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### Observation One: Insolvency

#### Highway demand continues to grow even as the purchasing power of state, local, and federal governments is eroding- the result is too little capital investment in surface transportation and the loss of US economic competitiveness.

American Association of State Highway and Transportation Officials 7 (“Transportation Invest In Our Future: Revenue Sources to Fund Transportation Needs”, September, <http://www.transportation1.org/tif4report/TIF4-1.pdf>) DMD

The future needs of the U.S. surface transportation system are great and the costs to provide them are increasing. Much of the system of highways, bridges, public transportation, and railroads built during the past century is getting older and needs to be rebuilt or replaced. Our population grew by 130 million over the past 50 years, and is expected to increase by 140 million over the next 50 years. Highway demand measured in vehicle miles traveled (VMT) has increased five-fold over the past 50 years, from 600 billion VMT to three trillion VMT, and is expected to continue to grow by over 2 percent annually. Because of a strong economy, which is increasingly dependent on international trade, freight demand is increasing. Truck freight is expected to double by 2035, and rail freight to grow by more than 60 percent. The amount of highway mileage added over the past 50 years, especially that provided through the construction of highway arterials, was substantial. However, the increase in travel has been so great that most of the capacity and redundancy planned when the system was built has been used up. Over the past 50 years, to reduce costs and increase productivity, railroad track miles have been reduced from 380,000 to 175,000 miles. However, current demand on railroads has resulted in a capacity shortage. As a consequence of these factors, congestion on the highways and on the railroads is a growing problem in nearly every region of the country. The costs of preserving and modernizing the system in place, as well as providing the capacity needed for the future, are substantial. Because of a spike in commodity prices for steel, concrete, asphalt, petroleum, and construction machinery over the past three years, skyrocketing construction costs are eroding the purchasing power of the funding being provided by federal, state, and local governments and the railroads. So the United States faces three challenges. As never before we are engaged in an intensive competition in the global economy with Japan and Europe and emerging economies such as China and India, all of which are investing massively to modernize their transportation systems. Our current levels of capital investment for highways, transit and rail fall 40 to 50 percent short of the levels needed. The purchasing power of the funding currently provided is being undercut by rapidly increasing construction costs.

#### An infrastructure funding crisis is imminent- failure to create a sustainable source of revenue will add to the deficit and stifle economic growth.

Rahman et al, 11 (Lazeena Rahman is a Graduate School of Business and Public Policy student at Stanford, Kumi Harischandra, Justine Isola, and Anthony Suen are graduate students in Stanford’s International Policy Studies program, Prepared for: Carnegie Endowment for International Peace, “Going Forward: Prospects for Transitioning from Gas Taxes to Vehicle-Miles-Traveled Fees” p. ix) APB

The National Surface Transportation Infrastructure Financing Commission predicts that if current policy stands, the country will be faced with a funding gap of $400 billion between 2010 and 2015 and $2.3 trillion from 2010 to 2035 (Figure 2).8 Figure 2: A widening gap between federal revenue and investment needs (2010-35) Source: “Paying Our Way: A New Framework for Transportation Finance,” National Surface Transportation Infrastructure Financing Commission, February 2009, p. 195. As a result of this shortfall, Congress has infused the HTF with general funds on three separate occasions since 2008. Unless the federal government finds ways to generate new revenue or implements measures to use funds more efficiently, transportation infrastructure will continue to require more injections from the general fund, exacerbating the national deficit. The last long-term surface transportation legislation expired in 2009. This funding crisis comes at a time when the U.S. needs new investments in transportation to meet 21stcentury transportation challenges such as aging infrastructure, a growing population, and an expanding economy. This crisis also provides the U.S. opportunities to invest in new transportation systems that can advance goals such as environmental stewardship, energy security, and energy efficiency. A long-term solution is necessary to tackle this infrastructure and budgetary deficit. Delaying a decision on whether to provide additional funding to cover current shortfalls will only further contribute to the national deficit.

#### State mileage charges are inevitable, but the federal government must act quickly to encourage experimentation and ensure interoperability-this was the unanimous recommendation of the bipartisan Transportation Infrastructure Financing Commission.

National Surface Transportation Infrastructure Financing Commission 9 (<http://financecommission.dot.gov/Documents/NSTIF_Commission_Final_Report_Advance%20Copy_Feb09.pdf>, February 26th 2009 P.170)LD

**Direct user charges in the form of mileage-based user charges are the most viable and sustainable long-term “user pay” option for the federal government to raise adequate and appropriate revenues to provide the federal share of funding for the system. Both real-world examples and academic research demonstrate that VMT fee systems have the capacity not only to raise needed revenues but also to provide additional benefits, including more efficient use of transportation infrastructure, reduced environmental and social externalities, and ancillary benefits to users in the form of information for drivers.** Critically, a **VMT** fee system **is the only** **option** the Commission evaluated **that, in addition to raising revenues, could actually reduce the amount of necessary additional capacity by improving the efficiency of current capacity use**. A transition from federal motor fuel taxes to a federal VMT fee system will present numerous political, technical, and technological challenges that will require broad stakeholder input throughout. These challenges, however, should not deter policy makers from committing to a paradigm shift and an aggressive course of action to implement a VMT-based charge system. Recommendations for specific congressional actions to facilitate this transition are included in Chapter 8. States and localities also could choose to implement their own VMT-based charges, saving on administrative costs by piggybacking on the national system. And to meet more immediate funding demands, to the extent they wish to do so, states and localities are able to use direct tolling and pricing options, including conventional tolling as well as congestion and cordon pricing approaches to address urban congestion challenges. The primary federal role in furthering state and local governments’ ability to use these techniques consists of limiting restrictions on their use and facilitating and encouraging states and localities to experiment where appropriate. Also, given the experience many states and localities already have implementing pricing and tolling options, Congress will need to address interoperability concerns quickly, lest states or regions implement equipment and technologies that will be incompatible and not easily retrofitted to any future national VMT-based charge technologies. While the initial investment of capital—financial, intellectual, and political—needed in the transition to a VMT-based system may be significant, **the Commission unanimously agrees that this is the best path forward. A VMT-based charge system is the best option for raising the revenues the nation needs and supporting the national policy goals to which we aspire.**

### Plan

#### The United States federal government should substantially increase its investment in necessary transportation infrastructure for the implementation of mileage based user fees, including support for state and local pilot projects to implement mileage based user fees.

### Advantage One: Highways

#### Transportation infrastructure investment is the foundation of US prosperity and strength- current low levels of investment risk economic decline and loss of competitiveness.

Mineta and Skinner 10 (Norman Y. and Samuel K., former Secretaries of Transportation and Conference Co-Chairs, “Well Within Reach: America’s New Transportation Agenda”, report of the David R. Goode National Transportation Policy Conference @ UVA Miller Center of Public Affairs, <http://www.infrastructureusa.org/wp-content/uploads/2010/10/conf_2009_transportation.pdf> p. 17, Accessed 6/28/12)

Since our founding, the United States has been a nation on the move. From the great westward expansion of the 1800s to the completion of the first transcontinental railroad in 1869, the construction of the Interstate Highway System a century later, the advent of the mass-produced automobile, and the emergence of a modern commercial airline industry, mobility has been central to American ideals and identity—and to American prosperity. Today, some 4 million miles of roads, 600,000 highway bridges, 117,000 miles of rail, 11,000 miles of transit lines, 19,000 airports, 300 ports, and 26,000 miles of commercially navigable waterways connect the country’s diverse and far-flung regions to each other and to an increasingly fluid and interdependent global marketplace. 1 Much of the backbone of this network was built in the decades after World War II, when the nation embarked on a series of major investments in transportation infrastructure. Not coincidentally, the same post-war era saw enormous gains in productivity, wealth, and industrial capacity. These gains catapulted the United States to a position of global pre-eminence that has lasted to this day. The central question before the American people now is how to sustain our legacy of leadership—in economic opportunity, technological innovation, and quality of life—for a new century that presents daunting social, economic, and environmental challenges. Though transportation is obviously only one of many daunting challenges that America faces today, it remains an exceptionally important one. Without investing adequately in transportation to refresh our models for funding and managing our system, America is in danger of losing its competitive edge. The ability to move people and goods flexibly, efficiently, and cost-effectively is as critical as ever. It is essential not only to maintaining U.S. global competitiveness, but to nurturing a dynamic and adaptable workforce, growing local and regional economies, supporting livable communities, and reducing the environmental and national security liabilities of our continued dependence on petroleum fuels for nearly all our transportation needs. The task is two-fold: to maintain and improve existing infrastructure and systems, which are increasingly overloaded and inadequately maintained, while also investing in the new systems and technologies that will be needed to meet the mobility needs of the future.

#### New investments in transportation infrastructure are critical to US economic strength- numerous reasons.

Mineta and Skinner 10 (Norman Y. and Samuel K., former Secretaries of Transportation and Conference Co-Chairs, “Well Within Reach: America’s New Transportation Agenda”, report of the David R. Goode National Transportation Policy Conference @ UVA Miller Center of Public Affairs, <http://www.infrastructureusa.org/wp-content/uploads/2010/10/conf_2009_transportation.pdf> p. 17, Accessed 6/28/12)

The United States, which once invested prodigiously in transportation infrastructure, has for more than a generation now leaned ever more heavily on assets built in a previous era. New investments have not sufficed to adequately maintain existing infrastructure, much less to develop the additional capacity and cutting-edge technologies needed to improve the performance of the overall transportation system in the face of growing demand. This approach has already had consequences: the amount of time and money lost to traffic congestion in major U.S. metropolitan areas keeps increasing and many transportation facilities are worn, overloaded, and inefficient. The result is a system that is too often aggravating and costly to its users: it is at best, highly susceptible to large-scale disruptions when even small things go wrong and, at worst, subject to catastrophic and occasionally deadly failures. Meanwhile, the nation’s dependence on polluting fuel, much of it imported from overseas, continues to grow; scarce public resources are used to build projects of dubious value while critical bottlenecks go unaddressed; and traditional planning processes remain fragmented and focused on building more roads rather than fostering livable communities. Longer term, one of the more worrisome consequences of staying the current course involves the potential loss of international competitiveness. To compete with emerging economic powerhouses like China, the United States will need to become more efficient. This includes making new investments in transportation infrastructure. As a percentage of GDP, China presently spends about twice as much on capital investment compared to the United States. To some extent this reflects the fact that China is at an earlier stage in its overall economic development, and needs to develop basic infrastructure—something that the United States completed decades ago. Nevertheless, the disparity in transportation investment as a percent of GDP is large and shows the United States—at 0.6 percent—lagging well behind major trading partners such as Russia (1.4 percent), central and Eastern Europe (1.3 percent), and Western Europe (1.85 percent). 2 Clearly, transportation and economic vitality are closely connected. Proximity to strategic transportation links is often a key consideration when businesses make decisions about where to locate their operations. Transportation also has an enormous direct impact on quality of life: as much as any other single element in economic development, it affects people’s ability to access jobs, services, recreation, shopping, and other activities. As the Government Accounting Office (GAO) wrote in a 2008 report, “strong productivity gains in the U.S. economy hinge, in part, on transportation networks working efficiently.” The primary focus of the GAO report was freight mobility, but its findings can be taken as a cautionary note about the importance of the transportation system writ large. With almost 27 percent of the nation’s economic output “totally dependent on international trade,” it is difficult to overstate the economic importance of the nation’s transportation system. 3

#### Economic decline causes protectionism and war – their defense doesn’t assume accompanying shifts in global power.

Royal 10 – (Jedediah Royal, Director of Cooperative Threat Reduction at the U.S. Department of Defense, 2010, “Economic Integration, Economic Signaling and the Problem of Economic Crises,” in Economics of War and Peace: Economic, Legal and Political Perspectives, ed. Goldsmith and Brauer, p. 213-215)

Less intuitive is how periods of economic decline may **increase** the **likelihood** of external **conflict**. Political science literature has contributed a moderate degree of attention to the impact of economic decline and the security and defense behavior of interdependent states. Research in this vein has been considered at systemic, dyadic and national levels. Several notable contributions follow. First, on the systemic level, Pollins (2008) advances Modelski and Thompson’s (1996) work on leadership cycle theory, finding that rhythms in the global economy are associated with the rise and fall of a pre-eminent power and the often bloody transition from one pre-eminent leader to the next. As such, exogenous shocks such as economic crisis could usher in a **redistribution** of relative power (see also Gilpin, 1981) that leads to uncertainty about power balances, increasing the risk of **miscalculation** (Fearon, 1995). Alternatively, even a relatively certain redistribution of power could lead to a permissive environment for conflict as a rising power may seek to challenge a declining power (Werner, 1999). Seperately, Pollins (1996) also shows that global economic cycles combined with parallel leadership cycles impact the likelihood of conflict among major, medium and small powers, although he suggests that the causes and connections between global economic conditions and security conditions remain unknown. Second, on a dyadic level, Copeland’s (1996, 2000) theory of trade expectations suggests that ‘future expectation of trade’ is a significant variable in understanding economic conditions and security behavious of states. He argues that interdependent states are likely to gain pacific benefits from trade so long as they have an optimistic view of future trade relations, However, if the expectations of future trade decline, particularly for difficult to replace items such as energy resources, the likelihood for conflict increases, as states will be inclined to use force to gain access to those resources. Crisis could potentially be the **trigger** for decreased trade expectations either on its own or because it triggers protectionist moves by interdependent states. Third, others have considered the link between economic decline and external armed conflict at a national level. Blomberg and Hess (2002) find a strong correlation between internal conflict and external conflict, particularly during periods of economic downturn. They write, The linkages between internal and external conflict and prosperity are strong and mutually reinforcing. Economic conflict tends to spawn internal conflict, which in turn returns the favor. Moreover, the presence of a recession tends to amplify the extent to which international and external conflict self-reinforce each other. (Blomberg & Hess, 2002. P. 89) Economic decline has been linked with an increase in the likelihood of terrorism (Blomberg, Hess, & Weerapana, 2004), which has the capacity to spill across borders and lead to external tensions. Furthermore, crises generally reduce the popularity of a sitting government. ‘**Diversionary theory’** suggests that, when facing unpopularity arising from economic decline, sitting governments have increase incentives to **fabricate** external military conflicts to create a ‘rally around the flag’ effect. Wang (1996), DeRouen (1995), and Blomberg, Hess, and Thacker (2006) find supporting evidence showing that economic decline and use of force are at least indirectly correlated. Gelpi (1997), Miller (1999), and Kisangani and Pickering (2009) suggest that the tendency towards diversionary tactics are greater for democratic states than autocratic states, due to the fact that democratic leaders are generally more susceptible to being removed from office due to lack of domestic support. DeRouen (2000) has provided evidence showing that periods of weak economic performance in the United States, and thus weak Presidential popularity, are statistically linked to an increase in the use of force. In summary, recent economic scholarship positively correlated economic integration with an increase in the frequency of economic crises, whereas political science scholarship links economic decline with external conflict at systemic, dyadic and national levels. This implied connection between integration, crisis and armed conflict has not featured prominently in the economic-security debate and deserves more attention.

#### US competitiveness suppresses conflict escalation

Baru 9 (Sanjaya, Visiting Professor at the Lee Kuan Yew School of Public Policy in Singapore Geopolitical Implications of the Current Global Financial Crisis, Strategic Analysis, Volume 33, Issue 2 March 2009 , pages 163 – 168)

The management of the economy**,** and of the treasury,has been a vital aspect of statecraftfrom time immemorial. Kautilya’s Arthashastra says, **‘**From the strength of the treasury the army is born**. …men without wealth do not attain their objectives** even after hundreds of trials… Only through wealth can material gains be acquired, as elephants (wild) can be captured only by elephants (tamed)…A state with depleted resources**,** even if acquired**,** becomesonlya liability.’4 Hence**,** economic policies and performance do have strategic consequences**.**5 In the modern era, the idea thatstrong economic performance is the foundation of powerwas argued most persuasively by historian Paul Kennedy. ‘Victory (in war),’ Kennedy claimed, ‘has repeatedly gone to the side with more flourishing productive base.’6Drawing attention to the interrelationships between economic wealth, technological innovation, and the ability of states to efficiently mobilize economic and technological resources for power projection and national defence**,** Kennedy argued thatnations that were able to better combine military and economic strength scored over others. **‘**The fact remains,’ Kennedy argued, ‘that **all** of themajor shifts in the world’s military-power balance havefollowedalterations in the productive balances; andfurther, thatthe rising and falling of the various empiresand states in the international systemhas been confirmed by the outcomes of the major Great Power wars,where victory has always gone to the side with the greatest material resources**.’7**

#### U.S. hegemonic decline causes global great-power war

Zhang & Shi 11 (Yuhan Zhang, researcher at the Carnegie Endowment for International Peace; Lin Shi, Columbia University, independent consultant for the Eurasia Group and consultant for the World Bank, January 22, 2011, “America’s decline: A harbinger of conflict and rivalry,” East Asia Forum, online: http://www.eastasiaforum.org/2011/01/22/americas-decline-a-harbinger-of-conflict-and-rivalry/)

Over the past two decades, no other state has had the ability to seriously challenge the US military. Under these circumstances, motivated by both opportunity and fear, many actors have **bandwagoned** with US hegemony and accepted a subordinate role. Canada, most of Western Europe, India, Japan, South Korea, Australia, Singapore and the Philippines have all joined the US, creating a status quo that has tended to **mute great power conflicts.** However, as the hegemony that drew these powers together withers, so will the pulling power behind the US alliance. The result will be an international order where power is more diffuse, American interests and influence can be more readily challenged, and conflicts or wars may be harder to avoid. As history attests, power decline and redistribution result in military confrontation. For example, in the late 19th century America’s emergence as a regional power saw it launch its first overseas war of conquest towards Spain. By the turn of the 20th century, accompanying the increase in US power and waning of British power, the American Navy had begun to challenge the notion that Britain ‘rules the waves.’ Such a notion would eventually see the US attain the status of sole guardians of the Western Hemisphere’s security to become the order-creating Leviathan shaping the international system with democracy and rule of law. Defining this US-centred system are three key characteristics: enforcement of property rights, constraints on the actions of powerful individuals and groups and some degree of equal opportunities for broad segments of society. As a result of such political stability, free markets, liberal trade and flexible financial mechanisms have appeared. And, with this, many countries have sought opportunities to enter this system, proliferating stable and cooperative relations. However, what will happen to these advances as America’s influence declines? Given that America’s authority, although sullied at times, has benefited people across much of Latin America, Central and Eastern Europe, the Balkans, as well as parts of Africa and, quite extensively, Asia, the answer to this question could affect global society in a profoundly detrimental way. Public imagination and academia have anticipated that a post-hegemonic world would return to the problems of the 1930s: regional blocs, trade conflicts and strategic rivalry. Furthermore, multilateral institutions such as the IMF, the World Bank or the WTO might give way to regional organisations. For example, Europe and East Asia would each step forward to **fill the vacuum** left by Washington’s withering leadership to pursue their own visions of regional political and economic orders. Free markets would become more politicised — and, well, less free — and **major powers would compete** for supremacy. Additionally, such power plays have historically possessed **a zero-sum element**. In the late 1960s and 1970s, US economic power declined relative to the rise of the Japanese and Western European economies, with the US dollar also becoming less attractive. And, as American power eroded, so did international regimes (such as the Bretton Woods System in 1973). **A world without American hegemony is one where great power wars re-emerge**, the liberal international system is supplanted by an authoritarian one, and trade protectionism devolves into restrictive, anti-globalisation barriers. This, at least, is one possibility we can forecast in a future that will inevitably be devoid of **unrivalled US primacy.**

### Advantage Two: Warming

#### Warming is real and human caused – an overwhelming amount of scientific evidence

Rahmstorf 8 (Stefan, Professor at the Postdam Institute for Climate Research, "Anthropogenic Climate Change: Revisiting the Facts," <http://www.pik> potsdam.de/~stefan/Publications/Book\_chapters/Rahmstorf\_Zedillo\_2008.pdf)

This paper discussed the evidence for the anthropogenic increase in atmospheric CO2 concentration and the effect of CO2 on climate, finding that this anthropogenic increase is proven beyond reasonable doubt and that a mass of evidence points to a CO2 effect on climate of 3°C ± 1.5°C global warming for a doubling of concentration. (This is the classic IPCC range; my personal assessment is that, in the light of new studies since the IPCC Third Assessment Report, the uncertainty range can now be narrowed somewhat to 3°C ± 1°C.) This is based on consistent results from theory, models, and data analysis, and, even in the absence of any computer models, the same result would still hold based on physics and on data from climate history alone. Considering the plethora of consistent evidence, the chance that these conclusions are wrong has to be considered minute. If the preceding is accepted, then it follows logically and incontrovertibly that a further increase in CO2 concentration will lead to further warming. The magnitude of our emissions depends on human behavior, but the climatic response to various emissions scenarios can be computed from the information presented here. The result is the famous range of future global temperature sce- narios shown in figure 3-6.50 Two additional steps are involved in these computations: the consideration of anthropogenic forcings other than CO2 (for example, other greenhouse gases and aerosols) and the computation of concentrations from the emissions. Other gases are not discussed here, although they are important to get quantitatively accurate results. CO2 is the largest and most important forcing. Concerning concentrations, the scenarios shown basically assume that ocean and biosphere take up a similar share of our emitted CO2 as in the past. This could turn out to be an optimistic assumption; some models indicate the possibility of a positive feedback, with the biosphere turning into a carbon source rather than a sink under growing climatic stress.51 It is clear that even in the more optimistic of the shown (non-mitigation) scenarios, global temperature would rise by 2–3°C above its preindustrial level by the end of this century. Even for a paleo- climatologist like myself, this is an extraordinarily high temperature, which is very likely unprecedented in at least the past 100,000 years. As far as the data show, we would have to go back about 3 million years, to the Pliocene, for comparable temperatures. The rate of this warming (which is important for the ability of ecosystems to cope) is also highly unusual and unprecedented probably for an even longer time. The last major global warming trend occurred when the last great Ice Age ended between 15,000 and 10,000 years ago: this was a warming of about 5°C over 5,000 years, that is, a rate of only 0.1°C per century.52 The expected magnitude and rate of planetary warming is highly likely to come with major risks and impacts in terms of sea level rise (Pliocene sea level was 25–35 meters higher than now due to smaller Greenland and Antarctic ice sheets), extreme events (for example, hurricane activity is expected to increase in a warmer climate), and ecosystem loss.53 The second part of this paper examined the evidence for the current warming of the planet and discussed what is known about its causes. This part showed that global warming is already a measured and well-established fact, not a theory. Many different lines of evidence consistently show that most of the observed warming of the past fifty years was caused by human activity. **Above all**, this warming is exactly what would be expected given the anthropogenic rise in greenhouse gases, and no viable alternative explanation for this warming has been proposed in the scientific literature. Taken together, the very strong evidence, accumulated from **thousands of independent studies**, has over the past decades convinced virtually every climatologist around the world (many of whom were initially quite skeptical, including myself) that anthropogenic global warming is a reality with which we need to deal.

#### Warming is the largest risk of extinction

Deibel 7 (Terry L. Deibel, professor of IR at National War College, Foreign Affairs Strategy, “Conclusion: American Foreign Affairs Strategy Today Anthropogenic – caused by CO2”)

Finally, **there is one major existential threat** to American security (as well as prosperity) of a nonviolent nature, which, though far in the future, demands urgent action. **It is the threat of global warming to the stability of the climate upon which all earthly life depends**. Scientists worldwide have been observing the gathering of this threat for three decades now, **and what was once a mere possibility has passed through probability to near certainty.** Indeed **not one of more than 900 articles** **on climate change published in refereed scientific journals** from 1993 to 2003 doubted that anthropogenic warming is occurring. “In legitimate scientific circles,” writes Elizabeth Kolbert, “it is virtually **impossible to find evidence of disagreement** over the fundamentals of global warming.” Evidence from a vast international scientific monitoring effort accumulates almost weekly, as this sample of newspaper reports shows: an international panel predicts “brutal droughts, floods and violent storms across the planet over the next century”; climate change could “literally alter ocean currents, wipe away huge portions of Alpine Snowcaps and aid the spread of cholera and malaria”; “glaciers in the Antarctic and in Greenland are melting much faster than expected, and…worldwide, plants are blooming several days earlier than a decade ago”; “rising sea temperatures have been accompanied by a significant global increase in the most destructive hurricanes”; “NASA scientists have concluded from direct temperature measurements that 2005 was the hottest year on record, with 1998 a close second”; “Earth’s warming climate is estimated to contribute to more than 150,000 deaths and 5 million illnesses each year” as disease spreads; “widespread bleaching from Texas to Trinidad…killed broad swaths of corals” due to a 2-degree rise in sea temperatures. “The world is slowly disintegrating,” concluded Inuit hunter Noah Metuq, who lives 30 miles from the Arctic Circle. “They call it climate change…but we just call it breaking up.” From the founding of the first cities some 6,000 years ago until the beginning of the industrial revolution, carbon dioxide levels in the atmosphere remained relatively constant at about 280 parts per million (ppm). At present they are accelerating toward 400 ppm, and by 2050 they will reach 500 ppm, about double pre-industrial levels. Unfortunately, atmospheric CO2 lasts about a century, so there is no way immediately to reduce levels, only to slow their increase, we are thus in for significant global warming; the only debate is how much and how serous the effects will be. As the newspaper stories quoted above show, we are already experiencing the effects of 1-2 degree warming in more violent storms, spread of disease, mass die offs of plants and animals, species extinction, and threatened inundation of low-lying countries like the Pacific nation of Kiribati and the Netherlands at a warming of 5 degrees or less the Greenland and West Antarctic ice sheets could disintegrate, leading to a sea level of rise of 20 feet that would cover North Carolina’s outer banks, swamp the southern third of Florida, and inundate Manhattan up to the middle of Greenwich Village. Another catastrophic effect would be the collapse of the Atlantic thermohaline circulation that keeps the winter weather in Europe far warmer than its latitude would otherwise allow. Economist William Cline once estimated the damage to the United States alone from moderate levels of warming at 1-6 percent of GDP annually; severe warming could cost 13-26 percent of GDP. But **the most frightening scenario is runaway greenhouse warming, based on positive feedback from the buildup of water** **vapor** in the atmosphere that is both caused by and causes hotter surface temperatures. Past ice age transitions, associated with only 5-10 degree changes in average global temperatures, took place in just decades, even though no one was then pouring ever-increasing amounts of carbon into the atmosphere. Faced with this specter, the best one can conclude is that “humankind’s continuing enhancement of the natural greenhouse effect is akin to playing Russian roulette with the earth’s climate and humanity’s life support system. At worst, says physics professor Marty Hoffert of New York University, “we’re just going to burn everything up; we’re going to het the atmosphere to the temperature it was in the Cretaceous when there were crocodiles at the poles, and then everything will collapse.” During the Cold War, astronomer Carl Sagan popularized a theory of nuclear winter to describe how a thermonuclear war between the Untied States and the Soviet Union would not only destroy both countries but possible end life on this planet. **Global warming is the post-Cold War era’s equivalent of nuclear winter at least as serious and considerably better supported scientifically. Over the long run it puts dangers form terrorism and traditional military challenges to shame**. It is a threat not only to the security and prosperity to the United States, but potentially to the continued existence of life on this planet.

#### Curbing VMT is critical to stabilizing warming- prevents loss of species, displacement, famine, and disease Sperling and Cannon 8 (Daniel, Professor of Civil Engineering and Environmental Science and Policy, Director of the Institute of Transportation Studies at the University of California, Davis, Acting Director of the UC Davis Energy Efficiency Center, and James, Editor of Energy Futures, *Reducing Climate Impacts in the Transportation Sector*, Springer, December 8, 2008, pg. 118) PCS

Climate scientists now estimate that global carbon emissions must stabilize at about 70-80 percent below 1990 levels of CO2 equivalent emissions to keep global warming contained at about 2 degrees Centigrade above historic levels. Warming above this level stimulates unacceptable consequences, including the probable loss of over one-third of global species, sea level rise that displaces hundreds of millions of people, and increased disease and famine (IPCC, 2007). U.S. transportation CO2 emissions in 2006 were 26% above 1990 emissions. At a 1.9 percent annual VMT growth rate, VMT will increase from 2.99 trillion miles in 2005 to about seven trillion in 2055, or about 2.34 times today’s level (AASHTO, 2007a). Absent additional improvements in fuel and vehicle efficiency, that would put 2005 transportation CO2 emissions from surface transportation in 2055 93 percent above 1990 levels.

#### Only reducing vehicle miles traveled solves GHG emissions and in the transportation sector.**Bishins et al 11** (Allison, Project Manager, US Transport and Climate, EMBARQ at World Resources Institute, Nathan Sandwick, research analyst in the U.S. Transport and Climate Program at EMBARQ at The World Resources Institute Center for Sustainable Transport, and Radha Neelakantan, Transportation Program Specialist at ITS America, *The Role of Driving in Reducing GHG Emissions and Oil Consumption*, World Resources Institute, 2011, pg. 1, <http://pdf.wri.org/role_of_driving_in_reducing_ghg_emissions.pdf>) PCS

Transportation in the United States is at a critical juncture: Roads, bridges, transit, and rail are poorly maintained and underfunded, and the surface transportation reauthorization bill, with its expected performance management and financial reforms, has been delayed far beyond the original expiration date of September 2009. There is widespread recognition by citizens, politicians, and transportation advocates that the current transportation system is unsustainable, both from a fiscal perspective (due to declining gas tax revenues) and from an environmental perspective (due to greenhouse gas [GHG] emissions and other pollution). Transportation can play a pivotal role in the national response to the related challenges of climate change and oil dependence, as the transportation sector contributed 31 percent of U.S. GHG emissions in 2008 and 72 percent of U.S. oil consumption in 2009. In addition to concerns about the effects of climate change, the increasing costs of U.S. dependence on foreign oil—which totaled more than $500 billion in 2008, approximately 4 percent of the U.S. gross domestic product in that year—have refocused the efforts of some policymakers on reducing oil consumption. Given the benefits that will accrue to the U.S. economy from reducing oil consumption and GHG emissions, these are two key objectives that the transportation system should address. Most transportation experts agree that the U.S. needs to reduce vehicle miles traveled (VMT) per capita in order to reduce GHG emissions and oil consumption.

#### Reducing emissions in the transportation sector is key to solve warming

Ewing et al 7 (research professor at the National Center for Smart Growth, University of Maryland, associate editor of the Journal of the American Planning Association, Keith Bartholomew, assistant professor of urban planning in the University of Utah’s College of Architecture and Planning, Steve Winkelman, director of the Transportation Program at the Center for Clean Air Policy, Jerry Walters, chief technical officer with Fehr & Peers Associates, a California- based transportation planning and engineering firm, and Don Chen, founder and executive director of Smart Growth America, has worked for the Surface Transportation Policy Project and the World Resources Institute, *Growing Cooler: The Evidence on Urban Development and Climate Change*, The Urban Land Institute, 2007, <http://postcarboncities.net/files/SGA_GrowingCooler9-18-07small.pdf>) PCS

Scientific consensus now exists that greenhouse gas accumulations due to human activities are contributing to global warming with potentially catastrophic consequences (IPCC 2007). International and domestic climate policy discussions have gravitated toward the goal of limiting the temperature increase to 2°C to 3°C by cutting greenhouse gas emissions by 60 to 80 percent below 1990 levels by the year 2050. The primary greenhouse gas is carbon dioxide, and every gallon of gasoline burned produces about 20 pounds of CO2 emissions. The United States is the largest emitter worldwide of the greenhouses gases that cause global warming. Transportation accounts for a full third of CO2 emissions in the United States, and that share is growing as others shrink in comparison, rising from 31 percent in 1990 to 33 percent today. It is hard to envision a “solution” to the global warming crisis that does not involve slowing the growth of transportation CO2 emissions in the United States.

### Advantage Three: Sprawl

#### Status quo failure to accurately price road travel distorts metropolitan development, causing urban sprawl.

Langer and Winston 8 (Ashley and Clifford, Ashley Langer is a Professor of Public Policy and Economics at the University of Michigan and Clifford Winston is Senior Fellow in the Economic Studies Program at the Brookings Institution, *Brookings-Wharton Papers on Urban Affairs,*  “Toward a Comprehensive Assessment of Road Pricing Accounting for Land Use”, [http://muse.jhu.edu/journals/brookings-wharton\_papers\_on\_urban\_affairs/v2008/2008. langer.html](http://muse.jhu.edu/journals/brookings-wharton_papers_on_urban_affairs/v2008/2008.%20langer.html)) AH

Congestion on U.S. highways is a well-known social and economic problem that becomes progressively worse every year.1 Travel delays impose large costs, currently approaching some $40 billion annually, on motorists, truckers, and shippers.2 Economists have repeatedly attributed the problem to policymakers' failure to implement marginal cost congestion tolls to charge road users efficiently for their contribution to delays. By undercharging vehicles for using the nation's roadways, policymakers have also reduced the per-mile cost of commuting (including out-of-pocket and travel time costs) for most motorists and distorted the development of metropolitan areas by inducing households to live in more distant, lower-density locations, thereby contributing to urban sprawl. Precise definitions of sprawl and estimates of its costs are elusive, because it is difficult to characterize an optimal pattern of land use.3 At the same time, it is likely that households' decisions regarding residential location—while maximizing households' utility—have resulted in socially inefficient outcomes because they reduce economies of agglomeration.

#### Fortunately, this is reversible- **road pricing reverses urban sprawl - strengthens communities and protects the environment.**

Langer and Winston 8 (Ashley and Clifford, Ashley Langer is a Professor of Public Policy and Economics at the University of Michigan and Clifford Winston is Senior Fellow in the Economic Studies Program at the Brookings Institution, *Brookings-Wharton Papers on Urban Affairs* , “Toward a Comprehensive Assessment of Road Pricing Accounting for Land Use”, [http://muse.jhu.edu/journals/brookings-wharton\_papers\_on\_urban\_affairs/v2008/2008. langer.html](http://muse.jhu.edu/journals/brookings-wharton_papers_on_urban_affairs/v2008/2008.%20langer.html)) AH

We also point out that by improving land use, road pricing may produce additional social benefits that we have not been able to quantify. First, increasing density and decreasing entropy could promote social interactions and strengthen the bonds that underpin a healthy society.46 In particular, changes in land use could reduce the distance between poor and affluent residents and make it harder for the wealthy to ignore the problems of those less well off.47 Recall that in response to congestion pricing, we found that households that live in the most expensive homes in an MSA (and in many cases, that have the highest incomes) move from homes in the central city and subcenters that are basically within walking distance of work to neighborhoods that are between 5 and 45 minutes from work, while households that live more than 45 minutes from work move to neighborhoods that are less than 45 minutes from work. Overall, the city will become denser, indicating that poor and rich people will be living closer together. Second, reducing sprawl could enhance the protection of natural habitat at the urban boundary. Third, increasing density could encourage the use of vehicles that are more fuel efficient and that produce fewer emissions than vehicles used in less dense metropolitan environments.48 Finally, reducing congestion and sprawl weakens the ostensible rationale for policymakers to use inefficient policies to address these problems, such as zoning laws,49 urban growth boundaries,50 transit-oriented development,51 and various taxes and fees that are intended to raise money for transportation improvements.52 Similarly, with the recent interest in reducing carbon emissions in the United States, congestion pricing would reduce vehicle miles traveled for most households, thus decreasing the nation's vehicle emissions of all pollutants. By efficiently raising the price, on average, of urban travel, policymakers could potentially reduce the size of any future carbon taxes that might inefficiently seek to tax travel instead of taxing carbon emissions directly. Hopefully, policymakers would be less inclined to pursue inefficient approaches.

#### Sprawl is the leading cause of habitat destruction- causes extinction for thousands of species.

AP 5 (associated press -Groups: Urban sprawl threatens species - <http://www.msnbc.msn.com/id/6814251/ns/us_news-environment/t/groups-urban-sprawl-threatens-species/>) Date accessed 5-29-12 AJY

WASHINGTON — Urban sprawl is gobbling up open spaces in fast-growing metropolitan areas so quickly that it could spell extinction for nearly 1,200 species of plants and animals, environmental groups say. The National Wildlife Federation, Smart Growth America and NatureServe projected that over the next 25 years, more than 22,000 acres of natural resources and habitat will be lost to development in 35 of the largest and most rapidly growing metropolitan areas. According to the groups, as many as 553 of the nearly 1,200 at-risk species are found only in those areas. “The bottom line is that these species are at risk of extinction due to habitat destruction,” said John Kostyack, a National Wildlife Federation attorney and report co-author. “And in these metro areas, the leading cause of habitat destruction is sprawl — development of homes and office buildings and roads in outlying forests and farm fields.”

#### Species extinction is the greatest threat to human existence- it outweighs all other impacts, including warming.

Whitty 7 (Julia, environmental correspondent and writer and former documentary filmmaker and the author of Deep Blue Home: An Intimate Ecology of Our Wild Ocean, The Fragile Edge: Diving & Other Adventures in the South Pacific, “Animal Extinction - the greatest threat to mankind” excerpt from *The Fragile Edge: Diving and Other Adventures in the South Pacific*, reprinted at <http://www.independent.co.uk/environment/animal-extinction--the-greatest-threat-to-mankind-397939.html> on 05/07/07) VZ

The World Conservation Union's Red List - a database measuring the global status of Earth's 1.5 million scientifically named species - tells a haunting tale of unchecked, unaddressed, and accelerating biocide. When we hear of extinction, most of us think of the plight of the rhino, tiger, panda or blue whale. But these sad sagas are only small pieces of the extinction puzzle. The overall numbers are terrifying. Of the 40,168 species that the 10,000 scientists in the World Conservation Union have assessed, one in four mammals, one in eight birds, one in three amphibians, one in three conifers and other gymnosperms are at risk of extinction. The peril faced by other classes of organisms is less thoroughly analysed, but fully 40 per cent of the examined species of planet earth are in danger, including perhaps 51 per cent of reptiles, 52 per cent of insects, and 73 per cent of flowering plants. By the most conservative measure - based on the last century's recorded extinctions - the current rate of extinction is 100 times the background rate. But the eminent Harvard biologist Edward O Wilson, and other scientists, estimate that the true rate is more like 1,000 to 10,000 times the background rate. The actual annual sum is only an educated guess, because no scientist believes that the tally of life ends at the 1.5 million species already discovered; estimates range as high as 100 million species on earth, with 10 million as the median guess. Bracketed between best- and worst-case scenarios, then, somewhere between 2.7 and 270 species are erased from existence every day. Including today. We now understand that the majority of life on Earth has never been - and will never be - known to us. In a staggering forecast, Wilson predicts that our present course will lead to the extinction of half of all plant and animal species by 2100. You probably had no idea. Few do. A poll by the American Museum of Natural History finds that seven in 10 biologists believe that mass extinction poses a colossal threat to human existence, a more serious environmental problem than even its contributor, global warming; and that the dangers of mass extinction are woefully underestimated by almost everyone outside science. In the 200 years since French naturalist Georges Cuvier first floated the concept of extinction, after examining fossil bones and concluding "the existence of a world previous to ours, destroyed by some sort of catastrophe", we have only slowly recognised and attempted to correct our own catastrophic behaviour. Some nations move more slowly than others. In 1992, an international summit produced a treaty called the Convention on Biological Diversity that was subsequently ratified by 190 nations - all except the unlikely coalition of the United States, Iraq, the Vatican, Somalia, Andorra and Brunei. The European Union later called on the world to arrest the decline of species and ecosystems by 2010. Last year, worried biodiversity experts called for the establishment of a scientific body akin to the Intergovernmental Panel on Climate Change to provide a united voice on the extinction crisis and urge governments to action. Yet, despite these efforts, the Red List, updated every two years, continues to show metastatic growth. There are a few heartening examples of so-called Lazarus species lost and then found: the wollemi pine and the mahogany glider in Australia, the Jerdon's courser in India, the takahe in New Zealand, and, maybe, the ivory-billed woodpecker in the United States. But for virtually all others, the Red List is a dry country with little hope of rain, as species ratchet down the listings from secure to vulnerable, to endangered, to critically endangered, to extinct. All these disappearing species are part of a fragile membrane of organisms wrapped around the Earth so thinly, writes Wilson, that it "cannot be seen edgewise from a space shuttle, yet so internally complex that most species composing it remain undiscovered". We owe everything to this membrane of life. Literally everything. The air we breathe. The food we eat. The materials of our homes, clothes, books, computers, medicines. Goods and services that we can't even imagine we'll someday need will come from species we have yet to identify. The proverbial cure for cancer. The genetic fountain of youth. Immortality. Mortality. The living membrane we so recklessly destroy is existence itself.

### Observation Two: Solvency

#### We can begin phasing in a VMT based system now- the Oregon trial demonstrates the concept is feasible and privacy can be protected, but Congress must act to create a national architecture and expand current trials.

Wachs 9 (Martin, director of the Transportation, Space, and Technology Program at the RAND Corporation, Issues in Science and Technology, Summer, http://www.issues.org/25.4/wachs.html)

Motor fuel taxes can continue to provide a great deal of needed revenue for a decade or two. But several types of more efficient, and more equitable, user charges are ready to be phased in. For example, current technology will enable government agencies to institute vehicle miles traveled (VMT) charges as flat per-mile fees. Gradually, agencies could charge higher rates on some roads and lower rates on others to reflect more accurately than do fuel taxes the costs of providing facilities over different terrain or of different quality. This would end cross subsidies of some travelers by others and make travel more efficient by encouraging the use of less congested roads. Unlike gasoline taxes, more direct road user charges also could vary with time of day, encouraging some travelers to make a larger proportion of their trips outside of peak periods, easing rush hour traffic. In the short term, direct user fees could simply replace fuel taxes in a revenue-neutral switch, but they are attractive, in part, because they can become more lucrative as travel increases, while allowing charges to be distributed more fairly among road users. Initially, some vehicle operators might be allowed to continuing paying motor fuel taxes rather than the newer direct charges, but eventually gas and diesel taxes would be phased out. Several countries in Europe already are electronically charging trucks directly for miles they drive on major highways, and the Netherlands intends to expand its program to passenger cars. In the United States, Oregon and the Puget Sound Regional Council in the Seattle area have conducted operational trials demonstrating the feasibility of VMT fees, and the University of Iowa is carrying out six additional trials in other parts of the country. The results of these trials are quite encouraging, but questions remain, including questions about optimal technologies. One thing is clear: Innovation is afoot. In the Oregon trial, for example, a clever innovation allowed drivers of vehicles equipped for the trial program to "cancel" their ordinary fuel taxes when filling up their tanks at service stations and to instead charge VMT fees as part of the bill. This enabled participating and nonparticipating vehicles to function in similar ways. The most sophisticated trial systems make use of vehicles that are equipped with global positioning system (GPS) satellite receivers and digital maps that enable charges to be varied across political boundaries, by route, and by time of day. But GPS signals are not always available, and these systems also incorporate redundant means for metering mileage. For example, they may have a connection to the vehicle odometer or a link to an onboard diagnostic port that has been included in cars manufactured since 1996 to comply with environmental regulations. None of these systems is perfect, all have implementation costs, and not every vehicle is yet equipped to accommodate each device. It also is clear that any technological innovation affecting hundreds of millions of vehicles is bound to be complicated by many social and political concerns. Indeed, one of the greatest barriers to the implementation of VMT fees may well be the widespread perception that this approach constitutes an invasion of privacy. It is not yet apparent that metering road use is any more threatening to privacy than using cell phones to communicate, but there is genuine concern that somehow the government will be able to track the travel of each citizen without his or her knowledge. Most technology and policy experts agree, however, that these systems can be structured so that privacy is maintained--for example, by maintaining records in individual vehicles rather than in a central repository and by erasing them after payments are made. It also is possible that many motorists would prefer to forgo privacy protection in order to have access to detailed bills showing each and every trip so that they can audit their charges to be sure they are paying for trips they actually made. Such issues will need to be addressed sooner rather than later in a reasoned public discussion. For its part, Congress, as it debates the new transportation bill, should consider alternative paths that can be followed in order to ease the adoption of direct user fees. Of course, Congress could still reject such a transition and instead simply raise motor fuel taxes to provide needed revenue. Or in a less likely move, it could commit the nation to funding an increasing portion of its road and transit bills from general revenues. But the hope in many quarters is that Congress will accept the opportunity and begin specifying the architecture of a national system of direct user charges. This early effort could address a number of questions, such as whether there should be a central billing authority, whether travelers should be able to charge their road use fees to their credit cards, and whether drivers should pay VMT fees each time they fill up the tank or pay them periodically, as with vehicle registration fees. Congress also should consider expanding the current trials in various locations to demonstrate some technology options on a much larger scale. Even better, it should complement such efforts by putting an early system into actual application on a voluntary or limited basis. For numerous reasons, then, the time is near for Congress to act, and for citizens to ensure that it does. The debate that is about to begin will indicate whether the nation's system of governance has the ability to make complex technological choices that are both cost-effective and just.

#### A VMT fee gets the incentives right- it provides sustainable revenues for highway construction and maintenance and appropriately prices negative externalities of driving.

Mineta and Skinner, both former Secretaries of Transportation, 10 (Norman Y. Mineta and Samuel K. Skinner, Well Within Reach America’s New Transportation Agenda, <http://web1.millercenter.org/conferences/report/conf_2009_transportation.pdf>) Azimi

The Interstate Highway System was built with the premise that users of roadways would pay for them. As originally conceived, the Highway Trust Fund (HTF) achieved this linkage by using a fuel tax to generate revenues for highway construction and maintenance. This made sense as long as fuel use was closely aligned with road use and as long as the revenues raised by the fuel tax were adequate to meet highway funding needs. Increasingly, however, that is no longer the case. The level of the fuel tax has not kept pace with funding needs, and the overall funding gap can be expected to grow as the average fuel economy of the American vehicle fleet improves. To cover the shortfall, Congress has had to divert general funds to the HTF, exacerbating the overall federal budget deficit. Many proponents of transportation reform have concluded that the best approach to ensure adequate funding and re-align incentives for road use is to return to a pay-as you go system. This means taxing road use (instead of fuel consumption) via a vehicle miles traveled (VMT) tax. As discussed at greater length in subsequent sections, the technology exists to implement such a tax in ways that also address privacy and regional equity concerns. Moreover, a VMT-based system could be designed to advance other public policy goals, such as incentivizing travel at different times of day or differentiating among types of vehicles based on their emissions performance or the amount of wear they impose on highways. In short, the technology exists to design funding mechanisms that are not only more rational, but that also create the market signals needed to address important transportation externalities.

#### VMT returns us to a sustainable user-pays model- a fee of just 2 cents per mile is sufficient to maintain infrastructure investment over the long term.

Mineta and Skinner, former Secretaries of Transportation, 10 (Norman Y. Mineta and Samuel K. Skinner, Well Within Reach America’s New Transportation Agenda, <http://web1.millercenter.org/conferences/report/conf_2009_transportation.pdf>) Azimi

There is a broad consensus that federal highway maintenance and investment needs should continue to be funded through a user-pay system. However, for the reasons discussed above, new and more sustainable user-based revenue-raising mechanisms are needed. Implementing and fine-tuning such mechanisms must be undertaken gradually to allow ample time for research and development, building public and stakeholder support, and refining the necessary technology. Congress should adopt legislation laying out a clear plan for transitioning, over the next decade, from the per-gallon fuel tax to a highway-use fee based on vehicle-miles traveled (VMT). This approach would restore the original intent of the HTF: that users fund the transportation system in proportion to their use of it. In addition, VMT fees could generate significant revenues. A fee of just one penny per mile would equal the revenue currently collected by the fuel tax; a fee of two cents per mile would generate the revenue necessary to support an appropriate level of investment over the long term. Because of these two features, many policy analysts view the VMT fee as a clear first choice compared to other new highway funding mechanisms that have been proposed or considered.

#### **VMT fees effectively prices sprawl and emissions, incentivizing better land use and eliminating unnecessary driving.**

Harischandra et al 11(Kumi Harischandra  Research Economist in the Fraser Institute's Fiscal Studies Department, Justine Isola Master's student at Stanford University studying international security and cooperation, Lazeena Rahman Graduate Student at Stanford Institute for Economic Policy Research , and Anthony Suen Stanford Institute for Economic Policy Research “A Tax that’s Run Out of Gas” pg. 1-2 <http://ips.stanford.edu/sites/default/files/shared/OpEd_Carnegie.pdf> March 2011) ZLH

Moving beyond gas taxes will not mean abandoning the environment or energy independence. Charging drivers for being on the road would discourage unnecessary trips and reduce the number of hours Americans spend in their cars idling in traffic, exacerbating our carbon footprint and sending currency to Saudi Arabia and Venezuela. VMT fees put a tangible price on our inefficient urban sprawl, which will help incentivize better urban design and public transit options. Like the gas tax, a VMT will still target diverse goals, but in line with the core objectives of the bipartisan fiscal commission, it will also help us avoid a transportation system headed for insolvency.

#### The VMT fee can be structured with appropriate cross-subsidies to offset any regressive impact, create incentives for fuel efficiency, and decrease congestion.

National Surface Transportation Infrastructure Financing Commission 9, (Chaired by Robert Atkinson, President of the Information Technology and Innovation Foundation, “ Paying Our Way: A New Framework for Transportation Infrastructure”, February, <http://financecommission.dot.gov/Documents/NSTIF_Commission_Final_Report_Advance%20Copy_Feb09.pdf>) DMD

A federal funding system based on more direct forms of “user pay” charges, in the form of a charge for each mile driven (commonly referred to as a vehicle miles traveled or Vmt fee system), has emerged as the consensus choice for the future. The Commission cast a wide net, reviewed many funding alternatives, and concluded that indeed the most viable approach to efficiently fund federal investment in surface transportation in the medium to long run will be a user charge system based more directly on miles driven (and potentially on factors such as time of day, type of road, and vehicle weight and fuel economy) rather than indirectly on fuel consumed. At the same time, this choice for the federal system provides a foundation for state and local governments that choose to use it to develop their own mileage-based systems that piggyback on the federal system in order to raise their share of needed revenues in ways that spur more efficient use of the system. The Commission believes that such a system can and should be designed in ways that protect users’ privacy and civil liberties, that incorporate any necessary cross-subsidies (for instance, to benefit the national network or to meet social equity objectives), that do not interfere with interstate commerce, and that support goals for carbon reduction. Moreover, greater use of pricing mechanisms, including both targeted tolling and broadbased VMT pricing systems, may spur more efficient use of our highway network and, by shifting demand to less congested periods of the day or to other modes, may in turn enable more efficient investment, thus reducing the additional capacity that needs to be built.

# Inherency

### Cravaack Amendment

#### An amendment to the recent transportation bill explicitly prevents the federal government from even exploring the idea of a VMT fee.

Kasperowicz 12 (Pete, “House puts brakes on taxing cars by the mile”, The Hill, 6/27,

<http://thehill.com/blogs/floor-action/house/235261-house-slams-the-door-on-taxing-cars-by-the-mile>)

**The House has approved an amendment that would prevent the Secretary of Transportation from exploring raising new highway revenues by taxing cars for each mile they drive.** Members are considering the 2013 spending bill for the Transportation Department and other agencies, and late Wednesday, they accepted **an amendment from Rep. Chip Cravaack** (R-Minn.) that **would block any money in the bill from being used to explore a so-called Vehicle Miles Traveled (VMT) tax system.** The House approved the language by voice vote. "There is an important need to come up with new, better ideas on how to appropriately fund our highway trust fund system," Cravaack said. "However, I'm here to tell you today that the concept of using a Vehicle Miles Traveled fee system is not one of those better ideas." Cravaack said such a system would hurt rural drivers, cost a lot to implement, since it would require devices in each car to track how many miles have been driven, and could impinge on privacy rights. "The potential for privacy abuses is a hazard waiting to happen. Government databases have already been compromised in the past, and this government system would be no exception," Cravaack said. Rep. Tom Latham (R-Iowa) said he supported the language, in part because the **Obama administration's Transportation Department** said two years ago that it **would not explore a VMT system**. "So I don't see why the Secretary would need to do research or any kind of means of implementation if in fact they so strongly oppose this type of taxation," he said. Nonetheless, draft legislation from the administration surfaced last year that included detailed plans for exploring such a system. That draft bill called for a "study framework" for a pilot VMT project, as well as a communications plan for explaining the system to the nation's drivers. The draft bill also funded the VMT project for a total of $300 million through 2017. Pressure has been building on the federal government to find new ways to raise highway revenue, as more fuel-efficient cars have led to reduced tax revenues. On Wednesday night, Rep. John Olver (D-Mass.) said he opposes Cravaack's amendment because it would prevent the government from exploring a VMT option. "The amendment is unfortunate, because we're probably going to have to use different kinds of money-raising mechanism in different parts of the country, and **this one makes it even not possible for the administration to think about using a vehicle miles tax, even in the major urban areas of the country," Olver said.**

### State VMT Inevitable

#### State wide VMT tax is inevitable

Copeland and Overberg 12

(Larry and Paul, Staff Writers of USA today, “States explore new ways to tax motorists for road repair” June 8th 2012, Lexis) ZLH

Among the leading ideas: Taxing drivers for how many miles they travel rather than how much gasoline they buy. Minnesota and Oregon already are testing technology to keep track of mileage. Other states, including Washington and Nevada, are preparing similar projects. The efforts are being prompted by the fact that gasoline taxes no longer provide enough money to pay for roads and bridges especially when Congress and many state legislatures are reluctant to increase taxes imposed on each gallon. The federal tax of 18.4 cents a gallon hasn t been raised in nearly two decades. More than half the states have not raised their gas tax this millennium. Fuel-efficiency also is behind the efforts. Electric-powered vehicles are growing in numbers. In 2009, President Obama set the nation s most aggressive fuel-efficiency standards for new vehicles, ordering a 40% increase by 2016. As the (national vehicle) fleet becomes more fuel efficient we re going to lose a lot of revenue from the gas tax. If it s not replaced, we re going to see our transportation infrastructure deteriorate, says Joshua Schank, president of the non-partisan Eno Center for Transportation in Washington, D.C. He expects to see a state vehicle miles-traveled (VMT) tax within the next five to 10 years.

#### **States are looking to implement VMT**

Handley 12

(Meg, Writer for USNEWS.com, “Eco-Friendly Vehicles Draining State Road Repair Budges”, June 7th 2012, Lexis) ZLH

A Toyota Prius may save drivers serious cash when it comes to fill-ups at the gas station, but those same fuel-efficient cars are gutting state transportation budgets and leaving infrastructure and maintenance projects hanging in the balance. Now several states, which heavily rely on gas taxes to fund transportation infrastructure projects, are looking for other ways to fund road repair projects, and it could mean the government is about to get a little nosier about your driving habits. Some policymakers are toying around with the idea of taxing drivers based on the number of miles they travel as opposed to how much gas they use--a vehicle miles traveled or "VMT" tax. How the state will collect this information is still up in the air, with Oregon's Department of Transportation currently trying to come up with a solution.

#### VMT is inevitable

Copeland 12

(Larry, Writer for the USA Today, “Gas tax not filling enough; Federal funding method no longer suffices as main source for highways, bridges, transit”, February 24th 2012, Lexis) ZLH

Many transportation experts see a vehicle miles traveled (VMT) tax as the likeliest alternative or complement to the gas tax. "Some kind of VMTtax ... is almost inevitable," says David Goldberg of Transportation for America, a coalition of businesses, unions and non-profit organizations. "I would say within 10 years. The technology is getting better and better. The impetus for it is getting much stronger."

#### **A vehicle miles fee is inevitable**

Hawley 10 (Steve, staff writer at Houston Tomorrow, “Gas tax no longer sustainable?” <http://www.houstontomorrow.org/livability/story/many-experts-think-vehicle-miles-traveled-fee-is-inevitable/>, 02/10/10) VZ

The United States may implement a vehicle miles fee within a few years to pay for transportation projects, according to the Washington Post. According to the article, many transportation experts believe a transition from a fuel tax to a vehicle miles fee is inevitable. It notes: The flow of the gas tax pipeline that has poured cash into one of the world’s premier highway systems has slowed as some people drive less and others choose more fuel-efficient vehicles. Maintaining that aging network and tackling the rush-hour congestion afflicting most cities will require billions of dollars. As gas tax revenue dwindles, federal and state lawmakers have an option created by innovative new technology: charge the nation’s 201 million drivers for every mile they travel. That prospect was raised last year by a congressional commission, a Brookings Institution report and a highly regarded nonpartisan transportation research group. In 2008, then-U.S. Transportation Secretary Mary E. Peters warned a Senate subcommittee that the “fuel tax is unsustainable in the future.” However, the article reports that it may be harder to gain public acceptance of a vehicle miles fee. Some drivers fear the technology - which would most likely involve the use of GPS locators on every car - would invade their privacy, while others view it as another unnecessary tax. The federal gas tax has been set at 18.4 cents per gallon since 1993, while states also charge anywhere between 8 cents and 46.6 cents. The gas tax is not indexed to inflation. The average American pays 46.9 cents in taxes per gallon of gas, according to the Post. The article states that if gas consumption drops 20 percent by 2017, as proposed by President George W. Bush, gas tax revenues could fall even further as more people switch to electric and hybrid cars. One study estimates that hybrids will account for 30 percent of all car sales within two years and 75 percent of all sales within 15 years. Last year, Congress had to approve a $7 billion patch to prevent the Highway Trust Fund - which is financed by the gas tax - from running out of money a month and a half early. At the same time, many of the country’s roads are at least 40 or 50 years old and in need of serious repairs. Earlier in the year, US Rep. James Oberstar, who chairs the House Transportation Committee, proposed adding a vehicle miles fee to the upcoming federal transportation bill. Congress is expected to pass a new transportation bill by the end of the year, although it is unclear that the bill would actually include a vehicle miles fee. Separately, the Texas Department of Transportation has commissioned a study regarding the feasibility of a statewide vehicle miles traveled fee.

#### VMT tax is the likeliest replacement to the gas tax

Copeland 2/24 (Larry, staff writer at USA Today, “Gas tax falling short in paying for transportation needs” [http://www.usatoday.com/news/nation/story/2012-02-07/gas-tax-not-enough-to-fund-roads/53228510/1 02/24/12](http://www.usatoday.com/news/nation/story/2012-02-07/gas-tax-not-enough-to-fund-roads/53228510/1%2002/24/12)) VZ

Transportation funding. Wait! Don't turn away. This is important — if you drive or ride in an automobile, if you commute by bus, rail or bicycle, or if your loved ones do. The USA is at a critical juncture in how it pays for roads, bridges and transit. That's because the federal tax on gasoline, the primary method since 1956, has lost one-third of its buying power since it was last raised in 1993. States add their own tax on top of that, but the federal tax accounts for about 45%-50% of capital spending for transportation. The federal gas tax — 18.4 cents a gallon for gasoline, 24.4 cents for diesel — is growing anemic because of more fuel-efficient vehicles, Americans driving fewer miles and the growth of electric and alternative-fuel vehicles. The tax rate on gasohol and most other special fuels is much less. "It no longer works as our primary source," says Jim Burnley, a Washington, D.C., transportation attorney who was Transportation secretary for President Reagan. "We're going to have to figure out, as a country, other mechanisms." Burnley says transportation bills now being debated in Congress — a five-year, $253 billion version in the House of Representatives, a two-year, $109 billion version in the Senate — likely will be among the last to rely primarily on the gas tax. Each 1-cent increase in the federal gas tax generates about $1.8 billion in revenue, says Joseph Giglio, a professor at Northeastern University who has written extensively about transportation financing. Grover Norquist, a prominent tax foe and president of Americans for Tax Reform, says the federal gas tax should be reduced "to near zero" and the states should determine how to build and repair roads and bridges within their borders, even interstate highways. "If a state wants to widen or repair or build a bridge, how in the world is that a federal responsibility?" he says. "Within 10 years, there won't be a federal gas tax. There'll be 50 state gas taxes paying for highways at the state level." Proposed alternatives: •Taxing miles driven. What if drivers were taxed not on how much gasoline or diesel they purchased but on how many miles they drove? Many transportation experts see a vehicle miles traveled (VMT) tax as the likeliest alternative or complement to the gas tax. "Some kind of VMT tax … is almost inevitable," says David Goldberg of Transportation for America, a coalition of businesses, unions and non-profit organizations. "I would say within 10 years. The technology is getting better and better. The impetus for it is getting much stronger." A VMT tax most likely would use GPS devices to track how much and where vehicles drove, potentially raising privacy concerns. The growing popularity of smartphones capable of tracking users' movements might lessen that concern for many, says Jack Finn, senior vice president and national director of toll services for HNTB, a national engineering, planning and construction firm based in Kansas City, Mo. However, it's difficult to gauge the political viability of a VMT tax: The Obama administration and Rep. John Mica, R-Fla., chairman of the House Transportation and Infrastructure Committee, have been nearly as loath to support it as they are to increasing the gas tax. A federal VMT tax is "highly unrealistic," says Joshua Schank, president of the Eno Center for Transportation, a non-partisan think tank in Washington, D.C. But he says such taxes are likely at the state level in coming years. Norquist also says a VMT tax is more workable by states. •State and local governments paying more costs. As the economy improves, the future transportation funding mix likely will include a bigger contribution from local entities, Goldberg says. •More tolls. While it's often controversial, more communities are turning to tolling. Few experts expect tolling to become the sole method to finance roads and transit, but many see it playing a larger role. "I can see tolls supplementing the gas tax," Finn says. Expanded tolling has many detractors. "I think tolling is a cop-out," says Greg Cohen, who heads the Highway Users Alliance, a non-profit coalition of highway supporters, AAA auto clubs, bus companies, farm bureaus and shopping centers. "Part of what makes America work is we have an interstate system and it's a toll-free system that really brings our country together." •Tying the gas tax to inflation. Cohen says the federal gas tax would be more effective if it increased at the rate of inflation. He acknowledges that's a long shot. "It would be viewed initially as a tax increase," he says. "Right now, no one wants to do that." •Using general tax revenue instead of a gas tax. Schank says the USA could follow the lead of Germany and other industrialized nations that do this. "We're already moving in that direction," he says, noting that Congress has tapped general revenue to cover shortfalls from the gas tax. •A sales tax dedicated to transportation. Finn says that's unlikely in the current anti-tax climate.

#### States are already working on implementing a VMT tax- Minnesota, Washington, Nevada, and Oregon prove state tax within 10 years

Copeland and Overberg 12 (Larry, National Correspondent at USA Today, and Paul, database editor, Urban and Demographic Journalist at USA Today, *“States Explore New Ways to Tax Motorists for Road Repair,”* USA Today, June 5, 2012, <http://www.usatoday.com/news/nation/story/2012-06-03/states-motorist-taxes/55367022/1>) PCS

States are looking for new ways of taxing motorists as they seek to pay for highway and bridge repair and improvements without relying on the per-gallon gasoline tax widely viewed as all but obsolete. Among the leading ideas: Taxing drivers for how many miles they travel rather than how much gasoline they buy. Minnesota and Oregon already are testing technology to keep track of mileage. Other states, including Washington and Nevada, are preparing similar projects. The efforts are being prompted by the fact that gasoline taxes no longer provide enough money to pay for roads and bridges — especially when Congress and many state legislatures are reluctant to increase taxes imposed on each gallon. The federal tax of 18.4 cents a gallon hasn't been raised in nearly two decades. More than half the states have not raised their gas tax this millennium. Fuel-efficiency also is behind the efforts. Electric-powered vehicles are growing in numbers. In 2009, President Obama set the nation's most aggressive fuel-efficiency standards for new vehicles, ordering a 40% increase by 2016. "As the (national vehicle) fleet becomes more fuel efficient … we're going to lose a lot of revenue from the gas tax. If it's not replaced, we're going to see our transportation infrastructure deteriorate," says Joshua Schank, president of the non-partisan Eno Center for Transportation in Washington, D.C. He expects to see a state vehicle miles-traveled (VMT) tax within the next five to 10 years. "We're seeing a lot of interest in VMT as one of the potential solutions to transportation funding gaps that states are dealing with," says Jaime Rall, senior policy specialist at the National Conference of State Legislatures.

#### States are beginning to search for new alternatives to the gas tax- legislation in Oregon can be expected by 2013

Handley 12 (Meg, business reporter for US News and World Reports, *“Eco-Friendly Vehicles Drain State Road Repair Budgets,”* US News, June 7, 2012, <http://www.usnews.com/news/articles/2012/06/07/eco-friendly-vehicles-draining-state-road-repair-budgets>) PCS

A new incarnation of the pilot program set to launch this fall eliminates any "government box" installed on vehicles, Whitty says. The program will instead rely on information culled from in-car navigation systems and other driver assistance systems, such as OnStar and SYNC. The state is also experimenting with some lower-tech options, such as allowing motorists to report data through their mobile phones or having drivers prepay for the miles they drive. "The gas tax is dying a slow death with these highly fuel efficient vehicles coming into the marketplace that don't pay any gas tax or hardly any gas tax, [the flat gas tax] just will not survive," Whitty says. "That's being recognized by almost everybody." According to the Institute on Taxation and Economic Policy, states have seen revenue from gas taxes plummet a combined $10 billion a year thanks to a combination of factors, including the increased fuel efficiency of today's vehicles. But simply raising the gas tax isn't a sustainable long-term option, says Jaime Rall, who covers transportation infrastructure issues for the National Conference of State Legislatures. "Our current reliance on the gas tax, because there are the alternative fuel vehicles, increasing fuel efficiency—long term, there are concerns about its sustainability," she says. States' transportation infrastructure budgets have been hurting before the boom of fuel-efficient cars, so finding alternative revenue sources isn't so much a question of when but how. Everything from simply checking a vehicle's odometer to installing a transponder has been explored, each with their benefits and drawbacks. Higher-tech methods have more flexibility in pricing, Rall says. "A higher-tech [method] could have a transponder in your vehicle allowing for more flexible pricing on where you're driving and when you're driving," she says. "For example, you could be charged more for driving on a highway during rush hour, which could encourage people to use the system more efficiently." The trade-off can be a driver's privacy. Unsurprisingly, most drivers favor lower tech options that don't give the government access to information about their whereabouts, Rall says. In the meantime, Whitty and the Oregon Department of Transportation are gearing up to launch their second VMT tax pilot program this fall. The three-month trial includes participants in policymaking positions, "to show [them] the rudiments of a new system…so that they can experience it and success will be if they find that system is simple and easy to use," Whitty says. "That's what we're shooting for." If all goes as planned, legislation to institute a VMT tax in Oregon could appear in 2013, but drivers shouldn't expect full adoption right away. Phasing the plan will take at least a couple of years, Whitty says.

#### Colorado, Texas, and Minnesota are already testing VMT- other states are on board as well

Opiola and Goodin 11 (Jack, Senior Vice President at D’Artagnan Consulting, a partnership specializing in transportation policy and Road User Charging, and Ginger, Senior Research Engineer at the Texas Transportation Institute at Texas A&M, *“Progress and Development of VMT,”* International Bridge, Tunnel, and Turnpike Association, May 17, 2011, pg. 2, <http://www.ibtta.org/files/PDFs/02%20General%20Session%201%20-%20Progress%20and%20Development%20of%20VMT.pdf>) PCS

Based on the feedback from motorists, Goodin’s research group suggested that the Texas Department of Transportation start with an implementation of mileage fees on electric vehicles, including a supplemental opt‐in system, as a first step toward a broad‐scale implementation of VMT fees. Out of that recommendation grew TX House Bill 1669, relating to the establishment by the Texas Department of Motor Vehicles of a motor vehicle mileage fee pilot program for certain motor vehicles. Although the bill was passed by the House Transportation Committee, currently it appears the legislation will not move forward, Goodin said. Even so, she believes that action is happening at the state level in various parts of the country. “The states themselves have their own state fuel tax, and they very clearly see the trends in terms of long‐term sustainability,” which provides an incentive for them to do some testing, Goodin noted. She believes a forthcoming pilot project in Minnesota will propel things forward. Colorado also is looking to implement a VMT fee pilot study, which was first suggested in a 2007 report to the Colorado Blue Ribbon Panel on Transportation Finance, Peggy Catlin said. At the time, the state’s political leaders thought it was too politically risky, but today the public and elected officials are more willing to try some of these ideas.

#### There is growing support for VMTs among states like Oregon, Minnesota, California, Nevada, and New York

Opiola and Goodin 11 (Jack, Senior Vice President at D’Artagnan Consulting, a partnership specializing in transportation policy and Road User Charging, and Ginger, Senior Research Engineer at the Texas Transportation Institute at Texas A&M, *“Progress and Development of VMT,”* International Bridge, Tunnel, and Turnpike Association, May 17, 2011, pg. 4, <http://www.ibtta.org/files/PDFs/02%20General%20Session%201%20-%20Progress%20and%20Development%20of%20VMT.pdf>) PCS

Sorensen described the second of two landmark VMT studies conducted by RAND Corporation, which focused on determining which types of implementation trials to fund on a national scale. He noted that VMT fees are very promising for their ability to provide more sustainable revenue, reduce traffic congestion, and provide a range of other services in the vehicle for motorists. Researchers found that stakeholders and subject matter experts shared many opinions in some areas related to VMT fees, and in other areas had very divergent opinions, stemming from underlying views of how the implementation might actually unfold. One difference of opinion is whether to develop from the beginning a national system that states could join, or to promote early adoption on the part of interested states and subsequently develop a national system. A second difference of opinion centered on whether a process of transitioning should be based on a mandatory enrollment, or whether there should be an open‐ended voluntary adoption period with an incentive to adopt devices that are used to track VMT fees because they would have other useful features. In general, said Sorensen, members thought it would be helpful to have trials in four to six states for geographic diversity, that the trials should look at VMT fees for both cars and trucks, and that funding be provided for trials. Study participants also agreed that trials should have between 50,000 and 100,000 participants to address the technical feasibility and cost issues that would become apparent at that scale. Trials of this scope and scale would cost a few hundred million dollars, noted Sorensen, and the question of whether they would be federally funded remains open. An increasing number of states are interested in developing trial proposals, and there appears to be a fair degree of bipartisan Congressional support. Ed Regan updated participants on the work of the Mileage‐Based User Fee Alliance (MBUFA), of which IBTTA is a member. The Alliance also includes Department of Transportation representatives from Oregon, Minnesota, California, Nevada, and New York City, as well as a handful of private entities. The membership is an indication that many states are concerned about the unsustainability of the gasoline tax as a major source of revenue, and that there is growing support for VMT fees being used in lieu of the gas tax.

#### Oregon, Colorado, Nevada, Texas, Idaho and Massachusetts have all tested VMT fees as a necessary solution to the need for transport funding

Popwell 11 (Noel, Principal of Gold Reef Data Solutions, Master of Public Administration from the American University, *“As Washington Drags its Feet, States Take the Lead on Mileage Fees,”* December 5, 2011, <http://dc.streetsblog.org/2011/12/05/as-washington-drags-its-feet-states-take-the-lead-on-mileage-fees/>) PCS

For many states, VMT fees may be just what the doctor ordered. While the prospect of a mileage-based system has led some to argue that the GPS technology needed to make it work optimally is an invasion of privacy, there is a growing consensus that it is a much more sustainable option for transportation funding. Earlier this year, the Congressional Budget Office issued a report stating that the VMT fee system is a feasible transportation funding option and would result in a more efficient use of the highway system. This follows several earlier reports, including from two federal transportation financing commissions, recommending that the federal gas tax be gradually replaced with VMT fees [PDF]. In the past decade, about two dozen states have examined the feasibility of such a system. Here are some of the more noteworthy initiatives: Oregon: Having learned valuable lessons from its original VMT pilot program in 2007, Oregon transportation officials redesigned the ways that vehicle mileage is recorded and fees are collected in a Phase II pilot program this year. Instead of a pay-at-the-pump concept, the state’s Road User Fee Task Force proposed legislation (HB 2328) based on an “open technology” platform applied only to drivers of electric and plug-in hybrid vehicles. The original pilot program exposed design shortcomings and significant public opposition to the mandatory use of GPS technology to track vehicle miles traveled, so the new proposal would give Oregon’s DOT the flexibility to establish multiple methods for reporting VMT. An “opt-in” feature would allow drivers to choose the method by which they report their mileage and pay their fees. The revised concept also envisions a larger role for the private sector in the data collection and management of accounts. Colorado: In 2007, a blue-ribbon commission exploring alternatives to the gas tax recommended that a pilot program be established to test the feasibility of implementing VMT fees, and that pilot is now underway. Some legislators are also considering introducing bills to require that only electric cars pay the fee, at least in the beginning. A final report is due in May 2012. Minnesota: In May of this year, Minnesota began a pilot program in which a group of 500 drivers from two counties are asked to test VMT collection technology. The participants will use smart phones and GPS technology to submit information that MNDOT will use to evaluate whether travel data is being recorded and conveyed accurately and reliably. The test will also examine whether other applications — such as real-time traffic alerts on construction zones, crashes, congestion, and road hazards — are effective in communicating safety messages to motorists. Three different groups of volunteers will test the devices for six months each. Nevada: Last year, Nevada also completed a feasibility study, which noted that it could take a decade or more to fully phase in a VMT fee program and that public acceptance will be critical to its success. Nevada hopes to eventually replace the gas tax as a funding source for surface transportation. Idaho: A transportation task force, appointed by the governor to address a growing gap between the state’s transportation system needs and available revenues, proposed a list of options including mileage-based user fees. The formula used to allocate funds to local jurisdictions would be adjusted consistent with user-pay principles. Texas: Research on VMT fees has been ongoing in Texas since 2007. This year, state legislators introduced a bill (HB 1669) that would have developed a pilot program in response to a state-authorized Texas Transportation Institute study [PDF] calling for a mileage-based system. Although the bill failed to make it out of the House Transportation Committee, there is a strong possibility that it will come up again in the future. Hawaii: A bill, SB 819, was introduced this year but failed to pass. It would have established a pilot program in the state and authorized refunds of motor vehicle fuel taxes paid to participants. Massachusetts: A bill similar to Hawaii’s (HB 2660) is pending, which would create a pilot program to study the challenges of adopting a VMT fee. Multi-state: Perhaps the most intriguing of all the state trials is the federally-funded, multi-state VMT field test by the University of Iowa. Six sites were chosen: Austin, Texas; Baltimore, Maryland; Boise, Idaho; Eastern Iowa; and the Research Triangle, North Carolina. While the final report is currently being reviewed by the U.S. Department of Transportation and its findings have not yet been made public, it’s the most geographically broad test to date and could be the most significant in showing whether the system would work on a nationwide scale.

#### Oregon, Washington, Ohio, Pennsylvania, Florida, Texas, and California are already moving towards a VMT tax

Roth 9 (Matthew, worked for Transportation Alternatives as Director of the NYC Streets Renaissance Campaign, writer and journalist, “*California Could Start Requiring Drivers to Report VMT,”* March 30, 2009, <http://sf.streetsblog.org/2009/03/30/california-is-setting-the-stage-for-a-tax-on-vehicle-miles-traveled/>) PCS

When USDOT Secretary Ray LaHood last month suggested that the country should consider replacing the gas tax with a tax on vehicle miles traveled (VMT) to compensate for the dwindling Highway Trust Fund, which is primarily supported from gas taxes, the White House immediately rebuffed him, assuring the public and angry editorial boards that Obama had no such priority. With a sluggish economy and greater fuel efficiency in new vehicles, a VMT tax would replenish the Highway Trust, though it would also allow planners and policy makers to develop solutions for reducing greenhouse gas emissions through better land use policies. Several states, including Oregon, Washington, Ohio, Pennsylvania, Florida, and Texas are studying the feasibility of the transition and what infrastructure and technology would be needed to plan for a VMT tax. In 2001, Oregon DOT (ODOT) launched a study called the Oregon Mileage Fee Concept (PDF), and in April of 2006, ODOT tested GPS systems in vehicles belonging to several hundred volunteers. Based on those findings, Oregon governor Theodore R. Kulongoski this year called for outfitting every Oregon vehicle with a GPS device that would assess a tax at the pump based on how many miles had been driven, regardless of the fuel efficiency of the vehicle. In California last month, Assembly member Nancy Skinner of Alameda and Contra Costa counties introduced AB 1135, which would require every motorist to report their odometer reading when they register or renew their vehicle. The state DMV would provide overall VMT data publicly. It would theoretically be available through fairly specific tracts to aid planning, though whether it would be by block face, census tract, voter district, or county has yet to be determined. As the bill points out, accurate VMT data is essential not only for immediate compliance with the greenhouse gas reductions mandated in AB 32, but also for smarter regional planning and the reduction of sprawl mandated in SB 375:

#### The VMT tax is already being considered as a state replacement of the gas tax

Greater Baltimore Committee 9 (membership organization comprised of businesses, higher education institutions, foundations and civic organizations, *“Report of the Greater Baltimore Committee Transportation Financing and Governance Task Force: Vehicle Miles Traveled Tax,”* May 28, 2009, pgs. 4-5, <http://www.gbc.org/upload/052709-VMTReport.pdf>) PCS

The VMT tax has been favored in the recently released “Report of the National Surface Transportation Infrastructure Financing Commission,” as well as by some Members of Congress. The National Financing Commission report calls for an eventual shift at the federal level from the gas tax (currently at 18.4 cents per gallon) to institution of the VMT tax because of stagnation of gasoline tax dollars due to less driving and increased fuel efficiency of cars. Some states have also examined the VMT taxation concept as a replacement for the gas tax, including Nevada, Oregon, Colorado, Ohio, North Carolina, Georgia, Minnesota, Michigan, and Massachusetts. The head of Missouri’s state transportation department says a VMT is probably inevitable there within several decades. Even Idaho's Republican Governor Butch Otter has voiced support for taxing vehicles by the mile. In Washington, the state transportation commission's 2009 policy platform suggests a closer look at a VMT tested across state lines on the West Coast. In its report released on February 26, 2009, the Congressionally commissioned National Surface Transportation Infrastructure Financing Commission said new technologies could allow for a mileage gas tax that would take into account the type of vehicle and level of emissions. Programs of that type are being developed in other countries, including Germany and the Netherlands, the report said. "Such programs may not be ripe for widespread implementation in the U.S. yet, but are maturing rapidly," the report added. Both a centralized collection system and a point of service collection system are the means available to track mileage for a VMT system. Both systems would use GPS technology to track mileage driven.

# Highways Advantage

### Funding Crisis Now

#### US infrastructure is direly underfunded, action now is key to avoid collapse

Rahman et al, 11 (Lazeena Rahman is a Graduate School of Business and Public Policy student at Stanford, Kumi Harischandra, Justine Isola, and Anthony Suen are graduate students in Stanford’s International Policy Studies program, Prepared for: Carnegie Endowment for International Peace, “Going Forward: Prospects for Transitioning from Gas Taxes to Vehicle-Miles-Traveled Fees” p. ix) APB

The U.S. transportation system is facing a crisis. Congress established the Highway Trust Fund (HTF) in 1956 to ensure a dependable source of funding for U.S. highways and transit systems. However, inflation has eroded the purchasing power of the gas tax, and the costs of maintaining roads and highways are now outpacing revenue generated from user fees. The last long-term surface transportation legislation expired in 2009, and Congress has extended existing financing on a temporary basis. This funding crisis comes at a time when the U.S. needs new investments in transportation to meet 21st-century transportation challenges such as aging infrastructure, a growing population, and an expanding economy. The House Committee on Transportation and Infrastructure is pursuing reauthorization to modernize national transportation policy. The upcoming reauthorization offers an immediate opportunity to address the funding crisis.

#### The current fuel tax is insufficient to maintain highways

Dornfeld 11 (Steve, Steven Dornfeld has been a government reporter for the Minneapolis Tribune and the St. Paul Pioneer Press, covering the Legislature, politics and public affairs, formerly the Metropolitan Council's director of public affairs, “Highway funding system is running out of gas”, 9/1/11, <http://www.minnpost.com/politics-policy/2011/09/highway-funding-system-running-out-gas>) Azimi

A growing number of transportation researchers and advocates are recommending a change to a mileage-based system of highway user fees. Their conclusions are summarized and amplified upon in a report completed in August by the University of Minnesota's Center for Transportation Studies (CTS). The CTS report notes that between 1987 and 2008, vehicle miles traveled increased nationwide by approximately 55 percent while fuel consumption rose by just 34 percent. That means Americans are traveling more — causing more wear and tear — and paying less to maintain the system. And this gap is likely to widen. The U.S Energy Information Administration estimates that the average fuel efficiency for all light-duty vehicles on the road will grow from 20.4 miles per gallon in 2008 to 28.9 mpg by 2030. With the projected growth in the number fuel-efficient vehicles, "fuel taxes are not sustainable for funding surface transportation," the CTS report concludes.

#### Gas tax revenue is unsustainable- higher CAFE standards and growth of electric car market.

Rahman et al, 11 (Lazeena Rahman is a Graduate School of Business and Public Policy student at Stanford, Kumi Harischandra, Justine Isola, and Anthony Suen are graduate students in Stanford’s International Policy Studies program, Prepared for: Carnegie Endowment for International Peace, “Going Forward: Prospects for Transitioning from Gas Taxes to Vehicle-Miles-Traveled Fees” p. ix) APB

Supply side considerations: CAFE standards and electric cars Most research on market response to vehicle or road usage charges focuses on the demand side: how will consumers react? However, the supply side—the vehicle producers themselves—is also an influential market force. Two clear and notable trends in the supply side arena are increasing CAFE standards and the growth of the electric vehicle market. As noted above, CAFE standards approved by the Obama administration mandate that overall efficiency by miles per gallon of new vehicles must increase by nearly 30 percent from 2011 to 2016, reaching a total of 35.5 miles per gallon on average by 2016.56 To comply with tougher fuel-economy standards, American automakers are preparing to introduce fundamental shifts in design and fuel-efficiency over the next few vehicle cycles. 53 Litman (2010), p. 8-9. 54 Peter Bonsall, Martin Dix, Vanessa Stone, and Jenny Stewart, Consumer Behaviour and Pricing Structures: Final Report on Qualitative Research, Research Project R104, UK Department for Transport, 2006. 55 Thanks to Deborah Gordon for proposing this helpful scenario. 56 Office of the Press Secretary, The White House, “Obama Administration National Fuel Efficiency Policy: Good For Consumers, Good For The Economy And Good For The Country,” May 19, 2009. 19 This translates into the introduction of more than 60 million fuel-efficient vehicles to the marketplace.57 Large-scale adoption of electric vehicles can also significantly transform the transportation landscape. Assuming stable oil prices over the longer term, Figure 4 illustrates how electric vehicles could become the dominant share of new car sales and could make up a quarter of total cars on the road by 2030. The resulting decline in gasoline demand will undoubtedly be better for the environment and air quality, but it will also result in a drastic reduction of traditional gas tax revenue for financing transportation infrastructure. VMT fees on the other hand offer a more sustainable source of revenue. Figure 4: U.S. light-vehicle sales and fleet composition under baseline scenario Note: Baseline scenario assumes stable gasoline prices. Source: “Electric Vehicles in the United States, A New Model with Forecasts to 2030,” Center for Entrepreneurship and Technology, University of California at Berkeley (2009). A comprehensive assessment of the impact of increasing the gas tax and the VMT fee requires a two-way analysis of consumer response and supplier response. The degree of flexibility of consumer response is likely to increase when suppliers provide more options to meet consumer demand. For example, increased availability (and affordability) of hybrid cars and electric vehicles might prompt consumers to respond more aggressively towards a gas tax hike by switching to fuel-efficient vehicles. This in turn might expedite implementation of a road-use pricing mechanism like the VMT fee.

#### There is a looming gap coming in the Highway Trust Fund – The Gas Tax will not be enough

Teglasi 12, (Victor S., Graduate School of Architecture, Planning and Preservation Columbia University, Master in Science in Urban Planning, “Why Transportation Mega-Projects (Often) Fail? Case Studies of Selected Transportation Mega-Projects in the New York City Metropolitan Area”, May. Thesis) DMD

Innovative Financing and Innovative Project Delivery tend to speed the implementation process and lower long-term borrowing costs to the public, but they do not resolve the significant gap between available funding and transportation needs. According to a study by the Transportation Research Board (TRB)5, the average annual gap, from 2007 to 2017, between the available highway and transit revenues and transportation needs for all levels of government is estimated to be about $60 billion to maintain the existing system and about $120 billion to improve the existing system. The study implicitly assumes an annual 4 percent increase in total transportation revenues. The revenue increase projections are not likely to be realized since they are tied largely to gasoline tax revenues which have been declining due to lower vmt and more fuel efficient vehicles. Therefore, the estimated funding gap is likely to be even higher than projected. State governments also rely on declining gasoline tax revenues and face similar problems. Ironically, the increase in hybrid and all electric vehicles and the use of alternative fuels may, in fact, exacerbate the growing gap between transportation revenues and transportation needs. Ultimately, annual transportation revenues will need to increase significantly in order to address serious infrastructure deficiencies. According to a RPA study, the current NJDOT and NJT annual transportation capital program of about $3 billion is only about half funded (largely because the Trust Fund is broke). The study concludes that “a few cents more on the gas tax won’t solve [New Jersey’s transportation funding] problem.”6 Acting NYSDOT Commissioner Stan Gee made similar comments at the New York State Infrastructure Summit: “…at current funding levels, we can fund less than half of our [$175 billion] 20-year needs … excluding the needs of the MTA, the Thruway Authority, and the New York State Bridge Authority.”7

#### Gas tax insufficient and failing; switching now is key

Poole 12 (Robert,Searle Freedom Trust Transportation Fellow and Director of Transportation Policy

Reason Foundation , Why Motorists Should Pay by the Mile, June 4th 2012 <http://reason.org/blog/show/why-motorists-should-pay-by-the-mil>)LD

Today's USA Today article provides a brief overview on the gradual decline of motor fuel taxes as the principal method of funding U.S. highways. It repeats a by-now familiar litany of reasons. First, **the gas tax is based on gallons of fuel consumed, rather than the number of miles driven. So as vehicles' MPG has doubled over the past two decades, people go twice as far per gallon used-but highways still need at least as much maintenance.** (And as MPG doubles again over the next 15 years, the problem will get much worse.) Second**, federal policy is actively promoting alternatives to petroleum-based mobility-hybrids, fuel cells, all-electric cars, etc. That means a growing fraction of vehicles will be paying little or nothing toward the cost of maintaining, expanding, and rebuilding our highways. Third, except in a handful of states, gas taxes are not indexed for inflation, so when politicians go for decades without increasing the gas tax rate, the real value of the revenues declines**. In a new Cato Institute paper, Randal O'Toole estimates that the real value of federal + state fuel taxes today (in terms of purchasing power) is one-third of what it was at the beginning of the Interstate highway era. But there are several other reasons to switch from paying for highways based on petroleum use to paying based on road use. First, the fuel tax at the federal level and in many states has gradually shifted from being a pure user tax (i.e., paid only by highway users and spend solely to benefit highway users) to becoming a general-purpose public works tax spent on anything that is remotely related to "transportation"-bike paths, scenic trails, mass transit, billboard removal, transportation museums, etc. No wonder the average taxpayer rejects proposals to increase gas tax rates. The only thing she can be sure will happen if they go up is that she will pay more, but she can hardly count on any "investment" that will actually ease her congested commute. Second, even when spent only on highways, fuel taxes result in a mass of cross-subsidies. Everyone pays the same rate per gallon, regardless of whether they drive exclusively on inexpensive-to-build two-lane country roads and neighborhood streets or drive mostly on multi-billion-dollar urban freeways and long-distance Interstate highways. A system of per-mile charges could be tied to specific highways (as tolls are today), so that those who use mega-project highways would pay accordingly. Third, highways are the only major network utility that is paid for by this roundabout "user tax" rather than by direct payment for the amount of service you consume. For electricity, you pay for every kilowatt hour you use (and soon most of us will be paying more during peak periods when the system turns on very costly peak generators and less at other times when cheap baseload power can do the whole job). Likewise, most of us pay for water and sewer, natural gas, cable television, and telecoms services based on how much we use. Moreover, we pay the provider directly, in the form of monthly bills. **Thus, replacing fuel taxes is not just about ensuring adequate, sustainable funding for the highways we all depend on. It is also the key to transforming what is now a poorly managed, non-priced, government-run system into a 21st-century network utility.**

### Fuel Tax Unsustainable, VMT Solves

#### Demand for transportation funding is greater than ever, and the fuel tax is no longer sufficient- transition to a VMT is necessary to fund transportation investments which support economic growth.

Meyer 11 (Michael, Professor of Civil and Environmental Engineering at the Georgia Institute of Technology. “Why we should consider a per-mile road tax,” CNN, December 8, 2011, [http://www.cnn.com/2011/12/08/opinion/ meyer-pay-per-mile-road-tax/index.html](http://www.cnn.com/2011/12/08/opinion/%20meyer-pay-per-mile-road-tax/index.html)) CO

(CNN) -- Based on recent history and what's likely to happen to the nation's infrastructure, it's an inescapable conclusion: We will need new and different sources of funding if we are to have the type of transportation system that is needed to support economic prosperity. For the past 75 years, the U.S. road network has provided the foundation for much of the nation's economic development. This network has not come without a cost; estimates are that the replacement value of the nation's roads is $1.3 trillion. The bulk of the revenue to build the world's most extensive road network has come from motor vehicle fuel taxes, first used by Oregon in 1918 and culminating in a 1956 federal motor fuel tax to construct the national highway network, including the Interstate highway system. But big challenges loom. The U.S. population is expected to grow through 2100 and the economy likely will be strongly tied to the movement of people and goods. The need for added capacity to the nation's transportation system is great. When one adds the hundreds of billions of dollars that will be needed to reconstruct and rehabilitate existing infrastructure, the demand for transportation funding will be perhaps even greater than ever. The big problem in meeting this demand, however, is that the motor fuel tax won't be enough to pay the bills for our highway needs. The fuel tax revenue stream will decline because of increasing motor vehicle fuel efficiency and the growing number of hybrid and electric vehicles on the road. Where will the funding come from to maintain the nation's transportation infrastructure? How will the nation expand vehicle capacity where necessary? Proposed solutions include public/private partnerships, often taking some form of road tolling. Many cities are advancing such projects. Other cities are relying on public referenda sales tax revenues. But both sources fail to provide enough revenue to make up for the decline in motor fuel tax receipts. One possible source of future transportation funding that should be considered seriously is called vehicle miles traveled fees, or VMT -- charges to vehicle users based on how many miles are traveled regardless of vehicle fuel type. This concept is based on the time-honored economic principle of user fees: The user pays for the amount of a resource being consumed. The more one uses the road network, the more one should pay. It's similar to motor fuel taxes, where user costs vary by a vehicle's fuel economy and the type of fuel used.

#### The highway system faces a financial crisis of unparalleled proportions- the gas tax is no longer sustainable, only switching to mileage based user fees solves.

IBTTA 12 (International Bride, Tunnel, and Turnpike Association, Symposium on Mileage-Based User Fees and Transportation Finance Summit, May 1st 2012, <http://www.ibtta.org/files//PDFs/Symposium%20on%20MBUF%20and%20Transportation%20Finance%20Final%20Report.pdf>) Azimi

The fundamental goal of tolling and MBUF is to build a more solid foundation for transportation finance. The gasoline tax is no longer a sustainable source of funding, “not to mention that it’s not very well aligned with long-term energy and environment policy,” a panelist said. Revenues have been eroded by improved vehicle efficiency, new fuel sources, and changing patterns of vehicle use, at a time when much of the Interstate highway system is in immediate need of replacement or major upgrade. The combination of rising demand and declining resources represents a “financial crisis of unparalleled proportions,” with no simple solutions in sight. Declining revenues have made it difficult for some states and regions to maintain existing infrastructure, and jurisdictions with continuing economic and population growth lack financial resources to bring on new capacity.

#### **VMT fees are a more stable source of revenue than the fuel tax- miles traveled will grow much faster than fuel consumption in coming years.**

Steinberg 11 (Paul, Ph.D. in English, University of California, Berkeley; B.A. in English, University of California, Riverside, RAND Corporation Moving Toward Vehicle Miles of Travel Fees to Replace Fuel Taxes Assessing the Path Forward, 2011, <http://www.rand.org/pubs/research_briefs/RB9576/index1.html>) Azimi

Against this backdrop, many believe the nation should replace fuel taxes with a system of user fees based on vehicle miles of travel, or VMT. (VMT fees are also known as mileage-based user fees, or MBUF.) Because VMT is expected to grow faster than fuel consumption in the coming decades, VMT fees should provide a more stable source of revenue. Since 1980, with gradual gains in average vehicle fuel economy, VMT has doubled, while fuel consumption itself has increased by just half. Long-range projections for fuel consumption and VMT from the Energy Information Administration (EIA) suggest that this trend will continue. According to EIA projections, federal fuel tax revenue (assuming current per-gallon rates) should increase by about 10 per-cent between 2015 and 2030, growing from $36 billion to $39 billion (2009 dollars). If, instead, federal fuel taxes were replaced with VMT fees in 2015 at an initially revenue-neutral rate, receipts should increase by 33 percent over the same period, growing from $36 billion to $47 billion.

#### Current gas tax is unsustainable and leads to deficits. VMT is key to reverse this trend

McNally 9(Sean, Senior Reporter at Transport Topics “Raise Fuel Tax During Transition to VMT To Fund Transportation, Blumenauer Says” Transport Topics,(3834), 5-5,36 March 9th 2009) ZLH

WASHINGTON - Rep. Earl Blumenauer (D-Ore.), a member of the tax-writing House Ways and Means Committee, said the country should move quickly to a vehicle miles tax but meanwhile should raise fuel taxes significantly, although the higher taxes shouldn't take effect for at least two years. The tax changes are needed to ensure adequate funding for transportation spending, the long-time transportation advocate said. "The funding mechanism that we have employed for the last 90 years no longer works on a sustainable basis, resulting in growing deficits and a rather bleak financial future for transportation in the United States, unless we do something about it," Blumenauer said here March 4. Blumenauer spoke at a transportation conference hosted by Iona College. "We absolutely need to increase the gas tax in the short term and by a significant amount, but that's not going to be sufficient," he said. "We need a vision for long-term financing that eventually gets rid of the gas tax." A long-term vision is necessary because increased efficiency of motor vehicles will erode fuel-tax receipts, Blumenauer said. He also cited declining sales of heavy trucks as a reason for the wobbliness of the Highway Trust Fund, because excise taxes on large trucks are a contributor to the fund. To replace the fuel tax, Blumenauer suggested using "a share of the carbon revenue because we're going to have some sort of cap-andtrade tax on carbon pollution. We ought to retain a portion, at least 10%, to be able to fund long-term transportation infrastructure" and a vehicle-miles-traveled tax. The VMT is "a better, fairer, more effective road-use charge" than the fuel tax, Blumenauer said, citing the experience of his home state of Oregon, which recently concluded a mileage tax study (3-31-08, p. 5).

#### Continued reliance on current gas tax policy will devastate the Highway Trust Fund-new user fees are needed.

Wachs 9(Martin director of RAND’s Transportation, Space, and Technology Program “After the motor fuel tax: Reshaping transportation financing. Issues in Science and Technology, 25(4), 85-88. Summer 2009) ZLH

At issue is whether Congress will continue to rely on the federal motor fuel tax and other indirect user fees as the primary source of revenue for transportation projects, or whether it will begin a shift to more direct userfees. Many observers expect that Congress will step up to the job, but it is far from a done deal. If Congress does act, it will begin what is likely to be a decades-long transition to some form of direct charging on the basis of miles driven.

In its reliance on user fees to support transportation projects, the United States operates differently from most other nations. Most countries tax fuels and vehicles, but they put the proceeds into their general funds and pay for roads and transit systems from the same accounts they use for schools, health care, and other government programs. The United States has preferred to link charges and payments for the transportation system more directly, through a separate system of user-based financing. User fees include gasoline taxes, tolls, vehicle registration fees, and truck weight fees. User fees, imposed by all 50 states as well as the federal government, are intended to charge more to those who benefit from the transportation system and who also impose costs on the system by using it. At the federal level, the largest source of revenue from users for half a century has been the federal excise tax on gasoline and diesel fuel. Proceeds are kept separate from the general budget at the federal level and in most states. Revenues are deposited into separate trust funds, with this money reserved for building, operating, and maintaining transportation systems to directly benefit those who paid the fees. User fees at the federal level, for example, paid more than 90% of the cost of building the national interstate highway system.

One problem, however, is that the federal motor fuel tax, which is a major source of transportation system support, has not been raised for many years; it has been set at 18.4 cents per gallon since Ronald Reagan was president. As the price of gasoline rose during this period, Congress proved reluctant to charge drivers more for road improvements. In fact, when the price of gasoline spiked recently, Congress briefly considered lowering the federal motor fuel tax but backed away after considering the enormous backlog of infrastructure needs and the deteriorating condition of the nation's transportation system. In addition to losing value because of inflation with the passage of time, motor fuel tax revenue is falling in relation to road use because of improved vehicle fuel economy. Higher miles-per-gallon ratings are good for the economy, energy independence, and reduced air pollution. But better fuel economy also means that motorists drive more miles with each fill up at the pump and actually pay substantially less through fuel taxes per mile of driving than they did in past years.

Many supporters of transportation investments continue to believe that the best way to raise desperately needed money to maintain and expand highways and mass transit would be to raise those user fees rather than to turn to general taxes, which are also under stress and are used to fund many other critical programs. But the trend is in the opposite direction. Gradually, faced with a genuine national shortage of funds for transportation infrastructure because fuel taxes have not kept pace with costs, voters in several states have been asked to approve increases in sales taxes to fill the growing gap between transportation needs and the revenues available from user fees. Also, as the balance in the federal highway trust fund dipped below zero in September 2008, Congress approved a "one-time" transfer of $8 billion from the nation's general fund into the trust fund to avoid the complete shutdown of federal highway programs. Another such transfer may soon be needed because the transit account within the trust fund is now approaching a zero balance as well.

Multiple factors undermine the long-term viability of the Highway Trust Fund- VMT fees provide alternative funding sources.

AASTHO 7, (American Association of State Highway and Transportation Officials, “Transportation Invest In Our Future: Revenue Sources to Fund Transportation Needs, September, <http://www.transportation1.org/tif4report/TIF4-1.pdf>) DMD

A different scenario may come into play in the period from 2025 to 2035. By 2030, it is conceivable that overall fleet fuel economy could increase from 21 mpg today to 31 mpg. That would reduce revenues by 33 percent. It is also conceivable that by 2030, alternative fueled vehicles, which pay no gas or diesel taxes, could represent 15 percent of the market. These could include vehicles fueled by hydrogen, by electricity, and by natural gas. That would reduce revenues by 15 percent. It is also conceivable, that as the world demand for petroleum grows from the United States, Europe, Japan, and emerging powers like China and India, and the supply struggles to keep pace, gas prices will increase. This could dampen consumption by 5 to 10 percent. That would reduce revenues by 5 to 10 percent. So somewhere between the point where there is a tolerable revenue loss which can be offset by rate adjustments, and the point when the loss is too serious, the states and the federal government will need to have fashioned an alternative highway user fee which supports the Highway Trust Fund. (Table 8.)

### Transportation Infrastructure in Decline

#### **The nation is falling drastically behind in infrastructure quality**

Herrmann 11

 (Andrew, President of the American Society of Civil Engineers, Congressional Documents and Publications “Senate Joint Economic Committee Committee Hearing; "Manufacturing in the USA: Paving the Road to Job Creation,”; Testimony by Andrew Herrmann, President, American Society of Civil Engineers, Washington, DC” November 16th 2011, Lexis)ZLH

It is an honor for me to appear before this committee on behalf of the American Society of Civil Engineers (ASCE) n1 to discuss the link between our nation's infrastructure and the strength of its manufacturing sector. ASCE commends the Joint Economic Committee for holding a hearing today on how surface transportation investment is a key factor for continued economic recovery and job creation. The Society is pleased to present to the Committee our views on investing in the nation's infrastructure and the critical link to U.S manufacturing. An agenda that fosters economic growth and job creation through policies that strengthen U.S. manufacturing and infrastructure will allow the nation to remain competitive in the Twenty-First Century. Infrastructure Receives a Grade of "D" ASCE's 2009 Report Card for America's Infrastructure graded the nation's infrastructure a "D" based on 15 categories (the same overall grade as ASCE's 2005 Report Card). The report also concluded that the nation needs to invest approximately $2.2 trillion from 2009 - 2014 to bring our nation's infrastructure to a state of good repair. This number, adjusted for a three percent rate of inflation, represents capital spending at all levels of government and includes current expenditures. Even with current and planned investments from federal, state, and local governments from 2009 - 2014, the "gap" between the overall need and actual spending will exceed $1 trillion by the end of the five-year period. In the Report Card, the nation's surface transportation system included roads receiving a grade of "D-," bridges receiving a grade of "C," and transit receiving a grade of "D". With nearly one-third of roads in poor or mediocre condition, a quarter of the nation's bridges either structurally deficient or functionally obsolete, and transit use increasing to its highest levels in 50 years, the nation's surface transportation system is in a state of critical decline. Additionally, to bring just these three surface transportation categories up to an acceptable condition would require a five-year investment of $1.2 trillion, according to ASCE estimates. If the nation continues to under-invest in infrastructure and ignores this backlog until systems fail, we will incur even greater costs.

### Transportation Investment Low

#### Transportation investments are being deferred at all levels of government due to budget pressures.

Mineta and Skinner 10 (Norman Y. and Samuel K., former Secretaries of Transportation and Conference Co-Chairs, “Well Within Reach: America’s New Transportation Agenda”, report of the David R. Goode National Transportation Policy Conference @ UVA Miller Center of Public Affairs, <http://www.infrastructureusa.org/wp-content/uploads/2010/10/conf_2009_transportation.pdf> p. 17, Accessed 6/28/12)

Meanwhile, with all levels of government under extreme budget pressure, the tendency will be to defer even the most basic transportation investments. As we discuss in our recommendations, estimates of the average annual gap between current sources of funding for transportation infrastructure and funding needs to maintain and improve the system range from our $134 billion to $262 billion per year for roughly the next quarter century (specifically, 2008–2035). And chronic underfunding, especially to maintain existing infrastructure, exposes the system over time to “elegant degradation” —an engineering term that refers to the slow deterioration of machines when they are subjected to constant, repetitive stress. In these cases, the weakening of the system may not be obvious until some important component breaks down completely—at which point the costs of fixing the problem often far exceed the resources that would have been required to avoid failure in the first place. A large number of transportation projects around the country have, of course, received accelerated funding in recent months as a result of the economic stimulus legislation passed in 2009. But this uptick in federal investment is likely to be temporary, especially in the context of growing concern about the ballooning national debt. Thus, finding adequate resources to meet longer-term transportation needs remains a significant concern. With growing consensus that the existing Highway Trust Fund (HTF) mechanism is inadequate, moreover, there is also growing interest in new funding mechanisms—such as user fees—that could not only deliver more stable revenue streams, but would better align public and private incentives for more efficient use of existing transportation systems. Winning public support for these types of reforms, however, will require policy makers to unite behind a compelling vision for U.S. transportation policy in the 21st century, while also providing a clearer articulation of the federal role in realizing that vision. Ironically, the temporary surge in transportation funding attributable to the economic stimulus legislation—while less than 7 percent of total stimulus funding—apparently has created the illusion that, for the moment at least, Congress can postpone the prescribed deadlines for authorizing our most fundamental surface and aviation transportation infrastructure programs. The deadline for reauthorizing our aviation programs came three years ago, but Congress has yet to pass a new law. A vital “NextGen” overhaul of our air traffic management system—announced eight years ago—is moving far too slowly as a result. The deadline for reauthorizing our surface transportation programs passed one year ago, but many observers believe that there won’t be a new law until after the next Presidential election—despite a growing consensus that the Highway Trust Fund is no longer a sustainable model for road funding at the federal level. Given the conspicuous inadequacy of traditional programs to sustain a robust economic future for America, this legislative procrastination comes at the worst possible time. America requires a new vision for transportation. While our needs have changed in the last 50 years, our national models for selecting, prioritizing, coordinating, and funding transportation investments have not. Fitful attempts to introduce reforms have produced incremental improvements, but have largely fallen short of achieving systemic change. This report takes a fresh look at current challenges and constraints and outlines several specific recommendations for a new approach to U.S. transportation policy. Throughout, it builds on insights and proposals developed in other recent efforts to grapple with the issue of transportation reform. There is no dearth of fresh, sensible, and achievable recommendations for the reinvigoration of our vital transportation programs. Until and unless Washington attaches a more urgent priority to the transportation imperative, however, all of these reports will have been wasted exercises.

### Long Term Revenue Solution Key to Competitiveness

#### Addressing the long-term viability of funding for surface transportation is critical to keep the US competitive in the global economy.

AASTHO 7, (American Association of State Highway and Transportation Officials, “Transportation Invest In Our Future: Revenue Sources to Fund Transportation Needs, September, <http://www.transportation1.org/tif4report/TIF4-1.pdf>) DMD

To keep the U.S. competitive in the global economy, surface transportation investment must be substantially increased. The first step is to avert a potential reduction due to revenue shortfalls in the Highway Trust Fund. The next step the nation needs to take toward that goal is to restore the purchasing power of current programs by increasing highway capital investment to approximately $160 billion and transit investment to nearly $40 billion by 2015. Finally, the nation must address the long-term viability of funding for transportation programs. The only way those levels of funding can be achieved is for all levels of government— federal, state, and local—to continue to fund their historical shares and for each level of government to increase their funding participation. Over the past decade the federal government has provided approximately 45 percent of highway and transit capital funding, while 55 percent has been provided by state and local governments. Meeting America’s surface transportation needs will require a multi-modal approach which preserves what has been built to date, improves system performance, and adds substantial capacity in highways, transit, freight rail, intercity passenger rail, and better connections to ports, airports, and border crossings. Meeting several of these multimodal needs will require sources of revenue outside the Highway Trust Fund. The federal highway program faces a funding crisis beginning in fiscal year 2009 and accelerating dramatically in fiscal year 2010. Current Highway Account revenue projections for 2009 show a shortfall of $4.3 billion in revenue. That shortfall will require an obligation reduction in the highway program of about $16 billion, or a 35 percent reduction in new obligation authority.\* A three-cent fuels tax increase, or its equivalent in other revenue, can avert the dramatic $16 billion highway program cut, and allow for modest growth in the highway program.

### Short Term Infusions Don’t Solve

#### Short term increases in transportation funding like the stimulus aren’t sufficient- the investment shortfall is too great.

NSTIF 9 (National Surface Transportation Infrastructure Financing Commission, “ Paying Our Way: A New Framework for Transportation Infrastructure”, February 26th, http://financecommission.dot.gov/Documents/NSTIF\_Commission\_Final\_Report\_Advance%20Copy\_Feb09.pdf) DMD

An economic stimulus spending package that includes investments in surface transportation, while helpful, will not solve the immediate or the longer-term problems of funding system needs. The current investment shortfall is just too great. The Highway Trust Fund will continue to need significant augmentation beyond whatever an immediate short-term stimulus plan can provide. For instance, a stimulus package that includes nearly $40 billion for highway and transit infrastructure, while important in addressing the short-term economic crisis, will pay for only about three months of the identified annual national funding gap to maintain and improve the system—a gap that repeats itself and compounds year after year.

### Infrastructure Investment Key to the Economy

#### **Infrastructure investment is key to both long-term and short-term economic growth, status quo policy results in an economic disaster**

Herrmann 11

 (Andrew, President of the American Society of Civil Engineers, Congressional Documents and Publications “Senate Joint Economic Committee Committee Hearing; "Manufacturing in the USA: Paving the Road to Job Creation,”; Testimony by Andrew Herrmann, President, American Society of Civil Engineers, Washington, DC” November 16th 2011, Lexis)ZLH

While Congress is in the process of developing a comprehensive multi-year surface transportation authorization bill, and as President Obama emphasizes the infrastructure investment needs for the nation, our roads, bridges, and transit systems continue on in a state of decline. According to the Congressional Budget Office, the total of all federal spending for infrastructure has steadily declined over the past 30 years. The results of years of under investment can be seen in traffic and airport congestion, unsafe bridges and dams, deteriorating roads, and aging drinking water and wastewater infrastructure. Infrastructure Investment = Jobs Money invested in essential public works can create jobs, provide for economic growth, and ensure public safety through a modern, well-engineered national infrastructure. The nation's transportation infrastructure system has an annual output of $120 billion in construction work and contributes $244 billion in total economic activity to the nation's gross domestic product (GDP). In addition to the overarching economic benefits, the Federal Highway Administration estimates that every $1 billion invested in the nation's highways supports 27,823 jobs, including 9,537 on-site construction jobs, 4,324 jobs in supplier industries, and 13,962 jobs throughout the rest of the economy. Standard and Poor's has stated that highway investment has been shown to stimulate the economy more than any other fiscal policy, with each invested dollar in highway construction generating $1.80 toward the gross domestic product in the short term, while Cambridge Systematics estimates that every dollar taxpayers invest in public transportation generates $6 in economic returns. The transportation industry's experience with the American Recovery and Reinvestment Act of 2009 illustrated the strong job creation impact of dedicated transportation investment, with the $48 billion for transportation improvements in the legislation supporting tens of thousands of jobs in engineering, construction, and supporting industries. Infrastructure Investment = A Healthy Economy The job-creation potential of infrastructure investment is only one contributing factor of the interaction between surface transportation and the nation's ability to compete in the global marketplace. Equally important are the benefits to a region's long term growth and productivity. A significant challenge to this economic growth is increased congestion, which contributes to the deterioration of the nation's infrastructure. Therefore, the importance of freight movement and the impact of congestion on the nation's economy must be emphasized. ASCE is concerned with the increasing deterioration of America's infrastructure, reduced investment for the preservation and enhancement of our quality of life, and the threatened decline of U.S. competitiveness in the global marketplace. In response, ASCE has not only issued multiple Report Cards on the condition of infrastructure, but has also sought to advance policy solutions that provide for a clean and safe quality of life, as well as fuel economic growth. While taken for granted by most Americans, our infrastructure is the foundation on which the national economy depends. As the economy grows, we cannot only think in terms of repairing what we have, but of creating a modernized transportation system that addresses long-term needs. The current system was originally built in the 1950's and 1960's at a time when the country had different transportation needs and a smaller population. With an expanding population and a larger economy, the nation needs a transportation system that can keep pace. Unfortunately, due to the rapid growth of the country, highway and freight capacity failed to keep up. In July 2011, ASCE released an economic study that measures the potential impacts to the economy in 2020 and 2040 if the nation maintains current levels of surface transportation investments. The report is the first in a series of four reports that will focus on the correlation between the nation's infrastructure and the economy. Subsequent reports will detail the economic correlation to the nation's drinking and waste water systems, energy grid, and ports and airports. The first study, Failure to Act: the Economic Impact of Current Investment Trends in Surface Transportation Infrastructure, found that if investments in surface transportation are not made in conjunction with significant policy reforms, families will have a lower standard of living, businesses will be paying more and producing less, and our nation will lose ground in a global economy. The nation's deteriorating surface transportation will cost the American economy more than 876,000 jobs, and suppress the growth of the country's GDP by $897 billion in 2020.The study results estimate that more than 100,900 manufacturing jobs will be lost by 2020. Ultimately, Americans will also get paid less. While the economy will lose jobs overall, those who are able to find work will find their paychecks cut because of the ripple effects that will occur through the economy. In contrast, a study from the Alliance for American Manufacturing shows that roughly 18,000 new manufacturing jobs are created for every $1 billion in new infrastructure spending. These manufacturing jobs would be created in fabricated metals, concrete and cement, glass-rubber-plastics, steel, and wood product industries. Furthermore, the Alliance for American Manufacturing study shows that using American-made materials for these infrastructure projects yields a total of 77,000 additional jobs, based on a projected investment of $148 billion a year (including $93 billion of public investment).

#### **Fixing the infrastructure problem is key to economic growth and the restoration of American competitiveness in the global market**

Herrmann 11

 (Andrew, President of the American Society of Civil Engineers, Congressional Documents and Publications “Senate Joint Economic Committee Committee Hearing; "Manufacturing in the USA: Paving the Road to Job Creation,”; Testimony by Andrew Herrmann, President, American Society of Civil Engineers, Washington, DC” November 16th 2011, Lexis)ZLH

Failure to Act also shows that failing infrastructure will drive the cost of doing business up by adding $430 billion to transportation costs in the next decade. Firms will spend more to ship goods, and the raw materials they buy will cost more due to increased transportation costs. Productivity costs will also fall, with businesses underperforming by $240 billion over the next decade; this in turn will drive up the costs of goods. As a result, U.S. exports will fall by $28 billion, including 79 of 93 tradable commodities. Ten sectors of the U.S. economy account for more than half of this unprecedented loss in export value - among them key manufacturing sectors like machinery, medical devices, and communications equipment. On the contrary, most of America's major economic competitors in Europe and Asia have already invested in and are reaping the benefits of improved competitiveness from their infrastructure systems. To illustrate further the correlation between transportation and a strong national economy, the U.S. Chamber of Commerce in late 2010 released a transportation performance index that examines the overall contribution to economic growth from a well-performing transportation infrastructure. The index displays a decline in the nation's economic competitiveness due to a continued lack of investment in surface transportation systems on all levels. However, the results also indicate that a commitment to raising the performance of transportation infrastructure would provide long-term value for the U.S. economy. At this juncture, even Treasury Secretary Tim Geithner is underscoring the importance of investing in our nation's infrastructure and the value of export promotion for the competitiveness of U.S. businesses. On a recent trip to a North Carolina manufacturing plant, Secretary Geithner drew parallels between investment in infrastructure, jobs creation, and growth of the domestic manufacturing sector. While efforts such as the American Recovery and Reinvestment Act of 2009 have provided some short term relief to a struggling engineering and construction sector, a sustained economic recovery, will remain difficult without a new multi-year surface transportation bill. Five Key Solutions As part of ASCE's 2009 Report Card for America's Infrastructure, ASCE identified five Key Solutions that illustrate an ambitious plan to maintain and improve the nation's infrastructure: . Increase federal leadership in infrastructure; . Promote sustainability and resilience; . Develop federal, regional, and state infrastructure plans; . Address life cycle costs and ongoing maintenance; and . Increase and improve infrastructure investment from all stakeholders. During infrastructure roundtables in both Washington, DC and throughout the country, several themes were identified including the need for a clear national infrastructure vision, the need for a better informed public, and the need for performance-based data that can target investments which reward good performance. By addressing these issues intelligently with smart infrastructure investments, we can develop a safer and more economically competitive nation. In the transportation sector specifically, ASCE supports the following actions: . Establish a new process at the federal and state levels that includes performance metrics and implementation strategies for transportation projects to ensure that they achieve national objectives and deliver value to the American public. . Enact a multi-year surface transportation authorization bill with dedicated and reliable revenue sources upon which long-term public and private sector investment commitments can confidently be made. . Adopt a sustainable user-fee approach as the financial foundation of our nation's transportation program, and look to innovative financing programs such as Public-Private Partnerships, Build America Bonds, expansion of the Transportation Infrastructure Finance and Innovation Act, and an infrastructure bank to augment the federal investment. ASCE supports a variety of revenue streams including an increase in the motor fuels tax and eventually transitioning to a vehicle miles traveled system. . Develop strategies to expedite the current regulatory process at the local, state, and federal levels to move critical projects through quickly and filter out ill-conceived projects, to ensure that performance metrics are met. Modest Investment Needed Failure to Act estimates that in order to bring the nation's surface transportation up to good levels, or a grade of B, policymakers must invest approximately $1.7 trillion in the nation's highway systems between now and 2020. The U.S. is currently on track to spend a portion of that, a projected $877 billion, during the same timeframe. This infrastructure funding gap equals $846 billion over 9, years or $94 billion per year, from all levels of government. Small investments in infrastructure, equal to about 60 percent of what Americans spend on fast food each year would: . Protect 1.1 million jobs . Save Americans nearly 2 billion hours in travel time each year . Deliver an average of $1,068 to each family; and . Protect $2,600 in GDP for every man, woman, and child in the United States. Surface transportation infrastructure is a critical engine of the nation's economy. It is the thread which knits the country together. To compete in the global economy, improve our quality of life and raise our standard of living, we must successfully rebuild America's public infrastructure. ASCE looks forward to working with Congress as it develops legislation which will bring the nation's infrastructure into the Twenty-First Century. As shown in ASCE's surface transportation economic study, the nation's economic health is dependent on a strong infrastructure system. By updating, maintaining, and building our roads, bridges, and transit systems, the nation can create jobs in both the public and private sector, while fostering and growing manufacturing in the United States. Therefore, the first step toward a modernized transportation system must include passing a multi-year surface transportation authorization, at or above current levels of investment. The nation's economic health will continue to be linked to its infrastructure strength, which means the time to act is now.

### Highways Key to Economy- General

#### Highways key to the economy- multiple reasons

Shatz et. al. 11 (Howard, Ph.D. in public policy, Harvard University; M.I.A. in international policy analysis and management, Middle East studies, School of International and Public Affairs, Columbia University; postgraduate study in Middle East studies, Tel Aviv University; A.B. in history, Brown University, Karin E. Kitchens M.S. in statistics, University of Tennessee; B.S. in mathematics, University of Tennessee, Sandra Rosenbloom, Ph.D. and M.S. in urban and regional planning, Northwestern University; B.S. in civil engineering, City University of New York, Highway Infrastructure and the Economy Implications for Federal Policy, <http://www.rand.org/pubs/monographs/2011/RAND_MG1049.pdf>) Azimi

Highway infrastructure can affect the economy in a number of ways, nearly all of them related to increasing mobility. It can enable producers to reach markets more cheaply, to increase the size of their market area, and to have a broader choice of input suppliers. It can increase the speed with which producers can reach markets or inputs, allowing them to hold lower inventories and carry out just-in-time production. Highway infrastructure can enable workers to choose among a wider array of employment opportunities and to live farther from their workplaces. It can enable consumers to have a more varied choice of goods, services, and prices. Not all highway infrastructure produces these outcomes in the same way. Some transportation infrastructure serves purely local needs, whereas other infrastructure enables connections to national and international markets. Besides the longer-run effects, highway infrastructure also can boost economic activity through immediate construction activity that results from new highway infrastructure investment.

#### Investment in transportation infrastructure is key to the economy

Mineta and Skinner, former Secretaries of Transportation, 10 (Norman Y. Mineta and Samuel K. Skinner, Well Within Reach America’s New Transportation Agenda, <http://web1.millercenter.org/conferences/report/conf_2009_transportation.pdf>) Azimi

Congestion and inefficiency, as we have already noted, impose high costs on people’s time and quality of life. But while these costs are easily perceived at an individual level, their aggregate impact on the economy and on the interconnectedness and vitality of our civil society is often less widely appreciated. The fact is that failure to adequately maintain and invest in our transportation systems means not only gridlocked roads and deteriorating bridges in the near term, but a steady erosion of the social and economic foundations for American prosperity in the long run. Avoiding this outcome means government, and ultimately taxpayers, need to be willing to invest more in transportation, not just for one year or a few, but on a sustained basis over time. Making this case won’t be easy, especially in the context of a fiscal environment that looks dire for the foreseeable future. Policymakers and the public will need to understand that investments in transportation infrastructure—provided these investments are wisely chosen and effectively implemented— will have long-term benefits that more than justify their near-term costs.

### Highways Key to Economy: Workforce Productivity

#### Efficient transportation network key to economy- it boosts workforce productivity

NTPP 09- National Transportation Policy Project (Performance Driven: A New Vision for U.S. Transportation Policy, June 9 2009, <http://bipartisanpolicy.org/sites/default/files/NTPP%20Report.pdf>) Azimi

The connection between economic output and efficient transportation is most obvious in the case of work travel, which typically has the highest economic value of all passenger travel. Work travel is also the most expensive to provide for because infrastructure is built for peak capacity and the peak occurs during rush hour. Economically vital work-related travel—in many cases related to business meetings, air travel, and house calls—may also occur outside peak hours. A robust and high-performing transportation network that reduces work travel time contributes directly to workforce productivity and thus to the economic well-being of local communities and the nation as a whole. Yet work travel comprises a smaller percentage of overall travel than it once did; today it accounts for a smaller share of VMT in the United States than nonwork travel.88 But even non-work trips—whether to a dry cleaner, doctor’s office, restaurant, or baseball practice—have direct economic value. Enabling the fast, affordable and reliable completion of travel for these purposes is also essential to quality of life and economic well-being.

### Economy Key to Heg

#### Economy key to heg

Du Boff 03 (Richard, is Professor Emeritus of Economics, Bryn Mawr College, CBS Moneywatch.com, “US hegemony: continuing decline, enduring danger” Dec 03, http://findarticles.com/p/articles/mi\_m1132/is\_7\_55/ai\_111503528/pg\_11/?tag=content;col1, 6/26/10, HR)

"Global hegemony" might be defined as a situation in which one nation-state plays a predominant role in organizing, regulating, and stabilizing the world political economy. The use of armed force has always been an inseparable part of hegemony, but military power depends upon the economic resources at the disposal of the state. It cannot be deployed to answer every threat to geopolitical and economic interests, and it raises the danger of imperial overreach, as was the case for Britain in South Africa (1899-1902) and the United States in Vietnam (1962-1975).

### Heg => Peace

#### US hegemony key to maintain peace in the world

Thayer 2007 (Bradley. A is an Associate Professor in the Dept. of Defense and Strategic Studies at Missouri State University, “American Empire: A Debate”, Taylor and Francis Group, 2007, MJB) Stability – Peace, like good health, is not often noticed, but certainly is missed when absent. Book

Throughout history, peace and stability have been a major benefit of empires. In fact, pax Romana in Latin means the Roman peace, or the stability brought about by the Roman Empire. Rome’s power was so overwhelming that no one could challenge it successfully for hundreds of years. The result was stability within the Roman Empire. Where Rome conquered, peace, law, order, education, a common language, and much else followed. That was true of the British Empire (pax Britannica) too. So it is with the United States today. Peace and stability are major benefits of the American Empire. The fact that America is so powerful actually reduces the likelihood of major war. Scholars of international politics have found that the presence of a dominant state in international politics actually reduces the likelihood of war because weaker states, including even great powers, know that it is unlikely that they could challenge the dominant state and win. They may resort to other mechanisms or tactics to challenge the dominant country, but are unlikely to do so directly. This means that there will be no wars between great powers. At least, not until a challenger (certainly China) thinks it can overthrow the dominant state (the United States). But there will be intense security competition—both China and the United States will watch each other closely, with their intelligence communities increasingly focused on each other, their diplomats striving to ensure that countries around the world do not align with the other, and their militaries seeing the other as their principal threat. his is not unusual in international politics but, in fact, is its “normal” condition. Americans may not pay much attention to it until a crisis occurs. But right now states are competing with one another. This is because international politics does not sleep; it never takes a rest.

### See Heg/Econ Core for Impacts

# Warming Advantage

### Must Act Now

#### Must act now- limiting GHG emissions now is key to long-term stabilization

Ewing et al 7 (research professor at the National Center for Smart Growth, University of Maryland, associate editor of the Journal of the American Planning Association, Keith Bartholomew, assistant professor of urban planning in the University of Utah’s College of Architecture and Planning, Steve Winkelman, director of the Transportation Program at the Center for Clean Air Policy, Jerry Walters, chief technical officer with Fehr & Peers Associates, a California- based transportation planning and engineering firm, and Don Chen, founder and executive director of Smart Growth America, has worked for the Surface Transportation Policy Project and the World Resources Institute, *Growing Cooler: The Evidence on Urban Development and Climate Change*, The Urban Land Institute, 2007, <http://postcarboncities.net/files/SGA_GrowingCooler9-18-07small.pdf>) PCS

Stabilization at 450 ppm CO2e would require global GHG emissions to peak around 2015 and be reduced 30 to 40 percent below 1990 levels by 2050 (Höhne, Phylipsen, and Moltmann 2007; Meinshausen and den Elzen 2005). The British government’s review and the IPCC report show that the less we limit GHG emissions globally in the near term, the harder it will be to stabilize them at the target concentrations later (HM Treasury 2006; IPCC 2007c, p.15). For each five years that the peak in global emissions is delayed beyond 2015, the annual rate by which emissions must decline will increase by an additional 1 percent (Meinshausen and den Elzen 2005). One percent per year is a substantial level of effort, comparable to the reduction the United Kingdom achieved nationally after it switched all of its coal-fired power plants to natural gas in the 1990s (Helme and Schmidt 2007). Determining the necessary GHG reductions in the United States to meet global targets requires assessment of and assumptions about expected GHG reductions in other countries. The emerging consensus is that industrialized countries will need to reduce their GHG emissions by 60 to 80 percent below 1990 levels by 2050 (European Commission 2007; Helme and Schmidt 2007; Höhne, Phylipsen, and Moltmann 2007; Meinshausen and den Elzen 2005; New England Governors/Eastern Canadian Premiers 2001; Schwarzenegger 2005). To meet this long-term goal, industrialized countries must reduce GHG emissions 15 to 30 percent below 1990 levels by 2020 (European Commission 2007; Höhne, Phylipsen, and Moltmann 2007; Meinshausen and den Elzen 2005). In August 2007, industrial nations agreed to GHG cuts 25 to 40 percent below 1990 levels by 2020 as a nonbinding starting point for a new round of international climate negotiations (Reuters 2007).

### Warming Real and Anthropogenic

#### Warming is an anthropogenic reality- GHG emission reductions are critical to prevent extinction

Sperling and Cannon 8 (Daniel, Professor of Civil Engineering and Environmental Science and Policy, Director of the Institute of Transportation Studies at the University of California, Davis, Acting Director of the UC Davis Energy Efficiency Center, and James, Editor of Energy Futures, *Reducing Climate Impacts in the Transportation Sector*, Springer, December 8, 2008, pg. 3) PCS

Perhaps most instrumental was the release of the latest IPCC report (IPCC, 2007a). The most complete and authoritative scientific assessment to date, reflecting the views of thousands of climate scientists, it clearly affirmed the role of human activities, primarily fossil fuel burning, in creating climate change. It documented rising air and ocean temperatures, accelerated melting of glacial snow and ice, and slow but steady rising of ocean levels. Eleven of the last 12 years evaluated by the IPCC ranked among the warmest years since 1850. The evidence of climate change is powerful and compelling. The IPCC found that average Northern Hemisphere temperatures were higher during the second half of the 20th Century than during any other 50-year period in the last 500 years and likely the highest in at least the past 1,300 years. If global temperatures increase another 1.5-2.5 degrees Celsius, which is likely in the 21st Century, unless GHG emissions are dramatically curtailed, as many as 20-30 percent of plant and animal species are likely to be at increased risk of extinction, according to the IPCC.

### SQ = High Transportation Sector Emissions

#### Policy changes are necessary to reduce GHG emissions in transportation sector.**Bandivadekar et al 8** (Anup, PhD in MIT’s Engineering Systems Division, Kristian Bodek, MS Degree in MIT’s Technology and Policy Program, Lynette Cheah, PhD student in MIT’s Engineering Systems Division, Christopher Evans, MS Degree in MIT’s Technology and Policy Program, Tiffany Groode, PhD in MIT’s Mechanical Engineering Department, John Heywood, Sun Jae Professor of Mechanical Engineering and Director of the Sloan Automotive Laboratory at MIT, Emmanuel Kasseris, PhD student in MIT’s Mechanical Engineering Department, Mathew Kromer, MS Degree in MIT’s Transportation and Policy Program, Malcolm Weiss, researcher for MIT’s Laboratory for Energy and the Environment, *On the Road in 2035: Reducing Transportation’s Petroleum Consumption and GHG Emissions*, Massachusetts Institute of Technology, July 2008, pg. 13, http://web.mit.edu/sloan-auto-lab/research/beforeh2/otr2035/On%20the%20Road%20in%202035\_MIT\_July%202008.pdf) PCS

Greenhouse gas intensity of fuel used in the light-duty vehicle fleet in the United States has been essentially constant over time because most LDVs run on gasoline. The increasing amount of ethanol blended in gasoline is, however, altering the greenhouse gas intensity of the fuel. In Europe, diesel accounts for a third of fuel use in the light-duty vehicle fleet, since some half of these vehicles use diesel engines [CONCAWE 2007]. In the future, the use of diesel and/or electricity-powered vehicles, as well as different types of biofuels, is likely to increase. However, the greenhouse gas emissions intensity of the fuel may increase or decrease depending on the fuel/electricity production pathway. Sections 6 and 7 discuss the effect of a changing fuel mix on well-to-wheel energy and greenhouse gas emissions from light-duty vehicles. Fiscal and regulatory policy options in the United States: In the past, regulation and oil prices have both played an important role in improving vehicle fuel consumption in the U.S. LDV fleet. The stagnation of reductions in vehicle fuel consumption and the relentless increase in vehicle travel since the early 1980s, however, suggests that policy changes will be required in the short- and longer-term future to achieve substantial reductions in fuel use and GHG emissions. Several of the options available to policy makers are reviewed in this section.

#### Status quo transportation subsidies increase reliance on motor vehicles

Pollard 2 (Oliver, Senior Attorney with the Southern Environmental Law Center, director of SELC's Land and Community Program, *Smart Growth and Sustainable Transportation: Can We get From There to Here?* Fordham Urban Law Journal, April 1, 2002, [http://www.thefreelibrary.com/Smart+growth+and+sustainable+transportation%3A+can+we+get+there+from...-a087359793](http://www.thefreelibrary.com/Smart%2Bgrowth%2Band%2Bsustainable%2Btransportation%3A%2Bcan%2Bwe%2Bget%2Bthere%2Bfrom...-a087359793)) PCS

Highway funding is not the only public policy that influences travel behavior. Federal, state, and local government subsidies that encourage automobile use total hundreds of billions of dollars a year, including spending on maintaining roads, traffic control, and law and parking enforcement. (20) These subsidies make it cheaper for people to live further from where they work, shop, and engage in other activities, which spurs development on the fringes of existing communities and necessitates increased driving distances and frequency. In addition, subsidies for new roads have served as can openers to the countryside, opening previously inaccessible areas to development. As two conservative analysts concluded, the current dominance of motor vehicles as a transportation mode "reflects massive and sustained government intervention on behalf of automobiles." (21) Governmental regulatory policies also encourage auto-dependence and suburban sprawl. For example, local governments often adopt minimum parking requirements that mandate substantial free parking, encouraging people to drive more and further. (22) By making driving cheaper and more convenient, these policies also discourage the use of other transportation modes. Parking policies also influence travel choices by making stores and office buildings less accessible to pedestrians and bicyclists. Increased distances between buildings, huge expanses of asphalt, and an increased likelihood of injury from motor vehicles make walking and bicycling less attractive.

#### Current transportation policy focus contribute to increases in total VMTs

Pollard 2 (Oliver, Senior Attorney with the Southern Environmental Law Center, director of SELC's Land and Community Program, *Smart Growth and Sustainable Transportation: Can We get From There to Here?* Fordham Urban Law Journal, April 1, 2002, [http://www.thefreelibrary.com/Smart+growth+and+sustainable+transportation%3A+can+we+get+there+from...-a087359793](http://www.thefreelibrary.com/Smart%2Bgrowth%2Band%2Bsustainable%2Btransportation%3A%2Bcan%2Bwe%2Bget%2Bthere%2Bfrom...-a087359793)) PCS

Transportation policies centered on road building and motor vehicle use have produced phenomenal mobility. Americans drove over 2.6 trillion miles on highways in 1998, double the rate in 1975. (29) This is an average of over 7.2 billion miles each day, the equivalent of eighty trips to the sun. The growing rate of automobile use has outpaced increases in population and the number of drivers. Between 1980 and 1997, the number of miles driven increased by sixty-three percent--over three times the rate of the population increase during that time. (30) The average trip length and the number of vehicle trips per person have risen, as has the amount of single occupancy motor vehicle use. (31) There is increasing evidence of the limitations of a road-centered transportation approach. Mobility has begun to decline in many areas, as traffic congestion has worsened. A study of sixty-eight U.S. metropolitan areas found that in 1999 drivers wasted approximately 4.5 billion hours stuck in traffic. (32) The average number of hours of delay per person per year more than tripled between 1982 and 1999, rising from eleven to thirty-six hours. (33) A recent report by the U.S. Department of Transportation acknowledged that despite record levels of funding, it is not possible to "build enough lanes or roads" to address congestion. (34)

#### Transportation policies are currently environmentally unsustainable

Pollard 2 (Oliver, Senior Attorney with the Southern Environmental Law Center, director of SELC's Land and Community Program, *Smart Growth and Sustainable Transportation: Can We get From There to Here?* Fordham Urban Law Journal, April 1, 2002, [http://www.thefreelibrary.com/Smart+growth+and+sustainable+transportation%3A+can+we+get+there+from...-a087359793](http://www.thefreelibrary.com/Smart%2Bgrowth%2Band%2Bsustainable%2Btransportation%3A%2Bcan%2Bwe%2Bget%2Bthere%2Bfrom...-a087359793)) PCS

New and wider highways can generate significant new traffic without providing long-term congestion relief. Although new and expanded roads may temporarily alleviate congestion, they can rapidly fill up as commuters change their routes, time of travel, and mode of travel to take advantage of the new capacity. (35) New road capacity also spurs further development and driving. (36) A report by the Commission on the Future of Transportation in Virginia concluded: "congestion increases as people move outward from urban centers, and additional lane miles of roads to accommodate the people lead to more development, and more people, and more congestion, and more lane miles, and around it goes." (37) As one civil engineer noted, "The rule is this: If you build it, they will come. It's called induced demand. Every mile of road you build induces people to drive." (38) Current transportation policies are not environmentally sustainable and do not promote smart growth. Current levels of road building and motor vehicle use produce tremendous pollution, consume resources and land, and foster far-flung, low density development that is environmentally destructive and costly to serve. (39)

#### Status quo doesn’t factor in environmental externalities of driving- warming, air pollution, and sprawl.

Zhang and Methipara 10 (Lei, Assistant Professor at the Department of Civil and Environmental Engineering at the University of Maryland, and Jasmy, Graduate Research Assistant at the University of Maryland, Internalizing Congestion and Environmental Externalities with Green Transportation Financing Policies, University of Maryland Center for Integrated Transportation Systems Management, November 15, 2010, <http://www.citsm.umd.edu/documents/final-reports/2010%20Zhang%20-%20CITSM%20Paper%202.pdf>, pg. 9) PCS

Transportation experts generally agree that today’s petroleum based motor vehicle highway system is unsustainable (15,16) due to air quality issues, climate change concerns, congestion and urban sprawl. Growing energy consumption and pollution in the transportation sector has a distinct spatial and urban dimension. (17,18) As urban dwellers acquire more wealth and transportation costs remain low, many households move to the periphery of urban areas, increasing the frequency and distance of car trips. Transportation is one of the leading sources (33.7%) of energy-related greenhouse gas emissions in the United States. (19) In order to achieve sustainability, improvements will be needed in technology, land use planning and financing. (20) Current transportation financing practices largely based on fuel taxes and vehicle registration fees, do not account for the external costs a driver imposes on the environment or other road users. Optimal first-best pricing to address congestion and environmental externalities is difficult to implement because of its lack of public and political support. (21,22,23) Suggested second best pricing schemes include green distance-based user fees, emission taxes, cap and trade, and congestion pricing on selected facilities. (24,25)

### Decreasing VMT Key to Solve Warming

#### VMT reduction is key- technological advancements and fuel efficiency will be offset by massive VMT increases

Ewing et al 7 (research professor at the National Center for Smart Growth, University of Maryland, associate editor of the Journal of the American Planning Association, Keith Bartholomew, assistant professor of urban planning in the University of Utah’s College of Architecture and Planning, Steve Winkelman, director of the Transportation Program at the Center for Clean Air Policy, Jerry Walters, chief technical officer with Fehr & Peers Associates, a California- based transportation planning and engineering firm, and Don Chen, founder and executive director of Smart Growth America, has worked for the Surface Transportation Policy Project and the World Resources Institute, *Growing Cooler: The Evidence on Urban Development and Climate Change*, The Urban Land Institute, 2007, <http://postcarboncities.net/files/SGA_GrowingCooler9-18-07small.pdf>) PCS

Transportation CO2 reduction can be viewed as a three-legged stool, with one leg related to vehicle fuel efficiency, a second to the carbon content of the fuel itself, and a third to the amount of driving or vehicle miles traveled (VMT). Energy and climate policy initiatives at the federal and state levels have pinned their hopes almost exclusively on shoring up the first two legs of the stool, through the development of more efficient vehicles (such as hybrid cars) and lower-carbon fuels (such as biodiesel fuel). Yet a stool cannot stand on only two legs. As the research compiled in this publication makes clear, technological improvement in vehicles and fuels are likely to be offset by continuing, robust growth in VMT. Since 1980, the number of miles Americans drive has grown three times faster than the U.S. population, and almost twice as fast as vehicle registrations (see Figure 0-1). Average automobile commute times in metropolitan areas have risen steadily over the decades, and many Americans now spend more time commuting than they do vacationing.

#### VMT moderation is necessary to reduce oil consumption and GHG emissions

Bishins et al 11 (Allison, Project Manager, US Transport and Climate, EMBARQ at World Resources Institute, Nathan Sandwick, research analyst in the U.S. Transport and Climate Program at EMBARQ at The World Resources Institute Center for Sustainable Transport, and Radha Neelakantan, Transportation Program Specialist at ITS America, *The Role of Driving in Reducing GHG Emissions and Oil Consumption*, World Resources Institute, 2011, pg. 9, <http://pdf.wri.org/role_of_driving_in_reducing_ghg_emissions.pdf>) PCS

In every scenario, even under optimistic technology assumptions and the less aggressive oil use and GHG emissions reductions, the United States will need to moderate per capita VMT relative to BAU projections. BAU projections predict VMT approximately 40 percent above 2010 levels in 2050. This is a plausible projection, because VMT per capita has increased by approximately 76 percent since 1970. Recently, however, the growth rate for VMT has slowed, even declining since 2005 when calculated per capita. Thus, BAU predictions may overestimate future VMT levels. Even with the optimistic assumptions about vehicle technology, three out of four scenarios show that VMT per capita must stay at, or decrease below, 2010 levels by 2050. The exception is the Minimal Oil Imports plus Optimistic Technology scenario, under which an increase in VMT per capita (compared to 2010 levels) is possible due to a large share of vehicle electrification, which reduces oil consumption. It is important to note, however, that an increase in electric vehicles does not achieve GHG emissions reductions equivalent to the magnitude of oil use reductions unless there are near-zero emissions from the grid that fuels these vehicles (see Figure 1 and Appendix A).

#### Reducing VMT miles is key to reducing emissions

Ewing et al 7 (research professor at the National Center for Smart Growth, University of Maryland, associate editor of the Journal of the American Planning Association, Keith Bartholomew, assistant professor of urban planning in the University of Utah’s College of Architecture and Planning, Steve Winkelman, director of the Transportation Program at the Center for Clean Air Policy, Jerry Walters, chief technical officer with Fehr & Peers Associates, a California- based transportation planning and engineering firm, and Don Chen, founder and executive director of Smart Growth America, has worked for the Surface Transportation Policy Project and the World Resources Institute, *Growing Cooler: The Evidence on Urban Development and Climate Change*, The Urban Land Institute, 2007, <http://postcarboncities.net/files/SGA_GrowingCooler9-18-07small.pdf>) PCS

The phrase “you can’t get there from here” has a new application. For climate stabilization, a commonly accepted target would require the United States to cut its carbon dioxide (CO2) emissions by 60 to 80 percent as of 2050, relative to 1990 levels. Carbon dioxide levels have been increasing rapidly since 1990, and so would have to level off and decline even more rapidly to reach this target level by 2050. This publication demonstrates that the U.S. transportation sector cannot do its fair share to meet this target through vehicle and fuel technology alone. We have to find a way to sharply reduce the growth in vehicle miles driven across the nation’s sprawling urban areas, reversing trends that go back decades.

#### CO2 level reduction is necessary even with status quo efforts to increase fuel economy

Ewing et al 7 (research professor at the National Center for Smart Growth, University of Maryland, associate editor of the Journal of the American Planning Association, Keith Bartholomew, assistant professor of urban planning in the University of Utah’s College of Architecture and Planning, Steve Winkelman, director of the Transportation Program at the Center for Clean Air Policy, Jerry Walters, chief technical officer with Fehr & Peers Associates, a California- based transportation planning and engineering firm, and Don Chen, founder and executive director of Smart Growth America, has worked for the Surface Transportation Policy Project and the World Resources Institute, *Growing Cooler: The Evidence on Urban Development and Climate Change*, The Urban Land Institute, 2007, <http://postcarboncities.net/files/SGA_GrowingCooler9-18-07small.pdf>) PCS

U.S. fuel economy has been flat for almost 15 years, as the upward spiral of car weight and power has offset the more efficient technology. Federal and state efforts are underway to considerably boost vehicle efficiency and reduce greenhouse gas emissions. In June 2007, the U.S. Senate passed corporate average fuel economy (CAFE) standards that would increase new passenger vehicle fuel economy from the current 25 miles per gallon (mpg) to 35 mpg by 2020. (As of this writing, the House has not acted.). California plans to implement a low carbon standard for transportation fuels, specifically a 10 percent reduction in fuel carbon content by 2020. Even if these more stringent standards for vehicles and fuels were to go into effect nationwide, transportation-related emissions would still far exceed target levels for stabilizing the global climate (see Figure 0-3). The rapid increase in driving would overwhelm both the increase in vehicle fuel economy (green line) and the lower carbon fuel content (purple line). In 2030, CO2 emissions would be 12 percent above the 2005 level, and 40 percent above the 1990 level (turquoise line). For climate stabilization, the United States must bring the CO2 level to 15 to 30 percent below 1990 levels by 2020 to keep in play a CO2 reduction of 60 to 80 percent by 2050. As the projections show, the United States cannot achieve such large reductions in transportation-related CO2 emissions without sharply reducing the growth in miles driven.

#### Impossible to solve transportation sector CO2 emissions without decreasing projected VMT.

Sperling and Cannon 8 (Daniel, Professor of Civil Engineering and Environmental Science and Policy, Director of the Institute of Transportation Studies at the University of California, Davis, Acting Director of the UC Davis Energy Efficiency Center, and James, Editor of Energy Futures, *Reducing Climate Impacts in the Transportation Sector*, Springer, December 8, 2008, pg. 118-119) PCS

If VMT grows as projected by AASHTO, transportation-related CO2 emissions per mile traveled, called the CO2 intensity, must decrease by over 90 percent per vehicle average through vehicle and fuel efficiencies by 2055 to achieve reductions to levels 70 percent below 1990 emissions. Since a large percentage of the vehicle fleet in 2055 will not have achieved 90 percent reductions in combined vehicle and fuel CO2 intensity, the remainder of the fleet (newer vehicles) must sufficiently exceed the 90 percent goal to offset the shortfall. Absent a ban on the internal combustion engine, this is virtually impossible.

### Transportation Sector Key to Warming

#### Curbing transport sector emissions is key to solving climate change

Shaheen and Lipman 7 (Susan, UC Davis Policy and Behavioral Research Program Leader, Honda Distinguished Scholar in Transportation, and Timothy, Research Director for the Transportation Sustainability Research Center at UC Berkeley, *Reducing Greenhouse Emissions and Fuel Consumption*, IATSS Research 31(1), March 14, 2007, pgs. 6-8, <http://76.12.4.249/artman2/uploads/1/UCD-ITS-RP-07-14.pdf>) PCS

Furthermore, transportation sector emissions are expected to increase rapidly over the next few decades. The International Energy Agency (IEA) projects that energy use and CO2 emissions in developed countries will rise by approximately 50 percent between 2000 and 2030. Emissions in developing countries are expected to rise even faster, in some cases (such as in China and Indonesia) more than doubling between 2000 and 2020. These increases are due to a combination of increases in personal travel and goods movement, coupled with continued heavy reliance on fossil fuels for transportation energy. Worldwide personal transportation is expected to increase 1.7 percent annually from 2000 to 2050, while worldwide freight transportation is expected to increase by 2.3 percent annually during the same timeframe. Worsening this issue, transit modal share has decreased due to lower density land use and the greater convenience of private vehicles. Given these trends, solutions are needed to reduce emissions and energy consumption from the transportation sector, now widely believed to be contributing to climate change.

#### Continued growth in amount of miles driven results in environmental pollution, health hazards, and climate change **Pollard 2** (Oliver, Senior Attorney with the Southern Environmental Law Center, director of SELC's Land and Community Program, *Smart Growth and Sustainable Transportation: Can We get From There to Here?* Fordham Urban Law Journal, April 1, 2002, [http://www.thefreelibrary.com/Smart+growth+and+sustainable+transportation%3A+can+we+get+there+from...-a087359793](http://www.thefreelibrary.com/Smart%2Bgrowth%2Band%2Bsustainable%2Btransportation%3A%2Bcan%2Bwe%2Bget%2Bthere%2Bfrom...-a087359793)) PCS

Extensive road building and motor vehicle use (40) is linked to virtually every environmental problem, including air and water pollution; habitat destruction; loss of wetlands; global climate change; and waste disposal. (41) For example, motor vehicles are a primary source of air pollution, particularly of carbon monoxide and the two precursors of ozone smog: nitrogen oxides and volatile organic compounds. (42) Motor vehicles also generate significant amounts of particulate matter, lead, and toxic pollutants. (43) These pollutants contribute to environmental and health harms such as premature death, lung-tissue damage, asthma attacks, impaired visibility, and forest damage, (44) and approximately 141 million Americans live in areas with unhealthy levels of ozone. (45) Although individual tailpipe emissions have fallen sharply as a result of federal regulations and technological advances, these gains have been offset by the tremendous growth in the amount of driving. (46) In addition, motor vehicles are a primary source of emissions that could cause disastrous economic and environmental effects by altering the climate throughout the world. (47) Transportation produces thirty percent of the carbon dioxide (the primary greenhouse gas resulting from human activities) in the United States. (48) Each vehicle emits an average of over one pound of carbon dioxide for every mile traveled, (49) and carbon dioxide emissions from transportation are rising. (50)

#### Vehicle efficiency improvements won’t solve- only a reduction in miles driven reduces CO2

Ewing et al 7 (research professor at the National Center for Smart Growth, University of Maryland, associate editor of the Journal of the American Planning Association, Keith Bartholomew, assistant professor of urban planning in the University of Utah’s College of Architecture and Planning, Steve Winkelman, director of the Transportation Program at the Center for Clean Air Policy, Jerry Walters, chief technical officer with Fehr & Peers Associates, a California- based transportation planning and engineering firm, and Don Chen, founder and executive director of Smart Growth America, has worked for the Surface Transportation Policy Project and the World Resources Institute, *Growing Cooler: The Evidence on Urban Development and Climate Change*, The Urban Land Institute, 2007, <http://postcarboncities.net/files/SGA_GrowingCooler9-18-07small.pdf>) PCS

Carbon dioxide is more difficult to control through vehicle technology than are conventional air pollutants. Conventional pollutants can be reduced in automobile exhaust with sophisticated emission control systems (catalytic converters, on-board computers, and oxygen sensors). Carbon dioxide, meanwhile, is a direct outcome of burning fossil fuels; there is no practical way to remove or capture it from moving vehicles. At this point in time, the only way to reduce CO2 emissions from vehicles is to burn less gasoline and diesel fuel. An analysis by Steve Winkelman of the Center for Clean Air Policy, one of the coauthors of this publication, finds that CO2 emissions will continue to rise, despite technological advances, as the growth in driving overwhelms planned improvements in vehicle efficiency and fuel carbon content. The U.S. Department of Energy’s Energy Information Administration (EIA) forecasts that driving will increase 59 percent between 2005 and 2030 (red line, Figure 0-2), outpacing the projected 23 percent increase in population. The EIA also forecasts a fleetwide fuel economy improvement of 12 percent within this time frame, primarily as a result of new federal fuel economy standards for light trucks (green line, Figure 0-2). Despite this improvement in efficiency, CO2 emissions would grow by 41 percent (dark blue line, Figure 0-2).

#### Reducing oil consumption is key to lowering GHG emissions and climate change**Bandivadekar et al 8** (Anup, PhD in MIT’s Engineering Systems Division, Kristian Bodek, MS Degree in MIT’s Technology and Policy Program, Lynette Cheah, PhD student in MIT’s Engineering Systems Division, Christopher Evans, MS Degree in MIT’s Technology and Policy Program, Tiffany Groode, PhD in MIT’s Mechanical Engineering Department, John Heywood, Sun Jae Professor of Mechanical Engineering and Director of the Sloan Automotive Laboratory at MIT, Emmanuel Kasseris, PhD student in MIT’s Mechanical Engineering Department, Mathew Kromer, MS Degree in MIT’s Transportation and Policy Program, Malcolm Weiss, researcher for MIT’s Laboratory for Energy and the Environment, *On the Road in 2035: Reducing Transportation’s Petroleum Consumption and GHG Emissions*, Massachusetts Institute of Technology, July 2008, pg. 5, <http://web.mit.edu/sloan-auto-lab/research/beforeh2/otr2035/On%20the%20Road%20in%202035_MIT_July%202008.pdf>) PCS

Increasing consumption of petroleum results in increasing emissions of greenhouse gases, which contribute to global climate change. The transportation sector is the largest contributor among the end-use sectors of the economy to the emissions of CO2 in the United States. The emissions of CO2 from transport have grown by approximately 25% during the period from 1990 to 2005. The tailpipe CO2 emissions from LDVs in 2005 were estimated to be 1,260 million metric tons, or about 22% of total U.S. emissions of CO2. LDV energy use had been projected to grow at a rate of 1.3% per annum, but recent fuel economy legislation and estimates of higher fuel prices have lowered expected growth to 0.3% per year [EIA 2007a; EIA 2008]. Even taking these factors into account, the unrelenting increase in the consumption of oil in U.S. light-duty vehicles presents an extremely challenging energy and environment problem. Effective measures will have to be taken to significantly reduce fuel consumption if risks to the economy and the environment are to be reduced.

#### U.S. transportation emissions are a product of gasoline consumption- exceeding both China and India in GHG output **Sperling and Cannon 8** (Daniel, Professor of Civil Engineering and Environmental Science and Policy, Director of the Institute of Transportation Studies at the University of California, Davis, Acting Director of the UC Davis Energy Efficiency Center, and James, Editor of Energy Futures, *Reducing Climate Impacts in the Transportation Sector*, Springer, December 8, 2008, pg. 1-2) PCS

Transportation accounts for about one-fifth of global GHG emissions causing climate change, but close to 30 percent in most industrialized countries. The United States far exceeds the rest of the world when it comes to transport-related GHG emissions. While China, India, and other countries in the developing world are rapidly motorizing, causing rapid increases in their GHG emissions, their transport emissions are still a fraction of those in the U.S. As indicated in Table 1.1, transportation activities accounted for 33 percent of GHG emissions in the United States in 2005. Virtually all of transportation energy consumed came from petroleum products. Over 60 percent of the emissions resulted from gasoline consumption for personal vehicle use.

### VMT Fee Solves Warming

#### A VMT tax would reduce GHG emissions and manage demand for road travel

AASHTO 8 (American Association of State Highway and Transportation Officials, Primer on Transportation and Climate Change, 2008, pgs. 41-42 <http://downloads.transportation.org/ClimateChange.pdf>) PCS

In recent years, the concept of road pricing has received increased attention, primarily as a means of managing congestion and generating additional funding for transportation. If implemented on a broad scale, road-pricing systems could reduce GHG emissions as well. Road pricing can take many different forms, from tolls to cordon-based permit pricing to parking pricing to VMT-based pricing to gasoline surcharges. Major metropolitan areas such as London, Stockholm, and Singapore have adopted road-pricing programs, primarily to manage congestion. These types of initiatives could also help limit GHG emissions. A potentially more significant change, in terms of road pricing, would be large-scale adoption of a “VMT tax” as a revenue source for transportation programs, as an eventual replacement for the fuel tax. This approach was suggested recently by the National Surface Transportation Revenue Policy and Revenue Study Com- mission, which was established by Congress in 2005 to develop long-term recommendations for the transportation system. The Commission suggested that a “mileage-based fee” should be “strongly considered as a long-term replacement for the fuel tax.” This recommendation was based mainly on the potential for a mileage fee to provide a viable revenue source and to assist in managing congestion; however, any system involving widespread road pricing would also help to manage demand for road travel.

#### Road pricing solves emissions- London and Stockholm prove

Shaheen and Lipman 7 (Susan, UC Davis Policy and Behavioral Research Program Leader, Honda Distinguished Scholar in Transportation, and Timothy, Research Director for the Transportation Sustainability Research Center at UC Berkeley, *Reducing Greenhouse Emissions and Fuel Consumption*, IATSS Research 31(1), March 14, 2007, pgs. 6-8, <http://76.12.4.249/artman2/uploads/1/UCD-ITS-RP-07-14.pdf>) PCS

Road pricing policies include shifts from autos to public transportation, including cordon pricing (toll rings in high-activity centers like central business districts that charge drivers for entry into a specific area), FAIR lanes (fast and intertwined regular lanes that charge drivers to use express lanes and transfer a portion of the collected money to drivers using the non-express or regular lanes), and HOT lanes (or high occupancy toll lanes that enable drivers without the minimum number of passengers access to high occupancy vehicle lanes). Roadway pricing makes drivers more aware of the true cost of driving and may ease congestion as they switch modes. Transport for London reports that the central London congestion charging program was responsible for a 16 percent reduction in CO2 traffic emissions within the charging zone during 2002 and 2003 (annual averages). In addition, the city of Stockholm implemented a six-month trial of cordon pricing in January 2006, including provisions for expanded transit services and park-and-ride facilities. Using emission models, the Stockholm trial is estimated to have reduced CO2 and particle emissions by “approximately 100 tons per weekday 24-hour period or by 14 percent” (p. 89).

#### Mileage fees lower transportation sector CO2 emissions

Huang et al 10 (Edward, Post-Doctoral Research Fellow, Energy Technology Innovation Policy research group, Henry Lee, Director, Environment and Natural Resources Program, Energy Technology Innovation Policy research group, Grant Lovelette, Research Assistant, Masters in Public Policy, and José A. Gómez-Ibáñez, Professor of Urban Planning and Public Policy, Transportation Revenue Options: Infrastructure, Emissions, and Congestion, Harvard Kennedy School, September 2010, <http://live.belfercenter.org/files/Transportation%20Revenue%20Options%20Workshop%20Report%202010%20for%20web.pdf>) PCS

Present concerns involve more than the problem of insufficient revenues to pay for roads, bridges, and public transit. Research has shown that transportation taxes and fees can influence motorists’ behavior. For example, congestion pricing can encourage drivers to carpool, travel during off-peak hours, and switch to public transit – all of which promote efficient use of the existing transportation system and alleviate the need to raise more revenue for system expansion. Future funding schemes for transportation can affect the ways Americans drive or choose where they live. If the nation is concerned about energy security and increased consumption of imported oil, then how we design fuel taxes and congestion or mileage fees will have measurable impacts on our efforts to address these concerns. Similarly, if the nation is determined to cut carbon emissions from the transportation sector – which account for 30% of the nation’s carbon dioxide emissions – then both the design of transportation fees or taxes and how the revenues are spent will have significant implications for future emissions. Therefore, it is not surprising that parties concerned about the environment and national security are invested in the debate on the scope and future of transportation revenue options.

#### The VMT tax significantly reduces congestion and fuel consumption

Safirova et al 7 (Elene, Researcher for Resources for the Future, Sebastien Houde, Management Science and Engineering B.S. from Stanford University, Winston Harrington, Senior Fellow at Resources for the Future, *Spatial Development and Energy Consumption*, Resources for the Future, December 2007, pgs. 26-27) PCS

The VMT tax is the policy that achieves the largest reduction in energy use. As expected, the bulk of the reduction comes from transportation, but interestingly, the VMT tax is effective at reducing residential energy use. For example, it does better than the infill policies. The VMT tax also induces individuals to move to the center of the region. Almost 11,000 people move inside the Beltway. The increase is particularly concentrated in the District of Columbia and Arlington County. These are the two places where the share of SFDs relative to SFAs and the ratio of MF5s relative to MF24s are the highest over all the study area. It explains why the decrease in residential energy use in those areas is significant. The VMT tax and the substantial decrease of travel that it induces are an effective way to increase urban density. On the transportation side, the decrease in fuel use is drastic. This is due to the important decrease in VMT, which has three causes. First, as people move to the center of the economic activity, the average trip distance to work and shopping locations is consequently reduced (Table 8). Second, there is an important switch to public transit and nonmotorized modes of travel (Table 7). Both of these effects contribute to congestion relief (Table 8). The third and more subtle cause of VMT reduction comes from the fact that the VMT tax causes some people to stop working and, therefore, to stop commuting. The model assumes that the vast amount of revenue collected from the VMT tax—nearly $1.18 billion per year—is distributed equally among all residents of the metropolitan area. Some workers facing high commuting costs and simultaneously receiving a generous tax rebate would simply prefer not to work because their commuting costs are so high and because the tax rebate is large enough to enable them to afford not to work. This is particularly true for low-income individuals for whom commuting costs represent a larger share of their budget and to whom the tax rebate is more valuable.

### VMT Solves Congestion

#### VMT fee can save billions and significantly reduce congestion even without detailed GPS data

Baker et al 9 (Ginger Goodin, Richard T. Baker and Lindsay Taylor, Texas Transportation Institute, Sponsored by the USDoT, “Mileage-Based User Fees: Defining a Path toward Implementation Phase 2: An Assessment of Institutional Issues” p. 17-8) APB

Mileage‐based user fees have the potential to generate significant amounts of data with regards to driver behavior that can be used in achieving various secondary goals outside of revenue generation. For example, the Puget Sound Regional Council’s Traffic Choices study was aimed at determining how drivers would react to differential pricing applied to different facilities, with peak period travel and travel on freeways having a higher per mile fee than travel on arterials or in the off‐peak period. Fairly detailed travel information was required. PSRC was able to understand driver responses to tolling in terms of changes in trip making and trip chaining, and was able to understand the elasticity of travel in response to price signals. This type of data may be useful in travel forecasting models used in the development of long‐range transportation plans that incorporate pricing elements. PSRC has noted that precise locational data might not necessarily be required for such a detailed mileage‐fee system, but some locational and facility‐specific data will be required. It is estimated that the during its operation the London congestion toll program eliminated approximately 60,000 vehicle trips into the congestion zone per day, with about 50 to 60 percent of these trips shifting to public transit. PSRC estimated that 23 system‐wide tolling would result in a 12 percent decrease in total VMT over the whole Puget Sound region. Furthermore, PSRC estimates that the benefits from travel time savings over a 30‐year implementation of area‐wide pricing would be about $37 billion, with a benefit‐to‐cost ratio of over 6 (13). It is estimated that the Austroads Intelligent Access (IAP) program in Australia will generate $118 million to $212 million per year with an estimated benefit‐to‐cost ratio of between 3.1:1 to 5.0:1 (14). International mileage‐based fee systems have a wide array of policy goals and objectives. Table 1 shows the most relevant goals and objectives for the major types of mileage‐fee systems deployed around the world as projects surveyed by the University of California, Los Angeles (UCLA) Institute of Transportation Studies. “Primary” goals are those that were found in most or all of the projects surveyed, while “secondary” goals were identified in only a minority of the projects surveyed. Table 1: International User Fee System Pricing and Policy Objectives

### VMT => Congestion Pricing

#### VMT tracking systems enable congestion pricing

Whitty and Imholt 5 (James, Manager, Office of Innovative Partnerships and Alternative Funding and Betsy, Alternative Funding Administrator, “Oregon’s Mileage Fee Concept and

Road User Fee Pilot Program”, *Oregon Dept. of Transportation*, http://www.oregon.gov/ODOT/HWY/OIPP/docs/2005LegislativeReport.pdf?ga=t) GSK

The Task Force recommended in the 2003 Legislative Report that congestion pricing be part of the new road revenue system. Simply put, congestion pricing allows for collection of additional charges for motorists who drive on certain roadways during times of congestion. The Oregon mileage fee concept could accommodate development of precise strategies for peak period pricing to take into account the particular characteristics of individual communities. For example, cities could have several zones with various rates at different times of day. With sufficient computing power added to the mileage data collection technology, the strategies employed could be quite defined and precise. Payment of charges for peak period pricing would occur at service stations as an amount added to the mileage fee. Service station operators would be obligated to remit the charges for peak period pricing to ODOT. See VMTCAR discussion in subsection 3.3.7

### See Warming Core for Climate Science and Impacts

# Sprawl Advantage

## VMT Solves Sprawl

### Road Pricing Solves Urban Sprawl

#### **Charging motorists for road use will induce people to move back into the city**

Langer and Winston 8 (Ashley and Clifford, Ashley Langer is a Professor of Public Policy and Economics at the University of Michigan and Clifford Winston is Senior Fellow in the Economic Studies Program at the Brookings Institution, *Brookings-Wharton Papers on Urban Affairs,*  “Toward a Comprehensive Assessment of Road Pricing Accounting for Land Use”, [http://muse.jhu.edu/journals/brookings-wharton\_papers\_on\_urban\_affairs/v2008/2008. langer.html](http://muse.jhu.edu/journals/brookings-wharton_papers_on_urban_affairs/v2008/2008.%20langer.html)) AH

The central finding of our model is that policymakers' failure to charge motorists for the congestion that they cause has raised all home prices in metropolitan areas while also contributing to sprawl. We use the model to simulate the welfare effects of instituting marginal cost congestion tolls on the nation's urban highways to capture two major effects. The first is that the tolls will generate toll revenues while causing home prices (and property tax revenues) to decline because, on average, residents' higher out-of-pocket highway costs will exceed their value of the reduction in travel time.32 The increase in toll revenues is a welfare gain, assuming that the revenues are used for socially desirable purposes, but the decline in home prices represents a welfare loss. The reason is that, on net, congestion pricing reduces the attractiveness of homes and lowers their price by decreasing consumer demand. Alternatively, if the price of housing dropped because the supply of homes increased, the price decline would be associated with a welfare gain from an increase in the housing stock. The second effect is that congestion pricing will cause certain residents to move, thereby increasing metropolitan area density and partially offsetting the initial reduction in home prices as home prices rise in response to the decreased cost of city services and greater access to urban amenities. At the same time, because the prices of homes in the shortest commute time groups will fall more than the prices of homes that are farther from employment centers, entropy will increase, which feeds back to further increase home prices, especially those in the farthest time groups. We point out that our model does not capture other benefits of congestion pricing associated with reducing sprawl, such as preserving the natural habitat, discouraging wasteful suburban expansion of rail transit, and weakening restrictive land use regulations. We discuss those and other effects later.

#### Sprawl is reversible- road pricing leads to urban redevelopment.

Langer and Winston 8 (Ashley and Clifford, Ashley Langer is a Professor of Public Policy and Economics at the University of Michigan and Clifford Winston is Senior Fellow in the Economic Studies Program at the Brookings Institution, *Brookings-Wharton Papers on Urban Affairs*, “Toward a Comprehensive Assessment of Road Pricing Accounting for Land Use”, [http://muse.jhu.edu/journals/brookings-wharton\_papers\_on\_urban\_affairs/v2008/2008. langer.html](http://muse.jhu.edu/journals/brookings-wharton_papers_on_urban_affairs/v2008/2008.%20langer.html)) AH

From a theoretical perspective, changes in motorists' residential locations in response to road pricing and their effect on land use can be determined from the relationship between transportation costs and household location decisions analyzed by, for example, Alonso (1964), Mills (1967), and Muth (1969). We draw on the theoretical discussion presented by Pickrell (1999). Households locate where the costs of commuting to work exactly balance the savings in housing costs that accrue from living in a more distant location. Formally, that result is derived under the assumption that a household chooses a combination of housing, h, and other goods, g, to maximize a utility function, U(h,g), subject to a budget constraint given by Y = pgg + ph(d)h + T(d,v), where Y is income; pg denotes the composite price of the nonhousing good; ph(d) is the price per unit of housing, which is a function of distance d from the workplace; and T(d,v) denotes transportation costs for commuting to and from work, which depend on commuting distance and the value of travel time, v, which itself is a function of income, Y. Assuming for simplicity that households have identical preferences for identical units of housing, the relevant first-order condition for a constrained utility maximum is –h(∂ph/∂d) = ∂T/∂d (see Pickrell for the complete derivation). The condition states that at the household's equilibrium location, the change in its housing costs from moving slightly closer to or farther from the workplace, exactly offsets the resulting change in commuting costs. We can rewrite the first-order condition to obtain the household's bid-rent function, (∂ph/∂d) = –(∂T/∂d)/h , which indicates that the price that the household is willing to [End Page 131] pay for housing declines with the distance from its workplace in proportion to the rate of increase in transportation costs. If the assumptions of identical housing preferences and housing units are relaxed, households will consume different quantities of housing; in particular, they will respond to the decline in housing prices with distance from the city center by demanding more housing services (nicer or larger homes) at more distant locations. Thus larger households and others with preferences for more residential space will tend to seek more distant locations because they can realize significant savings in housing costs. Home builders will respond to declining land prices at increasing distances from the city center by substituting progressively more land for capital—that is, by constructing lower-density housing. The result is that the density of residential development will decline as the distance from the city's central business district increases and households that live in lower-density developments will incur longer commutes. Given this framework, we can assess how households will adjust their locations in response to the adoption of road pricing and determine the resulting impact on land use. Congestion tolls will increase household members' out of pocket expenses and reduce their travel time. But as noted, households on average will face higher per-mile transportation costs, and the rate at which their commuting costs rise with increasing distance from their workplaces will be higher. Because households seek to locate where the savings in land and housing costs in distant locations offset the increase in commuting costs, the increase in per-mile commuting costs will induce some households to seek closer and higher-density residential locations. The households that make this adjustment increase their utility by reducing the out-of-pocket cost of their toll and travel time costs—savings in transport costs that presumably exceed the increase in land and housing costs. In the process of moving closer to their workplaces, such households also reduce the cost of social services by increasing citywide density. Wheaton (1998) shows that congestion tolls in a monocentric city should increase density, with the largest increase at the city center and increases in other parts of the city decreasing with distance from the central business district. Lee (1992) assesses congestion pricing in a polycentric city and argues that it should increase density in the central city as well as in suburban sub-centers. Lee also suggests that density should increase more in the part of the suburban subcenter that is closest to the central city than it should in other locations, thereby decreasing the variation in density because residents would take into account both their distance from the central city and the subcenter to reduce total transportation costs. [End Page 132]

#### Road pricing solves sprawl- increased urban density outweighs the effect of decreased delays.

Langer and Winston 8 (Ashley and Clifford, Ashley Langer is a Professor of Public Policy and Economics at the University of Michigan and Clifford Winston is Senior Fellow in the Economic Studies Program at the Brookings Institution, *Brookings-Wharton Papers on Urban Affairs* , “Toward a Comprehensive Assessment of Road Pricing Accounting for Land Use”, [http://muse.jhu.edu/journals/brookings-wharton\_papers\_on\_urban\_affairs/v2008/2008. langer.html](http://muse.jhu.edu/journals/brookings-wharton_papers_on_urban_affairs/v2008/2008.%20langer.html)) AH

We find, as expected, that average delay increases density and that the failure to price congestion decreases density. (The highway congestion variables had insignificant effects on entropy.) Thus, holding home prices constant, the failure to price highway congestion contributes to sprawl, while the resulting delays reduce sprawl. And given that the increase in density from pricing congestion is greater than the expected decrease in density from reducing delay, inefficient highway policy results in an increase in sprawl.

## Sprawl Impacts

### Laundry List

#### Urban sprawl causes inequality, air pollution, economic decline of cities, and wasteful land use.

Bourne 91 (L.S., Professor @ University of Toronto, *Economic Geography*, “THE ROEPKE LECTURE IN ECONOMIC GEOGRAPHY - RECYCLING URBAN SYSTEMS AND METROPOLITAN AREAS: A GEOGRAPHICAL AGENDA FOR THE 1990s AND BEYOND”, July, <http://www.jstor.org/stable/143932?&Search=yes&searchText=urban&searchText=sprawl&searchText=effects&searchText=benefits&searchText=reconstruction&list=hide&searchUri=%2Faction%2FdoBasicSearch%3FQuery%3Durban%2Breconstruction%2Beffects%2Bbenefits%2Bsprawl%26gw%3Djtx%26acc%3Don%26prq%3Durban%2Breconstruction%2Beffects%2Bbenefits%26Search%3DSearch%26hp%3D25%26wc%3Don&prevSearch=&item=2&ttl=230&returnArticleService=showFullText>) AH

What then are the social and environmental consequences of a continuation of immediate and past trends in the way we develop our urban landscape, especially with respect to the contrasts between rampant suburbanization and the decline of the inner city and older suburbs? What are factors that will influence the likelihood of significantly altering these trends? Clearly these two processes are interdependent, and both are linked in numerous and complex ways to the changing fortunes of individual places within the larger urban system. As growth fortunes become more clearly partitioned among places and, despite gentrification, between inner city and suburb, the uneven social and environmental consequences tend to be self-reinforcing [2; 42; 53]. The most obvious of these effects, although still the subject of debate, relate to the relative costs of dispersed and unbalanced suburbanization [1; 12; 61]. While obviously meeting certain social needs and providing choice for some, the rate and form of growth on the suburban margin have undoubtedly drawn jobs, population, and capital from the inner city and older suburbs. This suburbanization, as noted, has led to an accelerated write-down of investment in older buildings and neighborhoods and, of course, a write-down of the life chances of their residents. It has also substantially extended the urban in-frastructure (water, sewers, and roads) necessary to accommodate urban growth, discouraged the provision of public transit, and increased reliance on the automobile, thereby generating higher levels of airborne pollutants and isolating those residents (particularly the elderly, women, children, the poor, and the infirm) without access to a car. The dispersed nature of much recent suburban development has also contributed to an increasingly inefficient use of urban land and services and to the loss of agricultural and other non-urban lands. Although attempts to measure the degree of economic inefficiency in present suburban forms are fraught with difficulty and controversy, few doubt that such inefficiencies exist [27].

#### Urban sprawl bad—traffic fatalities, destroys prime agricultural land, wildlife habitats, and causes groundwater pollution.

Trohimovich 5 (Tim, ACIP, JD, Planning Director of Futurewise, “Compact Urban Development

Requirements & Safe Harbors, Buildable Lands Reports, & Reasonable Measures” Futurewise 07/20/05) VZ

Why Sprawl is Bad and Density is Good Poorly planned low density sprawling development results in many adverse impacts on Washington’s residents, property owners, local governments, and environment. 1 A partial list of the adverse impacts of low density development include: ● Higher public facility costs. 2 ● Higher housing costs and the exclusion of minorities and low-income families. 3 ● More traffic because more people drive alone and must drive longer distances to work and to meet the needs of their families. 4 Sprawling places are likely to have more traffic fatalities per capita than more compact regions due to higher rates of vehicle use. ● Sprawl converts more prime agricultural land from farming to urban uses than more compact forms of development. 5 ● Sprawl destroys more critical areas and other environmentally sensitive areas than compact development. 6 Sprawl results in fish and wildlife habitat losses and habitat fragmentation, the separation of habitats by development. 7 Sprawl’s dispersed development pattern leads to the degradation of water quality by increasing runoff volume, altering regular stream flow and watershed hydrology, reducing groundwater recharge, and increasing stream sedimentation. 8 Scientists at the University of Washington have concluded that although impacts on salmon habitat from urbanization occur in a linear fashion, changes to the physical and biological factors necessary for high quality salmon habitat occurs most rapidly when five to ten percent of a river basin is covered by impervious surfaces (roads, buildings, and parking lots). 9 Assuring that urban areas have sufficient densities to wisely use the land addresses each of these adverse affects and others. Futurewise urges cities and counties to provide densities that wisely and efficiently use land. While the four dwelling unit per net acre rule helps, it is not sufficient in itself. To provide transit supportive densities, at least seven homes per acre are necessary. 10 In most communities, to provide housing affordable for working families and to meet residents housing choices will require higher housing densities. 11 These needs must be considered in planning for sustainable communities.

### Sprawl => Air Pollution, Warming

#### Sprawl causes high levels of vehicle miles driven, increasing air pollution and warming.

Frumkin 2 (Howard, Dean- School of Public Health Professor, Env. and Occ. Health Sciences – Urban Sprawl and Public Health

<http://www.cdc.gov/healthyplaces/articles/Urban_Sprawl_and_Public_Health_PHR.pdf> Date accessed 5-29-12 AJY)

Motor vehicles are a leading source of air pollution.20 Even though automobile and truck engines have become far cleaner in recent decades, the sheer quantity of vehicle miles driven results in large releases of carbon monoxide, carbon dioxide, particulate matter, nitrogen oxides, and hydrocarbons into the air.21 Nitrogen oxides and hydrocarbons, in the presence of sunlight, form ozone. Nationwide, “mobile sources” (mostly cars and trucks) account for approximately 30% of emissions of oxides of nitrogen and 30% of hydrocarbon emissions.22 However, in automobile-dependent metropolitan areas, the proportion may be substantially higher. In the 10-county metropolitan Atlanta area, for example, on-road cars and trucks account for 58% of emissions of nitrogen oxides and 47% of hydrocarbon emissions, figures that underestimate the full impact of vehicle traffic because they exclude emissions from related sources, such as fuel storage facilities and filling stations.23 In various combinations, the pollutants that originate from cars and trucks, especially nitrogen oxides, hydrocarbons, ozone, and particulate matter, account for a substantial part of the air pollution burden of American cities. Of note, the highest air pollution levels in a metropolitan area may occur not at the point of formation but downwind, due to regional transport. Thus, air pollution is a problem not only alongside roadways (or in close proximity to other sources) but also on the scale of entire regions. The health hazards of air pollution are well known.24 Ozone is an airways irritant. Higher ozone levels are associated with higher incidence and severity of respiratory symptoms, worse lung function, more emergency room visits and hospitalizations, more medication use, and more absenteeism from school and work.24 Although healthy people may demonstrate these effects, people with asthma and other respiratory diseases are especially susceptible. Particulate matter is associated with many of the same respiratory effects and, in addition, with elevated mortality.25–27 People who are especially susceptible to the effects of air pollution include the elderly, the very young, and those with underlying cardiopulmonary disease. An additional driving-related emission is carbon dioxide, the end product of burning fossil fuels such as gasoline. Carbon dioxide is the major greenhouse gas, accounting for approximately 80% of emissions with global warming potential.28 Motor vehicles are also a major source of other greenhouse gases, including methane, nitrogen oxides, and volatile organic compounds. As a result, automobile traffic is a major contributor to global climate change, accounting for approximately 26% of U.S. greenhouse gas emissions.28 During the decade of the 1990s, greenhouse gases from mobile sources increased 18%, primarily a reflection of more vehicle miles traveled.28 In turn, global climate change threatens human health in a number of ways, including the direct effects of heat, enhanced formation of some air pollutants, and increased prevalence of some infectious diseases.29–32 Thus, the link between sprawl and respiratory health is as follows: Sprawl is associated with high levels of driving, driving contributes to air pollution, and air pollution causes morbidity and mortality. In heavily automobile-dependent cities, air pollution can rise to hazardous levels, and driving can account for a majority of the emissions. Although ongoing research is exploring the pathophysiology of air pollution exposure and related issues, there are also important research questions that revolve around prevention. Technical issues include such challenges as the development of low-emission vehicles and other clean technologies. Policy research needs to identify approaches to land use and transportation that would reduce the need for motor vehicle travel. Behavioral research needs to identify factors that motivate people to choose less-polluting travel behaviors, such as walking, carpooling, or use of more efficient vehicles.

#### Sprawl causes warming

Frumkin 2 (Howard - Dean, School of Public Health Professor, Env. and Occ. Health Sciences – Urban Sprawl and Public Health

<http://www.cdc.gov/healthyplaces/articles/Urban_Sprawl_and_Public_Health_PHR.pdf>) Date accessed 5-29-12 AJY

On warm days, urban areas can be 6°–8° F warmer than surrounding areas, an effect known as an urban heat island (see Figure 2). The heat island effect is caused by two factors. First, dark surfaces such as road- ways and rooftops efficiently absorb heat from sun- light and reradiate it as thermal infrared radiation; these surfaces can reach temperatures of 50°–70° F higher than surrounding air. Second, urban areas are relatively devoid of vegetation, especially trees, that would provide shade and cool the air through “evapotranspiration.” As cities sprawl outward, the heat island effect expands, both in geographic extent and in intensity. This is especially true if the pattern of development features extensive tree cutting and road construction.84,85 NASA satellite imagery, available for public viewing on the Web, documents the heat island effect for several cities.86 Metropolitan expansion involves a positive feedback loop that may aggravate the heat island effect. Sprawling metropolitan areas, with greater travel distances, generate a large amount of automobile travel. This, in turn, results in more fuel combustion, with more production of carbon dioxide, and consequent contributions to global climate change.87 Global climate change, in turn, may intensify the heat island effect in metropolitan areas. Thus, not only does the morphology of metropolitan areas contribute to warming, but so may the greenhouse gas production that results from in- creased driving.

#### Urban development contributes to global warming by increasing miles traveled and decreasing forestland

Ewing et al 7 (research professor at the National Center for Smart Growth, University of Maryland, associate editor of the Journal of the American Planning Association, Keith Bartholomew, assistant professor of urban planning in the University of Utah’s College of Architecture and Planning, Steve Winkelman, director of the Transportation Program at the Center for Clean Air Policy, Jerry Walters, chief technical officer with Fehr & Peers Associates, a California- based transportation planning and engineering firm, and Don Chen, founder and executive director of Smart Growth America, has worked for the Surface Transportation Policy Project and the World Resources Institute, *Growing Cooler: The Evidence on Urban Development and Climate Change*, The Urban Land Institute, 2007, <http://postcarboncities.net/files/SGA_GrowingCooler9-18-07small.pdf>) PCS

This raises some questions, which this report addresses. Why do we drive so much? Why is the total distance we drive growing so rapidly? And what can be done to alter this trend in a manner that is effective, fair, and economically acceptable? The growth in driving is due in large part to urban development, or what some refer to as the built environment. Americans drive so much because we have given ourselves little alternative. For 60 years, we have built homes ever farther from workplaces, created schools that are inaccessible except by motor vehicle, and isolated other destinations—such as shopping—from work and home. From World War II until very recently, nearly all new development has been planned and built on the assumption that people will use cars virtually every time they travel. As a larger and larger share of our built environment has become automobile dependent, car trips and distances have increased, and walking and public transit use have declined. Population growth has been responsible for only a quarter of the increase in vehicle miles driven over the last couple of decades. A larger share of the increase can be traced to the effects of a changing urban environment namely to longer trips and people driving alone. As with driving, land is being consumed for development at a rate almost three times faster than population growth. This expansive development has caused CO2 emissions from cars to rise even as it has reduced the amount of forestland available to absorb CO2.

### Sprawl => Water Pollution

#### Sprawl destroys water quantity and quality.

Frumkin 2 (Howard Frumkin - Dean, School of Public Health Professor, Env. and Occ. Health Sciences – Urban Sprawl and Public Health

<http://www.cdc.gov/healthyplaces/articles/Urban_Sprawl_and_Public_Health_PHR.pdf>) Date accessed 5-29-12 AJY

Americans take for granted the availability of clean, plentiful, and cheap water. Indeed, the development of an excellent water supply—the result of social policy, civil engineering, and health advocacy over more than a century—is credited with a central role in improving public health during the first half of the 20th century.12,75

Sprawl may threaten both the quantity and quality of the water supply. As forest cover is cleared and impervious surfaces built over large areas, rainfall is less effectively absorbed and returned to groundwater aquifers.76 Instead, relatively more stormwater flows to streams and rivers and is carried downstream. One study found that about 4% of rainfall on undeveloped grassland, compared with 15% of rainfall on suburban land, was lost as runoff.77 The same is true for snow- melt, especially early in the melting process.78 Modeling shows that higher density development patterns can reduce peak flows and total runoff volumes.79 With less groundwater recharge, communities that depend on groundwater for their drinking water—about one- third of U.S. communities80—may face shortages.

Water quality may be affected in several ways. With better control of “point sources” of water pollution— factories, sewage treatment plants, and similar facilities—“non–point source” water pollution has emerged as the major threat to water supplies. Non–point source water pollution occurs when rainfall or snowmelt moves over and through the ground, picking up contaminants and depositing them into surface water (lakes, rivers, wetlands, and coastal waters) and groundwater. Much of this problem is specific to agricultural land, the primary source of contamination by fertilizers, herbicides, and insecticides. However, growing forms of non–point source pollution include oil, grease, and toxic chemicals from roadways, parking lots, and other surfaces, and sediment from improperly managed construction sites, other areas from which foliage has been cleared, or eroding stream banks. Studies of the movement of polycyclic aromatic hydrocarbons,81 zinc,82 and organic waste83 suggest that suburban development is associated with high loading of these contaminants in nearby surface water.

Both water quantity and water quality are directly affected by land use and development patterns, and evidence suggests that sprawl contributes to these problems in specific ways. Further evidence is needed to identify the precise features of land use that best predict non–point source pollution, the impact of this pollution on drinking water quality, and the optimal control methods.

### Sprawl => Accidents

#### Sprawl is a leading cause of fatal car accidents

Frumkin 2 (Howard Frumkin - Dean, School of Public Health Professor, Env. and Occ. Health Sciences – Urban Sprawl and Public Health, <http://www.cdc.gov/healthyplaces/articles/Urban_Sprawl_and_Public_Health_PHR.pdf>) Date accessed 5-29-12) AJY

Automobiles now claim more than 40,000 lives each year in the United States, a number that has slowly declined from about 50,000 per year in the 1960s.33 ￼Rates of automobile fatalities and injuries per driver and per mile driven have fallen thanks to safer cars and roads, seat belt use, laws that discourage drunk driving, and other measures, but the absolute toll of automobile crashes remains high. Automobile crashes are the leading cause of death among people 1–24 years old, account for 3.4 million nonfatal injuries annually, and cost an estimated $200 billion annually.34 The relationship between sprawl and motor vehicle crashes is complex. At the simplest level, more driving means greater exposure to the dangers of the road, translating to a higher probability of a motor vehicle crash.35 Suburban roads may be a particular hazard, especially major commercial thoroughfares and “feeder” roads that combine high speed, high traffic volume, and frequent “curb cuts” for drivers to use in entering and exiting stores and other destinations.36 However, available data from the National Highway Traffic Safety Administration (NHTSA) show fatal crashes aggregated into only two categories of roads: urban (accounting for approximately 60% of fatali- ties) and rural (approximately 40%).33

### Sprawl Kills VTL, => Inequality

#### Urban sprawl causes life to be centered on the automobile, leads to racial and income segregation, and it’s bad for your health- pollution, car accidents, and wildfires.

Lambert no date (Thomas, PhD Assistant Professor of Public Administration, Northern Kentucky University, “Is Urban Sprawl Bad for One’s Health?” <http://sprawlandems.com/is-sprawl-bad-for-ones-health/>) VZ

Ever since the end of the Second World War, much has been written about the consequences of residential and commercial development beyond traditional city boundaries in the United States. Such development, also known as urban, suburban, or ex-urban sprawl, has been called part of the natural evolution or progress of human settlement patterns on the one hand, and has been called one of the worse symptoms of excessive consumerism on the other. Although it is hard to define what constitutes sprawl, most writers agree that it includes large lot housing sites in residential areas with low population density and a separation of commercial and residential land use which necessitates that often one has to drive a motor vehicle in order to go shopping or to go to school or work rather than being able to walk to such destinations. Such development patterns necessitate life centered around the automobile, especially in parts of the US where not much money is spent on mass transit. Land beyond city boundaries is usually cheaper to buy and develop than land within city boundaries, especially those parcels close to a downtown. Sprawl has been facilitated to some degree or another by government policies or government neglects—tax deductions for mortgages (the bigger the house, the larger the deduction); most gasoline tax receipts going for road building rather than for mass transit; low gasoline taxes compared to other nations; and most local governments not doing much, or lacking the power to do much, with regard to comprehensive planning and zoning policies, especially on a regional basis. Those who do not acknowledge sprawled development, or prefer to minimize its negative impacts, mention that it is part of a natural progression of settlement patterns—suburbia and ex-urbia have come about because of modern innovations such as motor vehicles, telecommunications and mass communications (much less need for face-to-face or group interactions), and modern power plants which can generate and send power over large areas. Finally, consumer choice should dictate how people live—residential patterns, therefore, reflect consumer preferences in the markets for housing. Among the traditional complaints against sprawl, one is that it is often associated with neighborhood segregation according to income and/or race. Such segregation causes inequalities with regard to opportunities for employment and schooling. Poorer areas lack job opportunities and usually have inferior schools. Additionally, life centered around the automobile causes the generation of air pollution, bad traffic congestion, and the need to continuously build and/or rehabilitate more roads and bridges due to more and more motor vehicles on the road. Suburban and ex-urban neighborhood area also accused of lacking cohesion, community, and civic engagement, hence the popularity of the book “Bowling Alone” by Robert D. Putnam. Finally, as new neighborhoods develop on the fringe of urban areas, new infrastructure, school buildings, and public services have to eventually be provided to the new developments, which results in higher costs to taxpayers. Recently, some have started writing about how sprawl can be bad for one’s health or even dangerous to one’s life. Researchers have been finding some links between obesity and its related health problems (e.g., diabetes, hypertension, etc.) and sprawl due to life in most communities being centered on the automobile. In fact, much of our lives nowadays has less physical activity in it versus that of our ancestors due to the fact that we walk much less as part of our daily routine, whether for traveling to work or for shopping. In my own research, sprawled regions have also been shown to have higher per capita traffic fatalities as well as slower emergency medical services and firefighter response times (see www.sprawlandems.com ). More sprawled areas have higher speed limits, hence resulting in more fatalities when car collisions occur. And these areas typically have fewer sidewalks and pedestrian/bicycle friendly paths, which increase the chances of fatalities occurring to pedestrians as well. Longer EMS and fire response times (often around double the length of time needed in more urban areas) result from the fact that low density development means longer travel times from a fire or EMS station to get to a crisis situation. Fatalities per capita due to fire also rise as one gets further away from more densely settled areas. Wildland fires often envelop and endanger new residential areas built on the fringe of metropolitan regions. So how does sprawl figure into the topic of social justice? Clearly in my opinion and the opinion of other researchers, there are some life and limb dangers and other negative consequences associated with sprawl. When these factors are taken in with the traditional arguments against sprawl (segregation, lack of community, etc.), there needs to be a re-examination of how residential and commercial development proceeds in the US. Perhaps some of this has already started with the “new urbanism” movement where some households are now choosing to settle in older neighborhoods which are either in or close to an urban downtown. But aside from changing household preferences, government policies need to be reviewed. There are probably not as many incentives for households to re-settle older neighborhoods as there are to settle in new ones, and mass transit is chronically underfunded and not a viable travel choice for many people due to the fact that in most regions of the country it takes longer to travel by mass transit than by the auto. It would take a bold set of initiatives and policies to reverse or mute the forces of sprawl, but the right set of policies could do it. More incentives could be given for urban homesteading and for locating in older neighborhoods, and more funds could be earmarked for mass transit projects, if only to be used buy more buses. Recently, the Bowles-Simpson deficit commission has recommended capping the amount of mortgage interest deduction for homes, which would curtail some large lot housing development.

### Sprawl => Inequality

#### Sprawl causes air pollution and exacerbates racial disparities.

Nesbit 1 (Joanne Nesbit - News and Information Services - Bullard details social, economic consequences of sprawl, <http://www.ur.umich.edu/0001/Jan22_01/9.htm>) Date accessed 5-29-12 AJY

Robert D. Bullard, director of the Environmental Justice Resource Center (EJRC) at Clark-Atlanta University, stunned his Hale Auditorium audience Jan. 17 with hard facts about and examples of the social, economic and environmental consequences of urban sprawl. Urban sprawl is defined as “random, unplanned growth characterized by inadequate accessibility to essential land uses such as housing, jobs and public services that include schools, parks, green space and public transportation,” Bullard said. He presented studies showing that Atlanta is at the top of the national list for sprawl. Detroit is third. Atlanta has been dubbed the “sprawl poster child,” “Sprawlanta,” and Megasprawl.” Yet it is not only acreage (eaten at the rate of 500 acres per week in Atlanta) that is lost to sprawl, Bullard said. Sprawl has social and economic consequences, too. Sprawl exacerbates school crowding, heightens urban-suburban school disparities, accelerates urban infrastructure decline, concentrates poverty, creates spatial mismatch between urban workers and suburban job centers, heightens racial disparities and negatively impacts public health. Sprawl has environmental consequences, too, including increased air pollution because people are dependent on their autos, destruction of forests and green space, more flooding, and the wasting of energy. To those who don’t think they are affected by urban sprawl, Bullard says, “Do you eat? Do you breath? Do you drive a car? We all breath the same air, so all people have a stake in sprawl. Whether you consider yourself an environmentalist or an activist, you are involved in the environment just because you breathe the air.” Bullard’s appearance was sponsored by the Urban Planning Student Association, the School of Natural Resources and Environment, and the Department of Urban and Regional Planning.

#### Sprawl leads to environmental racism and concentrated poverty.

Frumkin 2 (Howard Frumkin - Dean, School of Public Health Professor, Env. and Occ. Health Sciences – Urban Sprawl and Public Health

<http://www.cdc.gov/healthyplaces/articles/Urban_Sprawl_and_Public_Health_PHR.pdf>) Date accessed 5-29-12 AJY

Research over the last 15 years has suggested that poor people and members of minority groups are disproportionately exposed to environmental hazards.135–137 Could any adverse health consequences of sprawl dis- proportionately affect these same populations?

In general, the pattern of urban development of which sprawl is a part may deprive the poor of economic opportunity. When jobs, stores, good schools, and other resources migrate outward from the core city, poverty is concentrated in the neighborhoods that are left behind.138–142 A full discussion of the impact of urban poverty on health is beyond the scope of this article, but a large literature explores this relation- ship.143–147 To the extent that sprawl aggravates poverty, at least for selected groups of people, it may contribute to the burden of disease and mortality.

### Sprawl Kills Species, Increases Warming

#### Urban sprawl contributes to warming and causes habitat destruction.

Remy 4 (Charlie, columnist at The Pendulum, “Urban Sprawl bad for the environment” [http://www.elon.edu/e-web/pendulum/Issues/2004/9\_23/opinions/sprawl.xhtml 09/24/04](http://www.elon.edu/e-web/pendulum/Issues/2004/9_23/opinions/sprawl.xhtml%2009/24/04)) VZ

It has become very obvious to me that urban sprawl is getting increasingly worse across the country. Urban sprawl is when people from more expensive urban areas move to rural areas in order to have more space and supposedly better quality of life. Unfortunately, in many places, including Alamance County, there is a lack of decent zoning laws which controls this type of growth. Subdivisions can be spread out and everyone wants a lot of land. The problem with having lots so big is that it is an inefficient use of land. When these developments are built, trees and natural habitats for animals are destroyed. In Southern Maine, urban sprawl is omnipresent. In my town, I am sad when I see formerly pristine woods being cut down for new developments. You may say this is NIMBY mentality (not in my backyard), and it is. The problem is these developments are not designed to be sustainable. They force people to drive many miles for services. They create more traffic on roads that were not designed to handle large volumes. They also add to our problem of global warming by increasing our use of transportation and thus increasing the burning of fossil fuels. Ideally, these subdivisions should be located close to stores and offices to reduce people’s need to commute to faraway places. Sadly, suburban towns like Elon lack access to mass transportation. Whenever I go to a city, I love that fact that I don’t need a car to get myself around. Take San Francisco for example: they have a subway that goes within the city and then another that goes to outlying areas, buses that run on electricity, cable cars and street cars. This is ideal because it would lessen the need for people to own cars. Plus, many people are forced out of owning their own vehicle in a city due the expense and hassle parking. The other issue about sprawl is that our farmland is being lost. The U.S. used to be based on an agrarian lifestyle but it has become more and more urban in the past 100 years. Due to the demand for their property, many farmers cannot afford to keep it. They opt to sell out and make a lot of money on the land to be divided up into subdivisions. Sadly, this results in a loss of open space. Fortunately, a lot is being done in Maine and other states to preserve open land. Some property owners are giving up their development rights to create a land preservation trust that protects it from being developed. It is very important to look towards a sustainable future. If you would personally like to get involved, you should sit in on your local town planning board’s meeting.

### Sprawl => Species Extinction

#### Urban sprawl destroys habitats of endangered species

Powell 2k (John A., Executive Director of the Kirwan Institute for the Study of Race and Ethnicity at The Ohio State University, Institute on Race and Poverty, “Race, Poverty, and Urban Sprawl: Access to Opportunities Through Regional Strategies”, <http://www1.umn.edu/irp/publications/racepovertyandurbansprawl.html>) AH

Urban sprawl, which has long been a reality of the American landscape, has recently drawn attention as a serious problem that must be addressed.[3] While there are still those who would challenge the claim that sprawl is a problem in want or need of a solution,[4] a number of policy makers have joined the ranks of environmentalists in the call to address and retard the proliferation of urban sprawl.[5] Terms like planned growth, smart growth, sustainable growth, and no growth are gaining currency in popular discourse. This evolving public discourse and the problems associated with sprawl usually focus on environmental and land use issues.[6] These issues include traffic congestion, long commutes, lost time and efficiency for businesses, depleting habitats of endangered species, and the destruction of farmland and open space. In sprawl discourse, issues of concentrated poverty and race, if discussed at all, are too often mentioned as peripheral concerns.

#### **Urban sprawl is the biggest threat to endangered species—causes extinction**

CBD no date (Center for Biological Diversity, “Overpopulation and Urban Wildlands”, <http://www.biologicaldiversity.org/campaigns/overpopulation/urban_wildlands/index.html>) AH

Water wars notwithstanding, habitat loss and fragmentation, much of it due to urban sprawl, remains the biggest immediate threat to imperiled species in the United States. Consumption and development patterns exacerbate population growth, with the size and footprint of new homes rapidly increasing and fewer people living in each home. Second home ownership increased by 17 percent between 1999 and 2005, further compounding the impact of each new homeowner that enters the market. Such rapacious consumption patterns result in a land conversion rate twice that of population growth, making urban sprawl the most predominant form of land use change in the nation. [7] Surprisingly, the state of Florida’s population actually shrank slightly between 2008 and 2009, largely due to economic recession and fewer people moving into the state. But the reaction of alarmed pundits and panicked politicians to a 0.3 percent contraction in population does not bode well for the future. In a state where the prevailing growth-for-its-own-sake mentality earned it the nickname of “the Ponzi State,” leaders are now scrambling for ways to crank up a rebound as soon as possible. One demographer called it “a real psychological blow,” and observed, “I don’t know if you can take a whole state to a psychiatrist, but the whole Florida economy was based on migration flows.” [8] As long as population growth and increased consumption levels are viewed as inherently positive, states like Florida will continue to destroy their natural heritage in the quest to keep the overpopulation Ponzi scheme from collapsing. The result will be devastating to communities seeking a sustainable balance and catastrophic for endangered species such as the Florida panther, which are being squeezed ever closer to extinction.

### Sprawl Kills Wetlands

#### Urban sprawl destroys wetlands and leads to species extinction

CBD no date (Center for Biological Diversity, “Overpopulation and Urban Wildlands”, <http://www.biologicaldiversity.org/campaigns/overpopulation/urban_wildlands/index.html>) AH

Destruction of wetlands is a major threat to the panther and is associated with road construction and urban development across the lower 48 states. Between the 1780s and 1980s, more than half of the wetlands in the continental United States were lost to dredging, filling, channelization, dams, and other aspects of rural and urban development. About half of Florida’s wetlands have been destroyed. Some states, such as California and Ohio, have lost over 90 percent of their wetlands. Recent efforts to highlight the value of these ecologically important and biodiverse areas have resulted in wetlands creation and restoration efforts that have helped to stem the tide of net loss. But according to the U.S. Fish and Wildlife Service, tens of thousands of acres of intact wetlands are still destroyed every year, almost two-thirds of that area by “urban expansion and rural development,” a dynamic that is “particularly evident” in Florida. Additionally, many wetlands that persist are significantly degraded through contamination by pollution from urban and agricultural runoff.

#### Urban sprawl results in fragmented wetlands

Deal and Schunk 4 (Brian, Department of Urban and Regional Planning, University of Illinois at Urbana-Champaign, and Daniel, National Research Center on Concepts of Rationality, Decision Making and Economic Modeling, Department of Economics, University of Mannheim, Spatial Dynamic Modeling and Urban Land Use Transformation: a Simulation Approach to Assessing the Costs of Urban Sprawl, Ecological Economics, vol. 51, October 2, 2004, pg. 81, <http://www.china-sds.org/kcxfzbg/addinfomanage/lwwk/data/kcx507.pdf>) PCS

The impacts of the sprawl phenomena have been well documented recently (Kay, 1998; U.S. Geo- logical Survey, 2000; U.S. Census Bureau, 2002a,b). Low-density patterns of development require an auto-reliant transportation system and produce consequent increases in congestion and commuting times. Not surprisingly, it has been shown that as urban densities decrease, per capita gasoline consumption increases, both nationally and internationally (Newman and Kenworthy, 1989). This leads to air quality considerations and the associated costs rendered to human and environmental health. Access to open space and the loss of sensitive ecological and agricultural lands to urbanization are also issues of concern. The U.S. Department of Agriculture’s 1997 National Resources Inventory Report (USDA, 1997) shows the rate of farmland and other open space losses due to fringe urban development has more than doubled in recent years to over 3.2 million acres a year. Additionally, low-density development often occurs in a leapfrog pattern that fragments habitat and destroys sensitive wetlands.

#### Urban sprawl endangers wetlands

McInnes 9 (Rob, Director at RM Wetlands and Environment Ltd, Head of Wetland Conservation at Wildfowl and Wetlands Trust, Urban Development, Biodiversity and Wetland Management: Expert Workshop, UN-Habitat, November 17, 2009, pg. 7, <http://www.unhabitat.org/downloads/docs/ExpertWorkshopWetlands.pdf>) PCS

With increasingly rapid urbanization, wetlands are being threatened in two principle ways: Through direct conversion of wetlands, whether planned or unplanned, to urban areas, leading to acute problems associated with polluted drainage, direct habitat loss, overexploitation of wetland plants and animals by urban and peri-urban residents and the increased prevalence of non-native invasive species; and through the watershed-related impacts of urban development, including increased demands for water, increasing diffuse and point source pollution and the need for greater agricultural production to support the burgeoning urban population. For the prosperity of future generations and the protection of wetland biodiversity it is essential that society adopt a more sustainable approach to urbanization, recognizing the need to protect the natural resource base that sustains urban areas. Urban development can be planned and managed in ways that are sustainable. The challenge is to raise awareness of, and provide guidance on, the importance of wetlands as providers of benefits to urban populations as well as the potential for wetlands to operate as essential water management infrastructure and regulate the impacts of urbanization.

#### Sprawl destroys 25,000 acres of wetlands every year.

Benedict and McMahon 2 (Mark, director of the Conservation Leadership Network, and Edward, vice president and director of Land Use Programs and The Conservation Fund, Green Infrastructure: Smart Conservation for the 20th Century, Renewable Resources Journal, August 2002, pg. 14, <http://www.greeninfrastructure.net/sites/greeninfrastructure.net/files/GI_RR.pdf>) PCS

Over the past several decades, growth has leapfrogged cities and older suburbs into many once rural areas. Development is overtaking farms and forests at an increasingly rapid rate. This expansion often occurs without well-designed land-use plans, resulting in urban sprawl, which fragments natural areas, isolates productive farmland and disrupts ecological functions. This has led to the: Loss of Natural Areas- For example, about 25,000 acres of wetlands continue to be lost each year to sprawl. As natural areas are diminished, so is habitat diversity. The result is a decline in the number of species and in the number of individuals of those species that survive. Fragmentation of Open Spaces- As we convert land, it is fragmented into isolated patches of open space, greatly altering the function of its natural systems by increasing edge habitats and isolating patches, reducing both the number and diversity of native species. Degradation of Water Resources- Developing wetlands and riparian zones reduces their capacity to control floods, trap sediments, filter out toxins and excess nutrients, and support wildlife and plant species.

### Wetlands Destruction => Flooding and Species Loss

#### **Wetland destruction causes flooding and species and ecosystem extinction**

Fennessy 1 (M. Siobhan, Associate Professor of Biology, Kenyon College, “Widespread Effects of Wetland Loss” Kenyon College, <http://biology.kenyon.edu/fennessy/AMN%20Wetland%20Webpage/Comps%20Webpage/widespreadeffectsofwetlandloss.htm>) VZ

Wetlands act as the biological "kidneys" of the landscape by filtering out any water that would otherwise directly run into a water system (Mitsch 1993, Mitsch and Gosselink 2000). The loss of wetlands can cause the change in water chemistry of major water systems that those wetlands would otherwise filter out. With increasing transmissions from cars, fertilizer and pesticide use, and animal grazing there are increasing number of pollutants entering our waterways. These pollutants are changing the natural balance of nutrients in our lotic systems and having long-term consequences on the function and community composition of those systems (Ribaudo et al. 2001). One of the most well known cases of upstream water nutrient loading having a major effect on downstream water sources occurs in the Mississippi River and the Gulf of Mexico. Nutrients from fertilizer used on farmland and large amount of sediment from erosion are being washed directly into streams and rivers. Without wetlands, which would filter out these components from the water, the nitrate, phosphorus, bacteria, and sediment carried by stream and river systems in the Midwest, run into the Mississippi River. These pollutants ultimately flow into the Gulf of Mexico, having drastic negative effects on the ecosystem, the principal effect being hypoxia (Rabalais et al. 1999, Moore et al. 2001). When large amounts of limiting nutrients, such as nitrogen and phosphorus leech out of soils and into water systems, the growth of primary producers, such as algae and phytoplankton, increases. This is due to an increased carrying capacity from the widespread availability of these limiting nutrients. In spring and summer months, when there are optimal amounts of sunlight, there is an explosion of growth and masses of algae and phytoplankton float on the surface of the water where the nutrients lie. The oxygen produced by these plants remains on the surface of the water. Eventually, the algae and phytoplankton fall to the benthic layer, where a layer of dead organic matter accumulates. Due to the tremendous quantity of this organic material, the decomposer bacteria population explodes. As the bacteria decompose the dead algae and phytoplankton, they use massive amounts of oxygen, often depleting the water of it to a point where nothing can live without severe stress or fatal effects. This is how hypoxia occurs. The technical definition of hypoxia is water with less than 2 milligrams per liter of dissolved oxygen. In the Gulf of Mexico, hypoxic conditions cover areas the size of Connecticut and make the water uninhabitable by any aerobic organism, not only affecting fisheries throughout the Southern United States, but also the entire Gulf of Mexico ecosystem (Rabalais et al. 1999). Had we not drained our wetlands on the banks of the Mississippi River, these effects could be significantly reduced, if not avoided. Stream and river chemistry and morphology have been altered drastically as a result of wetland loss and visa versa. Rivers, streams, and wetlands work as integrated ecosystems to maintain stability and function. There are several types of wetlands, including riparian, fringe, and instream wetlands, all of which function to protect and provide nutrients to neighboring streams and rivers (Mitsch 1995, Mitsch and Gosselink 2000). Studies have shown that the effects of riparian zone loss are so great, that the morphology of even large rivers, such as the Mississippi River, can change drastically. Since 1780, 26 million acres of wetland have been drained and destroyed on the bank of the Mississippi, resulting in a loss of 25, 800,000 acres of water surface area that functioned as a hydrologic sink (Hey and Philippi 1995). Not only do pollutants not get filtered out because of the loss of these wetland sinks, the amount of water that moves into these systems is not regulated. Therefore, under heavy precipitation, such as the rains of 1993, it is not uncommon for the water velocity and stage of these lotic systems to greatly increase (Hey and Philippi 1995). The rapid water can lead to the widening of channels through erosion and, over long periods of time, the straightening of channels. These effects of wetland loss can also have a great impact on natural events, such as flooding, which occurs more frequently and has more severe consequences than it would if wetland riparian zones were intact (Mitsch 1993, Rabalais et al. 1999). Wetland and forest riparian zones provide streams and rivers with organic material, such as leaves, that make up the waterway's greatest resource of nutrients (Mitsch 1993). Flora, macroinvertebrates, and vertebrates rely on the area around them for nutrients and food: the riparian area is a source of energy, like the sun, in the trophic cascade. Without riparian organic matter, these lotic ecosystems have no nutrients to support the diverse life that they host. Wetland loss has been associated with the direct loss of species diversity due to destruction and lowered recruitment of infringing vegetation communities and displacement of fauna (Davis and Froend 1999). Biodiversity is important in an ecosystem in that it is the multitude of organisms in a system, each having their own role, that drive the ecological processes (Tilman 1999). The loss of wetlands may end with a loss of flora and fauna, which not only support human interests, but also contribute to the health of other ecosystems, such as streams and rivers (Mitsch and Gosselink 2000). The loss of flora is especially devastating in an ecosystem because primary producers, such as wetland plants, are the basis of any ecosystem. The effects of the loss or lowered recruitment of these plants ripples throughout the trophic ladder: fauna that depend on wetland plants as a source of food or shelter perish or migrate, resulting in the loss of fauna that are predaceous, and so on (David and Froend 1999).

### Wetlands Key to Biodiversity

#### Wetland ecosystems are critical to biodiversity.

Smith 11 (Nicole, writer at Article Myriad, the authoritative source for original and insightful articles and ideas on a broad range of topics related to the humanities, “An Extended Definition of Wetlands and the Impact of the Loss of Wetlands” <http://www.articlemyriad.com/extended-definition-loss-wetlands-impact/> 12/07/11) VZ

Currently, wetlands are home to one of the largest collections of biodiversity to be found on the planet with a staggering number both microorganisms, reptiles, amphibians, fish, birds, and mammals that either live within or near the waters. These diverse species are part of the vital food chain and in many ways, function as they own separate ecosystem entirely. The food provided by the tiny and smaller organisms attract a large number of other species and all of this is sustained by the rich loamy material that is comprised of dead, waterlogged leaves and other organic material. In addition, scientists have lately come to realize that the biological function of wetlands is also useful in combating climate change since wetlands harbor carbon within the plants (which is a feature of many wetlands greenery) which means it is not released back into the air in the from of carbon dioxide. As a result, the ecosystem as whole is aided by the existence of such wetlands and the species that are dependent upon them have a greater chance of future survival. Furthermore, according to researchers, “Biodiversity should include four levels: heredity diversity; species diversity, ecosystem diversity, and landscape diversity” (Hong-Yu 2000). As wetlands are destroyed, these four vital factors of biodiversity are also destroyed. Since hereditary and species diversity depend on having suitable breeding grounds, if wetlands were no longer present this would of course be two keys to biodiversity that no longer exist. With the loss of these comes the added loss of ecosystem diversity because wetlands function as their own ecosystem independently and then go on to effect birds, the climate, and other factors.

### Wetlands Loss Kills Economy

#### Wetlands loss hurts the economy in multiple ways

Smith 11 (Nicole, writer at Article Myriad, the authoritative source for original and insightful articles and ideas on a broad range of topics related to the humanities, “An Extended Definition of Wetlands and the Impact of the Loss of Wetlands” <http://www.articlemyriad.com/extended-definition-loss-wetlands-impact/> 12/07/11) VZ

Wetlands do not just assist human populations with drinking water and flood control and flood or hurricane damage reduction; they also serve as an important element of the economy. The loss of these vital wetlands can have a devastating impact on the future of the world markets. Many industries are entirely reliant on the existence of wetlands including growers of blueberries, cranberries, wild rice, and certain trees for wood. The pharmaceutical industry would also suffer since a number of important medicines come from derivatives of plants and organisms that can only exist in marshy conditions. Shellfish and other fisheries also rely on wetlands and in places with a high concentration of market dependence on wetlands such as America’s southeast, the loss of these resources could be devastating. For example, “Louisiana’s coastal marshes produce an annual commercial fish and shellfish harvest that amounted to 1.2 billion pounds worth $244 million in 1991” (Constanza 1997). Although this data is not recent and does not reflect the damages caused by Hurricane Katrina, it is still a vital statistic when considering the economic value of wetlands, both coastal and otherwise. Wetlands can also be found in a number of wildlife refuges, as well as state and natural parks and are a vital part of the tourism industry. With all of these combined factors influencing the economy, it is necessary that the loss of wetlands is halted as soon as possible. In many ways, it seems that one way to halt the destruction of wetlands is to offer incentives based on economic ideas since individuals and organizations are more likely to save these resources if their bottom lines are impacted. With this in mind, a number of incentives, both federal and local, have been introduced to halt the decay of wetlands. The key principle behind these efforts rides on the notion of free market environmentalism, which “relies on market forces for environmental management… This approach to the environmental management of agriculture, and especially its conservations efforts, is representative of the next generation of agricultural policy” (Luzar 1999). While this has been a dominant trend in the agricultural sector, it could also be applied to other industries as well. The sooner those with economic interests realize the importance of wetlands to the economy, the sooner the destruction could cease.

### AT: Alt Causes to Wetlands Destruction

#### Half of wetland losses are caused by sprawl- it’s the main cause.

Gallagher 1 (Patrick, Director of the U.S. Department of Commerce's National Institute of Standards and Technology, senior attorney for the Sierra Club Environmental Law Program, The Environmental, Social, and Cultural Impacts of Sprawl, Natural Resources and Environment Law Journal, Spring, p. 221,<http://heinonline.org/HOL/Page?handle=hein.journals/nre15&div=89&g_sent=1&collection=journals>) PCS

Wetlands are also a victim of sprawl. Almost half of all annual wetland losses are caused by sprawl development, attributable in part to increased development in coastal areas. A study reported in the Philadelphia Chronicle this past summer traced a surge in sprawl along coastal areas of the eastern seaboard. The study attributed this trend in part to the “new economy” in which employers and employees are no longer bound to the industrial urban areas. Many of these untethered workers now want to make their homes in what were formerly summer resort areas. For example, in years past, the pace of life in Cape Cod slowed to a crawl during the off-season. Now it is becoming an exurb of Boston and other cities, and the once rural landscape is increasingly suburbanized. Historically, the U.S. Army Corps of Engineers implementation of the Clean Water Act allowed many development projects to proceed under Nationwide Permit 26, a general permit that required little in the way of mitigation or public involvement in wetland decisions. This practice contributed to significant wetland losses. Recent legal reforms in this area may require closer scrutiny of more projects, but many believe incentives still exist for developers to fill wetlands first and ask questions later. For example, the so-called Tulloch Rule exemption, which was intended to exempt the “incidental” discharge of fill material into wetlands has been exploited in some cases to fill areas slated for development.

### Biodiversity Loss = Extinction

#### **Loss of biodiversity causes extinction.**

Diner 94 (David, Ph.D., Planetary Science and Geology, "The Army and the Endangered Species Act: Who's Endangering Whom?," Military Law Review, 143 Mil. L. Rev. 161) AH

To accept that the snail darter, harelip sucker, or Dismal Swamp southeastern shrew 74 could save [hu]mankind may be difficult for some. Many, if not most, species are useless to[hu]man[s] in a direct utilitarian sense. Nonetheless, they may be critical in an indirect role, because their extirpations could affect a directly useful species negatively. In a closely interconnected ecosystem, the loss of a species affects other species dependent on it. 75 Moreover, as the number of species decline, the effect of each new extinction on the remaining species increases dramatically. 4. Biological Diversity. -- The main premise of species preservation is that diversity is better than simplicity. 77 As the current mass extinction has progressed, the world's biological diversity generally has decreased. This trend occurs within ecosystems by reducing the number of species, and within species by reducing the number of individuals. Both trends carry serious future implications. 78 [\*173] Biologically diverse ecosystems are characterized by a large number of specialist species, filling narrow ecological niches. These ecosystems inherently are more stable than less diverse systems. "The more complex the ecosystem, the more successfully it can resist a stress. . . . [l]ike a net, in which each knot is connected to others by several strands, such a fabric can resist collapse better than a simple, unbranched circle of threads -- which if cut anywhere breaks down as a whole." 79 By causing widespread extinctions, humans have artificially simplified many ecosystems. As biologic simplicity increases, so does the risk of ecosystem failure. The spreading Sahara Desert in Africa, and the dustbowl conditions of the 1930s in the United States are relatively mild examples of what might be expected if this trend continues. Theoretically, each new animal or plant extinction, with all its dimly perceived and intertwined affects, could cause total ecosystem collapse and human extinction. Each new extinction increases the risk of disaster. Like a mechanic removing, one by one, the rivets from an aircraft's wings, mankind may be edging closer to the abyss.

### Species Extinction => Disease

#### Species extinction increases risk of disease

Ramanujan 10 (Krishna, Science Writer at Cornell University, “Study: Loss of species is bad for your health” in Cornell Chronicle Online, <http://www.news.cornell.edu/stories/Dec10/BiodiversityHealth.html>, 12/02/10) VZ

As the number of species declines due to habitat loss, pollution and climate change, the risk of catching infectious diseases may rise for humans, animals and plants. The species most likely to disappear are those that buffer against infectious disease transmission, while surviving species tend to be the ones that increase disease transmission, such as that of West Nile Virus, Lyme disease and Hantavirus. Those are the conclusions of a study, co-authored by Drew Harvell, a Cornell marine ecologist, and published in the Dec. 2 issue of the journal Nature. The research, which examines the link between the loss of biodiversity and infectious disease, also finds these patterns among various types of pathogens -- viruses, bacteria and fungi -- and hosts. Since the 1950s, species extinction rates have skyrocketed up to 1,000 times more than in past epochs and are only expected to rise in the next 50 years. "Normal functioning biodiversity pays off in health benefits for people," said Harvell, Cornell professor of ecology and evolutionary biology and associate director for environment at Cornell's David R. Atkinson Center for a Sustainable Future. Felicia Keesing, an ecologist at Bard College in Annandale, N.Y., is the paper's lead author. For example, when forests are fragmented, opossum numbers decline and white-footed mice thrive. Opossums serve as buffers for Lyme disease because they absorb and kill some of the ticks that carry the disease; at the same time, mice amplify both the numbers of ticks and the Lyme disease pathogen. Scientists do not know why the most resilient species, such as mice, are the ones that also amplify pathogens. Protecting natural habitats would be the best strategy to prevent this effect, according to the paper. Also, as human populations grow, so does contact with pathogens through such activities as hunting and clearing land for farming. Officials should also carefully monitor animal and fish farms where diseases might jump from livestock to humans or wildlife, according to the paper. Harvell's contribution to the study was to examine the pattern in marine ecosystems. For example, climate change is warming the oceans and stressing tropical species like coral, triggering a sudden shift from diverse, beneficial bacteria on the coral surface to less diverse, pathogenic bacteria that lead to coral disease. "We are dealing with a new equation relating to disease spread, climate change and biodiversity," said Harvell. "In the oceans, disease outbreaks are being accelerated by climate warming before we even know the links in the biodiversity chain," she added. The study was funded by the National Science Foundation, National Institutes of Health Ecology of Infectious Disease Program and the Environmental Protection Agency.

# Accidents Advantage

### Accidents Impacts/Solvency Decreasing Miles Traveled Solves

#### Car accidents lead to 40,000 deaths and cost 200 billion dollars annually. Decreasing miles traveled solves.

Frumkin 02 Dean, School of Public Health Professor, Env. and Occ. Health Sciences

(<http://www.cdc.gov/healthyplaces/articles/Urban_Sprawl_and_Public_Health_PHR.pdf>)

Automobiles now claim more than 40,000 lives each year in the United States, a number that has slowly declined from about 50,000 per year in the 1960s.33 ￼Rates of automobile fatalities and injuries per driver and per mile driven have fallen thanks to safer cars and roads, seat belt use, laws that discourage drunk driving, and other measures, but the absolute toll of automobile crashes remains high. Automobile crashes are the leading cause of death among people 1–24 years old, account for 3.4 million nonfatal injuries annually, and cost an estimated $200 billion annually.34 The relationship between sprawl and motor vehicle crashes is complex. At the simplest level, more driving means greater exposure to the dangers of the road, translating to a higher probability of a motor vehicle crash.35 Suburban roads may be a particular hazard, especially major commercial thoroughfares and “feeder” roads that combine high speed, high traffic volume, and frequent “curb cuts” for drivers to use in entering and exiting stores and other destinations.36 However, available data from the National Highway Traffic Safety Administration (NHTSA) show fatal crashes aggregated into only two categories of roads: urban (accounting for approximately 60% of fatali- ties) and rural (approximately 40%).33

### Accidents Impact- 1 Death every 13 minutes

#### Accidents cause one death every 13 minutes, over a million in the past 25 years

Kissinger 10 (J. Peter Kissinger is the president and chief executive officer of the AAA Foundation for Traffic Safety, 5/27, <http://roomfordebate.blogs.nytimes.com/2010/05/27/do-we-tolerate-too-many-traffic-deaths/>)

Let us not forget, however, that over the past 25 years, more than one million men, women and children died in traffic crashes in this country. If we had lost this many people to war or famine, Americans would be demanding swift action. Clearly, what some have called the “disease of mobility” deserves more serious attention. One death from a traffic crash is unacceptable. One death every 13 minutes, the historical average in the U.S., is outrageous. Unfortunately, our society is not outraged. Instead, for the most part, we accept these tragedies as the cost we pay for the mobility we enjoy.

### Accidents Impact- Death, Economy

#### Accidents put a massive strain on the economy and kills tens of thousands

Parry 3 (December, Ian W. H., senior fellow at Resources for the Future, “Comparing Alternative Policies to Reduce Traffic Accidents”, *Resources for the Future*, <http://ageconsearch.umn.edu/bitstream/10674/1/dp030007.pdf>) GSK

Road accidents impose substantial costs on society: in the United States over 40,000 people were killed in traffic accidents in 2000 and another 3.1 million were injured (US NHTSA 2001). In a widely cited study, Miller (1993) estimated that motor vehicle accidents cost the United States over $300 billion each year. 1 Many of these costs are private (e.g., own injury risk to drivers), but others are external (e.g., pedestrian deaths); hence policies to reduce accidents are potentially justified on economic efficiency grounds. Such policies might be classified into those that reduce vehicle miles traveled (VMT), improve driver care (e.g., speed limits, penalties for drunk driving), improve vehicle safety (e.g., requirements for airbags and child seats), and improve road infrastructure (e.g., crash barriers). This paper focuses on policy approaches to reducing VMT.

### VMT Fee Solves Accidents

#### VMT twice as good as the gas tax for reducing accidents—experience and age control

Parry 3 (December, Ian W. H., senior fellow at Resources for the Future, “Comparing Alternative Policies to Reduce Traffic Accidents”, *Resources for the Future*, <http://ageconsearch.umn.edu/bitstream/10674/1/dp030007.pdf>) GSK

The policy lessons might be summed up as follows. First, according to our estimates the welfare potential of gasoline taxes at reducing external accident costs is less than half that of uniform VMT charges or per mile insurance reforms: gasoline taxes induce costly behavioral responses to improve fuel economy that result in little additional accident externality benefit. Second, the uniform VMT tax can achieve 76% of the welfare gain from the differentiated mileage tax; nearly all the welfare difference between the differentiated and uniform mileage taxes stems from charging different rates to drivers of different age, rather than varying taxes across vehicle types. Third, differences in premiums across driver groups are modest relative to the differences in external costs and, across vehicle types, differences in premiums are often negatively related to differences in external costs. Nonetheless, converting most of existing insurance from lump sum to a per-mile basis still achieves around 65% of the welfare gains from a differentiated mileage tax. The least efficient policy in our analysis—the gasoline tax—is probably the least politically feasible policy in practice. 36 In contrast, we might envisage a gradual transition towards per mile insurance. Low-mileage drivers have an incentive to opt out of traditional insurance in favor of mileage-based insurance, and this is becoming increasingly feasible with telematic systems incorporated in new vehicles. And the government might encourage this trend through tax credits and rewards for states that promote per-mile policies in the formula used to allocate highway funds.

#### VMT better at reducing accidents than gas tax—encourages less driving

Parry 3 (December, Ian W. H., senior fellow at Resources for the Future, “Comparing Alternative Policies to Reduce Traffic Accidents”, *Resources for the Future*, <http://ageconsearch.umn.edu/bitstream/10674/1/dp030007.pdf>) GSK

Road accidents impose substantial costs on society: in the United States over 40,000 people were killed in traffic accidents in 2000 and another 3.1 million were injured (US NHTSA 2001). In a widely cited study, Miller (1993) estimated that motor vehicle accidents cost the United States over $300 billion each year. 1 Many of these costs are private (e.g., own injury risk to drivers), but others are external (e.g., pedestrian deaths); hence policies to reduce accidents are potentially justified on economic efficiency grounds. Such policies might be classified into those that reduce vehicle miles traveled (VMT), improve driver care (e.g., speed limits, penalties for drunk driving), improve vehicle safety (e.g., requirements for airbags and child seats), and improve road infrastructure (e.g., crash barriers). This paper focuses on policy approaches to reducing VMT. One approach is to tax peoples’ vehicle miles based on odometer readings, or through telematic systems that are increasingly incorporated in new vehicles. A more fine-tuned policy would involve per mile charges that differ according to driver and vehicle risk. Another policy would be to raise the (federal) gasoline tax; 2 taxing fuel is different from taxing mileage as it encourages people to drive more fuel-efficient vehicles (e.g., Parry and Small 2001). A further option would be to convert insurance premiums from lump-sum annual fees into per-mile charges. 3 This paper uses a calibrated analytical model, along with estimates of marginal external accident costs for different driver/vehicle categories obtained from US crash data, to compute the relative efficiency of these policy approaches to addressing accident externalities. The most efficient policy we study is a differentiated mileage tax where each driver/vehicle group is charged a tax equal to its per-mile external cost. The uniform mileage tax is less efficient, as driver/vehicle groups with relatively high/low external costs are under/over taxed. The gasoline tax is less efficient still, as it also causes costly behavioral responses to improve fuel economy, though there is a counteracting benefit if more fuel-efficient vehicles have lower external accident costs. As for insurance reform, market-determined premiums mainly reflect private property and liability damages, which may be only loosely related to external costs, a major component of which is quality of life costs for injuries. There is little theoretical or empirical literature comparing the welfare properties of these four policies at addressing accident externalities. 4 However, knowing the magnitude of the welfare differences between the policies is obviously important for assessing the economic merits of pursuing one policy approach at the expense of others. There is also little evidence on how the external costs per mile differ across vehicle and driver types, and how they correlate with existing insurance premiums. 5 One exception is a careful analysis of crash data by Miller et al. (1998); they find that external accident costs are similar for cars and light-trucks. This paper uses a similar methodology to estimate external costs, though we distinguish five (rather than two) vehicle classes, different driver groups, and we plug the estimates into formulas for the welfare effects of alternative mileage-reducing policies.

#### Mileage Based fees facilitate Pay as You Drive insurance, reducing accidents

Victoria Transport Policy Institute 11 (Distance-Based Pricing Mileage-Based Insurance, Registration and Taxes, August 31 2011 <http://www.vtpi.org/tdm/tdm10.htm>) Azimi

Distance-Based Pricing can provide the following benefits: · Increased fairness. Distance-based fees can more accurately reflect the insurance, road and pollution costs imposed by individual vehicles. Current pricing tends to overcharge motorists who drive less than average and undercharge those who drive more than average each year in a price category. Since lower-income motorists tend to drive less than average, this is regressive. (Small, Winston and Evans 1989; FHWA 1997). · Increased affordability. Converting to distance-based costs could make vehicle purchase, leasing, insurance, and registration more affordable by allowing motorists to decide how much driving they can afford, as they can with most consumer goods (Litman, 2004). It allows households to afford an extra vehicle that is seldom driven, such as an old truck used for errands or a recreational vehicle. · Increased economic efficiency. Distance-based charges more accurately reflect motor vehicle costs than existing pricing, and so increase overall economic efficiency and productivity. · Consumer savings. The average motorist is predicted to save $50-100 per vehicle with distance-based insurance, and more if other charges are distance-based. These savings represent the reductions in insurance and roadway costs that result when motorists reduce their mileage. They indicate that consumers value incremental financial savings more than incremental vehicle use. These are true cost savings, not just economic transfers. · Reduced vehicle travel. Distance-based insurance and registration fees are predicted to reduce vehicle travel by 10-15%, making this one of the most effective TDM strategies currently proposed. This reduces traffic congestion, road and parking facility costs, accident risk, pollution emissions, consumer costs, and urban sprawl. · Increased safety. Vehicle crashes should decline even more than mileage (a 10% mileage reduction is predicted to reduce crashes by 12-15%) because higher-risk motorists (who currently pay high premiums per vehicle-year) would pay higher per-mile fees, and would therefore have the greatest incentive to reduce their driving. If implemented at throughout the U.S., this would save about 5,000 lives a year, and prevent a much larger number of disabilities and injuries (Safety Impacts of TDM, Edlin 1999, Litman, 2001). · Emission reduction. Distance-based fees would reduce energy consumption and pollution emissions. Mileage-based emission fees would provide particularly large tail-pipe emission reductions - a fee that reduces mileage by 2% is predicted to reduce emissions by 4-16% (Deakin and Greig Harvey 1997, tables B.5 and B.10). Distance-based pricing tends to provide consumer benefits, by allowing individual motorists a new opportunity to save money. Optional distance-based insurance pricing clearly provides net consumer benefits since motorists would only choose this price structure if they considered themselves better off overall. These consumer benefits are in addition to indirect benefits such as reduced congestion, crash risk and pollution emissions. Converting vehicle purchase taxes to mileage-based fees would reduce the cost of new vehicle purchases while also increasing vehicle-operating costs. This could have the positive effect of shifting driving to newer, less polluting and safer vehicles, in addition to other benefits from reduced vehicle mileage. Congestion and emission reduction benefits could be large. Table 5 summarizes the results of modeling by Deakin and Harvey (1997) for the year 2010. It indicates, for example, that in the Los Angeles region, a 2¢ per mile fee would reduce total vehicle trips by 4.1%, but congestion delay would decline by a much larger 10.5%.

#### Reduced VMT limits accidents

Avent 8 (12-11, Ryan, economics correspondent for The Economist, and the primary contributor to Free Exchange, author of The Gated City, “Culture of Life”, *The Bellows Approaching the City*, <http://www.ryanavent.com/blog/?p=1683>) GSK

The number of people killed in traffic crashes in the U.S. this year is expected to be the lowest on record, federal transportation officials said Thursday. Early projections show traffic deaths for the first 10 months of 2008 are down about 10 percent compared with the same period last year. Estimates from the National Highway Traffic Safety Administration show that 31,110 people died on the nation’s roads from January through October, compared with 34,502 during the same period in 2007. Ordinarily, we’d probably consider it worthwhile to prevent the deaths of 3,000 or so people; certainly we were willing to do all kinds of horrible things to try and forestall another attack like that of September 11. So what’s behind all this? Transportation secretary Mary Peters wants credit: “Our focus on safety — from our highways, railways, seaways and airways — has led to one of the safest periods in our nation’s transportation history…” Call me crazy, but I suspect there might be some connection between reduced fatalities and reduced driving. For the year to date, Americans have driven an estimated 3.5% fewer vehicle miles than they did in the same period in 2007. Now it is true that the fatality rate has fallen, but that might also have something to do with the root cause of the decline in VMT — higher gas prices. Drivers reportedly drove slower (truckers especially) to save gas money. The average size of the vehicle fleet probably shrank as well, as people sold bigger trucks and SUVs, or simply drove them less. High gas prices were painful for consumers this year, but that’s because we weren’t very well prepared for them. Our vehicles were large, our city structures sprawling, and our ability to substitute to transit or walking or biking limited. But if we improve those alternatives, then it becomes easier and more painless to tax things like VMT and emissions (or gasoline) which would reduce highway fatalities and injuries. And of course, if saving thousands of lives isn’t the kind of thing that concerns you, well, such measures would also save billions of dollars, and reduce emissions, and improve air quality and public health, and so on and so forth.

### Risk Calculus: Prefer Probability

#### Extremely low probabilities should count as zero—even if there’s some risk, policy decisions can’t be justified by vanishingly small probabilities

Rescher, Professor of Philosophy, 2003

(Nicholas, “Sensible Decisions: Issues of Rational Decision in Personal Choice and Public Policy,” p. 49-50)

On this issue there is a systemic disagreement between probabilists working on theory-oriented issues in mathematics or natural science and decision theorists who work on practical decision-oriented issues relating to human affairs. The former takes the line that small number are small numbers and must be taken into account as such—that is, the small quantities they actually are. The latter tend to take the view that small probabilities represent extremely remote prospect and can be written off. (De minimis non curat lex, as the old precept has it: in human affairs there is no need to bother with trifles.) When something is about as probable as a thousand fair dice when tossed a thousand times coming up all sixes, then, so it is held, we can pretty well forget about it as a worthy of concern. As a matter of practical policy, we operate with probabilities on the principle that when x ≤ E, then x = 0. We take the line that in our human dealings in real-life situations a sufficiently remote possibility can—for all sensible purposes—be viewed as being of probability zero. Accordingly, such remote possibilities can simply be dismissed, and the outcomes with which they are associated can accordingly be set aside. And in “the real world” people do in fact seem to be prepared to treat certain probabilities as effectively zero, taking certain sufficiently improbable eventualities as no long representing real possibilities. Here an extremely improbable event is seen as something we can simply write off as being outside the range of appropriate concern, something we can dismiss for all practical purposes. As one writer on insurance puts it: [P]eople…refuse to worry about losses whose probability is below some threshold. Probabilities below the threshold are treated as though they were zero. No doubt, remote-possibility events having such a minute possibility can happen in some sense of the term, but this “can” functions somewhat figuratively—it is no longer seen as something that presents a realistic prospect.

#### The threat of huge impacts is often exaggerated

Rescher, Prof. of Philosophy, 83

(Nicholas Rescher, University of Pittsburgh Professor of Philosophy, “Risk: A Philosophical Introduction to the Theory of Risk Evaluation and Management” 1983)

But while there is room for (perfectly legitimate) differences from person to person, it is clear that when these go too far there also arises a significant prospect of impropriety and exaggeration. People frequently tend to inflate “extreme” outcomes -- exaggerating the badness of the bad and the goodness of the good. The tendency to overestimate the dramatic comes into play with outcome-evaluation. Our psychological capacity for imagination may run riot. We tend to overrate the positivity of imagination-projected boons and negativity of imagination-projected hazards: anticipated tragedies often do not prove to be all that awful. And such psychological tendencies as are involved with familiarity, understanding, dread, etc. can all foster unrealism in appraising negativities.

The perceived value of an outcome may prove to be widely off the mark of any realistic estimate of its actual value. Our perception of the magnitude of risks tends to be distorted by the structure of our anxieties. Hazards involving threats that are particularly striking or dramatic -- leading to death, say, rather than mere debility, or likely to take more rather then fewer lives -- tend to be overestimated, while risks of a commonplace, undramatic nature whose eventuations are no less serious tend to be underestimated.

#### Probability should be evaluated before magnitude

Rescher, Prof. of Philosophy, 83

(Nicholas Rescher, University of Pittsburgh Professor of Philosophy, “Risk: A Philosophical Introduction to the Theory of Risk Evaluation and Management” 1983)

A probability is a number between zero and one. Now numbers between zero and one can get to be very small indeed: As N gets bigger, 1/N will grow very, very small. What, then, is one to do about extremely small probabilities in the rational management of risks? On this issue there is a systemic disagreement between probabilists working in mathematics or natural science and decision theorists who work on issues relating to human affairs. The former take the line that small numbers are small numbers and must be taken into account as such. The latter tend to take the view that small probabilities represent extremely remote prospects and can be written off. (De minimis non curat lex, as the old precept has it: there is no need to bother with trifles.) When something is about as probable as it is that a thousand fair dice when tossed a thousand times will all come up sixes, then, so it is held, we can pretty well forget about it as worthy of concern.

The "worst possible case fixation" is one of the most damaging modes of unrealism in deliberations about risk in real-life situations. Preoccupation about what might happen "if worst comes to worst" is counterproductive whenever we proceed without recognizing that, often as not, these worst possible outcomes are wildly improbable (and sometimes do not deserve to be viewed as real possibilities at all). The crux in risk deliberations is not the issue of loss "if worst comes to worst" but the potential acceptability of this prospect within the wider framework of the risk situation, where we may well be prepared "to take our chances," considering the possible advantages that beckon along this route. The worst threat is certainly something to be borne in mind and taken into account, but it is emphatically not a satisfactory index of the overall seriousness or gravity of a situation of hazard.

# Coercion Add-On

### SQ = Coercive Subsidies for Roads

#### All alternatives to VMT user fees rely on coercive taxation which subsidizes roads by robbing Peter to pay Paul.

Bacon 11 (James, ex-journalist and founder of Bacon`s Rebellion, an independent organization to analyze Virginia`s policy, “Do We Really Want to Subsidize Driving?”, *Bacon`s Rebellion*, December, <http://www.baconsrebellion.com/2011/12/do-we-really-want-more-subsidies-for-the-automobile-culture.html>) GSK

Philosophically, this is fundamental. One principle of governance says, “People who use roads should pay the full cost of building and maintaining them.” The other principle says, “People like driving on roads but don’t like paying for them, so I’ll subsidize their transportation preference with taxes imposed upon the general public.” Republicans claim to loathe social engineering. They rightly distrust those Greens and environmentalists who want to corral the population into high-density housing and force them to ride mass transit. But Republicans are social engineers of a different sort. They support tax and transportation policies that underpin the auto-centric society. Then, when the cost of those policies becomes prohibitively expensive, they turn to public subsidies to maintain an unsustainable status quo. Once upon a time, Virginia funded most of its road building through the state motor fuels tax, supplemented by federal grants paid for by a federal motor fuels tax. It wasn’t perfect, but it worked reasonably well. Generally speaking, the more miles you drove, the greater the burden you put on the road system, and the more tax you paid. People who walked to work, biked to work or worked at home didn’t pay as much. The salesman who drove 1,000 miles a week paid a lot more than the little old lady who drove 10 miles a week. There was a rough justice in the tax. But the Old Dominion has largely abandoned that approach. Through inaction, legislators have capped Virginia’s gasoline tax at 17.5 cents per gallon since 1986. Due to inflation, the purchasing power of that tax has declined by more than half — way more than half, actually, if you consider the inflation in construction costs. But the demand for more roads, bridges and highways has not diminished at all. To maintain road funding, lawmakers have boosted other taxes. But they have done so in a sly, underhanded way: by breaking up the taxes into little pieces that are harder for taxpayers to notice, and relying upon revenue sources that automatically increase over time. Today, barely one third of the dollars spent by the Virginia Department of Transportation comes from the motor fuels tax. Here’s where the money is coming from this year, according to an October VDOT estimate for Fiscal Year 2012:McDonnell would further sever the connection between those who use Virginia’s roads and those who pay for them by doing three things: (1) Phasing in the transfer of an extra 0.25% of the state’s 4.5% sales tax to transportation over eight years, (2) dedicating 75% of any end-of-year General Fund surplus to transportation, and (3) dedicating an additional 1% of all General Fund revenue to transportation in years when revenues increase more than five percent. Bottom line: within eight years, the motor fuels tax will account for perhaps one quarter of VDOT funding. Why is that so bad? After all, we use General Funds to underwrite the cost of schools, corrections and Medicaid. Why not roads, too? Here’s why. When government subsidizes the cost of building and maintaining roads, people drive more. When people drive more, they increase the wear and tear on roads and they aggravate traffic congestion, both of which intensify the pressure on government to raise more taxes. Thus tax subsidies beget more tax subsidies. That is fiscally unsustainable. By comparison, when government pays for public education, people don’t go out and have more children. When government pays for prisons, criminals don’t go out and commit more crime. When government pays for free health care, Medicaid patients don’t go out and get sicker… Well, actually, people probably do make less effort to stay healthy when they know that someone else will pay for their medical treatment. Bad example. That’s a big reason our health care system is so dysfunctional. It, too, needs to change. In an economically ideal world, Virginia would eliminate every tax listed above except the motor fuels tax and raise that tax by enough to offset the lost revenue. That would mean roughly tripling the gas tax. Virginians wouldn’t be any worse off — by definition, the tax burden would be the same. Actually, I could make the case that Virginians would be better off: (a) because the tax would be totally transparent and they would know what they’re paying, and (b) they could reduce the amount of tax they pay by modifying their behavior — driving less. Admittedly, there is one big problem with shifting to an all-motor fuels tax. That tax, as I have oft preached and McDonnell noted in justifying his raid-the-General Fund proposal, is living on borrowed time. Gas tax revenues will decline as automobile gas mileage improves and as people buy more alternate-fuel vehicles. But the solution isn’t subsidizing transportation with General Funds, it’s replacing the motor fuels tax with a Vehicle Miles Traveled tax. Any VMT tax would pose administrative challenges, so we need to start studying the options now in order to get the kinks worked out when it’s time to make the switch. From a moral perspective, subsidies for middle-class drivers are no more defensible than payments to welfare queens or bail-outs for Wall Street bankers. In every case, government robs Peter to pay Paul. And in every case, there are adverse consequences. Just as welfare breeds a pathological culture of poverty and bail-outs encourage bankers to gamble recklessly with other peoples’ money, subsidizing roads leads to more driving, more gasoline consumption, more congestion, more pollution and greater dependence on foreign oil. Genuine conservatives will oppose McDonnell’s transportation-funding proposals.

#### Status quo transportation shortfalls are financed by stealing tax dollars from nonusers and future citizens

Huang et al 10 (Edward, Post-Doctoral Research Fellow, Energy Technology Innovation Policy research group, Henry Lee, Director, Environment and Natural Resources Program, Energy Technology Innovation Policy research group, Grant Lovelette, Research Assistant, Masters in Public Policy, and José A. Gómez-Ibáñez, Professor of Urban Planning and Public Policy, Transportation Revenue Options: Infrastructure, Emissions, and Congestion, Harvard Kennedy School, September 2010, pg. 2, <http://live.belfercenter.org/files/Transportation%20Revenue%20Options%20Workshop%20Report%202010%20for%20web.pdf>) PCS

In the meantime, federal and state transportation funds financed by fuel taxes have been unable to cover the expenses necessary to keep the highway system from deteriorating. The demand for new roads and the cost of expanding and maintaining the transportation system have increased with population and economic growth. But fuel tax revenues have not kept pace because the federal government and most states have not increased gasoline tax rates since early 1990s, while inflation has eroded their real buying power. In the meantime, cars and trucks have become more fuel-efficient. Although this is a favorable trend for the environment and energy security, it poses challenges for transportation finance because motorists consume less fuel per mile traveled and thus pay fewer tax dollars for the same amount of road use. Policymakers have dealt with funding gaps in various ways, though rarely by raising gasoline taxes and other user fees, which are perceived as politically unpopular. Instead, despite growing budgetary problems, state and federal governments have reached into their general funds to fill this gap. Some states have also issued bonds or raised sales taxes through local referenda approved by voters. As a result, an increasing share of transportation funding comes from nonusers and, to some extent, from future citizens who will have to repay the money borrowed to cover today’s transportation costs.

# Solvency

### VMT fee decreases Miles Traveled

#### VMT changes driving behavior- increases public transit and decreases congestion and carbon emissions.

Meggison 11

(Andrew, M.D in Political Science at Northeastern University, Writer for infrastructurist.com, “Vehicle Mileage Tax Tested In The Netherlands: Saves Money, Reduces Congestion” April 28th 2011, Lexis)ZLH

Taxes are crazy. Is it better to raise them or lower them and on whom? What should be taxed and what should not be taxed? The debate has raged in the United States for generations. Other nations have their tax problems too but are looking at solutions, such as the Netherlands, where IBM has just completed vehicle mileage tax (VMT) test program. Certain taxes in the United States go to pay for the maintenance of America's roads and bridges. However, it is no secret that America's roads and bridges are in a horrible state of disrepair-the taxes that are in place are just not doing the trick. A VMT could potentially fix that dreary fact and the model of such a tax is happening in the Netherlands and headed by IBM. IBM has designed a system that is installed into the dash of a car. The system calculates a charge for each car trip by using a mileage based formula. The system is connected to a GPS device and wirelessly to the Internet. The system also takes into account fuel efficiency and the time of day of the car trip. At the end of each month the driver would receive a bill in the mail detailing the distance and times and thus cumulating into a charge-not unlike a cell phone bill. This was a six month trial so participants in the trial of the system did not have to pay any money during the trial period. IBM noticed some very interesting results. When people are being "taxed" to drive their car it turns out that driving behavior changed and for the better. IBM saw a driving improvement in 70% of the trial drivers. The driving improvements came in the form of avoiding congested highways, not pushing a car hard and thus using more fuel during drives, and a vast increase in using GPS to plan out more fuel efficient routes. IMB predicts that a full on VMT would make a 58% decline in traffic related delays, a 10% reduction in overall carbon admissions, and a 6% increase in public transportation ridership, which in the states might just lead to more problems. On a psychological level it seems that people have short attentions spans, the high price of gas is a problem when one is filling up but soon forgotten after the driver continues on their trip. Yet, when a person is glancing at a mileage meter that is constantly ticking up, that mileage meter servers as a constant reminder of the cost of driving and thus the driver takes measures to lessen the economic blow. This type of driving tax seems crazy and there is no way that something like this could happen in the good old U.S. of A. Right, seriously right? Actually, Oregon has proposed a system that would charge drivers of only electric and hybrid cars $0.85 cents a mile through 2015 and then jump to $1.85 cents by 2018. The idea behind this electric/hybrid car fee is that those types of vehicles use less or no gas than regular vehicles. That is good for the consumer, less pain at the pump, but that means less revenue for states from their gas taxes. This charge for mile on electric and hybrid cars would, supposedly, offset the loss of gas tax revenue. For now the Oregon legislation has been stalled but other states like Texas and Minnesota are looking into similar programs. It should be noted that Oregon currently has a $.30 per gallon gas tax.

#### VMT fees would reduce miles traveled

Komanoff 97 (Charles, Director of Komanoff Energy Associates, *Environmental Consequences of Road Pricing: A Scoping Paper for the Energy Foundation*, The Energy Foundation, April 1997, <http://www.tstc.org/reports/ckdraft6.pdf>, pg. 6) PCS

In the economist’s neoclassical model, VMT fees will always reduce vehicle miles traveled. Just as a tax on potato chips will reduce consumption of potato chips, as consumers shift some chip purchases to substitutes (e.g., other snack foods, other potato products, other foods entirely, or even non-food items), a tax on vehicle miles traveled will reduce vehicle miles traveled. According to this model, which economists have sanctified as the Law of Demand, demand curves do not bend backwards. People always purchase less of a commodity when its price rises, except in the rare instance of completely “inelastic” demand; and they never demand more, except for certain conspicuous goods, for which high price may connote high status. The neoclassical framework is an excellent guide to the short-term, direct effects of road pricing on VMT. Because no VMT tax has yet been put into practice, we must rely on travel demand modeling to gauge the magnitude of the effect. An illustrative result is an estimate by the late modeler Greig Harvey that a 5¢/mile VMT fee would reduce passenger travel by 11% in the four major counties of Southern California. In deriving this estimate, Harvey incorporated “bounce-back” from reduced congestion (as improved travel times engender a rebound in travel), but did not attempt to estimate further VMT effects from land use changes.

#### Consumers respond differently to the VMT than the gas tax- VMT is more likely to discourage unnecessary driving.

Rahman et al, 11 (Lazeena Rahman is a Graduate School of Business and Public Policy student at Stanford, Kumi Harischandra, Justine Isola, and Anthony Suen are graduate students in Stanford’s International Policy Studies program, Prepared for: Carnegie Endowment for International Peace, “Going Forward: Prospects for Transitioning from Gas Taxes to Vehicle-Miles-Traveled Fees” p. ix) APB

In concrete terms, it seems intuitive that consumers will respond differently to gas taxes and VMT fees. Imagine a parent who is deciding whether or not to make a short trip to the store to pick up some milk so that her daughter can have cereal for breakfast. This mother is probably not going to think through the math of how much this trip will cost her in gas dollars. She would need to know the fuel-efficiency of her car and then remind herself about what gas prices are currently. She would also have to gauge how far the grocery store is from her house. It is likely she will simply hop in the car. If she thinks about the cost of her extra trip at all, she will make note of the fact that she will have to fill up her tank sooner than she would, had she forgone the trip. Next consider this mother’s reasoning under a VMT fee scenario. If making a milk run costs three dollars simply based on the distance from the woman’s home to the store, it offers a much easier mental calculation. It is more likely for the mother to decide not to run the errand.55

#### VMT creates incentives for efficient road use and guides better investment decisions.

Transportation Research Board 6, (Transportation Research Board, Committee for the Study of the Long-Term Viability of Fuel Taxes for Transportation Finance, The National Academies, “[The Fuel Tax and Alternatives for Transportation Funding: Special Report 285](http://www.nap.edu/catalog.php?record_id=11568)”, The National Academies Press, pg. 137 of 248, http://www.nap.edu/openbook.php?record\_id=11568&page=137

This method of charging for road use would have several advantages. If mileage fees largely replaced fuel taxes, user fee payments would no longer depend arbitrarily on vehicle fuel efficiency or the type of fuel consumed, and revenues would not be vulnerable to shifts in vehicle technology. In addition, if all use of all roads were monitored and charged for, local governments could readily fund their streets and roads with revenue from user fees, as the states do now, rather than relying on general or general sales taxes. Most important, the benefits of the transportation system to travelers and the public could be substantially increased, because travelers would have incentives to use roads efficiently and road authorities would have better information to guide investment decisions.

#### Road pricing empirically results in less drivers on the road

Bishins et al 11 (Allison, Project Manager, US Transport and Climate, EMBARQ at World Resources Institute, Nathan Sandwick, research analyst in the U.S. Transport and Climate Program at EMBARQ at The World Resources Institute Center for Sustainable Transport, and Radha Neelakantan, Transportation Program Specialist at ITS America, *The Role of Driving in Reducing GHG Emissions and Oil Consumption*, World Resources Institute, 2011, pg. 13, <http://pdf.wri.org/role_of_driving_in_reducing_ghg_emissions.pdf>) PCS

The Value Pricing Pilot Program (VPPP) was established to test the effects on driver behavior, traffic volumes, and travel speeds of pricing projects to manage congestion. Evaluations of projects funded by the pilot include toll facility pricing in New Jersey, which found that variable tolling in 2001 resulted in 7.4 percent of auto users modifying their trips, including 20 percent of the “modifying” group shifting to transit. An additional project in Portland, Oregon, found that 14 percent of households that were charged rush hour fees had a household member switch to transit to save money. A Seattle, Washington, pilot project on pricing found that 80 percent of households reduced driving or shifted away from car travel.

#### **VMT tax would reduce fuel consumption and miles traveled**

Kim 8 (Chun Kon, Doctorate of Philosophy in Economics, *Essays on Urban Transportation and Transportation Energy Policy,* University of California Transportation Center, 2008, pg. 40, <http://escholarship.org/uc/iten/7sn2772sc>) PCS

Unlike fuel tax, VMT tax based on the mileage driven may directly change the per-mile driving costs and it affects all travelers regardless of the fuel economy of their vehicles. It may work as an incentive to reduce travel miles and thus would decrease fuel consumption. Taking account of vehicle price assuming that fuel efficient vehicles are generally more expensive than less fuel efficient vehicles of same size, VMT taxes would cause higher increase in costs of vehicle purchase and driving for the users of fuel efficient vehicles than relatively inefficient vehicle users.

### VMT = Best Revenue Source

#### VMT is technologically feasible and superior to every other revenue generation method

Rahman et al, 11 (Lazeena Rahman is a Graduate School of Business and Public Policy student at Stanford, Kumi Harischandra, Justine Isola, and Anthony Suen are graduate students in Stanford’s International Policy Studies program, Prepared for: Carnegie Endowment for International Peace, “Going Forward: Prospects for Transitioning from Gas Taxes to Vehicle-Miles-Traveled Fees” p. ix) APB

Transitioning to VMT fees would address some of these problems posed by increasing the gas tax because revenue generated from charging for miles traveled does not depend on demand for gas. A VMT fee of just one cent per mile would be enough to generate as much revenue as the federal government currently collects from the gas tax.15 VMT monitoring could be as simple as requiring drivers to install a device in their cars that calculates vehicle miles driven for a certain period of time. A more sophisticated system would use GPS to record location in addition to miles driven to more accurately reflect differences in infrastructure maintenance costs across states and within cities and could charge drivers based on when they drive. In terms of collection strategies, VMT fees could be collected on an annual basis (similar to the current car registration system) or with an E-ZPass-like system based on prepaid credits, which is widely used today to collect bridge tolls in parts of the U.S. Citing concerns that gas taxes will not be reliable sources of revenue in the long-term, three comprehensive government-funded studies on generating revenue for the transportation system have made the case for transitioning from the gas tax to VMT fees. • The Committee for the Study of the Long-Term Viability of Fuel Taxes for Transportation Finance recommended in 2006 the introduction of direct user fees such as mileage charging as a top reform option noting that such a system “offers the best opportunity for increasing the cost-effectiveness of transportation spending and mitigating congestion [italics added].”16 • The National Surface Transportation Policy and Revenue Study Commission concluded in 2007 that the gas tax would continue to be a viable revenue source for transportation funding through 2025. However, it also proposed that “[t]hereafter, the most promising alternative revenue measure appears to be a vehicle miles traveled (VMT) fee [italics added].”17 • The 2009 National Surface Transportation Infrastructure Financing Commission assessed the relative strengths of more than 30 revenue generation tools including dedicated income taxes, general fund revenue, freight-related charges, tariffs on imported oil, automobile tire taxes, and even parking fees. Each tool was evaluated based on criteria ranging from revenue stream to equity considerations.

The gas tax scored the highest of all existing revenue mechanisms. VMT fees scored the highest of any revenue generation option, receiving particularly high marks for revenue potential, promotion of efficient road use of the roads, and user equity.18

#### VMT is the best source of revenue- it allows efficient distribution to the areas where roads are most heavily used instead of allowing transportation funding to be dictated by politics.

Baker and Goodin 11, (Richard, Associate Transportation Researcher Texas Transportation Institute, and Ginger, Senior Research Engineer Texas Transportation Institute, “EXPLORATORY STUDY: VEHICLE MILEAGE FEES IN TEXAS”, January, http://ntl.bts.gov/lib/35000/35900/35902/0-6660-1.pdf) DMD

The current collection method for the fuel tax prevents policy makers from determining revenue generation on anything but a large-scale, regional basis. Thus, politics and complex funding formulas determine what facilities and areas receive funding. Fuel distributors pay fuel taxes when fuel is initially removed from the bulk terminal/transfer system and then distributed throughout the states, so policy makers can trace revenue only to the point of initial collection. It is impossible to determine, even at the state level, where consumers generate revenues. And because state and federal governments collect fuel taxes based on the amount of fuel drivers consume, drivers are essentially paying taxes for the use of facilities that are not funded with fuel taxes, such as city streets and on private property. Furthermore, drivers pay state fuel taxes for travel that occurs in other states if the vehicle is not refueled there. Some mileage-based user fee proposals can determine where revenue is generated down to the facility level, freeing transportation officials to target funding to areas that are the most heavily used. Officials could discount mileage accrued on non-state maintained facilities or out-of-state mileage if a state entity applies the VM fee.

### VMT Increases Transportation Investment

#### A VMT of just 1 cent per mile is sufficient to double Highway Trust Fund revenues.

Teglasi 12, (Victor S., Graduate School of Architecture, Planning and Preservation Columbia University, Master in Science in Urban Planning, “Why Transportation Mega-Projects (Often) Fail? Case Studies of Selected Transportation Mega-Projects in the New York City Metropolitan Area”, May. Thesis) DMD

Vehicle-Miles Traveled (VMT) Fees Greater fuel efficiency and the growing number of hybrid and all-electric vehicles could significantly reduce the future revenue stream from gasoline excise taxes and gasoline sales taxes, the primary funding mechanism for transportation capital improvements. This has prompted serious discussion of alternative methods of collecting taxes not dependent on fuel consumption. A VMT tax, based on distance traveled has been suggested as a supplement or alternative to traditional methods of generating revenues. VMT fees have been tried in Illinois on a limited basis and tested in Oregon and 12 cities as part of a study by the University of Iowa. Germany has instituted VMT fees for trucks by number of axles. Israel, the Netherlands, and the United Kingdom have instituted a pay-as-you drive billing mechanism for insurance premiums based on mileage. According to a recent AASHTO study, a 1 cent charge per mile traveled could generate over $32 billion in additional HTF revenues each year – more than double the current revenues. The average driver travelling 12,000 miles per year would pay about $120.

#### A 2 Cent VMT tax would support long term investment into transportation infrastructure as well as maintaining and improving highway and transit systems.

Frisman 12 By Principal Analyst Paul Frisman Principal Analyst at Office of Legislative Research Location Hartford, Connecticut Area Industry Legislative Office Paul Frisman's Overview Current Principal Analyst at Office of Legislative Research Past Reporter at Connecticut Law Tribune Communications Director at Connecticut Association for Human Services Reporter at The Hartford Courant Education Boston University School of Law SUNY Stony Brook http://www.cga.ct.gov/2012/rpt/2012-R-0029.htm January 17, 2012 VEHICLE MILES TRAVELLED (VMT) TRANSPORTATION

VMT Fees Could Generate Significant Revenue According to Well Within Reach, VMT fees “could generate significant revenues. A fee of just one penny per mile would equal the revenue currently collected by the fuel tax; a fee of two cents per mile would generate the revenue necessary to support an appropriate level of investment over the long term.” The authors of Paying Our Way concur. According to the report, several states that looked into replacing their fuel taxes with VMT fees “have typically estimated that a fee of 1–2¢ per mile (average for both cars and trucks) would be required.” (According to the IRS, the overall cost of owning a car in 2011 was 51 cents a mile.) The report's authors also evaluated several scenarios associated with a national VMT system. They estimated the VMT fees needed to replace the HTF based on current funding levels, and the fees needed to fund the entire current federal highway and transit program. The report notes that current federal program obligations exceed current HTF receipts by about $17 billion annually. (The calculations are in 2008 dollars). “If fees were charged at a flat rate on all travel, regardless of where it occurred,” the report found, “the required VMT fees would need to be about 0.9¢ per mile for cars, SUVs, vans, and pick-ups, and 5¢ per mile for heavy trucks (an average of 1.2¢ per mile). The fees required to pay for the entire current federal program would be about 1.3¢ per mile for cars, SUVs, vans, and pick-ups, and 7.3¢ per mile for trucks (an average of 1.8¢ per mile).” The report's authors also developed “rough estimates” of the VMT charges required to raise enough money to address the average annual federal investment amount needed to (1) maintain the current highway and transit system and (2) improve it, between 2008 and 2035. It found that the VMT fee needed to meet the annual level ($77.6 billion) would be 1.9¢ per mile for cars, SUVs, vans, and pick-ups, and 10.6¢ per mile for trucks (an average of 2.6¢ per mile). The charges required to pay to improve the system ($96.2 billion) would be 2.3¢ per mile for cars, SUVs, vans, and pick-ups, and 13.2¢ per mile for trucks (an average of 3.2¢ per mile). The report notes that these fees would be 18% higher if drivers were charged only for miles they drive on the federal highway system, rather than on all roads and highways. (The federal highway system covers those highways eligible for federal funding—roughly one-quarter of all roads in the United States.) The estimated VMT fees also do not account for additional fees needed to administer a federal VMT system.

### Empirical Solvency

#### **VMT fee provides revenue stability, more equitable cost distribution, and increases economic efficiency- empirically has worked in both pilot tests and more widespread usage in Europe.**

Slone 10 (Sean, Sean Slone is a transportation policy analyst at The Council of State Governments. The Council of State Governments, Vehicle Miles Traveled Fees, March 2010, <http://www.csg.org/policy/documents/TIA_VMTcharges.pdf>) Azimi

Implementing a VMT system in the U.S. would offer several advantages. In 2007, the RAND Corporation outlined some in a briefing paper for the National Surface Transportation Policy and Revenue Study Commission, one of two federal commissions created by Congress to consider the 21st century needs of the U.S. transportation system, including alternative approaches to generating revenue. Among RAND’s findings: `` VMT tolling could have significant revenue potential. The rate structure would only be limited by political considerations. `` It would provide revenue stability. Revenues would vary only with total vehicle travel and because demands for road maintenance and expansion also vary with total vehicle travel, that is deemed a plus. `` It would provide greater cost distribution equity. VMT tolling would charge drivers in direct proportion to their use of the road system. It would do so much more precisely than the gas tax currently does and in a more equitable way than non-user fee finance mechanisms such as local-option sales taxes, in which there is no direct relationship between the taxes and the use of the system. It would provide greater revenue distribution equity. VMT tolling could measure the amount of travel that occurs in different jurisdictions and the revenues could be distributed accordingly. According to RAND, that would be an improvement over the system of fuel taxes because, for example, long-haul trucks can fuel up in states with lower fuel taxes before driving through states with higher taxes. `` It would create greater economic efficiency. VMT tolling could be used in various ways to encourage drivers to ration or change their travel behavior. `` It makes use of proven technology. As mentioned earlier in this brief, VMT tolling technology including onboard computers equipped with GPS receivers, digital maps and wireless communications has been proved to work in pilot tests as well as in actual practice in Europe.

#### Netherlands proves: VMT shift significantly decreases driving fatalities, congestion, and carbon emissions.

Mineta and Skinner, former Secretaries of Transportation, 10 (Norman Y. Mineta and Samuel K. Skinner, Well Within Reach America’s New Transportation Agenda, <http://web1.millercenter.org/conferences/report/conf_2009_transportation.pdf>) Azimi

In an effort to combat congestion and cut emissions, the Netherlands announced a move from a purchase and annual tax to a kilometers traveled tax that will take effect in 2012. Passengers will be charged a fee of €0.03 per kilometer- or about $0.07 per mile—with higher charges incurred for traveling during peak times or congested roads. Fees will be calculated by a GPS system installed in the vehicle that sends time, hour, and destination to a billing agency.

Larger vehicles will be charged a higher rate, and public transportation will be exempt.

Substitution of a VMT tax for a purchase and road tax is expected to make new car prices drop as much as 25%. The annual road tax totals more than €600 ($900) for a mid-sized car. According to government calculations, nearly 6 out of 10 drivers would benefit—fatal accidents should fall 7 percent, and carbon emissions from road travel would be cut by 10 percent. Traffic was estimated to drop 15 percent and rush-hour congestion would be halved when drivers begin getting regular bills. Tax revenue is expected to remain the same, although opponents argue that it will cost more than €1 billion in tax income each year and place a heavy burden on business drivers.

#### Oregon pilot proves empirical solvency- can be phased in quickly with existing technology, protects privacy, implementation costs are low, and evasion is minimal.

Coyle et. al. 11(David, Department of Applied Economics University of Minnesota, Ferrol O. Robinson Zhirong (Jerry) Zhao Lee W. Munnich Jr. Adeel Z. Lari Humphrey School of Public Affairs University of Minnesota, From Fuel Taxes to Mileage-Based User Fees: Rationale, Technology, and Transitional Issues, August 2011, Center for Transporation Studies at Minnesota, <http://www.its.umn.edu/Publications/ResearchReports/reportdetail.html?id=2048>) Azimi

Germany: Robinson (2008) provides a thorough description of the German Heavy Goods Vehicle (HGV) tolling system. This system, introduced in 2005, uses a GPS-based system to charge heavy commercial vehicles based on distance traveled, number of axles and emission class. The rationale for implementing the German system was: significant infrastructure costs were being imposed by heavy trucks; a significant amount of truck-kilometers on German roads were being driven by foreign-registered vehicles that were not directly paying fuel and road taxes; many foreign trucks had a competitive advantage as they were not complying with EU emission standards; and taxes on gasoline and diesel fuels had been raised several times since 1991, and further increases were no longer a good option (Robinson 2008). The Euro-Vignette: This is a sticker-based system that charges vehicle users based, typically, on emission level, time of travel, number of axles, and specific traffic regulations (Robinson 2008). This system was initially introduced in 1995, and is currently used in five countries: Sweden, Denmark, Belgium, The Netherlands, and Luxemburg (Eurovignette 2010). Since October 1, 2008, users have been able to register their vehicle online, thus removing the need to carry paper documentation of their enrollment in the program (Eurovignette 2010). Robinson (2008) notes the advantages of this system: ease of implementation, low risk of manipulation, need for storing only limited data, low enforcement costs, and the ability to expand to cover additional vehicles. goal of congestion reduction. The Netherlands have been attempting to implement road pricing since 1988, with the primary preparations were underway for the roll-out of a pricing scheme in 2010. However, the collapse of the coalition government in February of 2010 has put the program in limbo (Coyle et al. 2010). The pricing system seeks to improve road accessibility and the quality of the environment by transitioning to a system that taxes car use as opposed to car ownership. The Dutch system considered would use in-vehicle “registration units” that have GPS capabilities. Taxes would be based per-kilometer travel and would also include a rush-hour surcharge (Dutch Road Pricing Act 2010). The Oregon Pilot Project has demonstrated what a state-level road pricing scheme could look like. The motivation for the Oregon pilot was rooted in eight principles: users should pay, local government should have control over local revenue sources, the system should have revenue sufficiency, the system should be transparent to the public, there should not be substantial burdens for taxpayers or private sector entities, the system should be enforceable, should support the entire highway and road system, and should enjoy public acceptability (Whitty 2007). The system used in the Oregon trials was a coarse-resolution GPS-based system, with a pay-at-the pump payment method. The Oregon pilot program revealed many key findings: the concept is viable, paying at the pump works, the mileage fee can be phased in, integration with the current system can be achieved, congestion and other pricing options are viable, privacy is protected, the system would place minimal burden on business, potential for evasion is minimal, and the cost of implementation and administration is low (Whitty 2007)

#### VMT is most viable option to replace the gas tax; Oregon empirically proves.

Whitty 5 (James, Manager Office of Innovative Partnerships and Alternative Funding, Oregon’s Mileage Fee Concept and Road User Fee Pilot Program, p. 55, June 2005)LD

Before long, Oregonians will come to realize **the state gasoline tax is failing its original purpose of funding** Oregon’s road system. **A majority of the motoring public will soon obtain and operate newer, highly fuel efficient vehicles and will pay less and less gasoline tax per mile, over time, as the marketplace responds to ever higher gasoline prices. As a result, revenues generated will become insufficient to maintain the road system**. **At some point**, Oregon and, in fact, **the nation will need to shift to a different revenue mechanism, something more reliable, if the road system is to survive.** Transition to a new road revenue system will not be easy. Most people are not fond of change and many actually fear it. Working through the policy issues, managing public sensibilities and attaining public consent (if not consensus) will take a significant amount of time, perhaps as much as a decade. Given this needed lead time, it is incumbent upon policymakers to start this effort early—now, in fact—so that the new system can be implemented before the road funding situation becomes an emergency. Oregon’s Road User Fee Task Force has concluded that the best approach for replacing the pergallon tax is a per-mile charge—the mileage fee. After 3 ½ years of technical research and policy analysis, the Task Force and ODOT staff present a mileage fee system that is administratively and technologically feasible, affordable and more reliable revenue-wise than the gasoline tax. **As a practical alternative to the gasoline tax, this new mileage fee system could become the foundation for a new road revenue system for Oregon and the nation. Critics often make inaccurate claims about the Oregon mileage fee concept, citing invasion of privacy, added taxation, unfair taxation, excessive cost, complexity—all generated by unfounded assumptions. The propagation of inaccuracies over new ideas must be expected and weathered as a necessary hurdle in modern policymaking. The Oregon mileage fee concept, as refined and tested over the past several years, resolves every issue generated by these reactionary claims— carefully, effectively and simply.** As demonstrated in this report, the Oregon concept is workable and practical, a genuine alternative to the gasoline tax. Other creative alternatives may, in time, be devised that provide intriguing additional possibilities. Whichever alternative ultimately proves to be best suited to meet the transportation needs of Oregonians, it is no longer debatable that some alternative needs to be selected and implemented. **The gasoline tax must eventually be replaced. The Oregon mileage fee concept is one viable possibility in this quest.**

#### Oregon study proves it is completely viable now

NSTIFC 9 ((National surface transportation infrasctructure financing commission, <http://financecommission.dot.gov/Documents/NSTIF_Commission_Final_Report_Advance%20Copy_Feb09.pdf>, February 26th 2009 P.147)LD

The concept is viable**—The pilot program demonstrated that existing technology can be used in new ways and that a mileage fee can be implemented to replace revenues from motor fuel taxes.** At the conclusion of the pilot program, 91 percent of the program’s participants said they would agree to continue paying the mileage fee in lieu of a motor fuel tax if the program were extended statewide. **Paying at the pump works—The pilot program demonstrated that the mileage fee could be paid at the pump, with minimal difference in process or administration for motorists compared with how they pay the gas tax. Like the motor fuel tax, collection of the mileage fee can be embedded within routine commercial transactions, with the bulk of it prepaid by the distributor in the form of the motor fuel taxes.** **The mileage fee can be phased in—The study demonstrated that the mileage fee could be phased in gradually alongside the motor fuel tax, allowing non-equipped vehicles to continue paying the motor fuel tax while equipped vehicles pay the mileage fee**. However, retrofitting existing vehicles with the necessary technology at this point will be relatively expensive and difficult. **Integration with current systems can be achieved— The study demonstrated the ability to integrate two critical existing systems: the service station point-of-sale system and the state’s current gas tax collection system. Congestion and other pricing options are viable— The study demonstrated that pricing could be varied for different zones and time of day and that appropriate fees could be charged. This proves that the mileage fee concept could support congestion pricing and the assessment/collection of local taxes and other “zone oriented” features**. Furthermore, the area pricing strategy applied in the pilot program produced a 22 percent decline in peak period driving. Privacy can be protected**—The study demonstrated that privacy protection can be implemented, but there is a trade-off between privacy and information stored for enforcement and dispute resolution. Key privacy-related principles successfully integrated into the systems supporting the oregon pilot included that no point location data could be stored or transmitted, that all on-vehicle device communication must be short range, and that the only centrally stored data needed to assess mileage fees were vehicle identification, zone mileage totals for each vehicle, and the amount of fuel purchased.** The burden on business is minimal—While distributors and gas stations bear some new accounting burdens, administration is automated and can be integrated relatively easily into existing transaction processes. There is minimal evasion potential—The on-vehicle device was successfully configured so that tampering with it resulted in default payment of the motor fuel tax, thus negating the benefits of evasion efforts. This approach, however, will not address evasion issues associated with alternative fuel vehicles. **Implementation and administration costs are manageable—Implementation and administration costs for an approach similar to that used in the oregon VMT tax pilot would occur in three areas: Service stations would incur capital costs to procure necessary system equipment and modify point-of-sale systems as well as operating costs for communications with a central database.** In-vehicle capital costs would be determined by auto manufacturers and included in the price of new vehicles (costs to retrofit vehicles with on-board units (oBus) are estimated at about $150 per vehicle). The administering agency (e.g., the oregon DoT) would incur operating costs for auditing and providing technical assistance to service stations and motorists. Estimated auditing costs would include service station audits ($1 million annually for all services stations in the state) and auditing of non-complying motorists ($2 million annually, although these expenses could be recovered through fines for non-compliance) and would be in addition to costs to administer the current motor fuel tax. Public acceptance is not guaranteed—Because all participants were volunteers, it is inappropriate to automatically assume their acceptance of the program would extend to the general public. In fact, volunteers indicated that they thought a smaller percentage of other people would find the system acceptable.

### Federal Funding for Pilot Projects Solves

#### Oregon Experiment proves federal action is necessary to ensure uniformity- Congress should invest in additional pilots programs to eventually transition to a national VMT fee.

AASTHO 7, (American Association of State Highway and Transportation Officials, “Transportation Invest In Our Future: Revenue Sources to Fund Transportation Needs, September, <http://www.transportation1.org/tif4report/TIF4-1.pdf>) DMD

Over the past three years, Oregon has been field testing a mileage-based user fee, which could be the alternative needed. They have developed and implemented a pilot test to assess a mileage-based fee designed to produce revenue roughly the equivalent of that being generated through their current state gas tax. Two hundred sixty trial participants have had a mileage recording and global positioning system device installed in their car. The device tracks miles driven in Oregon, miles driven out of state, and miles driven in the Portland Metropolitan area during weekday rush hours. They will only be charged for miles driven in Oregon. The last six months of the test will evaluate having a peak-period surcharge (congestion price) in place. Oregon DOT anticipates that adoption of a mileage-based fee system will require legislative support which will require the understanding and support of the public. Enforcement and privacy concerns will have to be addressed. In addition, it may require testing and evaluation in other regions; funding for installation of vehicle and service-station technology; development of new state and federal legislation governing administration; and coordination with vehicle manufacturers, the fuel distribution industry, and organizations representing the general public and the trucking industry. The Hudson Institute in its report 2010 and Beyond, outlined a mileage-based system similar to that being tested in Oregon. In addition to a base fee levied on the basis of vehicle miles traveled, Cambridge Systematics, which developed this concept for Hudson, proposed an optional service fee, levied at peak-demand periods, “to stimulate some users to divert their trip to a less congested route, less congested time, or to transit, thus removing some of the need to build additional capacity.” What Oregon’s experiment has demonstrated is the complexity of implementing what technologically is not all that complicated a system. Congress should be urged to fund additional pilots and studies during the reauthorization periods from 2010 to 2021. By 2021, enough research should have been conducted on a Vehicle Miles Traveled user fee to determine how it can best be configured to supplement or replace the cents per gallon fuels tax by the period just beyond 2025. It would be highly desirable if consensus could be reached between the states and the federal government about which vehicle mile tax system to adopt, so motorists will only have to adjust to one approach at the pump.

#### **VMT demonstrations and research are key to the eventual transition and mitigating the environmental impacts of the transportation sector.**

Huang et al 10 (Edward, Post-Doctoral Research Fellow, Energy Technology Innovation Policy research group, Henry Lee, Director, Environment and Natural Resources Program, Energy Technology Innovation Policy research group, Grant Lovelette, Research Assistant, Masters in Public Policy, and José A. Gómez-Ibáñez, Professor of Urban Planning and Public Policy, Transportation Revenue Options: Infrastructure, Emissions, and Congestion, Harvard Kennedy School, September 2010, pg. 2, <http://live.belfercenter.org/files/Transportation%20Revenue%20Options%20Workshop%20Report%202010%20for%20web.pdf>) PCS

With the declining balances in federal and state transportation funds, motorists in the United States will need to pay higher taxes and fees if we are to improve road conditions, reduce congestion, and mitigate environmental impacts. In the short run, the current system of fuel taxes still has the potential to generate large sums of revenues while reflecting many of the infrastructure and environmental costs of driving. But this is only true if fuel tax rates can be indexed to reflect changes in inflation, fuel economy, and environmental externalities such as greenhouse gas emissions. In the long run, however, this system is unlikely to be sustainable and VMT fees will be needed as gasoline tax revenues decline. Congestion pricing, which heretofore has been limited by political opposition, may become more acceptable as we realize that we cannot deal with congestion and associated emission problems simply by building new highways, especially in situations where high costs and/or local opposition to land takings make highway construction impractical and inefficient. Changing policies is difficult, especially while the economy is weak. Policymakers, however, should take some initial steps, such as redefining the roles of federal and state governments and promoting research and demonstrations of VMT and congestion fees, to ensure that these options are well understood and, when chosen, ready to succeed.

#### Congress should invest in research and technology and fund demonstration programs of mileage based user systems.

NSTIFC 9 (National Surface Transportation Infrastructure Financing Commission, *Paving Our Way: A New Framework for Transportation Finance*, February 2009, pg. 194, <http://financecommission.dot.gov/Documents/NSTIF_Commission_Final_Report_Advance%20Copy_Feb09.pdf>) PCS

Commence the transition to a new, more direct user charge system as soon as possible and commit to deploying a comprehensive system by 2020: Because of the complexity inherent in transitioning to a new revenue system and the urgency of the need, the Commission recommends that Congress embark immediately on an aggressive research, development, and demonstration (RD&D) program. This would identify and address critical policy questions such as privacy, administrative methods and costs, and the interplay with climate change and other national policy goals, in order to inform Congress as it moves forward. This will require investment in research and technology, including a variety of demonstration programs of mileage-based user fee systems. A research agenda of the nature envisioned would be best overseen by a body within the U.S. Department of Transportation that combines technology, policy, tax administration, and systems expertise. It also could benefit greatly from an expert independent advisory committee to help review and advise on funding of RD&D programs, further explore policy issues, and make specific recommendations to Congress.

### **National VMT => Devolution and Privatization**

#### **Inefficiency of the gas tax makes VMT is inevitable in the long run, making a national transition now enables opportunities for increased state and private role in transportation.**

O’Toole 12

(Randal Public Policy Analyst and writer for the Cato Institute, “To VMT or Not to VMT” June 4th 2012, Lexis)ZLH

Gasoline taxes are not generating enough revenue to pay for roads and bridges, says USA Today, so some states are experimenting with vehicle-miles traveled (VMT) fees. Actually, as I show in my recent Cato paper on this subject, gas taxes are currently generating enough revenue to maintain roads and bridges, but that revenue is expected to decline as cars become more fuel-efficient. Better arguments for replacing gas taxes with VMT fees, my paper shows, are that such fees can virtually eliminate traffic congestion and save local governments $30 billion a year in general funds that are now used to subsidize local roads and streets. However, as I relearned after Cato published my paper, proposals for vehicle-mile fees produce two strong, visceral reactions from the public. First is a fear that VMT fees will allow the government to invade your privacy by tracking your location. Second is a worry that government will waste the revenues it collects from vehicle-mile fees by spending them on pork barrel or other foolish things. Both of these complaints are really about problems with government, not the user-fee proposal. Every time you make a phone call, send an email, or even walk out of your house into the possible view of a closed-circuit camera, you are giving the government an opportunity to track your whereabouts. This doesn t mean we should ban telephones, email, or people leaving their homes; it does mean that we should design our technologies and institutions in ways that will preserve people s privacy. As I explained in my paper, the VMTfee systems tested in Oregon and Minnesota are designed to make it impossible for the government to know where people drove or when they drove there; the systems only transmit the amount of money people owe for using the street and road network. Similarly, any revenue source can be abused, but we can design institutions that minimize or even completely avoid such abuse. My paper points to county toll road authorities in Texas and other states as model institutions for vehicle-mile fees. These authorities, while technically governmental, rely exclusively on their tolls for revenues, so they act like private businesses. Other elected officials have no say in how they spend their money, while the toll road authorities have to provide services people will use or they will collect no revenue, so the tolls provide sound incentives for both the agencies and the users. My paper also points out that one of the side-effects of replacing gas taxes with VMT fees will be a devolution of transportation decisions from the federal to the local level. The only real justification for a federal gas tax is that it is cheap to collect (since it is collected directly from refineries and importers). As one of the people interviewed by USA Today observed, federal officials fear VMT fees because such fees will reduce if not eliminate federal involvement and power. VMT fees will also offer opportunities for privatization that are lacking today. It would be hard for a private road owner to collect a share of gas taxes, but if fees are collected from everyone driving on all roads and streets, anyone private companies, homeowner associations, non-profit groups could take over a portion of the road network and start collecting fees to maintain those roads. Due to declining gas tax revenues, VMT fees are almost inevitable. Rather than object to any change, fiscal conservatives should work to insure that such fees are designed to avoid the pork-barrel and other problems associated with gas taxes.

### VMT Tax Technologically Feasible

#### Tech exists now, can be phased in as quickly as two years.

Slone 10 (Sean, Sean Slone is a transportation policy analyst at The Council of State Governments. The Council of State Governments, Vehicle Miles Traveled Fees, March 2010, <http://www.csg.org/policy/documents/TIA_VMTcharges.pdf>) Azimi

While the challenges of implementing a VMT system are interesting to contemplate, it should be noted that it’s not yet clear what form such a system would take or even whether the public and policymakers alike are ready to commit to it. At a congressional hearing in April 2009, James Oberstar, the chairman of the House Transportation and Infrastructure Committee, expressed his impatience with simply continuing to study VMT as a funding option. “Why do we need a pilot program?” Oberstar asked. “Why don’t we just phase this in? ... There are many suggestions it will take five or 10 years. I think it can be done (in) far less than that, maybe two years.”9 While GPS technology and multi-function onboard computers may be the way forward for VMT tolling, there may be other simpler options worth exploring as well. A 2009 University of Minnesota report found a system drawing on existing technology could be implemented in the near future to determine the distance traveled by a vehicle and use that information as the basis for charging a road use fee. The system relies on an electronic processor and memory that is connected to a vehicle’s data bank. Such a connector has been installed in all new U.S. passenger cars since 1996. The connector, which is mounted in the dashboard under the steering column, is mainly used for engine diagnostics at repair garages and emissions control monitoring but could be used to calculate the distance a vehicle has traveled as well. A cell phone modem could then be used to transmit through text messaging the distance data to a billing office. Such a system would not require roadside data collection or new wireless infrastructure and does not depend on a GPS receiver or longitude/latitude data. The University of Minnesota researchers, however, believe it could be used as a platform to which GPS technology could later be added.10

#### We have the tech now

Mineta and Skinner, former Secretaries of Transportation, 10 (Norman Y. Mineta and Samuel K. Skinner, Well Within Reach America’s New Transportation Agenda, <http://web1.millercenter.org/conferences/report/conf_2009_transportation.pdf>) Azimi

Technology. Technologies for implementing a VMT fee, from odometer add-ons to adaptations of existing interstate toll systems, are available now or are in the concept development stage. It may be reasonable to expect prototypes of VMT technology to proliferate until further policy issues and implementation details are decided. Undoubtedly, however, a critical factor in choosing among potentially viable technologies will be their ability to balance privacy protections for users with the need for sufficient data integrity to support fair and accurate implementation of a VMT fee.

### AT: Plan Unpopular- States will opt out

#### Federal funding for pilot projects helps build public support

Mineta and Skinner, former Secretaries of Transportation, 10 (Norman Y. Mineta and Samuel K. Skinner, Well Within Reach America’s New Transportation Agenda, <http://web1.millercenter.org/conferences/report/conf_2009_transportation.pdf>) Azimi

Sell the change. Political champions are needed to build public support for any major change in the nation’s approach to funding transportation investments. This means educating political leaders and their constituents alike about the VMT-fee approach— why it is necessary, what makes it preferable to other potential funding mechanisms, and how it will be implemented. To ensure that people understand and are comfortable with the concept and operation of a VMT fee well in advance, the federal government should fund and publicize pilot programs while also conducting outreach to key stakeholder groups and the general public.

### Phased In VMT Solves

#### Federal action should gradually phase in a VMT fee, allowing further research and development and building public support.

Mineta and Skinner 10(Norman Y, Samuel K. former Secretaries of Transportation “Well Within Reach: America’s New Transportation Agenda” David R. Goode National Transportation Policy Conference. Pg 31-32 October 2012) ZLH

There is a broad consensus that federal highway maintenance and investment needs should continue to be funded through a user-pay system. However, for the reasons discussed above, new and more sustainable user-based revenue-raising mechanisms are needed. Implementing and fine-tuning such mechanisms must be undertaken gradually to allow ample time for research and development, building public and stakeholder support, and refining the necessary technology. Congress should adopt legislation laying out a clear plan for transitioning, over the next decade, from the per-gallon fuel tax to a highway-use fee based on vehicle-miles traveled (VMT). This approach would restore the original intent of the HTF: that users fund the transportation system in proportion to their use of it. In addition, VMT fees could generate significant revenues. A fee of just one penny per mile would equal the revenue currently collected by the fuel tax; a fee of two cents per mile would generate the revenue necessary to support an appropriate level of investment over the long term. Because of these two features, many policy analysts view the VMT fee as a clear first choice compared to other new highway funding mechanisms that have been proposed or considered.

#### Transition to a VMT would be phased in- gas tax would still be collected in the interim.

Transportation Research Board 6, (Committee for the Study of the Long-Term Viability of Fuel Taxes for Transportation Finance, The National Academies, “[The Fuel Tax and Alternatives for Transportation Funding: Special Report 285](http://www.nap.edu/catalog.php?record_id=11568)”, The National Academies Press, pg. 137 of 248, http://www.nap.edu/openbook.php?record\_id=11568&page=137

The Oregon Road User Fee Task Force and the New Approach proposals for conversion from the fuel tax to mileage charges both envision the need for a prolonged period during which fuel taxes and mileage fees would be collected simultaneously. Most motorists would switch from paying fuel taxes to the mileage fee only when they bought new vehicles with the necessary onboard metering equipment. In contrast, the German Toll Collect truck mileage-charging system appears to be on a faster track. Operators using the Autobahns regularly are installing the new equipment in their trucks, and most revenues will be derived from automatic metering and charging almost from the outset of the program. The transition task is far simpler for Toll Collect than it would be for the entire motor vehicle fleet of a state or of the United States (since Toll Collect involves only a small number of vehicles in a regulated industry), but the experience may contain some generally applicable lessons. Two options that could speed the transition may merit exploration. First, retrofitting of metering devices on existing vehicles could be subsidized by the government out of user fee revenue. Second, fuel taxes could be abolished early in the transition, after a short period during which all new vehicles sold would be equipped with road use meters, and replaced with higher annual vehicle registration fees for unmetered vehicles. Under this option, vehicle operators would have the choice of paying mileage charges or the flat fee. The European truck mileage-charging systems contain similar features. In Toll Collect, installation of metering equipment is free of charge to the vehicle owner and is funded from toll revenue. In Toll Collect and the Austrian system, trucks not equipped with the metering devices can travel on the expressways but must pay fees in advance. Similarly, the Oregon truck weight–distance tax provides for payment of a flat fee in lieu of the mileage charge. Transition alternatives are among the design issues that should be evaluated in pilot studies of road use metering and mileage-charging systems.

### VMT Replaces Gas Tax

#### VMT fees eliminate the need for fuel taxes.

National Surface Transportation Infrastructure Financing Commission 9, (Chaired by Robert Atkinson, President of the Information Technology and Innovation Foundation, “ Paying Our Way: A New Framework for Transportation Infrastructure”, February, <http://financecommission.dot.gov/Documents/NSTIF_Commission_Final_Report_Advance%20Copy_Feb09.pdf>) DMD

As the new mileage-based fee system is put in place, reduce and ultimately eliminate current fuel and other vehicle-related charges as the primary mechanism for funding the surface transportation system, recognizing that the fuel tax may play a role in meeting other important national policy objectives. Once a national VMT fee system is in place, and assuming that rates are set at a sufficient level, the need for the motor fuel–based revenue sources for the HTF will be eliminated. To the extent, however, that surface transportation fuels are subject to a charge in the future to account for their carbon emissions (e.g., a carbon tax or priced through carbon trading), an appropriate portion of those proceeds should be credited to the HTF and dedicated to funding carbon-reducing transportation strategies.

### GPS Based VMT Best

#### GPS based VMT best- allows congestion pricing and efficient distribution of transportation funds.

Teglasi 12, (Victor S., Graduate School of Architecture, Planning and Preservation Columbia University, Master in Science in Urban Planning, “Why Transportation Mega-Projects (Often) Fail? Case Studies of Selected Transportation Mega-Projects in the New York City Metropolitan Area”, May. Thesis) DMD

The GPS-based VMT funding mechanism could provide the capability to vary the fee by facility type and the time of day and serve as a powerful congestion management tool. The improved traffic conditions would reduce or delay the need for highway system expansion and funds can be targeted primarily to rebuild our aging infrastructure – for instance the Kosciuszko Bridge, the Gowanus Expressway, the BQE triple layer, and many other bridges and highways in need of major reconstruction or replacement. The additional funds generated by congestion pricing could provide a new revenue source for both transit and highway mega-projects. The GPS system could also calculate VMT by political jurisdictions and facility ownership to help guide funding allocation policies to insure that transportation funds are redistributed equitably. In order to implement the VMT fee system, automakers would likely have to install (tamper-proof) devices on all new vehicles. Owners of older vehicles would have to report odometer readings annually during the time of registration renewal. Over time, as older vehicles are retired, most vehicles would have the manufacturer installed GPS devices to facilitate automatic VMT fee calculation and billing.

### AT: No Solvency- Plan Unpopular

#### Educating the public can change opinions about a VMT fee.

National Surface Transportation Infrastructure Financing Commission 9 (National Surface Transportation Infrastructure Financing Commission, “ Paying Our Way: A New Framework for Transportation Infrastructure”, February 26th, http://financecommission.dot.gov/Documents/NSTIF\_Commission\_Final\_Report\_Advance%20Copy\_Feb09.pdf) DMD

Initiate an extensive public outreach effort to create a broad understanding of the current funding problem, the proposed solution, the intended method of implementation, and the anticipated impact on individual system users. This kind of public outreach effort is imperative to a successful transition, for once individuals understand better both the current predicament and the opportunity to achieve positive change, they are more likely to embrace it. With the current indirect system (cents per gallon at the pump, hidden to most consumers in the price of gasoline), most people do not know what they are paying now relative to what is being provided and, more important, what is required to achieve an effective surface transportation system. The direct user charge system being proposed has the potential to make the connections much more evident and thus improve the willingness of individual system users to pay their fair share of the cost. But it will require education and outreach to reach that point.

#### Demonstration projects lead to public acceptance.

Transportation Research Board 6 (Committee for the Study of the Long-Term Viability of Fuel Taxes for Transportation Finance, The National Academies, “[The Fuel Tax and Alternatives for Transportation Funding: Special Report 285](http://www.nap.edu/catalog.php?record_id=11568)”, The National Academies Press, pg. 137 of 248, <http://www.nap.edu/openbook.php?record_id=11568&page=137>) DMD

The most direct and accurate way to determine travel by jurisdiction or road segment would be to maintain a central facility that collected information from vehicles on fee revenue generated by each road, but this practice would provide the facility with information about individuals’ itineraries. An alternative that preserved privacy would be to provide the information by sampling, either by vehicle counts conducted independently of the road use metering system or by recruiting a sample of vehicle operators who would allow their movements to be tracked.

Ultimately, if public acceptance is attained, it will come about over time as the result of experience with various forms of road use charges on the part of the public and road operators. Development of conventional toll roads and applications of variable pricing and automatic toll assessment and billing systems are expanding and will be important sources of experience. Openness in the development process and demonstrations of effectiveness in early implementation will also be important in forming the views of motorists and the public.

### AT: Tech/Transmission Failure

#### Software redundancy solves tech failure

Baker et al 9 (Ginger Goodin, Richard T. Baker and Lindsay Taylor, Texas Transportation Institute, Sponsored by the USDoT, “Mileage-Based User Fees: Defining a Path toward Implementation Phase 2: An Assessment of Institutional Issues” p. 36) APB

Policy makers can help to alleviate these risks by establishing policies that promote redundancy and ensure that revenues are not lost to technology failure. For example, by structuring its proposed mileage‐fee system as a replacement for the fuel tax and developing it in a POS‐oriented configuration, the State of Oregon has ensured that even if onboard units (OBUs) fail to collect or transmit data, drivers will still be charged the fuel tax as a “default.”

# AT: Case Turns

## AT: Equity/Tax is Regressive

### Revenue Recycling Solves Equity Problems

#### Revenue recycling mitigates the impact of the VMT on low income populations.

Rahman et al, 11 (Lazeena Rahman is a Graduate School of Business and Public Policy student at Stanford, Kumi Harischandra, Justine Isola, and Anthony Suen are graduate students in Stanford’s International Policy Studies program, Prepared for: Carnegie Endowment for International Peace, “Going Forward: Prospects for Transitioning from Gas Taxes to Vehicle-Miles-Traveled Fees” p. ix) APB

As with any transportation pricing policy, the poor pay a larger proportion of their incomes because they have lower incomes to begin with. They are also the least able to adapt to new policies because they have fewer cars, older cars, and tighter budgets. A minimal difference in distributional impact exists between gas taxes and VMT fees. Whether the charge is levied on gallons of gas consumed or on miles driven, lower income households pay proportionally more. No single policy option we consider offers a perfect solution to this issue. However, a policymaker seeking to increase the political viability of his or her proposal can mitigate the effects of this disproportionate economic incidence in several ways. If one of the goals of a transportation policy is to achieve greater equity, policymakers can implement revenue redistribution or support an investment strategy that addresses the needs of the lower income community. Such “revenue recycling” options can include rebates for low income groups, greater investment in public transportation, or better commuting options to industrial parks. A combination of such options can serve the diverse needs of urban as well as rural and township areas.

### Offsets More Regressive Taxes

#### A VMT fee can offsets the need for other, more regressive taxes. **Komanoff 97** (Charles, Director of Komanoff Energy Associates, *Environmental Consequences of Road Pricing: A Scoping Paper for The Energy Foundation*, The Energy Foundation, April 1997, <http://www.tstc.org/reports/ckdraft6.pdf>, pg. 13) PCS

What is missing from such an appraisal is any positive use of the revenues generated by the pricing measure. The dollars that motorists pay through pricing, and which arguably could turn them against the road-priced central city, also constitute a resource for making urban commerce and daily life easier, better and more affordable. To offer just a few examples, road pricing revenues could go to: reduce existing taxes, perhaps regressive taxes such as sales taxes; in one example, more than 3 percentage points could be shaved off a current sales tax if all of the revenues from a nickel-a-mile VMT fee were dedicated to that purpose; support non-auto transportation – transit, cycling and walking; or provide rebates to people living in the priced area; in another example, a nickel-a-mile VMT fee could finance a $350 annual rebate to every person (including children) in the priced area; or a combination of the above measures. These benefits would not be limited solely to cities, but would be available to any jurisdiction in which pricing was applied.

### SQ Highway Funding More Regressive

#### VMT fee is more equitable than the fuel tax.

Congressional Budget Office 11 (“Alternative Approaches for Funding Highways”, <http://cbo.gov/publication/22059>) GSK

VMT taxes are qualitatively similar to fuel taxes in their implications for equity. Like fuel taxes, they satisfy the user-pays principle, but they impose larger burdens relative to income on people in low-income or rural households. However, to the extent that members of such households tend to drive vehicles that are less fuel efficient, such as pickup trucks or older automobiles, those highway users would pay a smaller share of VMT taxes than of fuel taxes.

#### Status quo highway user fees like the gas tax and registration fees are more regressive- the VMT is fair.

Transportation Research Board 6 (Committee for the Study of the Long-Term Viability of Fuel Taxes for Transportation Finance, The National Academies, “[The Fuel Tax and Alternatives for Transportation Funding: Special Report 285](http://www.nap.edu/catalog.php?record_id=11568)”, The National Academies Press, pg. 137 of 248, <http://www.nap.edu/openbook.php?record_id=11568&page=137>) DMD

In defense of tolls and congestion pricing, it may be noted that present highway user fees may be regressive, if low-income drivers are likely to pay a larger share of their income for fuel tax and registration fees than high-income drivers [although the difference in shares among income groups may be small (Parry 2002, 31)]. If pricing is in effect, the motorist who chooses to pay the fee and use the road always gains in the transaction, since the use of the road is worth at least as much to him or her as the fee. Pricing can be regarded as fair in this sense.

#### VMT’s regressive impact is very small and actually benefits rural areas compared to the fuel tax.

Zhang 10 (Department of Civil and Environmental Engineering, University of Maryland, <http://podcast.oregonstate.edu/dept/econ/sites/default/files/pdf/mcmullen.pdf>)

Proposals to change the current structure of highway user fees for light vehicles from a fuel tax to a VMT tax have often met with resistance based on arguments that such a change would adversely impact low income groups, would place a substantial burden on rural versus urban drivers, and that such a tax would discourage the adoption of hybrid vehicles. This paper provides a quantitative analysis of **the impact of switching from a fuel tax of 24 cents per mile to a ﬂat 1.2 cent per mile VMT tax using the example of the state of Oregon. While results conﬁrm that a change from a fuel tax to a VMT tax would increase the regressivity of an already regressive fuel tax system, the impact is very small. This is especially true when compared to the increase in regressivity of total fuel expenditures that has been caused by an increase in the retail price of fuel from about $1.46 in 2001 to over $2.64 by 2008. Contrary to expectation, results here ﬁnd that households in rural areas would actually beneﬁt from a change in tax regimes from a fuel tax to a VMT tax.** This is due to the fact that on average, rural households own vehicles that have lower mpg even though they drive more miles than urban households. Since the models and data used here for Oregon here could not deal with issues of long run vehicle choice, we analyze the distributional impact of two alternative VMT tax scenarios that might be suggested to discourage the use of less fuel efﬁcient vehicles (and presumably encourage changing to a more efﬁcient vehicle). **The bottom line is that although such alternate structures may provide incentive to purchase a more fuel efﬁcient vehicle**, these policies have an even larger negative those in lower income groups, than a ﬂat VMT tax.

## AT: Privacy/Surveillance

### N/U: Other Tech

#### Not unique- plan isn’t any worse for privacy than cell phones

Mineta and Skinner, former Secretaries of Transportation, 10 (Norman Y. Mineta and Samuel K. Skinner, Well Within Reach America’s New Transportation Agenda, <http://web1.millercenter.org/conferences/report/conf_2009_transportation.pdf>) Azimi

Privacy concerns. The public is likely to have significant privacy concerns about any government system that collects information on citizens’ physical movements—indeed this is often among the first objections raised in connection with a VMT-based userfee system. In reality, the infringement on personal privacy need not exceed that already associated with other technological conveniences such as cell phones and credit cards. Nevertheless, privacy concerns must be explicitly and transparently addressed from the outset so as not to risk investing in the development of an approach that ultimately fails the test of public acceptance.

#### No privacy invasion and other technologies like OnStar make this not unique

Whitty and Imholt 5 (James, Manager, Office of Innovative Partnerships and Alternative Funding and Betsy, Alternative Funding Administrator, “Oregon’s Mileage Fee Concept and

Road User Fee Pilot Program”, *Oregon Dept. of Transportation*, http://www.oregon.gov/ODOT/HWY/OIPP/docs/2005LegislativeReport.pdf?ga=t) GSK

High on its list of ODOT concerns was the need to maintain the privacy of Oregon citizens. ODOT thus directed its technology development consultant, the Oregon State University School of Engineering (OSU), to develop the technology to support the mileage fee concept in accord with the Task Force requirements, again emphasizing the need to eliminate or maximally reduce the privacy concern about the proposed technology. In this section additional specifics are provided on how the technology is designed to maintain the privacy of motorists. The major concern regarding the potential loss of privacy brought about with the Oregon mileage fee system is the use of GPS technology, and the ability of the government to use the mileage fee system to “track” motorists’ movements. To better explain how the Oregon mileage fee technology incorporates GPS technology while still maintaining the privacy of motorists, the phrase “GPS technology “ will be clarified as will the concept of “tracking motorists”. This will be followed by a discussion of commercially available GPS devices and their components/functions that enable varying levels of “tracking”. These functions/components will then be compared to the technology used in the Oregon mileage fee system, which is designed to maintain privacy. The phrase “GPS technology” will likely have different meanings to different readers based on each individual’s use and exposure to GPS products. In the Oregon mileage fee system the phrase “GPS technology” refers to a “GPS receiver” (also referred to as a GPS engine or GPS module). The GPS receiver has the ability to generate location and time data but, in general, it cannot by itself transmit this information wirelessly, or save a large amount of these data. The use of the data produced by the GPS receiver differs for different products and will require additional hardware and software features. These differences are what determines the capabilities of various “GPS products” and whether they can be used for “tracking”. With the use of GPS technology in the on-vehicle devices as part of the Oregon mileage fee system, the concern of some motorists is that they will now be “tracked” by the government. In this context, “tracked” is interpreted to mean that the detailed movements or routes (including times) of motorists can be produced, either as the motorists are driving, or sometime after they have completed a driving trip. For clarity, the first type of tracking defined will be called “real time” tracking, and the second type will be referred to as “historical” tracking. In order to accomplish either type of tracking, frequently generated location points along with times must be produced and saved. The difference in the two types of tracking lies in how soon after the location data is obtained that the vehicle route can be constructed. In real time tracking the location and time data must be sent via some means to the government (or other centralized location) shortly after it is generated. A common method used to transmit these data is cellular communications. General Motors On-Star system has this ability, although it is not used in the manner described to track a vehicle. However, there exist commercial products targeted at fleets of commercial vehicles that are designed to track vehicles. There are a variety of reasons a company may choose to use such a system but often cited reasons are driver safety, asset control, and accurate predictions of arrival times. Many handheld commercial “GPS units” used for personal navigation also generate a route as the individual is traveling, but this route data are self contained and not transmitted as it is generated.

### N/L: Can’t Track Location

#### Oregon proves- VMT system can be implemented without tracking vehicles or transmitting any location data.

Baker et al 9 (Ginger Goodin, Richard T. Baker and Lindsay Taylor, Texas Transportation Institute, Sponsored by the USDoT, “Mileage-Based User Fees: Defining a Path toward Implementation Phase 2: An Assessment of Institutional Issues” p. 27-8) APB

Given that privacy interests with regards to driver data will remain a concern regardless of system architecture, the best course of action will likely be to address and mitigate the most pressing of these concerns. As previously noted, the idea of being tracked is perhaps the most troubling aspect of a potential mileage‐based user fee system. Systems that reduce or eliminate the ability of government to determine specific vehicle location therefore have the highest probability of attaining the highest levels of public acceptance. By establishing a zone‐based system that only requires general location data, ODOT helped to assure driver privacy while still being able to accurately determine appropriate fees and not charge for miles driven outside of the charging area. Mileage only accrued within pre‐established zones, and trip‐specific data were not needed for the calculation of fees (17). This type of system was seen as preferable by participants in TTI’s Northeast Texas study (7). In contrast, the system tested by the Puget Sound Regional Council by definition relied on facility‐specific location data, as mileage fees varied based on the route taken and the time of day traveled. Such a system is more likely to generate significant public resistance; however, the level of detail it provides in terms of driver behavior allows for the deployment of more nuanced pricing applications. It should be noted that Oregon's onboard units only received GPS signals and did not relay information back to the satellite. In fact, GPS based navigational systems in general do not require a signal to be sent back to the satellite in order to determine location. The onboard units used in the University of Iowa’s road user fee assessment study only retain location data for the minimal time necessary to calculate fee charges. All charges are computed on the vehicle itself, and only the aggregated mileage charges are transmitted to the network operation center (13). Thus, it is impossible for either system to “track” participants. There are numerous ways in which policies can be developed to protect drivers’ rights. For example, the European Union has mandated that traveler information is not to be transmitted outside the vehicle in any road user charge system. Thus, fee calculation occurs in the vehicle, and only fee totals are transmitted for billing purposes. Representatives of the Federal Highway Administration have stated that in terms of 28 collecting federal tax revenues, there is really no need for the government to collect location‐specific information or otherwise track motorists (13). If this is indeed the case, then a federally mandated mileage‐based user fee program might enjoy more public acceptance than a system implemented at the state or local level that may rely on more detailed location information.

#### Non-GPS technology solves privacy concerns with no new technology- uses the vehicles existing diagnostic port to calculate the charge.

Munnich and Robinson 9 (MUNNICH - Director, State and Local Policy Program ROBINSON - Research Fellow Hubert H. Humphrey Institute of Public Affairs University of Minnesota, Issues in Science and Technology, Fall, <http://www.issues.org/26.1/forum.html>)

What is the alternative? Recent commission reports and studies point to distance-based charges or VMTfees as the most promising mid- to long-term solution to replace the fuel tax. The use of direct VMT fees can overcome most, if not all, shortcomings of the fuel tax. Furthermore, because VMT fees relate directly to the amount of travel, rates can be made to vary so as to provide incentives to achieve policy objectives, including greater fuel economy and the use of alternative-fuel vehicles, which the current fuel tax encourages. In addition, however, rates could vary to include factors such as weight, level of emissions, and time-of-day charges. For example, Germany's national Toll Collect distance- and global positioning system (GPS)-based system for trucks varies the basic toll rate as a function of the number of axles and level of truck emission. Non-GPS technology is currently available that makes it possible to conduct a large-scale implementation of distance-based charges within two to five years. This approach would use a connection to the vehicle's onboard diagnostic port, installed in all vehicles since 1996, to obtain speed and time. An onboard device uses these inputs to calculate distance traveled and the appropriate charge, which are the only information that could be sent by the vehicle onboard unit to an office for billing purposes. This approach goes a long way toward addressing public concern about a potential invasion of privacy. (There is a widespread perception that a GPS-based VMT charging system "tracks" where a driver is. This is an unfortunate misconception.) Given the crisis that road and transit funding is facing, we strongly endorse Wachs' "hope that Congress will accept the opportunity and begin specifying the architecture of a national system of direct user charges."

#### Privacy violations are not unique and the VMT system can be designed to avoid them.

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First is a fear that VMT fees will allow the government to invade your privacy by tracking your location. Second is a worry that government will waste the revenues it collects from vehicle-mile fees by spending them on pork barrel or other foolish things. Both of these complaints are really about problems with government, not the user-fee proposal. Every time you make a phone call, send an email, or even walk out of your house into the possible view of a closed-circuit camera, you are giving the government an opportunity to track your whereabouts. This doesn’t mean we should ban telephones, email, or people leaving their homes; it does mean that we should design our technologies and institutions in ways that will preserve people’s privacy. As I explained in my paper, the VMT fee systems tested in Oregon and Minnesota are designed to make it impossible for the government to know where people drove or when they drove there; the systems only transmit the amount of money people owe for using the street and road network.

#### VMT could use already existing technology without invading privacy.

Feutsch 9(Michelle reporter for Transport Topics “National VMT tax system could use current technology, minn. study says.” Transport Topics, (3862), 14-15 Sept 21st 2009) ZLH

A system that relies on existing technology to replace fuel taxes with a tax on vehicle miles traveled could be deployed nationwide in a relatively short time, according to a new study by researchers at the University of Minnesota's Intelligent Transportation Systems Institute. A VMT tax system could rely on the same technology as text messaging, meaning it would need no new wireless infrastructure beyond the communications towers that already dot the American landscape, researchers said in the recently released study. In addition, cars and trucks already have the critical onboard electronic data collection systems necessary to implement a VMT tax, the study found. Like other VMT feasibility studies before it, this one accepts the assumption that the fuel taxes that support the nation's road system have become inadequate, now that Americans are driving less and buying more fuel-efficient cars. "Given the wide resistance to increasing the motor fuel tax rate and the trend toward reduced consumption" the study said, "it is likely that revenues will continue to fall in relation to the cost of the construction, operation, and maintenance of our road and highway system." The falloff in fuel taxes will be even more dramatic, the study said, as consumers turn to vehicles using alternative fuels, such as plug-in hybrids. Although privacy and public policy concerns may hinder the acceptance of a VMT tax, the study said, technology is not a barrier. A simple additional device can plug into the data collection systems already in cars and trucks that keep track of such information as mileage. The new device would contain a vehicle's identification number and would determine "the distance traveled by a vehicle and [use] this as a basis for charging a fee that reflects road use." The device would connect to the vehicle's electronic data gathering system, much as a person would plug a new device into the back of a computer. The device would transmit the mileage information to a "back office" data collection system, from which VMT tax bills could be sent or charged to a credit card, just as tolls currently are charged to the credit cards of those who have an E-ZPass or similar electronic transponder. The system would avoid privacy concerns, the study said, because the new devices would not chart longitude or latitude. No one could track where a vehicle travels, only how many miles it goes.

#### Can’t track routes- no more information available than when you use a credit card now.

Porter 2 (David, Department of Industrial and Manufacturing Engineering at Oregon State University,<http://www.oregonsurplus.com/ODOT/HWY/OIPP/docs/OSU_VMT_Final_Report_WEB.pdf?ga=t> , November 2002 p.39)LD

**Privacy In this scenario only vehicle identification and VMT data is to be transferred. This data transfer will occur at various service stations. With this “minimum detail” information vehicles routes cannot be tracked. Additionally, only the central system receiving the VMT data could possibly monitor when vehicles have visited various service stations. This is no more information than is currently available when one uses a credit card for purchases.**

## AT: Discourages EVs/Hybrids

### No Link- VMT doesn’t decrease Hybrids/EVs

#### People still buy hybrids- the VMT less than a cent more expensive

McMullen and Zhang et. al. 08 (Starr, served as Chair of the Economics Department at Oregon State University and President of the Transportation Research Forum (TRF). She is a past President of TPUG, the Transportation and Public Utilities Group of the American Economic Association (AEA), which is the oldest AEA affiliate group, Lei, Ph.D., Transportation Engineering, University of Minnesota M.S., Civil Engineering and Applied Economics, University of Minnesota B.S., Civil Engineering, Tsinghua University, <http://ntl.bts.gov/lib/30000/30200/30267/0801_McMullen_VehMileageFeesFinalReportFinal.pdf>) Azimi

If a vehicle gets 50 mpg, under the current Oregon gasoline tax it would be paying $0.24/50 miles or about $0.0048 (0.48 cents) per mile. This amount is 40% of the 1.2 cents per mile estimated for a revenue-neutral VMT fee. If gasoline, exclusive of tax were $3.75 per gallon, the 50 mpg vehicle driver would be paying 7.5 cents per mile in gasoline expense plus 0.48 cents per mile in tax, or about 7.98 cents per mile. With a VMT fee this would rise to 8.7 cents per mile, increasing the per-mile combined gasoline and tax cost of driving by 0.72 cents, about 9 percent. Recent AAA estimates of per-mile total costs of driving range between 50 cents and 66 cents per mile; thus the 0.72 cents higher cost due to a VMT fee would translate into less than a 2% difference in the overall driving cost per mile. Is this enough to make people decide not to buy a hybrid?

#### Doesn`t hurt electric cars— fee will account for fuel efficiency and it doesn’t affect existing market signals that drive increased fuel efficiency, like high oil prices.

Whitty and Imholt 5 (James, Manager, Office of Innovative Partnerships and Alternative Funding and Betsy, Alternative Funding Administrator, “Oregon’s Mileage Fee Concept and

Road User Fee Pilot Program”, *Oregon Dept. of Transportation*, http://www.oregon.gov/ODOT/HWY/OIPP/docs/2005LegislativeReport.pdf?ga=t) GSK

Media reports often charge that if a mileage-based fee were to replace the fuels tax, the result would be to discourage the purchase of fuel-efficient vehicles. This assumes the mileage fee would be implemented as a flat fee on miles driven with the result that operators of low fuel efficiency vehicles would be rewarded and operators of high fuel efficiency vehicles would be penalized. This is not necessarily the case because the legislature would have the opportunity to structure the mileage fee in such a way to take into account external factors such as environmental factors. 26 For example, the mileage fee can be designed to increase the monetary reward for use of fuel-efficient vehicles. This option might be considered, since studies show that although all passenger vehicles, regardless of weight, inflict approximately the same amount of damage to the roads, vehicle and fuel types vary greatly with respect to the amount of total environmental damage they cause. However the rate is structured, the mileage fee would immediately affect driving behavior by directly connecting road use with the motorist’s road revenue obligation— the mileage fee would serve to reward less driving. Furthermore, even if structured as flat, the mileage fee itself would not eliminate existing (and increasingly strong) market signals to consumers to make fuel-efficient decisions when purchasing vehicles. At current prices, the state fuels tax is only about 10% of the cost of fuel. Finding the balance between a straightforward mileage-based system of paying for roads and taking into account environmental impact will be an issue for the legislature if the mileage fee is ultimately adopted for statewide implementation.

### Not Unique: EVs/Hybrid use low

#### Not Unique: By 2020, electric vehicles and hybrids will *still* be less than 1 percent of all US sales- too expensive, expiring tax breaks, and “clean diesels” will outcompete.

Newman 10 (Rick, writer for US News, “5 Reasons Electric Cars Will Disappoint”, *US News Money*, 10/28, <http://money.usnews.com/money/blogs/flowchart/2010/10/28/5-reasons-electric-cars-will-disappoint>) GSK

The hype over EVs will reach a crescendo over the next couple of months, as the Leaf and Volt start to arrive in showrooms, commercials air, enthusiasts cheer, and the press fawns. But before long, you might start to wonder why they're so scarce on the roads. Despite all the attention, EV sales in 2011 will probably number 30,000 or less in the United States, an infinitesimal fraction of total sales. They're obviously unproven, but EVs are also quite expensive compared with comparable gas-powered models, even with generous tax breaks. And while costs will come down over time, J.D. Power & Associates predicts that even a decade from now, EVs will account for less than 1 percent of all U.S. sales. "It is unlikely that global demand will reach the levels that have been widely predicted for the industry," the research firm said in a recent report. That prediction could be wrong. Nissan CEO Carlos Ghosn, for one, believes that EVs will account for 10 percent of global market share by 2020. And technology breakthroughs, stronger government backing, or an unforeseen spike in gasoline prices could propel electrics into the mainstream faster than skeptics predict. But for the next few years at least, electric vehicles will fail to live up to the hype. Here are five reasons why: They're way too expensive. To store the electricity drawn from a power outlet, EVs require huge batteries that cost $10,000 to $15,000 apiece. This can drive the overall vehicle cost to nearly twice the levels of a comparable gas-powered car. For exotics like the $109,000 Tesla Roadster (which debuted in 2008) sticker shock isn't really a problem. But for mass-market family cars, it is. The Leaf, for instance, starts at about $33,000, compared with prices of less than $20,000 for a gas-powered hatch like the Mazda 3 or Volkswagen Golf. The Volt starts at about $41,000, compared with a mere $17,000 for the Chevy Cruze, which runs on gas but is functionally similar to the Volt. A federal tax break lowers the cost of EVs by $7,500, and some states add further subsidies. But even the discounted price represents a steep premium. Owners will recoup some of the difference through fueling costs that are about 75 percent lower, at current prices for gasoline and electricity. But earning back a $10,000 premium, say, would still take more than 10 years for somebody driving 15,000 miles a year. And a high sticker price or monthly payment quickly discourages buyers. In a recent study, J.D. Power found that 17 percent of consumers said they were generally interested in buying an electric vehicle. But when told it would cost $15,000 more than a similar gas-powered car, only 5 percent were interested. Plus, those generous subsidies may not last; similar federal tax breaks for hybrids expired earlier this year, and some local governments that once promoted hybrids by offering perks like carpool-lane access have transferred those benefits over to EVs, which are trendier. Something even newer could claim those perks in a few years. Limited range. General Motors is going to make sure everybody in America knows the difference between the Volt, which has a backup gas-powered engine, and the Leaf, which doesn't. One Volt commercial, for example, points out that the GM car allows for "spontaneous acts of freedom" and doesn't leash the driver to a power outlet. Still, the Volt's battery will only power the car for 25 to 50 miles, depending on conditions, and for drivers who frequently exceed that distance, there's no point in paying extra for an EV. The Leaf can go about 100 miles on a charge, which accommodates people with longer commutes. And a variety of warnings will chime and ding as drivers deplete the battery and get close to running out of juice. Nonetheless, the Leaf has a glaring shortcoming: You can't use it for long trips. And running the battery down without being sure you'll make it to an outlet can produce "range anxiety," a condition GM got familiar with in the 1990s when its costly all-electric car, the EV-1, became a colossal flop. EV advocates hope that eventually, a network of quick-charge stations will dot America's highways the way filling stations do today, allowing drivers to recharge the battery in 30 minutes or less. By the end of 2011, there will be about 12,000 charging stations in 19 states. But those will be clustered in a few places where pilot projects are underway, like southern California, Dallas, Nashville ,and Seattle. In most American towns and cities, there's no plan for a charging network and there probably won't be until enough EVs are on the road to justify the cost. This is the usual chicken-and-egg problem with new powertrain technologies: They depend on new infrastructure that's prohibitively expensive unless there are millions of cars to support it. For the next several years, that will limit pure electrics like the Leaf to commuter status, and require their owners to have a second car if they ever want to visit grandma or drive to the beach. The environmental benefits aren't persuasive. Electric vehicles have no tailpipe emissions when they're running on battery power. Environmentalists love that. But the average car buyer doesn't care that much. Just 10 percent of car buyers say environmental impact is one of the main things they consider when choosing a car, according to J.D. Power. Much more important: Reliability, comfort, styling, gas mileage, and of course, price. EVs aren't entirely pure, either. The huge batteries have to be disposed of at some point down the road. And while they don't emit their own pollutants, cars charged through an outlet require power plants to crank out more electricity, which usually means burning more coal or natural gas. So the overall reduction in pollution depends on how cleanly the local power plant produces electricity, which an individual driver obviously can't control. Competing technologies are getting better, fast. Electric cars might take off quickly if gas were $10 a gallon and EVs were the only alternative. But automakers are rolling out all kinds of high-mileage technologies, mostly because of new government rules that require average fuel economy of 35.5 mpg by 2015. New "clean diesels," mostly from European automakers like Volkswagen, Audi, BMW, and Mercedes, get mileage that can reach into the 40s. Analysis by car-shopping site Edmunds.com shows that the break-even point for clean diesels (at which the better mileage compensates for the higher cost) ranges from one to eight years, with at least one model being cheaper right off the lot. The new Toyota Prius plug-in hybrid, coming in 2012, will offer about 15 miles of battery-powered travel before it begins to operate like a traditional hybrid, with its gas engine and electric motor working in tandem. The Prius plug-in will have less battery power than the Volt and be less revolutionary, but will also cost thousands less and offer a better bargain to buyers. That evolutionary approach may be more appealing. The Fisker Karma, a $90,000 luxury plug-in coming in 2011, is also a quasi-electric, with a gas engine that kicks in after 50 miles or so to help run the electric motors that power the car. Gas engines are getting better too, thanks to advanced transmissions, direct-injection technology, and dozens of smaller refinements. Nearly a dozen 2011 models get average mileage above 30 mpg, including popular rides like the Ford Fiesta, Mazda 2, and Mini Cooper. Ford and other automakers are finding ways to get V-8 power out of V-6 engines that produce better mileage, or V-6 power out of a four-cylinder. That lets buyers cut fueling costs while enjoying the performance of internal-combustion engines that are far more proven than electrics or even hybrids. America is not the right place for electrics. Sure, we have plenty of big cities with bad traffic and millions of commuters who could cut down on fueling costs with an EV. But we also have a huge country, a vast highway network , and a unique motoring culture in which mobility, freedom, and even speed are highly valued. EVs aren't optimized for that. There's a good chance they'll catch on faster in Europe and Japan, where cities are closer together, gas is more expensive, and drivers are more willing to accept tradeoffs. And China, with its centrally planned economy, could install a nationwide charging system practically overnight, compared to the plodding pace of 50 state governments strapped for cash in a weak economy. So if you really want to see EVs in action, you may have to head overseas. Or build your own charging station and see who shows up.

#### No electric cars now- no public charging infrastructure

Thinkprogress 8-1 (environmental advocacy group, “Five Real-World Facts About Electric Cars”, <http://thinkprogress.org/climate/2012/07/01/509084/five-real-world-facts-about-electric-cars/>) GSK

(1) Electric cars have arrived, but the pace of adoption will be slow. Last year, roughly 17,000 plug-in cars were sold in the United States—more than were sold in any year since the very early 1900s. But to put that number in perspective, total sales in 2011 were 13 million vehicles, meaning that plug-in cars represented just one-tenth of 1 percent. Sales this year will likely be double or triple that number, but it remains a stretch to reach President Obama’s goal of 1 million plug-ins on U.S. roads by 2015. Both the Nissan Leaf and the Chevrolet Volt sold more units last year than the Toyota Prius did in 2000, its first year on the U.S. market. But 12 years after hybrids arrived in the U.S., they now make up just 2 to 3 percent of annual sales—and about 1 percent of global vehicle production. Automakers are understandably cautious when committing hundreds of millions of dollars to new vehicles and technologies. They worry that a lack of public charging infrastructure will make potential buyers reluctant to take the chance on an electric car. Moreover, each factory to build automotive lithium-ion cells—an electric-car battery pack uses dozens or hundreds of them—costs $100 to $200 million. Battery companies will only build those factories if they have contracts in from automakers, who will only sign contracts to boost production if they can sell tens of thousands of electric cars a year in the first few years. Eight to 10 years from now, most analysts expect plug-ins to be roughly where hybrids are today: 1 to 2 percent of global production, with highest sales in the most affluent car markets (Japan, the U.S., and some European regions). That translates to perhaps 1 million plug-in cars a year. There are, by the way, about 1 billion vehicles on the planet now.

### Electric Cars Increase Pollution

#### Electric cars increase pollution- coal mining

Business Ethics 10 (magazine advocating corporate responsibility, “Will More Electric Cars Increase Reliance on Coal?”, March 13, <http://business-ethics.com/2010/03/13/1438-will-electric-cars-increase-reliance-on-coal/>) GSK

It’s true that the advent of electric cars is not necessarily a boon for the environment if it means simply trading our reliance on one fossil fuel—oil, from which gasoline is distilled—for an even dirtier one: coal, which is burned to create electricity. The mining of coal is an ugly and environmentally destructive process. And, according to the U.S. Environmental Protection Agency (EPA) burning the substance in power plants sends some 48 tons of mercury—a known neurotoxin—into Americans’ air and water every year (1999 figures, the latest year for which data are available). Furthermore, coal burning contributes some 40 percent of total U.S. carbon dioxide emissions. The National Academy of Sciences (NAS) estimates that coal mining and burning cause a whopping $62 billion worth of environmental damage every year in the U.S. alone, not to mention its profound impact on our health. Upwards of half of all the electricity in the U.S. is derived from coal, while the figure is estimated to be around 70 percent in China. As for Europe, the United Kingdom gets more than a third of its electricity from coal, while Italy plans to double its consumption of coal for electricity production within five years to account for some 33 percent of its own electricity needs. Several other countries in Europe, where green sentiment runs deep but economics still rule the roost, are also stockpiling coal and building more power plants to burn it in the face of an ever-increasing thirst for cheap and abundant electricity. On top of this trend, dozens of electric and plug-in hybrid cars are in the works from the world’s carmakers. It stands to reason that, unless we start to source significant amounts of electricity from renewables (solar, wind, etc.), coal-fired plants will not only continue but may actually increase their discharges of mercury, carbon dioxide and other toxins due to greater numbers of electric cars on the road. Some analysts expect that existing electricity capacity in the U.S. may be enough to power America’s electric cars in the near future, but don’t rule out the possibility of new coal plants (or new nuclear power plants) coming on line to fill the gap if we don’t make haste in developing alternate sources for generating electrical energy. And while proponents of energy efficiency believe we can go a long way by making our electric grids “smarter” through the use of monitoring technologies that can dole out power when it is most plentiful and cheap (usually the middle of the night), others doubt that existing capacity will be able to handle the load placed on even an intelligent “smart grid” distribution network.

#### Electric cars increase CO2 production

Moore 10 (Margery, writer for Energy Boom Transportation, “ELECTRIC CAR USE MAY INCREASE CARBON EMISSIONS”, *Energy Boom Transportation*, July 23, <http://www.energyboom.com/transportation/electric-car-use-may-increase-carbon-emmissions>) GSK

New reports suggest that increased use of electric cars may in some areas of the US actually increase carbon emissions. Just when you thought we were on to something that might actually help! Earlier this year, Business Ethics published the article, 'Will More Electric Cars Increase Reliance on Coal?' In the article, they report that "upwards of half of all the electricity in the U.S. is derived from coal." The implications of this are clear, plugging in your electric car will mean it will more than likely be charged by electricity from coal. And as more electric cars come on the market, maybe more coal will be needed. Similarly, a very interesting article, with great graphics, appeared in a recent issue of Scientific America; it is entitled, "The Coal Truth: Will the Coming Generation of Electric Cars Just Be Coal-Burners, Once Removed?" The article has a map of the USA that clearly illustrates exactly where increase in electric car use could result in higher carbon emissions. The article also indicates that unless we start to source significant amounts of electricity from renewables (solar, wind, etc.), coal-fired plants will not only continue but may actually increase their discharges of mercury, carbon dioxide and other toxins due to greater numbers of electric cars on the road. And we know that many car makers are investing in electric cars. From Ford's all-electric Focus to Nissan's Leaf, to Chevy's Volt, and that does not even include electric vehicle startups like Tesla, Coda, and Fisker.

#### Electric cars bad for the environment—battery and range

Webster 11 (Ben, writer for The Times, “Electric cars may not be so green after all, says British study”, *The Australian News*, June 10, <http://www.theaustralian.com.au/news/health-science/electric-cars-may-not-be-so-green-after-all-says-british-study/story-e6frg8y6-1226073103576>) GSK

ELECTRIC cars could produce higher emissions over their lifetimes than petrol equivalents because of the energy consumed in making their batteries, a study has found. An electric car owner would have to drive at least 129,000km before producing a net saving in CO2. Many electric cars will not travel that far in their lifetime because they typically have a range of less than 145km on a single charge and are unsuitable for long trips. Even those driven 160,000km would save only about a tonne of CO2 over their lifetimes. The British study, which is the first analysis of the full lifetime emissions of electric cars covering manufacturing, driving and disposal, undermines the case for tackling climate change by the rapid introduction of electric cars. The Committee on Climate Change, the UK government watchdog, has called for the number of electric cars on Britain's roads to increase from a few hundred now to 1.7 million by 2020. Britain's Department for Transport is spending $66 million over the next year giving up to 8,600 buyers of electric cars a grant of $7700 towards the purchase price. Ministers are considering extending the scheme. The study was commissioned by the Low Carbon Vehicle Partnership, which is jointly funded by the British government and the car industry. It found that a mid-size electric car would produce 23.1 tonnes of CO2 over its lifetime, compared with 24 tonnes for a similar petrol car. Emissions from manufacturing electric cars are at least 50 per cent higher because batteries are made from materials such as lithium, copper and refined silicon, which require much energy to be processed. Many electric cars are expected to need a replacement battery after a few years. Once the emissions from producing the second battery are added in, the total CO2 from producing an electric car rises to 12.6 tonnes, compared with 5.6 tonnes for a petrol car. Disposal also produces double the emissions because of the energy consumed in recovering and recycling metals in the battery. The study also took into account carbon emitted to generate the grid electricity consumed.

#### Electric cars increase carbon production

The Week 11 (“Are electric cars actually bad for the environment?”, June 14, <http://theweek.com/article/index/216263/are-electric-cars-actually-bad-for-the-environment>) GSK

Production of electric cars is speeding up, as Ford prepares to introduce its C-Max Energi next year to compete with General Motors' much-hyped Chevrolet Volt. But a new British study suggests that electric vehicles might not be as green as environmentalists think. Because of pollution from the factories that make batteries, an electric car has a bigger carbon footprint than a gas-burning vehicles until it's traveled 80,000 miles, according to the research, which was financed by the Low Carbon Vehicle Partnership. Does this mean electric cars aren't good for the planet after all? Yes, these vehicles are bad for the environment: Electric cars just aren't "a green option," says Ed Morrissey at Hot Air. "Not only do electric vehicles produce just as much carbon in their overall cycle as internal-combustion engines, the need to replace the batteries actually makes them less green than current technology." If we want a cleaner way to get around, "the answer is natural gas, not electric vehicles." "Electric cars are not so green after all?"

## AT: VMT Unconstitutional

### Plan Justified under Commerce Clause

#### VMT fee is constitutionally justified under the interstate commerce clause.

Lush 12 (Greg, law student at Regent University, supervised by Professor Kathleen A. McKee, “The Vehicle Miles Tax: The Unintended Consequences of Paying as You Drive”, *Regent University School of Law*, December 31, <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1989051&http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=87&ved=0CJQFEBYwVg&url=http%3A%2F%2Fpapers.ssrn.com%2Fsol3%2FDelivery.cfm%2FSSRN_ID2004325_code1776956.pdf%3Fabstractid%3D1989051%26mirid%3D1&ei=l4HvT7ypJIXMqgHizZiOAg&usg=AFQjCNG5ekZNH3QJH_cYrWiKUkiQPnoKsw&sig2=FTb7KIM2Vc90NhSqsf5OkA>) GSK

If the federal government does not have the inherent statutory authority to pass a nationwide miles-based tax due to its taxing power, the next logical place to look for the authority would be the Commerce Clause of the United States Constitution. The Commerce Clause gives to Congress the power to “regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes.”109 The Supreme Court has long held that Congress may regulate the channels of interstate commerce and the instrumentalities of interstate commerce.110 Channels refer to the means of the transportation such as canals and roads; and instrumentalities are the people or objects that move across state lines.111 Clearly county roads, state roads, and federally-created interstate highways are all channels falling within Congressional control pursuant to the Commerce Clause. Likewise, the people and goods that are using those roads are the instrumentalities of commerce, hence within the Commerce power of Congress, whether they are people driving to work or transporting commercial goods. Currently, the state of the law as set forth in Gonzales v. Raich112 is that the Commerce Clause allows the federal government to regulate activity, even if it is purely intrastate activity, if Congress has a rational basis for believing that the activity, in the aggregate, substantially affects interstate commerce.113 What this means for the Vehicle Miles Tax is that if Congress has any rational basis whatsoever for believing that citizens driving their cars or companies driving their trucks have a substantial affect on interstate commerce, Congress can regulate how those cars and trucks are driven.114 It is obvious that people driving to work and truckers transporting commercial goods affect interstate commerce; they are indirectly affecting commerce. Truckers transporting goods are participating in economic activity that directly affects commerce, so meeting the rational basis test would not be hard to do in this situation.

# AT: Disads

## Politics

### Obama Doesn’t Get Blame

#### Obama wouldn’t get the blame- he would never push the plan.

Copeland 12(Gas tax not filling enough; Federal funding method no longer suffices as main source for highways, bridges, transit. USA TODAY February 24, 2012 Friday FINAL EDITION, Larry Copeland.)

Transportation funding. Wait! Don't turn away. This is important — if you drive or ride in an automobile, if you commute by bus, rail or bicycle, or if your loved ones do. The USA is at a critical juncture in how it pays for roads, bridges and transit. That's because the federal tax on gasoline, the primary method since 1956, has lost one-third of its buying power since it was last raised in 1993. States add their own tax on top of that, but the federal tax accounts for about 45%-50% of capital spending for transportation. The federal gas tax — 18.4 cents a gallon for gasoline, 24.4 cents for diesel — is growing anemic because of more fuel-efficient vehicles, Americans driving fewer miles and the growth of electric and alternative-fuel vehicles. The tax rate on gasohol and most other special fuels is much less. "It no longer works as our primary source," says Jim Burnley, a Washington, D.C., transportation attorney who was Transportation secretary for President Reagan. "We're going to have to figure out, as a country, other mechanisms." Burnley says transportation bills now being debated in Congress — a five-year, $253 billion version in the House of Representatives, a two-year, $109 billion version in the Senate — likely will be among the last to rely primarily on the gas tax. Each 1-cent increase in the federal gas tax generates about $1.8 billion in revenue, says Joseph Giglio, a professor at Northeastern University who has written extensively about transportation financing. Grover Norquist, a prominent tax foe and president of Americans for Tax Reform, says the federal gas tax should be reduced "to near zero" and the states should determine how to build and repair roads and bridges within their borders, even interstate highways. "If a state wants to widen or repair or build a bridge, how in the world is that a federal responsibility?" he says. "Within 10 years, there won't be a federal gas tax. There'll be 50 state gas taxes paying for highways at the state level." Proposed alternatives: **Taxing miles driven. What if drivers were taxed not on how much gasoline or diesel they purchased but on how many miles they drove?** Many transportation experts see a vehicle miles traveled (VMT) tax as the likeliest alternative or complement to the gas tax. "Some kind of VMT tax ... is almost inevitable**,"** says David Goldberg of Transportation for America, a coalition of businesses, unions and non-profit organizations. "I would say within 10 years. The technology is getting better and better. The impetus for it is getting much stronger." A VMT tax most likely would use GPS devices to track how much and where vehicles drove, potentially raising privacy concerns. The growing popularity of smartphones capable of tracking users' movements might lessen that concern for many, says Jack Finn, senior vice president and national director of toll services for HNTB, a national engineering, planning and construction firm based in Kansas City, Mo. However, **it's difficult to gauge the political viability of a VMT tax: The Obama administration and Rep. John Mica, R-Fla., chairman of the House Transportation and Infrastructure Committee, have been nearly as loath to support it as they are to increasing the gas tax.** A federal VMT tax is "highly unrealistic," says Joshua Schank, president of the Eno Center for Transportation, a non-partisan think tank in Washington, D.C. But he says such taxes are likely at the state level in coming years. Norquist also says a VMT tax is more workable by states.

## Spending

### SQ Transportation Funding => Deficits

#### Declining gas tax revenues require Congress to inject the Highway Trust Fund with general funds, increasing the national deficit.

Harischandra et al 11(Kumi Harischandra, Justine Isola, Lazeena Rahman, and Anthony Suen

Stanford University, Graduate Policy Program Practicum “Going Forward: Prospects for Transitioning from Gas Taxes to Vehicle-Miles-Traveled Fees” pg 2-3 <http://ips.stanford.edu/sites/default/files/shared/Final%20Report_Carnegie.pdf> March 2011) ZLH

The need for new sources of revenue to fund the nation’s transportation system largely stems from the underfunding of the Highway Trust Fund (HTF). Congress established the HTF in 1956 to ensure a dependable source of funding for the construction and maintenance of U.S. highways and transit systems. HTF revenue comes from federal taxes on motor fuels (gas and diesel), truck tires, sales of trucks and tractor-trailers, and a heavy vehicle use tax.5 Most federal surface transportation funding continues to come from the HTF, and nearly 90 percent of that revenue comes from the tax on motor fuels.6 However, inflation has eroded the purchasing power of the current federal 18.4 cents per gallon gas tax, which was last raised in 1993, and the costs of maintaining the national transportation system are now outpacing the revenue generated by the tax (Figure 1).7 As a result of this shortfall, Congress has infused the HTF with general funds on three separate occasions since 2008. Unless the federal government finds ways to generate new revenue or implements measures to use funds more efficiently, transportation infrastructure will continue to require more injections from the general fund, exacerbating the national deficit.

## Oil

### Oil Dependence Kills Economy

#### Reliance on oil results in economic vulnerability **Bandivadekar et al 8** (Anup, PhD in MIT’s Engineering Systems Division, Kristian Bodek, MS Degree in MIT’s Technology and Policy Program, Lynette Cheah, PhD student in MIT’s Engineering Systems Division, Christopher Evans, MS Degree in MIT’s Technology and Policy Program, Tiffany Groode, PhD in MIT’s Mechanical Engineering Department, John Heywood, Sun Jae Professor of Mechanical Engineering and Director of the Sloan Automotive Laboratory at MIT, Emmanuel Kasseris, PhD student in MIT’s Mechanical Engineering Department, Mathew Kromer, MS Degree in MIT’s Transportation and Policy Program, Malcolm Weiss, researcher for MIT’s Laboratory for Energy and the Environment, *On the Road in 2035: Reducing Transportation’s Petroleum Consumption and GHG Emissions*, Massachusetts Institute of Technology, July 2008, pg. 5, <http://web.mit.edu/sloan-auto-lab/research/beforeh2/otr2035/On%20the%20Road%20in%202035_MIT_July%202008.pdf>) PCS

Personal transportation is highly dependent on the automobile. In the United States, there are approximately 240 million light-duty vehicles (LDVs). They comprise some 135 million cars and 105 million light trucks. The estimated fuel consumption of LDVs in 2005 was approximately 530 billion liters or 140 billion gallons of gasoline. Gasoline use by U.S. cars (i.e., cars driven in the United States) and light trucks (pickups, SUVs, and vans) accounts for approximately 44% of U.S. oil consumption and some 10% of world oil consumption [Davis and Diegel 2007]. The U.S. Energy Information Administration (EIA) estimates that more than 60% of liquid fuels used in the country will be imported during the next 25 years. Moreover, an increasing fraction of this supply will come from the Middle East and from the Organization of Petroleum Exporting Countries (OPEC) [EIA 2007a]. Regardless of its countries of origin, pervasive use of oil means that the U.S. economy remains vulnerable to the price shocks in the oil market.

# AT: Topicality

### **VMT=Infrastructure Investment**

#### **VMT fee is infrastructure investment-contextual evidence**

Harischandra et al 11(Kumi Harischandra  Research Economist in the Fraser Institute's Fiscal Studies Departmen, Justine Isola Master's student at Stanford University studying international security and cooperation, Lazeena Rahman Graduate Student at Stanford Institute for Economic Policy Research , and Anthony Suen Stanford Institute for Economic Policy Research “A Tax that’s Run Out of Gas” pg. 1 <http://ips.stanford.edu/sites/default/files/shared/OpEd_Carnegie.pdf> March 2011) ZLH

A more sustainable solution to infrastructure investment is a “vehicle-miles-traveled”—or

VMT—fee that charges drivers for the costs of using the roads. Because revenue generated from

mileage fees does not depend on gas consumption, a VMT model is a compelling alternative to

raising the gas tax. A fee of just one cent per mile would provide as much funding as the federal

government currently collects from gas taxes of 18 cents per gallon.

#### VMT system= infrastructure investment

Caldwell 11(Kathy J President of the American Society of Civil Engineers “SURFACE TRANSPORTATION PROGRAMS OVERHAUL;  COMMITTEE: HOUSE TRANSPORTATION AND INFRASTRUCTURE; SUBCOMMITTEE: HIGHWAYS AND TRANSIT” March 30th 2011) ZLH

Despite increased funding levels in TEA-21 and SAFETEA-LU, the nation's surface transportation system requires even more investment to meet the documented needs. For this reason, ASCE supports a variety of revenue streams for infrastructure investments, including an increase in the motor fuels tax, indexing the motor fuels tax to the Consumer Price Index, and eventually transitioning to a vehicle miles traveled system. ASCE supports a reliable, sustained user fee approach to building and maintaining the nation's highway and transit systems. Establishing a sound financial foundation for future surface transportation expansion and preservation is an essential part of any authorization.

### VMT Administration is Infrastructure

#### The system for administrating VMT payments is an infrastructure investment, AND the States can’t solve either.

Ezell 10(Stephen Senior Analyst with the Information Technology and Innovation Foundation Bringing U.S. roads into the 21st century. Issues in Science and Technology, 26(4), 77-86 Summer 2010) ZLH

Despite their technical feasibility and significant benefit cost returns, many nations underinvest in ITS because there are a significant number of challenges involved in developing and deploying them, including system interdependence network effect, and scale as well as funding, political, and institutional challenges. Whereas some ITS, such as ramp meters or adaptive traffic signals, can be effectively deployed locally, the vast majority of ITS applications - and certainly the ones positioned to deliver the most extensive benefits to the transportation network - must operate at scale, often at a national level, and must involve adoption by the overall system and by individual users simultaneously, raising complex system coordination challenges. For example, systems like IntelliDrive in the United States must work on a national basis to be effective. It does a driver little good to purchase an IntelliDrive -equipped vehicle in one state if it doesn't work in another. Likewise, drivers are not likely to demand on -board telematics units capable of processing real-time traffic information if that information is unavailable from government or private sector providers. It makes little sense for states to independently develop a vehicle miles traveled usage-fee system because, in addition to requiring a device on vehicles, VMT requires a satellite and back-end payment system, and it makes little sense for states to independently replicate these infrastructure investments.

#### Mileage fee systems are transportation infrastructure

Baker et al 9 (Ginger Goodin, Richard T. Baker and Lindsay Taylor, Texas Transportation Institute, Sponsored by the USDoT, “Mileage-Based User Fees: Defining a Path toward Implementation Phase 2: An Assessment of Institutional Issues” p. 39) APB

If a mileage‐based user fee system is to be implemented on a national level, with the eventual goal of capturing all miles traveled by all users of the national roadway network, then added consideration needs to be given to matters of system security. The current fuel tax system is a relatively simple and decentralized mechanism for collecting road user revenues, making it nearly impossible to attack and cripple. However, a national, centralized, and technology‐dependent mileage‐fee system would become a crucial component of the nation’s infrastructure system and would thus be a desirable target for coordinated attacks by various elements of society. Therefore, consideration should be given to establishing preferred policies with regards to administration and to the fact that security measures will need to be more robust with increased centralization (13).

### VMT key to ANY Infrastructure Investment

#### VMT is key to increased capital investment in transportation infrastructure- current system only generates one third of what is necessary.

Frisman 12 (Paul, Principal Analyst at the Office of Legislative Research, “Vehicle Miles Travelled (VMT) Transportation Funding,” OLR Research Report, January 17, 2012, <http://www.cga.ct.gov/2012/rpt/2012-R-0029.htm>) CO

A VMT fee or tax system charges motorists a fee for each mile they drive. The amount of the fee and the roads or highways on which it applies can vary, depending on what the system is designed to accomplish. Proponents say a VMT system would be a more reliable way to fund highway repair and construction than the current funding method, which is primarily through federal and state motor fuel taxes. There are several reasons for this: First, the amount of revenue from motor fuel taxes is expected to decrease as motor vehicles become more fuel efficient and more people turn to vehicles powered by alternative fuel (e.g., electric vehicles). At the same time, the cost of repairing and maintaining the nation's transportation infrastructure is growing dramatically. According to Paying Our Way, a 2009 report by the National Surface Transportation Infrastructure Financing Commission, “without changes to current policy, it is estimated that revenues raised by all levels of government for capital investment will total only about one-third of the roughly $200 billion necessary each year to maintain and improve the nation's highway and transit systems.” Proponents of a VMT system contend that a VMT fee system is also a more precise and fair way to pay for the highway system because it is based on a driver's actual mileage. “The efficiency argument for VMT taxes starts with the fact that, especially for passenger vehicles, most costs of highway use are related to miles driven,” a 2011 Congressional Budget Office (CBO) report states. But, under the current system, owners of fuel-efficient vehicles pay less in taxes than owners of less efficient vehicles who travel the same distance.

#### VMT necessary to increase transportation infrastructure funding.

Meyer 11 (Michael, Professor of Civil and Environmental Engineering at the Georgia Institute of Technology. “Why we should consider a per-mile road tax,” CNN, December 8, 2011, [http://www.cnn.com/2011/12/08/opinion/ meyer-pay-per-mile-road-tax/index.html](http://www.cnn.com/2011/12/08/opinion/%20meyer-pay-per-mile-road-tax/index.html)) CO

New generations of Americans have been raised on technologies that would be used for a VMT-based fee system, and thus be perhaps more comfortable with their use. The federal fuel tax has remained at 18.4 cents per gallon of gasoline and 24.4 cents for diesel since 1993. Even if political leaders find the will to raise it -- which they might still have to do in the short term -- the long-term trend in vehicle technology and fuel use strongly suggests that the reliance on a petroleum-based revenue source for transportation funding is precarious. The nation needs to transition to a different way of providing the necessary funding to keep our transportation infrastructure in a state of good repair and responsive to new demands being placed on it. The VMT-based fee is a strong candidate to be that new system.

#### VMT key to infrastructure investment

Johnson and Chokshi 12 (Fawn, corresponder for National Journal specializing in immigration, transportation and education, Niraj, economics reporter at the National Journal, “The Driving Tax,” National Journal, April 16, 2012, http://transportation.nationaljournal.com/2012/04/the-driving-tax.php) CO

Many policy analysts agree that a "vehicle-miles traveled" fee, a literal tax for actual road use, is an effective replacement for the current gas tax to pay for our roads and bridges. A penny-per-mile tax would raise enough to match the existing 18.4 cent-per-gallon fuel tax, while two cents-per-mile would raise enough to maintain infrastructure investment in the long run, according to the oft-cited report from a Miller Center conference co-chaired by former Transportation Secretaries Norman Mineta and Samuel Skinner. As the report makes brutally clear, a lot still stands in the way.

### VMT considerations = Normal Means for Infrastructure Projects

#### Debating VMT transition is inevitable under other core affs- National Infrastructure Bank legislation says it must be considered for all transportation infrastructure projects.

DeLauro 11 (Rosa L, U.S. House of Representatives from the Third District of Connecticut, 112TH CONGRESS 1ST SESSION H. R. 402: National Infrastructure Development Bank Act of 2011

112th Congress, 2011–2012. Text as of Jan 24, 2011 (Introduced). <http://www2.apwa.net//Documents/Advocacy/HR%20402.pdf>, 01/24/11) VZ

(1) TRANSPORTATION INFRASTRUCTURE PROJECTS.—For any transportation infrastructure project, the Board shall consider the following: (A) Job creation, including workforce development for women and minorities, responsible employment practices, and quality job training opportunities. (B) Reduction in carbon emissions. (C) Reduction in surface and air traffic congestion. (D) Poverty and inequality reduction through targeted training and employment opportunities for low-income workers. (E) Use of smart tolling, such as vehicle miles traveled and congestion pricing, for highway, road, and bridge projects. (F) Public health benefits.

# AT: Counterplans

## AT: States CP

### Feds Key: States Monopolize Roads

#### State and local control of rates leads to monopolies on critical roads and exporting of traffic and congestion to neighboring communities.

Transportation Research Board 6, (Transportation Research Board, Committee for the Study of the Long-Term Viability of Fuel Taxes for Transportation Finance, The National Academies, “[The Fuel Tax and Alternatives for Transportation Funding: Special Report 285](http://www.nap.edu/catalog.php?record_id=11568)”, The National Academies Press, pg. 137 of 248, <http://www.nap.edu/openbook.php?record_id=11568&page=137>) DMD

It is not only ignorance that might lead to improper pricing. State or local governments with control of mileage fees would find that they had opportunities to extract monopoly profits from critical roads (Nash 2003), export traffic and congestion to neighboring jurisdictions (De Borger et al. 2005), or attract development from competing jurisdictions by underpricing of roads for certain categories of traffic. Such practices may be justifiable in some circumstances, but balancing competing interests affected by pricing decisions will be difficult.

### Feds Key: Technology Standards

#### Federal action is key- only they can implement roadway changes or set technology standards.

Sorenesen et. al. 09 (Paul Sorensen is an operations researcher at the RAND Corporation and serves as associate director of the Transportation, Space, and Technology Program, Lisa Ecola is a senior project associate at the RAND Corporation., Martin Wachs is a senior principal researcher at RAND, Max Donath is a professor of mechanical engineering and director of the Intelligent Transportation Systems, Lee Munnich, senior fellow, directs the State and Local Policy Program, Betty Serian is a former Deputy Secretary for Safety Administration at PennDOT, Implementable Strategies for Shifting to Direct Usage-Based Charges for Transportation Funding, June 2009, RAND Corporation, <http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_w143.pdf>) Azimi

States are waiting for the federal government to take the lead. Four states said they assumed that implementing a VMT fee would have to be done at the federal level. Any changes involving technology to be built into new vehicles or anything involving roadway changes, would clearly need to be federal (the only alternative mentioned was that California might have the ability to set standards, the way it can set its emission standards separately from the federal ones). A state that decides to implement VMT fees on its own would “soon regret” that path, because of the potential for fraud (such as driving miles on one state but claiming them in another) if just one state adopts the fee. No state was interested in being the first to implement a VMT fee; they were interested in joining a larger system. One state objected to the concept of collecting a federally mandated fee, stating that it would require “significant” changes to existing processes, but others said they would find a way to comply. Most states expressed definite interest in being able to levy state fees as well.

#### Federal action is critical to successful state-level initiatives- technology standards and interoperability.

Rahman et al, 11 (Lazeena Rahman is a Graduate School of Business and Public Policy student at Stanford, Kumi Harischandra, Justine Isola, and Anthony Suen are graduate students in Stanford’s International Policy Studies program, Prepared for: Carnegie Endowment for International Peace, “Going Forward: Prospects for Transitioning from Gas Taxes to Vehicle-Miles-Traveled Fees” p. ix) APB

State, local, and federal harmonization Our analysis focuses on federal policy because transportation reform advocates cite the lack of a clear national vision and clear transportation system objectives as significant impediments to the advancement of state-level initiatives.61 However, any functioning tax or fee system will require harmonization between local, state, and federal policies and operations. This can become complicated if policymakers decide to implement VMT fees. From an operational standpoint, new federal technology standards are necessary to guide VMT fee system development and to ensure the interoperability of VMT technology across all 50 states. States, however, may be less supportive of a national transportation financing policy if it requires a high degree of federal intervention.

#### Congressional action is necessary to change technology standards.

O’toole 12(Randal Senior fellow of the Cato Institute. “Ending Congestion by Refinancing Highways” Policy Analysis No. 695 pg 14-15 ZLH[http://www.cato.org/pubs/pas/PA695.pdf May 15th 2012](http://www.cato.org/pubs/pas/PA695.pdf%20May%2015th%202012)”)

The main obstacle to implementing vehicle mile fees is that there are so many jurisdictions involved, including the federal government, 50 states, and all the local governments (including the District of Columbia) that subsidize roads out of general funds. Complete conversion from gas taxes to vehicle-mile fees requires the following three steps: 1. The American Association of State Highway and Transportation Officials (AASHTO) should establish uniform standards for vehicle-mile fees. This does not mean that states all need to adopt exactly the same technologies, but the technologies they do adopt should be able to function in every other state. 2. Congress should phase out the federal gasoline tax over a 6-year period under the rapid-implementation plan, or 18 years under the slow plan. This could be done in a way that rewards states for replacing their gas taxes with vehicle-mile fees, for example, by giving the first states to implement such fees a slightly higher share of federal gas taxes while those gas taxes are still being collected. 3. Individual state legislatures could implement either the fast or slow plan at their discretion. As they do so, they should invite local governments to join in but make the elimination of subsidies out of general funds a condition for joining. States should also dedicate all vehiclemile fees to the road networks that generated those fees and not divert any to transit or other uses. These steps need not be taken in any particular order. Individual states could implement vehicle-mile fees before any federal action or adoption of AASHTO standards. Though doing so might risk incompatibility with any standards later adopted, it may be that AASHTO won’t bother to adopt standards until at least a few states have passed legislation replacing gas taxes with mileage fees. AASHTO could (and should) adopt standards without waiting for Congress to begin phasing out federal gas taxes, but no harm would be done if it does not. Meanwhile, Congress could keep collecting federal gas taxes after the states have converted to vehicle-mile fees.

### Feds Key: Interoperability

#### Federal action is key to national coordination, and is more efficient than setting up the infrastructure to run 50 different systems.

Ezell 10(Stephen Senior Analyst with the Information Technology and Innovation Foundation Bringing U.S. roads into the 21st century. Issues in Science and Technology, 26(4), 77-86 Summer 2010) ZLH

Despite their technical feasibility and significant benefit cost returns, many nations underinvest in ITS because there are a significant number of challenges involved in developing and deploying them, including system interdependence network effect, and scale as well as funding, political, and institutional challenges. Whereas some ITS, such as ramp meters or adaptive traffic signals, can be effectively deployed locally, the vast majority of ITS applications - and certainly the ones positioned to deliver the most extensive benefits to the transportation network - must operate at scale, often at a national level, and must involve adoption by the overall system and by individual users simultaneously, raising complex system coordination challenges. For example, systems like IntelliDrive in the United States must work on a national basis to be effective. It does a driver little good to purchase an IntelliDrive -equipped vehicle in one state if it doesn't work in another. Likewise, drivers are not likely to demand on -board telematics units capable of processing real-time traffic information if that information is unavailable from government or private sector providers. It makes little sense for states to independently develop a vehicle miles traveled usage-fee system because, in addition to requiring a device on vehicles, VMT requires a satellite and back-end payment system, and it makes little sense for states to independently replicate these infrastructure investments.

#### Federal leadership solves technology standards and interoperability

Slone 10 (Sean, Sean Slone is a transportation policy analyst at The Council of State Governments. The Council of State Governments, Vehicle Miles Traveled Fees, March 2010, <http://www.csg.org/policy/documents/TIA_VMTcharges.pdf>) Azimi

The need for a national policy direction—While states like Oregon already began the process of developing implementation plans, federal direction is needed in the area of technology standards to prevent a hodgepodge of systems that won’t operate with each other. Also, if the Real ID program is any gauge, states may need federal assistance with administrative development.

#### Federal involvement key- state implementation causes an incompatible patchwork

IBTTA 12 (International Bride, Tunnel, and Turnpike Association, Symposium on Mileage-Based User Fees and Transportation Finance Summit, may 1st 2012, <http://www.ibtta.org/files//PDFs/Symposium%20on%20MBUF%20and%20Transportation%20Finance%20Final%20Report.pdf>) Azimi

Some panelists said the funding problem is made worse by a patchwork of state and regional tolling authorities that “has left a constellation of systems across the country that are not compatible with one another.” An integrated, national system “is a vision that will require some federal role up-front,” a speaker said—not in the form of a prescriptive standard, but through an implementation framework based on customer choice and perceived value. He said initiatives like the I-95 Corridor Coalition showed how a coordinated effort could help lay the groundwork for a multi-state MBUF system.

Lack of federal guidance results in a piecemeal approach- kills integration and potential synergy between projects.

Rahman et al, 11 (Lazeena Rahman is a Graduate School of Business and Public Policy student at Stanford, Kumi Harischandra, Justine Isola, and Anthony Suen are graduate students in Stanford’s International Policy Studies program, Prepared for: Carnegie Endowment for International Peace, “Going Forward: Prospects for Transitioning from Gas Taxes to Vehicle-Miles-Traveled Fees” p. ix) APB

Moreover, national transportation policy has been limited since the completion of the Interstate Highway System more than 20 years ago. States and metropolitan areas have filled this vacuum by developing their own long-term transportation investment plans for highway, transit, and rail.9 Unfortunately, this piecemeal approach prevents the smooth integration of local, state, and federal policies and hinders potential synergies across projects.

### Feds Key: Information Sharing

#### Federal sponsorship and data collection about pilot projects is key to information sharing about successful local innovations- turns their state experimentation arguments.

Thomas and Heaslip 11 (Michael D. and Kevin, Michael Thomas, Ph.D., is a researcher for the Utah Transportation Center at Utah State University and Kevin Heaslip, Ph.D., P.E. is an Assistant Professor of Civil & Environmental Engineering at Utah State University, *Journal of City and Town Management* , “Technological Change and the Lowest Common Denominator Problem: an Analysis of Oregon’s Vehicle Miles Travelled Fee Experiment”, February 1, [http://papers.ssrn.com/sol3/papers.cfm? abstract\_id=1878656](http://papers.ssrn.com/sol3/papers.cfm?%20abstract_id=1878656)) AH

States exist in a balance of power between the local and the national policy debate. States routinely collect information from Metropolitan Planning Organizations (MPO) to help learn what types of projects are most beneficial to the different regions and thereby to the state (See Table 3 below). Using a similar model the state can collect information about the perceived local needs and help to encourage innovation in applying technological solutions. Meanwhile, at the federal level, there exist opportunities to participate in things like federally funded demonstration projects which aggregate information about new methods created in experiments in transportation innovation around the country. The role of the Federal government is to help coordinate successful sharing of information between the different states. States also share the results of experiments conducted at the local level but serve an additional function of prioritizing projects identified by MPOs.

#### Federal leadership is key to information sharing about the results of state and local experiments.

Thomas and Heaslip 11 (Michael D. and Kevin, Michael Thomas, Ph.D., is a researcher for the Utah Transportation Center at Utah State University and Kevin Heaslip, Ph.D., P.E. is an Assistant Professor of Civil & Environmental Engineering at Utah State University, *Journal of City and Town Management* , “Technological Change and the Lowest Common Denominator Problem: an Analysis of Oregon’s Vehicle Miles Travelled Fee Experiment”, February 1, [http://papers.ssrn.com/sol3/papers.cfm? abstract\_id=1878656](http://papers.ssrn.com/sol3/papers.cfm?%20abstract_id=1878656)) AH

Oregon’s VMT fee is a case of experimentation is a positive sign. Instead of suggesting that now is the time to comprehensively overhaul the motor fuel tax, the path for further research for replacing revenue is clearer. This paper suggests that there are major benefits from focusing on local experiments. Perhaps the most important thing to recognize is the opportunity for leadership at the national level by sharing the results of state level experiments. By shifting to city-based solutions national policy makers reintroduce a fundamental form of federalism which allows for rapid organic change. On the expenditure side, states play a key role in prioritizing projects to receive funding, and local agencies can identify projects they think worthy of consideration. In stable periods, where technology is not changing as quickly, nationally implemented solutions might work. However, in periods of rapid technological change the best source of innovation is local. And accordingly the best level for policy change is local as well.

#### **Federal leadership key to spur state innovation.**

Grant 12

(David, Writer for the Christian Science Monitor, “Transportation bill, not yet passed, already blasted by critics; House and Senate negotiators are considering how to mesh two very different transportation bills, but experts and lobbyists say neither bill addresses the fundamental problems.”, May 8th 2012, Lexis) ZLH

Another solution, perhaps even more promising to transportation experts, involves taxing drivers by the number of miles they drive - an idea known as a vehicle miles traveled system, or VMT. This ensures a stable funding stream even as drivers increasingly turn to hybrid and electric cars. While there are many permutations of such a system, one method currently being piloted in Oregon will allow about 50 drivers to use a variety of devices to track how many miles they drive and charge them accordingly. "The states as innovators will find the solution," says Jim Whitty, manager of the division of the Oregon Department of Transportation group implementing the VMT pilot program this September, noting that Oregon was the first to pass a gas tax in 1919. "The key is to get the thing started" on the national level. Getting a VMT system up and running could take 15 years, estimates Mr. Atkinson. "That's why people like myself have been urging Congress to be more proactive," says R. Richard Geddes, a professor at Cornell University who served on a commission preceding the NSTIFC focused on transportation policy. Some cities, such as Stockholm, Singapore, and London" have started, he said, "but there really is no federal leadership on this."

### Feds Key: Cost

#### VMT systems are too expensive to be implemented by states on their own- federal action leads to cost reductions- state systems will follow.

Rufolo and Bertini 3(Anthony M professor of Urban Studies and Planning at Portland State University, Robert L Assistant professor and Member of Transportation Research Group at Portland State University “Designing Alternatives to State Motor Fuel Taxes” Transportation Quarterly <http://web.pdx.edu/~bertini/papers/rufolobertini.pdf> 2003 ) ZLH

A set of estimates for administrative and compliance costs of a mileage-based tax was generated in a Minnesota study (Wilbur Smith Associates 1997). This study concluded that systems based on existing odometer readings would lead to unacceptable levels of evasion. Three options were evaluated. The lowest technology option would be a tamperproof chip to store vehicle information, and the highest would be an electronic odometer coupled with devices at the state border to allow for differentiation of in-state and out-of-state travel (p. 43). Estimates of cost ranged from $20 to $100 per vehicle for equipment and installation of the appropriate technology. They estimated that the cost of equipping the state’s 3,500 gas stations and 35,000 fuel pumps with equipment to monitor fuel-tax exemptions at about $56 million at that time. Antenna reader devices at major border crossing locations were estimated to cost $17 million. They estimated additional annual operating and maintenance costs of $19 million to $55 million (pp. 53-54). The study concluded, “the concept of a mileage-based tax is technically feasible, but does not appear to be cost-effective at this time, particularly if implemented by a single state” (p. 56). While the single-state comment reflects issues that arise in tracking residents and nonresidents, it also appears to reflect potential benefits of coordination with federal vehicle taxes. Adoption of a VMT based system by the federal government, or in cooperation with the auto industry, would substantially reduce the cost for adding such a tax at the state level

#### Federal assistance is necessary- the states can’t afford to develop or upgrade massive databases to administrate the fee.

Baker et al 9 (Ginger Goodin, Richard T. Baker and Lindsay Taylor, Texas Transportation Institute, Sponsored by the USDoT, “Mileage-Based User Fees: Defining a Path toward Implementation Phase 2: An Assessment of Institutional Issues” p. 16) APB

Provide Federal Financial Assistance to States If Necessary Developing administrative protocols for the eventual implementation of mileage‐based user fees could potentially require the development of massive databases for managing driver accounts. As it now stands, most states generally only process fuel tax receipts from at most a few hundred payers. In a mileage‐based fee system that number would increase exponentially, imposing a significant cost on any implementing entities. The Real ID program has suffered in large part because numerous state agencies lack the financial ability to develop new databases and/or update existing databases. Therefore, if mileage‐based user fees are mandated from the federal government at some point in the future, it may be necessary for the federal government to provide assistance so that states may take the necessary steps to ensure that such systems are rolled out in a timely and efficient manner.

### States Don’t Solve Warming Advantage

#### State governments don’t solve warming- they focus too heavily on traffic, not reducing VMT.**Sperling and Cannon 8** (Daniel, Professor of Civil Engineering and Environmental Science and Policy, Director of the Institute of Transportation Studies at the University of California, Davis, Acting Director of the UC Davis Energy Efficiency Center, and James, Editor of Energy Futures, *Reducing Climate Impacts in the Transportation Sector*, Springer, December 8, 2008, pg. 117) PCS

Public concern over the rapidity of climate changes, and the potentially catastrophic consequences of such changes to economic, social, and biological systems has exploded over the last two years (IPCC, 2007). At the same time, traffic congestion has continued to worsen, and now costs urban travelers an average of 38 hours in travel delay annually (TTI, 2007). This chapter addresses the question whether or not reducing vehicle miles traveled (VMT) is a sensible strategy for reducing both traffic congestion and transportation-related emissions of carbon dioxide (CO2), the primary greenhouse gas contributor from the transportation sector. The answer is yes, but such efforts are presently being lead by state government Department of Transportation (DOTs) interested in congestion reduction, not climate, and the focus of such DOT efforts is convincing local governments to pay attention to the traffic generation implications of their land use decisions, not on DOT initiatives to reduce the VMT implications of their own actions (Toth, 2007). While, in the past, the core mission of transportation managers has been to meet the mobility needs of a growing economy, this mission has more recently been restated to focus more precisely on congestion relief. Meanwhile transportation-related CO2 has been perceived as a concern best addressed by vehicle manufacturers, fuel providers, and land use planners, not the owners and managers of the transportation system itself.

## AT: Gas Tax CP

### No Solvency- General

#### Gas taxes can’t price congestion which costs billions in delays, and revenue is vulnerable to erosion via inflation and increasing fuel efficiency.

O’Toole 12, (Randal, Cato Institute Senior Fellow working on urban growth, public land, and transportation issues, “Ending Congestion by Refinancing Highways”, May 15th, Policy Analysis, No. 695 <http://www.cato.org/pubs/pas/PA695.pdf>) DMD

One of the major failings of gas taxes is that they fail to price congested roads properly. As a result, travelers suffer from more than $100 billion worth of annual delays, and the costs to businesses are tens of billions of dollars more. A second problem is that gas taxes fail to pay for all road costs. While gas taxes collected by federal and state governments cover all or nearly all state highway costs, local governments spend about $30 billion a year out of general funds on local roads and streets. A third problem is that inflation and increasingly fuel-efficient cars rapidly erode gas tax revenues. After adjusting for inflation, drivers today pay only a third as much for each mile they drive as they did in 1956, when Congress created the Interstate Highway System.

#### Increasing gas taxes is only a short-term solution, can’t target congestion, and is less efficient.

O’Toole 12, (Randal, Cato Institute Senior Fellow working on urban growth, public land, and transportation issues, “Ending Congestion by Refinancing Highways”, May 15th, Policy Analysis, No. 695 http://www.cato.org/pubs/pas/PA695.pdf

Increasing gas taxes can solve some, but not all, of these problems. It may compensate for inflation and more fuel-efficient cars, but only until there is more inflation and/or cars become more fuel-efficient. But simply raising taxes does little to address the problems of localized road costs, targeting congestion, and other problems associated with the inefficient practice of paying for roads through federal and state gas taxes.

### No Solvency- Doesn’t Price all Road Use

#### No solvency- only VMT accurately prices all negative externalities of road use

Congressional Budget Office 11 (“Alternative Approaches for Funding Highways”, <http://cbo.gov/publication/22059>) GSK

The cost of users' travel is different from the cost of -highway construction and maintenance, although those costs overlap. Some construction and maintenance costs are tied to use. For example, the cost of some maintenance depends on the extent of pavement damage caused by heavy vehicles. In contrast, other maintenance costs-such as those to repair damage caused by aging and weathering-are fixed and would accrue regardless of how much a road is used. Any given driver's highway use also imposes costs on other users, on nearby nonusers, on the environment, and on the economy in the form of congestion, risk of accidents, noise, emissions of greenhouse gases and pollutants that affect local air quality, and dependence on foreign oil. Different types of vehicles traveling in different locations contribute differently to the social costs of highway use. Passenger vehicles log more than 90 percent of all miles traveled on U.S. highways, and they are responsible for the largest share of the total costs of highway travel. In particular, urban travel by passenger vehicles constitutes about two-thirds of all vehicle-miles traveled, and it is the primary source of congestion, the largest category of social costs. Heavy trucks travel less than 10 percent of all vehicle miles, but their costs per mile are far higher than are those for passenger vehicles, and they are responsible for most pavement damage. Estimates from several sources indicate that most highway users currently pay much less than the full cost of their travel. Given current fuel efficiency, federal and state fuel taxes combined produce revenue of roughly 2 cents per mile for automobiles. In contrast, the Federal Highway Administration estimates that the national average cost for congestion caused by automobile travel is about 10 cents per mile-much higher in large metropolitan areas and much lower in rural communities. Total costs, including those for accident risk and noise, are higher still. Judging from estimates of the costs of highway use, a system that charged for all such costs would have most if not all motorists paying substantially more than they do now-perhaps several times more. Such a system would maximize the efficiency of highway use by discouraging trips for which costs exceed benefits. Alternatively, taxes that were set below the full costs of use but were structured to reflect those costs more closely than current taxes do could yield a portion of the efficiency gains by discouraging some high-cost trips. Most of the costs of using a highway, including pavement damage, congestion, accidents, and noise, are tied more closely to the number of miles traveled than to the amount of fuel consumed. (Because of the way passenger vehicles are regulated, their emissions of local air pollutants, such as particulate matter and sulfur dioxide, also are more closely related to miles traveled. The cost of local air pollution from trucks, which is regulated differently, is fuel related.) Fuel consumption depends not only on the number of miles traveled but also on fuel efficiency, which can differ from one vehicle to another and can change with driving conditions; therefore, charging highway users for the full costs of their use, or in proportion to the full costs, could not be accomplished solely through fuel taxes. Accomplishing those goals would require a combination of fuel taxes and per-mile charges, sometimes called vehicle-miles traveled (VMT) taxes.

#### VMT internalizes all costs of automobile usage better than the gas tax.

Litmann 99 (Todd, Founder and executive director of the Victoria Transport Policy Institute Distance-Based Charges; A Practical Strategy for More Optimal Vehicle Pricing p. 8 January 1999)

**Current motor vehicle pricing fails to convey to consumers the full costs of their decisions, or provide an appropriate financial reward to those who reduce then vehicle use. Many costs are external, and many internal costs are fixed. This is economically inefficient and inequitable**. **It leads to excessive automobile use that exacerbates a number of problems, including congestion, facility costs, accident damages, pollution and other environmental costs. A more optimal price structure, which internalizes currently external costs and marginalizes currently fixed costs could provide many benefits to society. Although fuel taxes are the most common distance-based vehicle user fee,they do not effectively reflect most costs.** **Mileage-based pricing can much more accurately represent the roadway, accident and emission costs imposed by specific vehicles**. Although road pricing that varies by time and location is even more optimal, particularly for congestion and pollution impacts, the application of such pricing is constrained by transaction costs and privacy concerns. **Mileage based pricing appears to offer the greatest potential benefits for the foreseeable future**. Using the four mileage based prices recommended in this paper would result in a significant reduction in total vehicle travel. This reduction would consist of lower value trips that consumers are most willing to forego. **This could benefit consumers and the economy, provided that revenues are used to reduce more economically burdensome taxes or returned as rebates.**

### Accidents Solvency Deficit

#### VMT is more effective at reducing accidents.

Parry et al 7(Ian W. H. Parry Technical Assistance Advisor on Climate Change and Environmental Policy, Margaret Walls Research Director and Thomas J. Klutznick Senior Fellow, and Winston Harrington Senior Fellow Resources for the Future “ Automobile Externalities and Policies” pg. 20 <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=927794>) ZLH

In this last section, we focus on innovative pricing policies to internalize accident risks into the choice of how much to drive.20 As already mentioned, the ideal policy would be to charge drivers according to the marginal external accident cost per mile, though measuring how this varies across individuals, vehicles, and regions is problematic. Still, even a uniform VMT tax is more cost-effective at reducing accidents than fuel taxes as all, rather than a portion, of the behavioral response to it comes from reduced driving.

### VMT = Broader Base/Not as High as Gas Tax

#### The VMT rate doesn’t need to be set as high as an equivalent gas tax hike, because it has a broader revenue base.

Coyle et al. 11, (Center for Transportation Studies, Department of Applied Economics University of Minnesota, “From Fuel Taxes to Mileage-Based User Fees: Rationale, Technology, and Transitional Issues”, August, Intelligent Transportation Systems, [http://i95coalition.net/i95/Portals/0/Public\_Files/pm/reports/VMT%20Transition%20Univ%20Minn%20aug%202011%20CTS11-16[1].pdf](http://i95coalition.net/i95/Portals/0/Public_Files/pm/reports/VMT%20Transition%20Univ%20Minn%20aug%202011%20CTS11-16%5B1%5D.pdf)

It has been heavily documented that in 2008 the Highway Trust Fund, which is primarily funded through fuel taxes, needed an eight-billion dollar transfer from the general fund to stay solvent. In 2009, the Highway Trust Fund received an additional seven-billion dollar transfer. Since then billions more have come by way of stimulus dollars. Without significant changes in how the system is financed, the solvency of the Highway Trust Fund will continue to be an issue. Oh et al. (2008) assert, “Given that the objective of the VMT fees is to bridge the revenue…gap of current fuel taxes, the fee rates based on the revenue needed and the vehicle-miles driven could be higher than the current fuel taxes” (p. 26). Thus, given the inadequacy of fuel taxes at current rates, for a VMT system to cover the funding shortfalls rates will most likely have to be increased. However, rates will not have to be raised as high as they would under the current fuel tax system, as a MBUF system broadens the base on which revenue is collected. While fuel taxes collect low levels of revenue per-mile of travel from highly fuel efficient vehicles and no revenue from non-petrol propelled vehicles, MBUFs have the potential to broaden the base and collecting significant revenues from both of these groups of motorists. Considering that in 2007 there were approximately 205 million licensed drivers in the U.S. (Federal Highway Administration 2009c), MBUFs have a potentially very large base from which to draw revenue.

### Gas Tax Revenues Unstable

#### VMT solves better than the gas tax- stable and predictable revenue stream.

Coyle et al. 11 (Center for Transportation Studies, Department of Applied Economics University of Minnesota, “From Fuel Taxes to Mileage-Based User Fees: Rationale, Technology, and Transitional Issues”, August, Intelligent Transportation Systems, [http://i95coalition.net/i95/Portals/0/Public\_Files/pm/reports/VMT%20Transition%20Univ%20Minn%20aug%202011%20CTS11-16[1].pdf](http://i95coalition.net/i95/Portals/0/Public_Files/pm/reports/VMT%20Transition%20Univ%20Minn%20aug%202011%20CTS11-16%5B1%5D.pdf)

In addition to generating adequate revenue from a large base, MBUFs are expected to generate revenue streams that remain stable and predictable despite external changes. While the effects of inflation may hamper the ability of MBUFs to be a sustainable revenue source, changes in fuel prices and fuel efficiencies and the introduction of alternative fuels should not dramatically affect the stability of MBUFs as a revenue source. In its findings and conclusions, the National Surface Transportation Infrastructure Financing Commission (2009) first noted that the current system of fuel taxes is “not sustainable in the long term” before recommending MBUFs as the consensus choice for the future. The Commission noted the drive for more fuel efficient and alternative fuel vehicles as a significant factor for why fuel taxes are not sustainable going forward.

### Heavy Vehicles Solvency Deficit

#### Heavy vehicles are the biggest contributor to failing infrastructure

Castro 7 (April, writer on Texas for USA Today, “Overweight trucks damage infrastructure”, *USA Today*, 9/10, <http://www.usatoday.com/news/nation/2007-09-10-3878428638_x.htm>) GSK

More than a half-million overweight trucks are allowed onto the nation's roads and bridges -- an increasingly routine practice that some officials say is putting dangerous wear and tear on an already groaning infrastructure. In interviews with The Associated Press, some experts warned that the practice of issuing state permits that allow trucks to exceed the usual weight limits can weaken steel and concrete, something that investigators say may have contributed to the Minneapolis bridge collapse Aug. 1 that killed 13 people. "We talk about this all the time and the fear that we have is that we're going to have the same sort of disaster here that happened in Minnesota," said Don Lee, executive director of the Texas Conference of Urban Counties. In 2000, Milwaukee's Hoan Bridge collapsed when steel girders cracked. Several factors were blamed for the collapse, including a significant number of heavy trucks, some over the normal weight limit, that routinely traveled over the bridge. The weight limit for nearly all interstate highways is 40 tons. According to a government study, one 40-ton truck does as much damage to the road as 9,600 cars. But permits frequently allow vehicles to exceed that amount by two tons in Texas and sometimes as much as 85 tons in Nevada. Some states grant one-time permits that allow trucks to be considerably heavier. Around the country, many transportation officials dismiss such fears as overblown and say roads and bridges are safe, though some express concern that not enough is being spent to repair the damage done by extra-heavy trucks. As for why they issue overweight-load permits, many state officials said they have no choice -- they are simply carrying out the laws as passed by the legislature. Critics of those laws say they are often written to benefit powerful local industries, such as logging in the West, or oil and gas in Texas. In the vast majority of cases, a single truck can safely pass over a sound bridge, even if the rig is way over the posted weight limit. But the cumulative effect of stress on the steel and concrete can eventually prove deadly.

#### Trucks are the worst cause of road wear—equivalent to 10,000 cars

Patton 7 (Zach, Governing senior editor, “Too Big for The Road”, *Governing The States and Localities*, <http://www.governing.com/topics/transportation-infrastructure/Too-Big-The-Road.html>) GSK

The nation's economy depends on trucking, but that method of shipment comes with a price. Engineers estimate that a fully loaded truck--a five-axle rig weighing 80,000 pounds, the interstate maximum--causes more damage to a highway than 5,000 cars. Some road planners say that the toll is even higher, that it would take close to 10,000 cars to equal the damage caused by one heavy truck. When the trucks are overloaded, as quite a few of them are, the damage is exponentially worse. Increasing a truck's weight to 90,000 pounds results in a 42 percent increase in road wear. Pavement designed to last 20 years wears out in seven. "If you have to treat a road in five years instead of eight, or in eight years instead of 12, there's a real cost impact," says Judith Corley-Lay, the chief pavement management engineer for North Carolina's transportation department. At the request of state lawmakers, Corley-Lay recently analyzed truck traffic in the state to determine the cost of overweight trucks. What she found was startling: Heavy trucks are costing the state an extra $78 million per year. And that figure is really just a rough estimate, based on average road types and some guesswork to fill in gaps in traffic data. The impact of these trucks is most dramatic in states that have allowed certain industries--coal, for example, or logging or steel--to use trucks loaded beyond even the state weight limits. In North Carolina, lawmakers have approved 10 measures in the past 13 years that allow heavier trucks on the state's secondary roadways, according to the News & Observer. But that's not unusual. More than 40 states permit some trucks to carry loads in excess of the 80,000-pound interstate limit. And legislators are under constant pressure to extend weight-limit permits to more categories of vehicles. "Every legislative session, some industry goes to the legislature and asks for an exemption," says Corley-Lay. "Every one of those exemptions means the trucks on the road are heavier." Right now, 34 percent of the nation's roadways have been estimated to be in poor or mediocre condition by the Federal Highway Administration, and nearly one-third of the country's bridges are structurally deficient. It would take upwards of $200 billion this year simply to maintain the current state of the nation's roads; actually improving them would take billions more. Those challenges will grow much more difficult if, as has been predicted, the total freight carried in the United States increases from 13.2 billion tons in 2003 to 17.4 billion by 2015. States will likely find themselves under growing pressure from trucking companies seeking to haul more goods and bigger loads.

### AT: Index Gas Tax to Inflation

#### Counterplan doesn’t solve revenue shortfall in the short-term, and it links to politics

Schank 12(Joshua President, Eno Center for Transportation “Transportation Investment as Part of a Deficit-Reduction Package” pg 12 [http://www.enotrans.org/wp content/uploads/wpsc/downloadables/Deficit-Redux-paper1.pdf May 2012](http://www.enotrans.org/wp%20content/uploads/wpsc/downloadables/Deficit-Redux-paper1.pdf%20May%202012))ZLH

Indexing the Existing Gas Tax to Inflation. This option would guarantee increased revenue in the future but do little to help the situation at present unless it was done retroactively. Others have suggested changing the flat tax to a percent­age tax, thus capturing more revenues as gas prices increase. While this is also likely to be seen as a “tax increase” and thus politically unpalatable, it may be more politically attrac­tive than a flat-out rate increase.

### Links to Politics

#### Increasing the gas tax is massively unpopular.

Frisman 12 (Paul, Principal Analyst at Office of Legislative Research , Office of Legislative Research Report, VEHICLE MILES TRAVELLED (VMT) TRANSPORTATION FUNDING, Janurary 17th, <http://www.cga.ct.gov/2012/rpt/2012-R-0029.htm>)

Arguments in Favor **It is Politically Difficult to Increase the Federal Fuel Tax to Pay for Needed Highway Maintenance and Improvements Raising the federal fuel tax is one alternative to a VMT fee system. But recent studies agree that such a move would be politically unpopular. “It has been suggested that over a longer period of time, a substantially higher fuel tax (increases as high as 54 percent have been proposed by some) would create incentives for higher mileage or alternative fuel vehicles,” state the authors of Well Within Reach. “While this might be desirable from a number of other policy perspectives** (notably as a way to address environmental and energy security concerns), **it is politically unfeasible**.” Similarly, Paying Our Way states that “while a 25¢ increase in the federal motor fuel tax rates could raise enormous revenue ($45 billion per year in 2008 dollars), **today many transportation funding experts believe that such a rate lies beyond the realm of political viability**.” The CSG report concurs. “While increasing fuel taxes to account for improved fuel economy – as well as the effects of inflation – would seem a logical solution, **that has proved politically difficult in many states as the recession continues and as anti-tax sentiments grow**.”

#### Increasing the gas tax is highly unpopular

Schank 12(Joshua President, Eno Center for Transportation “Transportation Investment as Part of a Deficit-Reduction Package” pg 10 [http://www.enotrans.org/wp content/uploads/wpsc/downloadables/Deficit-Redux-paper1.pdf May 2012](http://www.enotrans.org/wp%20content/uploads/wpsc/downloadables/Deficit-Redux-paper1.pdf%20May%202012))ZLH

Under the current program structure, raising revenues from existing sources will be difficult. The federal gas tax for highways and transit has not been raised since 1993. With fuel efficiency rising and vehicle-miles declining in recent years, the purchasing power of the gas tax has declined dra­matically. Other trust funds and appropriations face similar risks with tight budgets. Yet there is no political will or cour­age to raise existing fees or taxes.

Even during good economic times elected officials have been very reluctant to raising the gas tax. Secretary Mineta recounted his difficulty in incorporating a gas tax increase into the 2005 SAFETEA-LU bill. When compiling the bill and presenting it to President Bush, he included a six-cent gas tax increase after reviewing the rationale and getting approval from many senior Republican officials. However the President did not approve the tax and the language was removed from the bill. President Bush did not even agree to Secretary Mineta’s proposal to place a CPI inflator onto existing tax levels. Infrastructure advocates on both sides of the aisle are often still opposed to gas tax increases, and many even oppose tolling on existing interstate highways to pay for maintenance.

#### Gas Tax increase is unpopular with the public and Congress.

Coyle et al 10( David D., Department of Applied Economics, University of Minnesota; Ferrol O Robinson, Hubert H. Humphrey Institute of Public Affairs, University of Minnesota; Zhirong Zhao Hubert H. Humphrey Institute of Public Affairs, University of Minnesota; Lee W Munnich Jr Hubert H. Humphrey Institute of Public Affairs, University of Minnesota; Adeel Z Ari Hubert H. Humphrey Institute of Public Affairs, University of Minnesota; “SHOULD THE U.S. MOTOR FUEL TAX BE RETAINED OR REPLACED?” Pg 18-19 [http://intranet.imet.gr/Portals/0/UsefulDocuments/documents/01894.pdf July 11-15th 2010](http://intranet.imet.gr/Portals/0/UsefulDocuments/documents/01894.pdf%20July%2011-15th%202010)) ZLH

As the fuel tax system already exists, we focus not on whether it is politically feasible to implement fuel taxes, but rather on the feasibility of future fuel tax increases. As described in the revenue sustainability section, because of fuel efficiency improvements and the effects of inflation, the real value of the revenue collected from fuel taxes has been declining. Thus, if we want to maintain and improve the transportation system, it is important to consider whether it is politically feasible to raise fuel taxes. Small et al. (1989, p. 6) notes, “Yet despite the occasionally severe erosion of real revenues, states have found it politically difficult to raise gasoline taxes.” Their assertion that the states have found it politically difficult to raise gasoline taxes can be extended to the federal level where taxes on gasoline and diesel have not been increased since 1993, despite shortfalls in highway funding. Wachs (2003a, p. 237) asks, “Why is it assumed to be a political liability to raise fuel taxes by a few pennies when fuel prices routinely change by more than that several times every year.” Fuel taxes initially had great public support. In discussing the popularity of state gasoline taxes in the 1930s, Williams (2007, p. 4) states, “Gasoline taxes met with little public resistance and in fact became quite popular with the general public. Citizens saw the benefit principle in action, as gas taxes served mostly as user fees, generating revenue for more and better roads.” As we have documented in the equity section, however, fuel taxes have since moved away from the user-pays-and-benefits principle. As fuel taxes have moved away from this principle, their popularity has dwindled. The 2009 Tax Foundation/Harris Interactive poll (2009) found that at the state and local level, respondents found the gas tax to be the least fair tax when compared to state income taxes, retail sales taxes, motor vehicle taxes, local property taxes, and taxes on cigarettes, beer and wine, with only 7% of respondents finding the gas tax “very fair”. At the federal level, the only tax respondents found more unfair than the gas tax was the estate tax, with once again only 7% of respondents finding the gas tax “very fair”. It should be noted, other taxes were also not seen as “very fair”, and taxes of any kind are generally unpopular. This weakening of public opinion for fuel taxes has coincided with less political support as well. As stated by Sorensen (2009, p. 2), “With rising anti-tax sentiment among the populace, elected officials have become wary of this politically unpopular task, and the frequency and magnitude of the recent fuel tax increases has been grossly insufficient to maintain comparable purchasing power in terms of real revenue per mile of travel.” As noted before, the federal tax on gasoline and diesel has not been significantly raised since 1993. Thus, it would appear that future attempts to raise fuel taxes may be politically difficult, especially if these increases do not adhere to the user-pays-and-benefits principle.

#### Indexing the gas tax to inflation is unpopular- seen as a tax increase.

Copeland 12(Gas tax not filling enough; Federal funding method no longer suffices as main source for highways, bridges, transit. USA TODAY February 24, 2012 Friday FINAL EDITION, Larry Copeland.)

Tying the gas tax to inflation. Cohen says the federal gas tax would be more effective if it increased at the rate of inflation. He acknowledges that's a long shot. "It would be viewed initially as a tax increase," he says. "Right now, no one wants to do that." Using general tax revenue instead of a gas tax. Schank says the USA could follow the lead of Germany and other industrialized nations that do this. "We're already moving in that direction," he says, noting that Congress has tapped general revenue to cover shortfalls from the gas tax. A sales tax dedicated to transportation. Finn says that's unlikely in the current anti-tax climate.

## AT: Oil Tax CP

#### Counterplan links to politics.

Crane, Burger, and Wachs 11 (Keith, director of the Environment, Energy, and Economic Development program at the RAND Corporation, Nicholas, and Martin, senior principal researcher at RAND, professor at the Pardee RAND Graduate School, formerly served as director of the RAND Transportation, Space, and Technology Program, RAND, nonprofit institution that helps improve policy and decision making through research and analysis, “The Option of an Oil Tax To Fund Transportation and Infrastructure”, RAND Corporation, March, <http://www.rand.org/content/dam/rand/pubs/occasional_papers/2011/RAND_OP320.pdf>) DMD

A tax on oil would encounter some of the same anti-tax concerns that have made Congress unwilling to raise federal gasoline and diesel taxes. However, the public might be more willing to support a tax on oil in lieu of raising motor fuel taxes or as a substitute for these taxes. The American public has long been concerned about national security risks associated with oil consumption; this concern has engendered support in some quarters for measures designed to reduce dependence on oil—especially imported oil (Deutch, Schlesinger, and Victor, 2006). However, because a tax on oil would necessarily affect a large number of interest groups, including groups with active and effective lobbying power, the political challenges facing a proposed oil tax are likely to be significant.

## AT: IRoUTE CP

### No Solvency- Congestion and Road Wear

#### IRoUTE can’t solve congestion or accurately price heavy vehicles for their road wear

Greene 11(David, Ph.D., Geography and Environmental Engineering “Transportation Research Part D 16 (2011) 451–458, Elsevier Journal, p. 457) APB

An IRoUTE is best suited to be a cornerstone mechanism for funding roadways. It is not a panacea for all the problems of surface transportation. It will not solve the problem of traffic congestion. It will not promote alternative energy sources for transportation except to the extent they are more energy efficient than petroleum based systems. It is not a replacement for a price on carbon or for vehicle fuel economy or emissions standards. It will not accurately account for the greater cost responsibility of heavy vehicles. In Sorensen et al.’s (2009) terminology, it eliminates the need for ‘‘base mileage metering’’ of VMT. It is a very practical and efficient means of providing the lion’s share of highway funding while producing significant environmental and energy security co-benefits. On average, the IRoUTE will increase approximately linearly with vehicle mass, but the cost responsibilities of heavy vehicle increase exponentially with vehicle mass.7 Existing solutions to this problem are compatible with the IRoUTE, but they are far from elegant. A more accurate and equitable solution might be to equip all heavy commercial vehicles with continuously monitored GPS devices that could report not only where and when a particular vehicle was operating but its weight as well. Vehicles operating in interstate commerce do not have the same rights or expectations of privacy as private citizens and so implementation of GPS-based VMT pricing for heavy vehicles only may be more politically feasible. Mitigating traffic congestion requires metering the time and location of travel (e.g., Grush et al., 2009). The IRoUTE cannot do this. Thus, additional systems for controlling traffic congestion will be needed. This could be accomplished, for example, by equipping vehicles with transponders that would only be monitored in the specific times and places where congestion exists, similar to the way that automated tolling devices work today. Implementing time and place specific congestion pricing might improve its acceptability to the public by avoiding the need to explain to motorists why their travel would be monitored for the vast majority of times and places in which traffic is not congested. From a purely technical perspective, there are relatively simple solutions to the privacy problem but they do require that highway users trust agencies to protect their privacy and to accurately measure their cost responsibility.

### Permutation

#### **Doesn’t compete: IRoUTE is just a form of VMT tax**

Greene and Baker 10 (David L. Greene, Senior Fellow, Howard H. Baker, Jr. Center for Public Policy, University of Tennessee, “What’s greener than a s VMT tax?” <http://onlinepubs.trb.org/onlinepubs/conferences/2010/finance/greene.pdf> p. 13) APB

IRoUTE is…  Practical  Reliable and stable  Predictable  Low cost  As politically acceptable as meaningful alternatives  A source of important environmental co co-benefits  One way to accustom motorists to paying by the mile.  P.S.: It IS a VMT tax, on average.

## Misc CPs

### AT: Sales Tax CP

#### Funding transportation with the Sales Tax is regressive.

Teglasi 12, (Victor S., Graduate School of Architecture, Planning and Preservation Columbia University, Master in Science in Urban Planning, “Why Transportation Mega-Projects (Often) Fail? Case Studies of Selected Transportation Mega-Projects in the New York City Metropolitan Area”, May. Thesis) DMD

Increase the Sales Tax Many states have dedicated a portion of the general sales tax revenues for transportation purposes, including New York. The MTA collects a 3/8 percent of the sales tax in the seven suburban counties outside New York City. Since the New York sales tax is already among the highest in the nation, and this revenue source is regressive, raising the sales tax further is not a recommended option.