Economic and Fiscal Impacts

of the Panama Canal Expansion on the Port of Baltimore

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in partnership with:

EAGB
Economic Alliance of Greater Baltimore

Prologue

The expansion of the Panama Canal is scheduled to be completed in 2014, marking the beginning of the post-Panamax era. This will enable supersized container cargo vessels to deliver goods to and from Asia and to major markets on the east coast of the United States.

Since 2010, the Port of Baltimore has undergone major improvements, including the establishment of a 50-foot berth and installation of super-sized cargo cranes at the Seagirt Marine Terminal in anticipation of the arrival of larger vessels. The improvements are expected to yield a significant increase in cargo to and from the Port of Baltimore and strengthen the Port's competitive advantage globally. Today, the Port of Baltimore stands as one of two East Coast ports that will have the ability to handle the larger cargo vessels.

In 2009, CSX Transportation began planning the construction of its National Gateway Project. The National Gateway would allow cargo coming to and from marine terminals on the East Coast to double the capacity of shipments across the United States. CSX and the Maryland Department of Transportation (MDOT) have worked together to determine a location in the Baltimore area for a new Baltimore-Washington Rail Intermodal Facility that will offer "double-stacked" container capability on the national gateway. The facility will be important for the port to maximize benefits of the improvements at Seagirt and the expansion of the Panama Canal.

In early 2012, the Economic Alliance of Greater Baltimore (EAGB) commissioned the Regional Economic Studies Institute (RESI) of Towson University to produce an economic impact study to explain the growing global influence of the Port of Baltimore and its strategic relationship with the proposed intermodal facility. Over the course of several months, the landscape and factors surrounding the Port of Baltimore and the intermodal facility changed periodically, but are nonetheless vital to the region's long-term competitive standing. This is an important time in the storied history of the Port of Baltimore and its role as an engine of our state and regional economy.

As thought leaders in the Greater Baltimore region, EAGB is tasked to gather and perform non-partisan analysis, study and research of various issues relating to doing business in Greater Baltimore. Many local, national and international media outlets and organizations have speculated what the improvements will yield for port traffic volume. EAGB has, therefore, recognized a need for a better understanding of the Port's economic impact on the Baltimore region.

This study is the product of RESI and their analysis team. It is the result of months of analysis and discussion. While playing the role of facilitator, the EAGB established valuable partnerships with RESI, Ports America/ Chesapeake, CSX, MDOT and the Maryland Port Administration.

We thank RESI for their thorough research and the vital connections made with key stakeholders throughout the development of this report. For more about EAGB, please visit http://www.greaterbaltimore.org.

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EAGB
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Final Report

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October 4, 2012

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1.0 Executive Summary

The Port of Baltimore is a key port among all major U.S. ports. Recently, the port set a record of handling 631,806 twenty-foot equivalent units (TEUs) in 2011. In order to remain competitive and take advantage of the Panama Canal expansion, the Port of Baltimore has improved its depth capacity and cargo handling capability. In addition, improvements to railroad infrastructure are being made.

These improvements will allow Baltimore to efficiently handle super-sized ships that can carry more than 12,000 TEUs each, which are expected once the expansion of the Panama Canal is complete. Currently, the Port of Baltimore is one of two ports on the East Coast already able to accommodate such large vessels. According to the Southern Legislative Conference study, East Coast ports stand to gain an additional 20 to 25 percent in containerized cargo activity following the expansion of the Panama Canal. Baltimore has many advantages over other ports to receive and accommodate the additional freight. Such advantages include the following:

- A 50-foot berth,
- Long-reaching cranes to handle the large containerized cargo,
- 199 acres of land available for warehousing space next to Seagirt Marine Terminal, and
- Proximity to areas of higher population density in the nation.

Inland ports such as the Port of Baltimore have advantages in capturing the mega vessels that are using the Panama Canal. Successful inland ports must have access to rail to accommodate the increase in cargo and population. Conversely, these advantages could disappear if the proper steps are not taken to improve the current infrastructure and rail system in Maryland. It is imperative that the Baltimore-Washington Rail Intermodal Facility (Intermodal Facility) project is complete in a timely manner to not only remain competitive in the maritime shipping market, but also to create a significant number of potential jobs.

If the Intermodal Facility project is not complete by the time the mega ships enter the Eastern Seaboard, the Port of Baltimore stands to lose its competitive balance. Without this project, the larger vessels will make fewer stops along the Eastern Seaboard, which could potentially benefit the port in Norfolk, Virginia, to the disadvantage of Maryland. The Port of Baltimore could possibly lose up to 50 percent of containerized cargo to Norfolk if there is no proper infrastructure to accommodate the projected increase in containerized cargo.

1.1 Summary of Findings[1]

Once the expansion of the Panama Canal and the Intermodal Facility project are complete, large vessels could potentially view the Port of Baltimore as their primary destination. In order to accommodate the increases in containerized cargo, the port could see a positive impact on employment numbers.

[1]Totals throughout the report may not exactly equate to direct, indirect, and induced impacts added together due to rounding.

Based on RESI's analysis, the construction and operation of the Intermodal Facility project is expected to result in significant economic and fiscal impacts. RESI found the following:

Construction Phase

- The project will support a total of 792 jobs, 490 of which will be direct jobs, for the duration of construction.
- The construction phase of the project will generate approximately $136.5 million in state GDP and $49.6 million in wages.
- Approximately $4.2 million in state and local tax revenues will be generated as a result of the construction of the project.

Operation Phase

- When completed, the Intermodal Facility will support 45 direct onsite workers and support 192 direct outside drayage contractors to accommodate the increase in cargo activity.
- The Intermodal Facility will generate a total of approximately $10.3 million in state and local GDP and $4.5 million in wages (excluding benefits) annually.
- The contractors associated with the Intermodal Facility will support a total of $63.8 million in state and local GDP and $28.8 million in wages annually.
- Approximately $0.3 million in annual state and local tax revenues will be generated as a result of the Intermodal Facility, and $2.1 million of state and local taxes will be generated by the contractors.

RESI's findings show that the Baltimore-Washington Rail Intermodal Facility project will support a significant number of jobs and will generate considerable tax revenues for Maryland.

1.2 Economic and Fiscal Impacts of the Panama Canal Expansion

RESI found the following in regard to the regional impacts of the Panama Canal expansion project on the Port of Baltimore in the Greater Baltimore/Washington region:

Scenario 1—25 Percent Increase in Containerized Cargo

- The port will support a total of 266 jobs, 138 of which will be additional direct jobs added to the total containerized cargo jobs at the Port of Baltimore, after the expansion of the Panama Canal to accommodate the increase in traffic.
- Approximately $39.8 million in state GDP and $13.9 million in wages will be generated as a result of the 25 percent increase in containerized cargo.
- Approximately $2.1 million in state and local tax revenues will be generated as a result of the 25 percent increase in containerized cargo.

Scenario 2—10 Percent Increase in Containerized Cargo

- The port will support a total of 107 jobs, 55 of which will be additional direct jobs added to the total containerized cargo jobs, after the expansion of the Panama Canal.
- Approximately $15.9 million in state GDP and $5.5 million in wages will be generated as a result of the 10 percent increase in containerized cargo.
- Approximately $0.8 million in state and local tax revenues will be generated as a result of the 10 percent increase in containerized cargo.

In order to capitalize on the Panama Canal expansion project and avoid decreasing the economic vitality of the Port of Baltimore and its surrounding economies, proper steps must be taken to improve the current rail system. Without such improvements not only will the recent changes to the Port of Baltimore not be maximized, but the state could potentially see a loss of jobs, state GDP, wages, and tax revenues, where it has been determined that increases should take place.

RESI's estimates indicate that, if the Baltimore-Washington Rail Intermodal Facility project is not completed on time to accommodate the increase in containerized traffic, the port could potentially lose up to 50 percent of containerized cargo traffic to Norfolk and the following could occur:

Scenario 3—No Baltimore-Washington Rail Intermodal Facility Present

- The port could possibly lose a total of 746 jobs, 387 of which will be in the containerized cargo direct jobs, after the expansion of the Panama Canal.
- The state could potentially lose approximately $111.5 million in state GDP and $38.8 million in wages annually.
- Approximately $5.8 million in annual state and local tax revenues could also be lost if the Baltimore-Washington Rail Intermodal Facility is not completed.

2.0 Introduction

The Regional Economic Studies Institute of Towson University (RESI) was tasked by the Economic Alliance of Greater Baltimore to prepare a report addressing the potential economic impacts of the Panama Canal expansion project. The impacts consider the number and types of jobs that could be generated as well as the economic activity and wages that are likely to be derived from supporting the increased port activity and supporting infrastructure improvements. Particular attention was given to the comparative advantages of the Port of Baltimore and the Baltimore-Washington Rail Intermodal Facility (Intermodal Facility). It is assumed any city location offered by the CSX will meet the ultimate CSX intermodal operation needs.

The Port of Baltimore is comprised of six public-private terminals and twenty-eight private cargo terminals.[2] These terminals handle general cargo, which includes roll-on/roll-off cargo, containerized cargo, automobiles, forest products, and other cargoes.[3] In 2011, the Port of Baltimore experienced one of the largest expansions among all major U.S. ports. The port's public and private marine terminals saw an increase of 5 million tons of cargo from 32.8 in 2010 to 37.8 million tons of cargo in 2011. In addition, the port saw an annual increase of 24 percent in the total dollar value amount—$51.4 billion in 2011.[4] Among the 360 ports around the U.S., the Port of Baltimore ranks eleventh in the nation for overall value of cargo handled.[5]

The Port of Baltimore is continuing to see a rapid increase in containerized cargo, with a record setting 631,806 twenty-foot equivalent units (TEUs) between 2010 and 2011. The port is noteworthy to Maryland's economic vitality. According to the Maryland Port Administration (MPA), the port is accountable for $3 billion in personal wages and salaries, while businesses at the port generate approximately 14,630 direct jobs.[6]

Figure 1 illustrates the distribution of direct jobs by commodity in both public and private terminals. The containerized cargo in the Port of Baltimore generates the largest number of direct jobs, with 3,515 workers.[7] These employees handled approximately 387,000 containers in 2010. Jobs in containerized cargo included longshoremen, truckers, warehouse workers, and freight forwarders.[8]

[2] "Maryland Port Commission Annual Report. "Accessed May 14, 2012.
http://www.mpa.maryland.gov/_media/client/port-commission/MPCAnnualReport.pdf
[3] "MPA General Cargo Tonnage." Accessed May 14, 2012.
http://mpa.maryland.gov/_media/client/cargo/cargo_statistics/cargo1.pdf
[4] "Port of Baltimore Saw Largest Growth Among All Major U.S. Ports in 2011." Accessed May 14, 2012.
http://mpa.maryland.gov/_media/client/News-Publications/2012/press/042312press.pdf
[5] Ibid.
[6] Ibid.
[7] "The Economic Impact of the Port of Baltimore." Accessed May 14, 2012.
http://www.mpa.maryland.gov/_media/client/planning/2012/EconomicImpact.pdf
[8] Ibid.

Figure 1: Distribution of Direct Jobs by Commodity

Commodities	MPA Direct Jobs	Private Direct Jobs	Total Direct Jobs
Containers	3,515	NA	3,515
Steel Products	86	654	740
RoRo	374	69	443
Lumber	15	26	41
Paper	202	NA	202
Pulp	239	NA	239
Break Bulk	361	373	734
Automobiles	846	241	1,087
Coal	NA	1,312	1,312
Other Dry Bulk	NA	1,854	1,854
Iron Ore	NA	1,647	1,647
Petroleum	NA	486	486
Other Liquid Bulk	47	56	103
Not Allocated	761	1,245	2,006
Total	***6,446***	***7,961***	***14,407***

Source: Martin Associates[9]

Recently, the Maryland Port Authority (MPA) extended the deal with the Panama Canal to generate new business opportunities with Asia. The MPA renewed the Memorandum of Understanding (MOU) for the next five years with the Panama Canal Authority. With the Panama Canal expansion project scheduled to be completed in 2015, the Port of Baltimore will be in the forefront to receive the bulk of increased activity due to its prominent location in the Northeast and proximity to the Midwest. As a result, accommodations are currently underway to handle the increased traffic and larger vessels.

In 2010, the Seagirt Marine terminal agreed on a public-private partnership with Ports America Chesapeake to complete capital improvements to Seagirt's berth and facilities. A new 50-foot berth, completed in August 2012, is able to host the post-Panamax vessels that can carry more than 12,000 TEUs. In addition, the Seagirt Marine terminal has added long-reaching cranes to load and unload the super-sized container ships. Such upgrades cost approximately $460 million in equipment and additional enhancements.[10] Currently, Baltimore and Norfolk will be the only two ports on the East Coast that will be able to accommodate the larger vessels.

Maryland and the Greater Baltimore/Washington region stand to benefit economically in a variety of ways. The increase in traffic will require improvements in the current container

[9] "The Economic Impact of the Port of Baltimore." The Economic Impact of the Port of Baltimore. Accessed May 14,2012. http://www.mpa.maryland.gov/_media/client/planning/2012/EconomicImpact.pdf
[10] City Biz, Real Estate. "Port Surge Shows Value of Transportation Infrastructure." Accessed May 14, 2012. http://baltimorerealestate.citybizlist.com/1/2012/4/29/Donald-Fry-Port-Surge-Shows-Value-of-Transportation-Infrastructure.aspx

capabilities of the port to handle the cargo efficiently. In addition, the state's railroad and highway infrastructure will need to accommodate the increase in traffic.[11] According to the executive director of the MPA, after the expansion project is completed, the largest container ships in the world will be able to pass through and bring additional business to the Port of Baltimore.

3.0 Comparative Advantage

According to the U.S. Department of Transportation (USDOT), by 2020 there will be a 50 percent increase in total cargo traveling through U.S. ports, and international container traffic will more than double. For many years, the ports on the West Coast have served as the primary docks in the U.S. for cargo transported from Asia. Once the cargo arrives at West Coast ports, it is shipped across the nation to the East Coast via the U.S. "land bridge" using rail or road and trucks as modes of transport. As quick transport of cargo across the country is important, there is a strong need for an alternative strategy, such as a greater use of the East Coast ports. Another factor contributing to this alternative strategy is the limited land area around the 29 major West Coast ports. The West Coast is very congested and has limited land to build the necessary warehouses and distribution centers. However, the East Coast and Gulf Coast ports have nearby areas where construction and expansion can occur.[12]

In 2002, roughly 7,000 members of the International Longshoremen and Warehouse Union went on strike, impeding the ability of many importers and retailers to ship through several West Coast ports and resulting in service disruptions. Between the years 2004 and 2008, additional labor disputes occurred, causing more closures. Many "importers, retailers, warehouse distributors, shipping companies and state port authorities" joined together to find an alternative trade route for their vessels. The East and Gulf Coast ports were perfect for a less expensive strategy for cargo transportation." [13]

However, there is some debate on whether East and Gulf Coast ports are a better entry point for trade compared to West Coast ports. In 2006, roughly 75 percent of Asian imports travelled through the preferred route of West Coast ports, whereas the East Coast ports only handled six percent of imports. This is due in part to delivery time; the maritime route between Asia and the U.S. West Coast has a total navigation time of 18.3 days, while the Asia to U.S. East Coast route has an average navigation time of 21.6 days.[14] In spite of the longer delivery time via an all-water route, which transports the cargo from the port of origin to the port of final destination,

[11] "Frequently Asked Questions." Accessed May 14, 2012. http://www.mdot.maryland.gov/Office%20of%20Planning%20and%20Capital%20Programming/ICTF/FAQ.htmlThe Maryland Department of Transportation.
[12] "The Panama Canal Expansion and SLC State Ports." Accessed May 14, 2012. https://www.slcatlanta.org/Publications/EconDev/ports_web.pdf
[13] "Race-to-the-Top: East and Gulf Coast Ports Prepare for a Post-Panamax World." Accessed May 14, 2012. http://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/5201/MP-Brandon%20Morrison-FINAL.pdf?sequence=1
[14] "Impact of Panama Canal Expansion on the U.S. Intermodal System." Accessed May 14, 2012. http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5082003

East Coast ports will have some comparative advantage against West Coast ports once the Panama Canal expansion is complete. Sixty percent of the U.S. population is located east of the Mississippi River and accounts for 60 percent of the nation's GDP.[15] This poses a major limitation for West Coast ports as they have higher costs associated with moving goods inland when the final destination moves eastward.[16]

The relationship between time and cost via an all-water route and intermodal transportation route serves as the focal point for the comparative advantage between the East and Gulf Coast and the West Coast ports. On a per-TEU basis, an all-water route is the least expensive transportation option. However, as shown in Figure 2, an all-water route "takes on average ten days longer than intermodal ship and rail transport and thirteen days longer than intermodal ship and truck transportation."[17]

Figure 2: Shanghai to New York Route Results

Route	Time (days)	Operating Costs	
		20-foot container	40-foot container
All-water	37.3	$3,224	$3,787
Intermodal (water/rail)	26.8	$3,658	$5,465
Intermodal (water/truck)	24.0	$4,611	$7,371

Source: University of Delaware

Intermodal transportation (water/rail) is the best option for container traffic based on both time and cost. Following the expansion of the Panama Canal, the "East and Gulf Coast ports could attract up to 25% of ship traffic that was previously destined for the West Coast."[18] Considering the comparative advantages that the East Coast ports have over the West Coast ports, the Class-1 railroad company CSX saw this as a beneficial opportunity to market its double-stack rail freight train cars to better serve the Eastern Seaboard.[19]

In anticipation of the expanded Panama Canal expansion, companies are likely to soon choose an alternative low-cost route to distribute their freight. Experts in the industry are predicting a shift of containerized cargo from the West Coast ports to the East Coast ports by 20 to 25 percent.[20]

[15] "Capital Improvements Bolster the East Coast's Intermodal Rail Network." Accessed May 14, 2012. http://files.shareholder.com/downloads/PLD/1096537119x0x427625/e730dbe9-d9d7-4a41-9e4b-17698c5efe5b/East_Coast_Rail_Network-FINAL.pdf
[16] Ibid.
[17] "Impact of the Expansion of the Panama Canal: An Engineering Analysis." Accessed May 14, 2012. http://dspace.udel.edu:8080/dspace/bitstream/handle/19716/10097/Charles_Mitchell_thesis.pdf?sequence=1
[18] "Race-to-the-Top: East and Gulf Coast Ports Prepare for a Post-Panamax World." Accessed May 14, 2012. http://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/5201/MP-Brandon%20Morrison-FINAL.pdf?sequence=1
[19] "Capital Improvements Bolster the East Coast's Intermodal Rail Network." Accessed May 14, 2012. http://files.shareholder.com/downloads/PLD/1096537119x0x427625/e730dbe9-d9d7-4a41-9e4b-17698c5efe5b/East_Coast_Rail_Network-FINAL.pdf
[20] "The Panama Canal Expansion and SLC State Ports." Accessed May 14, 2012. https://www.slcatlanta.org/Publications/EconDev/ports_web.pdf

With its proximity to the majority of the population, the Port of Baltimore will be in a prime location to capture a significant percent of the market share of maritime business. In addition, inland ports are becoming favorable for ships because of fuel efficiencies and economies of scale related to the larger vessels. Shipping vessels from Asia through the East Coast waterways will become more cost-effective than the West Coast ports and transfer of cargo by rail or truck.[21]

4.0 Baltimore-Washington Rail Intermodal Facility Project

A number of CSX operating facilities are located in Maryland, including Curtis Bay and Jessup. CSX maintains roughly 830 public and private crossings throughout the state and handled 1,156,000 carloads of freight in 2011.[22] The CSX operating facilities contribute significantly to the state's economy. In 2011, a total of 1,770 workers, who received $120 million in compensation, were employed by the CSX in Maryland.[23]

With the Panama Canal expansion, additional opportunities will be created for the state and Baltimore to capture new container traffic. Current upgrades to transportation infrastructure will be critical for Baltimore to become the central destination for the post-Panamax vessels coming from the Panama Canal. The Maryland Department of Transportation (MDOT) and CSX are working together to conduct upgrades to CSX's facilities. Such upgrades include the raising of bridge and tunnel height.

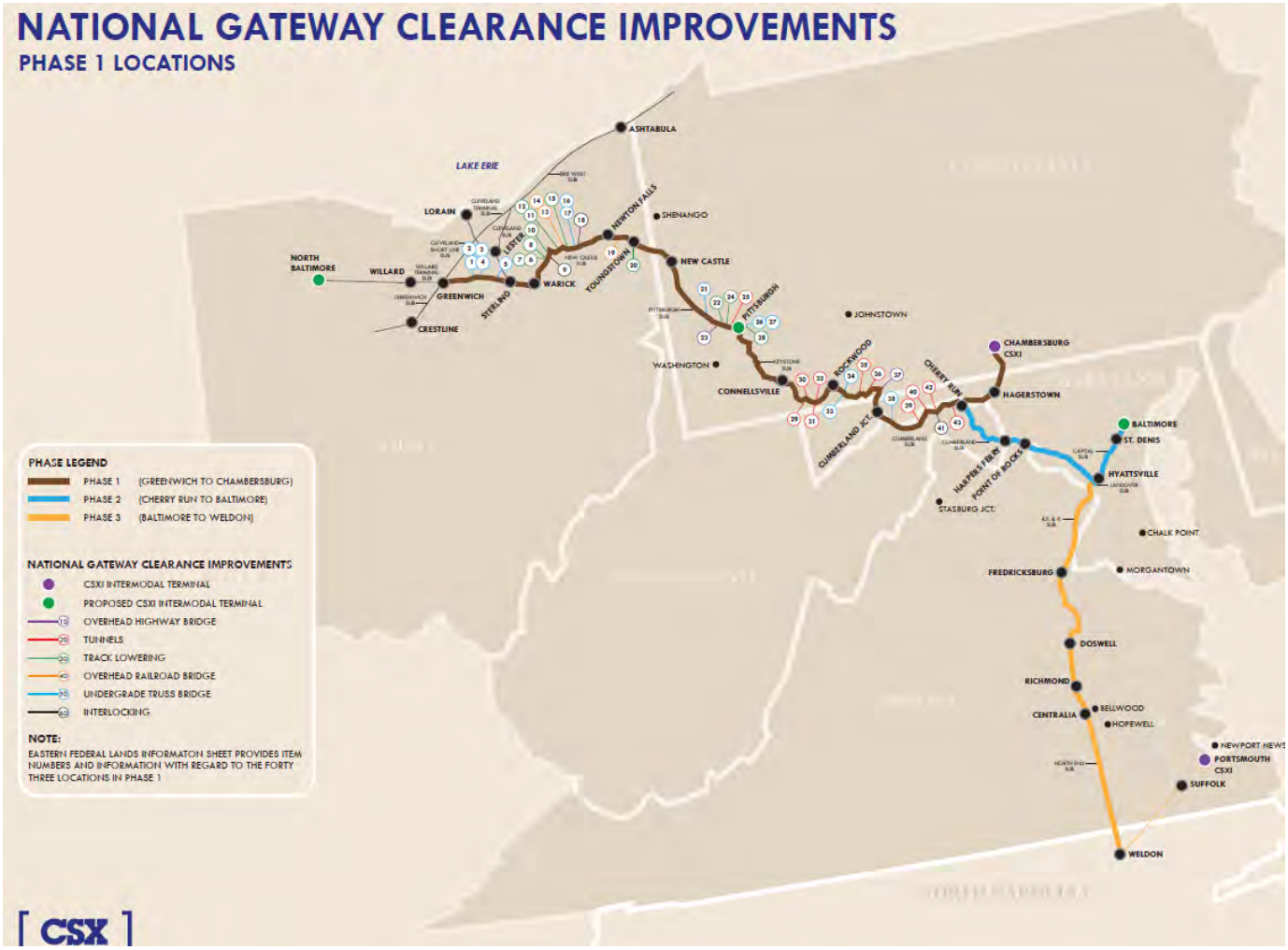
The $850 million public-private partnership, called the National Gateway project, will improve the flow of rail traffic by creating new double-stacked trains with the ability to carry two containers on top of one another on a single car.[24] A double-stack container train will be able to transport twice the amount of freight. Key states in the project include Ohio, Pennsylvania, District of Columbia, North Carolina, Virginia and West Virginia. When the National Gateway project construction is complete, linkage between mid-Atlantic ports and the Midwest will improve freight efficiency between eastern and western rail networks.[25] The National Project Gateway is divided into three phases of infrastructure improvements:

- Phase 1—Northwest, OH to Chambersburg, PA.
- Phase 2—Chambersburg, PA to Baltimore, MD.
- Phase 3—Baltimore, MD to Norfolk, VA/Wilmington, NC.[26]

[21] "Prospective on the global supply chain." Accessed June 14,2012. http://www.us.am.joneslanglasalle.com/ResearchLevel1/The%20emergence%20of%20the%20inland%20port.pdf
[22] "CSX + Maryland". Accessed August 20,2012. http://www.csx.com/index.cfm/about-csx/company-overview/state-fact-sheets/maryland/
[23] Ibid.
[24] "Baltimore-Washington Rail Intermodal Facility." Accessed May 14, 2012. http://www.mdot.maryland.gov/Office%20of%20Planning%20and%20Capital%20Programming/ICTF/Home.html#Background
[25] "The National Gateway I-83 Corridor Coalition." Accessed August 20,2012. www.ship.edu/uploadedFiles/Ship/I81/Presentations/Hunter_CSX_11_10.pdf+the+national+gateway+i-83+corridor+coalition.
[26] Ibid.

Figure 3 illustrates the connectivity between states, which will be readily available once the infrastructure improvements are complete.

Figure 3: National Gateway Clearance Improvements



Source: Eastern Federal Lands Highway Division[27]

In 2009, a MOU was put forth between CSX Transportation, Inc., and MDOT. The goal for both agencies is to be able to increase international containerized traffic. Maryland will support CSX efforts in completing the National Gateway Project.[28] The rail corridor will connect Baltimore to

[27] "National Gateway Clearance Project." Accessed August 17,2012. http://www.efl.fhwa.dot.gov/

[28] "Memorandum of Understanding between CSX Transportation and MDOT regarding the National Gateway and Port of Baltimore." Accessed August 17,2012. http://www.mdot.maryland.gov/Office%20of%20Planning%20and%20Capital%20Programming/ICTF/Documents/Resources/Memorandum%20of%20Understanding%20MDOT%20Port%20of%20Baltimore%20and%20CSX%20Jun%202009.pdf

other key mid-Atlantic markets in the Midwest and the South. MPA and the CSX are making collaborative efforts to prepare for the effects of the Panama Canal expansion.

Based on the intermodal mileage comparison, the Port of Baltimore is the closest to 12 major Midwest consumer markets of any East Coast port. This connection between Baltimore and other states is an imperative part of post-Panamax vessels viewing the Port of Baltimore as an ideal destination.[29] If the Baltimore-Washington Rail Intermodal Facility project is not complete by the time the larger ships enter the East Coast, the Port of Baltimore could stand to lose its competitive advantage, and this will ultimately benefit Norfolk. The Port of Baltimore could potentially lose up to 50 percent of containerized cargo to Norfolk if there is no proper infrastructure to accommodate the increase in containerized cargo traffic.

Overall, the expansion of the Panama Canal and improvements to the current rail system will allow the state of Maryland to capture shipping-related jobs, business taxes, and other economic activities that otherwise would go to other ports. Recently, the state and CSX officials selected the Mount Clare train yard in Southwest Baltimore for the new intermodal facility, which is projected to cost around $90 million and will be able to transfer the containerized cargo from tucks to trains.[30] The Baltimore-Washington Rail Intermodal Facility project has been lowered in cost and size from previous proposals. However, the facility will be "a state-of-the-art intermodal facility that would become the first in any East Coast port city to use zero-emissions electric crane technology."[31]

The current intermodal facility, which is located at the Seagirt Marine Terminal, is not equipped to transport double-stack containers due to low clearance at the Howard Street tunnel. However, with the new facility, the containers would be transported via trucks or single-stack trains which would use the Howard Tunnel. Once arrived at the new facility, the containers would be placed on the double-stack trains heading to the Midwest.[32] The goal is to have the new facility operating by May 2015, in time for the expansion of the Panama Canal to be complete. The double-stack cargo containers are vital to the Port of Baltimore because of the anticipated increase in containerized cargo.[33]

Not only would the Baltimore-Washington Rail Intermodal Facility project benefit the port, but the construction phase of the project will also generate a substantial number of jobs for Maryland

[29] "Memorandum of Understanding between CSX Transportation and MDOT regarding the National Gateway and Port of Baltimore." Accessed August 17,2012.
http://www.mdot.maryland.gov/Office%20of%20Planning%20and%20Capital%20Programming/ICTF/Documents/Resources/Memorandum%20of%20Understanding%20MDOT%20Port%20of%20Baltimore%20and%20CSX%20Jun%202009.pdf
[30] "City Train Yard Tentatively Selected as Site of Port Transfer Station" Accessed September 11,2012.
http://www.baltimoresun.com/news/breaking/bs-md-intermodal-mount-clare-20120911,0,3201032.story
[31] Ibid.
[32] Ibid.
[33] "CSX eyeing four Baltimore locations for new intermodal facility." Accessed September 7, 2012.
http://www.bizjournals.com/baltimore/print-edition/2012/08/31/csx-eyeing-four-locations-for-new.html?s=print

and specifically Baltimore City. The project will support a total of 792 jobs, 490 of which will be direct jobs, for the duration of construction. The construction phase of the project will also generate approximately $136.5 million in state GDP and $49.6 million in wages. According to CSX officials, 45 onsite workers are needed to support operation of the intermodal facility warehouse. Additional contractors will also be needed to support an increase in freight traffic. As a result, RESI separated the operation phase into intermodal facility warehouse operation and contractor activity associated with the intermodal facility warehouse operation to quantify the number of jobs associated with the operation of the Baltimore-Washington Rail Intermodal Facility.

When completed in 2015, the operation of the Intermodal Facility will support a total of 45 direct onsite workers and will also support 192 direct outside drayage contractors. The project will generate a total of approximately $10.3 million in state and local GDP and $4.5 million in wages (excluding benefits) annually. The contractors associated with the Intermodal Facility will support a total of $63.8 million in state and local GDP and $28.8 million in wages annually.

The economic impacts (employment, state GDP, and wages) by type for the construction and operation phases of the Intermodal Facility project can be found in Figure 4. For additional information regarding RESI's assumptions and an explanation of the IMPLAN input/output model, please refer to Appendix A.

Figure 4: Total Economic Impacts— Baltimore-Washington Rail Intermodal Facility[34]

Impact	Direct	Indirect	Induced	Total
Construction Phase				
Employment	490.1	134.1	167.6	791.8
State GDP	$90,000,000	$22,313,881	$24,147,268	$136,461,149
Wages	$32,067,367	$8,594,304	$8,914,691	$49,576,361
Operation Phase—Intermodal Facility				
Employment	45.0	24.0	15.9	84.9
State GDP	$6,522,761	$1,557,529	$2,256,092	$10,336,381
Wages	$3,021,429	$710,271	$806,135	$4,537,834
Operation Phase—Contractors				
Employment	192.0	53.8	68.0	313.8
State GDP	$40,230,285	$9,606,334	$13,914,849	$63,751,469
Wages	$19,200,000	$4,513,496	$5,122,672	$28,836,168

Sources: CSX, RESI

In addition to the economic impacts generated by the development project, RESI estimated the fiscal impacts (state and local tax revenues) that would accrue to Baltimore City. Approximately $4.2 million in state and local tax revenues will be generated as a result of construction of the project. In addition, approximately $0.3 million in annual state and local tax revenues will be generated as a result of operation of the Intermodal Facility and $2.1 million of state and local

[34] Construction phase impacts are based on spending associated with hard and soft construction costs as well as land.

taxes will be generated by the associated contractors. The tax revenues generated as a result of the construction and operation phases can be found in Figure 5.

Figure 5: Total Fiscal Impacts—Baltimore-Washington Rail Intermodal Facility Project[35]

Phase	Property[36]	Income	Sales	Payroll	Other	Total
Construction Phase						
Total	$1,085,040	$1,223,583	$970,504	$103,321	$807,747	$4,190,195
Operation Phase						
Intermodal Facility	*$79,599*	*$113,905*	*$70,898*	*$9,744*	*$62,920*	*$337,066*
Contractors	*$490,938*	*$702,528*	*$437,279*	*$60,097*	*$388,074*	*$2,078,916*
Total	$656,493	$763,347	$586,911	$65,582	$473,160	$2,545,494

Source: RESI

5.0 Economic and Fiscal Impacts of the Panama Canal Expansion

RESI has broken down the effects of the Panama Canal expansion into three different scenarios. Once the expansion of the Panama Canal is complete by as early as 2015, experts at the Port of Baltimore suggest an increase in containerized cargo ranging from 10 to 25 percent. The state can generate economic impacts for the surrounding area and economy, including an increase in the number of jobs available, due to a need for workers to operate and maintain businesses and services.

Interests in the area are highly evident by the involvement of several companies in new container business opportunities. The region can also expect additional interest in warehousing infrastructure to accommodate the increase in maritime activity. The summary of total economic and fiscal impacts to date, including employment, state GDP, wages, and state and local tax revenues as estimated by RESI can be found in Figures 6 and 7.

Figure 6: Total Economic Impacts of the Panama Canal Expansion

Impact	Direct	Indirect	Induced	Total
Scenario 1				
Employment	138.2	53.2	75.0	266.4
State GDP	$22,332,321	$7,458,241	$10,047,201	$39,837,762
Wages	$7,904,334	$2,741,573	$3,205,832	$13,851,739
Scenario 2				
Employment	55.3	21.3	30.0	106.6
State GDP	$8,932,928	$2,983,296	$4,018,880	$15,935,105
Wages	$3,161,733	$1,096,629	$1,282,333	$5,540,696

Source: RESI

[35] Fiscal impacts for the construction phase reflect the tax revenues generated as a result of and for the duration of construction. Fiscal impacts for the operation phase reflect the annual tax revenues generated as a result of operations.

[36] Property tax is not attributed to the Intermodal Facility site but the activity generated around the port.

RESI determined that after the expansion is complete, there is a potential for as much as a 25 percent increase in containerized cargo handled by the port, depicted in Figure 6 under Scenario 1. This will ultimately create an additional 138 direct jobs or an approximate four percent increase to total containerized cargo jobs for the Port of Baltimore. The 25 percent increase in cargo could potentially add $39.8 million in state GDP and $13.9 million in wages.

Alternatively, an increase of 10 percent (Scenario 2) to the containerized cargo will also benefit the state, as shown in Figure 6. Approximately 55 direct jobs, a 1.5 percent increase, will be added directly to the containerized cargo operations in the Port of Baltimore. In addition, the increase could potentially add a total of $15.9 million in state GDP and $5.5 million in wages.

In addition to economic impacts, the Panama Canal expansion will generate state and local tax revenues as a result of the increases in jobs and spending related to activities associated with the development.

Figure 7: Total Fiscal Impacts of the Panama Canal Expansion

Revenue Type	Scenario 1	Scenario 2
Property	$607,888	$243,155
Income	$496,749	$198,699
Sales	$546,140	$218,456
Payroll	$19,248	$7,699
Other	$409,879	$163,953
Total	***$2,079,904***	***$831,962***

Source: RESI

In Figure 7, the total fiscal impacts (state, county, and local tax revenues) associated with the expansion of the Panama Canal with a 25 percent increase in containerized cargo is $2.1 million. Alternatively, the total fiscal impacts associated with the expansion of the Panama Canal with a 10 percent increase in containerized cargo are $0.8 million in state and local tax revenues.

6.0 Potential Risks

If the state fails to improve rail facilities in time to accommodate the increase in large vessels, Maryland could lose a substantial share of the potential economic and fiscal benefits. According to MDOT, the state will lose its competitive advantage over other nearby ports. In addition, the state will have a difficult time accommodating its growing freight demand.[37] Maryland will lose out on the projected jobs that would be created and sustained during the construction and operations phases of the Baltimore-Washington Rail Intermodal Facility project.

[37] "MDOT Response to DLS Analysis." Accessed May 14, 2012. http://dbm.maryland.gov/agencies/operbudget/FY2013Testimony/J00D00.pdf

The state's neighboring Port of Norfolk is in the forefront to capture most of the super-sized vessels coming from the Panama Canal due to its proximity to the open ocean.[38] Currently, Norfolk handles 25 percent of the East Coast container market, compared to Baltimore's 6.5 percent share. Industry experts are predicting an increase of approximately 20 percent in containerized cargo for the Port of Virginia after the Panama Canal expansion is complete.[39] Due to the Port of Baltimore's proximity to the Midwest, it can capture such vessels after the Baltimore-Washington Rail Intermodal Facility project updates have been made. However, as stated, if the project is not complete, then Baltimore could potentially lose this competitive balance, likely having a negative effect on the state's economy.

The summary of total potential economic and fiscal impacts for the third scenario—in which the state could potentially lose up to 50 percent in containerized cargo, which would in turn negatively impact employment, state gross domestic product (GDP), wages, and county and local tax revenues—can be found in Figures 8 and 9.

Figure 8: Total Economic Impacts of the Panama Canal Expansion—Scenario 3

Impact	Direct	Indirect	Induced	Total
Employment	-387.0	-148.8	-210.0	-745.9
State GDP	-$62,530,499	-$20,883,074	-$28,132,162	-$111,545,735
Wages	-$22,132,134	-$7,676,405	-$8,976,330	-$38,784,869

Source: RESI

Based on the assumptions and modeling detailed in Appendix A, Maryland could possibly lose up to 50 percent of the containerized cargo activity coming from the Panama Canal to Norfolk. Coupled with this 50 percent loss, the state stands to lose a total of 746 jobs. The state could possibly lose 387 of direct jobs, or 11 percent of jobs associated with containerized cargo at the Port of Baltimore. The state would also lose approximately $111.5 million in state GDP and $38.8 million in wages annually, as show in Figure 8.

Approximately $5.8 million in annual state and local tax revenues could potentially be lost if the Baltimore-Washington Rail Intermodal Facility project is not complete. The tax revenue breakdown of this loss can be found in Figure 9.

[38] "Baltimore vs. Norfolk: A tale of two ports." Accessed May 14, 2012. http://articles.baltimoresun.com/2011-11-12/business/bs-bz-port-baltimore-virginia-20111111_1_niche-cargoes-containerized-cargo-port-accounts http://articles.baltimoresun.com/2011-11-12/business/bs-bz-port-baltimore-virginia-20111111_1_niche-cargoes-containerized-cargo-port-accounts

[39] "The Panama Canal Expansion and SLC State Ports." Accessed May 14, 2012. https://www.slcatlanta.org/Publications/EconDev/ports_web.pdf

Figure 9: Total Fiscal Impacts of the Panama Canal Expansion—Scenario 3

Revenue Type	Scenario 3
Property	-$1,702,086
Income	- $1,390,896
Sales	-$1,529,193
Payroll	-$53,893
Other	-$1,147,666
Total	***-$5,823,734***

Source: RESI

Overall, RESI determined that the CSX project will significantly affect Maryland. In order to stay competitive with other surrounding ports on the East Coast, it is imperative for Maryland to complete the intermodal facility project.

7.0 Other Business Opportunities

After the completion of the 50-foot berth in 2012, Baltimore will be one of only two East coast ports with the ability to receive post-Panamax vessels. This is attracting the attention of national retailers that are interested in the new capabilities of the port and surrounding region. Industries such as warehousing and storage, supply-chain businesses, and trucking could prosper as a result of the expansion. According to a report by Jones Lang LaSalle, the economies of scale, generated by the expansion of the Panama Canal, are expected to trigger a new supply chain model related to distribution. The growth and investment in the supply chain "will be exponential, impacting everything from shipping and rail line construction to warehousing and terminal development."[40]

The rapid increase in oil prices will also impact supply chain decisions as companies try to keep costs down. According to the Jones Lang LaSalle report, higher oil prices are "the driving trend toward slow steaming, with shippers trading slower delivery of raw materials and products in exchange for reeducation in shipping costs."[41] Slow steaming is becoming a prevalent way to cut down fuel cost but requires a longer time in open waters. In return, "slower steaming means a slower supply chain, with more inventories needed on hand by US manufactures and retailers."[42] This will require additional warehousing space for companies.

It is imperative to optimize the supply chain in the Port of Baltimore to remain competitive. According to the director of Jones Lang LaSalle, there will be "an increase in demand for industrial space to accommodate the increased volume of container traffic flowing through."[43]

[40] "The Panama Canal's impact on US industrial real estate." Accessed May 4, 2012. http://www.us.am.joneslanglasalle.com/UnitedStates/EN-US/Documents/Panama_Excursion-JLL.pdf
[41] Ibid.
[42] Ibid.
[43] "Benefits of Panama Canal's 2014 Expansion Now a "Game Changing Reality for Port of Miami." Accessed May 16,2012. http://www.worldpropertychannel.com/us-markets/commercial-real-estate-1/port-of-miami-expansion-panama-canal-expansion-panama-canal-opening-miami-tunnel-project-miami-export-report-florida-governor-rick-scott-miami-import-data-bill-johnson-3974.php

The Port of Baltimore is in a great position to capture the market share of the mega vessels after the expansion is complete.

Currently, the Port of Baltimore has 199 acres of available land located next to Seagirt Marine Terminal that could be used for distribution center development. This acreage essentially provides "space for 1 million square feet of warehouse space."[44] The ample space poses additional container business opportunities after the construction of a 50-foot container berth at the Seagirt Marine Terminal is complete. The MPA, in collaboration with Ports America Chesapeake and CSX, hosted a seminar in 2011 to discuss these opportunities. Over 120 companies, including maritime container companies and firms, attended the event. While these companies and firms are involved in logistics, manufacturing, retail, and parts supply, they also have an added interest in new warehousing facilities in the region.[45] In addition to the available space, Maryland has four Foreign-Trade Zones (FTZ). FTZ 74 houses port-related activities, including warehousing distribution. Historically, FTZ 74 has experienced several expansions in 2001 and 2005. In December 2005, sites were added in Canton Trade Center, Marley Neck Industrial Park, and Enterprise Business Park to accommodate the evident growth in cargo traffic at the port. During the expansion, FTZ 74 served 85 businesses and employed more than 216 workers.[46] Presumably, with the expansion of the Panama Canal, additional growth in FTZs will be evident to accommodate such large increases in containerized cargo traffic.

Over the years, the Port of Baltimore has already spawned a number of warehouse and third-party logistics operators, such as Merchants Terminal Corporation (MTC), a company that offers warehousing and full logistics management and handling of imported and exported refrigerated cargo. The company's location is less than one mile from the Seagirt Marine Terminal and offers less-than-truckload and local drayage. Moreover, MTC has the ability to shorten its logistics supply chain for customers.[47]

Increased interest in the Port of Baltimore is already evident. Baltimore Sparrows Point group leaders are planning to conduct economic studies in the waterfront area because of the anticipated business growth at the Port of Baltimore. The leaders are located in a wider variety of sectors including real estate, manufacturing, and transportation.[48]

[44] "Baltimore puts on its fighting gloves to become key seaport." Assessed May 16, 2012. http://mtccold.com/wp-content/uploads/2011/09/AJOT_081511_1.pdf
[45] "Port Administration hosts seminar on new container business opportunities following 50-foot berth construction at Port of Baltimore." Assessed May 16, 2012. http://www.mpa.maryland.gov/_media/client/News-Publications/2011/press/05182011-PortAdministrationHostsSeminaronContainerBusinessComingtoPortofBaltimore.pdf
[46] "Foreign-Trade Zones." Accessed June 14,2012. http://recovery.choosemaryland.org/factsandfigures/transportation/FTZ.html
[47] "Baltimore puts on its fighting gloves to become key seaport." Assessed May 16, 2012. http://mtccold.com/wp-content/uploads/2011/09/AJOT_081511_1.pdf
[48] "Sparrows Point advisory group formed to spur development, jobs." Accessed June 14, 2010. http://www.bizjournals.com/baltimore/blog/real-estate/2012/05/sparrows-point-advisory-group-formed.html

Foreign companies' interests in the Port of Baltimore are also evident. After years of only making the occasional call on the Port of Baltimore, Hapag-Lloyd, a German container shipping company, recently made a weekly call commitment to the port.[49] Successful negotiations are due in part to the National Gateway rail project and the planned intermodal terminal in Maryland.[50] While the new 50-foot ship berth is viewed as necessary to the port's competitiveness, this commitment and the possibility of similar commitments demonstrates that there are additional benefits to be had.[51]

Hapag-Lloyd's weekly route will include stops in Northern Europe before making Baltimore its first port of call upon crossing the Atlantic.[52] MPA officials claim that securing this port as the first stop is key to maintaining a competitive import volume.[53] Thanks to this new business, there is the potential for 600 new jobs, both direct and indirect.[54]

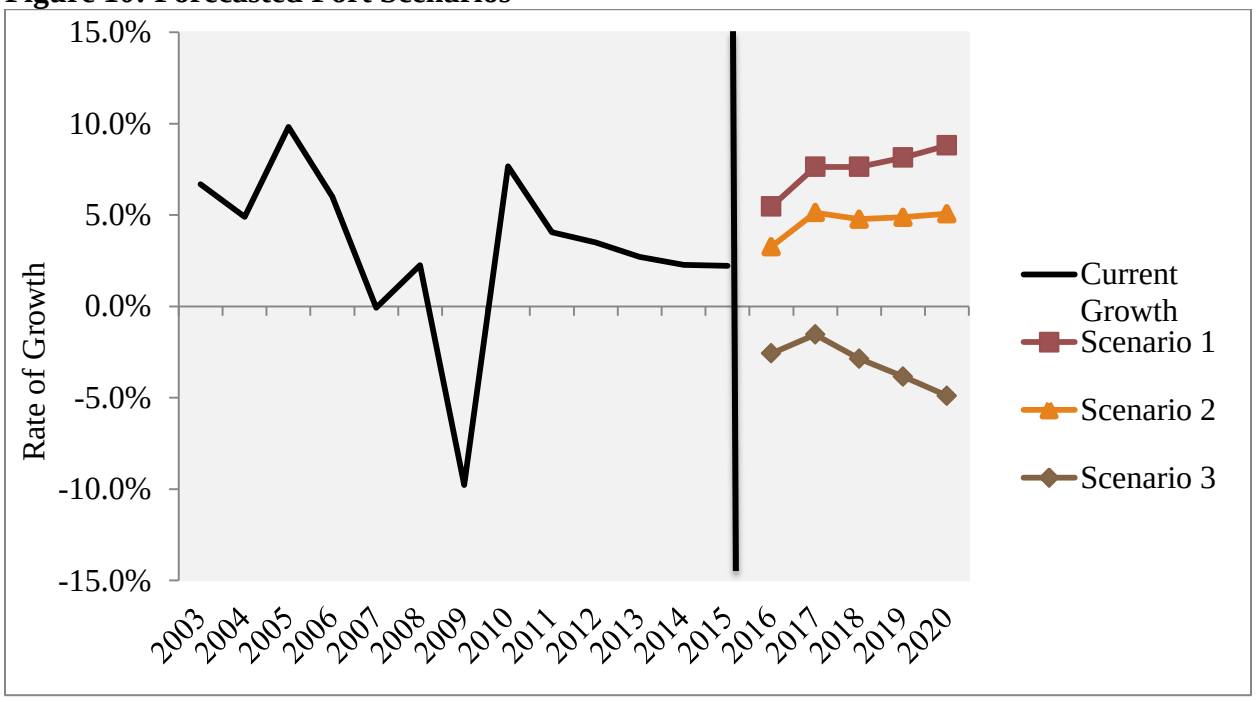
The Port of Baltimore now boasts call commitments with the largest container shipping line, Mediterranean Shipping Co.; the third-largest container shipping firm, Evergreen Marine Corp.; and the fifth-largest container company in the world, Hapag-Lloyd.[55]

8.0 Forecasted Port Scenarios

Experts at the Port of Baltimore expect an increase in containerized cargo ranging from 10 to 25 percent once the expansion of the Panama Canal is completed around early 2015. RESI has forecasted the effects of the Panama Canal expansion under three different scenarios. Figure 10 shows the current growth rate of containerized cargo at the Port of Baltimore and the forecasted growth rate broken down by scenario.

[49] "MD Ports America partnered to woo Hapag-Lloyd." Accessed May 14, 2012. http://www.bizjournals.com/baltimore/news/2011/12/21/md-ports-america-partnered-to-woo.html
[50] Ibid.
[51] Ibid.
[52] "Port of Baltimore: German container carrier deal to create hundreds of jobs." Accessed May 14, 2012. http://www.bizjournals.com/baltimore/blog/2012/02/port-of-baltimore-german-contain.html
[53] Ibid.
[54] Ibid.
[55] Ibid.

Figure 10: Forecasted Port Scenarios



Sources: POB, RESI

With the 25 percent increase in containerized cargo, the Port of Baltimore would experience a 27.8 percent increase in containers in 2015. A significant portion of the increase would occur in the first year, which would include the initial 25 percent increase; following growth is based on future projections after the 25 percent increase in Scenario 1. After the initial increase, the rate of containerized cargo would continue to increase at an average rate of 7.5 percent.

Conversely, if the Baltimore-Washington Rail Intermodal Facility project is not completed on time for the Port of Baltimore to take advantage of large vessels, the port could potentially see a significant drop in containerized cargo, as depicted in Scenario 3. After the initial decrease, the Port of Baltimore could continue to see a steady rate of decline in the number of containers as shown in Figure 10.

9.0 Conclusion

As shown in RESI's analysis, the expansion of the Panama Canal and the infrastructure improvements, such as the Baltimore-Washington Rail Intermodal Facility project, have the potential to add significant value to Maryland. Excitement about the Panama Canal expansion from surrounding businesses, as well as Ports of America, is evident.

Mark Montgomery, the president of Ports of America Chesapeake has been quoted as saying that he is

> "proud and excited to work with the Maryland Port Administration, the International Longshoremen's Association, and all of our ocean carrier customers

> to help make this historic American port the most competitive facility on the East Coast." In addition, Mark Montgomery states that "many ports are working to build their infrastructure and get ready for the widening of the canal. The big issue is that the water depths are not there. For Baltimore, the depth is there—and that's a significant factor and a huge positive. That's the reason Ports America invested here. The addition of the Baltimore-Washington Rail Intermodal Facility and double-stack capability is a vital component in securing the Port of Baltimore's competitive advantage going forward."[56]

Overall, the expansion of the Panama Canal may increase containerized cargo traffic by 25 percent and could add an estimated 266 jobs to the Port of Baltimore and contribute $39.8 million in state GDP and $13.9 million in wages. The construction phase of the Baltimore-Washington Rail Intermodal Facility project will also benefit the region by adding a total of 792 jobs for the duration of construction. It will also contribute $136.5 million in state GDP and $49.6 million in wages.

While the project is set to contribute positive economic and fiscal impacts, these impacts could ultimately be lost if the proper rail system to carry the double-stack containers does not improve. It is imperative for the state of Maryland to have the Baltimore-Washington Rail Intermodal Facility project completed on time to benefit from the potential contributions to the surrounding economy.

[56] Mark Montgomery (President, Chesapeake), conversation with EAGB, August 2012.

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Appendix A—Methodology

A.1 IMPAN Model Overview

In order to quantify the economic and fiscal impacts of the expansion of the Panama Canal, RESI utilized the IMPLAN input/output model. This model enumerates the employment and fiscal impact of each dollar earned and spent by the following: employees of the new business, other supporting vendors (business services, retail, etc.), each dollar spent by these vendors on other firms and each dollar spent by the households of the new business' employees, other vendors' employees, and other businesses' employees.

To quantify the economic impact of expansion projects, economists measure three types of economic impacts: direct, indirect, and induced impacts. The direct economic effects are generated as new businesses create jobs and hire workers to fill new positions. The indirect economic impacts occur as new firms purchase goods and services from other firms. In either case the increases in employment generate an increase in household income, as new job opportunities are created and income levels rise. This drives the induced economic impacts that result from households increasing their purchases at local businesses.

Consider the following example. A new firm opens in a region and directly employs 100 workers. The firm purchases supplies, both from outside the region as well as from local suppliers, which leads to increased business for local firms, thereby creating jobs for say, another 100 workers. This is called the indirect effect. The workers at the firm and at suppliers spend their income mostly in the local area, creating jobs for hypothetically another 50 workers. This is the induced effect. The direct, indirect, and induced effects add up to 250 jobs created from the original 100 jobs. Thus, in terms of employment, the total economic impact of the hypothetical firm in our example is 250.[57]

A.2 Assumptions

To analyze the potential economic and fiscal impacts of the Panama Canal expansion, RESI determined three different scenarios that could theoretically occur. RESI took the percentage of containerized cargo traffic coming into the Port of Baltimore and applied it against the total value of cargo at the port and added that to the same percent multiplied against the operating revenue of fees from the port. This total created the basis for the three scenarios.

The total dollar value was obtained from a press release provided by the Port of Baltimore. The operating revenues were provided by the Maryland Department of Legislative Services. For each scenario, RESI took the sum of port activities for containerized cargo. For the first scenario, RESI applied a 25 percent increase in containerized cargo traffic to summarize port activities. For the second scenario, RESI applied a 10 percent increase in containerized cargo to the sum of port activities.

In the last scenario, as the Baltimore-Washington Rail Intermodal Facility project is crucial to the overall project welfare, the effect of the intermodal facility had on the expansion was the

[57] Total economic impact is defined as the sum of direct, indirect, and induced effects.

focus. According to the Southern Legislative Conference, the Port of Virginia, Norfolk, would likely see a 20 percent increase in containerized cargo traffic due to the Panama Canal expansion. Due to its proximity to the open water, the Port of Virginia, Norfolk, will become a more desirable route to use for both domestic and international traffic if the Baltimore-Washington Rail Intermodal Facility project is not completed. Furthermore, Virginia already has the proper rail system in place to transfer additional containerized cargo. The Port of Baltimore could potentially witness a 50 percent loss of containerized cargo if the project is not completed, as most vessels will conserve fuel by going directly to the Port of Virginia, Norfolk. RESI applied a decrease of 50 percent to the sum of port activities in containerized cargo traffic for the third scenario.

RESI calculated the sum of port activities for containerized cargo traffic by adding the operating fees from cargo and total value of containerized cargo. Operating fees from cargo were calculated by taking the percentage of containerized cargo and multiplying it by the total operating revenue.

RESI also calculated the impacts of the Intermodal Facility project construction and operation phases. RESI analyzed IMPLAN industry sectors based on the appropriate NAICS codes. The specific IMPLAN industry sectors used for the construction and operation phases of the development project can be found in Figure 11.

Figure 11: IMPLAN Industry Sectors

Phase	IMPLAN Code	Description
Construction Phase	319	Wholesale trade businesses
	357	Insurance carriers
	369	Architectural, engineering, and related services
	375	Environmental and other technical consulting services
	432	Other state and local government enterprises
Operation Phase	335	Transport by truck
	365	Commercial and industrial machinery and equipment rental and leasing
	333	Transport by rail

Sources: IMPLAN, RESI

RESI used MDOT's projected cost of the Baltimore-Washington Rail Intermodal Facility project and distributed it between soft construction costs and hard construction costs for the construction phase.

For the operation phase, RESI distributed the total jobs provided by CSX officials, which would be sustained after the project is complete, to the appropriate industries. In addition, RESI separated the operation phase into Intermodal Facility and Intermodal Facility contractors. RESI quantified the additional jobs that could be generated to accommodate the expected increase in

cargo. Such jobs may include additional contractors for warehousing and storage facilities, outside drayage truckers, mechanics, and repair shops.

Appendix B—Detailed Impacts

Figure 12: Detailed Employment Impacts—Scenario 1

Industry	Direct	Indirect	Induced	Total
Agriculture	0.0	0.0	0.2	0.2
Mining	0.0	0.1	0.1	0.1
Utilities	0.0	0.2	0.2	0.4
Construction	0.0	0.7	0.6	1.3
Manufacturing	0.0	0.5	0.7	1.1
Wholesale Trade	0.0	2.0	1.9	3.9
Retail Trade	0.0	0.5	13.8	14.3
Transportation and Warehousing	106.3	11.4	1.8	119.4
Information	0.0	1.4	1.2	2.6
Finance and Insurance	0.0	4.0	6.1	10.1
Real Estate and Rental and Leasing	21.9	4.4	4.4	30.8
Professional, Scientific and Technical Services	0.0	5.8	3.0	8.8
Management of Companies and Enterprises	10.0	1.3	0.3	11.6
Administrative and Support and Waste Management and Remediation Services	0.0	12.5	3.4	16.0
Educational Services	0.0	0.0	3.0	3.1
Health Care and Social Services	0.0	0.0	16.3	16.3
Arts, Entertainment and Recreation	0.0	0.9	2.4	3.3
Accommodation and Food Services	0.0	2.1	7.7	9.7
Other Services	0.0	2.8	6.9	9.7
Government	0.0	2.5	1.0	3.5
Total	***138.2***	***53.2***	***75.0***	***266.4***

Source: RESI

Figure 13: Detailed State GDP Impacts—Scenario 1

Industry	Direct	Indirect	Induced	Total
Agriculture	$0	$1,296	$19,158	$20,455
Mining	$0	$11,910	$8,904	$20,814
Utilities	$0	$188,295	$198,201	$386,496
Construction	$0	$113,185	$88,447	$201,633
Manufacturing	$0	$159,581	$314,279	$473,859
Wholesale Trade	$0	$342,949	$332,680	$675,630
Retail Trade	$0	$36,675	$930,560	$967,234
Transportation and Warehousing	$13,495,477	$1,309,625	$194,632	$14,999,734
Information	$0	$533,106	$424,694	$957,800
Finance and Insurance	$0	$909,717	$1,217,735	$2,127,452
Real Estate and Rental and Leasing	$6,619,940	$978,346	$2,029,945	$9,628,231
Professional, Scientific and Technical Services	$0	$891,922	$442,857	$1,334,779
Management of Companies and Enterprises	$2,216,905	$288,766	$56,193	$2,561,864
Administrative and Support and Waste Management and Remediation Services	$0	$860,738	$260,782	$1,121,520
Educational Services	$0	$1,181	$247,484	$248,665
Health Care and Social Services	$0	$62	$1,834,375	$1,834,437
Arts, Entertainment and Recreation	$0	$43,584	$132,168	$175,753
Accommodation and Food Services	$0	$136,511	$496,826	$633,337
Other Services	$0	$307,776	$574,814	$882,589
Government	$0	$343,016	$242,465	$585,481
Total	***$22,332,321***	***$7,458,241***	***$10,047,201***	***$39,837,762***

Source: RESI

Figure 14: Detailed Wage Impacts—Scenario 1

Industry	Direct	Indirect	Induced	Total
Agriculture	$0	$189	$2,535	$2,724
Mining	$0	$393	$404	$798
Utilities	$0	$28,916	$30,206	$59,122
Construction	$0	$40,496	$27,482	$67,978
Manufacturing	$0	$31,202	$45,385	$76,587
Wholesale Trade	$0	$164,330	$159,409	$323,739
Retail Trade	$0	$17,605	$436,203	$453,808
Transportation and Warehousing	$5,163,294	$537,991	$73,930	$5,775,215
Information	$0	$109,028	$86,164	$195,191
Finance and Insurance	$0	$278,843	$401,428	$680,272
Real Estate and Rental and Leasing	$1,409,256	$101,184	$81,968	$1,592,408
Professional, Scientific and Technical Services	$0	$391,797	$190,857	$582,654
Management of Companies and Enterprises	$1,331,783	$173,474	$33,757	$1,539,014
Administrative and Support and Waste Management and Remediation Services	$0	$445,795	$118,343	$564,139
Educational Services	$0	$598	$136,990	$137,588
Health Care and Social Services	$0	$22	$861,869	$861,891
Arts, Entertainment and Recreation	$0	$12,613	$43,318	$55,931
Accommodation and Food Services	$0	$44,249	$162,251	$206,500
Other Services	$0	$124,301	$231,237	$355,538
Government	$0	$238,546	$82,097	$320,643
Total	***$7,904,334***	***$2,741,573***	***$3,205,832***	***$13,851,739***

Source: RESI

Figure 15: Detailed Employment Impacts—Scenario 2

Industry	Direct	Indirect	Induced	Total
Agriculture	0.0	0.0	0.1	0.1
Mining	0.0	0.0	0.0	0.1
Utilities	0.0	0.1	0.1	0.2
Construction	0.0	0.3	0.2	0.5
Manufacturing	0.0	0.2	0.3	0.4
Wholesale Trade	0.0	0.8	0.8	1.6
Retail Trade	0.0	0.2	5.5	5.7
Transportation and Warehousing	42.5	4.6	0.7	47.8
Information	0.0	0.6	0.5	1.0
Finance and Insurance	0.0	1.6	2.5	4.0
Real Estate and Rental and Leasing	8.8	1.8	1.8	12.3
Professional, Scientific and Technical Services	0.0	2.3	1.2	3.5
Management of Companies and Enterprises	4.0	0.5	0.1	4.6
Administrative and Support and Waste Management and Remediation Services	0.0	5.0	1.4	6.4
Educational Services	0.0	0.0	1.2	1.2
Health Care and Social Services	0.0	0.0	6.5	6.5
Arts, Entertainment and Recreation	0.0	0.3	1.0	1.3
Accommodation and Food Services	0.0	0.8	3.1	3.9
Other Services	0.0	1.1	2.7	3.9
Government	0.0	1.0	0.4	1.4
Total	***55.3***	***21.3***	***30.0***	***106.6***

Source: RESI

Figure 16: Detailed State GDP Impacts—Scenario 2

Industry	Direct	Indirect	Induced	Total
Agriculture	$0	$519	$7,663	$8,182
Mining	$0	$4,764	$3,562	$8,326
Utilities	$0	$75,318	$79,280	$154,598
Construction	$0	$45,274	$35,379	$80,653
Manufacturing	$0	$63,832	$125,711	$189,544
Wholesale Trade	$0	$137,180	$133,072	$270,252
Retail Trade	$0	$14,670	$372,224	$386,894
Transportation and Warehousing	$5,398,191	$523,850	$77,853	$5,999,893
Information	$0	$213,242	$169,878	$383,120
Finance and Insurance	$0	$363,887	$487,094	$850,981
Real Estate and Rental and Leasing	$2,647,976	$391,338	$811,978	$3,851,292
Professional, Scientific and Technical Services	$0	$356,769	$177,143	$533,912
Management of Companies and Enterprises	$886,762	$115,507	$22,477	$1,024,746
Administrative and Support and Waste Management and Remediation Services	$0	$344,295	$104,313	$448,608
Educational Services	$0	$472	$98,993	$99,466
Health Care and Social Services	$0	$25	$733,750	$733,775
Arts, Entertainment and Recreation	$0	$17,434	$52,867	$70,301
Accommodation and Food Services	$0	$54,605	$198,730	$253,335
Other Services	$0	$123,110	$229,925	$353,036
Government	$0	$137,206	$96,986	$234,192
Total	***$8,932,928***	***$2,983,296***	***$4,018,880***	***$15,935,105***

Source: RESI

Figure 17: Detailed Wage Impacts—Scenario 2

Industry	Direct	Indirect	Induced	Total
Agriculture	$0	$76	$1,014	$1,090
Mining	$0	$157	$162	$319
Utilities	$0	$11,566	$12,082	$23,649
Construction	$0	$16,198	$10,993	$27,191
Manufacturing	$0	$12,481	$18,154	$30,635
Wholesale Trade	$0	$65,732	$63,764	$129,496
Retail Trade	$0	$7,042	$174,481	$181,523
Transportation and Warehousing	$2,065,318	$215,196	$29,572	$2,310,086
Information	$0	$43,611	$34,466	$78,077
Finance and Insurance	$0	$111,537	$160,571	$272,109
Real Estate and Rental and Leasing	$563,703	$40,473	$32,787	$636,963
Professional, Scientific and Technical Services	$0	$156,719	$76,343	$233,062
Management of Companies and Enterprises	$532,713	$69,389	$13,503	$615,606
Administrative and Support and Waste Management and Remediation Services	$0	$178,318	$47,337	$225,655
Educational Services	$0	$239	$54,796	$55,035
Health Care and Social Services	$0	$9	$344,747	$344,756
Arts, Entertainment and Recreation	$0	$5,045	$17,327	$22,372
Accommodation and Food Services	$0	$17,700	$64,900	$82,600
Other Services	$0	$49,721	$92,495	$142,215
Government	$0	$95,419	$32,839	$128,257
Total	***$3,161,733***	***$1,096,629***	***$1,282,333***	***$5,540,696***

Source: RESI

Figure 18: Detailed Employment Impacts—Scenario 3

Industry	Direct	Indirect	Induced	Total
Agriculture	0.0	0.0	-0.6	-0.7
Mining	0.0	-0.2	-0.1	-0.4
Utilities	0.0	-0.5	-0.6	-1.1
Construction	0.0	-2.0	-1.7	-3.7
Manufacturing	0.0	-1.3	-1.9	-3.1
Wholesale Trade	0.0	-5.6	-5.4	-11.1
Retail Trade	0.0	-1.4	-38.6	-40.0
Transportation and Warehousing	-297.6	-31.9	-4.9	-334.4
Information	0.0	-4.0	-3.4	-7.3
Finance and Insurance	0.0	-11.1	-17.2	-28.3
Real Estate and Rental and Leasing	-61.4	-12.4	-12.4	-86.2
Professional, Scientific and Technical Services	0.0	-16.3	-8.3	-24.7
Management of Companies and Enterprises	-28.1	-3.7	-0.7	-32.4
Administrative and Support and Waste Management and Remediation Services	0.0	-35.0	-9.7	-44.7
Educational Services	0.0	0.0	-8.5	-8.5
Health Care and Social Services	0.0	0.0	-45.7	-45.7
Arts, Entertainment and Recreation	0.0	-2.4	-6.8	-9.2
Accommodation and Food Services	0.0	-5.8	-21.4	-27.2
Other Services	0.0	-7.9	-19.2	-27.1
Government	0.0	-7.0	-2.8	-9.8
Total	***-387.0***	***-148.8***	***-210.0***	***-745.9***

Source: RESI

Figure 19: Detailed State GDP Impacts—Scenario 3

Industry	Direct	Indirect	Induced	Total
Agriculture	$0	-$3,630	-$53,643	-$57,273
Mining	$0	-$33,347	-$24,932	-$58,279
Utilities	$0	-$527,225	-$554,963	-$1,082,187
Construction	$0	-$316,919	-$247,653	-$564,572
Manufacturing	$0	-$446,826	-$879,980	-$1,326,806
Wholesale Trade	$0	-$960,258	-$931,505	-$1,891,763
Retail Trade	$0	-$102,689	-$2,605,567	-$2,708,256
Transportation and Warehousing	-$37,787,334	-$3,666,950	-$544,970	-$41,999,254
Information	$0	-$1,492,697	-$1,189,144	-$2,681,841
Finance and Insurance	$0	-$2,547,208	-$3,409,659	-$5,956,867
Real Estate and Rental and Leasing	-$18,535,831	-$2,739,368	-$5,683,847	-$26,959,046
Professional, Scientific and Technical Services	$0	-$2,497,381	-$1,239,999	-$3,737,381
Management of Companies and Enterprises	-$6,207,334	-$808,546	-$157,340	-$7,173,220
Administrative and Support and Waste Management and Remediation Services	$0	-$2,410,065	-$730,191	-$3,140,256
Educational Services	$0	-$3,307	-$692,954	-$696,261
Health Care and Social Services	$0	-$175	-$5,136,250	-$5,136,425
Arts, Entertainment and Recreation	$0	-$122,036	-$370,071	-$492,107
Accommodation and Food Services	$0	-$382,232	-$1,391,113	-$1,773,345
Other Services	$0	-$861,772	-$1,609,478	-$2,471,250
Government	$0	-$960,444	-$678,903	-$1,639,346
Total	***-$62,530,499***	***-$20,883,074***	***-$28,132,162***	***-$111,545,735***

Source: RESI

Figure 20: Detailed Wage Impacts—Scenario 3

Industry	Direct	Indirect	Induced	Total
Agriculture	$0	-$529	-$7,099	-$7,628
Mining	$0	-$1,102	-$1,132	-$2,234
Utilities	$0	-$80,965	-$84,576	-$165,541
Construction	$0	-$113,389	-$76,949	-$190,338
Manufacturing	$0	-$87,365	-$127,077	-$214,443
Wholesale Trade	$0	-$460,123	-$446,346	-$906,469
Retail Trade	$0	-$49,294	-$1,221,368	-$1,270,663
Transportation and Warehousing	-$14,457,224	-$1,506,375	-$207,004	-$16,170,603
Information	$0	-$305,277	-$241,259	-$546,536
Finance and Insurance	$0	-$780,762	-$1,123,999	-$1,904,760
Real Estate and Rental and Leasing	-$3,945,918	-$283,314	-$229,511	-$4,458,742
Professional, Scientific and Technical Services	$0	-$1,097,032	-$534,400	-$1,631,432
Management of Companies and Enterprises	-$3,728,993	-$485,726	-$94,520	-$4,309,239
Administrative and Support and Waste Management and Remediation Services	$0	-$1,248,227	-$331,361	-$1,579,588
Educational Services	$0	-$1,674	-$383,571	-$385,245
Health Care and Social Services	$0	-$63	-$2,413,232	-$2,413,295
Arts, Entertainment and Recreation	$0	-$35,317	-$121,291	-$156,607
Accommodation and Food Services	$0	-$123,897	-$454,302	-$578,199
Other Services	$0	-$348,044	-$647,463	-$995,507
Government	$0	-$667,930	-$229,870	-$897,800
Total	***-$22,132,134***	***-$7,676,405***	***-$8,976,330***	***-$38,784,869***

Source: RESI

Figure 21: Detailed Employment Impact—Baltimore Washington Rail Intermodal Facility, Construction Phase

Industry	Direct	Indirect	Induced	Total
Agriculture	0.0	0.0	0.1	0.1
Mining	0.0	0.1	0.0	0.1
Utilities	0.0	0.4	0.6	1.0
Construction	449.0	1.0	1.0	451.0
Manufacturing	0.0	5.6	1.6	7.2
Wholesale Trade	10.3	2.2	1.7	14.1
Retail Trade	0.0	6.6	22.3	28.9
Transportation and Warehousing	0.0	6.0	3.2	9.2
Information	0.0	3.5	2.9	6.4
Finance and Insurance	4.8	10.1	15.3	30.2
Real Estate and Rental and Leasing	0.0	6.4	7.3	13.6
Professional, Scientific and Technical Services	23.6	52.6	5.9	82.1
Management of Companies and Enterprises	0.0	0.3	0.1	0.4
Administrative and Support and Waste Management and Remediation Services	0.0	19.5	7.6	27.0
Educational Services	0.0	0.1	8.0	8.1
Health Care and Social Services	0.0	0.0	45.4	45.4
Arts, Entertainment and Recreation	0.0	1.0	5.7	6.7
Accommodation and Food Services	0.0	5.3	20.3	25.6
Other Services	0.0	11.9	15.4	27.2
Government	2.5	1.6	3.2	7.3
Total	***490.1***	***134.1***	***167.6***	***791.8***

Source: RESI

Figure 22: Detailed State GDP Impacts— Baltimore Washington Rail Intermodal Facility, Construction Phase

Industry	Direct	Indirect	Induced	Total
Agriculture	$0	$442	$3,415	$3,857
Mining	$0	$12,521	$1,253	$13,775
Utilities	$0	$382,955	$525,758	$908,713
Construction	$82,000,000	$147,731	$137,967	$82,285,698
Manufacturing	$0	$2,583,960	$734,182	$3,318,142
Wholesale Trade	$1,800,000	$382,553	$298,207	$2,480,760
Retail Trade	$0	$461,869	$1,508,531	$1,970,400
Transportation and Warehousing	$0	$845,314	$337,668	$1,182,982
Information	$0	$1,195,599	$881,820	$2,077,419
Finance and Insurance	$1,800,000	$2,508,228	$3,726,873	$8,035,101
Real Estate and Rental and Leasing	$0	$1,530,668	$4,318,483	$5,849,151
Professional, Scientific and Technical Services	$3,600,000	$8,889,362	$1,068,958	$13,558,320
Management of Companies and Enterprises	$0	$36,846	$16,648	$53,494
Administrative and Support and Waste Management and Remediation Services	$0	$1,348,867	$540,035	$1,888,901
Educational Services	$0	$11,580	$845,985	$857,565
Health Care and Social Services	$0	$132	$5,344,898	$5,345,030
Arts, Entertainment and Recreation	$0	$59,023	$361,378	$420,401
Accommodation and Food Services	$0	$358,491	$1,365,226	$1,723,716
Other Services	$0	$1,238,033	$1,345,195	$2,583,228
Government	$800,000	$319,706	$784,790	$1,904,496
Total	***$90,000,000***	***$22,313,881***	***$24,147,268***	***$136,461,149***

Source: RESI

Figure 23: Detailed Wage Impacts— Baltimore Washington Rail Intermodal Facility, Construction Phase

Industry	Direct	Indirect	Induced	Total
Agriculture	$0	$1	$8	$9
Mining	$0	$0	$0	$0
Utilities	$0	$70,846	$97,382	$168,228
Construction	$28,974,073	$61,454	$50,887	$29,086,414
Manufacturing	$0	$396,355	$95,147	$491,502
Wholesale Trade	$767,243	$163,062	$127,110	$1,057,414
Retail Trade	$0	$215,708	$705,903	$921,612
Transportation and Warehousing	$0	$407,405	$174,814	$582,219
Information	$0	$179,394	$142,709	$322,103
Finance and Insurance	$380,403	$1,007,091	$1,612,913	$3,000,408
Real Estate and Rental and Leasing	$0	$309,632	$216,283	$525,916
Professional, Scientific and Technical Services	$1,734,309	$4,155,538	$474,966	$6,364,813
Management of Companies and Enterprises	$0	$21,886	$9,889	$31,775
Administrative and Support and Waste Management and Remediation Services	$0	$717,806	$274,840	$992,646
Educational Services	$0	$6,981	$533,680	$540,661
Health Care and Social Services	$0	$55	$2,856,151	$2,856,206
Arts, Entertainment and Recreation	$0	$25,351	$147,533	$172,884
Accommodation and Food Services	$0	$140,150	$535,126	$675,277
Other Services	$0	$594,264	$622,252	$1,216,516
Government	$211,339	$121,324	$237,097	$569,759
Total	***$32,067,367***	***$8,594,304***	***$8,914,691***	***$49,576,361***

Source: RESI

Figure 24: Detailed Employment Impacts— Baltimore Washington Rail Intermodal Facility, Operation Phase—Intermodal Facility

Industry	Direct	Indirect	Induced	Total
Agriculture	0.0	0.0	0.0	0.0
Mining	0.0	0.0	0.0	0.0
Utilities	0.0	0.0	0.1	0.1
Construction	0.0	0.2	0.1	0.3
Manufacturing	0.0	0.2	0.2	0.3
Wholesale Trade	0.0	0.2	0.2	0.3
Retail Trade	0.0	0.4	2.1	2.5
Transportation and Warehousing	45.0	6.7	0.3	52.0
Information	0.0	0.4	0.3	0.7
Finance and Insurance	0.0	1.7	1.5	3.1
Real Estate and Rental and Leasing	0.0	0.6	0.7	1.3
Professional, Scientific and Technical Services	0.0	1.3	0.6	1.8
Management of Companies and Enterprises	0.0	0.1	0.0	0.1
Administrative and Support and Waste Management and Remediation Services	0.0	8.2	0.7	8.9
Educational Services	0.0	0.0	0.8	0.8
Health Care and Social Services	0.0	0.0	4.3	4.3
Arts, Entertainment and Recreation	0.0	0.1	0.5	0.6
Accommodation and Food Services	0.0	0.4	1.9	2.3
Other Services	0.0	0.9	1.5	2.3
Government	0.0	2.8	0.3	3.2
Total	***45.0***	***24.0***	***15.9***	***84.9***

Source: RESI

Figure 25: Detailed State GDP Impacts— Baltimore Washington Rail Intermodal Facility, Operation Phase—Intermodal Facility

Industry	Direct	Indirect	Induced	Total
Agriculture	$0	$19	$320	$339
Mining	$0	$222	$115	$337
Utilities	$0	$16,178	$49,805	$65,983
Construction	$0	$12,204	$12,574	$24,779
Manufacturing	$0	$29,948	$69,248	$99,196
Wholesale Trade	$0	$15,586	$28,834	$44,420
Retail Trade	$0	$15,093	$142,064	$157,156
Transportation and Warehousing	$6,522,761	$471,986	$31,160	$7,025,906
Information	$0	$70,859	$82,169	$153,027
Finance and Insurance	$0	$254,482	$353,923	$608,405
Real Estate and Rental and Leasing	$0	$63,053	$411,968	$475,022
Professional, Scientific and Technical Services	$0	$113,172	$97,315	$210,487
Management of Companies and Enterprises	$0	$4,649	$1,530	$6,178
Administrative and Support and Waste Management and Remediation Services	$0	$250,669	$49,952	$300,620
Educational Services	$0	$292	$77,225	$77,516
Health Care and Social Services	$0	$5	$491,420	$491,425
Arts, Entertainment and Recreation	$0	$2,513	$33,195	$35,708
Accommodation and Food Services	$0	$12,729	$126,814	$139,543
Other Services	$0	$44,200	$123,991	$168,191
Government	$0	$179,671	$72,472	$252,143
Total	***$6,522,761***	***$1,557,529***	***$2,256,092***	***$10,336,381***

Source: RESI

Figure 26: Detailed Wage Impacts— Baltimore Washington Rail Intermodal Facility, Operation Phase—Intermodal Facility

Industry	Direct	Indirect	Induced	Total
Agriculture	$0	$0	$1	$1
Mining	$0	$0	$0	$0
Utilities	$0	$2,861	$8,817	$11,678
Construction	$0	$5,012	$4,602	$9,614
Manufacturing	$0	$4,503	$8,612	$13,115
Wholesale Trade	$0	$6,219	$11,506	$17,725
Retail Trade	$0	$6,761	$63,763	$70,524
Transportation and Warehousing	$3,021,429	$238,291	$15,804	$3,275,524
Information	$0	$10,507	$12,908	$23,416
Finance and Insurance	$0	$76,041	$145,879	$221,920
Real Estate and Rental and Leasing	$0	$9,195	$19,591	$28,786
Professional, Scientific and Technical Services	$0	$51,077	$42,962	$94,039
Management of Companies and Enterprises	$0	$2,718	$895	$3,613
Administrative and Support and Waste Management and Remediation Services	$0	$149,659	$24,854	$174,513
Educational Services	$0	$179	$48,164	$48,342
Health Care and Social Services	$0	$2	$258,388	$258,390
Arts, Entertainment and Recreation	$0	$1,049	$13,333	$14,382
Accommodation and Food Services	$0	$4,815	$48,386	$53,201
Other Services	$0	$19,442	$56,226	$75,668
Government	$0	$121,939	$21,445	$143,384
Total	***$3,021,429***	***$710,271***	***$806,135***	***$4,537,834***

Source: RESI

Figure 27: Detailed Employment Impacts— Baltimore Washington Rail Intermodal Facility, Operation Phase—Contractor

Industry	Direct	Indirect	Induced	Total
Agriculture	0.0	0.0	0.0	0.0
Mining	0.0	0.0	0.0	0.0
Utilities	0.0	0.1	0.2	0.3
Construction	0.0	0.4	0.4	0.8
Manufacturing	0.0	0.4	0.7	1.0
Wholesale Trade	0.0	0.4	0.7	1.1
Retail Trade	0.0	0.9	9.0	10.0
Transportation and Warehousing	192.0	15.0	1.3	208.3
Information	0.0	0.9	1.2	2.1
Finance and Insurance	0.0	3.7	6.2	9.9
Real Estate and Rental and Leasing	0.0	1.4	3.0	4.3
Professional, Scientific and Technical Services	0.0	2.8	2.4	5.2
Management of Companies and Enterprises	0.0	0.2	0.1	0.2
Administrative and Support and Waste Management and Remediation Services	0.0	18.4	3.1	21.4
Educational Services	0.0	0.0	3.2	3.3
Health Care and Social Services	0.0	0.0	18.4	18.4
Arts, Entertainment and Recreation	0.0	0.2	2.3	2.5
Accommodation and Food Services	0.0	0.8	8.2	9.0
Other Services	0.0	1.9	6.2	8.1
Government	0.0	6.4	1.3	7.7
Total	***192.0***	***53.8***	***68.0***	***313.8***

Source: RESI

Figure 28: Detailed State GDP Impacts— Baltimore Washington Rail Intermodal Facility, Operation Phase—Contractor

Industry	Direct	Indirect	Induced	Total
Agriculture	$0	$117	$1,976	$2,092
Mining	$0	$1,371	$706	$2,078
Utilities	$0	$99,782	$307,182	$406,964
Construction	$0	$75,273	$77,553	$152,826
Manufacturing	$0	$184,711	$427,099	$611,810
Wholesale Trade	$0	$96,127	$177,840	$273,966
Retail Trade	$0	$93,086	$876,203	$969,289
Transportation and Warehousing	$40,230,285	$2,911,056	$192,182	$43,333,522
Information	$0	$437,033	$506,790	$943,822
Finance and Insurance	$0	$1,569,564	$2,182,882	$3,752,446
Real Estate and Rental and Leasing	$0	$388,894	$2,540,888	$2,929,782
Professional, Scientific and Technical Services	$0	$698,007	$600,207	$1,298,213
Management of Companies and Enterprises	$0	$28,671	$9,434	$38,105
Administrative and Support and Waste Management and Remediation Services	$0	$1,546,043	$308,088	$1,854,130
Educational Services	$0	$1,799	$476,298	$478,097
Health Care and Social Services	$0	$31	$3,030,921	$3,030,952
Arts, Entertainment and Recreation	$0	$15,500	$204,734	$220,234
Accommodation and Food Services	$0	$78,509	$782,148	$860,657
Other Services	$0	$272,611	$764,736	$1,037,347
Government	$0	$1,108,151	$446,983	$1,555,135
Total	***$40,230,285***	***$9,606,334***	***$13,914,849***	***$63,751,469***

Source: RESI

Figure 29: Detailed Wage Impacts— Baltimore Washington Rail Intermodal Facility, Operation Phase—Contractor

Industry	Direct	Indirect	Induced	Total
Agriculture	$0	$0	$5	$5
Mining	$0	$0	$0	$0
Utilities	$0	$18,178	$56,031	$74,209
Construction	$0	$31,848	$29,244	$61,092
Manufacturing	$0	$28,615	$54,723	$83,338
Wholesale Trade	$0	$39,521	$73,116	$112,637
Retail Trade	$0	$42,963	$405,189	$448,152
Transportation and Warehousing	$19,200,000	$1,514,246	$100,431	$20,814,678
Information	$0	$66,770	$82,026	$148,797
Finance and Insurance	$0	$483,213	$927,004	$1,410,217
Real Estate and Rental and Leasing	$0	$58,428	$124,494	$182,922
Professional, Scientific and Technical Services	$0	$324,576	$273,004	$597,580
Management of Companies and Enterprises	$0	$17,275	$5,684	$22,959
Administrative and Support and Waste Management and Remediation Services	$0	$951,026	$157,938	$1,108,964
Educational Services	$0	$1,136	$306,061	$307,196
Health Care and Social Services	$0	$13	$1,641,953	$1,641,966
Arts, Entertainment and Recreation	$0	$6,668	$84,726	$91,393
Accommodation and Food Services	$0	$30,599	$307,474	$338,073
Other Services	$0	$123,546	$357,295	$480,841
Government	$0	$774,876	$136,272	$911,148
Total	***$19,200,000***	***$4,513,496***	***$5,122,672***	***$28,836,168***

Source: RESI