



The Maryland Public Policy Institute

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PLAN FOR  
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# A NEW TRANSPORTATION PLAN FOR MARYLAND

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## **INTRODUCTION**

MARYLAND GOVERNOR O'MALLEY has recently proposed an increase in the state's taxation of motor fuels, similar in magnitude to his proposal of the previous year. Whereas his former plan relied upon a substantial increase in the state fuel tax, this plan is imitative in concept of the recently enacted Virginia plan that reduces the fuel tax and substitutes a wholesale tax.

Under the O'Malley plan the fuel tax would be reduced by 5 cents, and the gap filled with a sales tax on the wholesale price of gasoline that starts out at 2 percent the first year (6.2 cents per gallon at current wholesale prices), rises to 4 percent the next year, and could rise to 6 percent in 2015 if the U.S. Congress fails to enact legislation that would require all Internet sales to be taxed at each state's prevailing sales tax rate.

This proposal has sparked an intense debate in the state over its fairness and efficacy. Some contend that the tax increase would be used largely to fund the proposed Purple and Red light rail lines, address the state's "crumbling" infrastructure, and provide other improvements. Often lost in this debate is a clear direction for a transportation program. Specifically, a state's transportation program should focus primarily on enhancing cost-effective mobility and mitigating worsening congestion.

Greater mobility improves the economic performance of urban areas and thus broadens affluence and reduces poverty. This is illustrated in research by Prud'homme and Lee (University of Paris), Hartgen and Fields (University of North Carolina-Charlotte), Cervero (University of California) and others, who have shown that economic growth is greater where a larger number of jobs in the metropolitan area can be reached in a particular period of time, such as 30 minutes. In reality, time is money with respect to economic growth.

## **THE STATE OF MARYLAND'S INFRASTRUCTURE**

Notwithstanding the popular contention that our transportation infrastructure is crumbling, federal data on the issue reveal just the opposite, and Maryland has experienced steady improvement in its roads and bridges over the past many years. Federal data, as presented biannually in FHWA's Conditions and Performance Report, tell a much different story of the nation's infrastructure quality, and is a story of a decade and a half of steady improvement. **Table 1** provides biannual data on highway pavement of acceptable quality and good quality, and reveals that both measures have been improving steadily over the past decade.

The state of America's bridges tells a similar story. This is despite incorrect conclusions taken from the devastating Minnesota bridge collapse in 2007 that had nothing to do with maintenance—the bridge was undergoing significant renovations at the time of collapse—but to a design flaw that was unable to carry the load that engineers believed it could when it was opened in 1967. As **Table 2** demonstrates, the share of the nation's bridges that are either "structurally deficient" or "functionally obsolete" has steadily declined over the past decade or more.

Obviously, such measures of nationwide infrastructure quality reflect broad averages of state-by-state conditions and tend to obscure what could be significant differences in road and bridge quality that may exist between one state and the others. While FHWA's Conditions and Performance Report provides limited information on state-by-state trends, such data can be gleaned and calculated from other federal sources, notably FHWA's annual Highway Statistics. According to the 2010 issue, Maryland road and bridge quality closely track the national trends but much better in some areas than in others. **Tables 3 and 4** provide details on the same time frame as tables above, as well as more recent data on bridges from a separate federal report.

As both the above tables indicate, overall Maryland's infrastructure quality is about average

for the nation, and that the rate of improvement over time has tracked that of the nation as a whole. There are, however, important differences among the subsets. In the case of "structurally deficient" bridges, where safety issues are paramount, Maryland performs well above the national average. In the case of "functionally obsolete," which is more a measure of deficiencies related to convenience, current standards, and ability to accommodate current needs, Maryland is slightly below average but in every case the difference is less than one percentage point.

Obviously bridge safety, as measured by structurally deficient, is always the paramount issue, and in this case Maryland has consistently performed above average, reflecting a sustained pattern of sensible use of highway funds. In this regard, the Maryland DOT is to be commended for this above-average performance despite the absence of a gas tax increase since 1993, significant spending diversions to transit, and transportation money diverted to non-transportation purposes.

Another important measure of surface transportation quality is safety, and the federal government, through the FHWA, provides extensive data on U.S. safety trends, as measured by fatalities and injuries between 1997 and 2006 in **Table 5**.

As is the case with some of the above measures of highway performance, Maryland has done much better than the nation as a whole, as **Table 6** reveals.

Despite the improvements in bridge and road conditions, data reveal that the system is deficient in measures of congestion, which have steadily worsened over the past few decades.

## **NEED FOR CONGESTION RELIEF**

Maryland's congestion problem is concentrated in its southwestern counties, which are a part of the Washington, D.C. metropolitan area, which is ranked 4th-worst among the urban areas of over 3 million in population at a Travel Time Index (TTI) of 1.32<sup>1</sup>, and to a lesser extent in the Baltimore urban areas, whose TTI at 1.23 places it above aver-

**TABLE 1 VEHICLE MILES TRAVELED ON THE NATIONAL HIGHWAY SYSTEM PAVEMENT OF ACCEPTABLE AND GOOD CONDITION (1997-2008)**

QUALITY	1997	2000	2002	2004	2006	2008
ACCEPTABLE	89%	91%	91%	91%	93%	92%
GOOD	39%	48%	50%	52%	57%	57%

Source: Conditions and Performance Report, 2010.

**TABLE 2 SHARE OF HIGHWAY BRIDGES THAT ARE STRUCTURALLY DEFICIENT AND FUNCTIONALLY OBSOLETE, (1996–2006)**

QUALITY	1996	1998	2000	2002	2004	2006
TOTAL DEFICIENCIES	34.2%	32.0%	30.8%	29.6%	28.6%	27.6%
STRUCTURALLY DEFICIENT	18.1%	16.5%	15.5%	15.4%	15.2%	15.0%
FUNCTIONALLY OBSOLETE	16.1%	15.5%	15.2%	14.2%	13.5%	12.6%

Source: Conditions and Performance Report, 2006.

**TABLE 3 SHARE OF PROBLEM BRIDGES IN MARYLAND AND U.S. (1996–2006)**

YEAR	1996			2006		
	MD	US	MD RANK	MD	US	MD RANK
STRUCTURALLY DEFICIENT	9.8%	17.5%	12	8.0%	12.4%	10
FUNCTIONALLY OBSOLETE	21.3%	13.9%	42	19.1%	13.4%	40
TOTAL	31.1%	31.3%	31	27.1%	25.7%	31

Source: Conditions and Performance Report, 1996, 2006.

**TABLE 4 SHARE OF PROBLEM BRIDGES IN MARYLAND AND U.S. (1995–2010)**

YEAR	1995			2010		
	MD	US	MD RANK	MD	US	MD RANK
STRUCTURALLY DEFICIENT	9.6%	17.8%	11	7.0%	11.5%	12
FUNCTIONALLY OBSOLETE	21.4%	13.8%	44	18.4%	12.7%	40
TOTAL	31.0%	31.7%	30	25.4%	24.2%	32

Source: Highway Statistics, 1995, 2010.

**TABLE 5 U.S. INJURIES AND FATALITIES PER 100 MILLION VMT, (1997–2006)**

	1997	2000	2002	2004	2006
FATALITIES	1.64	1.53	1.51	1.44	1.41
INJURIES	121	116	102	94	85

Source: Conditions and Performance Report, 2006.

age for the 31 urban areas between 1,000,000 and 3,000,000 in population, but well below that of the Washington, D.C. urban area. Outside these two metropolitan areas there is very little congestion in the rest of Maryland. One consequence of this disparity is that policies appropriate to congestion relief are of little interest to the rural areas of Mary-

land, and this may hobble Maryland's efforts to adequately deal with existing traffic problems.

### MARYLAND'S TRANSPORTATION PREFERENCES

According to the most recent Census data, **Table 7** represents how Maryland's workers choose to get

**TABLE 6 MARYLAND INJURIES AND FATALITIES PER 100 MILLION VMT (1997 & 2009)**

YEAR	1997	2009
FATALITIES	1.3	1.07

Source: Highway Statistic, 1997, 2009.

**TABLE 7 COMMUTING TO WORK, 2007-2011**

MODE	MARYLAND	UNITED STATES	VIRGINIA
DRIVE ALONE	73.2%	76.1%	77.2%
CARPPOOL	10.5	10.2	10.4
TRANSIT	8.8	5.0	4.3
WALK	2.4	2.8	2.3
OTHER	1.1	1.7	1.4
WORK AT HOME	4.0	4.2	4.4

to work, and compares it to both national and Virginia patterns and preferences.

This table reveals a few noteworthy trends. The key point is that of those who actually leave home to work, more than 87 percent use private autos. With the exception of its above-average use of transit, Maryland’s travel and work-at-home patterns are not materially different from those of its neighboring state of Virginia, and are close to nationwide trends. Bicycle use, at about a quarter of one percent, is included in “other.”

**SOME POTENTIAL LOW COST SOLUTIONS TO CONGESTION MITIGATION IN MARYLAND**

**I. Need for a Better System to Choose Among the Many Transportation Projects and Investments**

**POOR CHOICE OF PROJECTS**

Notwithstanding assertions to the contrary most state DOTs and the U.S. DOT, most states’ transportation policies are based on notions of “transportation choice,” a concept whereby MDOT is expected to accommodate travelers’ mode of preference regardless of cost or convenience to users. As you walk out your front door each morning on your way to work, MDOT and taxpayers should be prepared to facilitate your travel regardless if you want to walk, bicycle, drive, or take a trolley, regardless of the cost of providing this service and its potential negative impact on congestion.

In Maryland this trend is evident in spending patterns that allocate far more of the state’s transportation budget to transit, which serves fewer than 9 percent of commuters, moves no freight, and whose share of all travel (commuting, shopping, recreation, etc., is just 3 percent. Sadly, Virginia’s most recently passed transportation bill will deepen the commitment to transportation choice by establishing a series of taxes and tax increases that will be dedicated to specific modes of transportation, regardless of cost, usage, and impact on congestion mitigation. Maryland should avoid this trend.

Despite a decided DOT preference for a transportation choice approach, data from recent Brookings Institution research shows that the very idea of transportation choice is beyond hope. In major U.S. metropolitan areas less than 10 percent of jobs can be reached by transit by the average commuter in 45 minutes. Seventy-five percent of car drivers reach work in that time.

**Instead, Create a Performance-Based System** to allocate funds and pick transportation projects according to their contribution to congestion relief. Under such a system every potential transportation investment project would be evaluated by traffic engineers to determine both its potential cost and potential to reduce travel time by a certain amount for a specific number of passengers. Projects including roads, transit, technology, bicycle paths, car pools, and hiking trails would then be ranked by impact on congestion mitigation, and funding would be available only to those at the top of the list until available funds are exhausted.

When implemented, a performance-based transportation program will allow MDOT to more effectively choose transportation projects in a way that will maximize the transportation benefits it provides to travelers, motorists, commuters, tradesmen, and truckers for any level of state and federal surface transportation spending. It is recommended that the primary goal of the new performance-based system be congestion mitigation, which, as noted above, has worsened over the years, within the framework of safety and infrastructure preservation. MDOT’s existing “performance” systems, which stretch back over the past three administrations, as well as the reports and guidelines, include too many disparate goals to be a meaningful guide to policy, resource allocation, and congestion mitigation.

This new system would be in contrast to the state's de facto system of "transportation choice" that can spend significant sums of scarce resources on costly and underutilized modes and projects that do little to improve mobility. The essence of a transportation choice program is that government is obligated to provide travelers with a variety of modal choices such as cars, bicycles, trolley cars, and commuter rail, regardless of cost, efficiency, or impact on congestion, air quality, safety, or infrastructure preservation. The net effect of these measures has been to increase traffic congestion, which retards economic growth, job creation, and regional competitiveness. This is likely to be exacerbated in the future if such policies are continued in the face of limited financial resources.

As reported by the Texas Transportation Institute (TTI) in February 2013, the Washington, D.C. metropolitan area, which includes Northern Virginia and southwest Maryland, is among the most congested regions of the country, and motorists, truckers, and businesses dependent upon mobility suffer from extensive delays and higher costs that render the region increasingly uncompetitive as a place to live and do business. The Baltimore area was found to be similarly, though less severely, impaired. It is the goal of this initiative to focus almost exclusively on reversing the worsening congestion by adopting policies and projects, based upon quantitative analysis, that will lead to meaningful reductions in congestion in regions where that is a problem.

Beginning about a decade ago, it became much in vogue for state DOTs, in cooperation with governors and legislatures, to establish a series of performance measures and procedures to help guide state DOT programs and spending. For the most part these performance plans had multiple goals, some of which were contradictory and/or simply wrong-headed, and none imposed any penalty for not meeting the particular goals. This is not necessarily the fault of the DOT, but rather reflects the preference of a state's legislators to ensure that they have a say in which projects are approved and undertaken, versus relying on an impersonal quantitative analysis that measures costs and benefits.

In implementing a meaningful performance-based system, the overall goal of the DOT should be to provide cost-effective, safe, and speedy mobility to the citizens of the state. To achieve this, MDOT should concentrate its resources on reduc-

ing congestion where congestion is a problem, while enhancing safety and preserving the transportation infrastructure from deterioration.

Cost-effective is the operative term, and it recognizes that there are wide differences in cost per mode and costs between projects, so any meaningful performance-based system must utilize a type of cost benefit analysis that relates the cost of a project, whether road, transit, bicycles, etc., to the total hours saved by passengers through reduced congestion. In turn, this calculation yields a measure of hours/minutes saved per dollar spent. Those with the highest score have the greatest per-dollar impact on congestion relief. Projects are then ranked by their impact on congestion and safety, and money is allocated to those projects that yield the highest per dollar congestion relief benefits.

Washington was only state to have attempted to implement such a system when a voter initiative in 2005 recommended a transportation performance audit be conducted by the state auditor, an elected official whose meetings with constituent groups led him to believe that traffic congestion was a major problem confronting the state, particularly in the state's leading urban region and commercial center, the Seattle/Tacoma area.

With funding provided by the legislature, the state auditor solicited bids and proposals from leading consulting firms, and selected the firm Delcan to conduct the audit. The audit was performed during 2007 and 2008, and specific projects were evaluated on the cost/benefit basis described above. The audit found that if its recommendations were implemented there would be:

- \$110 million in potential cost saving opportunities
- A 15 percent to 20 percent reduction in traffic congestion in the region assuming current transportation budget projections
- An estimated \$3 billion in economic benefits as a result of this congestion relief

In response, WDOT and the transportation leaders in the legislature argued that they were already pursuing such opportunities in the ordinary course of business, and that there was no reason to change the process or implement the specific recommendations proposed by the consultant.

As a consequence, the proposals were never implemented and congestion remains a serious problem in the Seattle/Tacoma region, which is



now ranked the next worse after the Washington, D.C. area. To the best of our knowledge no other state as attempted such an initiative, although a similar and subsequent effort by Idaho was substantially watered down by the time the project went out for bid. Similar studies and proposals have been done for Texas and Georgia.

There are a few advantages to such a system:

- The plan will provide tangible benefits in congestion reduction that the leadership can commit to fulfilling if implemented.
- Allows leadership to reject wasteful spending on fanciful modes and solutions without being seen as opponents of those modes and projects: they just didn't pass the test. If a trolley car in Baltimore can compete with other projects for the area in terms of its cost effective congestion relief, then MDOT will help fund it.
- With state and federal transportation funding likely to be constrained over the next many years, the creation of a higher benefit program allows leadership to do more with less.
- The application of the system would be limited only to those regions where congestion is the key problem. All other regions would continue to receive their existing share of MDOT funding, and thus would not be losing any funds to the enhanced focus on urban transport problems.

## II. Public-Private Partnerships

In an effort to fill the financial gap between wishes and reality and needs and financial resources, several states have implemented legislation to allow governments, through their DOT, to negotiate public-private partnership contracts with infrastructure investors/developers to provide, finance, build, and operate major infrastructure projects. These carefully crafted agreements allow governments to leverage scarce public funds with private capital, including both equity and debt, to embark on major infrastructure investments to alleviate congestion in a number of urban areas. For the most part, these projects represent new road capacity and are financed by the tolls that will be charged to users of these roads.

Virginia was among the first states to establish workable legislation to foster public-private partnerships and this has led to significant investments (completed, underway, and proposed) in several major projects including new HOT lanes on the beltway and on I-95, and a new tunnel in

Hampton Roads, all of which will rely on tolls to service debt and provide a return on equity.

### EXAMPLES FROM VIRGINIA

The first major project just recently completed is the \$2 billion project in the Virginia suburbs of Washington, D.C. to add four tolled express lanes in the median of the Capital Beltway (I-495) from the Springfield Interchange at I-95/I-395 to the I-495 Dulles Toll Road exit in Fairfax County. Improvements will also be made to the eight existing free lanes in that 14-mile segment.

This added capacity, completed in 2013, is operated as variably priced toll lanes which allow paying customers to get a higher level of service while also reducing congestion on the free outer lanes. The innovative project was built and is regulated as a partnership between the Virginia Department of Transportation and a private company owned by a 90/10 partnership of Transurban (Australia) and Fluor (U.S.). To finance the project, the state of Virginia provided a grant of \$409 million; the U.S. Department of Transportation provided a "TIFIA" loan (Transportation Infrastructure Finance and Innovation Act) of \$589 million<sup>2</sup>; another \$589 million will be borrowed by issuing private activity bonds (PABs),<sup>3</sup> while the remaining \$350 million is an equity investment provided by the joint venture partners. Net revenues earned through variable rate tolls will be applied first to the PABs, then to the TIFIA loan, and any residual will accrue as profit to the private, joint venture partners.

The benefits to Virginia are obvious: For an investment of \$409 million it gets \$2 billion worth of new road capacity in one of the most congested regions in the nation. Area motorists will have quicker commutes, thousands of new construction and engineering jobs were created between 2008 and 2013, and more than \$280 million of aging infrastructure, including more than 50 bridges and overpasses, were replaced in the process.

Another major P3 project now underway in Virginia to reduce congestion in the Hampton Roads area is the expansion of the highway and tunnel capacity between the cities of Portsmouth and Norfolk, and under the Elizabeth River. The state is contributing \$408 million to fund the \$2.1 billion project. In exchange, the private developers have agreed to put in \$272 million in equity and carry \$675 million in PAB debt and a \$422

million TIFIA loan that will be repaid by toll revenues alone.

The third major P3 infrastructure project underway in the state is the \$940-million I-95 Express HOT lanes concession in northern Virginia, marking the next phase of the state's plans for a dynamically tolled network of managed lanes to relieve extraordinary congestion in the Washington, D.C. region. The 28-mile system of reversible high-occupancy toll lanes (HOT) on I-95 is being developed by Transurban with its 10percent partner Fluor Enterprises (same team as on the beltway P3), partly by converting and expanding existing HOV lanes into HOT toll lanes, and building new lanes from Quantico to Stafford County. This new north-south system will connect with the just completed HOT-lanes on the I-495 Capital Beltway, described above. Construction of the I-95 HOT lanes began in 2012 and will be completed in late 2014.

The funding for the I-95 HOT lanes includes \$261 million in senior debt issued on July 26, 2012 as PABs at about 5percent tax-free and fixed for 30 years. According to the offering statement for the I-95 PABs, VDOT will put in \$67 million of unspent GARVEE bond proceeds towards construction, Transurban (90 percent) and Fluor (10 percent) will provide \$386 million in equity.

For the remainder of the package, Transurban has applied to USDOT for a TIFIA loan of about \$300 million. In the event that the \$300 million TIFIA loan is not approved, VDOT has agreed to increase its capital contribution by \$218 million, and Transurban by \$114 million in equity.

## **EXAMPLES FROM TEXAS**

The Texas Transportation Commission started its P3 program in 2001. During the next seven years it negotiated three concessions worth \$8.15 billion: SH 130 between San Antonio and Austin, and two HOT lanes projects in the Dallas-Ft. Worth region. The state's total contribution, \$990 million in public funds, leveraged eight times that much in transportation investment.

## **LIMITED P3 USE TO DATE**

While some notable successes in recent years in creating P3s have added significant new road capacity in a number of metropolitan areas, for the most part they remain a limited source of funds to overall transportation infrastructure investment,

but a potentially valuable one for congested urban areas, as they are being used in Virginia, Texas, Florida, and Colorado, where accommodative legislation was enacted more than a decade ago and where both the state and the private sector have experience working with the concept and bringing these complicated projects to fruition. According to a comprehensive 2011 review, *The Role of Private Investment in Meeting U.S Infrastructure Needs* (henceforth *The Role*) of the current status of P3s prepared for the American Road and Transportation Builders Association:<sup>4</sup>

- Just eight states accounted for almost 75 percent of the contract value (\$54.3 billion) of all P3 projects over the past 22 years
- Only 11 of the P3 projects, totaling \$12.4 billion, included a financing component.
- The P3 market share of all highway investment since 2008 is about 2 percent.
- Importantly, P3 projects accounted for 11 percent of capital for new highway capacity under construction in 2011, most of which are tolled express lanes next to existing freeways in heavily congested urban areas.

Thus despite the successes that began in 1989 with Denver's E-470 P3 tollway, P3s are still a minor part of the surface transportation landscape. Opposition to tolling, to private profits from operating public infrastructure, and concern over foreign investment in government assets in the U.S. has generated political opposition in some states. These are challenges that must be overcome before the P3 concept can provide a significant supplement to taxpayer funding.

## **HOW TO CREATE OPPORTUNITIES FOR P3S**

In comparison to past Congressional skepticism regarding the potential value of the P3 concept, renewed interest in the House and Senate and the endorsement of new policies and additional resources to facilitate their use is a welcome change. Nonetheless, supporting states in developing P3 programs still involves significant challenges.

Given these difficulties, more thoroughly discussed in *The Role*, there are other measures federal and state governments can take in addition to the proposed increase in TIFIA funding that committees of the House and Senate have endorsed. These include:

- Congress should enhance private activity bond volume limits.
- States should enact legislation necessary to accommodate P3. Such legislation should protect taxpayers, encourage private initiative and investment, and provide a common framework for all stages of the process. Recent efforts to enact such laws in New Jersey and New York were unsuccessful due to union opposition.
- State DOTs should ensure that responsible managers and staff are qualified to bring these complicated deals to a successful conclusion.
- State DOTs should adopt policies and practices to ensure that the P3 option is considered at the outset of any planning process for projects over a certain cost, as opposed to the fall back position that the P3 option often holds today. Canada, for example, requires all projects over a certain size, and seeking federal assistance, to undergo a formal analysis of the P3 option.

### **III. Advancing Low-Cost, Environmentally Sound, and Sustainable Travel Options**

#### **PROMOTING CARPOOLING AND WORKING AT HOME.**

Much of the transportation policy debate over the past few decades has pitted roads against transit, fostered by the belief that greater investment in transit will reduce congestion, end sprawl, and clean the air. Evidence and experience indicate it achieves none of these goals, yet it remains the preferred mode of many political leaders and environmentalists despite its extraordinarily high cost as measured by costs per passenger mile, and the fact that, despite the huge capital expenditures, the overwhelming majority of travel in urban areas is impractical by transit. Instead, MDOT should ignore current fashion and focus on very low cost options that are proving to be more attractive and more sustainable than transit: car pools and working at home. Whereas transit's 2007-2011 market share of transit commuters in Maryland was 8.8 percent, carpools and work at home amounted to a 14.5 percent share, and more people now work at home than use transit in Virginia. Indeed, work-at-home is the fastest growing job access 'commute' in the nation.

With the improving fuel efficiency of cars, carpooling is emerging as one of the most sustainable modes of work access. Working at home is demonstrably the most sustainable of travel op-

tions, by virtue of eliminating the work trip, while supporting the same level of economic activity.

Greater reliance on car pools and work at home options will reduce congestion air pollution and greenhouse gases at much lower public and private cost than any of the other meaningful transportation options under MDOT review. Carpooling allows passengers to save on gas and wear and tear on their auto, while reducing the number of autos on the road. It does this at only nominal cost to MDOT and the taxpayers at large, largely in the form of dedicated lanes, commuter parking lots, and an Internet site connecting drivers with riders. In Virginia earlier investments in I-66 and the I-95 express lanes offer attractive carpool options for local commuters and it serves twice as many commuters as transit but at a fraction of the cost.

Likewise, Maryland carpoolers benefit from the dedicated lanes on I-270 and Route 50. Virginia, which at one time led the nation in carpooling, now has fallen behind the national average. Overall, the Virginia counties of the Washington metropolitan area have a carpool work trip market share of 11.1 percent. However, the share of carpool use is 13 percent in Prince William County and 16.9 percent in Stafford, reflecting the easy access to I-95 express lanes.

The Washington, D.C. suburban counties in Maryland have a carpool work trip market share of 11.3 percent, Montgomery County has a carpool share of 10.2 percent, while Prince George's County has a carpool market share of 12.3 percent. Increasing the share of carpoolers should be a major goal of the Maryland's program, as the empty seats of those who drive alone is the single greatest transportation resource in the state.

In large part the popularity of carpooling in Northern Virginia stems from the congestion relief it affords motorists by enabling them exclusive access to I-95 express lanes and I-66 during rush hours. The newly opened I-495 HOT lanes, and the soon to be extended (and conversion to HOT lanes) I-95 express lanes 10 miles south (to be followed by a Phase II which will add another 15 miles to Massaponox) will provide motorists with greater opportunities to benefit from carpooling. The adoption of the P3 process in Maryland could yield similar infrastructure at modest taxpayer cost.

The work-at-home share of 'commuters' is the fastest growing 'mode' by share, now exceeding the share of transit riders in Virginia, and closing in

on transit at the national level. In 2011 it reached 4.56 percent, up from 3.16 percent in 2000, compared to 4.51 percent for transit in 2011. As with the case of carpooling, the work at home option receives little public financial support. The closest comparable support are the federally funded remote work centers built in distant suburbs for federal workers, and its growth could possibly be spurred by a few initiatives at the state level.

Much of the growth that has occurred is the consequence of inexpensive information technology equipment and services (affordable high speed Internet, computers, printers, copiers, faxes, scanners, smart phones, Skype, and low-cost telephone service) that allow many white collar workers to be as fully productive at home, if not more so, as they are in an office. Until recently the growth of work at home workers has been limited to trusted professionals conducting independent research and writing, and self-employed professionals serving a variety of clients.

But the advent of workable and affordable software that allow for the close supervision of work-at-home employees will open the opportunity the vast number of clerical employees performing routine work over the phone, computer and/or Internet. At the same time, new computer security measures, often ensured through employer provided dedicated computers, allow for levels of security and confidentiality once available only in a controlled central office environment.

As noted above, the share of commuters carpooling has declined some since 2000, falling from 12.4 percent in Maryland in 2000 to 10.5 percent today. In Virginia the decline in carpooling over the same period fell from 12.7 percent to 10.4 percent. Reasons for this may include American's preference for privacy, and a willingness to pay for it in cost and inconvenience, as well as limits on the essential (albeit modest) infrastructure needs of the carpooling community.

While the first point ought not to be viewed as a subject for public policy initiatives, the second point regarding infrastructure should be. Today carpools are formed: informally through family, friends and workmates, through publicly-funded Internet rider match systems, and through the "slug" lines formed at commuter parking lots, notably along the I-95 express lanes.

Although there may be reliable data to determine the relevant importance of these three

sources, the later appears to be immensely popular along I-95 and has made the I-95 HOV lanes among the most intensely used in the nation. And with the extension of I-95, opportunities could expand in the future. But this growth could be hobbled by infrastructure deficiencies, notably in commuter parking spaces, and the absence of conveniently located 'terminals.'

Today, most of the commuter parking lots fill up early, and no serious (i.e., funded) effort is underway to expand these lots. Since most are boxed in by recent development, the only option is to go 'up.' And while this option is expensive, such costs have not deterred WMATA from providing their patrons with multi-decked parking. The proposed performance audit would allow MDOT to make cost-effective choices between such projects.

While there are several established and publicly-funded morning embarkation points along the carpool lanes, there is a deficiency in debarkation and embarkation points at the employment centers clustered near Washington, D.C. At this point only the Pentagon parking lot serves both roles, but not very efficiently. More are needed in the employment centers of Northern Virginia, suburban Maryland, and D.C. to fulfill carpool and van pool promise. MDOT should explore the option of directing its annual allocation of federal CMAQ (Congestion Mitigation Air Quality) funding to such an enhanced carpool program. With the exurbs now expanding south and north, east and west, the DOTs should consider constructing new commuter/carpool/vanpool lots to accommodate the growth.

Shifting available MDOT resources to such infrastructure could very well be a low-cost/ high-benefit investment in comparison to the cost of other congestion relief options, notably transit. Allowing, or encouraging, drivers to accept/require monetary compensation from users should also be explored, as should the impact this might have on liability and insurance coverage of motorists, not to mention possible violation of existing taxi and transit regulations.

To date the work-at-home option has occurred with little public support, largely induced by workers looking to reduce their commute time and costs, gain more leisure time, and work in a more comfortable environment. For some, the work-at-home environment can also allow for a more flexible schedule that could be of benefit to

parents of young children, or older ‘children’ assisting elderly parents. For a variety of such reasons, the authors of this report have each worked from home for many years.

Businesses and other employers have found that they too can benefit financially in terms of cost savings related to office space and equipment and utilities. And work-at-home employees do not get snow days, and some reports indicate less use of sick days, lateness, and time lost to office schmoozing. In the case of one Virginia business all employees were required to work at home and the office was shut down and leased to others.

To date, the public sector has not developed a systematic set of policies for working at home, although many private firms have, with varying degrees of scope. The federal government offers some form of a work-at-home option, and the scope, rules, and operation should be reviewed. Former Virginia Governor James Gilmore also implemented a program to encourage more working at home, and details of this program should be tracked down and reviewed.

Where the public sector could be helpful would be through a review of existing state and federal labor law to determine whether it impedes or helps a shift to working at home. Would an employee injured at home while on the employer’s clock be eligible for workman’s compensation? Would employees paid for performance, say for a number of calls made or answered or applications reviewed, fall under federal prohibitions on home piecework?

A real boost to restore carpooling’s historical shares can come from harnessing private sector expertise, particularly the area’s immense strength in high technology, where those firms could lead in developing/adopting new cellphone ‘apps’ to establish what has become real-time hitchhiking or carpooling. These are cutting-edge technologies that can be realized best in the Virginia environment. The work of Microsoft in its home office location could be a model.

The existing performance of the area’s HOV/HOT lanes should be sufficient precedents to build on. As for work-at-home options, there are thousands of public and private entities throughout the U.S. that have implemented the option, and their experience could be instructive. Surveying these many initiatives is beyond the scope of this report but certainly something that should be

done in advance of the creation of any formal program for Maryland.

#### **IV. Shifting Costs to Developers and Land Owners who Financially Benefit from New Transportation Projects**

More than a decade ago Virginia enacted a law that would allow owners of commercial real estate in a specific transportation corridor to elect to impose a surtax on their property that would be dedicated to providing agreed upon transportation investments in the corridor. To date this approach has been used to fund transportation improvements in Williamsburg and Loudoun County. More recently, a surtax has been imposed on commercial property in Fairfax County to help fund Phase I of Dulles rail. In each case a 60 percent approval vote among the commercial property owners will be required to impose the tax, and private residents in the corridor will not be subject to the tax. Such an approach might be applicable to the planned Purple and Red light rail lines in Maryland.

#### **IMPACT OF GOVERNOR O’MALLEY’S 2013 TAX PLAN ON SELECT INCOMES CATEGORIES**

The Governor’s current tax plan is very similar in magnitude as his 2012 proposal in terms of state tax per gallon of gas, albeit from somewhat different forms of taxation. Whereas the 2012 plan proposed an increase in the cents-per-gallon state fuel tax, the 2013 version is imitative of Virginia Governor Bob McDonnell’s recently enacted transportation tax increase in that a new sales tax is to be imposed on the wholesale price of gas to offset in part (Maryland) or in whole (Virginia) the state’s cents-per-gallon fuel tax.

Both states also rely upon the U.S. Congress’s enacting a nationwide requirement that state sales taxes be collected on all Internet sales. While this may transpire, chances are it will not: given the many challenges that the U.S. Congress confronts in putting its own fiscal house in order, it seems unlikely that they would enact an unpopular regressive tax the provides the federal government with not a penny of revenue. Table 8 below assumes that this tax will not be enacted and that the 6 percent wholesale sales tax will be triggered in 2015.

As is clear from the table above, the proposed fuel tax increase will increase the regressive nature

**TABLE 8 DISTRIBUTIONAL EFFECTS OF THE PROPOSED MARYLAND GAS TAX INCREASE**

	VEHICLE MILES TRAVELED (VMT)	FUEL ECONOMY	GALLONS PER YEAR	TAX		TAX BURDEN		IMPLIED INCOME
				Current Fed/MD 41.9 cents	Proposed Fed/Gov. 56.6 cents (2015)	Current	Proposed	
<b>NATIONAL AVERAGE</b>	25,061	20.0	1,253	\$524	\$709	1.52%	2.06%	\$34,338
<b>INCOME GROUPS (US \$)</b>								
< 20K	15,509	19.4	799	335	452	3.35	4.52	10,000
20K TO 40K	20,693	20.0	1,034	433	585	1.44	1.95	30,000
40K TO 60K	27,627	20.2	1,368	573	774	1.15	1.55	50,000
60K TO 80K	31,778	20.3	1,565	656	885	0.94	1.26	70,000
80K TO 100K	33,195	20.4	1,627	682	921	0.76	1.02	90,000
> 100K	33,412	20.0	1,671	700	946	0.47	0.63	150,000
<b>LIFE CYCLE</b>								
WITH CHILDREN	32,085	20.2	1,588	665	899	1.71	2.32	38,783
RETIRED	14,921	18.8	794	333	449	1.35	1.82	24,654
<b>GEOGRAPHIC</b>								
URBAN	20,394	20.7	985	413	558	1.33	1.79	31,125
SUBURBAN	24,100	20.3	1,187	497	672	1.10	1.50	44,829
RURAL	28,958	19.6	1,477	619	836	1.82	2.47	33,884

Source: Transportation Research Board. Please see Appendix.

of fuel taxes, which will be more burdensome on lower-income motorists and rural residents than on other groups.

Currently, Maryland motorists pay a state fuel tax of 23.5 cents per gallon of gasoline, so the proposed increase would escalate the state’s combined tax on fuel to approximately 38.2 cents per gallon by 2015, an increase of 63 percent in addition to the 18.4 cents per gallon collected by the federal government. In the process, Maryland motorists would jump from facing the 29th highest overall transportation taxes to the ninth highest.

**INTERSTATE COMPETITIVE EFFECTS**

In addition to the negative impact on consumer and business spending, the gas tax increase will also impact the sales of gasoline within the state, which will adversely affect the incomes of those establishments that sell and distribute gasoline. This is particularly important for Maryland where the major employment/commercial center, the Washington, D.C. region, is comprised of three separate jurisdictions, and each employs significant numbers of citizens from the other jurisdictions. Each jurisdiction maintains its own tax rate, and if Maryland raises its rate by ap-

proximately 15 cents per gallon, its tax will be substantially higher than in either Virginia or the District of Columbia, which will certainly tempt cross-border purchase of gasoline. Exacerbating this competitive disadvantage is that Virginia is now in the process of eliminating its gas tax and replacing it with a modest wholesale tax and statewide sales tax.

According to U.S. Census Bureau, each day the Maryland counties of Frederick, Anne Arundel, Montgomery, and Prince George’s send an estimated total of 73,700 car commuters to jobs in Virginia, and 144,700 car commuters to jobs in the District of Columbia. At present, the Virginia gas tax is 17.5 cents, D.C.’s is 23.5 cents, and Maryland’s is also 23.5 cents.<sup>5</sup> While there is a modest incentive now for some of the 73,700 Maryland car commuters to fill up in Virginia – the 6-cent difference amounts to a savings of 90 cents on a 15-gallon fill-up. But if the Maryland gas tax rises to an equivalent of 38.5 cents, while the Virginia tax falls to an estimated 10.5 cents per gallon, then the Virginia fill-up savings is 28 cents per gallon, and \$4.20 per fill-up, while the D.C. savings per gallon would rise from zero to 15 cents a gallon, or \$2.25 per fill-up.



If, over the course of a year, 50 percent of Maryland to Virginia and D.C. car commuters chose to fill up in Virginia then the potential tax loss to Maryland could be as high as \$32.5 million per year, assuming 109,200 Marylanders by 15 gallons per week in Virginia. Added to this would be the loss of business and revenues to the Maryland service stations and the gain that would occur in both Virginia and D.C. as sales of fuel and related products increase.

## APPENDIX

Table 8 is based on information reported in Table 1 in the Transportation Research Board paper: Brian A. Weatherford, "Distributional Implications of Replacing the Federal Fuel Tax with Per Mile User Charges," *Transportation Research Record: Journal of the Transportation Research Board*, No. 2221, Transportation Research Board of the National Academies, Washington, D.C., 2011, pp. 19-26.

Columns (1) and (2) of Table 1 are derived from Table 1 of the TRB report, and are, in turn, derived from data reported in an earlier Consumer Expenditure Survey produced by the U.S. Bureau of Labor Statistics. The Survey provides detailed

information on driving patterns and auto ownership by income, location, and various demographic traits for a sample of households drawn from the U.S. population, and was compiled and presented by the author of the TRB report.

We used that information to compile the information presented in column (3), and column (3) was used to estimate the average annual current fuel tax obligation in Maryland for motorists in each of the categories, column (4), and the tax obligation reflects the current estimate of the tax increases proposed by Governor O'Malley, effective 2015, column (5). In turn, these tax obligations were converted into a tax burden (columns (6) and (7)) by relating the tax to the income of the households in each category. The income used in each burden calculation was the implied median income (column 8)) in each slot, meaning that the 20K to 40K group was estimated to earn \$30,000 for purposes of the tax burden calculation.

Finally, while the base data are drawn from a national sample, not just from Maryland, the authors assume that the relationships between driving mileage, income, and fuel efficiency are sufficiently similar to allow for meaningful, relative projections between national and state experience.

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## A New Transportation Plan for Maryland

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<sup>1</sup> The Travel Time Index (TTI) estimates the additional time necessary to travel on an urban area's roadway system during peak travel periods. For example, a TTI of 1.32 indicates that travel takes 32 percent longer in the peak period than would be the case if there were no traffic congestion.

<sup>2</sup> TIFIA loans are at the discretion of the USDOT, are granted on a competitive basis, are often on liberal terms, and are usually subordinate to other debt taken on for the project. In the case of Virginia's beltway project the TIFIA interest payments are expected to begin in 2018. Loan repayments are scheduled to begin in 2033 and conclude in 2047. The TIFIA loan is structured with five years of capitalized interest during construction followed by five years of partially capitalized interest during ramp-up; then current interest only for 15 years followed by 15 years of interest plus principal.

<sup>3</sup> For a brief description of the role of private activity bonds in transportation finance, see Ronald D. Utt, Ph.D., How the Senate's Tax Bill Would Facilitate Infrastructure Privatization, August 4, 1999, The Heritage Foundation, at <http://www.heritage.org/Research/Reports/1999/08/How-the-Senates-Tax-Bill-Would-Facilitate-Infrastructure-Privatization>

<sup>4</sup> William Reinhardt, *The Role of Private Investment in Meeting U.S. Infrastructure Needs*, prepared for the Transportation Development Foundation of American Road and Transportation Builders Association, June 2011. Available at <http://www.artba.org/mediafiles/transportationp3whitepaper.pdf>.

<sup>5</sup> Wendell Cox and Ronald D. Utt, Ph.D., "Rethinking Maryland's Proposed Tax Gas Increase," The Maryland Public Policy Institute, February 1, 2012.



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