

PORT OF SYDNEY

Estimated Economic Impact of Proposed Container Terminal & Logistics Park

Prepared for Port of Sydney Development Corporation



21 December 2016

Executive Summary

The Port of Sydney has plans to develop a deep-water container terminal, called Novaport, and a logistics park called, Novazone. These projects are expected to contribute directly to employment and the economy in the local region and the Province of Nova Scotia. This study examines the potential incremental economic impacts generated from the full build-out of the port’s planned expansion projects and development activities, based on the cumulative capital investment, forecasted volumes and timeframe for full build-out provided by the Port of Sydney Development Corporation, Harbour Port Development Partners and Canderel.¹

Figure ES-1: Categories of Economic Impact Generated by the Port of Sydney

Economic impact is a measure of the spending and employment associated with a sector of the economy, a specific project, or a change in government policy or regulation. The three major components of economic impact are classified as *direct, indirect and induced impacts* – which capture the economic impact of the Port of Sydney’s planned development projects. **Figure ES-1** illustrates the various elements that account for the economic impact of the Port.



Economic impact can be measured in a number of ways:

- Employment (person years);²
- Wages;
- Gross Domestic Product (GDP); and
- Economic output.

Current Ongoing Economic Impacts of the Port of Sydney

The Port of Sydney is an important facilitator of economic development in the Province of Nova Scotia. Its economic importance is reflected in the estimated 2,580 total person years of employment (including direct, indirect and induced) that is supported or facilitated by the current ongoing operations at the port and the \$320 million (direct, indirect and induced) contributed to the province’s Gross Domestic Product (GDP).

¹ InterVISTAS Consulting was not asked to review or comment on the magnitude of the forecasted container volumes or their timing. This report merely documents the expected economic impacts should the forecast be achieved.

² A person year refers to a full-time equivalent of employment to account for part-time and seasonal employment.

Potential Economic Impact of Annual Operations of Planned Expansion Projects at Full Build-Out

Once the new facilities are fully developed, their annual operations are estimated to yield significant contributions to the provincial economy. Direct employment supported by the potential operations of both Novaporte and Novazone once fully developed and operational could amount to 4,910 person years per annum. The wages of these direct employees is estimated to be \$270 million. The potential direct GDP generated by annual operations of both planned projects is estimated to be \$350 million, while direct economic output is estimated to be \$790 million.

Adding in multiplier impacts (indirect and induced); the total employment supported by potential annual activities at the container terminal and logistics park at full build-out is estimated to be 7,950 person years, earning a total of \$410 million in wages. Potential total GDP is estimated to be \$630 million, and economic output is estimated to be nearly \$1.3 billion.

The total (direct, indirect and induced) per annum potential incremental economic impacts associated with Novaporte and Novazone at full build-out are broken down by employment, wages, GDP and economic output in **Figure ES-2**.

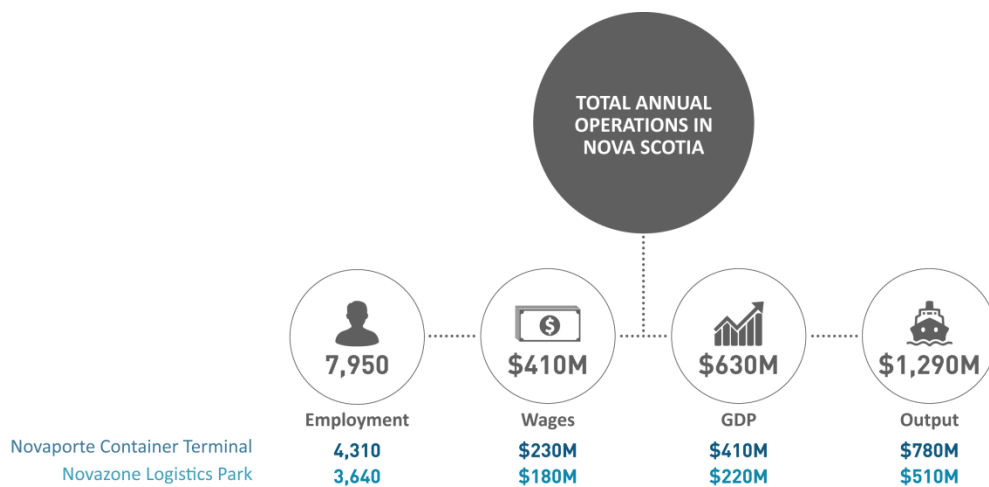


This project makes sense because of our geographic location and sheltered harbour. Governments invested 37 million to enable this project. What is exciting is that private sector investment will drive it and hundreds of small business opportunities will result.

Marlene Usher
CEO, Port of Sydney



Figure ES-2: Total Potential Incremental Annual Operations Impacts of Planned Projects at Full Build-Out



Note: Figures reported are in 2016 dollars. Totals may not add up due to rounding.

Potential Economic Impact of Cumulative Capital Expenditure of Planned Expansion Projects

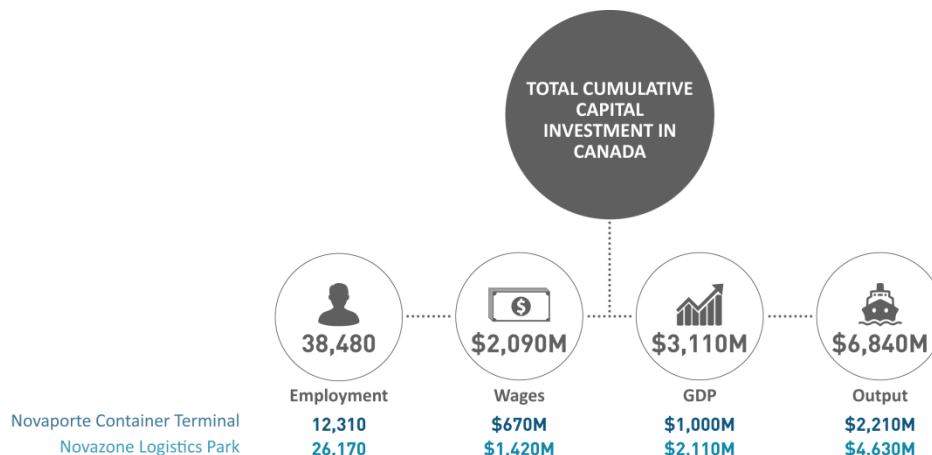
The development and construction of Novaport and Novazone also generate impacts to the provincial economy, related to the construction of infrastructure, which include jobs such as architects, plumbers, electricians, project managers, and engineers. There are also other requirements needed to develop infrastructure, such as materials, machinery and equipment. The expected total cumulative capital cost (or total cost of construction) of the container terminal that will occur in Nova Scotia (including rail upgrades) is estimated at \$970 million, while the estimated total cumulative capital cost of the logistics park in the province amounts to \$2,015 million.³

This capital spending contributes significantly to the economy. Over the construction period, the building of Novaport and Novazone could facilitate direct employment of 17,240 person years in Nova Scotia, with direct wages of nearly \$930 million. Additionally, the two planned projects could contribute \$1.1 billion in direct GDP and \$3.0 billion in direct economic output to the provincial economy, based on goods and services purchased during the entire construction period.

Construction costs (both on labour and materials) could be spent within the province, elsewhere across Canada and/or outside of Canada. For this study, only the impacts of goods and services purchased in Nova Scotia are estimated, as well as the multiplier (indirect and induced) impacts across Canada that are related to the capital expenditure in the province. Including the multiplier impacts across Canada, the cumulative total impacts of the planned container terminal and logistics park could be 38,480 person years, \$2.1 billion in wages, \$3.1 billion in GDP, and \$6.8 billion in economic output.

Figure ES-3 summarises the total (direct, indirect and induced) potential aggregate economic impacts in Canada associated with the construction of Novaport and Novazone.

Figure ES-3: Total Potential Cumulative Capital Cost Impacts of Planned Expansion Projects, All Project Phases



Notes:

- Figures reported are in 2016 dollars. Totals may not add up due to rounding.
- Impacts of construction costs spent in Nova Scotia are estimated based on capital expenditure data provided by the Port of Sydney and Harbour Port Development Partners for Novaport Container Terminal; and, assumptions provided by Canderel, Genesee and Wyoming Canada, Inc. and InterVISTAS research for Novazone Logistics Park.

³ Port of Sydney and Harbour Port Development Partners for Novaport Container Terminal; assumptions provided by Canderel, Genesee and Wyoming Canada, Inc. and InterVISTAS research for Novazone Logistics Park.

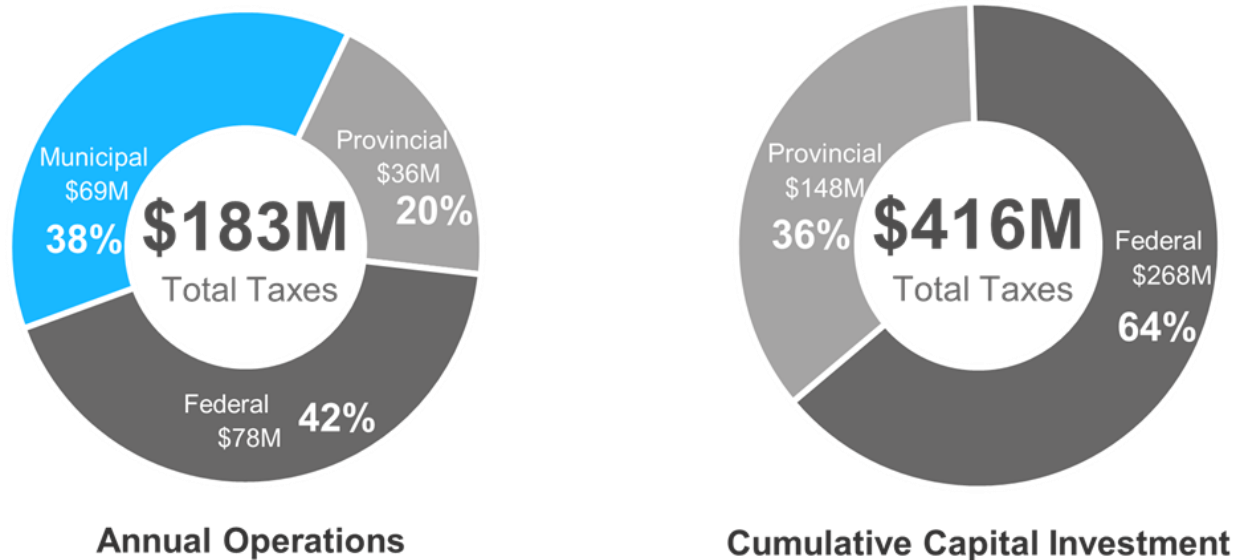
Potential Tax Revenue Impact of Planned Expansion Projects

The annual operations at full build-out and construction of Novaporte and Novazone are also an important generator of taxation revenues to all levels of government. Tax revenues to the different levels of government paid by employers and employees include income and payroll taxes and social insurance contributions (such as employment insurance premiums). In addition, the operators of the container terminal and facilities in the logistics park would also pay property taxes to the Cape Breton Regional Municipality.⁴

The total potential tax contribution associated with the expected operations of the proposed Port of Sydney expansion projects at full build-out is estimated to be \$102 million for the container terminal and \$81 million for the logistics park per annum. The total potential government revenue associated with the total cumulative capital investment of the proposed Port of Sydney expansion projects is estimated to be \$128 million and \$288 million for Novaporte and Novazone, respectively, for the entire construction period of approximately five years.⁵

Figure ES-4 illustrates the potential tax revenue impacts by level of government associated with annual operations of the Port of Sydney's planned developments, as well as the cumulative capital expenditure.⁶

Figure ES-4: Potential Tax Revenue Impact of Planned Expansion Projects, per Annum Operations at Full Build-Out and Cumulative Capital Investment



Note:

- Figures reported are in 2016 dollars, using current 2015 tax rates.
- Municipal taxes are estimated at 100% of the current rate. Potential tax incentives or deferrals to encourage economic activity may be approved; therefore, actual municipal taxes may be materially different than that presented.
- The potential tax impact of capital investment is estimated for the total project even though capital spending is expected to occur over several years.

⁴ The assessed value of the expansion projects is estimated based on approximately 25% of total capital costs. Respective 2015 Municipal Tax Rates from the Cape Breton Regional Municipality are then applied to the estimated assessed value to determine property tax payments. 100% of the current rate is estimated. Potential tax incentives or deferrals to encourage economic activity may be approved; therefore, actual municipal taxes may be materially different than that presented.

⁵ Figures reported are in 2016 dollars, using current 2015 tax rates.

⁶ Figures reported are in 2016 dollars, using current 2015 tax rates.

Potential Impact of Planned Projects on Growth of Regional Economy

Beyond the direct, indirect and induced economic impacts, the planned projects are also expected to contribute positive effects to the region that can be more difficult to quantify. InterVISTAS conducted interviews with key stakeholders to review the potential impacts the port developments have on the surrounding population, housing market and other sectors in the community.

Improvements in the logistics supply chain enable economies to conduct more trade and draw more investment. Novaport and Novazone could facilitate employment and economic development in the regional economy. This yields additional benefits to direct users and generates further positive impact on the performance and economic activity of a region, including enhanced productivity, attraction of highly skilled individuals with a higher earning power, stable year-round population, increase in homeownership and complimentary building booms.

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This is a project that will drive the multiplier effect of economic activity and ensure that you, your children, and your children's children have the opportunity to have prosperity.

Jonathan Wener
Chairman & CEO, Canderel
(Port of Sydney Development Corporation, Port Days 2016)

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Contents

Executive Summary	i
1 Background	1
1.1 Current Operations & Activities	1
1.2 The Opportunity for Growth & Expansion	3
2 Proposed Capital Development Plans	4
2.1 Overview	4
2.2 Novaport Deep-Water Mega-Terminal	4
2.3 Novazone Logistics Park	6
3 Potential Economic Impact of Annual Operations of Planned Projects at Full Build-Out	8
3.1 What is Economic Impact?	8
3.2 Estimating Annual Operations at Full Build-Out	10
3.3 Potential Economic Impacts of Annual Operations at Full Build Out	10
4 Projected Cumulative Economic Impact of Capital Expenditures and Construction	13
4.1 Cumulative Expected Capital Expenditure	13
4.2 Potential Cumulative Economic Impact of Capital Expenditure	14
5 Potential Tax Impact of Planned Projects	19
5.1 Potential Tax Revenue Impacts of Annual Operations at Full Build-Out	19
5.2 Potential Cumulative Tax Revenue Impacts of Capital Expenditure and Construction	20
6 Potential Impact of Planned Projects on Growth of Regional Economy	22
6.1 Export Opportunity for the Local Market	25
6.2 Aboriginal Community Impacts	25
7 Summary of Results	26
7.1 Economic Impact of Current Ongoing Operations	26
7.2 Economic Impact of Planned Expansion Projects	26
7.3 Tax Revenue Impact of Planned Expansion Projects	28
Appendix A: Methodology	30
Appendix B: List of Key Stakeholders	33

1 Background

This section examines the ongoing operations and activities, as well as their associated economic impacts, currently taking place at the Port of Sydney. Also discussed is the importance of the Port to the surrounding community and the Cape Breton Regional Municipality.

1.1 Current Operations & Activities

The Port of Sydney is located on the east coast of Canada and has close access to natural resources near the region. It sits on direct shipping routes to a number of continents including Asia, Europe, South America and the U.S. The Port's location enables it to act as the first port-of-call for those vessels passing through the Suez Canal.

With shelter from open seas and a deep-water harbour, the Port enables a wide variety of business activities such as marine cargo, ferry and cruise operations and fishing. The ferry service in particular offers year-round direct routes between North Sydney and Newfoundland, and enables the movement of people, vehicles and cargo. In addition, passengers are now able to enjoy the use of a new \$20 million terminal constructed in 2015 to replace a building located further away from downtown North Sydney.

Cruise ships continue to play a major role at the harbour with approximately 68 ships per year making use of the Joan Harriss Cruise Pavilion from 2011-2015.⁷ A number of services are available to docked ships including refueling, repairs, fresh water supply, stevedoring, pilotage services and Canadian Customs.

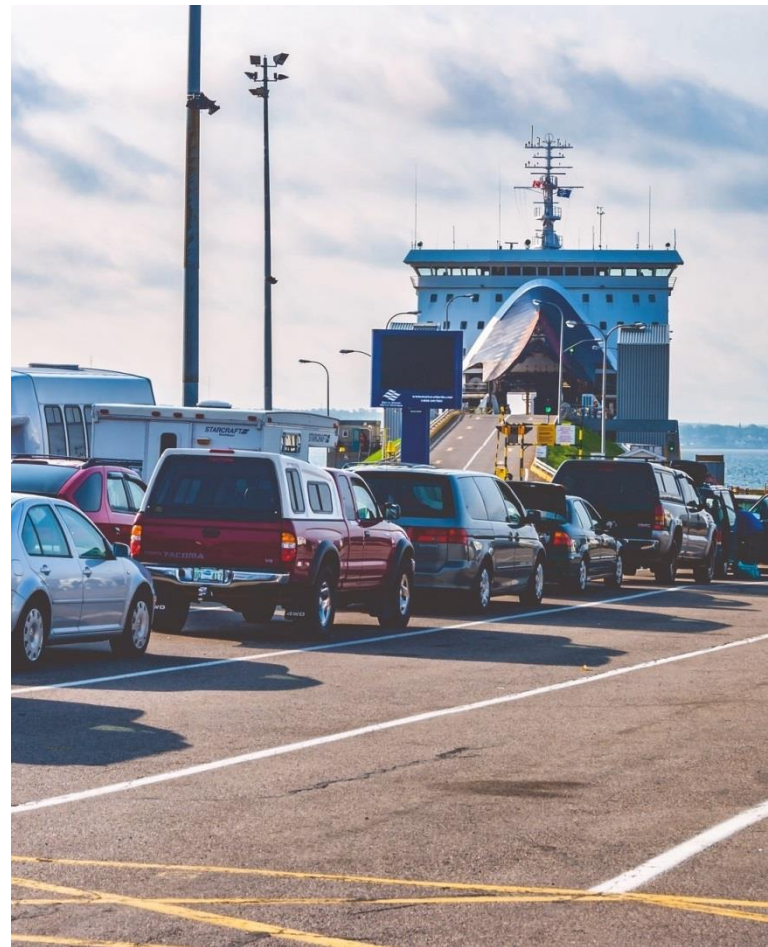


Photo by Michel Rathwell

⁷ Port of Sydney Development Corporation.

The Port of Sydney is associated with a number of employers in and around the harbour, each of which contributes to the growth of the broader Nova Scotia economy. The annual current ongoing operations of the Port of Sydney support a total of 2,580 person years in the region, including multiplier impacts. Of this employment total, 1,720 person years are directly related to the port. Because jobs related to the port extend beyond the Port of Sydney, the total also includes both indirect (450 person years) and induced employment (410 person years).

All of the activities taking place at or near the Port of Sydney combine to contribute to the regional economy. The estimated contribution is measured by the direct economic impact of the port to provincial Gross Domestic Product (GDP) and economic output, measured at \$210 million and \$410 million, respectively. Including both the indirect and induced impacts, the total impacts are approximately \$320 million in GDP and \$680 million in economic output to the Province of Nova Scotia. **Figure 1-1** summarizes the current ongoing economic impacts of the Port of Sydney.

Figure 1-1: Current Ongoing Economic Impacts of Port of Sydney Operations

Type of Impact	Employment (Person Years)	Wages (\$ Million)	GDP (\$ Million)	Economic Output (\$ Million)
<i>Impacts in Nova Scotia</i>				
Direct	1,720	\$90	\$210	\$410
Indirect	450	\$30	\$70	\$200
Induced	410	\$20	\$40	\$70
Total in N.S.	2,580	\$140	\$320	\$680

Notes:

- Person Years: Full-time equivalent jobs
- Figures reported are in 2016 dollars. Totals may not add up due to rounding.



Photo by Michel Rathwell

1.2 The Opportunity for Growth & Expansion

The Port of Sydney is currently promoting an expansive development to become the first deep-water mega-terminal on the east coast of North America, called Novaporte. The marine terminal will accommodate the largest container ships in the world. It will operate adjacent to Novazone, which is an officially designated Canadian Foreign Trade Zone (FTZ). The Novazone project is in partnership with the aboriginal communities, who own 250 acres of the 1,250 acres assigned to the logistics park. The container terminal and logistics park will be developed on more than 1,750 acres of brownfield/greenfield land that the port has available for development.

Novaporte and Novazone will be strategically located with access to intermodal transportation. Three 100-series highways converge on the Sydney area, including the Trans-Canada Highway. The Cape Breton and Central Nova Scotia Railway operate the rail network, which extends 394 km and connects Sydney to the rest of Canada and the United States. Air connectivity through the J.A. Douglas McCurdy Airport offers direct service to Halifax and Toronto, with connecting flights to other major destinations around the world. Furthermore, because of its geographic position on direct shipping routes to Europe, the U.S., South America and Asia, as well as its proximity to the St. Lawrence Seaway, Novaporte will serve as a gateway and transshipment hub.⁸

The opportunity to expand the Port of Sydney's operations to include a deep-water port (Novaporte) and a logistics park (Novazone) is the result of a combination of different factors relating to the marine transportation industry:

- **Vessel size.** Vessel operators are making use of increasingly large container ships to achieve improved economies of scale. In particular, ports are finding there is an increasing use of ultra large container vessels (ULCVs) typically hauling between 14,000 and 18,000 TEUs.⁹
- **Canal expansions.** Approximately 15% of U.S. cargo volumes are shipped via Suez to the U.S. East Coast.¹⁰ The widening of the Suez and Panama canals is an indicator that larger container vessels and increasing volumes of marine cargo are expected to be transiting through these corridors. Given the Port of Sydney's proximity to the Suez, it is well-positioned to handle the future growth in Trans-Atlantic shipments to the East Coast.
- **Inadequate infrastructure.** The lack of sufficient land based and related infrastructure for ULCVs along the North American East Coast leaves a sizeable portion of the marine transportation market unserved.
- **Location.** The Port of Sydney's proximity to shipping lines as the first North American Port-of-Call on the Great Circle Route from Europe and the Suez Canal makes it a strong candidate to receive large cargo vessels. It is closer to Suez and Rotterdam than Norfolk in the U.S. by 844 nautical miles and 946 nautical miles, respectively. Rail connectivity at the port, offering double stacking container activity, allows for the efficient movement of goods eastbound to the rest of Canada and the U.S.¹¹ The capacity at Novaporte is targeted at incremental traffic from the economic region in northern Nova Scotia, and diverting traffic volumes from U.S. ports that are heading to eastern Canadian cities.

⁸ Business Cape Breton. (2016). Port of Sydney Prospectus. Retrieved October 6, 2016, from Sydney Port: <http://www.sydneyport.ca/portofsydney/port-of-sydney-prospectus/>

⁹ TEUs stand for twenty foot equivalent units, the unit of capacity of container ships.

¹⁰ Novaporte Presentation Package

¹¹ Business Cape Breton. (2016). Port of Sydney Prospectus. Retrieved October 6, 2016, from Sydney Port: <http://www.sydneyport.ca/portofsydney/port-of-sydney-prospectus/>

2 Proposed Capital Development Plans

2.1 Overview

This section describes the projects proposed by the Port of Sydney for Novaporte deep-water mega terminal and Novazone logistics park developments.

2.2 Novaporte Deep-Water Mega-Terminal

The Novaporte project includes the development of a Mega-Terminal alongside an existing 16.5m deep-water harbour. The site will have a total wharf area of 63,200m² and a land area of 1,174,800m². The marine terminal is expected to be developed in two phases, with two berths constructed in the first phase and an additional two berths completed in the second. All four berths will have a length of 1,600m. Novaporte will include a container stacking yard area of 559,200m² upon completion of both phases. Designed to accommodate ultra large container vessels carrying 18,000 TEUs, the new container transshipment terminal is projected to handle approximately 3.2 million TEUs per annum once fully developed.¹² Novaporte will be listed as semi-automated, making it one of the first semi-automated terminals in Canada.¹³

Figure 2-1 provides an overview of the proposed layout of Novaporte.

Figure 2-1: Proposed Layout of Novaporte



Source: <http://www.novaporte.ca/>

¹² The current container volumes handled at the Port of Halifax is over 400,000 TEUs, while container traffic at the Port of Montréal is approximately 1.4 million TEUs.

¹³ Sydney Container Terminal Technical Feasibility Study Report.

The marine terminal will offer direct rail service, accommodating unit trains 3,000m-3,500m in length. As an on-dock intermodal container transfer facility (ICTF), loading containers onto a rail car from vessels can be done easily and efficiently.¹⁴

Owned by the Cape Breton Regional Municipality (CBRM), the site has approximately 1,750 acres of developed land that is shovel-ready for the construction of the terminal and logistics park, as the Aboriginal agreements and environmental permits are secured. Out of the 1,250 acres assigned to Novaporte, 250 acres are owned by the aboriginal communities. Novaporte will fall within the boundaries of a Government of Canada designated FTZ.¹⁵

The CBRM has granted exclusive rights to Harbour Port Development Partners (HPDP) to market the port and put together a consortium of financiers, builders, shippers and a terminal operator.¹⁶ Part of the group is China Communications Construction Company (CCCC), which has conducted a feasibility study and will be responsible for undertaking the design and construction of Novaporte's required infrastructure. Other consortium members include American construction and engineering firm Bechtel.¹⁷

According to HPDP, the expected total investment for both Phase I and Phase II is estimated at approximately US\$1 billion (including capital spending that will occur locally in Nova Scotia and non-locally outside Canada).¹⁸

Figure 2-2 illustrates the proposed development area.

Figure 2-2: Novaporte Development Area



Source: Port of Sydney

¹⁴ Business Cape Breton. (2016). Port of Sydney Prospectus. Retrieved October 6, 2016, from Sydney Port: <http://www.sydneyport.ca/portofsydney/port-of-sydney-prospectus/>

¹⁵ Novaporte Presentation Package

¹⁶ Novaporte. (2016). Officials at Port Days event make case for Sydney Harbour container terminal. Retrieved October 6, 2016, from Novaporte: <http://www.novaporte.ca/content/officials-port-days-event-make-case-sydney-harbour-container-terminal>

¹⁷ Novaporte. (2016). About Novaporte. Retrieved October 6, 2016, from Novaporte: <http://www.novaporte.ca/tags/about>

¹⁸ Estimated capital cost of Novaporte obtained from Albert Barbusci, Chief Executive Officer at Harbour Port Development Partners. This study only estimates the impacts of capital expenditure occurring in Nova Scotia.

2.3 Novazone Logistics Park

The Novazone logistics park is set to be developed on approximately 1,250 acres of land, and contain approximately 15,656,000ft² of density. The project is in partnership with the aboriginal communities, and 250 acres of the land assigned to the logistics park are owned by these communities. The master plan outlines the development to be separated into three different phases.¹⁹ Phase 1 will account for 14,137,000ft² of the site, comprising a total building area of 3,560,000ft², while Phase 2 will make up 15,310,000ft² and 4,976,000ft² of site area and total building area, respectively. With a site area of 18,512,000ft² and a total building area of 7,120,000ft², Phase 3 is planned to be the largest phase of the logistics park.²⁰

Unique to Novazone is that each facility is planned to be serviced by rail link to Novaport container terminal. Approximately 87,200ft of linear rail spurs will be developed at the site, together with 1,475,000ft² of roadways for all three phases. Phase 1 will require construction of 11,300ft of linear rail spurs and 265,200ft² of roadways, and Phase 2 has 31,900ft of linear rail spurs and 463,600ft² of roadways planned. As it will be the biggest phase of the logistics park, Phase 3 is designed to have 44,000ft of linear rail spurs and 746,000ft² of roadways.²¹

Figure 2-3 illustrates the planned construction area.

Figure 2-3: Novazone Development Area



Source: Port of Sydney

¹⁹ Novaport Presentation Package

²⁰ Novaport Logistical Park Conceptual Site Plan

²¹ Novaport Logistical Park Conceptual Transportation Site Plan

HPDP has partnered with Canderel, a Canadian real estate investment, development and management company, to develop Novazone. The logistics park will have a number of planned uses and may include the following:

- Distribution Centers
- Cross-dock facilities
- Warehousing
- Manufacturing and Assembly
- Hotel
- Retail and other essential services
- Refrigerated Services

Based on assumptions provided by Canderel, it is estimated that the capital cost per square foot of FTZ facility is approximately \$120-\$135, on average. In addition, the capital cost of additional rail spurs and roadways at Novazone were estimated based on information obtained from Genesee and Wyoming Canada, Inc., the operator of the Cape Breton and Central Nova Scotia Railway (CBNS), and InterVISTAS research, respectively. The estimated capital investment of Phase I is more than \$456 million, which includes building area (\$453 million), rail spur (\$2 million) and roadway construction (\$550,000). The estimated capital expenditure for Phase II is \$641 million (including building area of \$634 million, rail spur of \$6 million and roadway construction of \$730,000), while the estimate for Phase III is \$917 million (including building area of \$908 million, rail spur of \$8 million and roadway construction of \$920,000). In total, the estimated capital cost of all three phases of Novazone is over \$2 billion.

Figure 2-4 presents a conceptual rendering of the logistics park.

Figure 2-4: Novazone Conceptual Rendering



Source: Canderel and Novaporte

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The rail upgrades required for the proposed projects are significant, but if pursued would no doubt have a noteworthy impact on the region's rail employment, possibly spreading across the province and generating additional spin-off effects.

Gareth Martin
Director, Key Accounts and
Commercial Development,
Genesee and Wyoming
Canada Inc.

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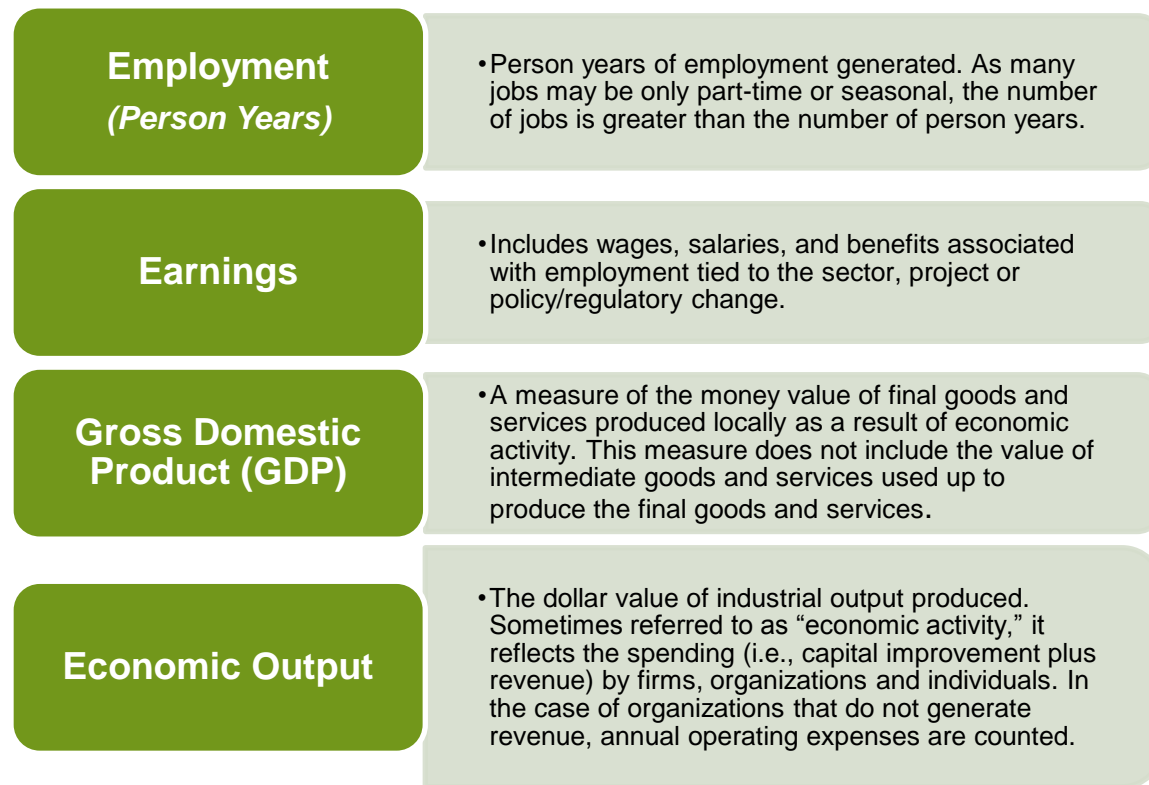
3 Potential Economic Impact of Annual Operations of Planned Projects at Full Build-Out

The Port of Sydney Development Corporation commissioned an analysis to measure the economic impacts of the Novaporte and Novazone development projects at full build-out, based on the forecasted volumes and timeframe for full build-out provided by the Port of Sydney Development Corporation, Harbour Port Development Partners and Canderel.²²

3.1 What is Economic Impact?

Economic impact is a measure of the spending and employment associated with a sector of the economy, a specific project, or a change in government policy or regulation. Economic impact is most commonly measured in several ways, including employment, income, gross domestic product (GDP), and economic output. Each category is summarized in detail below in **Figure 3-1**.

Figure 3-1: Measurements of Economic Impact

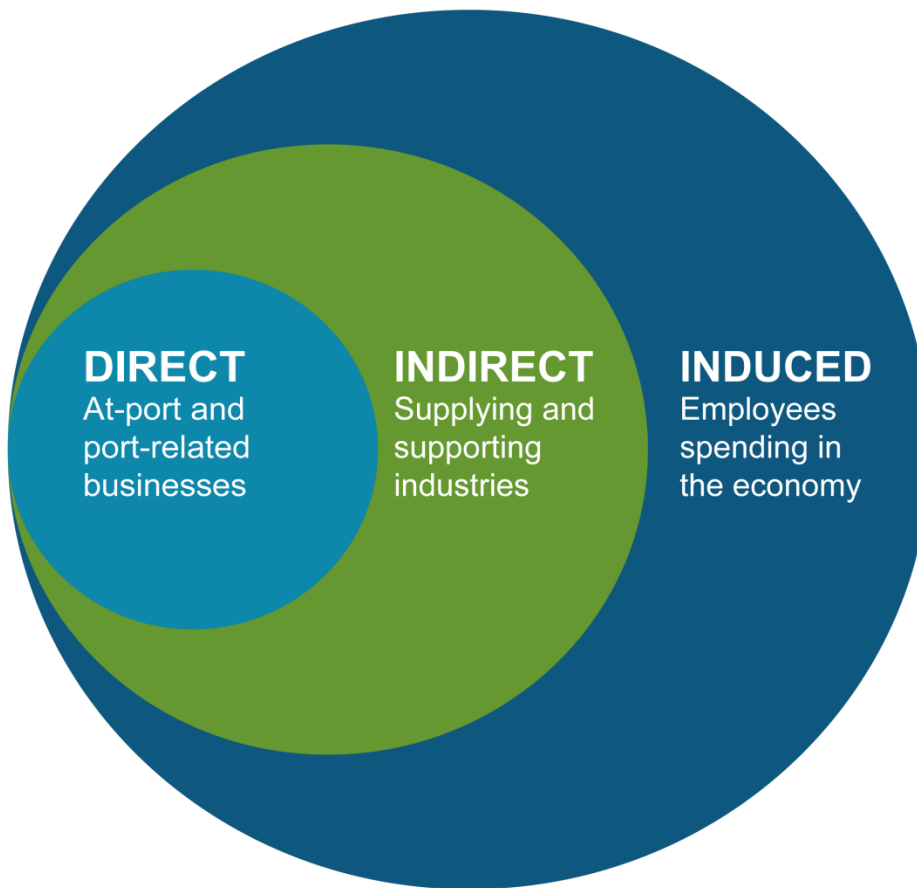


²² InterVISTAS Consulting was not asked to review or comment on the magnitude of the forecasted container volumes or their timing. This report merely documents the expected economic impacts should the forecast be achieved.

The three major components of economic impact are classified as direct, indirect and induced impacts. These classifications are used as a base for the estimation of the total economic impact of the Port of Sydney expansion plans.

Figure 3-2 illustrates these three components and how they interact with each other. The methodology used to estimate the potential economic impacts is provided in **Appendix A**.

Figure 3-2: Categories of Potential Economic Impact Generated by the Port of Sydney Expansion Projects



3.2 Estimating Annual Operations at Full Build-Out

Estimating the economic impact of annual operations of both Novazone and Novaporte at full-build out is based on the anticipated level of employment activity once the projects have been fully developed and become operational. The employment level is then used to calculate the economic impacts associated with the proposed projects' annual operations including measurements for wages, GDP, and economic output.

According to the Port of Sydney Development Corporation, after a 2.5 year construction period, traffic volumes at Novaporte are expected to ramp up to 1.2 million TEU using a phased approach between Year 1 to 5. Construction of Phase 2 of the project is planned for Year 5 to 7, increasing terminal capacity to 3.2 million TEU. An additional 1 million TEUs is expected between Year 7 to 10, and an increase of an additional 1 million TEU is planned for Year 10 to 12.²³

The incremental impacts of Novaporte and Novazone are outlined in **Figure 3-5**.

3.3 Potential Economic Impacts of Annual Operations at Full Build Out

Once the development of Novaporte and Novazone is completed, their continued annual operations are expected to contribute to the broader provincial economy. As the traffic volumes will be reached over a period of time, it is recognized that there will be continual productivity growth and that the labour requirements in the future will be less than it is today for the port, maritime and logistics sectors. In line with this, appropriate productivity adjustment factors have been applied to the potential economic impacts of annual operations at full build-out.

The impacts of Novaporte consider all employment associated with the entire supply chain, from the time the commodity is loaded onto unit trains until it is transferred into vessels at the marine terminal. There is a diverse group of job trades required to carry out the entire process, including terminal and stevedoring, freight forwarders, custom brokers, shipping, chandlery, tug/tow/barge, pilotage, government agencies, trucking and rail.²⁴ Although we recognize warehousing employment supporting container terminal operations is significant, this sector is not included in the estimated impacts for Novaporte in this study to avoid double-counting, since it is included in the estimated impacts for Novazone.

For Novazone, the impacts estimated are based on the average type of facilities that are expected to operate at the logistics park. For example, facilities that could potentially operate in Novazone are distribution centres and warehouses for retailers such as Costco and Walmart, as well as car manufacturing facilities.²⁵

It is estimated that at full build-out Novaporte could potentially support roughly 2,560 direct person years, while Novazone could facilitate 2,350 direct person years of employment. **Figure 3-3** and **Figure 3-4** show the estimated annual employment attributable to Novaporte and Novazone by industry type.

²³ Timeframe for full build-out of Novaporte was provided by the Port of Sydney Development Corporation. InterVISTAS Consulting was not asked to review or comment on the magnitude of the forecasted container volumes or their timing. This report merely documents the expected economic impacts should the forecast be achieved.

²⁴ Only rail employment within the Province of Nova Scotia is estimated.

²⁵ Based on InterVISTAS' research and past experience, it is estimated that the facilities support approximately 150 direct employees per 100,000 square feet of FTZ facility, on average. The estimated employment figure was also cross-referenced with Eric Cordon, Financial Analyst, Canderel for appropriateness and application to the potential development at Port of Sydney.

Figure 3-3: Estimated Potential Annual Employment Attributable to Novaporte and Novazone at Full Build-Out by Industry Type



Figure 3-4: Estimated Potential Annual Employment Attributable to Novaporte and Novazone at Full Build-Out by Industry Type

Industry Type	Employment (Person Years)	Industry Type	Employment (Person Years)
Novaporte Container Terminal		Novazone Logistics Park	
Freight Forwarders & Customs Brokers	1,310	Warehousing	2,350
Terminal Operator & Stevedoring	400	Total Novazone	2,350
Government Agencies	330		
Trucking	260		
Shipping	200		
Rail	40		
Other	20		
Total Novaporte	2,560		

At full build-out, Novaporte could potentially support annual *direct* impacts of 2,560 person years, earning \$150 million in wages, and contributing \$250 million in GDP and \$490 million in economic output to the provincial economy. It is estimated that the potential annual *direct* impacts of new warehousing, distribution centres and other facilities at Novazone could amount to 2,350 person years, with wages of \$120 million, as well as provincial GDP and economic output contributions of \$100 million and \$300 million, respectively. **Figure 3-5** estimates the annual economic contribution of the ongoing operations of each planned initiative based on the expected level of activity once the projects are fully operational.

Figure 3-5: Potential Incremental Annual Operations Impacts of Planned Projects at Full Build-Out

Type of Impact	Employment (Person Years)	Wages (\$ Million)	GDP (\$ Million)	Economic Output (\$ Million)
<i>Novaporte Container Terminal</i>				
Direct	2,560	\$150	\$250	\$490
Indirect	1,110	\$50	\$90	\$180
Induced	640	\$30	\$70	\$110
Total in N.S.	4,310	\$230	\$410	\$780
<i>Novazone Logistics Park</i>				
Direct	2,350	\$120	\$100	\$300
Indirect	760	\$40	\$60	\$120
Induced	530	\$20	\$60	\$90
Total in N.S.	3,640	\$180	\$220	\$510

Note: Figures reported are in 2016 dollars. Totals may not add up due to rounding.

4 Projected Cumulative Economic Impact of Capital Expenditures and Construction

This section outlines the economic impacts of the cumulative capital investment related to the construction and development of Novaporte and Novazone presented by HPDP and Canderel.²⁶

4.1 Cumulative Expected Capital Expenditure

The development stages of these expansion projects generate employment impacts from the jobs associated with infrastructure construction such as engineers, project managers, plumbers, electricians and architects. Another requirement for the development of infrastructure is materials, machinery and equipment, otherwise known as capital costs.

Figure 4-1 outlines the potential total capital costs estimated for the Novaporte Container Terminal and Novazone Logistics Park within the province. For Novazone, the impacts estimated are based on the construction of the average type of facilities that are expected to operate at the logistics park.²⁷ Capital expenditure for the container terminal includes rail upgrades, as well as the development of rail spurs and roadways for the logistics park.²⁸

Figure 4-1: Capital Expenditure for Novaporte Container Terminal & Novazone Logistics Park

Item	Total Capital Expenditure in N.S. (Million CAD)
Novaporte Container Terminal*	\$970
Novazone Logistics Park	\$2,015
Total Capital Expenditure of Proposed Developments	\$2,985

Source: Port of Sydney and Harbour Port Development Partners for Novaporte Container Terminal; assumptions provided by Canderel, Genesee and Wyoming Canada, Inc. and InterVISTAS research for Novazone Logistics Park.

* Processing equipment amounting to approximately \$430 million is also included in the expected total capital investment of the Novaporte Container Terminal; however, this expenditure is expected to occur outside of Canada and not included in the scope of this study.²⁹

²⁶ InterVISTAS Consulting was not asked to review or comment on the magnitude of the cumulative capital investment. This report merely documents the expected economic impacts should the forecast be achieved.

²⁷ Based on assumptions provided by Canderel, it is estimated that the capital cost associated with each square foot of FTZ facility is approximately \$120-\$135, on average.

²⁸ Estimated capital cost of rail upgrades obtained from Albert Barbusci, Chief Executive Officer at Harbour Port Development Partners, and capital cost of additional rail spurs and roadways estimated based on information obtained from Canderel, Genesee and Wyoming Canada, Inc. and InterVISTAS research.

²⁹ Although capital expenditure occurring outside of Canada would have an impact in terms of taxes, tariffs and transportation, these impacts are not measured in the scope of this study. Only the economic impacts attributable to direct capital investment and associated direct employment in the Province of Nova Scotia are estimated in this study.

4.2 Potential Cumulative Economic Impact of Capital Expenditure

This section examines the construction impacts of the Novazone and Novaport projects. The actual construction costs (including both labour and materials) could be spent within the province and elsewhere across Canada and/or outside of Canada. For this particular study, only the impacts of goods and services purchased within Nova Scotia are estimated, including the multiplier (indirect and induced) impacts across Canada that are related to capital expenditure in the province.

Based on the estimated capital spending shown in **Figure 4-1**, the estimated employment, wages, GDP, and economic output within the province of Nova Scotia are calculated for the entire development period. The potential impacts of capital expenditures for each of the two expansion projects and associated multiplier impacts across Canada are summarized in **Figure 4-2** to **Figure 4-6**.

The construction of Phase I and Phase II of Novaport, as well as the rail upgrades, could potentially support *direct* employment of 5,520 person years and contribute \$350 million in *direct* GDP to the Province of Nova Scotia as shown in **Figure 4-4**. Estimated capital costs from the development of Phase I, Phase II and Phase III of Novazone, including the development of rail spurs and roadways, could support *direct* employment of 11,720 person years, and contribute \$710 million in *direct* GDP to the provincial economy as shown in **Figure 4-6**.

Figure 4-2: Potential Cumulative Capital Cost Impacts of Novaport Container Terminal (Phase 1)

Type of Impact	Employment (Person Years)	Wages (\$ Million)	GDP (\$ Million)	Economic Output (\$ Million)
Phase I				
Impacts in Nova Scotia				
Direct	2,790	\$150	\$170	\$480
Indirect	1,250	\$70	\$100	\$190
Induced	670	\$30	\$70	\$110
Total in N.S.	4,710	\$250	\$340	\$780
Impacts in Rest of Canada (Not Including Nova Scotia)				
Indirect	940	\$60	\$90	\$200
Induced	580	\$30	\$60	\$120
Total Rest of Canada	1,520	\$90	\$150	\$320
Grand Total in Canada	6,230	\$340	\$490	\$1,100

Notes:

- Figures reported are in 2016 dollars. Totals may not add up due to rounding.
- Impacts of construction costs spent in Nova Scotia are estimated based on capital expenditure data provided by the Port of Sydney and Harbour Port Development Partners.

Figure 4-3: Potential Cumulative Capital Cost Impacts of Novaporte Container Terminal (Phase II and Rail Upgrades)

Type of Impact	Employment (Person Years)	Wages (\$ Million)	GDP (\$ Million)	Economic Output (\$ Million)
Phase II				
Impacts in Nova Scotia				
Direct	2,560	\$140	\$150	\$440
Indirect	1,150	\$60	\$90	\$180
Induced	610	\$30	\$70	\$110
Total in N.S.	4,320	\$230	\$310	\$730
Impacts in Rest of Canada				
Indirect	860	\$60	\$90	\$180
Induced	540	\$30	\$60	\$110
Total Rest of Canada	1,400	\$90	\$150	\$290
Grand Total in Canada	5,720	\$320	\$460	\$1,020
Rail Upgrades				
Impacts in Nova Scotia				
Direct	170	\$10	\$30	\$50
Indirect	80	\$4	\$7	\$20
Induced	30	\$1	\$3	\$5
Total in N.S.	280	\$15	\$40	\$75
Impacts in Rest of Canada				
Indirect	50	\$3	\$7	\$10
Induced	30	\$2	\$3	\$10
Total Rest of Canada	80	\$5	\$10	\$20
Grand Total in Canada	360	\$20	\$50	\$95

Notes:

- Figures reported are in 2016 dollars. Totals may not add up due to rounding.
- Impacts of construction costs spent in Nova Scotia are estimated based on capital expenditure data provided by the Port of Sydney and Harbour Port Development Partners.

Figure 4-4: Potential Cumulative Capital Cost Impacts of Novaporte Container Terminal (Total)

Type of Impact	Employment (Person Years)	Wages (\$ Million)	GDP (\$ Million)	Economic Output (\$ Million)
Novaporte Container Terminal Total				
Impacts in Nova Scotia				
Direct	5,520	\$300	\$350	\$970
Indirect	2,480	\$130	\$200	\$390
Induced	1,310	\$60	\$140	\$220
Total in N.S.	9,310	\$490	\$690	\$1,580
Impacts in Rest of Canada (Not Including Nova Scotia)				
Indirect	1,850	\$120	\$190	\$390
Induced	1,150	\$60	\$120	\$240
Total Rest of Canada	3,000	\$180	\$310	\$630
Grand Total in Canada	12,310	\$670	\$1,000	\$2,210

Notes:

- Figures reported are in 2016 dollars. Totals may not add up due to rounding.
- Impacts of construction costs spent in Nova Scotia are estimated based on capital expenditure data provided by the Port of Sydney and Harbour Port Development Partners.

Figure 4-5: Potential Cumulative Capital Cost Impacts of Novazone Logistics Park (Phase I, Phase II & Phase III)

Type of Impact	Employment (Person Years)	Wages (\$ Million)	GDP (\$ Million)	Economic Output (\$ Million)
Phase I				
Impacts in Nova Scotia				
Direct	2,660	\$140	\$160	\$460
Indirect	1,200	\$60	\$100	\$180
Induced	630	\$30	\$70	\$110
Total in N.S.	4,490	\$230	\$330	\$750
Impacts in Rest of Canada				
Indirect	890	\$60	\$90	\$190
Induced	560	\$30	\$60	\$110
Total Rest of Canada	1,450	\$90	\$150	\$300
Grand Total in Canada	5,940	\$320	\$480	\$1,050
Phase II				
Impacts in Nova Scotia				
Direct	3,730	\$200	\$230	\$640
Indirect	1,670	\$90	\$140	\$260
Induced	890	\$40	\$90	\$150
Total in N.S.	6,290	\$330	\$460	\$1,050
Impacts in Rest of Canada (Not Including Nova Scotia)				
Indirect	1,250	\$80	\$130	\$260
Induced	780	\$40	\$80	\$160
Total Rest of Canada	2,030	\$120	\$210	\$420
Grand Total in Canada	8,320	\$450	\$670	\$1,470
Phase III				
Impacts in Nova Scotia				
Direct	5,330	\$290	\$320	\$920
Indirect	2,400	\$130	\$200	\$360
Induced	1,270	\$50	\$140	\$220
Total in N.S.	9,000	\$470	\$660	\$1,500
Impacts in Rest of Canada (Not Including Nova Scotia)				
Indirect	1,790	\$120	\$180	\$380
Induced	1,120	\$60	\$120	\$230
Total Rest of Canada	2,910	\$180	\$300	\$600
Grand Total in Canada	11,910	\$650	\$960	\$2,110

Notes:

- Figures reported are in 2016 dollars. Totals may not add up due to rounding.
- Impacts of construction costs spent in Nova Scotia are estimated based on capital expenditure assumptions provided by Canderel, Genesee and Wyoming Canada, Inc. and InterVISTAS research.

Figure 4-6: Potential Cumulative Capital Cost Impacts of Novazone Logistics Park (Total)

Type of Impact	Employment (Person Years)	Wages (\$ Million)	GDP (\$ Million)	Economic Output (\$ Million)
Novazone Logistics Park Total				
Impacts in Nova Scotia				
Direct	11,720	\$630	\$710	\$2,020
Indirect	5,270	\$280	\$440	\$800
Induced	2,790	\$130	\$300	\$480
Total in N.S.	19,780	\$1,030	\$1,450	\$3,300
Impacts in Rest of Canada (Not Including Nova Scotia)				
Indirect	3,930	\$260	\$400	\$830
Induced	2,460	\$130	\$260	\$500
Total Rest of Canada	6,390	\$390	\$660	\$1,330
Grand Total in Canada	26,170	\$1,420	\$2,110	\$4,630

Notes:

- Figures reported are in 2016 dollars. Totals may not add up due to rounding.
- Impacts of construction costs spent in Nova Scotia are estimated based on capital expenditure assumptions provided by Canderel, Genesee and Wyoming Canada, Inc. and Inter VISTAS research.

5 Potential Tax Impact of Planned Projects

This section describes the potential contribution to government revenues resulting from annual operations of the planned expansion projects of the Port of Sydney, as well as the potential tax impact of capital investment.³⁰ This includes the revenues received at the federal, provincial and municipal government levels.

5.1 Potential Tax Revenue Impacts of Annual Operations at Full Build-Out

Employers and employees of the proposed expansion projects would contribute to federal and provincial government revenues through income and payroll taxes and social insurance contributions (e.g., employment insurance premiums). In addition, the operators of the container terminal and facilities in the logistics park would also pay property taxes to the Cape Breton Regional Municipality. The total potential tax contribution associated with the expected annual operations of the proposed Port of Sydney expansion projects at full build-out is estimated to be \$102 million for Novaporte and \$81 million for Novazone per annum.³¹

- The federal government is expected to be the largest recipient of tax revenue, receiving an estimated \$42 million (41% of total tax revenue impacts) for the container terminal and \$36 million (44% of total tax revenue impacts) for the logistics park. The majority of this total is attributable to taxes paid by employers and employees such as corporate tax, EI contributions, CPP contributions and income tax.
- The provincial government is estimated to receive \$19 million (19% of total tax revenue impacts) and \$17 million (21% of total tax revenue impacts) for Novaporte and Novazone, respectively. This includes contributions from income tax, corporate income tax, and workers compensation dues. It must be noted that this does not include revenue associated with corporate taxes or upstream resource royalties associated with a specific industry.
- At the municipal level, the government could receive \$41 million (40% of total tax revenue impacts) from Novaporte and \$28 million (35% of total tax revenue impacts) from Novazone through property taxes.³²

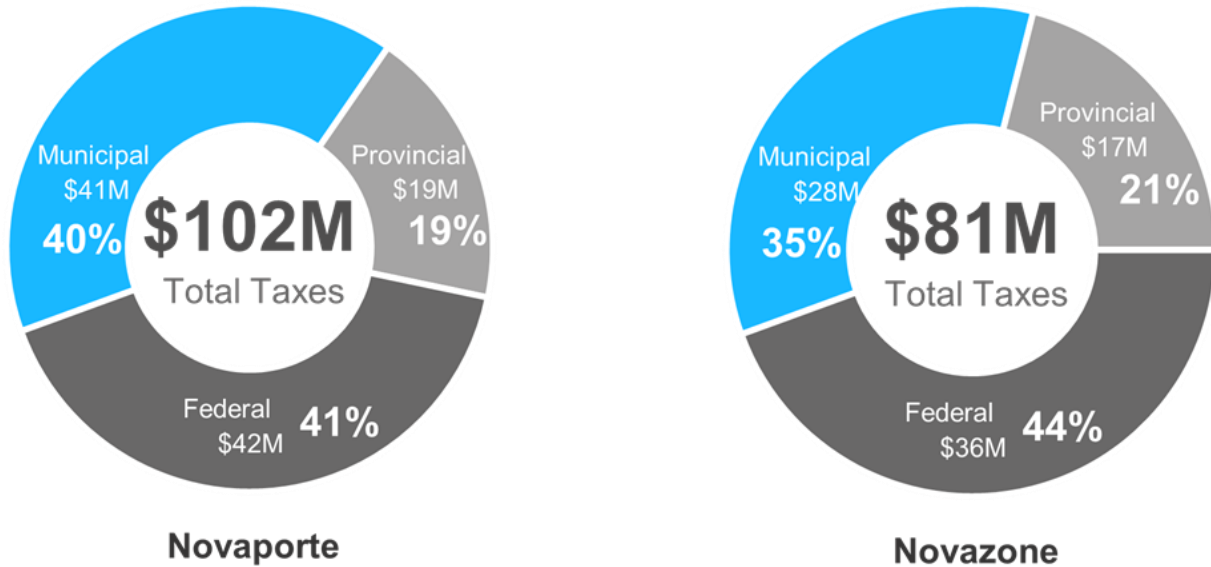
Figure 5-1 illustrates the breakdown of potential tax impacts of annual operations at full build-out by level of government.

³⁰ The potential tax impact of capital investment is estimated for the total project even though capital spending is expected to occur over several years.

³¹ Figures reported are in 2016 dollars, using current 2015 tax rates.

³² The assessed value of the expansion projects is estimated based on approximately 25% of total capital costs. Respective 2015 Municipal Tax Rates from the Cape Breton Regional Municipality are then applied to the estimated assessed value to determine property tax payments. 100% of the current rate is estimated. Potential tax incentives or deferrals to encourage economic activity may be approved; therefore, actual municipal taxes may be materially different than that presented.

Figure 5-1: Potential Estimated Tax Revenues Novaporte & Novazone, Annual Operations at Full Build-Out



Note:

- Figures reported are in 2016 dollars, using current 2015 tax rates.
- Municipal taxes are estimated at 100% of the current rate. Potential tax incentives or deferrals to encourage economic activity may be approved; therefore, actual municipal taxes may be materially different than that presented.

5.2 Potential Cumulative Tax Revenue Impacts of Capital Expenditure and Construction

Similarly, employers and employees involved in the development and construction of the proposed expansion projects would contribute to federal and provincial government revenues through income and payroll taxes and social insurance contributions (e.g., employment insurance premiums).³³ The total potential tax contribution associated with the cumulative capital investment of the proposed Port of Sydney expansion projects is estimated to be \$128 million for Novaporte and \$288 million for Novazone for the entire construction period of approximately five years.³⁴

- Federal government revenues associated with the construction of the container terminal is estimated at \$86 million (67% of total tax revenue impacts), while the Government of Canada is estimated to receive \$182 million (63% of total tax revenue impacts) for the development of the logistics park. Accounting for the largest proportion of tax impacts from capital investment, federal government revenues includes taxes paid by employers and employees such as corporate tax, EI contributions, CPP contributions and income tax.

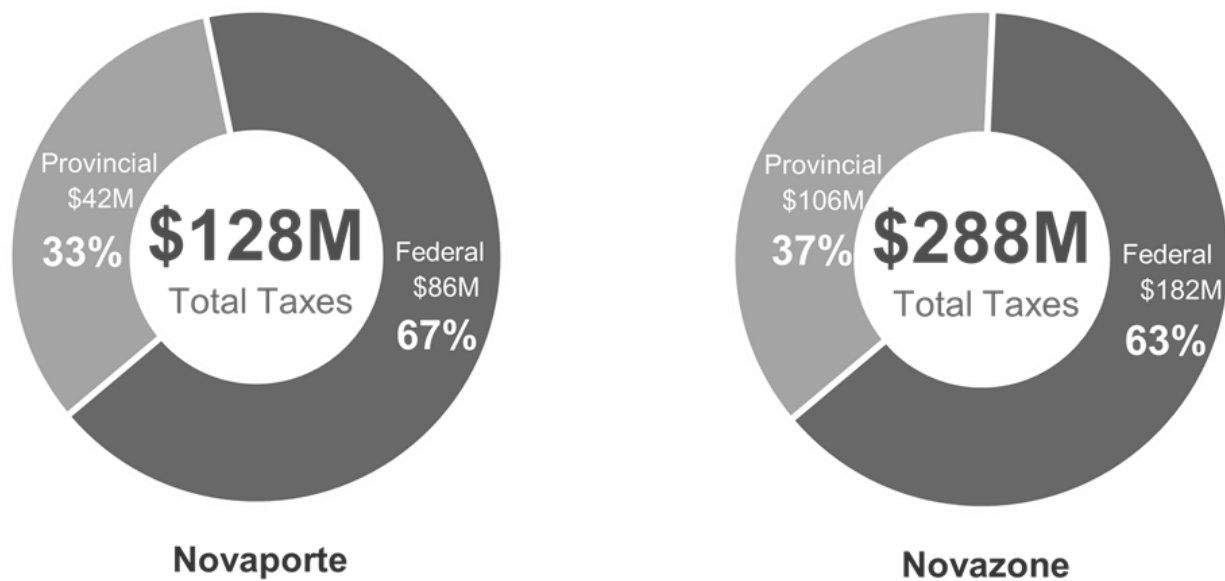
³³ The potential tax impact of capital investment is estimated for the total project even though capital spending is expected to occur over several years.

³⁴ Figures reported are in 2016 dollars, using current 2015 tax rates.

- The Province of Nova Scotia is estimated to receive \$42 million (33% of total tax revenue impacts) and \$106 million (37% of total tax revenue impacts) for the construction of Novaporte and Novazone, respectively. Provincial government revenues are attributed to income tax, corporate income tax, and workers compensation dues. It must be noted that this does not include revenue associated with corporate taxes or upstream resource royalties associated with a specific industry.

Figure 5-2 illustrates the breakdown of potential tax impacts of total capital expenditure by level of government.

Figure 5-2: Potential Estimated Tax Revenues Novaporte & Novazone, Cumulative Capital Cost



Note: Figures reported are in 2016 dollars, using current 2015 tax rates. The potential tax impact of capital investment is estimated for the total project even though capital spending is expected to occur over several years.

6 Potential Impact of Planned Projects on Growth of Regional Economy

The benefits of the proposed Novaport Container Terminal and Novazone Logistics Park are not confined to the operational and capital investment economic impacts mentioned in the previous sections. Beyond the direct, indirect and induced economic impacts, the planned projects are also expected to contribute positive effects to the region that can be more difficult to quantify. The proposed developments could contribute in other ways to the local and regional economy. There are important beneficial economic events or activities that could potentially occur in the area that are attributable to the development of Novaport and Novazone.

InterVISTAS conducted interviews with key stakeholders to review the potential impacts the port developments have on the surrounding population, housing market and other sectors in the community. A list of key stakeholders interviewed is provided in **Appendix B**. This section provides a discussion of these potential impacts that were conducted with stakeholders that provides a summary of their views on how Novaport and Novazone may positively impact Sydney and the surrounding area.

The two planned projects could facilitate employment and economic development in the regional economy through increased trade, attracting new businesses to the region and encouraging investment. They could support long-term economic growth by providing linkages between a regional and national economy through increased employment, greater connections to business markets and greater access to resources. This yields additional benefits to direct users and generates further positive impact on the performance and economic activity of a region.

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The developments could create more opportunity in the region, and the impacts would ripple across the country. The projects could generate research and development opportunities across Canada and internationally. The increased media attention could bring awareness to the local community to companies across the world, with the potential for these firms to open offices in Cape Breton.

Willie McNeil
Senior Associate, Stantec
Consulting, Ltd.

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Novaporte and Novazone could contribute to the growth of the regional economy through a number of mechanisms:

- **Trade in Goods.** The container terminal and logistics park could connect businesses to a wide range of markets, providing a significantly larger customer base for their products than would be accessible otherwise. The planned projects could increase and diversify the type of commodities exported out of the region to Europe and Asia, such as seafood, granite and raw materials, and could potentially further support Canada's trade with the EU through the Canada-European Union Comprehensive Economic and Trade Agreement (CETA).
- **Investment.** Proximity to key infrastructure is important in attracting business and investment into a region, as well as research and development opportunities. A key factor many companies take into account when making decisions about the location of offices or manufacturing plants is proximity to warehouses and ports. Therefore, the two planned developments are essential assets for expanding industrial activity. Their proximity encourages industrial development. Businesses choose to locate close to terminals and logistics parks in order to gain easy access to transport and the associated infrastructure.
- **Productivity.** The proposed developments offer access to new markets, which in turn enable businesses to achieve greater economies of scale; inward investment can enhance the productivity of the labour force (e.g., state-of-the-art manufacturing facilities). All of these factors contribute to enhanced productivity, which in turn increases the regional income.
- **Employment Opportunities.** As of September 2016, Cape Breton had a labour force of 58,200, and an unemployment rate of 12.9%.³⁵ Of this workforce, 27% have attained a university certificate/diploma/degree, while over 14% have received an apprenticeship, trades certificate/diploma.³⁶ With an educated workforce, the development of Novaporte and Novazone could play a significant role in providing opportunities for employment throughout the construction period and once fully operational. This will contribute to the growth of the overall economy for the Cape Breton Municipal Region.
- **Population.** Cape Breton recorded a population of 105,900 in September 2016.³⁷ The increased employment opportunities facilitated by the two projects could bring in highly skilled individuals with a higher earning power to the region. As mentioned previously, the development of Novaporte and Novazone could facilitate direct employment of 23,390 person years in the region throughout the construction period, approximately 22% of the current population of Cape Breton. There could also be temporary in-migration of people during the development period; thus, the expansion projects could create opportunities for Nova Scotia and the east coast of Canada.

Furthermore, with the two developments fully operational, there would be a constant base of employment from the marine terminal and logistics park year-round, so that the population in the region would no longer be seasonal. Direct employment supported by the potential operations of both Novaporte and Novazone once fully developed and operational could amount to 5,090 person years per annum, as discussed in previous sections, nearly 5% of the current population of the region.

³⁵ Statistics Canada, CANSIM, table 282-0122 and Catalogue no. 71-001-XIE.

³⁶ Invest in Cape Breton. (2016). Labour Force Advantage. Retrieved October 11, 2016, from Invest in Cape Breton: <http://investincapebreton.com/new/upload/1405694067Labour%20Force%20Advantage%20-%20Website.pdf>

³⁷ Source: Statistics Canada, CANSIM, table 282-0122 and Catalogue no. 71-001-XIE.

- **Housing.** Residential real estate in Cape Breton has been sluggish, with overall housing sales down by 14% as of July 2016 compared to the previous year and sellers only receiving approximately 83% of their asking price.³⁸ Despite low levels of construction, reduced employment opportunities and high levels of out migration resulted in a high vacancy rate in the region, rising to 7.5% from 4.7% year-over-year.³⁹ However, the additional employment facilitated by the construction and operations of the planned projects, and consequently, the higher income earned by these employees, could drive the market for increase in homeownership and complimentary building booms in the region. The increase in employment and population could lead to the development of apartments and other housing developments near the planned projects and throughout the region.

The Cape Breton Regional Municipality announced plans to spend \$16 million on roadwork and underground water and wastewater infrastructure during the next construction season.⁴⁰ The additional housing developments associated with the development of Novaporte and Novazone would increase public works projects and likewise create additional employment opportunities in the region.

- **Employment in Other Sectors.** As a result in the increase in employment and population facilitated by the two projects, there could be increased demand in other sectors such as accommodations, restaurants, retail, etc. to meet the potential population growth and increased consumer demand in the region. Similarly, demand could rise for other needs in the community such as schools, churches and recreation facilities. Improvements in utilities and other infrastructure would also be necessary to accommodate the increased population.
- **Tourism.** The visitors to the two developments, from both the private and public sectors, also facilitate tourism in the region. The spending of these visitors can support a wide range of tourism-related businesses: hotels, restaurants, theatres, car rentals, etc. in the region.

Taken together, these contribute to an overall sense of a region's attractiveness and competitiveness. Novaporte and Novazone could increase the productive potential of the economy (in economist terms, moving the production–possibility frontier). Improvements in the logistics supply chain enable economies to conduct more trade and draw more investment. The overall effect of all these mechanisms is an increase in employment and GDP. Without effective transportation links, it is much harder for economies to conduct trade and attract investment. As a result, the region's economy and employment potential would suffer.

It should be noted that these impacts are not a simple matter of the container terminal and logistics park generating employment and economic activity in the same way that direct, indirect and induced impacts arise. Economies are far more complex than that. It clearly takes a wide range of players acting together to generate economic growth – government, business, infrastructure providers, residents, etc. What these wider economic impacts capture is that without an efficient container terminal and logistics park the economy would not be as large or affluent. Thus, these impacts are about the economic value and employment that the two developments contribute and facilitate rather than generate.

³⁸ <http://www.capebretonpost.com/News/Election-2015/2016-07-21/article-4594865/Cape-Breton-home-sales-sluggish/1>

³⁹ https://www.cmhc-schl.gc.ca/odpub/esub/64503/64503_2015_B01.pdf

⁴⁰ <http://www.capebretonpost.com/News/Local/2016-09-14/article-4640690/CBRM-announces-large-single-year-public-works-project/1>

6.1 Export Opportunity for the Local Market

As mentioned, the planned projects could increase and diversify the type of commodities exported out of Cape Breton to Europe and Asia. Export opportunities for the region include marble, dress stone, natural gas, coal, lumber, bottled water, fisheries, fruit and vegetables (such as blueberries, strawberries, raspberries, eggplant, etc.).⁴¹ Cape Breton has an abundance of natural resources with high quality. Potential opportunity exists for local producers and suppliers to export their local products to international markets through the proposed container terminal. In addition, the reopening of coal mines and the development liquefied natural gas facilities in the region also creates potential opportunities for exports to new markets.

6.2 Aboriginal Community Impacts

The Novazone logistics park is being developed in partnership with local aboriginal communities. These communities own 250 acres of the land assigned to the logistics park. The First Nations Bands have been working collaboratively and engaging with the development of the project.

In 2011, approximately 6% of Cape Breton's total population had an aboriginal identity, the highest proportion for the Province of Nova Scotia.⁴² While the total population of Cape Breton decreased by 4% from 2006 to 2011, the aboriginal population in the region grew by 12%.⁴³ In addition, Cape Breton's aboriginal population is younger than the non-aboriginal population. Children between 0-14 years of age comprise 30% of the total aboriginal population, while only accounting for 15% of the non-aboriginal population.⁴⁴

In InterVISTAS' interview with Steve Parsons, General Manager, Eskasoni Corporate Division, First Nations, it was discussed that the container terminal and logistics park would create employment opportunities for the First Nations Band members from across the province. The income earned would go back to communities through increased spending; thus, seeing growth in many economic sectors, and therefore, impacting the greater community. In addition, as land owners within the logistics park, the development would be a revenue generator for the Mik' Maq bands of Nova Scotia. This financial return could lead to increased infrastructure, housing and other economic developments in the communities.

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As land owners within the logistics park, the development would be a revenue generator for the Mik' Maq bands of Nova Scotia. This financial return could lead to increased infrastructure, housing and other economic developments in the communities.

Steve Parsons
General Manager, Eskasoni
Corporate Division, First
Nations

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⁴¹ Provided by Barry Sheehy, Partner, Harbour Port Development Partners (HPDP).

⁴² Statistics Canada. Mar. 2016. Aboriginal Peoples: Fact Sheet for Nova Scotia. (<http://www.statcan.gc.ca/pub/89-656-x/89-656-x2016004-eng.htm>)

⁴³ Statistics Canada. 2012. Cape Breton, Nova Scotia (Code 225) and Eskasoni 3, Nova Scotia (Code 1217020) (table). Census Profile. 2011 Census. Statistics Canada Catalogue no. 98-316-XWE. Ottawa. Released October 24, 2012. (<http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/prof/index.cfm?Lang=E>)

⁴⁴ Statistics Canada. Apr. 2016. NHS Focus on Geography Series – Cape Breton. (<https://www12.statcan.gc.ca/nhs-enm/2011/as-sa/fogs-spg/Pages/FOG.cfm?lang=E&level=3&GeoCode=225>)

7 Summary of Results

7.1 Economic Impact of Current Ongoing Operations

The Port of Sydney is an important facilitator of economic development in the Province of Nova Scotia. Its economic importance is reflected in the estimated 2,580 total person years of employment (including direct, indirect and induced) that is supported or facilitated by the current ongoing operations at the port and the \$320 million (direct, indirect and induced) contributed to the province's Gross Domestic Product (GDP).

7.2 Economic Impact of Planned Expansion Projects

After development of both Novaport and Novazone has finished, the annual operations of both projects could contribute additional significant economic benefits to the provincial economy. Additionally, the purchase of goods and services in the Province of Nova Scotia during the construction period will yield additional benefits and generate impacts to the provincial economy.

7.2.1 Potential Economic Impact of Annual Operations of Planned Expansion Projects at Full Build-Out

The per annum potential incremental economic impacts associated with Novaport and Novazone at full build-out are broken down by employment, wages, GDP and economic output in **Figure 7-1**.

Figure 7-1: Potential Incremental Annual Operations Impacts of Planned Projects at Full Build-Out

Type of Impact	Employment (Person Years)	Wages (\$ Million)	GDP (\$ Million)	Economic Output (\$ Million)
Total Impacts of Proposed Developments				
Direct	4,910	\$270	\$350	\$790
Indirect	1,870	\$90	\$150	\$300
Induced	1,170	\$50	\$130	\$200
Total in N.S.	7,950	\$410	\$630	\$1,290

Note: Figures reported are in 2016 dollars. Totals may not add up due to rounding.

7.2.2 Potential Economic Impact of Cumulative Construction Costs of Planned Expansion Projects

Based on the estimated value of goods and services purchased in Nova Scotia, the impacts of the cumulative construction costs of the planned expansion projects on employment, wages, GDP, and economic output within the province are calculated for the entire construction period. The multiplier (indirect and induced) impacts across Canada that are related to the capital expenditure in the province are also estimated. See **Figure 7-2**.

Figure 7-2: Potential Cumulative Capital Cost Impacts of Planned Expansion Projects

Type of Impact	Employment (Person Years)	Wages (\$ Million)	GDP (\$ Million)	Economic Output (\$ Million)
Total Impacts of Proposed Developments				
Impacts in Nova Scotia				
Direct	17,240	\$930	\$1,060	\$2,990
Indirect	7,750	\$410	\$640	\$1,190
Induced	4,100	\$180	\$440	\$700
Total in N.S.	29,090	\$1,520	\$2,140	\$4,880
Impacts in Rest of Canada (Not Including Nova Scotia)				
Indirect	5,780	\$380	\$590	\$1,220
Induced	3,610	\$190	\$380	\$740
Total Rest of Canada	9,390	\$570	\$970	\$1,960
Grand Total in Canada	38,480	\$2,090	\$3,110	\$6,840

Notes:

- Figures reported are in 2016 dollars. Totals may not add up due to rounding.
- Impacts of construction costs spent in Nova Scotia are estimated based on capital expenditure data provided by the Port of Sydney and Harbour Port Development Partners for Novaport Container Terminal; and, assumptions provided by Canderel, Genesee and Wyoming Canada, Inc. and InterVISTAS research for Novazone Logistics Park.

7.3 Tax Revenue Impact of Planned Expansion Projects

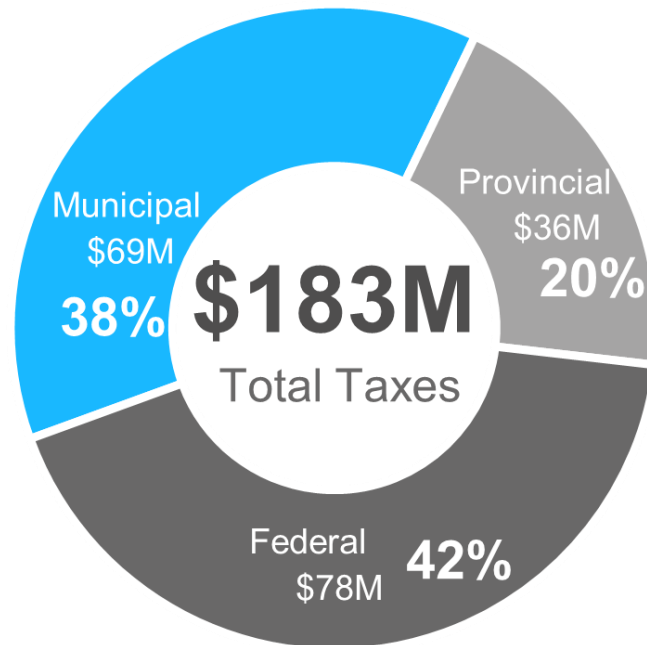
Government revenues are also expected to be received at the federal, provincial and municipal government levels that are associated with the annual operations of the planned expansion projects of the Port of Sydney, as well as the potential tax impact of capital investment.⁴⁵

7.3.1 Potential Tax Revenue Impact of Annual Operations of Planned Expansion Projects at Full Build-Out

Annual operations of both Novaporte and Novazone at full build-out will serve as an important generator of tax revenues to the municipal, provincial and federal levels of government, as shown in **Figure 7-3**. Once fully developed, the annual operations of the two proposed expansion projects at the port are estimated to contribute an incremental \$183 million in tax revenues, including:⁴⁶

- Federal tax revenue of \$78 million;
- Nova Scotia tax revenue of \$36 million; and
- Municipal government revenue of \$69 million in property taxes.⁴⁷

Figure 7-3: Potential Estimated Incremental Tax Revenues of the Port of Sydney's Planned Developments, Annual Operations at Full Build-Out



Note:

- Figures reported are in 2016 dollars, using current 2015 tax rates.
- Municipal taxes are estimated at 100% of the current rate. Potential tax incentives or deferrals to encourage economic activity may be approved; therefore, actual municipal taxes may be materially different than that presented.

⁴⁵ The potential tax impact of capital investment is estimated for the total project even though capital spending is expected to occur over several years.

⁴⁶ Figures reported are in 2016 dollars, using current 2015 tax rates.

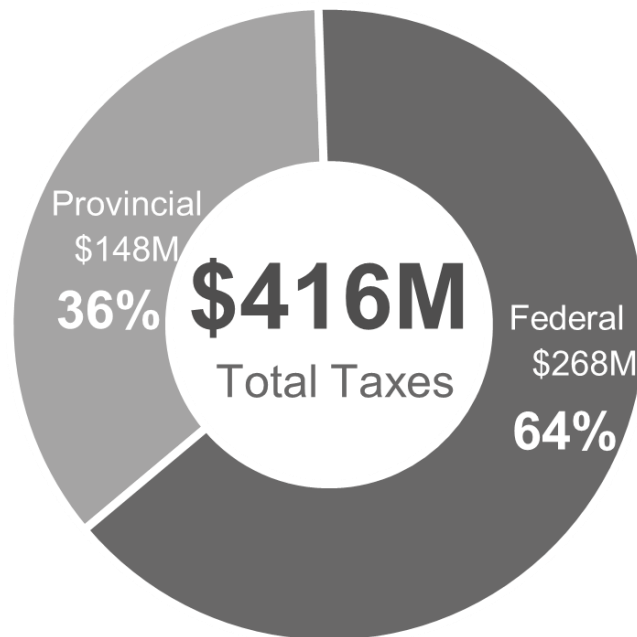
⁴⁷ The assessed value of the expansion projects is estimated based on approximately 25% of total capital costs. Respective 2015 Municipal Tax Rates from the Cape Breton Regional Municipality are then applied to the estimated assessed value to determine property tax payments. 100% of the current rate is estimated. Potential tax incentives or deferrals to encourage economic activity may be approved; therefore, actual municipal taxes may be materially different than that presented.

7.3.2 Potential Tax Revenue Impact of Cumulative Construction Costs of Planned Expansion Projects

In addition, construction and development of both Novaporte and Novazone will also serve as an important generator of tax revenues to the federal and provincial levels of government, as shown in **Figure 7-4**.⁴⁸ The cumulative capital investments of the two proposed expansion projects at the port are estimated to contribute an incremental \$416 million in tax revenues, including:⁴⁹

- Federal tax revenue of \$268 million; and
- Nova Scotia tax revenue of \$148 million.

Figure 7-4: Potential Estimated Incremental Tax Revenues of the Port of Sydney's Planned Developments, Cumulative Capital Cost



Note:
 - Figures reported are in 2016 dollars, using current 2015 tax rates.
 - The potential tax impact of capital investment is estimated for the total project even though capital spending is expected to occur over several years.

⁴⁸ The potential tax impact of capital investment is estimated for the total project even though capital spending is expected to occur over several years.

⁴⁹ Figures reported are in 2016 dollars, using current 2015 tax rates.

Appendix A: Methodology

InterVISTAS conducted this economic impact study during the fall of 2016. The study estimates the economic impact of the Port of Sydney's planned expansion projects: Novazone and Novaport. The potential impacts of the different phases of construction of the two projects are estimated, as well as the impacts of their annual operations once fully developed. Additionally, the current impact of ongoing operations at the port is also estimated.

Direct Economic Impacts

Current Ongoing Operations of the Port of Sydney

To calculate the direct employment impacts of current ongoing operations, the InterVISTAS surveyed all of the port users and employers associated with the operation of the port. The survey produced estimates of the number of individuals employed in directly-related occupations. Direct expenditures by cruise lines, passengers and crew were also estimated based on data provided by the Port of Sydney.

Potential Annual Operations of the Planned Projects at Full Build-Out

Direct employment associated with handling containers at Novaport includes terminal operators, stevedoring, rail, trucking, logistics service providers, tug operators, pilotage and government agencies. Based on industry knowledge and publicly available data, InterVISTAS estimated the time and resource required in handling the containers with respect to different tasks and functions needed to move the containers through the port. These estimates were then used as the primary inputs to modelling the total estimated amount of employment that is associated with the total potential container movements at Novaport at full build-out.

For Novazone, it is estimated that the facilities support approximately 150 direct employees per 100,000 square feet of FTZ facility, on average, based on InterVISTAS' research and past experience. The estimated employment figure was also cross-referenced with Eric Cordon, Financial Analyst, Canderel for appropriateness and application to the potential development at Port of Sydney.

Potential Capital Expenditure of the Planned Projects

The estimated capital cost of the container terminal was obtained from Albert Barbusci, Chief Executive Officer at Harbour Port Development Partners. Detailed capital investment information was also obtained from the Sydney Container Terminal Technical Feasibility Study Report developed by China Communications Construction Company, Ltd. in July 2016.

To estimate the total capital expenditure of the logistics park, assumptions provided by Canderel, Genesee and Wyoming Canada, Inc. and InterVISTAS research were used. Based on assumptions provided by Canderel, it is estimated that the capital cost associated with each square foot of FTZ facility is approximately \$120-\$135, on average. As per discussions with Genesee and Wyoming Canada, Inc., it is estimated that the capital cost of an additional mile of track is \$1 million, on average. InterVISTAS research shows that the average capital cost per metre of roadway is approximately \$3,500.

Indirect and Induced Economic Impacts

The indirect and induced impacts were estimated using *economic multipliers and ratios*, as is common practice for economic impact studies. In addition, the *direct* wage, GDP and economic output impacts were also estimated using economic multipliers. The economic multipliers were also used to estimate the *direct* employment, wage and GDP impacts associated with each dollar of capital investment.

These multipliers were based on the Input-Output model of the Canadian economy maintained by Statistics Canada. An Input-Output (I-O) model is a representation of the flows of economic activity within a region or country. The model captures what each business or sector must purchase from every other sector in order to produce a dollar's worth of goods or services. Using such a model, flows of economic activity associated with any change in spending may be traced either forwards (spending generating income which induces further spending) or backwards (e.g., purchases of meals leads restaurants to purchase additional inputs - groceries, utilities, etc.). By tracing these linkages between sectors, I-O models can estimate indirect and induced impacts. These indirect and induced impacts are represented by economic multipliers, normally expressed as a ratio of total impacts (i.e., direct plus indirect plus induced) to direct impacts. Using the I-O model, multipliers can be produced for employment, income, GDP and economic output, normally expressed in terms of a unit of direct impact (e.g., per dollar of direct economic output).

The ratios and multipliers used in this study were based on the 2010 Input-Output multipliers maintained by Statistics Canada for the Province of Nova Scotia. These were the most current I-O multipliers available at the time of the study. The economic ratios and multipliers have been updated to reflect current price levels, but no structural changes have been assumed. Multiplier impacts must be interpreted with caution since they may be illusory when the economy experiences high employment and output near industry capacity. When they are reported, it is recommended that the reader should be aware of the limitations on the use of multipliers. Mindful of these limitations, this study has undertaken multiplier analysis to estimate indirect and induced employment.

Great care must be exercised in choosing the appropriate set of multipliers to use. In addition, the use of multiplier analysis is limited by a number of factors, these being:

- the accuracy of the structure and parameters of the underlying model;
- the level of unemployment in the economy;
- the assumption of constant returns to scale in production;
- the assumption that the economy's structure is static over time; and
- the assumption that there are no displacement effects.

As with any model of a complex economy, I-O models have their limitations. For example, I-O models assume constant returns to scale (i.e., no economies or diseconomies of scale) and a fixed input structure with no substitution of inputs (e.g., one fuel type cannot be substituted for another). Furthermore, due to the large amount of data collection and analysis required, the I-O data can be released several years after the period on which they are based, so may not precisely represent current conditions. Nevertheless, I-O models are the most widely accepted and well-established means for estimating multiplier impacts and are based on data unparalleled in its detail and breadth.

Tax Revenue Impacts

InterVISTAS used the direct employment estimates to calculate the estimated tax impacts (government revenue) generated by the planned projects in Nova Scotia. The tax revenue contributions to the federal, provincial, and municipal levels of government that are associated with NovaPorte and NovaZone are estimated. This includes taxes paid by employers and employees (such as payroll taxes). Estimated tax revenues reported are in 2016 dollars, using current 2015 tax rates. The potential tax impact of capital investment is estimated for the total project even though capital spending is expected to occur over several years.

The assessed value of the expansion projects is estimated based on approximately 25% of total capital costs. Respective 2015 Municipal Tax Rates from the Cape Breton Regional Municipality are then applied to the estimated assessed value to determine property tax payments. 50% of the current rate is estimated to accommodate for potential tax incentives or deferrals to encourage economic activity; however, actual municipal taxes may be materially different than that presented.

As with all such studies, a conceptual decision has to be made as to how broad a definition of economic activity should be used in measuring the impacts. For this study, a relatively narrow definition has been taken, for example, the following have not been included:

- Taxes associated with indirect or induced employment (i.e. multiplier effects).
- Consumption taxes (e.g., GST and PST) paid by the port employees when they spend their income.
- Excise or import taxes on cargo.
- Taxes paid by the port users outside of the port.

It would be exceedingly complex to broaden the scope of the tax base in this analysis to include taxes generated by indirect and induced employment. The level of detail collected on direct employment by the survey is critical to the tax analysis while such information is not available for the indirect and induced employment. This being the case, impacts and speculation about the general economy would be complex and averages would not necessarily be precise or accurate. Therefore, the tax analysis in this report is limited to revenues attributable to direct employment only.

Appendix B: List of Key Stakeholders

InterVISTAS conducted interviews with the following key stakeholders to review the potential impacts the port developments have on the surrounding population, housing market and other sectors in the community (listed in alphabetical order, by last name):

- Albert Barbusci, Chief Executive Officer, Harbour Port Development Partners
- Eric Cordon, Financial Analyst, Canderel
- J.C. Evans, Consultant
- Gareth Martin, Director, Key Accounts and Commercial Development, Genesee and Wyoming Canada Inc.
- Willie McNeil, Senior Associate, Stantec Consulting, Ltd.
- Michael Merritt, Chief Administrative Officer, Cape Breton Regional Municipality
- Richard Morykot, Manager, CBCL Ltd.
- Steve Parsons, General Manager, Eskasoni Corporate Division, First Nations

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