

Preliminary Assessment of The Economic Impacts of Construction

New American Legion Bridge I-270 Traffic Relief Plan



Prepared by

George Mason University

Center for Regional Analysis

In Partnership with Transurban



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Acknowledgements

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About CRA

For over 30 years, the Center for Regional Analysis at George Mason University has provided local and state government, business, and non-profit leaders with data, analysis, and insights to support critical decision making in support of regional economic and community development. Housed in the Schar School of Policy and Government, CRA draws on faculty, professional staff, and student researchers from within the school, across the university, and in collaboration with other universities and organizations to support GMU’s role as a top tier research university that is closely engaged with its community. The Center, currently led by Dr. Terry Clower, is the premier university-based regional economic research center in the National Capital Region. Learn more about CRA projects and activities at www.cra.gmu.edu

Executive Summary

The following summarizes the findings of an analysis prepared by the Center for Regional Analysis (CRA) at George Mason University. This preliminary assessment examines the regional economic impacts and tax contributions associated with programmatic spending for the construction of 37 miles of new managed toll lanes along I-495 and I-270 in Maryland, including building a new American Legion Bridge. The analysis is preliminary as the project is still in its Predevelopment phase. Key data assumptions and methodologies are listed below along with our findings.

- Projected total spending for Phase 1 projects will be about \$6 billion according to estimates released by the Maryland Department of Transportation and reported by the Metropolitan Washington Council of Governments, the region’s Metropolitan Planning Organization. Because construction budgets have not been fully developed for most of the project, we estimated specific types of spending based on the previously completed I-495 Capital Beltway Express (495CBE). Our economic impacts estimates are expressed in constant 2022 dollars.
- The analysis utilizes the IMPLAN economic input-output model developed by MIG, Inc. to estimate how project related spending will boost regional economic activity and job creations including direct (construction) spending, indirect effects accruing to vendors and subcontractors, and induced effects on worker household spending.
- The IMPLAN model provides estimates of Economic Activity (business transactions), Value Added (contributions to gross regional product), Labor Income (salaries, wages, and benefits), Jobs (headcount jobs expressed as person years of employment), and revenues to state and local taxing jurisdictions for property taxes, sales and use taxes, fees for licenses and permits, and other sources of government revenue.
- The analysis examines project spending impacts on two geographic areas: the Washington DC Metropolitan Statistical Area, and the Maryland Suburbs of the DC Metro Area. The IMPLAN model includes adjustments to spending that likely will not remain in this region, such as for equipment and materials not produced locally. Table ES1 shows the estimated impacts of this spending.

Table ES1
Economic Impacts of Construction Related Spending for the
New American Legion Bridge I-270 Traffic Relief Plan
(\$2022)

Description	Impacts
Construction Costs	\$ 6,000,000,000
Washington DC Metropolitan Area	
Economic Activity (business transactions)	\$ 12,589,345,233
Value Added (gross regional product)	\$ 7,300,492,595
Labor Income (salaries, wages, benefits)	\$ 3,325,704,186
Jobs (headcount job-years of employment*)	43,406
State Revenue	\$ 154,754,232
Local Jurisdiction Revenue	\$ 195,244,989
Maryland Suburbs	
Economic Activity (business transactions)	\$ 11,624,941,615
Value Added (gross regional product)	\$ 6,480,764,811
Labor Income (salaries, wages, benefits)	\$ 2,455,806,912
Jobs (headcount job-years of employment*)	36,281
State Revenue	\$ 130,743,517
Local Jurisdiction Revenue	\$ 138,367,953

* A job-year of employment is one job lasting for one year. It is the most accurate way to report employment impacts for projects that last for more than one year. If a given project supports 1,000 job-years of employment and the project lasts for four years, the average job count is 250 (1000/4) jobs each year.

Sources: Transurban, IMPLAN, Center for Regional Analysis

Introduction

The following reports the findings of an analysis of the economic impacts and fiscal contributions associated with the programmatic spending for the construction of 37 miles of new managed toll lanes along I-495 and I-270 in the Greater Washington DC Area. The proposed project includes replacing the American Legion Bridge to enhance connectivity with new lanes being built as part of the 495 Next projects and the larger existing managed toll lane network in Northern Virginia. The analysis reported herein is preliminary in nature because the project is still in its Predevelopment phase.

This analysis is one component of a broader research undertaking by an interdisciplinary team of professors, professional staff, and students at George Mason University. The team is administratively led by GMU's Center for Regional Analysis. As different elements of this research endeavor are undertaken, operational lead for specific research tasks will shift based on

subject matter expertise. If fully funded, the research project will examine a wide range of socio-economic and environmental issues for understanding how managed toll lanes impact the economy with specific considerations of economic opportunity across all regional communities, understanding economic and social spillover effects from highway investments, impacts of traffic congestion and quality of life, environmental issues with considerations on environmental justice, and the return of highway investments related to the construction and operation of managed toll facilities for overall economic growth and development.

The analyses underway, in addition to the research reported here, consider the economic impacts and fiscal contributions of construction and operations spending for the existing network of managed toll lane facilities in Northern Virginia operated by Transurban. This includes the 95 Express Lanes, 395 Express Lanes, 495 Express Lanes, and the Fredericksburg Extension projects. Reports of the economic impacts of spending related to those projects are forthcoming.

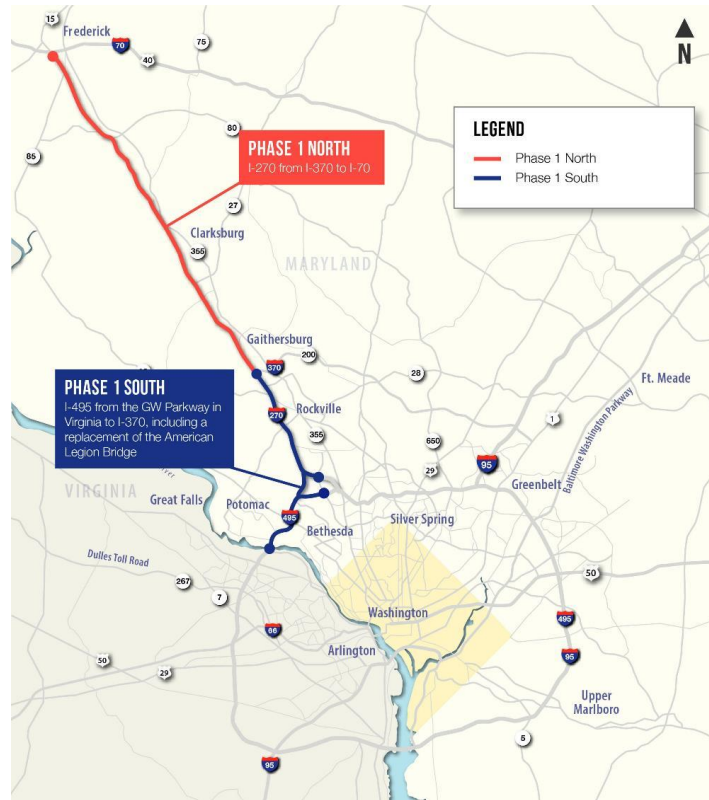
In the following sections of this report, we present an overview of the New American Legion Bridge I-270 Traffic Relief Plan. This is followed by a description of the methodology used in this analysis along with key data assumptions. The Findings section reports the results of the research and data analysis. Finally, we draw some conclusions and take a look ahead to other research elements.

Overview of the New American Legion Bridge I-270 Traffic Relief Plan

Responding to the need for fiscally-responsible modern solutions to worsening traffic congestion in Montgomery County, Prince George’s County, and Frederick County, the Maryland Department of Transportation (MDOT) initiated Op Lanes Maryland public-private partnership (P3) program. The program will expand highway capacity along some of the most critical commuter and commercial transportation assets in the National Capital Region by partnering with an experienced successful private entity to build and manage new lane capacity through user-optional toll lanes. Managed toll lanes, a fast growing approach to traffic management that has been successfully implemented in major cities around the world, including Washington, DC’s Virginia suburbs, allows drivers the choice of paying a dynamically-priced toll to use restricted access lanes. Using a free-market approach, the value of the toll varies to encourage or discourage the number of users so that traffic flows on the managed lanes remain relatively unencumbered. The target is typically to maintain traffic volumes that allow vehicles to move at no less than 50 miles-per-hour. The proposed managed toll lanes would allow transit and high-occupancy (three or more passengers, HOT 3+) vehicles to use the restricted lanes at no cost. This pricing approach has shown to increase carpooling with a 2019 report by the Washington Metropolitan Council of Governments finding that about one-third of toll lane users had switched to carpooling or transit to take advantage of the HOV lanes.¹

¹ MWCOG (2020). 2019 State of the Commute Survey Report.

The New American Legion Bridge I-270 Traffic Relief Plan program includes new highway improvements from the American Legion Bridge, inclusively, along I-495 from the George Washington Parkway to the I-270 west spur, then travelling up I-270 to Frederick for a total of about 37 miles (see Figure 1). As part of the federally-required environmental study process, the project is being separated into two sections with Phase 1 South being delivered first. Phase 1 South includes the American Legion Bridge and I-495 from George Washington Memorial Parkway to I-370 which is about 14 miles. As proposed, Phase 1 North would continue up I-270 from just south of Gaithersburg to Frederick, Maryland. In 2021 the Accelerate Maryland Partners (AM Partners) team was selected to deliver Phase 1 of this project. Transurban serves as the lead developer for AM Partners.²



Source: Accelerate Maryland Partners

The program is structured as a progressive P3 agreement that enhances collaboration between AM Partners and MDOT, Maryland Transportation Authority, county officials in Montgomery and Frederick, as well as area residents, utility providers, property owners, and other stakeholders.

Methodology

Economic impact analyses provide estimates of the economic benefits that accrue from spending on projects, business activities, government and private investment, and even household spending. These benefits can be thought of as money flows moving from one entity and spreading across a specified economic region like tossing a stone into a pond and watching the ripples spread across the water surface. A more precise analogy is to consider the supply chain response to new business

² Macquarie Capital is the lead equity group. Other key team members include Dewberry and Stantec. Local subconsultants Soltesz, Inc.; Whitney, Bailey, Cox and Magnani, LLC; STV Inc.; and Floura Teeter Landscape Architects among others.

spending. If a manufacturer sells a product, the dollars flow back to suppliers of raw materials, in-process components, equipment manufacturers, and providers of business services, which can be anything from marketing and accounting to trucking and building services. In addition, the manufacturer pays wages to employees which create other money flows sparked by household spending. Instead of trying to track down every vendor and every household to survey their spending behavior, economic input-output models estimate these flows of money. Input-output models are derived from national product accounts produced by the Bureau of Economic Analysis in the U.S. Department of Commerce, and then combined with economic and household data from the Census, Department of Labor, and other sources. In this analysis we use the IMPLAN economic input-output model developed by MIG, Inc. The IMPLAN model is widely used in academic and professional research.

The IMPLAN model uses direct spending – programmatic spending that has been categorized by the industry that represents given activities, such as engineering services, design, and construction – to estimate indirect and induced economic effects. Indirect effects capture the economic activity through vendor supply chains. For example, the construction contractor purchases asphalt from a vendor, that vendor buys raw materials, rents facilities and equipment, either performs or hires out transportation services, retains the services of accountants and other business service providers, and has payroll employees. The accountant, in turn, rents an office, purchases office supplies, has employees, and pays a janitorial service to clean their space. The cleaning services purchases supplies and hires workers, and so on. At each stage the model adjusts spending that flows out of the study area. For example, the contractors will purchase fuel for heavy equipment but since there are not any refineries in the National Capital Region, most of that spending, except for some local transportation and wholesaler proceeds, will contribute to local economic activity. Induced effects capture the impacts of employees of all these firms spending a portion of the earnings in the regional economy for goods and services. Even with the adjustment for spending leakage, the total of direct, indirect, and induced effects is larger than the direct spending, which is the “multiplier effect.”

The IMPLAN model provides estimates of Economic Activity (business transactions, also called Economic Output), Value Added (contributions to gross regional product), Labor Income (salaries, wages, and benefits), Jobs (headcount jobs expressed as job-years of employment), and revenues to state and local taxing jurisdictions for property taxes, sales and use taxes, fees for licenses and permits, and other sources of government revenue. Since the project being assessed in this research will last for more than one year, labor impacts are expressed as job-years of employment. A job-year of employment is one job lasting for one year. If a given project supports 1,000 job-years of employment and the project lasts for four years, the average job count is 250 (1000/4) jobs each year. The results presented in this analysis describe the impacts over the course of the project. There will be variation in the impacts in any given year based on level of activity and spending.

The analysis examines project spending impacts on two geographic areas: the Washington DC Metropolitan Statistical Area, and the Maryland Suburbs of the DC Metro Area. Maryland Suburbs

include Montgomery County, Frederick County, Charles County, Calvert County, and Prince George’s County. Even though the subject project will be entirely in Montgomery and Frederick counties, the indirect and induced effects will spread to these other jurisdictions supporting jobs and new economic activity.

The budget for the New American Legion Bridge I-270 Traffic Relief Plan project is in its Predevelopment phase. To offer a preliminary assessment of the potential economic impacts of the project, we used the total project budget for Phase 1 released by the Maryland Department of Transportation and reported by the Metropolitan Washington Council of Governments, the region’s Metropolitan Planning Organization. The total Phase 1 project is estimated to cost about \$6 billion. There are some preliminary estimates of the costs expected for the American Legion Bridge expansion; however, for impact modeling purposes, and in consultation with Transurban staff, we modeled categorical budget assumptions based on actual spending for the I-495/Capital Beltway Express projects in Virginia. All economic impact estimates are expressed in constant 2022 dollars.

There are three important restrictions we place on construction project spending when performing an economic impact analysis. We do not include budgeted expenditures for land purchases. The economic benefits of land purchases largely depend on who owns the land and what they do with the proceeds – information that is not yet available. In addition, we do not include budget items labeled as “contingency.” This budget line is meant to account for *potential* cost overruns but may not be spent. Finally, we do not include budgeted profit margins for lead developers that are included in project budgets, though those profits could produce regional economic benefits.

Findings

Based on MDOT’s budget projections, the pattern of expenditures for the I-495CBE project, plus information on the ALB bridge project, our analysis suggests that construction and related spending for Phase 1 will generate over \$12.5 billion in economic activity for the Washington, DC Metropolitan Area, boost gross regional product by \$7.3 billion, and support about 43,600 job-years that will pay \$3.3 billion in salaries wages and benefits. (See Table 1 below for details.)

Focusing on the Washington, DC region’s Maryland Suburbs, building the New American Legion Bridge I-270 Traffic Relief Plan infrastructure will boost local economic activity by \$11.6 billion, increase labor income by almost \$2.5 billion, and support about 36,200 job-years of employment. Local taxing jurisdictions will see new revenues of about \$138 million from sales and use taxes, property taxes, fees for permits and licenses, and other sources of revenue.

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Sources: Transurban, IMPLAN, Center for Regional Analysis

Conclusions

State and local leaders recognize that mobility is a key determinant of economic success. Even though we are seeing some likely shifts and new trends in commuting behavior for many workers in this region in the short term, the Maryland Department of Transportation reports that traffic volumes on Maryland highways have already rebounded to near pre-pandemic levels. In addition, regional planners are forecasting an additional 1.3 million in population growth in the greater Washington region by 2045, so the need to move people and goods around and through our region effectively and efficiently continues to be a challenge and is perhaps more important than ever. As recognized by leaders at all levels of government, we simply must continue to invest in a wide range of transportation assets that support today’s market and is technology ready for a future that increasingly will include connectedness, electric vehicles, and automation of vehicles and equipment. However, providing modern transportation infrastructure is costly. The infrastructure spending that will be coming from the federal government, even though it is record breaking in magnitude, is inadequate to meet current and future needs across the nation. From a fiscal perspective, government alone does not have the resources to expand and update our Interstate

Highway networks. Given this fiscal constraint, the only realistic path forward is to include modern, proven strategies of public-private partnerships, which bring market solutions for cost effective investment in new infrastructure and systems. The New American Legion Bridge I-270 Traffic Relief Plan will be the latest in a series of P3-based projects in the National Capital Region that have delivered enhanced mobility while freeing public monies for other important needs.

The New American Legion Bridge I-270 Traffic Relief Plan Phase 1 project will bring about \$6 billion in new construction related spending to the regional economy, creating thousands of jobs and boosting labor income by \$3.3 billion. Most of that impact will be enjoyed by the localities that make up the Washington, DC region's Maryland suburbs with local economic activity jumping by \$11.6 billion. Importantly, the analysis presented here estimates that local Maryland jurisdictions will share more than \$130 million in new revenues during the construction project.

Other project elements in the GMU research program will look at the impacts of several of the existing managed toll lanes projects in the DC region, including an assessment of the on-going impacts of operations for the managed lanes and a specific examination of the value and economic impacts of work performed by historically under-represented businesses for existing or currently under-construction facilities.

While the economic impacts of proposed and past spending are transformative and impressive on their own, the GMU team will be seeking support to extend these analyses to better understand the broader social impacts of the construction and operation of managed toll lane projects, the impacts of these projects on regional mobility with attendant impacts on regional economic development, how these benefits can be enjoyed by all residents of the region, and understanding environmental issues including environmental justice for under-represented communities.