

# **The Economic Impact of the Proposed Long Bridge Expansion and Associated Corridor Projects and the Role of Rail Commuting in the Economy**

December 19, 2019

## **Executive Summary**

The Long Bridge is a two-track railroad bridge crossing the Potomac River between Arlington County, VA and Washington, D.C. The Bridge is owned and operated by CSX Transportation (CSXT) and is currently also used by Amtrak and Virginia Railway Express (VRE). The limitations of existing structure are that 1) it is at 98 percent capacity during peak hours and is not projected to be able to accommodate the new demand for passenger rail on Amtrak and VRE, 2) the two-track bridge creates a bottleneck as it connects to the three-track systems on each side, and 3) the overall system lacks resiliency and redundancy, with the next closest rail crossing of the Potomac River being 75 miles away at Harpers Ferry, WV.

Because of these limitations, a new two-track rail bridge, a fourth track addition in Alexandria and station improvements to L'Enfant, Crystal City, and Alexandria are being examined (the Long Bridge projects). These improvements would allow an increase of the total number of daily trains crossing the Long Bridge to 192, an increase of 80 trains compared to a no-build scenario. This increase would include 54 VRE passenger trains, 18 Amtrak passenger trains and eight Maryland Area Regional Commuter (MARC) trains.

The addition of 80 daily trains crossing the Long Bridge will benefit the national economy and the economies of Virginia, Maryland and the District. The long-term economic benefits include 1) the economic impacts of the increased operational expenditures, 2) the economic growth that is accommodated by the new commuter rail services, 3) the decreased cost of turn-over for firms in the Washington region, 4) the value of time savings for rail passengers and road users, and 5) the cost savings and value added to existing infrastructure and services. These benefits are annual and cumulative over the lifespan of the Long Bridge projects infrastructure and the services that the projects accommodate.

1) The long-term economic impact of the operational expenditures from expanded Amtrak, VRE and MARC train services generates an annual impact of

- \$205.9 million annually to the benefit of the Commonwealth of Virginia economy including
  - \$119.7 million for the economy in Northern Virginia,
  - \$16.6 million for the economy in Spotsylvania County and Fredericksburg City, VA,
  - \$10.6 million for the economy in Prince William County and the cities of Manassas and Manassas Park, VA, and
  - \$9.4 million for the economy in Alexandria City, VA,
- \$111.3 million annually to the benefit of the Maryland economy,

- \$6.6 million annually to the benefit of the D.C. economy,
- \$150.7 million annually to the benefit of the Washington region's economy and
- \$1.1 billion annually for the national economy.

These benefits are new and in addition to the economic benefits from existing services. These benefits begin after the completion of the projects and after the expanded services are implemented. These benefits recur for each year that the expanded services are in operation and can be multiplied by the years of service to estimate the cumulative benefit to these economies.

2) Commuter rail services provide an efficient means to accommodate employment and residential growth. Employment growth patterns by industry and location suggest that the demand for rail in 2040 would increase by 14,810 workers. These workers would contribute \$5.9 billion (in 2018 dollars) to the Washington region's economy. The Long Bridge pedestrian and bicycle crossing could also help accommodate the increase of 1,300 new pedestrian and bicycle commuters travelling between D.C. and Virginia by 2040. These workers contribute \$590 million to the regional economy. Altogether, the Long Bridge projects could facilitate the commutes of 16,110 new commuters, including rail, pedestrian and bicycle commuters that contribute \$6.5 billion (in 2018 dollars) to the Washington region's economy annually by 2040.

The Number and Economic Contribution of Commuters Crossing the Long Bridge

|                                                   | 2019   | 2040    | Increase |
|---------------------------------------------------|--------|---------|----------|
| <b>Rail Commuters</b>                             |        |         |          |
| Commuters                                         | 31,590 | 46,400  | 14,810   |
| Annual GRP Contribution<br>(billions of 2018 \$s) | \$6.2  | \$12.2  | \$5.9    |
|                                                   |        |         |          |
| <b>Pedestrian/Bicycle Commuters<sup>1</sup></b>   |        |         |          |
| Commuters                                         | 5,790  | 7,090   | 1,300    |
| Annual GRP Contribution<br>(millions of 2018 \$s) | \$970  | \$1,560 | \$590    |
|                                                   |        |         |          |
| <b>Total</b>                                      |        |         |          |
| Commuters                                         | 37,380 | 53,490  | 16,110   |
| Annual GRP Contribution<br>(billions of 2018 \$s) | \$7.2  | \$13.7  | \$6.5    |

Sources: 2012-2017 American Community Survey Microdata; IHS Markit; The Stephen S. Fuller Institute at the Schar School, GMU NOTE: May not sum due to rounding

<sup>1</sup>includes all commuters crossing the Potomac River between D.C. and Virginia and represents the maximum for Long Bridge.

3) The quality of life improvements that the increased rail services provide for future rail commuters is likely to reduce the turn-over rates for firms that have a larger concentration of rail commuters. As are result, turn-over costs for these firms would decrease compared

to a no-build scenario. The total turn-over costs of all Professional & Business Service firms would decrease by between \$48.5 and \$96.9 million including

- \$30.3 to \$60.5 million per year for firms located in D.C.,
- \$13.1 to \$26.1 million per year for firms in Arlington County, VA, and
- \$5.1 to \$10.3 million per year for firms in Alexandria City, VA.

4) Rail passengers and road users will have time savings in the form of improved on-time performance for rail passengers and smaller congestion effects for road users. The time savings benefit that accrues to rail passengers boarding in Virginia, the District, and Maryland is valued at \$16.9 million per year in 2018 dollars and includes

- \$8.9 million accruing to passengers boarding in D.C.,
- \$4.9 million accruing to passengers boarding in Maryland, and
- \$3.1 million accruing to passengers boarding in Virginia, \$1.6 million of which accrues to passengers boarding in Northern Virginia.

The value of time savings for road users in Northern Virginia because of the expanded peak-hour VRE services is between \$24.3 and \$58.8 million in 2018 dollars. This is a conservative estimate, and excludes the time savings that would result from MARC trains crossing into Virginia, as those service levels have not yet been determined.

5) Lastly, the additional capacity provided by the Long Bridge projects will provide benefits to existing infrastructure, service operators and users along and near the Long Bridge Corridor. Existing infrastructure will have maintenance savings, improved efficiencies and reductions in the growth in demand for additional capacity. Service operators will benefit from increased flexibility, improved reliability and reduced risk that results from the added network redundancy. Users of existing services affected by the Long Bridge corridor will benefit from increased flexibility, improved reliability, as well as improved multi-modal connectivity and increased options with respect to transportation options.

Overall, the Long Bridge Corridor and Expansion Projects will provide long-term economic benefits in to the economies of Virginia, D.C., and Maryland, their residents and their businesses. The Washington region currently has low levels of rail commuting relative to other large, dense employment metros. As the Washington grows, its ability to accommodate the new commuters will depend upon the transportation infrastructure, the home and work locations of the new workers, and their preferences. Based on the patterns of other U.S. metros, the current preferences of rail commuters and the forecasted industry and geographic patterns of growth in the Washington region, rail commuting is well-position to accommodate and facilitate growth. In absence of additional rail commuting services, the likely commuting patterns and modes would be less efficient for the region, overall, and the quality of life for the region's workers would be diminished. The resulting secondary economic benefits of rail commuting would include reducing the cost of employee turn-over for firms in the region, improving the travel times of both rail and road users, and improved efficiencies for the existing infrastructure, service operators and users along and near the Long Bridge Corridor.