ABSTRACT

The federal government and all fifty states tax motor fuels to generate revenue for

that failing roads and bridges could cost Oregon 100,000 future jobs and around $94 billion in GDP by 2035.[2] Additionally, the trucking industry will see reductions in viable shipping routes as failing bridges become weight-restricted.[3] The report also calculated that rough road conditions would cost a medium sedan around $380 per year in lower fuel efficiency, excessive tire wear, and more frequent alignments.[4] Finally, rougher roads would increase the incidence of injuries and deaths from accidents.[5] Other reports [6]

The road infrastructure crisis in Oregon and other states is particularly troubling because projected revenues from gas taxes are falling ever shorter of projected costs for road maintenance and repairs.[7] Conventional revenue sources for highway funds, such as vehicle registrations and fuel taxes, are increasingly proving inadequate and are likely to fall behind in the coming years.[8] Moreover, while construction materials and labor costs

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[2] *See id.*
[3] *See id.* at 1.
[4] *See id.* at 2.
[5] *See id.* at 5.
[6] One report
families more than $120 billion in extra fuel and lost time. American businesses pay $27 billion a year in extra freight transportation costs, increasing shipping delays and raising prices on everyday products. Underinvestment impacts safety, too. There were more than 33,000 traffic fatalities last year alone and roadway conditions are a significant factor in approximately one-third of traffic fatalities. Such fatalities
See An
Economic Analysis of Transportation Infrastructure Investment
of Econ. Advisers 2 (July 2014),
https://www.whitehouse.gov/sites/default/files/docs/economic_analysis_of_transportation_investments.pdf.
But see, David T. Hartgen, M. Gregory Fields & Baruch Feigenbaum, *21st annual Report on the Performance of State Highway Systems* (1984 2012), at ES-1 (2014),
https://reason.org/files/21st_annual_highway_report.pdf Over the past four years the overall condition of the system has improved. In 2012 the overall condition of the U.S. state-owned highway system continued to improve, but progress appears to be slowing.
[7] *See, e.g.*, Debra K. Davenport, *Ariz. Off. Auditor Gen., Arizona Department of Transportation Transportation Revenues Report No. 15-113*, 9 (2015), https://www.azauditor.gov/sites/default/files/15-113_Report_0.pdf; TRANSP. TRUST FUND TASK FORCE, DEL. DEPT. OF TRANSP., REPORT ON CONDITIONS, PLANNING AND REVENUE OPTIONS FOR SUPPORT OF THE TRANSPORTATION TRUST FUND 53 (2011), https://www.deldot.gov/information/pubs_forms/ttf_task_force/pdf/Final_Transportation_Trust_Fund_Task_Force_Report_033111.pdf.
[8]

rose with inflation, many states have not increased fuel taxes, and the federal fuel tax has not been raised since 1993.[9] Even if fuel taxes were raised to meet inflation, they are an unsustainable source of revenue. Vehicles with improved fuel efficiency and electric vehicles will continue to chip away at revenue until the majority of drivers are no longer paying any tax to use the roads.

Oregon state officials, recognizing the need for new sources of revenue developed a pilot program to test the effectiveness of charging a vehicle-tax.[10] Voluntary participants in this program pay a tax based on the number of miles they drive in their vehicle within the state instead of paying per-gallon taxes for gasoline at the pump. Other states are beginning to look at VMT taxes, and a few other pilot programs have been conducted across the country.[11]

This Article describes the benefi modifications to address environmental and sustainability concerns that the program raises. Part I discusses the history of the fuel tax, explains how roads are currently funded in the United States, and describes why this funding strategy has become increasingly VMT tax program, ORe*GO*. Part III highlights some of the advantages of this innovative funding approach, and proposes adjustments to the ORe*GO* funding model to address environmental concerns, keeping up with inflation, consumer privacy, and potential constitutional concerns. Part IV advocates for states to begin the process of switching from a fuel tax to a VMT tax. It also discusses the eventual need to make the VMT tax mandatory and efforts to coordinate the tax between multiple states. Part V evaluates other methods for developing a reliable and sustainable source of revenue for road funds and explains why each is deficient.

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[9] *See* B. Starr McMullen, Kyle Nakahara & Lei Zhang, *Distributional Impacts of Changing from a Gasoline Tax to a Vehicle-Mile Tax for Light Vehicles: A Case Study of Oregon*, 17 TRANSP. POL Y 359, 359 (2010).

[10] *See* NEV. DEPT. TRANSP., NEVADA VEHICLE MILES TRAVELED (VMT) FEE STUDY PHASE 1, at 16 (2010), https://www.nevadadot.com/uploadedFiles/NDOT/Documents/VMT%20FEE%20STUDY%20Bk.pdf.

[11] *See infra* Part IV.

I. THE FUEL TAX: AN UNSUSTAINABLE MODEL FOR FUNDING ROADS

Not long ago, poor road conditions were simply a fact of life. Traveling from coast to coast by car across America took months rather than days.[12] Although Europe made substantial early progress in efforts to pave major roads, in the early 1900s many considered America [13]
roads were caused, in part, by the lack of funding for road building. Before the emergence of mass-produced automobiles, state and local governments funded road projects through property taxes and poll taxes.[14] In 5 Gl45 7Tf1 295e.* nqoad

typically do not pay the Oregon fuel tax at the pump, and are provided a reimbursement if charged.[36] Oregon instituted the weight-mile tax in 1947, and bases the rate on the declared weight of the vehicle.[37] The

diversions.[44] Even with provisions specifically prohibiting diversions from transportation funds, some states still report diversions for other purposes.[45]

B. The Federal Gas Tax

By the 1920s, the American citizenry was fairly supportive of state-level taxes to help fund roads, but still generally opposed to any calls for a federal gas tax.[46] The first federal gas tax was enacted not for roads but to counteract the Great Depression and large deficit.[47] The Revenue Act of 1932 passed a one cent tax on each gallon of gas sold, and was set to expire in June of 1933. However, the tax was extended and increased to 1.5 cents per gallon.[48] Highway lobbies and state officials continued to fight for the elimination of the federal gas

Revenue Act of 1941 made the gas tax permanent.[49] The act authorized the funds to be

and for other purposes [50]

In 1947, with World War II now over, hundreds of national, state, and regional organizations of highway users petitioned Congress to eliminate all automotive taxes, including the federal gas tax.[51] These groups represented many interests, including trucking, manufacturing, oil, automobile, and farming.[52]

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[44] *See* Jaime Rall et al., *Transportation Governance and Finance: A 50-State Review of State Legislatures and Departments of Transportation* 29 (2011),

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none have become law.[65] Since 2008, the HTF has been in deficit, forcing the government to transfer funds from the general fund to cover expenditures.[66]

C. The Fuel Tax is Financially and Politically Unsustainable

Although fuel taxes have served as a valuable road funding source for nearly a century, improvements in both fuel efficiency technology and electric vehicles diminish

Fuel taxes only generate revenue if consumers are purchasing fuel. Fuel efficiency standards and the growing popularity of hybrid and electric vehicles continue to reduce American consumption of gas and diesel, which diminishes fuel tax revenue.[67] The effect of electric vehicles is particularly concerning to the west coast, which is projected to change over to electric vehicles at a faster rate than the rest of the United States.[68] Recent federal fuel economy standards roughly double the required average fuel economy of US fleets by 2025.[69] To put this in perspective, drivers will be able to drive almost twice as far, or cause twice as much wear and tear on roads, while paying the same amount in gas taxes. This problem is still in its infancy. Hybrid vehicles made up just under 3% of new vehicles in 2015, and electric vehicles made up 0.8%,

[65] For example, in the 114th Congress, three bills proposed an increase in the federal motor fuels excise tax. Four bills also contained provisions linking the excise tax rate to increases in inflation. One bill proposed to reduce the tax. *See* Sean Lowry, *The Federal Excise Tax on Motor Fuels and the Highway Trust Fund: Current Law and Legislative History* 15-16 (2015), http://nationalaglawcenter.org/wp-content/uploads/assets/crs/RL30304.pdf.

[66] *See* Kyle Pomerleau, *Options to Fix the Highway Trust Fund,* TAX FOUND., no. 456, Mar. 2015, at 1-24(s onl)-12(y)30( )-9(ge)]

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while plug-in electric hybrids made up another 0.3%.[70] However, these percentages are likely to rise in the coming years.[71]

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published in Arizona projected large funding deficits[77] by 2035 and proposed raising the gas tax, a press aide for the Governor

[78] In Massachusetts, voters repealed a 2013 law that aut

bill expressly addressed data collection methods and privacy concerns from the prior trial runs.[100] Additionally, the bill set the VMT tax to 1.5 cents per mile.[101] According to the bill, the VMT tax program was intended only for motor vehicles with a gross weight of 10,000 pounds or less and was not to exceed 5,000 volunteers.[102] SB 810 also established that ODOT and its implementing associations may not disclose personally identifiable information,[103] except in a few specific instances.[104] SB 810 also required that police officers obtain a valid court order upon a showing of probable cause before gaining access to personally identifiable information.

This device records mileage information from the vehicle, which is then calculated to determine the distance traveled and the fuel consumed by the vehicle.[109]

motor that gets energy from a controller.[117] Such vehicles use energy stored on a rechargeable battery that the consumer plugs into an electrical outlet.[118] Electric vehicles do not have an internal combustion engine, and, consequently, do not require the traditional maintenance that a gasoline vehicle requires.[119] Hybrid vehicles use two engines that work in conjunction with one another.[120] Hybrid vehicles typically have both a gasoline engine and an electric engine that work together to increase distance and emit lower emissions than a typical gasoline vehicle.[121]

Hybrid and electric vehicles generate lower emissions.[122] Vehicle emissions are generally divisible into two major categories: air pollutants and greenhouse gases. Air pollutants contribute to smog and health problems while greenhouse gases are substances such as carbon dioxide and methane that contribute to climate change.[123] Accordingly, a transition to an electric vehicle has both a local impact in reducing air pollution in major cities, but a disparate effect on climate change. However, while the environmental impacts associated with driving hybrid and electric vehicles are much lower than those of conventional vehicles, the environmental costs of manufacturing hybrid and electric vehicles are roughly the same as conventional vehicles.[124]

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[117] Brad Berman, *What is an Electric Car?*, PLUGINCARS (Oct. 14, 2014), http://www.plugincars.com/electric-cars/ (Electric vehicles get energy from a controller, which regulates the amount of power

[118] *Id.*

[119] *Id.*

[120] Jeff Cobb, *What is a Hybrid?*, HYBRIDCARS (Jul. 8, 2014), http://www.hybridcars.com/what-is-a-hybrid/.

[121] *Id.*

[122] *Emissions from Hybrid and Plug-In Electric Vehicles*, U.S.

value of $1,037 and an income tax credit with a mean value of $2,011.[132] Sales tax waivers tend to make consumers respond more positively to hybrid and electric vehicle purchases than federal income tax credits.[133] Consequently, a VMT tax must not significantly reduce the value of these incentives.

3. How ORe*GO* Discourages Hybrid and Electric Vehicle Purchases

ORe*GO* discourages hybrid and electric vehicle purchases by imposing additional costs that owners would not have otherwise paid. An ORe*GO* volunteer driving a hybrid or electric vehicle will incur an estimated average of $16.20 per month in taxes,[134] which totals an average of $194.40 per year in additional costs. Consequently, ORe*GO* and electric vehicle owners could expect an additional cost of $1,944 over the span of ten years, assuming the tax rate remains the same. At some level, this is to be expected. Oregon started the pilot program to determine how to capture lost revenue from hybrid and electric vehicles. Thus, under any VMT tax system, these vehicles will see an increase in costs.

The ORe*GO* account managers do provide some non-financial incentives, which [135] Azuga, one of the account managers, provides a driving score system, whic or her a score based upon multiple factors such as speeding and braking.[136] The driver is then able to analyze this score to see in what areas he or she brakes too hard or speeds too much.[137] The program also provides a status on both the battery voltage of the electric and hybrid vehicles and the engine.[138] Through this system, the driver can earn badges

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[132] S*ee* Gallagher & Muechlegger *supra* note 127, at 2.
[133] *Id.* at 10.
[134] ORe*GO* Comm *The Rewards of Driving Hybrids and EVs* (Jun. 9, 2015), http://www.community.myorego.org/blog/the-rewards-of-driving-hybrids-and-evs/.
[135] *Sign up with an OReGO Account Manager!*, ORE*GO*, http://www.myorego.org/about/vendor-options/ (last visited Dec. 12, 2016).
[136] *See* OR. DEPT. TRANSP., *Road User Fee Task Force - May 20, 2015 Meeting materials, Item D-Value-Added Services*, https://www.oregon.gov/ODOT/HWY/RUFPP/Pages/ruftf.aspx; Tom Fuller, *Score with OReGO?*, ORE*GO*: BLOG (Oct. 27, 2015), http://www.community.myorego.org/blog/whats-your-score-with-orego/.
[137] *See* OR. DEPT. TRANSP., *supra* note 136.
[138] *See id.*

should be to avoid long periods without tax increases, like the twenty-year gaps in the gas tax.

As it currently stands, ORe*GO* avoids the cardinal sin of raiding the coffers for purposes other than road building.[147] s constitution

Department reasons that because people are so accustomed to providing their location information to websites or mapping applications, most should have no qualms providing the same information for a VMT tax. States must carefully control how long the data is stored and place stringent security requirements on third-party vendors. Similar tracking systems, such as automatic toll bridges, have been used for unanticipated mean612 792 reW* nBT/F1 12 Tf1

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IV. ENVISIONING A.(N)-7(I)13(NG)4( )-9(A.(N)-7(I)13(NG)4( )-d)-d L

As states begin considering whether to implement a mandatory VMT tax, it may be best to skip the intrastate pilot program phase and start testing an interstate system. Many states, especially in the West, are at least open to a multi-jurisdictional system. Rather than developing eleven different tracking systems, states would be wise to adopt one or two systems and test them across a wide geographical distribution. One reoccurring theme in both pilot program reports and framework reports is the need to spend sufficient time educating the public about the purpose of a VMT tax.[195] Each pilot program reports significant increases in positive perception of the program as participants become familiar with the system.[196]

V. ALTERNATIVES TO VMT TAXES

A VMT tax is not the only possible solution to replace the fuel tax. This section analyzes two alternative solutions to the road funding crisis: a sales tax model and raising the fuel tax. A sales tax funding model would be easy to implement, but would move away from t
of preparation, experimentation, and coordination with other states, higher fuel taxes are at best a temporary solution. If states wish to find a sustainable source of funding, while

A. Sales Tax

One alternative solution is to increase sales taxes and dedicate a portion of the
. Much like the fuel tax, sales taxes are easy to administer. Sales taxes are also typically a percentage of the total sale, which means the tax rises with

inflation. Local jurisdictions such as counties and cities are more likely to use a sales tax to fund their road projects. Recently, voters in large cities like Phoenix and Colorado Springs approved a sales tax increase for road repairs.[197] At the state level, Michigan voters soundly rejected a ballot measure to increase a sales tax to fund roads, with 80% voting no.[198] However, in Virginia, the state legislature eliminated the excise gas tax in 2013 and replaced it with a percentage-based gas tax, solving the inflation problem.[199]

Nonetheless, the portion of the tax dedicated to road repairs is less noticeable to

shifts some of the costs to people who do not drive or directly use the road systems.[200]