing fuel efficiency and lighter weight vehicles. New construction and maintenance still will be needed, no matter how much or how little fuel is used, and we will need an efficient and fair way to spread the cost.

In recent years the problems with the motor vehicle fuels tax have been masked by Americans' 20-year fling with the sport utility vehicle (SUV), which in 2009 culminated with truck registrations surpassing those of automobiles, since SUVs are classified as light trucks. But this long ride using the gasoline tax as a strong revenue generator has come to an end.

Figure 1 shows growth since 1995 of transportation revenue from the principal state sources—the motor vehicle fuels tax (35.5 percent of revenue in 2010), the 0.5 percent general sales and use

tax earmarked for transportation (21.3 percent of revenue), the 3 percent sales and use tax on new and used vehicles, also known as the vehicle titling tax (19.3 percent of revenue), and motor vehicle license fees (10 percent of revenue). As shown by the graph, the motor vehicle fuels tax has been the slowest growing source. Furthermore, projections for the next six years, which in fact may be overly optimistic, show the motor vehicle fuels tax revenue will increase by only 13 percent compared with 38 percent for the titling tax and 27 percent for the general sales tax. Motor vehicle fuels tax revenue in the future will be confronted by strong headwinds caused by higher gasoline prices that provide an incentive to purchase more fuel-efficient vehicles and rising federal standards for fuel efficiency. Only license fees are expected to grow slower (8 percent), and they are more likely to be raised than any tax source.

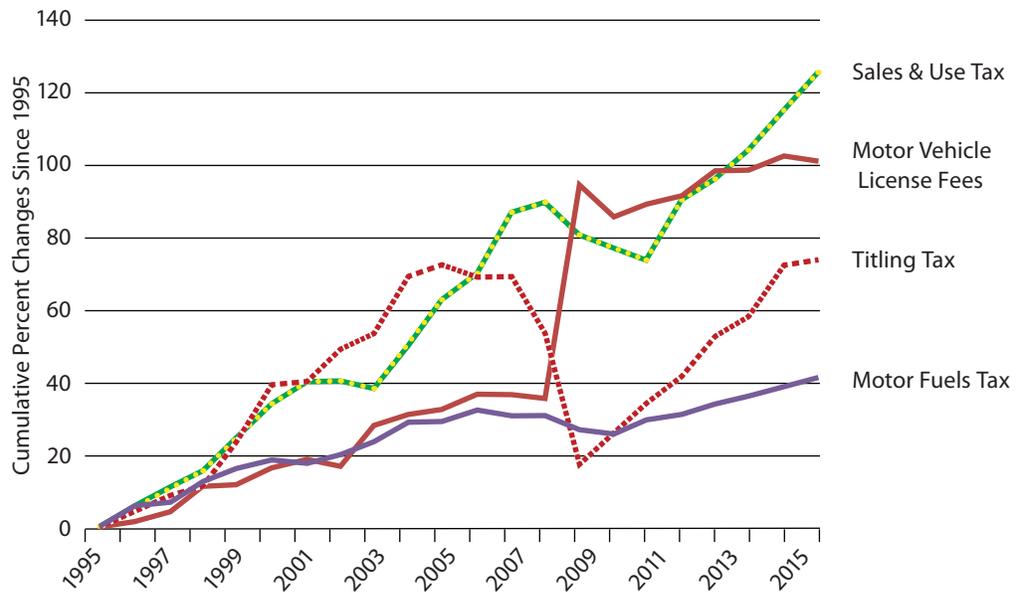
While market factors, primarily cost and demand, will shape the nature of the vehicle mix over the next several years, the major reason for a dramatic increase in fuel efficiency by the 2016 model year will be the federally mandated Corporate Average Fuel Economy (CAFE) standard for all new cars and light trucks. The standard will be increased from the current 31.2 miles per gallon



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Figure 1: Major Revenue Sources of State Transportation Funds, Actual 1995 to 2010 and Projected 2011 to 2016



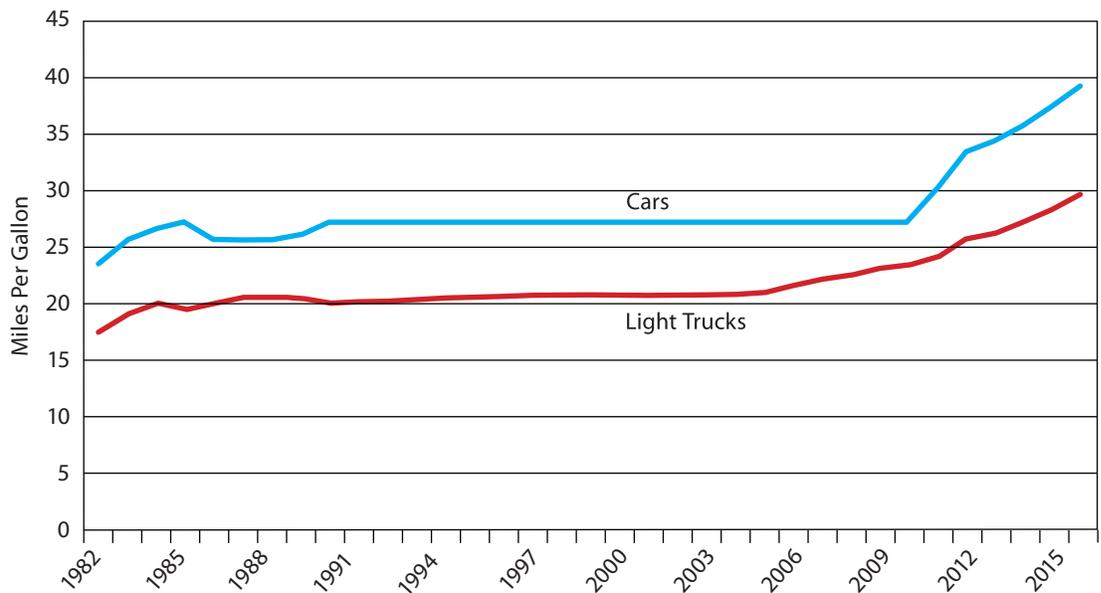
Source: John R. Layman, Virginia Department of Taxation; Secretary of Finance, "Governor McDonnell's Proposed Amendments to the 2010-2012 Budget, Economic Outlook and Revenue Forecast, A Briefing for the Senate Finance, House Finance, and House Appropriations Committees," (December 17, 2010). <http://www.finance.virginia.gov/KeyDocuments/JMCmaterials/JMC-Dec2010.pdf>

(mpg) for cars to 39.5 mpg, a 27 percent increase (see **Figure 2**). Even light trucks, including the Ford F-150, the Chevrolet Silverado, and the Ram 1500, must average 29.8 mpg in only four model years.¹ By 2025, a scant 14 years away, the

standard may be as high as the 62 mpg advocated by environmentalists.²

The 27 percent increase in average fuel efficiency needed by the 2016 model year will be achieved mainly through downsizing and to a

Figure 2: CAFE Standards, 1982 to 2016



Sources: 1982-2007 data: National Highway Traffic Safety Administration, *Automotive Fuel Economy Program, Annual Update, Calendar Year 2003*. DOT HS 809 512. (Washington, DC: NHTSA, November 2004) Table I.1. <http://www.nhtsa.gov/cars/rules/cafe/FuelEconUpdates/2003/index.htm#section2>; 2008-2009 data: Wikipedia, "Corporate Fuel Economy." http://en.wikipedia.org/wiki/Corporate_Average_Fuel_Economy; 2010-2011 data: National Highway Traffic Safety Administration, *Average Fuel Economy Standards Passenger Cars and Light Trucks Model Year 2011*, 49 CFR Parts, 523, 531, 533, 534 536 and 537 [Docket No. NHTSA-2009-0062] RIN 2127-AK 29 (March 23, 2009), p. 579. http://www.nhtsa.gov/DOT/NHTSA/Rulemaking/Rules/Associated%20Files/CAFE_Updated_Final_Rule_MY2011.pdf; 2012-2016 data: "Getting to 35.5: The ABCs of mpg," *Automotive News* (January 3, 2011), pp. 1, 24.

lesser extent engine and transmission improvements. This year, B-class segment-sized vehicles, a small size never before produced in volume in North America, will come off assembly lines, most being produced in Mexico. For example, Ford's smallest 2011 model-year offering in the U.S. market, the new Ford Fiesta with an automatic transmission (a B-class car) is rated by the Environmental Protection Agency (EPA) at 29/38 mpg (city/highway). Compare that to the continuing, but older generation 2011 C-class Ford Focus with an automatic transmission; it is EPA-rated at 25/34 mpg. Using a traditional internal combustion engine, the Fiesta delivers improved fuel efficiency of 16 percent for city driving and 12 percent for highway driving compared to the Focus.³

Virtually every auto show this year will feature an array of new technology vehicles including gas-electrics, pure plug-in electrics, small diesels, full hybrids, and partial hybrids. The Chevrolet Volt is a gas-electric. It is electric-powered, but as the batteries discharge, a gasoline-powered engine recharges them while the car is driven. However, the gasoline engine does not propel the vehicle. The Nissan Leaf is a pure plug-in electric. It is propelled by a battery-powered electric motor. For the most part only plugging into a wall socket recharges the batteries. The Volkswagen Jetta is a small diesel. The Toyota Prius, Ford Fusion, and many others are full hybrids. A full hybrid has a dual propulsion system: a fossil fuel powered engine and a separate battery powered electric motor. Either system can fully power the vehicle, with the former activated upon battery discharge or when additional power is needed. Certain GM trucks are partial hybrids. They have a conventional fossil fuel-powered engine and one or more auxiliary electric motors. The electric motors serve as boosters since they cannot propel the vehicle independently. GM and Toyota are developing hybrid plug-ins. They are full hybrids as described above, except the batteries can be recharged from the power grid. All of these vehicle types are now in auto showrooms or soon will be. Recently, most manufacturers have announced their intention to introduce families of alternative-powered vehicles in the U.S. by the 2013 model year. Cost, production capacity, battery bottlenecks, and disposal problems, as well as scarcity of public charging stations and service facilities, likely will limit the impact of new technology vehicles until late this decade, if then.

However, the current fiscal reality with respect to highway funding will only worsen. Although some believe the motor vehicle fuels tax still has

some usefulness, unfortunately it is a funding mechanism more suited to the last century.

There is, however, a 21st century pricing model, already used in the private sector, that would permit financing our highway needs with efficiency and fairness. A vehicle miles traveled (VMT) tax would represent an improvement. Such a tax would be employed similarly to the way electric companies charge for power usage—the more you use the service, the more you pay.

In the next section I review what other states and organizations have concluded after studying this funding issue. The article then presents a pricing model employing a VMT tax and concludes by looking at several related issues, including the highly sensitive one of privacy. There is a privacy concern because for the tax to work, your vehicle's mileage would have to be monitored.

The adoption of a VMT tax need not be a tax increase, for, as proposed here it would replace the three major road user fees: the motor vehicle fuels tax, the annual registration fee, and the 3 percent sales tax on new and used vehicles. The proposal is presented as a revenue-neutral restructuring of Virginia's highway user fees as one way to meet the challenges of the future. Of course, growth in vehicle miles alone would not generate sufficient revenue to cover all future construction and maintenance. Therefore, the VMT tax rate would have to be increased periodically, just as any other tax source that is not indexed for inflation.

An Overview of the Issues

A Google search for "VMT tax" will yield hundreds of articles, the more recent in response to the Obama Administration's initial endorsement of the concept and its quick retreat in early 2009. For over a decade concern about the future of the motor vehicle fuels tax has led states as small as Rhode Island and as large as Texas, as well as independent organizations, to initiate studies on alternative road pricing mechanisms.

The Virginia General Assembly, however, has treated just the study of the issue as something they dare not even touch. In 2007 the Joint Subcommittee Studying Fuel Efficient Vehicles and Transportation Funding concluded "... that based on current gas prices, current consumer demand, and Congress' recently-enacted CAFE standards, the current methods of transportation funding in the Commonwealth will not keep pace with new energy technologies being used for motor vehicles (e.g., hybrid vehicles; increased use of alternative fuel) and the Commonwealth will see a decrease in motor vehicle fuels tax revenues."⁴ Nonetheless, the subcommittee decided, "... no formal report embodying any legislative recommendations of

the joint subcommittee would be submitted as a senate document to the 2008 session.”⁵

In its 2010 session, the legislature failed to authorize an in-depth study by VDOT’s research arm, the Virginia Transportation Research Council (VTRC), even though VTRC had prepared a detailed annotated bibliography on the subject in 2008 as a part of the commonwealth’s Long Range Multimodal Transportation Plan.⁶ In rejecting the proposed study, several members of the House voiced concern that their vote in support of a joint study committee would be interpreted by their constituents as favoring a VMT tax.⁷

The VTRC bibliography carefully synthesized the body of research addressing the viability of the motor vehicle fuels tax and alternative mechanisms, including the VMT. A key example was from Colorado.⁸ Facing a 20-year transportation revenue shortfall of up to \$100 billion, Colorado’s governor appointed a 32-person panel. It suggested a myriad of fixed and variable highway user fee increases including novel levies such as a per diem fee on visiting motorists. Other suggestions included a \$100 annual increase in registration fees and a 13 cents per gallon increase in the motor vehicle fuels tax. The latter proposal would translate to a 75 percent increase in Virginia’s 17.5 cents per gallon levy. The panel rejected a vehicle mile tax, but noted that it had future potential.

A second study cited was the 2007 report of the National Transportation Policy and Review Study Commission.⁹ The Congressionally created commission had this to say:

The motor fuels tax continues to be a viable revenue source for surface transportation at least through 2025. Thereafter, the most promising alternative revenue measure appears to be a vehicle miles traveled (VMT) fee, provided that substantial privacy and collection cost issues can be addressed. The next authorization bill should require a major national study to develop the specific mechanisms and strategies for transitioning to the VMT fee or another alternative to the motor fuels tax to fund surface transportation programs.¹⁰

The VTRC also reviewed a Minnesota-led study by Forhenbrock and Kuhl.¹¹ Fifteen states led by Minnesota participated in this significant study effort that focused on the practicality of a VMT tax and investigated issues from privacy to collection technologies. The authors were positive about the VMT concept, suggesting a 20-year phase-in. They suggested that a relatively simple global positioning satellite (GPS)-based vehicle installed computer to be the most cost effective

technology, but cautioned such a system must be validated under “field conditions.”

Recognizing that the critical element in any VMT program is a viable, efficient, collection system, the U.S. Department of Transportation has funded the University of Iowa’s Public Policy Center to conduct on-going studies at six metropolitan sites throughout the country. Two are close to Virginia--Baltimore, MD and Raleigh-Durham, NC. At the study sites, test vehicles are equipped with on-board computers that track driver reactions to various per mile fee levels. However, no fees are collected.¹²

Much of the state-sponsored research on the future viability of the motor vehicle fuels tax has emanated from Oregon. For over 50 years that state has been in the forefront of highway user tax research and innovation. Accordingly, Boos and Morusa cite twelve Oregon-related studies in their review of the literature.¹³ Recognizing the issue early, in 2001 the legislature ordered the state’s Department of Transportation to develop and monitor user fee systems less reliant on the motor vehicle fuels tax. As a result, over the last decade a series of reports have been published.

Oregon researchers have proposed and field-tested several VMT models. The common denominator for most has been the use of a “smart” service station motor fuel pump to receive information on vehicle miles traveled since the last VMT accounting and to bill the motorist at that point. In one field test K. McFall and A. Cho, two Oregon State University researchers, use a smart odometer that transmits mileage since the previous fuel stop to a tax-calculating fuel pump, where one’s tax obligation is paid.¹⁴

In another study, Anthony M. Rufolo, Lois Bronfman, and Thomas J. Kimpel reported at a 2007 National Transportation Board annual meeting about experiments with a GPS system capable of recording VMT by zone.¹⁵ The recorded travel data are transferred to a “smart” pump, where the motorist’s tax liability is calculated and collected. However, pure electric vehicles present a collection problem for motor fuel pump based systems since pure electric vehicles would never need to visit a fuel pump.

In field-testing the systems described above, consumers voiced concerns initially over privacy issues and congestion pricing according to a 2006 study by Oregon Department of Transportation researchers Jim Whitty, Jack Svadlenak, and Darel F. Capps.¹⁶ The authors felt that more recently these concerns have abated. However, legislation proposed in the 2010 session of the Oregon General Assembly failed to advance in large part due to the public’s concern over privacy.

The final study cited here was that conducted by the influential Washington, DC-based Transportation Research Board.¹⁷ Goals of the study included assessing the future viability of the motor vehicle fuels tax and identifying workable alternatives. Since the TRB study was conducted prior to the recent fuel price volatility and the significant increase in CAFE standards, its conclusions may not be as supportable as when the study was completed. Nonetheless, the TRB thought that the motor fuels tax was a viable instrument until around 2020, but with no growth potential. Looking to the future, the TRB focused on the two most feasible alternative financing mechanisms: an expanded role for toll roads and a VMT tax. While noting the implementation difficulties of the latter if done on a state-by-state basis, the TRB preferred the VMT as the successor to the motor vehicle fuels tax.

The rest of this article will outline a VMT system that would replace our current road user tax structure, whose largest component is the motor vehicle fuels tax. Again, think of this proposal as revenue neutral.

Proposed Highway User Tax System

Similar to today's electric company bills, each monthly statement would have two components: a fixed charge and a variable charge. In regard to the VMT tax the fixed charge would be for the privilege of having a registered vehicle (license plate registration equivalent) and the variable charge would be for the use of roads based on monthly vehicle miles (motor vehicle fuels tax equivalent).

If all current state fixed motor vehicle user fee charges were pro-rated on a monthly basis, there would be a fixed charge per month per vehicle of approximately \$10. This amount would replace both the annual registration (license plate) fee and the 3 percent Virginia sales and use tax on motor vehicles (the so-called "titling tax"). Only approximately \$4 of this monthly fixed component would represent registration fee charges. This average fee of \$4 per month is misleading. It would be lower for cars and light trucks and higher for larger trucks, reflecting the current weight-related registration fee schedule.

The majority of the fixed component would represent the "titling tax," but prorated monthly across all highway users. The present 3 percent titling tax on vehicles has two interesting features. First, it is clearly the most income-sensitive of the major user taxes in the commonwealth, as the purchase of new and late model used vehicles is income elastic, i.e., higher income persons drive more valuable vehicles and trade more frequently. Second, one can avoid this tax indefinitely by

not changing vehicles. Thus, the argument could be made to retain this tax. If the titling tax were retained as a separate levy, the monthly fixed portion would decline from approximately \$10 to \$4 per month.¹⁸ The second component of one's monthly statement would be a variable charge based only on the miles traveled the previous month in Virginia; currently this averages approximately 1.1 cents per mile traveled.¹⁹ This component would replace the 17.5 cents per gallon motor fuels tax on all but heavy, interstate vehicles. Heavy vehicles (since 2002, statutorily defined as having ten or more wheels in interstate commerce) have been subject to a 3.5 cents per gallon motor fuel surtax, in addition to the current 17.5 cents levy. User fee and International Registration Plan (IRP) collections for these heavy vehicles would continue to be administered by the Division of Motor Vehicles.

There are several ways the fee could be structured for efficiency and fairness. By fairness, I mean that the per mile charge in the various motoring environments could vary by the explicit cost of procuring and maintaining the highway infrastructure and the implicit cost of the congestion imposed. To an extent, the Washington area's METRO subway pricing reflects these principles with its peak and off-peak pricing to provide an incentive for travelers who are not time-sensitive to use the system during hours of lower usage.

- The fee per mile *could* vary by region of the commonwealth (higher or lower than the 1.1 cents per mile average).
- The fee per mile *could* vary by type of road surface (concrete, asphalt, gravel, etc.).
- The fee per mile would vary with vehicle weight, particularly for trucks with less than ten wheels. The Division of Motor Vehicles (DMV) would administer taxation of larger trucks in both intra- and interstate travel.
- On heavily congested roads the fee *could* vary depending on time of day to discourage excess demand. The fee would be zero if there were no congestion but positive otherwise even on the same road depending on time and day of use. The fee on most roads, even at peak travel times, would be zero, since there is virtually no meaningful congestion anytime in most parts of the state.
- The fee per mile *could* be used to fund regional public transit.

How Would a VMT Tax Be Collected?

The system would be based on a GPS system. To implement it, the General Assembly would mandate that each Virginia registered vehicle, given

adequate lead-time, be equipped with a commonly configured GPS device as a condition for registration. There is precedent for such a requirement. Fifty years ago, the General Assembly mandated that new vehicles sold in Virginia be equipped with front seat belts, three years before the federal mandate.

A monthly-itemized bill, very similar to current electric power company statements would be sent by mail or electronically. The bill could be paid by mail, by automatic credit card charge, by bank charge, electronically or otherwise. Lower collection expenses would be passed forward to those choosing the lower cost means. Each statement would contain: (a) a fixed charge line item, (b) a variable charge, miles driven line item, (c) a variable charge itemized by place and time of day if a congestion component were to be incorporated, and (d) suggested driving alternative routes and times to minimize this latter component.

Collection deadbeats would not present a significant problem. If one were statutorily in arrears, given repeated notice, the commonwealth could immobilize the vehicle via satellite as many “buy here-pay here” used vehicle dealers do currently. The GPS user fee collection mechanism also would have positive law enforcement implications for stolen vehicles, drunk driving, uninsured motorist enforcement, and police chases, to name a few violations.

Privacy Issues

Clearly, privacy issues exist. Privacy concerns will be raised and hotly debated in the General Assembly. This conceptual issue has the greatest potential for thwarting the VMT tax. Recently, privacy intrusions from the use of social media outlets (e.g., Facebook and Twitter) have received national attention and concern.

With respect to automotive operation and usage, a GPS-based VMT system would further the intrusions which already exist. How many Virginians have EZPass,²⁰ a “smart tag” attached to their windshields that records toll road usage and location? How many Virginians realize that their cell phone can track their driving location in real time? How many motorists are aware that over the last decade, manufacturers have incorporated monitoring technology into virtually all new vehicles? On board technology systems monitor and record system performance, as well as the manner in which the vehicle is driven. A number of Toyota owners alleging “unintended vehicle acceleration” have found that their on-board computer recorded driver behavior inconsistent with their allegations as plaintiffs.²¹ For well over a decade GM’s OnStar has tracked vehicle location. More

recently, Ford’s “MyFord Touch” and “MyLincoln Touch,” based on “In Sync” technology have similar capabilities. Early in 2011, both proprietary systems announced enhancements with even greater intrusive capabilities. Thus, the monitoring of vehicle use for legitimate and fair tax purposes, as well as for criminal law enforcement purposes only, could be considered an incremental intrusion into privacy, given the loss of privacy that already has been given to telephone, satellite, and internet technology systems.

Transition Issues

Other than for special use vehicles, such as antiques, all Virginia registered, non-heavy vehicles would be required to have a GPS system as a condition of registration. Thus, the most significant source of tax shirking would be from nonresident travel in the commonwealth, particularly in Northern Virginia. In transition, until neighboring states or the federal government adopt a similar system, with provision for cooperation within the multi-state region, Virginia should retain a nominal low tax on motor fuels. The low motor fuels tax rate here would encourage nonresidents to over-purchase Virginia-taxed fuel, tending to offset their non-VMT fee payment. A low per gallon tax would insure that retail motor fuel prices would be much lower here than in neighboring states, thus encouraging the over purchase. Since during transition, Virginians would also pay the reduced motor fuels tax rate, VMT rates would be reduced to reflect the continued motor vehicle fuels tax receipts.

This transition issue was of major concern to the TRB. Interestingly, other than a public opinion survey in North Carolina showing minimal support for the VMT, states bordering the commonwealth have shown little interest in the VMT.

Why a VMT Tax would be Superior to Alternatives

Because new technology vehicles will burn little or no gasoline, it has been suggested that we increase registration fees for such vehicles. However, this would be inefficient and perverse; it increases the fixed cost of driving relative to the variable cost, the exact opposite of what is desired. Also, the commonwealth would need a very high registration fee to make a difference per mile; this would penalize the low-mileage vehicle owner, while the high mileage owner underpays. Furthermore, a high registration fee would reduce incentives to adopt new technology vehicles, offsetting current federal fiscal incentives such as the \$7,500 tax credit for the purchase of electrics, as well

as additional incentives that may come from the commonwealth.²²

Another approach to raising transportation revenue would be to increase the gasoline tax. This suggestion is extremely shortsighted as it ignores the basic problem of what we face now and what is coming. Note how the General Assembly has rejected this avenue for over 20 years. However, higher gasoline taxes are what the Transportation Research Board recommends, at least in the short-run. More recently, the Federal Deficit Reduction Committee has recommended a gradual 15 cents per gallon increase.

Alternatively, imposing an odometer mileage fee collected as part of state safety/emissions inspection could increase transportation revenue. Problems include odometer fraud issues and collection issues. If collected annually, or even biannually, the absolute level of the fee would present an affordability problem for many motorists. Also, it would be difficult, if not impossible, to impose the fee on out-of-state vehicles unless there was a cooperative arrangement with other nearby states. The current mileage-based method of collecting user taxes on out-of-state heavy trucks in interstate commerce does not undermine this argument. Both heavy truck registration fees and motor vehicle fuel tax liabilities are administered through long standing interstate pacts whereby the tax liabilities are collected by the home state of the motor carrier and remitted to Virginia. The state reciprocates for Virginia-based firms.²³

Summary and Conclusions

Like most instruments of change, a VMT tax system will have its proponents and opponents. Before I conclude by summarizing its merits and deficiencies, note that we have had a de facto VMT tax for over 80 years, with motor fuel being the metering device. True, drivers have been able to minimize their variable payments through a judicious motor vehicle choice and driving style, but until recently motor fuel consumption has been predominantly a function of miles traveled.

Like it or not, motor fuel's role as the near universal metering device, is coming to an end. So what are the VMT tax's attributes? First, it is a 21st Century metering device to cover the costs of building and maintaining the public highway infrastructure. It replaces the de facto VMT tax that we have used for generations. Second, a VMT tax collected via a GPS-based electric power company type of billing system would be much more refined in matching highway revenues and costs. Rural Virginians and their General Assembly representatives have opposed a VMT, concerned they would "overpay" because of their

greater travel distances. But a GPS-based VMT would discriminate between rural uncongested and urban congested travel, as well as road surface type. Finally, several positive law enforcement spillovers come from a VMT tax system as described. It can immobilize uninsured vehicles, vehicles while in police pursuit, stolen vehicles, as well as those not properly registered, or in tax arrears.

Despite its many advantages, a VMT tax has both transitional and philosophical problems. Transitional problems arise in border areas if such a tax is not adopted on a national or state regional basis. The lead-time required for installation of GPS equipment presents another problem.

Conceptually, two issues exist. First and foremost is the privacy issue. This will be intensely debated. Second, to what extent can the commonwealth mandate the purchase of the hardware necessary to collect a VMT? Driving in the commonwealth is a privilege that one chooses to partake. Acceptance requires compliance with numerous conditions imposed by the General Assembly— vehicle safety inspection and liability insurance (or uninsured motorist fee) to name two. Given adequate lead times and the fact that after-market GPS systems using similar technology are modestly priced today, the latter issue should be minimal.

ABOUT THE AUTHOR:

George Hoffer is currently a part-time senior lecturer in economics at the University of Richmond. In 2010, he retired as Professor Emeritus of Economics after 40 years at Virginia Commonwealth University. Over that period he authored or coauthored approximately 80 peer-reviewed articles, predominantly on automotive and transportation related topics, for which he received several research awards. He has been cited over a 1,000 times on these topics in the national and regional media. For most of the last decade, he served on the Governor's Advisory Board of Economists. Professor Hoffer earned a B.S. from the University of Richmond, a M.S. from Virginia Tech, and a Ph. D. from the University of Virginia.

Endnotes

Note: When available, web links for sources are shown. At the time of publication all of the links worked. However, some links are unstable and may not work with certain browsers or they may be modified or withdrawn.

1 *Automotive News* (January 3, 2011), p.24.

2 *Automotive News* (October 4, 2010) p. 21.

3 U.S. Department of Energy, *Fuel Economy Guide, Model Year 2011*
<http://www.fueleconomy.gov/feg/findacar.htm>

- 4 Division of Legislative Services, Joint Subcommittee, *Fuel Efficient Vehicles and Transportation Funding, Executive Summary*. Senate Document 4. Joint Subcommittee Studying Fuel Efficient Vehicles and Transportation Funding (SJR 385 - 2007). <http://leg2.state.va.us/dls/h&sdocs.nsf/682def7a6a969fbf85256ec100529ebd/b6025590a10262e9852572b3006>
- 5 *Ibid.*
- 6 Misty A. Boos, and Audrey K Moruza, *Vehicle Miles Traveled (VMT) Tax: An Alternative To the Gas Tax For Generating Highway Revenues*, Research Synthesis Bibliography No. 19 (Virginia Department of Transportation, Research Library: Charlottesville, December 2008). <http://vtrc.virginia.gov/rsb/RSB19.pdf>
- 7 Senate Resolution 94, General Assembly of Virginia, 2010 Session. Rejected by House of Delegates Rules Subcommittee, March 2, 2010 (2Y, 3N).
- 8 Boos and Moruza, *VMT Tax: An Alternative*, p. 3.
- 9 *Ibid.* p.14.
- 10 National Transportation Policy and Review Study Commission, *Transportation for Tomorrow, Executive Summary* (Washington, DC: National Transportation Policy and Review Study Commission, January 2008), 8. http://www.mtc.ca.gov/news/NSTPRSC/nstprsc_exec_summ.pdf
- 11 Boos and Moruza, *VMT Tax: An Alternative*, p. 4.
- 12 *Ibid.*
- 13 *Ibid.*, pp. 6-11.
- 14 *Ibid.*, p. 7.
- 15 *Ibid.*, p. 8.
- 16 *Ibid.*, p. 9.
- 17 Transportation Research Board, "The Fuel Tax and Alternatives for Transportation Funding," Special Report 285 (Washington, DC: The National Academies, 2006).
- 18 Calculations by the author using data from: Virginia Department of Motor Vehicles, "Virginia Crash Facts, 2009" (Richmond, 2010) p.22; Virginia Department of Transportation, "Daily Vehicle Miles Traveled by FHWA Vehicle Class," Report ID-VMT220 (Richmond, 2010); U. S. Federal Highway Administration, *Highway Statistics 2009, Annual Vehicle Miles* (Table VM-2); Secretary of Finance, "Governor McDonnell's Proposed Amendments to the 2010-2012 Budget, Economic Outlook and Revenue Forecast, A Briefing for the Senate Finance, House Finance, and House Appropriations Committees," (December 17, 2010).
- 19 *Ibid.* Note, estimates include adjustments for travel by publicly owned vehicles and IRP vehicles.
- 20 For more about VDOT's E-ZPass see: <https://www.ezpassva.com/>
- 21 Bensinger, K. "Toyota Data Recorders Reveal No New Causes Of Sudden Acceleration," *Los Angeles Times* (August 11, 2010). <http://www.baltimoresun.com/business/automotive/la-fi-0811-toyota-data-20100811,0,3096259.story>
- 22 Virginia Clean Cities, "Virginia Get Ready: Initial Electric Vehicle Plans," Harrisonburg (October 13, 2010), pp. 64-68. www.virginiaev.org/wp-content/.../EV-VGR-FINAL-October-13-2010.pdf
- 23 International Registration Plan and International Fuels Tax Agreement. See www.dmv.state.va.us/webdoc/commercial/mcs/programs/ifta/index.asp

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