TRANSPORTATION REVENUES, AFFORDABLE TRANSPORTATION, DEPENDENCY ON FOREIGN OIL, AND CLIMATE CHANGE - THE PERFECT STORM: THE CASE FOR ADDRESSING A DYING REVENUE STREAM.
By Mayor Richard J Kaplan, Esq.

The predominant method of paying for transportation has been through gasoline taxes, at a specified amount per gallon. However, in some jurisdictions sales tax, property taxes, impact fees, use taxes, and other taxes have been used. Gas taxes raise significant revenue, which has a direct nexus to transportation, and are levied at the federal, state and local levels. Traditionally, like many other taxes, it has been politically difficult to increase the tax rate. Therefore, despite inflation, rising gas prices, and growing needs, the tax rate/gallon has generally stayed stagnant and has not kept up with the demands for funding transportation systems.[1]

In 1997, the Florida MPO Advisory Council completed a review of future transportation projects and found that Florida's planned transportation needs were underfunded by $22.3 Billion. By August 2002, it increased to $37.7 Billion, and as of October 2008, it had mushroomed to $62.5 Billion.[2] This can be accounted for in growing needs, the higher cost of construction, and the continuing of a backlog of previously unfunded projects. It is clear that the tax structure being used to fund transportation does not come close to meeting the present, let alone future needs.[3]

Even on a federal level, the gas tax is not working. U.S. Secretary of Transportation Mary Peters stated that "the tax is no longer adequate to fund transportation, but political lines break down around what to do about it." Also, that a new source of funding is a better answer.[4] "The purchasing power of the fuel tax is declining, and every indication is that it is going to continue to decline in the future."[5]

The situation is now being exacerbated in that gas tax revenues are declining.[6] There are numerous factors on why, which this paper will explore. Ultimately, the realization must be made that to meet the growing needs of transportation, w must move beyond the gas tax, or we will continue to fall behind in providing the transportation services demanded by residents and business. The failure to address these needs will also result in overall loss of economical development throughout the United States.

But why are gas tax revenues declining? Part of it is simply economics. As prices go up, demand goes down. As the cost of gas increased over $3/gallon, and then over $4/gallon, people modified their driving habits and consumed less gasoline. Since gas tax is not indexed to the price of gas, like sales tax is, when the price of gas goes up, gas tax as a percentage of the price goes down. Therefore, it has no way to participate in the higher receipts on rising prices.

Let's take a further look at how radical changes in gas prices can cause a decline in gas revenues. You would think that once gasoline drops in cost you would see gas tax receipts return to their prior levels because of higher consumption levels. That is not necessarily true. This is partially due to how drivers may modify their driving habits. [7]

When gas prices rise, besides driving less, which reduces vehicle miles traveled (VMT), people will look at (invest in) other ways to reduce their transportation cost. A common method people use to reduce vehicle miles traveled is to learn to plan trips, so, much more is accomplished each time a trip is taken.

Another method is to switch to more fuel-efficient vehicles, or ultimately, vehicles that do not run on gasoline. Cars, like the Hummer, which get less than 14 miles/gallon, are becoming dinosaurs. Already GM has discontinued some Hummer models that have a high fuel consumption. People are trading them in for cars that provide at least 20 miles/gallon to as much as 55 miles/gallon. Fuel efficient cars, hybrids, biodiesel fuel vehicles, and ultimately electric and hydrogen cell vehicles, will permanently reduce gas tax revenues since they do not use as much, if any, gasoline. The first of these electric cars is projected to be mass produced by 2010, and hydrogen cell vehicles could be mass produced soon afterwards.[8]

While gasoline consumption and gas tax receipts will continue to slip, a VMT charge may not. So, the revenue to maintain or build the roads will drop, but usage, causing more wear and tear on the roads, will increase when these newer vehicles become more common. Logically, consideration of a form of VMT pricing to substitute for the gas tax may be appealing in addressing funding needs. It could give some stabilization to the revenue stream.

Remember, economics dictate that people will seek out inexpensive alternatives when available to save money. Therefore, affordable transportation, like affordable housing, needs to be factored into the dilemma. Coupled with the concept of making transportation a multi-modal system, we now have begun providing potentially less expensive and more convenient methods of transportation that minimize the use of vehicles and gasoline consumption.

Walking, bicycling, and mass transit all reduce gas usage, and thereby gas tax revenues. Yet, each mode costs money to create, often funded by gasoline taxes. Walking and bicycling provide a limited impact in reducing VMT due to their inability to cover much distance in a quick time. However, it does, even to a small extent, have a negative impact on gas tax revenues.

The major competition of the car is mass transit. Community shuttle buses, local buses, bus rapid transit (BRT), light rail and commuter rail are all becoming less expensive and more convenient for the consumer to use compared to the car when gas prices go up. Mass Transit's present limitation is the time and convenience factor in their use. But, when coupling higher gas prices with improvements to transit systems, and acceptance of use, it is becoming a more attractive and competitive alternative.

The problem with mass transit is that only approximately 30% of the cost of its operation comes from the fare box.[9] It is possible that we could establish a goal of bringing it to 50% at the fare box, but it is still being subsidized. Gas tax revenue may be a portion of this subsidy. But if gas taxes continue to go down, it may bring into jeopardy the ability to fund mass transit through gasoline tax revenues.[10] Each passenger that rides mass transit is using their vehicles less, which (depending upon the vehicles) burns up less gas, which subsidized transit less each day.[11]

There are also two major social issues that are playing a part in reducing the use of gas-guzzling cars: dependence on foreign oil and climate change. Back in the 1970s, the U.S. was importing 25% of its oil needs. Today that percentage is moving up to approximately 70%.[12] Much of that imported oil comes from countries which have not necessarily had the best relationships with the United States. Venezuela, Russia, and the entire Middle East are a hot bed of political and economic unrest.[13] They may not always be on favorable terms with the United States, and therefore, can exert huge pressures on their own which may create political and economic instability here. Such instability would contribute to even higher prices of gasoline, which would increasingly trigger

potentially lower consumption, and ultimately even lower gasoline tax revenues. In the true sense, it has become a Homeland Security problem.[14]

To address the situation, many have looked to increase U.S. oil production, but not only will that take years to develop, there is only so much oil potentially to tap (a potential of 1.2% increase of the U.S. Annual Oil Consumption by 2030).[15] This is making the United States overly dependent on unfriendly nations. Alternatively, technology and political forces have been working to reduce our dependency on oil. Transportation is the number one usage of oil (using greater than 2/3's of U.S. Petroleum Supply[16]), so to reduce foreign dependency logically we must reduce our reliance on oil in transportation.

Reducing our dependency on foreign oil would require more fuel efficient vehicles, hybrid vehicles, alternative fuel vehicles, mass transit, and alternative modes of transportation that are not reliant on gasoline. Each one, however, reduces gasoline usage, thereby, reducing gas tax revenues.[17] These revenues are often needed to subsidize different modes of transportation. As the reader can see, these repeating issues are coming full circle.

As a final point, climate change could be the final nail in the coffin. Even without high gas prices and dependency on foreign oil, the use of burning gasoline in vehicles damages our environment.[18] Greenhouse gas emission's (GHG) affects the air we breathe, ozone depletion, and rises global temperatures, and 1/3 of GHG emissions comes from the transportation sector.[19] The State of Florida has established a target of reducing GHG emissions to 80% of the year 1990 level by the year 2050.[20]

This is a very ambitious goal, especially with the significant growth that is expected to take place during this time. Achieving this will require dramatic changes in transportation systems and behavior. Pricing will need to play a major role in this.

Additionally, as temperatures rise, it is projected that ocean and Gulf of Mexico waters will rise one to six feet in the next fifty years due to melting polar ice caps.[21] This will result in the States bordering major bodies of salt water being permanently flooded and threatens the water supplies because of salt water intrusion. Alligator Alley, a major east-west thoroughfare across south Florida, which Florida may lease through a public-private partnership, may be under water by the time that lease expires if the water level rises as much as

feared.

Transportation, and the burning of gasoline, is almost the largest contributor to GHG in the U.S.[22] Therefore, we have created a safety and health risk, which can be reduced by stopping or at least reducing the burning of fossil fuels.

The result is, for many who care about the environment, putting more reliance in transportation modes that reduce greenhouse gases and finding ways to use less gasoline. Again, this results in the loss of gas tax revenues, and probably less VMT.

Therefore, due to these factors, gasoline usage and gas tax revenues will continue declining. This decline will result in gas tax revenues becoming unstable and unreliable as a source to fund transportation modes. What are some solutions we can look at?

One being researched around the country is VMT pricing, which is being explored in several states such as Oregon and Iowa.[23] However, it needs to be studied in states like Florida and Arizona, who will always have a sizeable mix of out of state visitors and vehicles. It would also need to be implemented on all vehicles using a method to track miles traveled. Based upon prior observations, it appears to be a more stable source of revenue than gas tax, and we can collect revenues on all vehicles irrespective of their power source. Therefore, it can be fairer and more equitable. The question remains, however, as to whether the political will is there to establish VMT pricing structures so adequate funds are generated to meet transportation needs.

Another option is to increase user fees on mass transit. However, that may have limited benefits if in trying to cover the cost of operating the system results in lower revenue by lost ridership. If the benefits outweigh the detriments, then it should be considered.[24] "The hard part of Transit Funding is finding that sweet spot when you're not punishing the people who need it most, but you're getting enough out of riders to make the whole package work," says Bob Dunphy, senior resident fellow for transportation and infrastructure at the Urban Land Institute.

Finally, application of a sales tax or other recurring dedicated revenue sources could be used to subsidize transportation. The difficulties of using these sources are that there are competing interests in their use. There also may not

be a direct nexus between the tax source and transportation, unlike gasoline taxes and VMT pricing, with the exception of using sales tax (as opposed to a gas tax) on gasoline sales. These factors may make it politically unacceptable unless the public's needs and demands outweigh other concerns.

In conclusion, there are numerous problems with continuing to rely on gasoline taxes to fund our transportation needs. It already does not fund our present needs, and will even be less effective in the future.[25] Time to find other ways to pay for transportation is not on our side. Major decisions will have to be made and implemented now to avoid a bad situation becoming far worse. Considering how long it takes to construct any new transportation project, we have already taken too long to meet our present needs, let alone future ones. Therefore, action needs to be taken now to fix this problem before the money runs out.

This will require leadership at the federal, state and local levels. It will also require public support. Given the importance of transportation, concerns over our dependence on foreign oil and threats associated with climate change, this is an opportunity to bring about meaningful change that can result in a more effective transportation system, a stronger economy and a sustainable environment.

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1. The Federal Gas Tax has not been raised since 1993, and the buying power of this unadjusted tax has eroded over time.

2. *The 2008 Review of Florida's MPO Long Range Plans*, The Center for Urban Transportation Research at the University of South Florida (CUTR). All prior reports were also by CUTR.

3. For other individual States and the United States, see U.S. House of Representatives, Committee on Transportation and Infrastructure, *Hearing on "Investing in Infrastructure: The Road to Recovery*," October 28, 2008.

4. Comments given in Atlanta, July 29, 2008.

5. Comments given at a transportation conference in Portland, Oregon on Oct. 29, 2007 as reported by the Congressional Quarterly.

6. *Yearly Highway Revenue Dropped 9%, Adding to Road Finance Worries*, ENR.com, Engineering News-Record, by Tom Ichniowski, Nov. 20, 2008; State of Florida, Department of Transportation, *Finance Work Program Budget*, Presentation of November 11, 2008.

7. *Tri-Rail Rides High, More commuters using trains, even as gas prices drop.* Sun-Sentinel, Local Section, Page 1, Tuesday, November 19, 2008.

8. *Fuel Cell Vehicles*, www.fueleconomy.gov/FEG/fuelcell.shtml. See California Fuel Cell Partnership. A collaboration of 32 organizations that believe fuel cell vehicles powered by hydrogen have the potential to change the future of transportation, http://www.fuelcellpartnership.org.

9. Tri-Rail was in the 20% range in 2007, and has moved up to 37% in 2008 due to higher gasoline prices causing the public to use Tri-Rail more, according to Joseph Quinty at the SFRTA/SEFTC/Broward County Transportation Workshop of November 19, 2008.

10. Already the government of Broward County, Florida has had to cut back mass transit service in 2007 (and is expected to cut more in 2008 too) due to shortfalls in gasoline tax receipts, even as ridership is increasing.

11. *America @ $100/Barrel: How Long Will Oil Last?*, by Brad Reagan, Popular Mechanics, April 2008.

12. Energy Information Administration (EIA), *Annual Energy Review 1996*, DOE/EIA-0384(96) (Washington, DC. July 1997); EIA, *Monthly Energy Review*, DOE/EIA-0035(98/02) (Washington, DC, February 1998); EIA, *Annual Energy Outlook 1998*, DOE/EIA-0383(98) (Washington, DC, December 1997)

13. Energy Information Administration (EIA), Official Energy Statistics from the U.S. Government, *Crude Oil and Total Petroleum Imports Top 15 Countries*, September 2008 Import Highlights: November 18, 2008; *U.S. Dependence on Foreign Oil, By Country*, by Pierre Tristam, About.Com Middle East Issues, Sept. 6, 2007.

14. *Oil Dependence and National Security: A Market Based System for Reducing U.S. Vulnerability*, by Martin Feldstein, Professor of Economics - Harvard University, National Bureau of Economic Research, National Interest, 2001.

15. *Architecture 2030 E-News Bulletin 7*, U.S. Energy Information Administration, September 6, 2008, www.architecture2030.org/news/news_09068.html. Also, Energy Information Administration (EIA), Official Energy Statistics from the U.S. Government, *Impacts of Increased Access to Oil and Natural Gas Resources in the Lower 48 Federal Outer Continental Shelf,* Release Issues in Focus, AEO2007.

16. *Transportation Energy Data Book*, U.S. Department of Energy. Energy Information Administration (EIA), Official Energy Statistics from the U.S. Government, *Demand*.

17. *America @ $100/Barrel: How Long Will Oil Last?,* by Brad Reagan, Popular Mechanics, April 2008; See also the "Corporate Average Fuel Economy" (CAFÉ) Standard to rise to 35 MPH by 2020.

18. *Greenhouse Gases, Climate Change & Energy*, Energy Information Administration (EIA), May 2008, Brochure #DOE/EIA-X012.

19. *Reducing Air Pollution and Greenhouse Gas Emissions in the Transportation Sector, ICLEI Tools and Resources for Local Governments*, by Alex Ramel and Wesley Look, ICLEI - Local Governments for Sustainability, Carbon Neutral Fleets Presentation Responsible Purchasing Network, August 21, 2007.

20. Governor's Executive Order 07-127, State of Florida.

21. CCSP, 2008: *Impacts of Climate Change and Variability on Transportation Systems and Infrastructure: Gulf Coast Study, Phase I.* A Report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research [Savonis, M.J., V.R. Burkett, and J.R. Potter (eds.)] Department of Transportation Washington, DC, USA, 445 pp.; See also,

Architecture2030, *Nation Under Siege, Sea Level Rise At Our Doorstep*, A Coastal Impact Study prepared by The 2030 Research Center, Edward Mazria and Kristina Kershner; September 7, 2007; See also, *Kinematic Constraints on Glacier Contribution to 21st-Century Sea-Level Rise*, Science Magazine, September 4, 2008; See also, CCSP, 2008: *Coastal elevations and sensitivity to sea level rise.* A Draft by the U.S. Climate Change Science Program: Public Review Draft for Synthesis and Assessment Product 4.1., Feb. 12, 2008, Department of Transportation Washington, DC, USA.

22. U.S. Environmental Protection Agency, Climate Change - *Greenhouse Gas Emissions, U.S. Greenhouse Gas Inventory*; See *Inventory of U.S. Greenhouse Gas Emissions and Sink: 1990-2006*, USEPA #430-R-08-005.

23. See *Roadway Revenue Cap Pushes Policymakers to Act: The Oregon Mileage Fee Concept*, by Deborah Hart Redman, Transportline, December 2007; See *Six States to Study Replacing Fuel Excise Taxes with Mileage Fees*, by Irvin Dawid, Planetizon - The Planning & Development Network, June 25, 2007, www.planetizen.com/node/25269; See *The Long and Taxing Road. The gas tax is dying. Will drivers pay for highway by the mile?*, by Kathleen Hunter, Governing, City & State, governing.com, www.governing.com/articles/D707gastax.htm, 2007 Congressional Quarterly, Inc; See *Odometer Rules*, by Deborah Hart Redman, Roads & Bridges Magazine, January 2007.

24. "A survey in 2001 found that 43% of the country's transit riders live in households where the annual income is less than $20,000, and near the same percentage of riders come from households without cars." *Mass Transit Systems Have a Hard Time Paying the Bills. The good news, ridership is up; the bad news, ridership is up*, by Alex Kingsbury & Bret Schulte, US News & World Report, March 27, 2008.

25. The Federal Transportation Trust Fund was expected to be insolvent in 2009 or 2010. However, this became a reality in 2008 and required a cash transfusion from Congress. See *Senate Appropriations Committee Approves $8 Billion Infusion to Highway Trust Fund*, The AASHTO Journal, Vol. 108, No. 28, July 11, 2008; Also, in order to balance the State of Florida's budget, and avoid tax increase and/or further cuts in programs, the Legislature has repeatedly raided Trust Funds Reserves, including the State Transportation Trust Fund, to fund non-trust funds needs. Those Trust Funds have been significantly and detrimentally impacted so funds are now inadequate to address the Trust Funds purposes. It is also possible that trust funds may shortly be exhausted by this action.