A Context for Evaluating Transportation Funding Options in Maryland

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*The views expressed do not necessarily represent those of the University of Maryland, the Maryland Department of Transportation, or the State of Maryland.
EXECUTIVE SUMMARY

The Maryland Department of Transportation (MDOT) asked the National Center for Smart Growth Research and Education (NSCG) at the University of Maryland to conduct research on transportation finance in other states. The scope of work, as amended and implemented included some cross-state comparisons of transportation revenues and expenditures by source.

The main findings of the research, summarized here and described more fully in the report, suggest that a data-driven effort to make cross-state comparisons of the effectiveness of financing techniques by quantifying the about of revenues by source is unlikely to yield results that will compel changes in financing techniques. The research did, however, uncover other potentially useful information, including the following:

- During the 13 years covered in this study, state motor fuel taxes (31%), federal aid (30%), and motor-vehicle and motor-carrier taxes (16%) are the three primary revenue sources for state highway systems. State and federal motor fuel taxes make up the largest share and together account for more than 60% of all revenues used by states for highways.

- Maryland’s gas tax is slightly higher than the average for all states (24.5¢ vs. 21.8¢1), but it is grouped with about 20 states that have not increased those taxes in 15 years. Maryland ranks 25 out of the 50 states in its fuel tax rate. Over the past 13 years, the average per capita state fuel taxes decreased by 8%. Nationwide, the average state fuel taxes per 1,000 VMT have been consistently declining. On a per capita or per VMT basis, Maryland’s fuel tax is lower than 75 – 80% of all states.

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1 The National Energy Information Center
In 2007, tolls were collected on facilities in 33 states, mostly on the state highway systems. Toll projects are more prevalent in fast-growing states, such as Florida and Texas. About 6 percent of total mileage of the interstate system is tolled. During the past 13 years, 25 states had nearly no toll income, but nine states collect more than 10% of their highway revenues from tolls (national average of 4%; Maryland at 8%).

Maryland is one of six states with the most balanced revenue structure in the nation: most of its revenues come in roughly equal proportions from motor fuel taxes, motor-vehicle and motor-carrier taxes, federal aid, and other.

Between 1998 and 2002, very few states spent significant sums of fuel tax revenues on transit. New York, Connecticut, Rhode Island, New Jersey and Maryland, which have statutory provisions for funding transit with fuel taxes, spent more than 15% of total fuel tax receipts on transit; only 11 states spent more than 5%. Maryland’s per capita transit funding growth is slightly behind the national average growth rate.

NCSG’s research found no state to be a pioneering innovator on all the potential policies that nest within these categories of strategies, or to be uniquely advanced on any particular one. The revenue strategies that are most promising in general, and most practical in the Maryland context include the following:

- Increase the rates for the two work horses: the fuel tax and vehicle registration fees.
- Anticipate a decreasing federal role and shift to other user fees.
- Think not just about filling the funding gap, but about the structure of transportation funding.
- Tie funding to other public purposes.
- Keep an eye on procurement procedures.
- Be careful of debt financing and general taxes
In summary, the structure of transportation finance in Maryland is quite similar to that of other states in the country. What’s more, based on a review of the structure of finance in other states, there is no option that other states have found that resolve most, or even some, of the problems of transportation finance. In the end, the question remains largely one of finding the right balance between transportation demand and the political will to pay to meet that demand.
1 BACKGROUND

The National Center for Smart Growth Research and Education (NSCG) at the University of Maryland signed a Memorandum of Understanding with the Maryland Department of Transportation (MDOT) to work jointly on research related to transportation in Maryland. The work plan for 2009, the first year of the contract, contained seven research tasks. This report is NSCG’s submission for Task B.1., Transportation Finance Systems and Instruments in Other States. The original statement of the scope for this task was:

Report on transportation financial systems across the US with a focus on selected pioneering states, and provide recommendations for further analysis of specific financial tools that offer potential for use in Maryland.

That statement is useful as broad guidance, but the research done by NSCG for this project revealed that a data-driven effort to make cross-state comparisons of the effectiveness of financing techniques by quantifying the about of revenues by source is unlikely to yield results that will compel changes in financing techniques. Moreover, it is less likely that there are pioneering states than that there are pioneering techniques scattered in states around the country. NSCG concludes that of more direct relevance to ongoing MDOT and state discussion about transportation finance is a framework for evaluating alternative financing methods, and some observations about trends and areas of innovation.

Nonetheless, NSCG did the quantitative research on broad indicators of state transportation finance over the last 20 years, and that research provides a basis for some of the conclusions in this report. That research is reported in an appendix to this report.

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2 The work for this task was originally under the direction of Dr. Kelly Clifton of NSCG. In Summer of 2009 Dr. Clifton accepted a faculty position in Oregon and left NSCG in Fall 2009. That transition caused some delays and the necessity of transferring the completion of the work to others at NSCG. Terry Moore, visiting Senior Research Scientist took on the project in December 2009. Moore has done substantial applied work for state and regional transportation agencies on transportation economics and finance. He reviewed the technical work that had been done on financing tools used in other states and concluded that the data comparisons presented would not adequate to make strong statements about the appropriateness of specific financing techniques to Maryland and MDOT, and that even substantially more work and data of the same type would be unlikely to yield results so compelling that MDOT would be motivated to change policy on the basis of those results.
The rest of this report has three sections:

- **Section 2**, A framework for evaluating transportation finance.
- **Section 3**, Cross-state comparison of transportation funding.
- **Section 4**, Directions for state funding.

## 2 A FRAMEWORK FOR EVALUATING TRANSPORTATION FINANCE

As in any discussion of public policy, the one about transportation funding should start with some agreement about definitions, concepts, and assumptions. Here are ours.³

### 2.1 SCOPE OF THIS REPORT

In this report we are addressing funding for service transportation, with a focus on roads and transit service. We do not address air and water port facilities.

Building and maintaining a road system are a joint responsibility of federal, state, and local governments. Projects to improve the transportation system are funded through a mix of federal, state, and local revenues that are distributed through a variety of funding programs that dictate how those revenues can be spent. In addition to revenue generation and spending by multiple jurisdictions, revenue sharing among jurisdictions and cooperation among multiple jurisdictions on individual projects makes describing transportation funding complicated.

The evaluation of transportation funding in this report focuses on sources that the state generates or has primary responsibility for managing. A description of the full funding system—of all federal, state, regional, and local funding sources, and how they interact—is possible but beyond the scope of this report.

The fact that these sources interact makes it hard to be definitive about the ability of any one level of government to secure transportation funding. For example, in many (probably most) states, local governments get a share of state transportation funds (which are typically funded primarily by state gases taxes

³ The material in this section summarizes from work Terry Moore has done over the last 10 years on transportation finance for municipalities and Metropolitan Planning Organizations.
and allocations to states of a portion of federal gas taxes). In many states, gas tax revenues have not kept pace with average inflation, much less with the accelerated increase of construction costs and maintenance needs. As state revenues have become increasingly insufficient, many local governments have, among other things, instituted rate increases for existing local funding sources (like impact fees) or added new funding sources (like special levies for maintenance). In this example, it would be hard to talk about the future adequacy of existing local funding for transportation, or its propensity to adopt new funding sources, without having some sense of the current and likely future trends of state and federal funding.

Identifying the sources of revenue and types of expenditures at each level of government adds layers of detail that are complicated but important for estimating future funding available in a state or region because:

- The growth rate of future revenue will vary for each revenue source. The growth of revenue from any one source will depend on conditions affecting the ultimate source of that revenue and potential policy decisions by elected officials.

- Some transportation revenue sources have restrictions on their use. Local transportation impact fees, for example, can typically be used only for capital improvements needed to accommodate new development, while shared state gas-tax revenue can be used for a wide range of road-related expenditures. Tracking and forecasting revenue by source is important for knowing what types of future expenditures can be funded by each source.

- The current level of expenditures by type at each level of government reflect decisions to allocate revenues among competing demands, and are thus indicative of likely future allocations of revenues.

- Current expenditures on operation, maintenance and preservation of the existing system suggest a level of expenditures that will be needed in the future. Future expenditures on operation, maintenance and preservation of the transportation system will affect the level of funding available for improvements to the system.
2.2 Funding versus Financing

This report makes an important distinction between the terms “funding” and “financing,” terms that often get used interchangeably. Providing transportation facilities and services costs money, and somebody has to pay these costs. The ultimate source of revenue for such costs is funding. When the funds for transportation costs are borrowed and paid back over time, then these costs have been financed. Public agencies finance costs for the same reasons as households and businesses—to reduce the current out-of-pocket costs by spreading out payments over time.

But the ultimate source of funding for financed costs is not the financing instrument itself, but rather the revenue sources used to repay the borrowed funds. A home mortgage, for example, is a financing instrument, but the ultimate source of funds is usually current or saved household wages: the homeowners are funding the purchase of their house with their labor. A more direct transportation example: transportation facilities might be financed with bonds, but they are funded (usually and primarily) by various fees and taxes paid by households and businesses. A lender might underwrite the bonds and give a state a large lump-sum of up-front money to build a new bridge in return for a pledge of annual payments that the state will fund with revenues received from users of the bridge (i.e., tolls).

Since financed costs must be paid back over time, financing costs cannot increase the total amount of funding available in a state or region over a long-term planning period. The financing of costs merely makes future funding available earlier, at the cost of the interest charged to borrow the funds.

This report is about funding sources: who will ultimately be transferring resources (money, via fees and taxes) to the state to build and maintain its surface transportation system? In that sense, financing techniques are secondary: there will be no financing without funding.

2.3 Typical Criteria for Evaluating Funding Sources

A lot has been written about criteria for evaluating funding sources, and NCSG reviewed a lot of it. What follows is very compressed summary, but one that
captures essential points that appear common to almost every evaluation of funding sources. It collapses the criteria into five categories:

1. Legality
2. Efficiency
   a. Revenue capacity, stability, predictability
   b. Administrative ease
   c. Flexibility of use
3. Fairness (who pays?)
4. Support for other objectives
5. Political acceptability

2.3.1 Legality

All the benefits of a funding source are moot if the source is not legal or cannot become legal within the desired timeframe. This criterion is not frequently seen in a typical evaluation matrix of funding sources because all sources in the matrix have already been screened on this criterion. Moreover, though legality may appear to be an absolute standard, laws can change. For example, some states do not allow the use of tax increment financing, but many states do and the states that do not could change their laws to allow the use of that technique. The same is true in some states for some aspects of tolling. Ultimately, if a funding source can be shown to do well on the efficiency and fairness criteria (described below), then it has reasonable chance of being able to garner enough political support adopt whatever laws or administrative rules are preventing its legal implementation.

But even some uncertainty about legal issues and potential legal challenges can be an important issue to decisionmakers, and enough of an issue in the short run to push decisions toward tried and true funding sources rather than innovative, untested ones. The real issue is whether the source has detailed and complicated legal requirements that would (1) raise the likelihood of legal challenge; (2) raise the likelihood that any legal challenge would actually be successful; or (3) require a lot of legal work and political capital to get laws adopted that would eliminate or substantially reduce the first two problems.
2.3.2 Efficiency

Under the heading of efficiency we consider whether a funding source is capable of raising a desired amount and type of revenue without excessive administrative cost. This criterion has three sub-criteria:

Revenue capacity, stability, predictability, diversity

Revenue capacity considers how much money the funding source can generate (setting aside temporarily the issue of political and public acceptability). Revenue stability considers whether the source is stable; that is, whether it is likely to avoid large fluctuations each year. The more stable a source, the more it can be assumed to contribute constant revenues over time. Revenue predictability is related; it considers whether the source is likely to be close to the forecasts analysts might make, or whether it depends on too many assumptions that could turn out to be inaccurate. When one goes beyond an evaluation of individual revenue sources to packages of sources, the criterion of diversity becomes relevant: diversification (more revenue sources for a given amount of revenue) reduces risk and can provide more stability and predictability. A revenue source that has all these characteristics is more likely to be bondable: an adequate, stable, diverse revenue stream will be more attractive to underwriters than one that does not have those characteristics.

Administrative ease

This criterion considers how easy it would be for a government body to implement or expand the funding source, in terms of administrative cost and capacity. Would new staff have to be hired? Would a new organizational structure or a new budget procedure have to be put in place? Would collection of the funds be an arduous task? The answers to these questions depend in part on what administrative mechanisms are already in place that could be used at little marginal cost.

Flexibility of use

Revenue will be less useful to a state or local government if its use is limited to types of projects that are not the ones that government believes are the most important ones to build. In general, flexibility is a positive attribute. If the revenue can be used for any transportation project (e.g., bike/pedestrian or motor vehicle,
arterials or collectors, capital or OMP), there is a greater ability to channel funds to the use with the greatest net benefit at any point in time. The flip side is that if a revenue source is too flexible it can be difficult to “protect” it from being siphoned for other uses, transportation or otherwise.

As a practical matter, the flexibility and large contribution of federal and state gas tax revenues to state and local transportation facilities and operations means that flexibility is not a very important criterion for new funding sources that are small relative to those flexible revenues. The new sources can be dedicated (e.g., toll revenues dedicated to a bridge; a special levy dedicated to a specific package of new highway projects; increased farebox revenues dedicated transit operations) to desired, specific projects, and gas-tax revenues that might have otherwise been used to support those facilities or operations are freed up for something else.

2.3.3 Fairness (who pays?)

Fairness, also referred to as equity or social justice, can be defined in many ways. In the context of transportation funding, the key question related to fairness is “who pays?” A standard definition of fairness in public finance is that the funding source tie the charges that fund the revenue source to the users who receive benefits from (or impose costs on) the transportation system. Using this definition, user charges like tolls are fairer than broader-based sources like general property taxes because the drivers using the transportation most are the ones paying most of the cost of the transportation improvement.

The above definition of fairness relies on a standard assumption; namely, that it is best for people to pay for transportation improvements in proportion to the benefits they receive or the cost they impose. There are, however, other assumptions that could be made to support different definitions of fairness. Modified definitions of fairness allow for special treatment of certain groups (e.g., low-income families or elderly persons) that have special needs. Once that theory gets codified in law, then the implication is that these identified special groups should not have to pay in direct proportion to the benefits they receive or the costs they impose.4 Property taxes and income taxes implement this alternative

4 People in favor of this transfer of resources from some users to others refer to it as fairness, equity, and social justice; people opposed to it refer to it as redistribution, transfer, and subsidy. There is not, and will never be,
definition of fairness by charging people more if they own more valuable property or have higher incomes.

Sometimes the fairness principle of tying charges to benefits received or costs imposed is not implemented, but this is not due to an alternative definition of fairness. Sometimes all residents pay because all residents are deemed to benefit from a transportation improvement even if they do not use it (benefits include safe travel for others that they care about, greater access by customers or support networks, etc.). This is not very different from the original definition of fairness: it assumes that everyone pays because everyone benefits. In other cases it may be impossible or impractical to charge people in proportion to their benefits received or costs imposed, either because it is difficult to measure benefits and costs or because it is impossible to exclude use in the event of non-payment. These latter cases are examples where the need for administrative feasibility or legality means that the strict definition of fairness cannot be brought into practice.

2.3.4 Support for other objectives

This criterion is rarely found among the standard ones in the professional literature, but it is important in general, and especially applicable given the transitions in the planning and funding of transportation occurring at the federal level. HUD, EPA, and USDOT have formally agreed to coordinate to better achieve an overarching objective of “sustainable communities.” They have begun some joint funding of planning programs, but more significant is the new planning rhetoric that puts transportation in the context of sustainable communities, and in doing so elevates objectives that go beyond performance of the transportation system. As part of this change, FTA announced at the beginning of 2010 that it would modify its long-standing evaluation criteria (that emphasized benefits to transit users) to give more emphasis to other factors in the category sustainability and livability.

The essential idea here seems straightforward and reasonable: (1) if states can have some overarching objectives for the type and pattern of development, then agencies in charge of various aspects of development (land use, economic
development, environmental quality, infrastructure—including transportation) then that development should be better: more livable and sustainable (economically and environmentally); (2) if funding by different agencies were aimed at agreed-upon goals, both those agencies and local governments would do more to achieve those goals; and (3) the abilities of any individual agency to determine and justify what projects to pursue would increase.

2.3.5 Political acceptability

Political acceptability considers whether elected officials and the public at large are likely to support the funding source. This depends to a large extent on the issues above: if it is legal, efficient, and fair, then it should get political support from the public, advisory groups, and decisionmakers. Sources that charge users from outside the city (e.g., federal and state sources, or county gas tax) are likely to be politically popular from Hillsboro residents’ perspective. Beyond this, however, estimating political acceptability is more of an art than a science.

This criterion is typically viewed from the perspective of the jurisdiction doing the analysis. Thus, the political acceptance of getting the federal government to give grants to Hillsboro for its desired bike/pedestrian improvements would be judged high, even though federal funding agencies might view its acceptability as low.

2.4 A FUNDAMENTAL PRINCIPLE OF PUBLIC FINANCE

It is common for academic articles and agency reports to refer to the kinds of evaluation criteria described in the previous section. It is not common, however, for them to address a universal principle applied by elected and appointed officials when evaluating funding sources: “get somebody else to pay for it.” If you are a local elected official you look first to federal or state grants. If grants are not possible, than a loan of low interest money will have to do. Once federal and state possibilities are exhausted, you look for funding sources that disproportionately hit people who are not your constituents (e.g., car rental taxes if your area has a lot of tourists; local gas taxes or speed traps if you have a lot of drive-through traffic on state highways). When you have exhausted those possibilities with closing the
funding gap and you have to look to taking money from your constituents, you look for ways that can be justified on some variation of a fairness argument.5

Figure 1 illustrates one version of the last part of this fairness principle. It assumes that a local government has secured what it can of federal funds (either through state allocations or direct federal grants) and state funds (from state formula allocations and special grants) and is now trying to evaluate its local options for raising additional revenue to fund transportation expenditures. It shows types of taxes and fees in four boxes, with those at the left more closely aligned with the fundamental principle of “users pay.” In the box at the right are taxes and fees that lack a direct connection to transportation: all else equal, they will be harder to justify to the public and adopt as policy.

Figure 1: Framework for thinking about local funding of major transportation facilities and programs

The importance of fairness as a criterion for selecting funding sources has probably increased as one of the big trends in transportation funding has gradually gained ground over the last 30 years: a shift from tax revenues to fee revenues. Consumers, as tax- and fee-payers, are increasingly arguing against tax or fee increases on the basis of benefits received.

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5 Another step that is frequently taken, perhaps without fully realizing it, is to look to complicated “creative financing” solutions that have the effect of making it hard to figure out what groups actually funding (paying for) the project or program.
3 CROSS-STATE COMPARISON OF TRANSPORTATION FUNDING

NCSG started its research with this question:

Do standardized data (from national data sources) about state transportation revenues and expenditures: (1) show Maryland to be average or an outlier, and (2) suggest that other states have some special funding advantage or technique that Maryland could copy?

Figure 2 provides some context for the cross-state comparisons. It illustrates at a conceptual level how funding comes from households and business to the public sector for transportation facilities and services. The top half shows sources of funds (taxes and fees, type) going to federal, state, and local governments; the bottom half shows recipients of funds. This is the general flow of funding in Maryland and in all states.

Figure 2: How funding gets to state or regional transportation projects
Appendix A to this report shows the data regarding NCSG’s cross-state comparisons in more detail. Table 1 summarizes information on highway funding sources used by states.

**Table 1. Highway funding sources and use by states, 2006**

<table>
<thead>
<tr>
<th>Revenue Category</th>
<th>Number of States</th>
<th>Share of Total Receipts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Fuel Taxes</td>
<td>50</td>
<td>31%</td>
</tr>
<tr>
<td>Motor-Vehicle and Motor-Carrier Taxes</td>
<td>50</td>
<td>16%</td>
</tr>
<tr>
<td>Federal Aid</td>
<td>50</td>
<td>30%</td>
</tr>
<tr>
<td>Miscellaneous Revenues</td>
<td>47</td>
<td>3%</td>
</tr>
<tr>
<td>Bond Proceeds</td>
<td>44</td>
<td>9%</td>
</tr>
<tr>
<td>General Funds</td>
<td>43</td>
<td>4%</td>
</tr>
<tr>
<td>Local Aid</td>
<td>29</td>
<td>1%</td>
</tr>
<tr>
<td>Other State Taxes and Fees</td>
<td>28</td>
<td>3%</td>
</tr>
<tr>
<td>Highway Tolls</td>
<td>25</td>
<td>4%</td>
</tr>
</tbody>
</table>


A summary of the conclusions:

- During the 13 years covered in this study, state motor fuel taxes (31%), federal aid (30%), and motor-vehicle and motor-carrier taxes (16%) are the three primary revenue sources for state highway systems. All 50 states receive highway funding from these three categories. State and federal motor fuel taxes make up the largest share and together account for more than 60% of all revenues used by states for highways.

- Maryland’s gas tax is slightly higher than the average for all states (24.5¢ vs. 21.8¢), but it is grouped with about 20 states that have not increased those taxes in 15 years. Maryland ranks 25 out of the 50 states in its fuel tax rate. Over the past 13 years, the average per capita state fuel taxes decreased by 8%. Nationwide, the average state fuel taxes per 1,000 VMT have been consistently declining. On a per capita or per VMT basis, Maryland’s fuel tax is lower than 75 – 80% of all states.

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6 The National Energy Information Center
• In 2007, tolls were collected on facilities in 33 states, mostly on the state highway systems. Toll projects are more prevalent in fast-growing states, such as Florida and Texas. About 6 percent of total mileage of the interstate system is tolled. During the past 13 years, 25 states had nearly no toll income, but nine states collect more than 10% of their highway revenues from tolls (national average of 4%; Maryland at 8%).

• By one standard measure, Maryland is one of six states with the most balanced revenue structure in the nation: most of its revenues come in roughly equal proportions from motor fuel taxes, motor-vehicle and motor-carrier taxes, federal aid, and other.

• Between 1998 and 2002, very few states spent significant sums of fuel tax revenues on transit. New York, Connecticut, Rhode Island, New Jersey and Maryland, which have statutory provisions for funding transit with fuel taxes, spent more than 15% of total fuel tax receipts on transit; only 11 states spent more than 5%. Maryland’s per capita transit funding growth is slightly behind the national average growth rate.

The sources of state funding used most for transit are: (1) gas taxes: used by 19 states; (2) general fund (ultimate source unidentified): used by 11 states; (3) motor vehicle/rental car sales taxes: used by 10 states; (4) registration/license/title fees: used by 10 states; (5) bond proceeds: used by 9 states; (6) general sales taxes: used by 9 states; and (7) interest income: used by 6 states. Twenty-seven states also use other types of funding for public transit such as highway funds, trust funds, miscellaneous revenues, fees, taxes, lottery funds, documentary stamps, and other types of assessments.

4 DIRECTIONS FOR STATE FUNDING

Consider some of the key factors with which state transportation agencies must contend:

• Fuel taxes and vehicle registration fees shoulder most of the load for state funding in most states.

• The buying power of the fuel tax has substantially eroded over the last 50 years relative to construction and operating costs.
Public sentiment has moved slowly but definitely over that same period toward more mistrust of government and less willingness to fund government activity. Even in times of economic prosperity increasing fuel taxes proved too difficult to attempt in most states; given increases in fuel price over the last five years and today’s economic climate, it is hard to see how anything short of a crisis will compel elected officials to make the kinds of increases in the fuel tax that would be required to handle backlogged maintenance, congestion, new growth, and increasing demands for transportation to explicitly contribute (or not detract from) other aspects of livability.

The increased propensity to vote against increases in taxes or fees has not kept states from requiring, in part in response to public demands, for increasing highway and environmental standards and for increasing public debate and accountability, which increase the cost of construction.

Over 50 years the transportation system has grown and aged, so now an increasing share of revenues must be spent on repair and replacement rather than on new construction. Backlogs on highway maintenance and on highway and transit capital are estimated in decades, not single years.

For many reasons, the amount of travel in general, and of peak-period travel in particular, has grown many times faster than population, lane miles, or transit service, with the result that congestion has grown many times faster than has population.

In sum, demands, costs, and disagreements are all growing at rates greater than those for revenue.

Those conditions are a recipe for funding problems. Funding problems occur when revenues are insufficient to cover expenditures for the construction, operation, and maintenance of facilities and services. That is true for transportation, and for all public facilities and services. In concept, there are only a few categories of things one can do to reduce a funding gap:

1. **Increase revenues**

   - **Increase the yield of existing taxes or fees by increasing rates.** For state surface transportation in Maryland that could mean, for example, raising the gas tax per gallon or vehicle registration fees.
• **Implement new taxes or fees.** For state surface transportation in Maryland that could mean, for example, a weight-mile tax on heavy vehicles or new toll policy and facilities.

2. **Decrease costs and expenditures**

• **Increase the efficiency of operations.** Actions of this type have a lot of political appeal because they imply the public can have the same services with no new cost—government will work smarter. Without deep changes to institutional structures, however, one hits practical limits to this policy pretty quickly: (1) it has been around for decades—either agencies have already done most of what they can to reduce costs, or they have found practical ways to keep operations, staffing, and wages from changing too much; and (2) if the basic surface transportation system does not change, the best one may hope for is efficiency improvements on the order of 5 to 10%, not 50 to 100%. Similarly, policies to have the private sector lease the assets and take over operation are based on a presumption that the private sector can operate the facilities more efficiently than the public sector. But private entities still need full payback and a profit, so the savings that come from privatization may be small absolutely and not greatly different from the savings the public sector itself could have generated by shifting to tolling or other forms of pricing and better asset management.

• **Off-load costs to other agents.** This policy is not about cutting services; it is about having other institutions be responsible for them. One way to do that is to pass facilities and operations back to local governments (e.g., turning over state highways; changing the rules by which local portions of state highways get paid for—more local contributions from sources like impact fees or local-option levies). Another way to do that is to lease assets back to the private sector (e.g., Indiana gave a 75-year lease to a private consortium to that will then manage—and toll—part of the state’s highway system).

3. **Borrow.** Broadly, the economic rationale for borrowing is that (1) the investments thus funded will return more in revenue or benefit than the cost of principal and interest (in present discounted value), and, as a possible corollary, (2) economies of scale that larger amounts of funding allow will make the overall cost of projects less expensive (especially if...
construction costs are escalating faster than the rate for borrowing). For state surface transportation in Maryland that could mean, for example, increased use of Grant Anticipation Revenue Vehicle (GARVEE) bonds that allow states to issue loans for transportation projects, backed by future federal gas tax returns to the states. The problem with the shift from the old pay-as-you-go to the new debt financing is that it is a one-time good deal. Federal gas tax revenues that would have been available in future years for future desired and beneficial projects\textsuperscript{7} will not be available: they will be paying off the binge of construction and maintenance that was financed earlier by debt. As noted earlier in the report, borrowing is financing, not funding. Borrowing is about the timing of how resources will be spent, under the presumption that those resources are or will be available.

4. **Reduce the need for transportation facilities and services.**
   
   • **Implement programs to reduce demand for some (expensive) transportation facilities and services.** One might think of this as a cost-cutting measure, but we list it separately because of the emphasis in surface transportation on travel-demand management. The paradox (at least, the hope is that it is a paradox) is that a state would spend more on programs in the short run, which would increase the funding gap, other things being equal. The hope is that those expenditures would reduce demand, or at least its rate of growth, so that the costs of future facilities can be avoided or substantially delayed. This strategy becomes more debatable, as it literally is now, as various groups make arguments for increasing expenditures on alternative modes of transit on the basis on avoided cost for highway systems or livability benefits.

   • **Redefine need.** For example, several MPOs have changed their goals from peak-hour level of service from D to E: problem solved.

   NCSG’s research found no state to be a pioneering innovator on all the potential policies that nest within these categories of strategies, or to be uniquely

\textsuperscript{7} Including many that we cannot predict now because we cannot predict all the changes in the economy, the environment, technology, public opinion, and politics that will change the kinds of transportation projects desired.
advanced on any particular one. In the rest of this section we list the strategies we think are most promising in general, and most practical in the Maryland context:

- **Increase the rates for the two work horses: the fuel tax and vehicle registration fees.** Technically, this strategy is obvious. It meets most of the efficiency criteria; it is related to road use (not perfectly, but more so than, say, a sales or property tax); it is easily understood in theory, and it has been around for decades in practice; administratively, it is cheap—one could double the tax and revenue with effectively no new costs of collection. Politically, however, few states have increased fuel taxes, and most that have done so have adopted increases that failed to keep pace with inflation. Florida, New York, and North Carolina, for example, have used some type of indexing to reduce the erosion of their fuel tax’s purchasing power. Some states (e.g., California, Illinois, West Virginia) impose a tax both on gallons and sales. Maryland, like most other states, talks about gas-taxes increases in each legislative session, but it cannot muster the votes. Some states (e.g., New Jersey, Michigan, Texas) now collect more in registration fees than in fuel taxes. Lots of other special fees are possible, but the more specialized they are, the less likely they are to contribute significantly to the overarching goal of closing the funding gap.

- **Anticipate the shift to a decreasing federal role and to other user fees.** Several studies have documented reasons to be concerned about the ability of the federal highway trust fund to remain solvent, much less to continue its same percentage contribution to state federal and state highways. Many observers expect the long-run trend toward user fees to continue. Transportation economists support the idea of road-user fees: fees that vary by time, location (route), and vehicle type. Tolls are charged on many highways and bridges now; their rate schedule could be changed so that they could become road-user fees. Technology has advanced and substantially reduced prior obstacles (e.g., electronic toll collection; GPS positioning). Many states have existing toll roads and many are studying various forms of broad-based pricing (e.g., Washington, Minnesota8).

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8 Outside of the US, large cities (London, Singapore) and whole countries (Germany, Holland) have implemented broad-based systems for road-user charges.
Several new facilities have been built (e.g., California, Colorado, Minnesota, Florida, Virginia). Many states are acting on the practical advice that change will have to be incremental and provide some new capacity, and are studying or building high-occupancy toll (HOT) lanes (e.g., California). Short of full tolling, some states are considering mileage-based pricing, aka VMT charges (e.g., Oregon). Also in Oregon: a weight-mile fee calculated to recover the extra costs that heavy vehicles create by the much higher damage their high axle-weight causes, which funds almost 20% of the state’s highway budget. Road-user charges address directly the basic fairness principle: pay for what you use. A typical financing toll used at the local level could also be applied at the state level: transportation impact fees. For almost all of these fees there is the inevitable debate about the effect of new fees on economic development and jobs. Another area for funding: charges for use of the public right of way (air rights for development; franchise fees for utility lines).

- **Think not just about filling the funding gap, but about the structure of transportation funding.** A majority of transportation economists believe that charging travelers for their specific use of the transportation (by route, time, and vehicle type) would improve efficiency of use. Gas consumption taxes are a poorer measure of system costs than tolls; better pricing could improve economic productivity, environmental quality, and other aspects of livability.

- **Tie funding to other public purposes.** This point is a variation on the previous one. If transportation projects are meeting many goals, including ones outside of transportation, then they are more likely to get support, and more support means a greater likelihood of funding. A different point is that getting state priorities across departments clear and integrated means that funding can be a powerful tool for encouraging local-government compliance. That idea was embedded in the Maryland’s Smart Growth policies about priority funding areas, and it is likely to be embedded in the new HUD / EPA / USDOT “Sustainable Communities” initiative. It was the cornerstone of the Massachusetts Commonwealth Capital Fund under governor Mitt Romney: several state agencies agreed on broad goals and consolidated their funding programs and criteria around ideas related to
smart growth and sustainability; local governments changed what they submitted in their grant applications.

Other examples of aiming your funding and at what you are trying to achieve: use pricing and user charges tied to benefits received or costs imposed. You want congestion relief…fund it with revenues from congestion pricing. Programs to reduce greenhouse gas emissions…fund them with emissions charges. The advantages: (1) people see the link and see that their fees are being used to fix what they are paying to have fixed; (2) revenues are raised to do the fixing; and (3) the amount of fixing needed is reduced because people change consumption in response to the fees.

A related point illustrated in the examples above: link funding and performance, including non-transportation performance. Local governments competing for state money should have to meet state performance objectives. And the state should have an evaluation / audit program that requires better follow-up of local and state reporting of outcomes.

- **Keep an eye on procurement procedures.** We have done no evaluation on this issue, but many states have implemented process to combine several of the stages of a project’s life (design, build, operate, maintain) under a single contract that allows for economies of scale and scope and, thus, cost savings.

- **Be careful of debt financing and general taxes.** Debt financing has its place, as noted above, but it will have its problems if abused. Expenditures should still pass a benefit-cost test. There is a tendency for money that comes in big lumps to find its way to projects that would not merit funding in an environment of fiscal constraint. General taxes make sense for government activity that provides broad user benefits that we either cannot or do not want to charge users and beneficiaries for directly (e.g., national defense, a legal system), though the trend toward privatization and fees is obvious everywhere (e.g., increasing fees at national parks, private recreation facilities, gated communities and privatized public services). By not struggling through the debates and politics necessary to adopted expanded or new user fees, state and local government puts pressure on
general fund revenues from general funding sources (e.g., property taxes) to fill the gap. The irony is that voters are implicitly saying “we won’t pay for it” and the government response is to try to make do by shifting general fund monies to wherever they are determined to be most urgently needed.

This report has provided an overview of some of the fundamental issues MDOT can expect to fact as it tries to reduce its gap between resources (revenues) and costs (expenditures). Some of the big themes will be debated for a long time: tax versus fee; debt versus pay as you go; public versus public/private partnership; financial planning (5 – 10 year horizon) versus budgeting (1 – 2 year horizon).

Many people think something should be done, but many of those people and many others are not ready to pay to do it.