
ECONOMIC IMPACT FROM MARYLAND'S SURFACE TRANSPORTATION SPENDING: *HIGHLIGHTS & KEY FINDINGS*

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THE FISCAL CONTEXT FOR TRANSPORTATION SPENDING

Transportation spending is not an optional activity. Maryland's surface transportation system of highways and transit plays a vital role in the State's economy, enabling the efficient flow of people and goods to, from, and within the State. The State's residents depend on this system for commuting to work and for shopping, education and other personal activities. The State's businesses depend on this system to access its workforce, for incoming deliveries of materials and outgoing delivery of products to markets. Without adequate spending to maintain the facilities and operate the services, these household and business activities would over time become more difficult, more costly, more dangerous or impossible to sustain. And yet, with continuing changes in the State's population base and economic base, needs for new transportation investments to maintain and grow the State's economy continue to evolve.

Recognizing these factors, Maryland's transportation facilities and services are continuously maintained and improved through the development and implementation of the *Maryland Transportation Plan* (a long-range vision of the State's anticipated transportation needs), the Annual Attainment report (rating transportation system performance), and the annual *Consolidated Transportation Program (CTP)*, which lists and describes capital investments that are budgeted over a six-year period. The most recent CTP covering FY 2012-2017 reflects strategic choices by MDOT in light of a slow national economic recovery, shortfalls in Transportation Trust fund revenues, and uncertainty from Congress on reauthorization of the national transportation bill.

In today's economic climate, the financing of transportation investments and operations is challenging Maryland as well as other states around the country. That makes it important to consider the benefits of transportation investment decisions and their impacts on the State's economy, as well as the costs involved. Recommendations from the Governor's Blue Ribbon Commission on Transportation Funding are designed to help balance competing transportation system needs within a continued environment of financial constraint.¹

To further assist in public discussion of transportation spending, it is useful to understand the ways that this spending affects jobs and income within Maryland.

¹ The final report (November 2011) is available at
www.mdot.maryland.gov/Planning/Blue_Ribbon/Documents/BRC_Final_Report_Nov_01_2011.pdf

Accordingly, the Office of Planning and Capital Programming at the Maryland Department of Transportation (MDOT) commissioned a study of the statewide economic implications associated with recent surface transportation investments from 2007 through 2011.

It is important to note that there are two major categories of economic impact:

1. **Spending Effect** - Tracing how MDOT spending on jobs, materials, and services generates an immediate flow of dollars within the State's economy as well as a flow of dollars to businesses outside of the State which is called *leakage*. This distinction is important in showing how a transportation agency's spending supports businesses, jobs, and worker income within the State.
2. **Productivity and Competitiveness Effect** - Calculating how a given transportation investment program can affect regional accessibility and mobility enough to change long-run operating costs and competitiveness for businesses in the State. This is only meaningful if compared to some realistic alternative scenario that would not improve system functionality.

This study focuses on the first of these categories - addressing how MDOT agency spending (SHA and MTA budgets, as well as WMATA support) flows through the State's economy and generates additional sales, jobs, and wages in Maryland. The second category of impact is more appropriate for analysis when there are choices concerning long-term system quality, maintenance, or major capacity or accessibility improvements and as such was not undertaken at this time. It should also be noted that since the Maryland Transportation Authority (MDTA) is not part of the Transportation Trust Fund, they were not considered in this study.

BENEFICIARIES OF STATE TRANSPORTATION SPENDING

Maryland state-level spending on surface transportation flows predominantly from three agencies: the State Highway Administration (SHA), the Maryland Transit Administration (MTA) and a portion of the Washington Metropolitan Area Transit Authority (WMATA) budget which is contributed by Maryland. While the fundamental justification for this spending is to address transportation needs of Maryland residents and businesses, it is notable that much of this spending also flows back to support jobs and worker payrolls in Maryland.

This is not the case with all forms of spending. For instance, when a resident buys a television or electronic appliance, a small portion of the money spent goes to retail and wholesale workers in Maryland while a larger portion goes to manufacturers in Asia. On the other hand, when money is spent to build and maintain highways and transit terminals, or to operate buses and trains, then a large share of the spending goes directly to Maryland workers for the simple reason that construction activities and transit operations require on-site workers. That aspect makes transportation investment a reasonable form of spending when short-term job stimulus is desired.

A national study has confirmed that transportation investment supports more jobs than similar levels of spending on most other public investments.²

Spending on transportation facilities and operations also leads to broader impacts on Maryland jobs and wages. Besides directly hiring construction and transportation operations workers, transportation money is spent on purchases of materials and services, some of which are provided by Maryland-based suppliers. Examples include purchases of crushed stone, earthmoving, drainage systems, controls, electrical service, design/engineering, and repair services). Those supplier activities support additional jobs and wages that are referred to as “indirect” effects. Together, the direct and indirectly-supported jobs provide wages for Maryland workers, who spend some of their wages on consumer purchases that support yet more jobs at retail stores and consumer services businesses in Maryland (referred to as “induced” effects”).

This updated report by Economic Development Research Group and Cambridge Systematics traces the actual hiring and vendor spending patterns of SHA, MTA and WMATA (Maryland share) over the past five years, and shows how that spending leads to broader effects on jobs and wages in Maryland.

MDOT SURFACE TRANSPORTATION SPENDING

MDOT’s combined highway and transit spending over the five-year period of 2007-2011 totaled approximately \$13.1 billion (expressed in inflation-adjusted, constant 2011 dollars). This included three major components:³

- The State Highway Administration’s (SHA) program of spending over the five years totaled \$5.5 billion (adjusted for inflation), including American Recovery and Reinvestment Act (ARRA) funds in the last three years. That included costs of SHA payroll, operations and maintenance, plus highway capital investments.
- The Maryland Transit Administration (MTA) spending totaled \$4.3 billion over that same period (adjusted for inflation). That included MTA’s capital projects as well as payroll and supplier purchases for operations and maintenance. It also included ARRA funds and MTA funding for local operating grants.
- Maryland’s contribution toward the operating budget and capital program of the Washington Metropolitan Area Transit Authority (WMATA) over the five-year period was \$3.2 billion (adjusted for inflation). That included Maryland funding of WMATA capital projects funds as well as the state match for federal funds.

OVERALL IMPACT ON THE MARYLAND ECONOMY

By analyzing the pattern of state spending on transportation capital investment and operations, and by applying an economic model of Maryland, it is possible to trace

² *How Infrastructure Investments Support the U.S. Economy*, Political Economy Research Institute, University of Massachusetts, 2009. <http://www.peri.umass.edu/236/hash/efc9f7456a/publication/333/>

³ Additional highway spending is carried out by the Maryland Transportation Authority (MDTA), which is responsible for the state’s toll facilities. However, that is not covered by this report because MDTA is self financing and is not part of the state’s Transportation Trust Fund (TTF).

the ways in which direct spending on transportation also leads to broader indirect (business supplier) and induced (wage respending) impacts on the State's economy. The analysis indicates \$13.1 billion of Maryland state transportation spending over the past five years generated a total of \$29.3 billion of business output within the state over that same period. This includes \$12.9 billion paid in wages flowing to Maryland workers, supporting an average of 34,805 jobs per year for the five-year period. (See table ES-1.)

Table ES.1 Summary of Total Impacts from MDOT Program Outlay Over 2007-2011
(Five Year Total, Expressed in Billions of Year 2011 Dollars)

| Five-Year Total Impact | State Highway Administration | Maryland Transit Administration | WMATA ^a (Maryland Portion) | All Agencies |
|---|------------------------------|---------------------------------|---------------------------------------|--------------|
| Total Spending Budget | \$5.5 | \$4.3 | \$3.3 | \$13.1 |
| Total Impact on State Economic Output | \$13.6 | \$9.3 | \$6.4 | \$29.3 |
| Associated Impact on Labor Income | \$6.7 | \$3.1 | \$3.0 | \$12.9 |
| Associated Job-Years Supported | 77,644 | 50,523 | 45,854 | 174,021 |
| Average Jobs each Year (of a 5-yr period) | 15,529 | 10,105 | 9,171 | 34,805 |

^a WMATA: Washington Metropolitan Area Transit Authority.

These numbers also indicate that state spending on surface transportation largely stays within the State. The totals for all agencies show that, for every dollar of state spending on transportation, there is a \$2.20 increase in total statewide output, and ultimately \$0.98 that goes back to state residents in the form of wages. Those wages support a total of 13.3 jobs in Maryland, per million dollars of state transportation spending.

ECONOMIC IMPACT RATIOS

The preceding ratios vary by agency. For instance, the ratio of impact on total state output per transportation dollar averages 2.0 but varies (among agencies in Table ES-1) from 1.8 to 2.3. And ratio of total jobs generated (per million dollars spent) averages 13.3 but varies from 11.6 to 14.0. The variation is due to differences in the capital/operating mix of expenditures among agencies, and differences in the types of labor, equipment and materials needed for infrastructure and operations of different modes. Differences in agency expenditure profiles are shown in the report.

It is important to avoid concluding that some modes will always have higher job generation ratios than others, for the simple reason that these ratios can and do vary over time, among programs and among agencies. For instance, it is clear that transit system operation generates more total jobs per million dollar of spending than transit capital investment. This occurs because transit system operation requires local drivers, while transit capital investment requires purchase of rolling stock that is not made in Maryland. However, spending money on operations without capital investment is not a viable long-term option since bus and train systems cannot continue to operate reliably when equipment is kept well beyond its useful life.

Another factor to consider is that costs of labor, equipment and materials tend to increase over time due to inflation, so a million dollars of spending will support fewer jobs and miles of road construction as time goes on. That phenomenon holds for nearly any kind of spending. Yet it is possible for job generation ratios to increase if Maryland attracts more material, service and equipment suppliers in the future. And conversely, those ratios can fall if Maryland suppliers move out or outsource activities to out-of-state locations. For these reasons, it would be wrong to conclude that any particular type of transportation spending (capital vs. operations, or highway vs. transit) is systematically more desirable than another because of its job generation impact only. But it is reasonable to infer that strategic economic development can increase these ratios in the future.

BENCHMARK COMPARISONS

The transportation spending patterns reported in this study (covering 2007-2011) were compared to a prior study of Maryland's 1997-2006 transportation spending.⁴ The comparison showed that the capital investment share of highway spending has remained generally constant (accounting for 78 - 80% of spending), while the capital investment share of transit spending has dropped (from 47% to 31% for MTA, and from 41% to 25% for Maryland's share of WMATA).

The current capital investment ratios for transit in Maryland (25% - 31%) are in line with a national study that found capital investment now accounts for 29% of public spending on transit.⁵ That same study confirmed that spending on transit operations generates more jobs than the same level of spending on transit capital. However, it also noted that spending mix should be based on facility and service needs rather than job generation rates.

The finding of this study regarding the ratio of short-term Maryland jobs supported per million dollars of transportation spending (13.1) was also compared with studies conducted in other states. In general, it is known that job impact ratios vary across the US, and increase with size of the study area and its economy (since large economies will include more in-state manufacturers and service providers and have less "leakage" of money to outside suppliers). This pattern is reflected in results of comparable ratios from studies in Virginia, Kansas, Massachusetts, California, Oregon and Wisconsin, which show ratios in the range of 14 to 18 jobs per million dollars of transportation spending. National ratios are even higher, ranging from 18 to 27 depending on the type of spending.) The conclusion, then, is that economic impact numbers shown in this report are most likely conservative estimates.

⁴ *Economic Impact from Maryland's Surface Transportation Spending: 1997-2006*, Maryland Transportation Commission, 2006. <http://www.marylandroads.com/OPPEN/economy.pdf>

⁵ *Economic Impact of Public Transportation Investment*, American Public Transportation Association, 2009. www.apta.com/resources/reportsandpublications/Documents/economic_impact_of_public_transportation_investment.pdf

IMPACTS ON PRODUCTIVITY AND COMPETITIVENESS

Transportation investment does not merely generate business orders, wages and jobs in Maryland; it also enables transportation systems to be maintained and improved, which ultimately helps the State's productivity, competitiveness and long-term economic growth. Conversely, there can be a large "opportunity cost" associated with failure to sufficiently invest in the preservation and maintenance of transportation facilities and services, for two reasons: (1) deferred maintenance can lead to higher reconstruction costs later on, and (2) losing businesses due to deficient transportation will raise costs for attracting new business to replace them.

It is possible to demonstrate these longer-term effects by showing how maintenance and expansion projects affect household and business transportation costs, access to markets and competitiveness. However, this requires development of specific spending and project investment scenarios. A growing number of states are now addressing those issues through studies that show how implementing long-term transportation strategies will affect the economic well-being of state residents. Even without such a study, though, it is clear that Maryland is a crossroads for national and international commerce, with major highways and rail lines connecting to international air and sea ports, as well as to major cities in surrounding states. Given that position, the ability of Maryland to compete in a changing national and global marketplace will depend (to a significant degree) on its ability to maintain good transportation services and conditions for the movement of people and freight. This report, which focuses on documenting the economic consequences of state transportation spending, is one key step in the development of the case for Maryland transportation investment.