MORE ROADS, MORE TRAFFIC

The Failure of Road-Building to Alleviate Traffic Congestion in Maryland

MaryPIRG Foundation

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Tony Dutzik

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For more information about MaryPIRG and the MaryPIRG Foundation, please contact us at:

3121 St. Paul St., Suite 26
Baltimore, MD 21218
410-467-0439

Or visit our Web site at www.marypirg.org.

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Executive Summary

Maryland has engaged in a flurry of road-building over the last two decades, adding 7,000 lane-miles to its road network between 1985 and 2000. Yet, despite the investment of millions of dollars in new highways, congestion continues to get worse.

A major reason is generated traffic — the new, longer, or diverted trips that develop once highway capacity in an area is increased. Generated traffic reduces or negates the congestion-fighting benefits of highway expansion.

Evidence from university studies of congestion patterns, government statistics on transportation and academic research shows that highway expansion is not an effective way to fight congestion. The state's current budget crisis makes highway construction an even more untenable option.

Road building has not alleviated congestion in Maryland.

- While the Baltimore and Washington metropolitan areas (including areas outside of Maryland) have each experienced a 47 percent extension of their road networks since 1982, both cities have also experienced increased congestion. In Baltimore, 44 percent of all travel now takes place in congested conditions, up from 25 percent in 1982. In Washington, 49 percent of travel takes place in congested conditions, up from 40 percent in 1982.
- The main culprit in increased congestion is the dramatic increase in the number of vehicle trips and miles driven on Maryland roads. Since 1985, the annual number of vehicle-miles traveled in Maryland has increased by 50 percent — from 33 billion miles per year to 50 billion miles per year.
- Research and experience have shown that highway expansion has resulted in land-use changes and increased driving in Maryland. These changes cause expanded roads to fill up with traffic, reducing or negating the congestion-fighting benefits of highway expansion.
    - A 2000 study of 26 years of transportation data determined that one-third of all new road capacity in the Baltimore/Washington area has been used up by new travel that wouldn't have occurred without highway expansion. Other studies show even greater effects from "induced travel."
    - A 2000 MaryPIRG Foundation study found that between 64 percent and 94 percent of properties in nine Maryland highway corridors were developed after the completion of the highway — a clear demonstration of how highway construction can alter land-use patterns.
    - The experience of the Interstate 270 widening project of the mid-1980s provides one example in which a major highway expansion failed to relieve or even reduce traffic. By 2000, portions of the highway were operating at 130 percent of the travel load that had been projected by 2010.

Maryland cannot afford to spend billions on new or expanded highways.

- Urban freeways typically cost more than $2 million per lane-mile to reconstruct. Complex projects — such as the Woodrow Wilson Bridge project, the Springfield Interchange in Northern Virginia, and the proposed Inter-county Connector — are even more expensive, costing hundreds of millions or billions of dollars to complete.
- Road construction imposes numerous indirect costs, including higher household transportation expenditures, loss of open space, public health costs from air pollution, and costs due to highway accidents.
- Existing transportation funds are insufficient to support both highway expansion and the development of transit and other alternatives.

State and regional transportation agencies already project major shortfalls in transportation funding over the next two decades.

- Despite the state's recent well-publicized efforts to improve transit, highway expansion remains a higher budget priority than transit expansion. The state's 2001-2006 transportation plan, for example, includes 32 percent more capital funding for major highway improvements than for major transit improvements.

Maryland should shift its transportation strategy away from costly highway expansion projects and toward alternatives that can provide more transportation choices to residents. Specifically, Maryland should:

1) **Stop wasteful highway projects,** especially those that encourage growth outside of the state's Priority Funding Areas (PFAs) and promote automobile-dependent land use patterns. PFAs are designated by counties under Maryland's 1997 Smart Growth law as planned growth areas worthy of state infrastructure investment.
2) **Support land-use policies that reduce the need for automotive travel,** including the construction of transit-oriented developments near transit stations, the enforcement of the state's "Smart Growth" policies, and the use of innovative land-use plans that encourage mixed uses.
3) **Invest in transit** by maintaining the funding levels needed to attain Governor Glendening's goal of doubling transit ridership by 2020.
4) **Get the most out of existing highways** by adequately funding highway maintenance and expanding the use of intelligent transportation systems that use technology to provide information to drivers and manage traffic flow.
5) **Promote automobile trip-reduction strategies and transportation alternatives** by encouraging telecommuting and car- and van-pooling and improving facilities for pedestrians and bicyclists.

Introduction

The era of highway construction in Maryland that began after World War II promised great changes for the state's citizens: greater mobility, new economic opportunity in new suburbs, and more flexible lifestyles.

More than 50 years later, highway planners have succeeded beyond their wildest dreams in transforming Maryland's landscape and its character. Much of the transformation has been positive. But, as time has passed, the negative aspects of highway expansion have become more and more evident.

For many, mobility has been transformed from an opportunity to a requirement, as spread-out land-use patterns demand long trips from home to work to school to shopping and recreation. Marylanders now watch with alarm as development spreads inexorably outward into formerly rural and natural areas, following the path of asphalt. And for daily commuters, the automobile has been transformed from a symbol of flexibility and freedom into a kind of comfortable prison in which many are trapped during seemingly endless — and ever-worsening — traffic jams.

Then there is the cost — the billions of dollars in taxpayer investment to build and maintain highways, the toll in pollution and lost open spaces, the deterioration of once-lively urban areas.

Maryland has two options for its transportation future. It can continue the ways of the past by spending lavishly on new highways that do little to alleviate long-term congestion problems while promoting sprawling growth patterns. Or the state can embark on a new transportation future by investing in alternatives that bring greater choice to Maryland commuters and encourage the development of more livable communities.

Over the last decade, in the midst of an economic boom, Maryland has had the resources to hedge its bets — to invest in both highway expansion and, to a lesser extent, transit. Those times are clearly over. But while an increasing number of public officials and citizens have come to realize the need to chart a new course for the state's transportation system, highway construction still remains the state's number one response to congestion.

Current long-range transportation plans call for major investments in highway widening projects across the state. Many Maryland lawmakers continue to express support for expensive new highways such as the $1.5 billion-dollar Intercounty Connector, even as they cut deeply into Governor Glendening's highly touted transit initiative.

Amid the state's current fiscal difficulties, public officials will be called upon to make tough choices about which transportation projects to fund, which to leave on the drawing board, and which to delete from state and local plans. Maryland's experience over the last two decades, as documented in this report, serves as a powerful lesson for why policy-makers should abandon Highway Era approaches to the state's transportation challenges.

Despite Highways, Congestion is on the Rise

Over the last two decades, Maryland has engaged in a flurry of road-building. The state has added more than 7,000 lane-miles to its road network since 1985.[1] At the same time, traffic congestion in many parts of the state has only gotten worse. One of the most important reasons is that new road capacity alters land-use patterns and the behavior of drivers, generating new traffic that reduces or eliminates the congestion-fighting benefits of highway construction.

HISTORICAL TRENDS

Between 1982 and 1999, the Baltimore and Washington metropolitan areas (including portions outside of Maryland) each extended their road networks by 47 percent. That increase was nearly double the rate of population growth over the same period.

However, that expansion was dwarfed by a dramatic jump in the number of vehicle-miles traveled, which increased by 80 percent on Baltimore-area roadways and 82 percent on Washington-area roads — nearly three times the rate of population growth.[2]

Major metropolitan areas weren't the only places in Maryland to see an increase in driving. Statewide, more than 50 billion miles were traveled on Maryland roads in 2000, an increase of more than 50 percent over 1985. (See Figure 3, next page.)[3]

The increase in the number and length of trips on the state's roads has led, predictably, to increases in both the prevalence and severity of congestion. In the Baltimore area, the percentage of daily travel affected by congestion has increased by 76 percent since 1982 and now approaches the level of congestion on the Washington area's notoriously gridlocked highways. (See Figure 4, next page.)

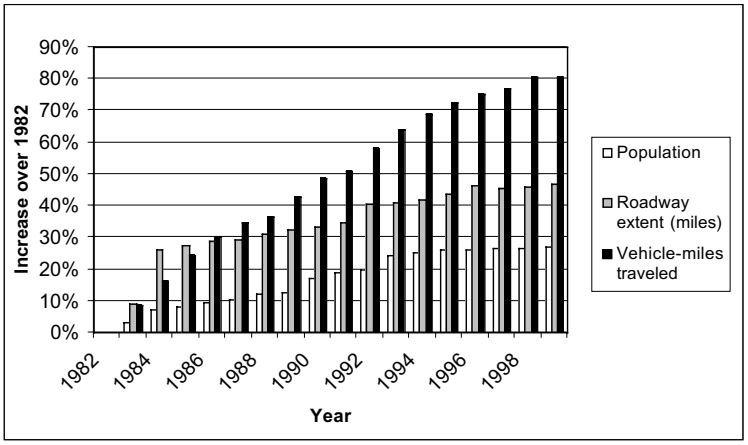


Figure 1. Change in Population, Road Miles and Vehicle-Miles Traveled in Baltimore Metro Area

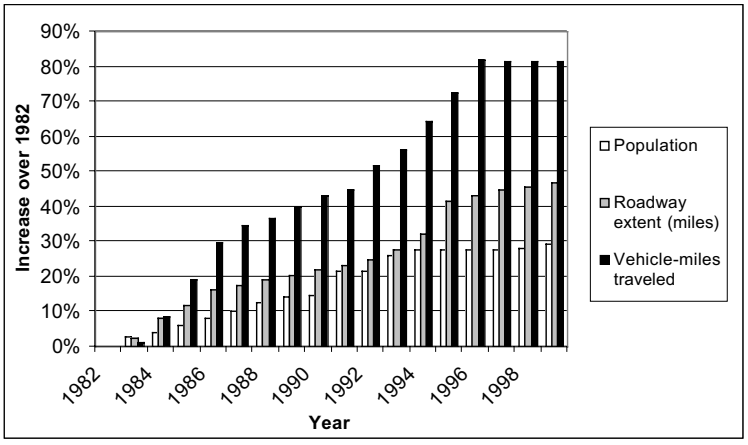


Figure 2. Percent Change in Population, Road Miles and Vehicle-Miles Traveled in Washington Metro Area

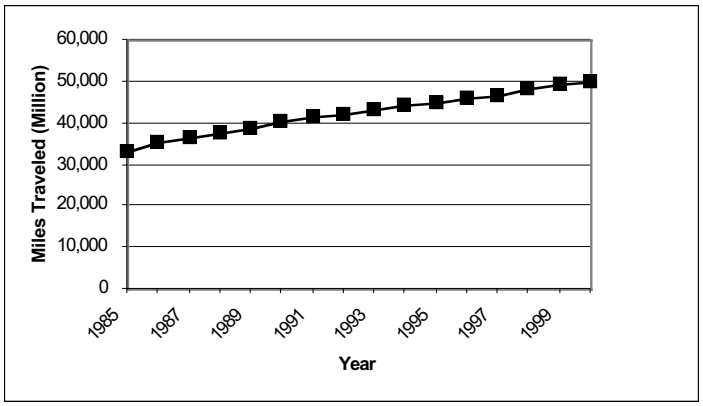


Figure 3. Vehicle-Miles Traveled in Maryland

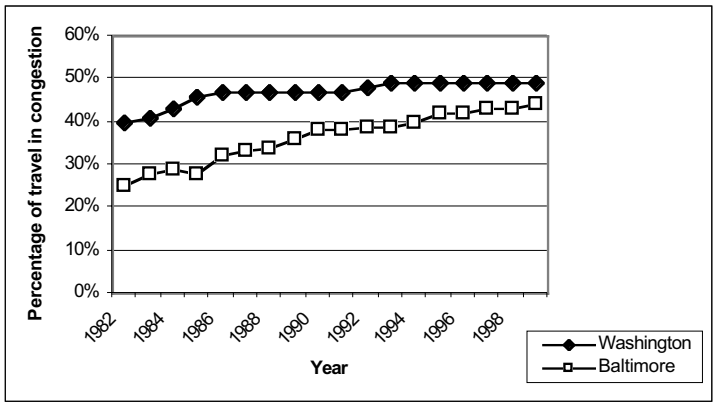


Figure 4. Percent of Daily Travel in Congestion

"Rush hour" in Baltimore and Washington has gradually extended into a "rush period" that lasts for approximately 6 to 8 hours each day in both metropolitan areas.[4] And the level of congestion has continued to worsen.

The Texas Transportation Institute (TTI) has created a measure called the Travel Rate Index (TRI) to measure the additional travel time that a peak hour trip takes due to congestion. A TRI of 1.00 means that rush hour trips take 100 percent of the time (or the same amount) as non-peak trips. A TRI of 1.10 means that peak hour trips take 10 percent longer than non-peak trips.

Between 1982 and 1999, Baltimore's TRI increased from 1.07 to 1.25, meaning that the time penalty for traveling during rush hour has tripled in the last two decades. An hour-long non-congested commute in Baltimore now takes an extra 15 minutes to complete during rush hour. In Washington, the TRI increased from 1.17 to 1.42, meaning that an hour-long non-peak trip now takes an extra 25 minutes to complete during rush hour. Washington's TRI ranks fourth-worst among the 68 urban areas studied by TTI, behind only Los Angeles, the San Francisco Bay area and Seattle. Baltimore's TRI ranks 26th-worst. (See Figure 5.)

GENERATED TRAFFIC

While some of the increase in vehicle-miles traveled can be attributed to population growth and demographic changes such as the growing number of women in the workforce, other factors are just as important. In fact, the very road expansion projects that have been undertaken to alleviate congestion have actually triggered more of the travel that leads to clogged highways. This phenomenon is called generated traffic.

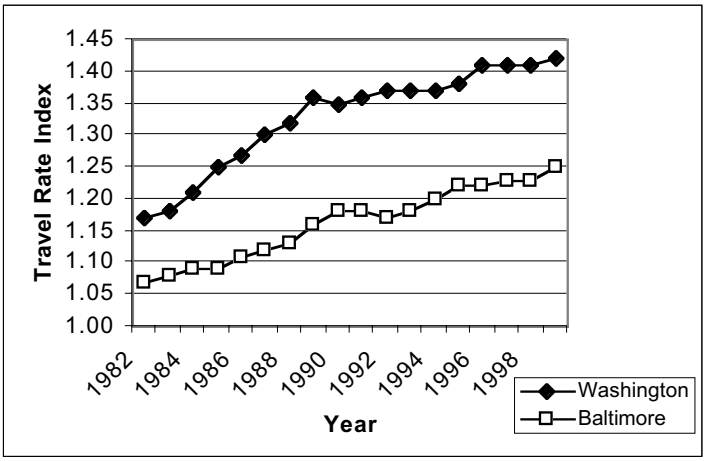


Figure 5. Travel Rate Index

The concept of generated traffic is straight out of basic economic theory — specifically, the concept of supply and demand. The concept of supply and demand holds that as supply of a given item increases, prices will drop, leading to increased consumption.

In the first graph below (Figure 6a), the curve D represents demand for a service and S represents supply. In the case of highway use, price can be expressed in terms of time — the longer it takes to get somewhere via a particular highway, the less likely people are to use it. The supply curve S represents the amount of travel possible on a highway at a particular cost in time.

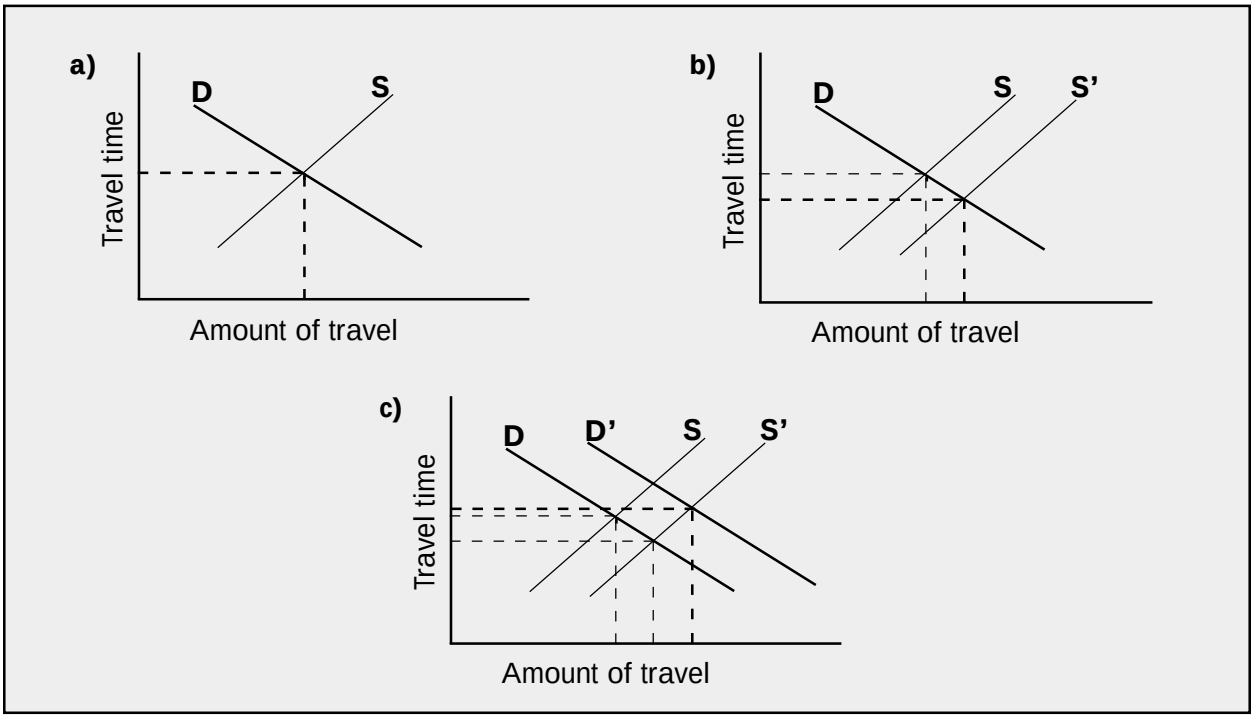
Shifting the supply curve to S' by increasing the capacity of a highway decreases the cost of travel, leading in turn to increased travel on the highway. (See Figure 6b.)

Yet the increase in travel along the existing demand curve is not the only effect of road expansion. The creation of a new or expanded highway not only results in a greater allocation of existing trips to the newly expanded highway, but actually *expands the pool of potential trips* by attracting new development to the highway corridor and squeezing out other modes of travel (for example, causing a significant decrease in ridership that forces the elimination of a bus line).

The result is the creation of a new demand curve (D'). The new equilibrium (in Figure 6c) is the junction between the new, expanded supply curve (S') and the new demand curve (D'). In this example, not only has the amount of travel increased, but so has the price in terms of travel time. In short, each trip on the expanded highway takes longer than it did before the highway was expanded. This increased congestion is the result of generated traffic.

Of course, each situation will have its own unique supply and demand curves. In some cases, as in the hypothetical example above, the cost of travel may actually increase as a result of highway expansion, while in others, it may be equal to or somewhat below what it was pre-expansion. The point of this example is that induced travel severely reduces the effectiveness of highway expansion as a means to reducing congestion in the long run.

Figure 6. Supply and Demand Before Road Construction, After Highway Expansion, and After Generated Traffic



Diverted and Induced Traffic

There are two main categories of generated traffic: diverted traffic and induced traffic.

Diverted traffic is the shifting of existing trips to a different time, route or destination.[5] Diverted traffic can occur for several reasons:

- Travelers will alter the time of their trip to avoid congested periods. Expansion of capacity enables some drivers that had previously avoided "rush hour" to travel during the peak period.
- Travelers who typically use other routes will choose a highway with expanded capacity if they perceive their trip will be quicker.
- Travelers will sometimes alter their destination (choose to eat in a different restaurant, shop in a different mall, or live in a different neighborhood) if they perceive a reduction in travel time.

Induced traffic is the creation of entirely new automobile travel. Induced traffic also has several forms:

- Travelers switch from other modes of transport to automobile (for example, a commuter rail passenger who decides to drive to work rather than ride the train once new highway capacity is created).
- Travelers make entirely new trips.
- Residential and commercial development springs up along new highways and beyond their termini, attracting drivers to make trips that would otherwise not have been made. The perceived reduction in travel time allows this development to take place in more remote areas than would otherwise be possible.

Table 1 summarizes some of the types of driving behavior changes that can result from added highway capacity.

Table 1: Sources of Generated Traffic[6]

Type of Generated Traffic	Category	Time Frame	Travel Impacts	Cost Impacts
Shorter Route Improved road allows drivers to use more direct route.	Diverted trip	Short term	Reduction	Reduction
Longer Route Improved road attracts traffic from more direct routes.	Diverted trip	Short term	Small increase	Slight increase
Time Change Reduced peak period congestion reduces the need to defer trips to off-peak periods.	Diverted trip	Short term	None	Slight increase
Mode Shift: Existing Travel Choices Improved traffic flow makes driving relatively more attractive than other modes.	Induced vehicle trip	Short term	Increased driving	Moderate to large increase
Mode Shift: Changes in Travel Choice Less demand leads to reduced rail and bus service, less suitable conditions for walking and cycling, and more automobile ownership.	Induced vehicle trip	Long term	Increased driving, reduced alternatives	Large increase, reduced equity
Destination Change: Existing Land Use Reduced travel costs allow drivers to choose farther destinations. No change in land use patterns.	Longer trip	Short term	Increase	Moderate to large increase
Destination Change: Land Use Changes Improved access allows land use changes, especially urban fringe development.	Longer trip	Long term	Increased driving and auto dependency	Moderate to large increase
New Trip: No Land Use Changes Improved travel time allows driving to substitute for non-travel activities.	Induced trip	Short term	Increase	Large increase, reduced equity
Automobile Dependency Synergetic effects of increased automobile oriented land use and transportation system.	Induced trip	Long term	Increased driving, fewer alternatives	Large increase, reduced equity

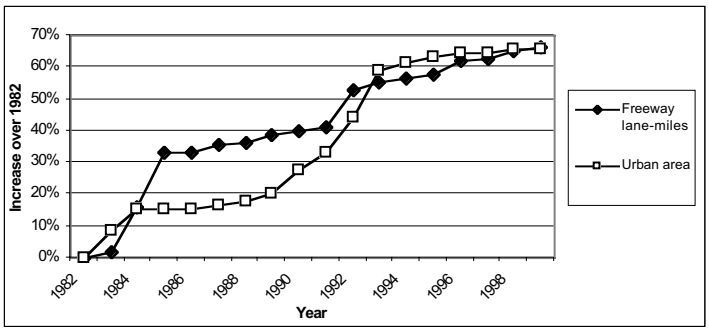


Figure 7. Increase in Freeway Lane-Miles and Urban Area Size in Baltimore Metropolitan Area

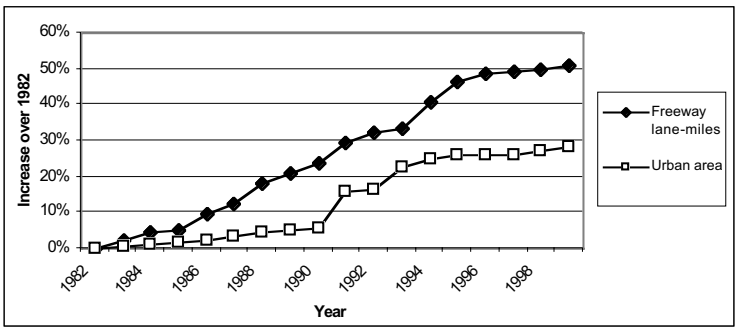


Figure 8. Increase in Freeway Lane-Miles and Urban Area Size in Washington Metropolitan Area

THE MARYLAND EXPERIENCE

Highway proponents argue that the increases in demand following highway expansion are caused by pre-planned development and "pent-up" demand for travel rather than new travel stimulated by new roads. The debate is commonly viewed as a "chicken and egg" problem. But recent academic studies and real-life examples in Maryland demonstrate clearly that highway construction is the catalyst for increased travel, not the other way around.

Highway Expansion Leads to More Driving

A 2000 study investigated the concept of induced travel by reviewing 26 years of data from every county in Maryland, Virginia and North Carolina. The researchers found that a 10 percent increase in lane-miles results in an increase in vehicle-miles traveled of between two and six percent.[7] In the Baltimore-Washington area, the study found that about one-third of all additional road capacity was used up by induced travel. The results were similar for both urban (Baltimore/Washington) and mainly rural (North Carolina) areas studied. The researchers also concluded that the growth in lane-miles preceded the increase in vehicle travel.[8] Other studies have found even greater induced travel effects, estimating long-run travel increases at between 6 and 10 percent for every 10 percent expansion of highway lane-miles.[9]

Highway Expansion Alters Land-Use Patterns

A 2000 study by the MaryPIRG Foundation documented that large-scale development has typically followed — not preceded — the construction of highways in Maryland. The study found that between 64 percent and 94 percent of properties in nine Maryland highway corridors were developed after completion of a major highway.

Even more telling, land near highways has developed more quickly than land outside highway corridors — and the difference becomes greater the further one gets from the city center. For example, two percent more land has been developed in highway corridors five to 10 miles away from Baltimore than in non-corridor areas the same distance from the city. But when the distance becomes 15 to 20 miles, the difference in the amount of developed land reaches 13 percent.[10]

This relationship between highway expansion and land-use pattern changes is borne out by region-wide data. The rapid expansion of freeway capacity in the Baltimore region during the 1980s and early 1990s was followed by a similar expansion in the size of the metropolitan area. A similar trend held true during the same period in the Washington metropolitan area.[11] (See Figures 7, 8.)

Highway Expansion Fails to Alleviate Congestion

Interstate 270 is a classic case of generated traffic at work. During the 1980s, Maryland widened 12 miles of I-270 at a cost of $200 million. Within eight years, traffic on I-270 had exceeded 2010 projections. By 2000, portions of the highway were operating at 130 percent of the travel load that had been projected for 2010.[12]

The presence of the highway had a dramatic effect on land use in the corridor. In the five years before I-270 was widened, 1,745 new homes were approved along the corridor. That number jumped to more than 13,000 in the five years after the widening project.[13] The impact of the highway took transportation planners by surprise: employment growth in the I-270 corridor of Montgomery County increased by 45 percent more than projected, while population growth increased 23 percent more than projected.[14]

CONSTRUCTION DELAYS

Generated traffic is just one way that highway expansion can lead to more congestion. Congestion caused by highway expansion projects can reduce — and in some cases, outweigh — the congestion-reducing benefits of the project once completed.

In the case of complicated, long-term projects, traffic delays can last for years. In a 1999 report, the Surface Transportation Policy Project (STPP) presented four case studies of major road projects across the country and the impact of construction delays. The analysis found that it would take between two-and-a-half and eight years for drivers on three of the roads to "break even" on the time they lost during construction. STPP projected that drivers on the fourth road segment — the Springfield Interchange on the Capital Beltway in Northern Virginia — would never break even on the time they lost during construction.[15]

Highway Expansion is Expensive

Even with the impact of generated traffic, it is theoretically possible for Maryland to build enough highways to alleviate congestion — at least in the short term. But the level of highway construction that would be needed to maintain current congestion levels, let alone reduce them, is daunting.

The Texas Transportation Institute estimates that the Baltimore metropolitan area would need to add 58 lane-miles of freeway and principal arterial streets *each year* just to maintain 1999 levels of congestion at projected levels of growth in vehicle-miles traveled. From 1982 to 1999, Baltimore added an average of only 34 freeway and arterial lane-miles each year. The Washington metro area would need to add 64 lane-miles per year to maintain current congestion levels. Reducing congestion levels would require the construction of even more highways. And that does not count the impact of generated traffic, which significantly reduces the congestion-fighting benefits of every lane-mile built.[16]

The cost for such a highway expansion program would be overwhelming. A 1992 report for the federal Department of Transportation estimated that reconstruction of an urban freeway with additional lanes costs approximately $2.3 million per lane-mile (in 1989 dollars).[17] In addition, every new mile of highway created incurs maintenance expenses in future years. Table 2 details the average costs of various highway construction projects.

However, experience has shown that the price tag for highway expansion projects can be much higher — especially for complex projects in already congested regions. The Springfield Interchange in

Table 2: Estimated Costs of Highway Projects per Lane-Mile, in thousand dollars[18]

Project	Built-up area	Outlying area
Freeways and Expressways		
Reconstruction with more lanes	$2,283	$1,720
Reconstruction with wider lanes	$1,676	$1,210
Pavement reconstruction	$1,171	$1,055
Major widening	$935	$750
Minor widening	$676	$519
Resurfacing with shoulder improvements	$319	$279
Resurfacing without shoulder improvements	$139	$128
Other Divided Highways		
Reconstruction with more lanes	$2,056	$1,548
Reconstruction with wider lanes	$1,510	$1,089
Pavement reconstruction	$1,058	$950
Major widening	$842	$676
Minor widening	$608	$466
Resurfacing with shoulder improvements	$288	$252
Resurfacing without shoulder improvements	$126	$114
Undivided Highways		
Reconstruction with more lanes	$1,850	$1,393
Reconstruction with wider lanes	$1,359	$980
Pavement reconstruction	$954	$856
Major widening	$757	$608
Minor widening	$547	$420
Resurfacing with shoulder improvements	$260	$226
Resurfacing without shoulder improvements	$113	$104

Northern Virginia — known as the "Mixing Bowl" — accommodates 430,000 vehicles daily and has a reputation as the most dangerous spot on the Capital Beltway. The Virginia Department of Transportation is in the midst of an eight-year project to rebuild the interchange, constructing more than 50 bridges and widening Interstate 95 to 24 lanes in spots. The current estimated price of between $650 million and $700 million far surpasses the original estimate of $220 million in 1994.[19]

Another extraordinarily expensive highway project is underway just a few miles away, where the rapidly decaying 40-year-old Woodrow Wilson Bridge between Maryland and Virginia on the Capital Beltway is about to be replaced. Earlier estimates put the price tag of the entire project — which will replace the current six-lane span with 12 lanes of highway — at $2.4 billion. In December, however, Maryland officials were shocked when the single bid they received for construction of one segment of the project was $373 million more than they had expected.[20]

The Mixing Bowl and Wilson Bridge examples demonstrate that the cost of transportation expansion projects does not end once they are completed. In the case of the Capital Beltway, the decision made decades ago to build the road now dictates the expenditure of billions of dollars to repair failing segments and deal with the incredible demand placed on the system by cars attracted to the highway. Any transportation investment — whether for highways or transit — must be understood as committing public dollars not just in the present, but for decades to come. As a result, the transportation choices Maryland makes now will have repercussions far into the future.

Indirect Costs

Highway expansion imposes a range of other costs on Maryland residents far beyond the money they pay in taxes:

Household transportation costs — The expansion of highways precludes individuals from making other transportation mode choices in two ways: 1) it reduces the availability of alternative transit modes by diverting public funds to highway construction and, 2) it drives automobile-focused development patterns that make it more difficult for individuals to obtain access to transit service.

As a result, more and more residents must use their cars to make routine trips. And that can be expensive. The average household in the Baltimore area spends $5,236 annually on transportation, second only to shelter among household expenses.[21]

Loss of Open Space — Between 1982 and 1992, approximately 15,500 acres of land per year were developed in Maryland. That pace of development increased dramatically between 1992 and 1997, to 35,500 acres per year.[22] The amount of land in farming in the state declined 3 percent between 1992 and 1997.[23] While highway construction is not the only reason for sprawl, the existence of an extensive highway network allows for the spread-out development patterns that increasingly result in the loss of open space and agricultural land throughout the state.

There is no good way to put a dollar value on the loss of aesthetic beauty or Maryland's agricultural heritage. But these are clearly costs driven by highway expansion that concern many Maryland residents.

Accidents and Public Health Costs — The National Highway Traffic Safety Administration estimated in 1994 that traffic crashes cost an annual $150 billion in the United States.[24] Air pollution from automobiles has been linked to increased hospital admissions for asthma and other respiratory ailments. Because highway expansion increases the number of miles traveled and trips taken, it can be expected to lead to increases in both accident occurrence and air pollution.

Other impacts of highway expansion include noise pollution, water pollution caused by runoff from pavement, and loss of wildlife due to roadkill and habitat disruption.

HIGHWAYS REMAIN THE PRIORITY OVER TRANSIT

Despite the cost of highway expansion projects, their limited impact on congestion, and their encouragement of air pollution and sprawl, they remain a major part of Maryland's transportation strategy.

Over the six-year period of 2001-2006, the state plans to commit nearly $6 billion to highways versus approximately $5.5 billion to transit services. Of the $5.5 million transit share of state spending, about $675 million is expected to come from rail and bus fares. In terms of capital expenditures, about $2.5 billion is committed to "major" highway projects, defined as "new, expanded or significantly improved facilit(ies) or service(s)," with the remainder of the highway spending committed to system preservation, minor projects and studies.[25]

In contrast, approximately $1.9 billion of the state's $5.5 billion transit budget over the 2001-2006 period has been committed to major transit projects through the MTA and Washington Metro.[26]

In other words, over the next six years, the state is expected to spend approximately 32 percent more on expansion and improvement of the state's highway system than on transit expansion and improvement. Figure 9 contrasts the state's spending on highway versus transit projects.

The six-year transportation plan includes a variety of road-widening projects across the state. It also includes studies of several extremely controversial highway proposals, including:

Route 3 — The proposed expansion of the road from U.S. Route 50 to Maryland Route 32 in Prince George's and Anne Arundel counties. In the 1980s, this corridor had been designated as the location of an interstate highway, but plans for the new highway were scrapped amid community opposition. Now the Maryland Department of Transportation is again evaluating options for the corridor, including potential expansion of the highway.[28]

Route 32 — The conversion of two-lane road to four-lane road through Howard and Carroll counties between Maryland Route 108 and Interstate 70.

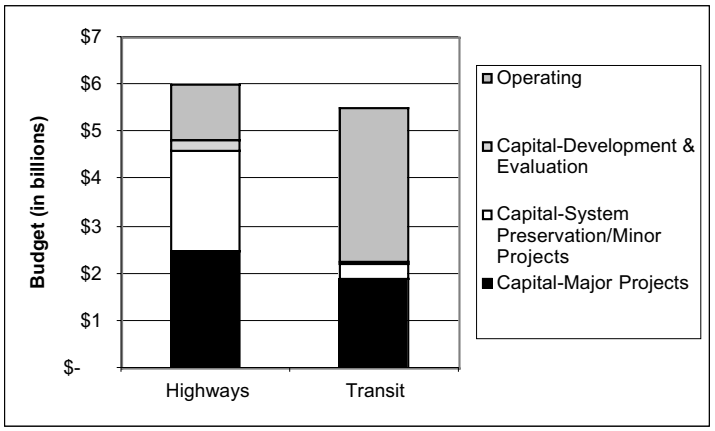


Figure 9. Projected Highway and Transit Spending Under Maryland Department of Transportation 2001-2006 Consolidated Transportation Program[27]

The current two-lane road traverses Howard County's agricultural district. Expanding the highway to four lanes would open up more of this region — as well as other lands west of Baltimore — to sprawl-style development.

Intercounty Connector — The construction of a new, $1.5 billion-dollar highway between I-270 and I-95 across Montgomery and Prince George's counties. This highway would form a major segment in an "Outer Beltway" around the Washington, D.C. area. The highway would cause severe damage to forests, streams, wetlands, parks and communities, encourage further sprawling development, increase auto use, and do little or nothing to reduce congestion on I-495, I-270 or I-95. In fact, the ICC would worsen congestion on numerous major commuter routes and at major intersections.

Transit would receive even less funding relative to highways were it not for the recent infusion of state money pledged by Governor Glendening as part of his "Smart Growth" initiative. The Governor's package includes $250 million in special funding for capital projects during 2002-2006 for the MTA and Washington Metro — about 13 percent of the total budget for major transit projects. This funding, however, is in jeopardy as a result of proposed FY 2003 budget cuts being debated as this report goes to press.

Looking back over the 1992 to 2000 time period, capital investment in the state's two largest transit systems has, with the exception of a few spikes, stagnated — and, until recently, so has usage. As Figure 10 demonstrates, capital spending (including funding from all sources) has remained stagnant for the Maryland MTA since the completion of the Baltimore light-rail system in 1992-93. The Washington Metro system witnessed gradual increases in capital spending from the 1992 to 1998 period but has seen a fall-off since.

The number of passenger-miles traveled on the two systems, after stagnating for much of the 1990s, has increased significantly in recent years. The number of passenger-miles traveled on the Maryland MTA system increased 10 percent between 1998 and 2000, while the number of miles traveled on the Washington Metro system increased 11 percent. (See Figures 11, 12.) In both cities, the growth in transit miles traveled has outpaced the growth in highway vehicle-miles traveled over the last several years. Baltimore and Washington were not alone in this regard: the 1997-2000 period was the first time since the introduction of the automobile that growth in transit use nationwide outpaced growth in driving for more than three years in a row.[30]

These recent increases in passenger miles traveled on both systems bode well for the future and show the potential for transit to accommodate trips that would otherwise be made by automobile. However, Maryland's public transportation systems will require a consistent infusion of capital resources to sustain and improve upon these ridership gains.

THE FUTURE: WILL THERE BE MONEY FOR NEW HIGHWAYS AND TRANSIT?

During the economic boom of the last decade, state officials have had money to apply to both highway and transit projects. But with the current fiscal crisis — and mounting obligations to maintain existing infrastructure — the state has far less flexibility with its transportation funds.

The need to repair and maintain existing transportation infrastructure is already putting a major

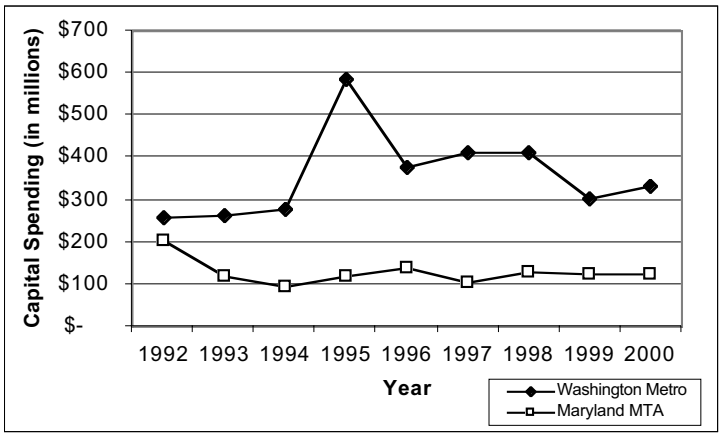


Figure 10. Capital Spending by Maryland MTA and Washington Metro[29]

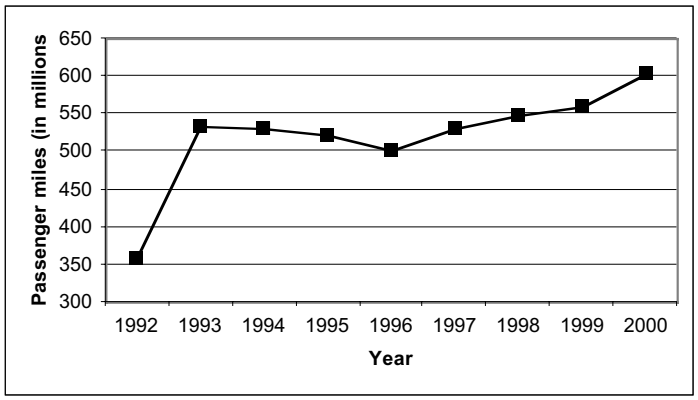


Figure 11. Passenger-Miles Traveled on Maryland Mass Transit Administration

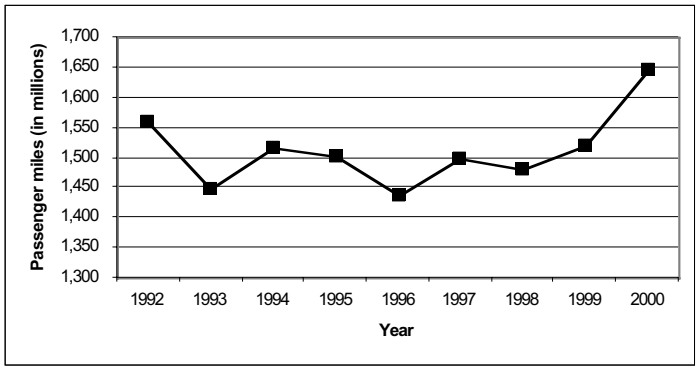


Figure 12. Passenger-Miles Traveled on Washington Metropolitan Area Transit Authority

strain on transportation budgets. In preparing its 2000 update to the Washington region's 25-year transportation plan, the National Capital Region Transportation Planning Board concluded that the region requires an increase of 50 percent in funding to meet basic maintenance, rehabilitation and expansion needs of the transportation system (including all modes).[31] The board projected $200 million in unfunded rehabilitation and maintenance needs over the next two-and-a-half decades.

Like highway systems, the transit systems created in the region over the last several decades are beginning to show their age. Recent ridership increases have brought the Washington Metro system close to the limit of the number of passengers it can accommodate and still maintain the system with current funding levels. Metro officials estimate that they will need $12.3 billion over the next 25 years to rehabilitate escalators, rail cars and buses, buy new rolling stock, and expand the system to handle expected increases in ridership. Of that amount, $3.7 billion — or 30 percent — is currently unfunded.[32] That amount also excludes several proposed expansions of the Metro system, such as the circumferential Purple Line.

Failure to invest in the upkeep of transit infrastructure will limit the ability of transit to accommodate new passengers — in effect, forcing more drivers onto the roads. Because a full rail car removes the equivalent of 200 automobiles from the highway, this could have a devastating effect on mobility in the region.[33]

As the recent economic downturn has demonstrated, various types of transportation projects are forced to compete for a limited pot of public money. Necessary maintenance of the current transportation system will impose larger and larger costs on transportation agencies. As a result, Maryland policy-makers will face increasingly difficult choices over how to allocate scarce dollars for system expansion.

Maryland's experience with highway expansion projects over the last two decades has shown that such projects are poor candidates for precious public resources. The state's heavy investment in highway projects has not succeeded in reducing congestion. Increased highway capacity has encouraged sprawling land-use patterns that increase automobile dependence and the amount of miles driven. And those land-use changes have also led to a loss of open space and other environmental effects.

Thankfully, Maryland has an alternative. It can invest in projects that provide transportation choices to Maryland residents, encourage more sustainable land-use patterns, and divert trips from the state's clogged highways.

A Better Transportation Future For Maryland

Maryland can no longer afford a transportation strategy that gives priority to costly highway expansion projects with dubious long-term benefits. Instead, the state should embark on policies that aim to stabilize — or even reduce — the growth in vehicle-miles traveled on the state's highways, while giving Maryland residents more transportation choices and encouraging more sustainable land-use patterns across the state.

Specifically, Maryland should:

1) Stop Wasteful Highway Projects

Despite the state's well-publicized recent emphasis on "Smart Growth" and public transit, many wasteful highway projects remain in the long-term plans of regional and state transportation agencies. Given Maryland's experience and the well-documented impact of generated traffic, highway widening and extension projects should be held to an extremely high level of scrutiny and not be relied on as the default response to local congestion problems.

That is not to say that all highway projects are without merit. Projects that remove existing highway bottlenecks and improve driver and pedestrian safety can be beneficial — provided they are cost-effective, environmentally benign, and in keeping with local residents' desires and growth management policies.

To the extent that highway expansion is undertaken in Maryland, it should occur exclusively to facilitate well-planned growth within Priority Funding Areas (PFAs). In its comments on the final draft 2001 Baltimore Regional Transportation Plan, the Baltimore Regional Partnership noted that the 20-year blueprint includes $480 million in widening projects outside of PFAs and $135 million for widening projects that promote growth outside of PFAs.[34] Any highway expansion project — even those within PFAs — should be rigorously evaluated to ensure that it supports, rather than detracts from, the state's growth management goals.

2) Support Land-Use Policies that Reduce the Need for Automotive Travel

There are several alternatives — some currently underway, others proposed — for encouraging development patterns that reduce the need for travel by automobile.

Transit Oriented Development — State officials have already committed funds to encouraging the development of commercial, recreational and residential opportunities within walking distance of transit stations. The first such development, the Symphony Center project in downtown Baltimore, opened earlier this year.[35] By attracting residents and businesses to centralized areas in close proximity to transit, such developments can reduce the need to travel by automobile.

Urban Revitalization — State policies that channel new development into already built-up areas can create centers of activity that provide attractive nodes for transit service and reduce the need for long automobile trips between work, home and shopping. Programs to promote redevelopment of "brownfields," revitalize urban areas, and channel existing state funds to already developed areas could all help promote this goal.

Innovative Land-Use Planning — Maryland has the capacity to go beyond "smart growth" by adopting innovative land-use policies. Such policies could promote the development of new "town center" districts in sprawling suburban areas, reorient development toward transit corridors, and promote mixed-use developments. One example of such a proposal is the balanced land-use scenario considered by the Montgomery County Transportation Policy Task Force in its recent deliberations on the county's transportation plan. The scenario included land-use policies that would bring residential development to a heavily commercial area of the county and commercial development to a heavily residential area, reducing the need for long commutes.

3) Invest in Transit

The state should follow through on the 1999 recommendations of the Transit Advisory Panel and continue to focus on meeting Governor Glendening's goal of doubling transit ridership by 2020. The effort should first focus on improving service on existing transit lines, then on expanding service to new areas. Increasing transit service in non-metropolitan areas of the state should be a major priority.

With regard to the Baltimore region, the state should aggressively pursue funding for the draft Baltimore Regional Rail System plan announced earlier this year. The plan would double the size of the region's rail network within the next 20 to 40 years.

With regard to the Washington metropolitan area, the state should follow through on — and be prepared to increase — its commitment of funds for Washington Metro renovation and capacity expansion. The state should also push for speedy construction of the circumferential Purple Line from Bethesda to New Carrollton.

Unfortunately, Maryland lawmakers appear ready to reduce by more than half the FY 2003 funding levels contained in the governor's original transit initiative. While the state does feel pressure to cut spending, delaying improvements in the state's transit system will only lead to continued automobile dependence for many Maryland residents, with all its associated costs.

4) Get the Most Out of Existing Highways

Protecting Maryland's multi-billion dollar investment in its highway system should be a top priority for state officials. With transportation funding promising to be tight for years to come, Maryland should continue to take a "fix it first" approach to its highway system.

There are also ways that Maryland can use intelligent transportation systems to improve the safety and efficiency of the state's highways. Maryland's Coordinated Highways Action Response Team (CHART) is such an effort, including traffic monitoring, incident management, traffic management, and traveler information components. Such programs should be expanded, but must also balance the desire for improved automobile traffic flow with the safety of pedestrians and bicyclists.

5) Promote Automobile Trip-Reduction Strategies and Transportation Alternatives

Transit is not the only alternative to driving. Walking, biking and telecommuting also provide alternatives to automobile use and should be encouraged through improved facilities and creative public policies. Incentives for car- and van-pooling should be maintained and enhanced. Measures to reduce transportation demand in Maryland have been demonstrated to be effective — the state Department of Transportation estimates that a combination of demand management programs reduced vehicle-miles traveled by more than a million miles per day in 2000.[36]

Notes

1. Data from U.S. Department of Transportation, Federal Highway Administration, Office of Highway Policy Information, "Highway Statistics Series," Summary through 1995 and annual editions from 1996-2000, Table HM-60.

2. Unless otherwise cited, this and all subsequent data on Baltimore and Washington road miles, vehicle-miles traveled and congestion from David Schrank and Tim Lomax, "The 2001 Urban Mobility Report," Texas Transportation Institute, May 2001.

3. Data from U.S. Department of Transportation, Federal Highway Administration, Office of Highway Policy Information, "Highway Statistics Series," Summary through 1995 and annual editions from 1996-2000, Table HM-60.

4. David Schrank and Tim Lomax, "The 2001 Urban Mobility Report," Texas Transportation Institute, May 2001, 17.

5. There is some debate about the degree to which diverted traffic is a "problem." The trips diverted onto a new highway are, by definition, taken from another road or another time, resulting in reduced congestion on that road or at that time. Diverted traffic is worth mentioning here for two reasons: 1) it is a necessary part of understanding why new highway capacity fills quickly and, 2) diverted traffic is clearly a problem for drivers who used the highway before it was expanded, whose expectations of reduced congestion are quickly dashed.

6. Todd Litman, "Generated Traffic and Induced Travel," Victoria Transport Policy Institute, 22 November 2001.

7. Alan Sipress, "More Lanes Better? Not Necessarily," *Washington Post*, 13 January 2001.

8. Lewis M. Fulton, Robert B. Noland, Daniel J. Meszler, John V. Thomas, "A Statistical Analysis of Induced Travel Effects in the U.S. Mid-Atlantic Region," *Journal of Transportation Statistics*, April 2000.

9. ibid. Recent research has also documented the impact of reduced travel — travel that is eliminated when highway capacity is decreased. One British study analyzed 60 cases in which roads were closed, finding that between 20 and 60 percent of driving trips on those roads were eliminated or shifted to other modes of travel. Source: Jill Kruse, "Remove it and They Will Disappear ..." *Progress*, the bimonthly newsletter of the Surface Transportation Policy Project, March 1998.

10. Brad Heavner, "Paving the Way," MaryPIRG Foundation, November 2000.

11. Data here and in Figures 7 and 8 from David Schrank and Tim Lomax, "The 2001 Urban Mobility Report," Texas Transportation Institute, May 2001.

12. Washington Metropolitan Council of Governments, "Induced Travel: Definition, Forecasting Process, and a Case Study in the Metropolitan Washington Region," 19 September 2001.

13. Neal R. Peirce, "Do Widened Roads Create Their Own Gridlock?" Washington Post Writers Group, downloaded from *www.sierraclub.org/sprawl/transportation/congestion.asp*.

14. Washington Metropolitan Council of Governments, "Induced Travel: Definition, Forecasting Process, and a Case Study in the Metropolitan Washington Region," 19 September 2001.

15. Surface Transportation Policy Project, "Road Work Ahead: Is Construction Worth the Wait?" 1999.

16. David Schrank and Tim Lomax, "The 2001 Urban Mobility Report," Texas Transportation Institute, May 2001.

17. A more recent estimate by the Surface Transportation Policy Project based on Federal Highway Administration data puts the average cost of a mile of urban highway at $5 million per lane-mile. Source: Surface Transportation Policy Project, "An Analysis of the Relationship Between Highway Expansion and Congestion in Metropolitan Areas," November 1998.

18. Cambridge Systematics, Inc, "Characteristics of Urban Transportation Systems," prepared for Federal Transit Administration, September 1992, Ch. 4. Figures are based on 1989 dollars. Cost includes acquisition of right-of-way.

19. Virginia Department of Transportation, "Springfield Interchange Improvement Program," fact sheet, updated 19 March 2002; Michael D. Shear and Katherine Shaver, "Road Projects' Costs Confound States," *Washington Post*, 9 March 2002.

20. Michael D. Shear and Katherine Shaver, "Road Projects' Costs Confound States," *Washington Post*, 9 March 2002.

21. Surface Transportation Policy Project and Center for Neighborhood Technology, "Driven to Spend: The Impact of Sprawl on Household Transportation Expenses," 2000.

22. U.S. Department of Agriculture, Natural Resources Conservation Service, "Natural Resources Inventory," revised 2000.

23. U.S. Department of Agriculture, National Agricultural Statistics Service, "1997 Census of Agriculture Highlights: Maryland," downloaded from *www.nass.usda.gov/census/census97/highlights/md/mdst.txt*, 26 March 2002.

24. U.S. Department of Transportation, National Highway Traffic Safety Administration, "Traffic Safety Facts 1999," December 2000, inside cover.

25. Maryland Department of Transportation, "2001-2006 Consolidated Transportation Program."

26. Not including federal capital funds given directly to WMATA, which do not appear in Maryland's budget.

27. Maryland Department of Transportation, "2001-2006 Consolidated Transportation Program." Transit portion includes funds for Maryland MTA and Washington Metro.

28. Maryland Department of Transportation, "MD 3 Transportation Corridor Study," Winter 2001/2002.

29. 1993 through 2000 data from U.S. Department of Transportation, Federal Transit Administration, "National Transit Database." 1992 data from profile of 30 largest transit agencies for Section 15 reporting, Federal Transit Administration. Washington Metro figure includes capital spending from all sources, including Maryland.

30. 1993 through 2000 data from U.S. Department of Transportation, Federal Transit Administration, "National Transit Database." 1992 data from profile of 30 largest transit agencies for Section 15 reporting, Federal Transit Administration.; Surface Transportation Policy Project, "Americans Flock to Transit, Ease Up on Gas Pedal," Press Release, downloaded from *www.transact.org/Pressroom/vmt-transit.htm*, 3 April 2002.

31. Metropolitan Washington Council of Governments, "Updating the Regional Plan," *The Region*, Vol. 40 2001, 7.

32. Lyndsey Layton, "Crowds Could Derail Decades of Progress," *Washington Post*, 26 March 2001.

33. Transit Advisory Panel, "The Future of Transit in Maryland," January 1999, 7.

34. Baltimore Regional Partnership, Letter to J. Craig Forrest, Baltimore Regional Transportation Board, 28 September 2001.

35. Maryland Department of Transportation, "Governor Glendening, Lt. Gov. Townsend Announce Opening of Maryland's First Smart Growth Transit Development," Press Release, 18 February 2002.

36. Maryland Department of Transportation, "Annual Attainment Report on Transportation System Performance," January 2002, 23.