ROBERTS BANK TERMINAL 2 PROJECT
MEETING CANADA’S TRADE DEMAND
PROJECT RATIONALE
VANCOUVER’S TRADE HISTORY

For thousands of years, the Coast Salish made their home along the shoreline of what is now Metro Vancouver. This location gave them access to plentiful resources, including fish, shellfish, berries and other natural crops, as well as giant cedar trees, which were used to make tools, shelter, clothing and canoes. It is these cedar canoes, which ranged in length from four to eight metres, that facilitated the earliest marine trade in the region.

The deep waters and suitability as a port were noted by early European explorers, including Captain George Vancouver, who arrived in 1792.

In 1827, the Hudson’s Bay Company established Fort Langley, and began exporting beaver pelts and salted salmon to markets throughout the Pacific. The influx of prospectors that followed the discovery of gold on the shores of the Fraser River during the 1850s, as well as the arrival of the first train in 1886, cemented Vancouver’s status as a dominant port city in the region.

In 1955, the Clifford J. Rogers, the first purpose-built container ship in the world, set sail from Vancouver for the first time. Since then, growth of containerized trade on the west coast of Canada has exceeded worldwide growth, driven by globalization, the growth of manufacturing capacity in Asia, demand growth in Canada for manufactured goods, and a shift towards using containers for cargos that were previously transported by other means.

In the decades that followed, Vancouver established itself as North America’s preferred gateway with Asia-Pacific economies for a range of cargos. Vancouver benefits from its proximity to these markets, as well as from significant investments in transportation infrastructure. These connections have made for a thriving and dynamic economy in Metro Vancouver and British Columbia.
Port Metro Vancouver is the port authority managing Canada’s largest port. Collectively, Port Metro Vancouver, port terminals, shippers, and other stakeholders help Canadian businesses export their goods and products, such as grain, coal, potash, pulp, oil, and lumber, to markets around the world. Similarly, the port provides an entry point for imports, including construction and manufacturing inputs, agricultural products, food, and consumer goods, including electronics, clothing, furniture, medical equipment and automobiles.

Vancouver’s port has long been the hub of one of North America’s most important economic corridors, generating almost 100,000 jobs, $6.1 billion in wages and $9.7 billion in direct gross domestic product (GDP) across Canada. Each day, the port handles approximately half a billion dollars of cargo, which represents one-fifth of Canada’s foreign total trade in goods by value. In addition, Port Metro Vancouver supports Canadian trade by facilitating the building of port-related infrastructure necessary to connect Canada’s markets to trading economies around the world, particularly those in the Asia-Pacific region.

Port Metro Vancouver’s jurisdiction covers hundreds of kilometres of shoreline, including Burrard Inlet, the lower Fraser River and Roberts Bank. This jurisdiction borders 16 municipalities and one treaty First Nation, and intersects the traditional territories of several First Nations.

Port Metro Vancouver is committed to the safe, efficient, and environmentally responsible movement of goods and passengers through the port. Its mission is to lead the growth of Canada’s Pacific Gateway in a manner that enhances the well-being of all Canadians and inspires national pride. Port Metro Vancouver’s vision is to be recognized as a world-class gateway by efficiently and sustainably connecting Canada with the global economy, inspiring support from its customers and from communities locally and across the nation.
# TABLE OF CONTENTS

Executive Summary ........................................................................................................... 6

1. Introduction .................................................................................................................... 8
   - Purpose of the Roberts Bank Terminal 2 Project ........................................................... 8
   - Environmental Assessment Process ............................................................................. 8
   - Project Consultation ................................................................................................. 10

2. Increasing Demand – Canadian Trade is Growing .................................................... 11
   - Containerized Trade ................................................................................................... 11
   - West Coast Container Forecasts .............................................................................. 15
   - Future Container Capacity Requirements ................................................................ 17

3. Building Capacity to Meet Increasing Demand ......................................................... 18
   - Improvements to Existing Infrastructure .................................................................. 20
   - Capacity Building Initiatives .................................................................................... 23
   - New Infrastructure Requirements ............................................................................. 24

4. The Roberts Bank Terminal 2 Project ....................................................................... 26
   - Project Objectives ...................................................................................................... 26
   - Advantages of Roberts Bank ..................................................................................... 27
   - Project Components ................................................................................................. 27

5. Project Opportunities and Benefits .......................................................................... 31
   - Benefits During Construction .................................................................................. 33
   - Benefits During Operations ....................................................................................... 34

6. Project Planning, Development and Implementation ................................................ 37
   - Project Development Phases ..................................................................................... 38
   - Market and Concession Implementation ................................................................... 40

7. Conclusion ..................................................................................................................... 43
EXECUTIVE SUMMARY

This document summarizes the work undertaken by Port Metro Vancouver to examine options to meet forecasted demand for goods shipped in containers and the rationale for developing the Roberts Bank Terminal 2 Project.

CANADIAN TRADE IS GROWING

International trade is foundational to Canada’s economic history and is a vital element of the country’s economic future. Vancouver has long been the hub of one of North America’s most important economic corridors, handling one-fifth of Canada’s total foreign trade in goods\(^1\), as well as generating almost 100,000 jobs.

Independent forecasts show that, in the long term, existing container handling capacity on Canada’s west coast and specifically, in Vancouver, will become insufficient to meet projected demand. While improvements to existing infrastructure are currently underway to help alleviate constraints in the short term, the west coast of Canada will require additional capacity by the early to mid-2020s to meet long-term needs.

ROBERTS BANK TERMINAL 2 SUPPLIES NEEDED CAPACITY FOR GROWTH

The Roberts Bank Terminal 2 Project is a proposed new three-berth container terminal at Roberts Bank in Delta, B.C., that will provide 2.4 million twenty-foot equivalent units (TEUs) of capacity.

As part of the Container Capacity Improvement Program, Port Metro Vancouver has worked with existing terminal operators to identify opportunities for delivering additional capacity to meet near-term increases in demand. Beyond improvements that have already been identified, analysis of additional opportunities to increase container capacity has confirmed that the proposed Roberts Bank Terminal 2 Project is the only technically and financially feasible option to meet long-term forecasted demand for container traffic on the west coast of Canada to 2030 and beyond.

As an established trade gateway, Roberts Bank is ideally positioned to accommodate future growth in trade activity. The location has several competitive advantages, including deep water to accommodate large container ships and proximity to major transportation corridors for truck and train movements. Trade through Roberts Bank also benefits from significant federal and provincial infrastructure investments that have improved transportation for communities, commuters, and goods movers: the $1.2 billion, 40-kilometre-long South Fraser Perimeter Road Project completed in 2013, and the $300 million Roberts Bank Rail Corridor Program, completed in 2014, that added eight overpasses to eliminate road and rail interactions.

ROBERTS BANK TERMINAL 2 PROJECT PRODUCES SUBSTANTIAL BENEFITS

The Roberts Bank Terminal 2 Project will provide Canadians across the country with more certainty around the ability to get their commodities and products to and from growing Asian markets in a timely and cost-effective manner. This competitive advantage for Canadian exporters and importers promotes investment in Canadian businesses, and contributes to an array of related benefits, including jobs, infrastructure and tax revenue.

The Project will create benefits for Canada, British Columbia and Metro Vancouver by way of direct, indirect and induced employment, additional tax revenue, and increased gross domestic product.

Economic impact analysis indicates that during a five-and-a-half-year construction period, the Project will generate significant employment benefits for British Columbia. Project construction will create approximately 12,700 person-years of direct, indirect and induced employment, and nearly $1 billion in wages.

\(^{1}\) 19 per cent of total trade of goods by value, 2012 Port Metro Vancouver Economic Impact Study, InterVISTAS
During the operation phase, the Project will create over 1,500 person-years of direct, indirect and induced employment, and wages of approximately $185 million each year.

Since 2011, Port Metro Vancouver has consulted and had discussions with local governments, the Tsawwassen First Nation and the public regarding potential community legacy benefits intended to bring lasting economic and social benefits to local communities and the region. Feedback from local governments and the public has indicated that community benefits may include the development of transportation infrastructure and recreational facilities such as walking trails and bike paths, environmental initiatives and a pedestrian overpass to connect the Great Blue Heron Way trail and Brunswick Point trail. Community legacy benefits will continue to be the subject of discussions between Port Metro Vancouver, local governments (including Tsawwassen First Nation), Aboriginal groups, and the public throughout development of the Project.

MULTI-PHASE PROJECT PLANNING

Since 2011, the proposed Roberts Bank Terminal 2 Project has undergone several phases of planning, including thorough engineering, environmental and financial analysis, an extensive field study program, as well as comprehensive engagement and consultation with Aboriginal groups, local government and the public. Through each of these phases, Port Metro Vancouver has refined the design of the Project to ensure the technical and economic objectives of the Project are achieved, and potential Project-related effects are avoided or mitigated.

ENVIRONMENTAL ASSESSMENT

The Project is undergoing a federal environmental assessment by an independent review panel under the Canadian Environmental Assessment Act, 2012. The federal environmental assessment process, which began in 2013, is overseen by the Canadian Environmental Assessment Agency and includes multiple opportunities for participation by all levels of government, Aboriginal groups, the public and other stakeholders. These participation opportunities include several public comment periods as well as hearings held by the independent review panel. The Project is also undergoing an environmental assessment under the British Columbia Environmental Assessment Act.

COMPETITIVE PROCUREMENT FOR A TERMINAL OPERATOR AND INFRASTRUCTURE DEVELOPER

Port Metro Vancouver began the process of selecting a terminal operator in 2013. The terminal operator will be in place for a period of up to 40 years and will be responsible for terminal facilities, equipment, and ongoing container handling operations. An infrastructure developer will be identified through a separate competitive process after the terminal operator has been selected, and will be responsible for designing, building, financing, and maintaining the terminal land and related infrastructure, including the berth structure. This procurement approach, consistent with best practices for large infrastructure projects across Canada and around the world, will provide Port Metro Vancouver with integrated, long-term contracts, and economic accountability during Project development and operation.

Subject to environmental permits and approvals, market conditions and a final investment decision, construction of the Project will begin in 2018 and will take approximately five-and-a-half years to complete. The Project will be funded by Port Metro Vancouver and private funding and will not require tax dollars.
1. INTRODUCTION

CHAPTER HIGHLIGHTS

- **Port Metro Vancouver is mandated to support the growth of Canadian trade.** The *Canada Marine Act* outlines Port Metro Vancouver’s mandate to promote the success of the port to contribute to the competitiveness of the Canadian economy, to ensure that infrastructure meets the needs of port users, to provide high levels of safety and environmental protection, and to take into account input from users and the community.

- **The Roberts Bank Terminal 2 Project will meet increasing demand.** Container traffic through Canada’s west coast is forecasted to double by 2030. Delivery of the Project is consistent with Port Metro Vancouver’s mandate.

- **The Project requires environmental approval before it can proceed.** The Project is undergoing a federal environmental assessment by an independent review panel, under the *Canadian Environmental Assessment Act, 2012*. The Project is also undergoing an assessment under the *British Columbia Environmental Assessment Act*.

- **Port Metro Vancouver has undertaken a comprehensive engagement and consultation process for the Project.** Engagement and consultation activities with government agencies, technical experts, Aboriginal groups, local government and the public were designed to obtain the benefit of their expertise, experience, and traditional and community knowledge.

This chapter outlines the purpose of the Roberts Bank Terminal 2 Project and the environmental assessment consultation and engagement processes for the Project.

1.1 PURPOSE OF THE ROBERTS BANK TERMINAL 2 PROJECT

Port Metro Vancouver proposes to build the Roberts Bank Terminal 2 Project to meet increasing demand for goods shipped in containers through the west coast of Canada and to continue to maximize the potential economic and competitive benefits of the port.

Delivery of the Roberts Bank Terminal 2 Project is consistent with Port Metro Vancouver’s mandate under the *Canada Marine Act*.

1.2 ENVIRONMENTAL ASSESSMENT PROCESS

Port Metro Vancouver submitted a Project Description to the Canadian Environmental Assessment Agency and the British Columbia Environmental Assessment Office in September 2013. This submission initiated an environmental assessment of the Project. Following a review of the Project Description, it was determined the Project is reviewable under the *Canadian Environmental Assessment Act, 2012* and the *British Columbia Environmental Assessment Act*. 
On January 7, 2014, the Minister of the Environment, who is responsible for the Canadian Environmental Assessment Agency, referred the Project to an independent review panel, the most rigorous form of environmental assessment in Canada.

Following a 30-day public comment period, the final Environmental Impact Statement Guidelines were issued on January 7, 2014, setting out the information Port Metro Vancouver must provide in the Environmental Impact Statement (EIS). Port Metro Vancouver submitted the EIS to the Canadian Environmental Assessment Agency in March 2015.

The key steps and timelines for the federal environmental assessment process are summarized in Figure 1.

On December 19, 2014, the B.C. Minister of Environment issued an order under section 14 of the British Columbia Environmental Assessment Act, establishing the Province’s procedures and methods for conducting the environmental assessment for the Project.

The Minister ordered that:

- The scope of the Project is as defined by the Canadian Environmental Assessment Agency in the EIS Guidelines;
- The scope of the assessment must include factors established by the federal Minister and potential adverse environmental, economic, social, heritage and health effects, including cumulative effects, and practicable means to mitigate such potential adverse environmental effects, and potential adverse effects on Aboriginal groups;
- The B.C. Environmental Assessment Office will principally rely on the environmental assessment to be conducted by the federal review panel, and on consultation conducted by the Canadian Environmental Assessment Agency with Aboriginal groups whose interests are potentially affected by the Project; and
- The B.C. Environmental Assessment Office must make a recommendation to the B.C. Minister of Environment within 30 days of receiving notice of the decision from the federal Minister.
1.3 PROJECT CONSULTATION

Port Metro Vancouver began a comprehensive engagement and consultation process regarding the Project in 2011, early in project development and prior to the initiation of the environmental assessment process. Since then, Port Metro Vancouver has participated in over 300 meetings regarding the Project.

Port Metro Vancouver engagement and consultation is in addition to opportunities to provide input regarding the Project to the Canadian Environmental Assessment Agency as part of the environmental assessment process.

Several of the engagement and consultation activities undertaken go beyond the consultation requirements associated with federal and provincial environmental assessment processes and include:

- Establishing a Technical Advisory Group process in 2012 to engage and consult with leaders in the technical and scientific community to provide guidance on key topic areas;

- Initiating a Working Group process in 2014 that convened a multi-stakeholder group to share study methodology and information to be included in the EIS;

- Conducting a thorough and comprehensive engagement and consultation program with Aboriginal groups that started in 2011;

- Initiating a Local Government Engagement and Outreach Program in 2012 with several municipalities to facilitate information exchange;

- Participating in the Port Community Liaison Committee–Delta (PCLC), a forum that brings together municipal, First Nations, industry, Port Metro Vancouver and community interests to discuss port-related issues in Delta;

- Conducting a multi-round Port Metro Vancouver-led public consultation process between 2011 and 2014 to gather input to assist with the development of the Project and the EIS; and

- Opening a community office in Delta in October 2014 as a place for community members to speak with Port Metro Vancouver staff about the Project and port operations.

Port Metro Vancouver will continue engagement and consultation throughout the Environmental Assessment Phase and, should the Project proceed, into the construction and operation phases.
2. INCREASING DEMAND – CANADIAN TRADE IS GROWING

CHAPTER HIGHLIGHTS

Continued growth in container traffic on the west coast of Canada will require additional capacity within Port Metro Vancouver's jurisdiction.

- **International container trade is growing.** Independent forecasts have repeatedly shown that container traffic on Canada’s west coast is expected to grow. These forecasts consider a wide variety of factors that influence container traffic volumes, including GDP growth, world demand for Canadian resources, and increased consumer demand for trade with Asia.

- **Vancouver handles the majority of Canadian west coast container traffic.** In 2014, over 3.51 million TEUs transited through Canada’s west coast ports, 83 per cent of which was handled by terminals within Port Metro Vancouver’s jurisdiction.

- **Containerized trade through Canada’s west coast will double by 2030.** The Pacific Gateway, including terminals in Vancouver and Prince Rupert, is a highly-competitive gateway for import and export container volumes. By 2030, container traffic through the Pacific Gateway is forecasted to double to approximately 7 million TEUs.

- **Additional container capacity is needed to meet demand.** Even with past, present and proposed improvements to infrastructure at container terminals within Port Metro Vancouver’s jurisdiction, and the planned expansion at the Port of Prince Rupert’s Fairview Terminal, demand forecasts indicate Canada’s west coast will need additional container capacity by the early to mid-2020s.

This chapter provides an overview of the growth of container traffic on the west coast of Canada, including factors considered in developing the forecasts, and the requirement for additional capacity to meet forecasted growth.

2.1 CONTAINERIZED TRADE

Shipping containers are constructed of steel, which allows for repeated use and the safe transport of a diverse range of goods. Their standardized design means that they can be easily and quickly transferred between ship, train or truck. Since their introduction in the 1950s, worldwide trade of goods in containers has grown dramatically, with over 650 million TEUs transiting container ports around the world in 2013.

**NORTH AMERICAN CONTAINER TRAFFIC GROWTH**

Between 1990 and 2007, total North American container demand increased by 216 per cent to reach just under 50 million TEUs, growing at an average 6.8 per cent per annum. Although the global financial crisis saw the total fall to 40 million TEUs for 2009, a strong recovery saw the total rise to 50 million TEUs by the end of 2013.
The distribution of container volumes between the Pacific Northwest region (Prince Rupert, Vancouver, Seattle, Tacoma, and Portland) and ports in California (Los Angeles, Long Beach and Oakland) has remained largely consistent, although the Californian ports were more severely impacted by the 2009 economic downturn.

In 2013, Pacific Northwest ports handled 7.56 million TEUs, of which Vancouver’s share was 37.5 per cent, an increase from 31.5 per cent in 2011. Prince Rupert’s share is currently 7.1 per cent.

**VANCOUVER – CANADA’S LARGEST CONTAINER PORT**

Vancouver is Canada’s largest port and the fourth largest port in North America by tonnage. In terms of volume, Vancouver is the fifth largest container port in North America. Other Canadian ports with significant container volume include the Port of Montreal, the Port of Prince Rupert and the Port of Halifax. Due to their intermodal rail connectivity and close proximity to major Asian ports, Canada’s west coast container terminals can provide a faster and more direct gateway for container cargo, and are at a particular advantage to handle this growing trade.

Most ports handle primarily loaded imports or primarily loaded export containers. Vancouver is a relatively unique gateway, in that it handles roughly equal volumes of loaded import and export containers. There are a number of advantages to having both import and export goods moving through Vancouver, including:

- **More stable demand**: It is less vulnerable to fluctuations in one type of traffic when compared with a port that handles just imports or just exports;
- **Increased revenue opportunities for shipping lines**: It is much more attractive to shipping lines as a port of call, since they can earn revenue delivering imports and backhauling exports; and
- **Overall value and reliability for cargo owners**: The integrated operations of rail, trucking, local warehouses and transload facilities result in a gateway that delivers overall reliability, lower costs, and less time in transit.

**SHIPPING INDUSTRY TRENDS**

Trends within the container shipping industry, and their implications on Vancouver, include the following:

**Continued growth in ship sizes**: The most significant development has been the ongoing growth in the size of container ships. The average size of ships on the trans-Pacific route in 2013 was 6,000 TEUs, up from 5,350 TEUs in 2010. This trend is expected to continue for the foreseeable future as larger ships enter service and older, smaller ships are retired. This trend has implications on the required vessel draught and crane size needed to service these ships. Both of these factors favour terminals such as Roberts Bank Terminal 2, which is designed with capabilities to handle the simultaneous loading and unloading of two New Panamax ships (12,000 TEUs) and one ultra-large container ship (18,000 TEUs).

**Adoption of alliances among shipping lines**: The proliferation of alliances among various shipping lines has allowed for more efficient utilization of each container vessel’s available capacity. As a result, terminals are being required to load and unload increasing numbers of containers in a fixed period of time to maintain cargo schedules, and provide efficient road and rail links to a variety of inland destinations. Shipping alliances benefit Vancouver, which already sees calls from all of the major shipping lines and provides the necessary vessel draught, terminal efficiencies, and intermodal links to meet the requirements of these alliances.

**Availability of alternative routes**: While most container trade between Asia and North America travels the most direct route across the Pacific Ocean, the Suez Canal provides an alternative route for goods destined for the east coast of the U.S.A. Once opened, the enlarged Panama Canal will offer another alternative all-water route to the east coast of North America for container ships between 300 metres and 360 metres in length.
While both of these canals may provide advantages on certain shipping routes, the combination of lower overall costs and faster transit times offered via Vancouver for containers travelling between Asia and most Canadian and American Midwest destinations is anticipated to minimize any redirection in future container traffic volumes.

Efficient intermodal connections: Intermodal links are critical to the efficient transportation of containers between the terminals on the Pacific coast and their inland destinations, which can be as far away as Montreal, Toronto and Chicago. This is especially true within Vancouver, as almost 90 per cent of all import containers leave the region by rail directly or after transloading.

The efficiency of Vancouver’s existing rail service is understood to be a competitive advantage that will allow it to retain west coast import market share moving forward. Each of the container terminals within Port Metro Vancouver’s jurisdiction features on-dock rail facilities, as well as access to nearby off-dock facilities where containers can be transloaded before being transferred to rail. Vancouver’s position at the terminus of the Canadian Pacific Railway and Canadian National Railway mainlines, as well as continued investments by both of these rail companies, has allowed for increased throughput of containers destined for Central Canada and the U.S. Midwest.

FIGURE 2
TYPES OF CONTAINER PORTS

Container terminals require sufficient water depth for deep-sea vessel access, as well as road and rail connections to allow for efficient movement of containers to and from local, regional, and national markets. Container ports generally fall into one of four categories as illustrated in Figure 2.

- Primarily import handling (e.g., Los Angeles/Long Beach);
- Primarily export handling (e.g., Shanghai);
- Transshipment port (e.g., Singapore); and
- Import and export handling (e.g., Vancouver)
A 2014 report prepared by internationally-recognized experts in global transportation economics and logistics, Ocean Shipping Consultants (OSC), considered the competitive landscape of Pacific Northwest ports, as well as the impact of any infrastructure improvements that are planned or underway. The report provides an overview of current and planned capabilities, as well as a forward-looking, competitive outlook of Pacific Northwest terminals, including those in Seattle, Tacoma, Portland, Vancouver and Prince Rupert.

This same assessment was performed for Pacific Southwest ports, including Long Beach, Los Angeles, and Oakland. Cumulatively, there are ongoing investments in capacity to meet the overall continued growth in North American trade with Asia. The OSC report concludes that Port Metro Vancouver’s planned improvements, including the proposed Roberts Bank Terminal 2 Project, are likely to result in additional growth of Port Metro Vancouver’s already significant local customer base over the next decade.

According to OSC 2014, Vancouver is considered to have a better competitive position than its immediate competitors – Prince Rupert, Seattle, and Tacoma – based on a review of the following criteria:

- Physical capability of the terminals;
- Planned development of capacity;
- Productivity of the terminals;
- Cost of transiting the terminals;
- Delivered costs to Central Canada and the U.S. Midwest;
- Intermodal capacity;
- Import/export balances;
- Suitability as a regional hub location; and
- Existing customer base.

To see the Ocean Shipping Consultants 2014 report, please visit portmetrovancouver.com/RBT2.
2.2 WEST COAST CONTAINER FORECASTS

HISTORIC CONTAINER TRAFFIC FORECASTS

In 2001, Ocean Shipping Consultants forecasted low-case, base-case, and high-case container traffic scenarios for Canada’s west coast through to 2020. Figure 3 demonstrates the robustness and accuracy of this forecast. Actual west coast container traffic, including Vancouver and Prince Rupert, remains closely aligned with, and has often exceeded, the high-case forecast, even with the container volume decrease in 2009 related to the global financial crisis.

In 2014, terminals within Port Metro Vancouver’s jurisdiction handled 2.91 million TEUs, a total increase of 142 per cent since 2001, or an average of 7 per cent growth annually.

CURRENT CONTAINER TRAFFIC FORECASTS

As part of Port Metro Vancouver’s work to ensure the sufficiency of the port’s long-term supply of container capacity, Port Metro Vancouver commissioned a series of independent, third-party container traffic forecasts. These forecasts consider a range of key container traffic demand drivers and long-term trends in global markets and trade. The conclusions of these forecasts form the basis of the rationale for the proposed Roberts Bank Terminal 2 Project.

Annual forecasts since 2011 show demand for container traffic on Canada’s west coast is expected to keep growing. These forecasts consider many factors that influence container demand forecasts, including:

- GDP growth;
- World demand for Canadian resources;
- Increased consumer demand for trade with Asia;
- Widening of the Panama Canal;
- Planned container terminal expansion at the Port of Prince Rupert;
- Macro-economic trends in North America;
- North American container port demand;
- Competitive developments at other ports;
- Trends in container shipping; and
- Vancouver’s competitive position compared to other North American ports.

These forecasts consider a range of key container traffic demand drivers and long-term trends in global markets and trade. The conclusions of these forecasts form the basis of the rationale for the proposed Roberts Bank Terminal 2 Project.

Annual forecasts since 2011 show demand for container traffic on Canada’s west coast is expected to keep growing. These forecasts consider many factors that influence container demand forecasts, including:

- GDP growth;
- World demand for Canadian resources;
- Increased consumer demand for trade with Asia;
- Widening of the Panama Canal;
- Planned container terminal expansion at the Port of Prince Rupert;
- Macro-economic trends in North America;
- North American container port demand;
- Competitive developments at other ports;
- Trends in container shipping; and
- Vancouver’s competitive position compared to other North American ports.

These forecasts consider a range of key container traffic demand drivers and long-term trends in global markets and trade. The conclusions of these forecasts form the basis of the rationale for the proposed Roberts Bank Terminal 2 Project.

Annual forecasts since 2011 show demand for container traffic on Canada’s west coast is expected to keep growing. These forecasts consider many factors that influence container demand forecasts, including:

- GDP growth;
- World demand for Canadian resources;
- Increased consumer demand for trade with Asia;
- Widening of the Panama Canal;
- Planned container terminal expansion at the Port of Prince Rupert;
- Macro-economic trends in North America;
- North American container port demand;
- Competitive developments at other ports;
- Trends in container shipping; and
- Vancouver’s competitive position compared to other North American ports.

These forecasts consider a range of key container traffic demand drivers and long-term trends in global markets and trade. The conclusions of these forecasts form the basis of the rationale for the proposed Roberts Bank Terminal 2 Project.

Annual forecasts since 2011 show demand for container traffic on Canada’s west coast is expected to keep growing. These forecasts consider many factors that influence container demand forecasts, including:

- GDP growth;
- World demand for Canadian resources;
- Increased consumer demand for trade with Asia;
- Widening of the Panama Canal;
- Planned container terminal expansion at the Port of Prince Rupert;
- Macro-economic trends in North America;
- North American container port demand;
- Competitive developments at other ports;
- Trends in container shipping; and
- Vancouver’s competitive position compared to other North American ports.

These forecasts consider a range of key container traffic demand drivers and long-term trends in global markets and trade. The conclusions of these forecasts form the basis of the rationale for the proposed Roberts Bank Terminal 2 Project.
The most recent independent container traffic forecast was completed by Ocean Shipping Consultants in 2014. This forecast presents three different scenarios (see Figure 4) outlined below:

**The Low Case** – 3.4 per cent growth. This scenario reflects short-term macro-economic uncertainties and a more restrained pace of trade growth in the long-term. The low case forecasts west coast traffic volumes of 4.5 million TEUs by 2020 and 5.9 million TEUs by 2030 (representing an average growth rate of 3.4 per cent per year between 2013 and 2030).

**The Base Case** – 4.4 per cent growth. This scenario reflects the consensus view of continued global trade growth, and is understood to be the most likely outcome. Under the base case forecast, west coast traffic volume is projected to grow to 4.9 million TEUs by 2020 and 7.0 million TEUs by 2030 (representing an average growth rate of 4.4 per cent per year between 2013 and 2030).

**The High Case** – 5.7 per cent growth. This scenario reflects a more pronounced short-term upturn in container traffic, and a return to higher economic growth rates in the long term. The high case forecasts west coast traffic volume of 5.3 million TEUs by 2020 and 8.5 million TEUs by 2030 (representing an average growth rate of 5.7 per cent per year between 2010 and 2030).

The overall trend is one of continued container traffic growth through the west coast of Canada, although at a slower pace than has been experienced to date. This is primarily due to the fact that higher growth resulting from cargo switching to containers has largely taken place. As the container sector continues to mature, future container traffic growth rates are expected to gradually align more closely with economic growth.
Vancouver is a highly-competitive option for import and export container volumes. By 2025, the port’s terminals are projected to be handling almost 5 million TEUs per year (under the base case), compared to the 2014 total of 2.9 million.

Growth of Asian imports, together with more locally-sourced exports, are anticipated to continue, with the port able to serve more distant import intermodal markets in both Canada and the U.S.A.

**2.3 FUTURE CONTAINER CAPACITY REQUIREMENTS**

Container transportation is a competitive and dynamic environment. If Vancouver cannot provide required throughput capacity, the excess trade volumes will find the next best alternative. The economic impact on importers and exporters is the difference in transportation costs between Vancouver and that next best alternative. These increased costs are eventually passed on to Canadian consumers and exporters.

Container handling capacity on the west coast of Canada has accommodated growth through a variety of operational improvements and infrastructure investments, including improvements to existing container terminals, conversion of break-bulk terminals to container terminals, and construction of new terminals. Additional container capacity must be developed on the west coast of Canada in time to serve forecasted demand.
3. BUILDING CAPACITY TO MEET INCREASING DEMAND

CHAPTER HIGHLIGHTS

Port Metro Vancouver has analyzed all available options to meet forecasted container growth on the west coast of Canada.

- Port Metro Vancouver is committed to delivering required container capacity. The Container Capacity Improvement Program is Port Metro Vancouver’s long-term strategy to ensure the timely delivery of required infrastructure to meet the anticipated growth in the container traffic through Canada’s west coast.
- Investments at existing terminals are delivering increased capacity. Port Metro Vancouver has worked with each of its terminal operators to identify opportunities to provide increased capacity. This process has resulted in a series of projects that improve efficiencies and increase overall container capacity at existing terminals.
- Operational improvements are maximizing the reliability of existing infrastructure. Port Metro Vancouver is improving operational efficiencies, maximizing customer value, and enhancing port competitiveness through the implementation of programs and initiatives that integrate service delivery at each container terminal.
- The Roberts Bank Terminal 2 Project is the only option to deliver required capacity in the long term. Port Metro Vancouver’s analysis of all available options on the west coast of Canada, as outlined in this chapter, concludes that the Roberts Bank Terminal 2 Project is the only viable alternative to provide the capacity required to meet forecasted demand.

This chapter provides an outline of the approach that has been taken by Port Metro Vancouver to analyze opportunities to increase container capacity on the west coast of Canada. This includes a summary of the existing container handling facilities, as well as projects and initiatives that are planned or underway to deliver increased container capacity.

LEVERAGING GENERATIONAL INVESTMENTS IN THE PACIFIC GATEWAY

As the volume of goods that passes through Vancouver has continued to grow, so has the requirement for investment in increased terminal capacity and related transportation infrastructure. To facilitate continued development in the Pacific Gateway, the federal and provincial governments have developed an integrated set of investment and policy measures aimed at improving trade within the Asia-Pacific region. Between public and private sector partners, including Port Metro Vancouver, tens of billions of dollars of investments have been made in required transportation infrastructure in British Columbia.

These investments are creating new business opportunities and jobs for Canadians, reducing congestion, improving safety and contributing to Canada’s overall economic competitiveness. Sustained economic growth in Canada and abroad means that Canada must continue to invest in the Pacific Gateway to help ensure that British Columbia continues to reap the benefits of being a gateway to the world.
Tens of billions of dollars have been invested in expanding the network of bridges, highways, rail lines and terminals within British Columbia. This improved transportation infrastructure makes it easier and more economical to get Canadian goods to market, and creates new jobs and opportunities as our economy grows. These investments also provide increased safety and connectivity for communities across the province.

THE CONTAINER CAPACITY IMPROVEMENT PROGRAM – BUILDING CAPACITY TO SUPPLY DEMAND

The Container Capacity Improvement Program was announced in 2011, and is Port Metro Vancouver’s long-term strategy to ensure the timely delivery of required infrastructure to meet anticipated growth in the container sector.

A key objective of the program is the use and capacity maximization of existing terminals before the construction of any new facilities. In planning for future capacity with this objective, Port Metro Vancouver considered opportunities to:

- Increase the capacity and efficiency of existing container terminals;
- Convert existing under-utilized terminals to handle containers; and
- Build a new terminal.

Port Metro Vancouver has also considered other west coast alternatives that are outside its jurisdiction. Planned expansions at the Fairview Container Terminal in Prince Rupert are needed, in addition to capacity within Port Metro Vancouver’s jurisdiction, to meet demand for goods shipped in containers through Canada’s west coast.
3.1 IMPROVEMENTS TO EXISTING INFRASTRUCTURE

OPPORTUNITIES WITHIN PORT METRO VANCOUVER’S JURISDICTION

Port Metro Vancouver has worked with terminal operators to identify opportunities to provide increased capacity at each terminal. This process has resulted in a series of projects that both improve efficiencies and increase overall container capacity.

INCREASING CAPACITY AND EFFICIENCY AT EXISTING CONTAINER TERMINALS

Centerm is located on the south shore of Vancouver’s Burrard Inlet, and currently handles approximately one-fifth of the annual container cargo traffic handled by terminals within Port Metro Vancouver’s jurisdiction. Since beginning container operations in the 1960s, the terminal has undergone numerous operational upgrades to improve the equipment and terminal design, and is now operated by DP World Vancouver.

In 2006, Centerm converted its container storage yard to use rubber-tired gantry cranes, which increased the maximum capacity of the terminal to 900,000 TEUs.

In 2014, Port Metro Vancouver began investigating design options for additional expansion of container capacity at Centerm. The opportunity arose with the closure of the Ballantyne Cruise Terminal adjacent to Centerm at the end of the 2014 cruise season and the planned consolidation of cruise operations at Canada Place beginning in 2015. Concept studies suggest that Centerm’s capacity could potentially be increased from 900,000 TEUs to 1.5 million TEUs. Studies are currently underway to determine the feasibility of this potential capacity upgrade. Subject to environmental approval, the Centerm expansion could be completed as soon as 2018.

Deltaport is located at Roberts Bank in Delta, B.C., and is currently the largest container terminal by traffic in Canada. Deltaport, which opened in 1997, is operated by Global Container Terminals Canada. The terminal was expanded in 2010 with the Deltaport Third Berth Project, which added 600,000 TEUs of container capacity, bringing the terminal’s maximum to 1.8 million TEUs. A series of improvements as part of the Deltaport Terminal, Road and Rail Improvement Project will improve efficiency and further increase capacity at Deltaport by another 600,000 TEUs to 2.4 million TEUs by 2017.
Fraser Surrey Docks is a multi-use terminal located on the south side of the Fraser River shipping channel in Surrey and Delta. The terminal handles containerized cargo, breakbulk general cargo, project cargo, forest products, and bulk commodities. The terminal has land available for redevelopment; however, larger vessels, such as those currently visiting other container terminals within Port Metro Vancouver’s jurisdiction, cannot be accommodated within the Fraser River channel due to their length and draught requirements. Ship size presents navigational limitations, specifically with respect to the ability to turn around to travel down river.

Fraser Surrey Docks’ container capacity was designed to accommodate up to 600,000 TEUs annually. Due to a combination of the river channel navigation constraints and the world market trend toward larger container ships, this capacity has not been realized. Current ships calling on Fraser Surrey Docks have an overall length in the range of 200 metres to 225 metres. In comparison, ships that currently call on Deltaport Terminal have an overall length ranging from 300 metres to 350 metres. For this reason, Fraser Surrey Docks is assumed to have an actual capacity of approximately 150,000 TEUs.

In 2013, the Province of B.C. announced plans to replace the George Massey Tunnel with a new bridge at the same location on the Highway 99 corridor. The replacement of the tunnel with a bridge and the subsequent removal of the tunnel will allow for an increase in the depth of the river shipping channel in that location, allowing upriver access for larger-draught vessels; however, the main constraints for larger container ships transiting to Fraser Surrey Docks are each vessel’s overall length, width and resulting ability to turn around, none of which will be addressed by the replacement of the tunnel with a bridge. Although current container handling operations may be maintained for some time, for planning purposes, Fraser Surrey Docks is not expected to be a sustainable source of container capacity beyond 2018.

Vanterm, located on the south shore of Vancouver’s Burrard Inlet, was also expanded and upgraded in 2005 to increase container handling capacity to approximately 800,000 TEUs. The physical area where additional future expansion could potentially occur is on a land parcel located adjacent to the Vanterm property; however, this land has lease tenures in place until at least the late-2020s. If improvements at Vanterm were feasible at that time, they would require the conversion of adjacent facilities and would not provide increased capacity until sometime after 2030.

CONVERTING EXISTING TERMINALS OR PROPERTIES

In addition to expanding and improving existing container terminals, Port Metro Vancouver has investigated the possibility of converting other properties and terminals within its jurisdiction to handle containers.

Lynnterm, an existing multi-use terminal in North Vancouver, was previously considered for conversion to container handling and feasibility studies were conducted in the early 2000s. Upon further evaluation, Port Metro Vancouver determined that substantial road access constraints would limit the ability of Lynnterm to accommodate additional container truck traffic, necessary to transport containers to and from the terminal. In addition, conversion to containers would conflict with other existing priority uses for this terminal.

Fraser Richmond Properties, in the City of Richmond, is identified as an off-dock transload and distribution centre located on lands managed by Port Metro Vancouver on the north side of the Fraser River shipping channel, upstream of the George Massey Tunnel. The waterfront parcel of the Fraser Richmond Properties that is currently vacant has significant constraints that affect its ability to provide large-scale container capacity, including:

- Road congestion (with expansion constraints due to its urban location); and
- Navigation constraints for larger container ships (as noted previously with respect to navigation to Fraser Surrey Docks).
OTHER WEST COAST OPPORTUNITIES OUTSIDE PORT METRO VANCOUVER’S JURISDICTION

Port Metro Vancouver also considered opportunities outside of its jurisdiction.

PRINCE RUPERT

In 2007, the Prince Rupert Port Authority converted the Fairview Container Terminal from a breakbulk-handling terminal to a container terminal with a design capacity of approximately 850,000 TEUs.

Planned expansions (referred to as Fairview Phase 2 – Stage 1 and Stage 2) of the Fairview Container Terminal are anticipated to increase total capacity to 2.0 million TEUs by the early 2020s. Stage 1 expansion is planned to start in 2015; however, the timing of the Stage 2 expansion is uncertain as Maher Terminals, the operator of Fairview Terminal, in coordination with the Prince Rupert Port Authority, makes independent decisions on a commercial basis regarding the timing and nature of future infrastructure improvements.

FIGURE 6 CONTAINER PORTS ON THE WEST COAST OF CANADA
3.2 CAPACITY-BUILDING INITIATIVES

REGIONAL INFRASTRUCTURE INVESTMENT AND SUPPLY CHAIN IMPROVEMENT

In addition to investing in traditional terminal capacity projects on port lands, Port Metro Vancouver has taken a leadership position in driving collaboration, funding commitments and policy alignment among regional stakeholders in business and government to collectively deliver more than $6 billion in new regional transportation infrastructure within the Vancouver Gateway. These projects comprise 17 road-and-rail grade separations, new bridges, a new highway, and a highway expansion which were all completed in 2014. The improvement of transportation infrastructure in the region reduces congestion, increases efficiencies and improves safety for the movement of goods and people.

RELIABILITY INITIATIVES

In addition to building terminal capacity and influencing the delivery of supporting transportation infrastructure in Vancouver, Port Metro Vancouver is leveraging the value of these generational investments through the implementation of reliability initiatives focused within four critical service delivery areas: container vessel on-time arrival, rail service improvements, trucking and terminal gate initiatives, and labour stability. Each of these collaborative initiatives is made possible by ongoing cooperation between Port Metro Vancouver, the terminal operators, railways, shipping lines and the British Columbia Maritime Employers Association.

Container vessel on-time arrival: Port Metro Vancouver provides a financial incentive for container vessel operators to arrive within their scheduled berth window. Since the implementation of the incentive program, on-time performance has increased at Vancouver container terminals, thereby contributing to overall supply chain consistency.

Rail service: Through port-wide collaboration and coordination with container terminals and railway service providers, Port Metro Vancouver has implemented measures to reduce terminal dwell time to below three days, which would result in a more reliable gateway and better predictability of cargo delivery.

Trucking and terminal gate initiatives: Port Metro Vancouver’s Smart Fleet Trucking Program represents the largest investment in the Vancouver container trucking sector in a decade. The program includes a mandatory truck licensing system and the outfit of 100 per cent of the fleet with GPS units, which provide real-time tracking and the ability to monitor arrival and departure times at each terminal. Port Metro Vancouver has also overseen the implementation of night gates, limits to truck wait times and the construction of truck staging areas.

Labour stability: Vancouver benefits from the labour stability provided by two eight-year longshore agreements that were negotiated by the British Columbia Maritime Employers Association and the International Longshore and Warehouse Union. These agreements extend to March 2018, and serve as a competitive advantage that promotes customer confidence as well as an orderly supply chain.

These projects and initiatives will maximize the capacity of existing terminals on the west coast of Canada.
3.3 NEW INFRASTRUCTURE REQUIREMENTS

Even with recent, current and proposed improvements to infrastructure at container terminals within Port Metro Vancouver’s jurisdiction, and the planned expansion at the Fairview Container Terminal in Prince Rupert, demand forecasts indicate Canada’s west coast will need additional container capacity by the early to mid-2020s.

The maximum capacity of a container terminal is a function of the terminal’s equipment, available area and operational design. This capacity assumes everything within and external to the terminal functions properly. To account for inefficiencies, adverse weather conditions, equipment malfunctions or breakdowns, power failures and other possible incidents, both within the terminal and the broader supply chain, practical capacity is used as a measure of a terminal’s real-world capacity. When actual container throughput exceeds this threshold, calculated as 85 per cent of maximum capacity, increased dwell time and reduced terminal service levels will generally occur. As a result, practical capacity is used for planning purposes to indicate when additional capacity will be required to accommodate future growth.

As shown in Table 3-1 and Figure 7, without additional improvements, the west cost of Canada is projected to experience a shortage of container capacity by the mid-2020s. Port Metro Vancouver’s analysis concludes that the Roberts Bank Terminal 2 Project is the only viable alternative to provide capacity to meet forecasted demand.

Since large infrastructure projects require a long lead time due to regulatory, permitting, procurement, construction, and commissioning processes, Port Metro Vancouver has chosen to advance the Roberts Bank Terminal 2 Project now so that it can meet forecasted demand. Based on the current Project schedule, subject to regulatory approvals and a final investment decision, the Project could be operational by the mid-2020s.

<table>
<thead>
<tr>
<th>TABLE 3-1</th>
<th>FORECASTED WEST COAST CONTAINER TRAFFIC AND EXISTING TERMINAL CAPACITY WITH PLANNED IMPROVEMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2014</td>
</tr>
<tr>
<td>Maximum Capacity</td>
<td>4,500,000</td>
</tr>
<tr>
<td>Practical Capacity</td>
<td>3,825,000</td>
</tr>
<tr>
<td>Forecasted Container Traffic (Base Case)</td>
<td>3,517,000</td>
</tr>
<tr>
<td>Excess Capacity/ Shortfall</td>
<td>308,000</td>
</tr>
</tbody>
</table>

All values in TEUs
FIGURE 7
CANADIAN WEST COAST CONTAINER TRAFFIC FORECAST (2014) AND PLANNED CAPACITY INCREASES TO 2030

Source: Ocean Shipping Consultants, 2014
*Practical capacity is calculated as 85 per cent of maximum capacity, above which terminals begin to lose efficiency.
4. THE ROBERTS BANK TERMINAL 2 PROJECT

CHAPTER HIGHLIGHTS

The Roberts Bank Terminal 2 Project is a proposed new three-berth container terminal in Delta, B.C.

- Roberts Bank is an established trade gateway with direct access to off-dock facilities. Roberts Bank is well positioned to accommodate future growth in trade activity, and benefits from significant federal and provincial infrastructure investments.
- The terminal location and orientation was selected based on engineering and environmental criteria. The three-berth marine terminal will be located immediately west of the existing Roberts Bank terminals, approximately 5.5 kilometres from the east end of the causeway.
- The causeway will be widened to varying widths to minimize the Project footprint. As currently designed, the Roberts Bank causeway will be widened to link existing road and rail networks to the marine terminal and to accommodate additional road and rail infrastructure.
- The Project includes an expansion of the existing Roberts Bank tug basin. The expanded tug basin will accommodate additional tug boats, necessary to efficiently and safely assist in the arrival and departure of ships calling at the new terminal.

This chapter provides a description of the Roberts Bank Terminal 2 Project, including its objectives, geographic advantages and components.

Based on forecasted container traffic for the west coast of Canada, and an analysis of available opportunities to provide increased container capacity, Port Metro Vancouver has concluded that the proposed Roberts Bank Terminal 2 project is the only viable alternative to deliver container capacity when it is required in the early to mid-2020s.

4.1 PROJECT OBJECTIVES

Port Metro Vancouver has five main objectives with respect to the Project:

1. Meet demand for containerized trade growth on behalf of Canada and Canadians. Additional container capacity will be required on Canada’s west coast by the early to mid-2020s.

2. Ensure sustainable development objectives continue to play a key role in the design and operation of the Project – considering environmental, social and economic factors. Port Metro Vancouver is committed to maintaining a healthy environment and minimizing the environmental impact of port operations.

3. Provide economic benefits, including job creation, to the region, British Columbia and Canada. The Project will create employment during construction and operation and will facilitate trade.

4. Improve the efficiency of moving goods at Roberts Bank, including marine traffic and on-terminal operations. The Project will ensure the continued efficiency of ship-to-shore container movements at Roberts Bank.
5. **Align with federal and provincial strategies to continue to strengthen Canada’s Asia-Pacific Gateway.** The Project aligns with Canada’s Global Markets Action Plan, the New Building Canada Plan and the Asia-Pacific Gateway and Corridor Initiative. The Project further supports provincial strategies such as The Pacific Gateway Transportation Strategy 2012-2020, the BC Jobs Plan and, most recently, B.C. on the Move: A 10-Year Transportation Plan.

### 4.2 ADVANTAGES OF ROBERTS BANK

As an established trade gateway, Roberts Bank is well positioned to accommodate future growth in trade activity. The location has several competitive advantages:

- Deep water, capable of accommodating the largest container ships;
- Proximity to major transportation corridors for both truck and rail movements;
- Proximity to the Strait of Juan de Fuca and Pacific Ocean shipping routes; and
- Direct access to numerous off-dock facilities (see Figure 8).

Trade through Roberts Bank terminals also benefits from significant federal and provincial infrastructure investments that have improved transportation for communities, commuters, and goods movers, including the $1.2 billion South Fraser Perimeter Road Project completed in 2013, and the $300 million Roberts Bank Rail Corridor (RBRC) Program completed in 2014.

### 4.3 PROJECT COMPONENTS

The proposed Roberts Bank Terminal 2 Project consists of three main components, shown in Figure 10:

1. A new three-berth **marine container terminal**;
2. A **widened causeway** to accommodate additional road and rail infrastructure; and
3. An **expanded tug basin** to accommodate a second tug operations contractor.

A video showing the Project components can be found at portmetrovancouver.com/RBT2.
1. Marine Terminal

The three-berth marine terminal will be located immediately west of the existing Roberts Bank terminals, approximately 5.5 kilometres from the east end of the causeway. The terminal will be rectangular in shape, approximately 1,700 metres long and 700 metres wide, and will support moorage of three container ships on the south side, container storage in the centre and rail intermodal yards on the north side. The total usable above-water area of the marine terminal will be 108 hectares.

The marine terminal would include the following features:

- Berth pocket and marine approach areas with sufficient depth to accommodate the safe navigation of fully laden ultra-large container ships;
- Shore power connections at all three berths in order for ships to plug into land-based electrical power and shut off their diesel engine-powered generators;
- Ship-to-shore gantry cranes and mobile horizontal-transfer equipment;
- Container storage yard and associated container handling cranes;
- Transfer area between container storage yard and trucks;
- Two rail intermodal yards equipped with rail-mounted gantry cranes to transfer containers between railcars and mobile horizontal-transfer equipment;
- A multi-lane truck gate equipped with security and inspection features;
- Site security systems, such as radiation portal monitors, video surveillance, vehicle and cargo inspection system facilities, and perimeter fencing;
- Services and infrastructure, including potable and firefighting water distribution, wastewater and storm-water management systems, a wastewater treatment plant, power and lighting, and terminal equipment fuelling facilities; and
- Support facilities, such as an administration and operations building, maintenance and repair facilities, a longshore break room and a Canada Border Services Agency building.

The development of land for the marine terminal will use material from Project construction dredging, and sand from the annual Fraser River Maintenance Dredging Program, an existing non-Project-related program carried out to maintain the shape and safe depths of Fraser River shipping channels. The sand will be transported to the Project site and stored at a temporary underwater location east of the existing Roberts Bank terminals. Additional required fill material such as rock, gravel, rip-rap and sand, will be sourced from existing quarries. Fine sediments generated during dredging and soil densification activities will require disposal at sea.

Electrical power for the marine terminal will be provided through the existing BC Hydro transmission line on the Roberts Bank causeway. The power feed to the on-terminal main substation will be via an underground cable transitioning from the existing overhead line distribution point near Deltaport Terminal’s Gate 2. No new overhead transmission lines would be required.

Trade-Off Study

Following discussions with the Department of Fisheries and Oceans Canada and a review of environmental work and studies previously completed in and around Roberts Bank, potential sites for a new terminal were limited to those immediately west of the existing Roberts Bank facilities. Two options, W1, which would have a berth facing offshore and W2, which would have a berth face perpendicular to the shoreline were selected as the most viable options. For each orientation, shown in Figure 9, studies examined advantages and disadvantages of situating
the terminal in a range of positions, from those as far offshore as possible to those as close to the shore as possible. These studies analyzed several key differentiators, including construction cost, operational effects of storm winds and currents, potential for seabed erosion and impact on intertidal habitat. Both engineering and environmental considerations indicated a clear preference for the offshore-facing W1 alternative in the farthest offshore position. This alternative is located almost entirely in subtidal waters to avoid effects to sensitive intertidal habitat and to reduce the amount of dredging required to accommodate the draught of the largest container ships that would call on the terminal.

2. Widened Causeway

The Roberts Bank causeway will be widened to link existing road and rail networks to the marine terminal and to accommodate additional road and rail infrastructure. Widening will range from zero metres to approximately 140 metres at the widest point.

Construction activities will be undertaken in a staged manner and will rely on aggregate supply from existing quarries and sand from the Fraser River Maintenance Dredging Program.

Road, rail and utility infrastructure such as water and electrical services will be constructed once the land development is complete.

Rail additions and improvements on the widened causeway include:

- Two new lead rail tracks connecting the on-terminal intermodal yards to an on-causeway support and switching yard (T-Yard);
- T-Yard with support, switching and lead rail tracks;
- A new setout yard for mainline locomotives;
- A repair yard for railcars; and
- Two lead tracks that connect the T-Yard to two tie-in points on the existing rail network.

Road additions and improvements on the causeway include:

- An overpass to safely separate road traffic bound for the new terminal from rail traffic to the existing terminals;
- A three-lane access road to the terminal that incorporates a vehicle access and control system gate for security; and
- A two-lane gravel emergency access road.
3. Expanded Tug Basin

An expansion of the existing tug basin will accommodate additional tugboats, necessary to efficiently and safely assist in the arrival and departure of ships calling at the new terminal. The expansion will allow for separate access gangways and pontoon floats, and will include sufficient moorage for the existing and an additional tug operation contractor.

Construction will include dredging and the installation of crest protection rip-rap to protect existing mudflats from scouring during ebbing tides.

Final designs of these components will be produced by the terminal operator and infrastructure developer and will include refinements that may be required as conditions associated with federal and provincial environmental approvals.

The scope of the Project for the purposes of the environmental assessment includes all Project components and physical activities outlined in the EIS Guidelines, including marine, road and rail transportation within Port Metro Vancouver’s jurisdiction.

The expanded Roberts Bank tug basin will accommodate additional tug boats to efficiently and safely assist in the arrival and departure of ships calling at the existing and new terminals.
5. PROJECT OPPORTUNITIES AND BENEFITS

CHAPTER HIGHLIGHTS

The Roberts Bank Terminal 2 Project will provide considerable benefits to Canada, British Columbia and Metro Vancouver.

• **Improve access for Canadian exporters and importers.** The Project will build on existing geographic advantages and significant investments in transportation infrastructure to ensure Canadians can continue to benefit from the opportunities provided by international trade.

• **Create thousands of jobs during construction and operation.** During the five-and-a-half year construction period, the proposed Roberts Bank Terminal 2 Project will generate a total of 12,700 person-years of direct, indirect and induced employment, worth almost $1 billion in wages. During operation, the Project will generate an annual total of over 1,500 direct, indirect and induced person-years of employment, worth approximately $185 million in wages each year.

• **Generate significant increases to the Canadian economy.** The construction period will account for an additional $1.3 billion in provincial GDP, and an additional $210 million during each year of operation.

• **Increase revenue for all levels of government.** The Project will generate increased revenue to all levels of government. During construction, these taxes are estimated to total almost $300 million to local, provincial and federal governments, and approximately $40 million each year while the terminal is operational.

• **Provide benefits for Aboriginal groups.** Port Metro Vancouver has entered into a Memorandum of Agreement with the Tsawwassen First Nation that addresses mitigation measures and compensation for potential infringements, as well as business development and employment opportunities. Port Metro Vancouver is working with other Aboriginal groups to facilitate access to training, employment and contracting opportunities related to the Project.

• **Ensure lasting social benefits for local communities.** Port Metro Vancouver has begun a process to determine the potential for community legacy benefits related to the Project. Feedback received from the public and local governments to date has indicated the community benefits may include the development of transportation infrastructure and recreational facilities.

• **Improve capacity for sustainable resource management.** The extensive studies that have been undertaken as part of the development of the Project will advance the scientific understanding of Roberts Bank as it relates to a range of species and habitat features, including southern resident killer whales, biofilm and shorebirds.
This chapter outlines the substantial benefits that the Project will provide during construction and operation.

**BENEFITS OF EXISTING CONTAINER HANDLING ACTIVITIES**

Vancouver’s container-handling sector is a major contributor to the provincial economy. In 2010, container handling activities within Vancouver generated more than 10,900 person-years of direct employment. This includes on-terminal employment, as well as jobs generated by other related off-terminal activities such as trucking, rail, warehousing, customs brokers and freight forwarding. Including indirect and induced employment, the handling and distribution of containerized cargo supports over 21,700 person-years of total employment across British Columbia.

The direct GDP associated with container handling and transportation contributes close to $1.4 billion to the Canadian economy. The annual economic output of container traffic through Vancouver generates $3.6 billion.

The container-handling sector is also a significant contributor of revenue to all levels of government, generating over $260 million in taxes in 2010. The federal and provincial government collectively received over $220 million in revenue, mostly in the form of corporate and personal income tax from companies and individuals that work in the container handling sector. Municipal governments in Metro Vancouver collected more than $35 million in taxes related to the property taxes paid by container terminals within Vancouver, as well as from firms involved in the handling and transportation of containers.

**PROJECT BENEFITS**

Significant investments have been made in Vancouver to provide improved access to trading partners in Asia. These investments have been made in response to increased demand for both Canadian exports and imported products for Canadian consumers. Vancouver provides a number of critical advantages in comparison to some other North American gateways to Asia, including reliability, reduced time in transit and most importantly, lower overall transportation cost. This existing advantage is demonstrated by the savings of up to 20 to 30 per cent that are achieved when containers are shipped through Vancouver compared to some other alternative North American ports of entry.

The proposed Roberts Bank Terminal 2 Project builds on the existing geographic advantages of Vancouver, as well as the past investments in transportation infrastructure in the region. By ensuring there is sufficient capacity to handle growing container traffic, Canadian businesses and consumers can continue to benefit from the opportunities presented by international trade.

In addition to enabling ongoing trade growth, the Roberts Bank Terminal 2 Project will support economic growth, generate increased employment during construction and operation and provide legacy benefits to neighboring communities.

---

3 Micro Economic Impact Study of Container Activity at Port Metro Vancouver, InterVISTAS 2011
4 Ocean Shipping Consultants, 2014
5.1 BENEFITS DURING CONSTRUCTION

CONSTRUCTION EMPLOYMENT

During a five-and-a-half-year construction period, the Project will generate significant employment benefits for British Columbia. Project construction will generate an estimated total of 12,719 person-years of direct, indirect and induced employment for B.C. workers.

<table>
<thead>
<tr>
<th></th>
<th>Metro Vancouver</th>
<th>British Columbia (Outside of Metro Vancouver)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct</td>
<td>4,150</td>
<td>0</td>
<td>4,150</td>
</tr>
<tr>
<td>Indirect</td>
<td>3,942</td>
<td>2,322</td>
<td>6,264</td>
</tr>
<tr>
<td>Induced</td>
<td>1,632</td>
<td>673</td>
<td>2,305</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>9,724</strong></td>
<td><strong>2,995</strong></td>
<td><strong>12,719</strong></td>
</tr>
</tbody>
</table>

INCREASED ECONOMIC ACTIVITY DURING CONSTRUCTION

The construction period will generate approximately $1 billion in wages, $1.3 billion in provincial gross domestic product and $3.65 billion in total economic output.

<table>
<thead>
<tr>
<th></th>
<th>Metro Vancouver</th>
<th>British Columbia (Outside of Metro Vancouver)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LABOUR INCOME</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct</td>
<td>494</td>
<td>0</td>
<td>494</td>
</tr>
<tr>
<td>Indirect</td>
<td>247</td>
<td>127</td>
<td>374</td>
</tr>
<tr>
<td>Induced</td>
<td>83</td>
<td>46</td>
<td>129</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>824</strong></td>
<td><strong>173</strong></td>
<td><strong>997</strong></td>
</tr>
<tr>
<td><strong>GROSS DOMESTIC PRODUCT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct</td>
<td>496</td>
<td>0</td>
<td>496</td>
</tr>
<tr>
<td>Indirect</td>
<td>418</td>
<td>198</td>
<td>616</td>
</tr>
<tr>
<td>Induced</td>
<td>149</td>
<td>76</td>
<td>225</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,063</strong></td>
<td><strong>274</strong></td>
<td><strong>1,337</strong></td>
</tr>
<tr>
<td><strong>ECONOMIC OUTPUT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct</td>
<td>1,945</td>
<td>0</td>
<td>1,945</td>
</tr>
<tr>
<td>Indirect</td>
<td>837</td>
<td>507</td>
<td>1,344</td>
</tr>
<tr>
<td>Induced</td>
<td>238</td>
<td>123</td>
<td>361</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,020</strong></td>
<td><strong>630</strong></td>
<td><strong>3,650</strong></td>
</tr>
</tbody>
</table>
INCREASED REVENUE TO ALL LEVELS OF GOVERNMENT

Government revenues from taxes paid by construction employers, suppliers and Project-associated workers will be approximately $300 million.

<table>
<thead>
<tr>
<th>GOVERNMENT REVENUE DURING CONSTRUCTION ($ MILLIONS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Government</td>
</tr>
<tr>
<td>B.C. Government</td>
</tr>
<tr>
<td>Local Government</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

5.2 BENEFITS DURING OPERATION

The Project will enable continued growth in the handling of containerized goods in an efficient and cost-effective manner that protects and promotes Canada’s trade objectives. By having available container capacity in place on the west coast of Canada, Canadians across the country can have more certainty around the ability to get their commodities and products to and from growing Asian markets. This competitive advantage for Canadian exporters promotes investment in Canadian businesses, and contributes to an array of related benefits, including jobs, infrastructure and tax revenue.

EMPLOYMENT DURING OPERATIONS

During the operation phase, on-terminal activities will generate an annual total of 1,553 person-years of direct, indirect and induced employment.

<table>
<thead>
<tr>
<th>EMPLOYMENT DURING OPERATION6 (PERSON-YEARS PER YEAR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metro Vancouver</td>
</tr>
<tr>
<td>Direct</td>
</tr>
<tr>
<td>Indirect</td>
</tr>
<tr>
<td>Induced</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

6 On-terminal and off-terminal activities associated with increased demand for approximately 2 million TEUs per year of containerized trade would support approximately 12,400 direct, indirect and induced person-years of employment and $813 million in wages annually. Off-terminal activities include services provided by truck drivers, harbour pilots, tugboat operators, the Canada Border Services Agency, railways, transload and distribution facility operations, and container storage yards, and would generate an estimated 6,700 person-years of direct, 3,100 person-years of indirect and 1,050 person-years of induced employment annually, an estimated total of 10,850 person-years.
INCREASED ECONOMIC ACTIVITY DURING OPERATION

On-terminal activities during operation will account for approximately $186 million in wages, $212 million in provincial gross domestic product and approximately $291 million in total economic output each year\(^6\).

### ECONOMIC OUTPUT DEVELOPMENT BENEFITS DURING OPERATION ($ MILLIONS PER YEAR)

<table>
<thead>
<tr>
<th></th>
<th>Metro Vancouver</th>
<th>British Columbia (Outside of Metro Vancouver)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LABOUR INCOME</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct</td>
<td>138.1</td>
<td>15.3</td>
<td>153.4</td>
</tr>
<tr>
<td>Indirect</td>
<td>5.6</td>
<td>0.4</td>
<td>6.0</td>
</tr>
<tr>
<td>Induced</td>
<td>25.8</td>
<td>0.4</td>
<td>26.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>169.5</td>
<td>16.1</td>
<td>185.6</td>
</tr>
<tr>
<td><strong>GROSS DOMESTIC PRODUCT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct</td>
<td>139.8</td>
<td>15.5</td>
<td>155.3</td>
</tr>
<tr>
<td>Indirect</td>
<td>9.2</td>
<td>1.5</td>
<td>10.7</td>
</tr>
<tr>
<td>Induced</td>
<td>44.8</td>
<td>0.9</td>
<td>45.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>193.8</td>
<td>17.9</td>
<td>211.7</td>
</tr>
<tr>
<td><strong>ECONOMIC OUTPUT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct</td>
<td>184.1</td>
<td>0</td>
<td>184.1</td>
</tr>
<tr>
<td>Indirect</td>
<td>31.2</td>
<td>2.2</td>
<td>33.4</td>
</tr>
<tr>
<td>Induced</td>
<td>71.3</td>
<td>2.0</td>
<td>73.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>286.6</td>
<td>4.2</td>
<td>290.8</td>
</tr>
</tbody>
</table>

INCREASED REVENUE TO ALL LEVELS OF GOVERNMENT

Annual average tax payments to the three levels of government by the terminal operator, infrastructure developer, suppliers and Project-associated workers will be approximately $42 million.

### GOVERNMENT REVENUE DURING OPERATION ($ MILLIONS PER YEAR)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Government</td>
<td>22.4</td>
</tr>
<tr>
<td>B.C. Government</td>
<td>12.8</td>
</tr>
<tr>
<td>Local Government</td>
<td>6.9</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>42.1</td>
</tr>
</tbody>
</table>

\(^6\) On-terminal and off-terminal activities would generate an estimated annual average of $1.22 billion in GDP and $2.36 billion in total economic output. Off-terminal activities associated with increased demand for approximately 2 million TEUs per year of containerized trade would generate an estimated annual average of $1.01 billion in GDP and $2.07 billion in total economic output.
BENEFITS TO ABORIGINAL GROUPS

In 2004, Port Metro Vancouver entered into a Memorandum of Agreement with the Tsawwassen First Nation. The purpose of the Agreement is to set out the basis for Tsawwassen First Nation to benefit from the Deltaport Third Berth Project and the Roberts Bank Terminal 2 Project and to provide a basis for a mutually beneficial relationship. The Memorandum of Agreement addresses mitigation measures, compensation for potential infringements, business development opportunities and employment opportunities.

Port Metro Vancouver is working with other Aboriginal groups to facilitate access to Project benefits, including training, employment opportunities and Project contracting opportunities.

COMMUNITY BENEFITS AND SOCIAL CONTRIBUTIONS

On an annual basis, Port Metro Vancouver contributes up to one per cent of its net income to support communities through a broad-ranging Community Investment Program. The contributions are based on three pillars:

- **Community Enrichment**: Port Metro Vancouver embraces inclusion, diversity, cultural and community activity, and convening local residents to participate in experiences that are authentic to a port city and that enhance quality of life.

- **Education and Training**: Port Metro Vancouver encourages education, awareness and training, and is dedicated to improving access to and quality of educational resources and training opportunities for students in the port’s operating areas.

- **Environmental Leadership**: Port Metro Vancouver promotes environmental stewardship through the advancement of knowledge, and is focused on protection of the natural environment and ecological systems in the port’s operating areas.

In the spirit of this long-standing commitment to supporting communities, Port Metro Vancouver began a process to determine the potential for community legacy benefits related to the Project. Since 2011, Port Metro Vancouver has consulted and had discussions with local governments (Delta, Surrey, Richmond, City of Langley, Township of Langley and Tsawwassen First Nation) and the public regarding community legacy benefits that will be provided as part of the Project. The objective of community legacy benefits is to bring lasting economic and social benefits to communities and the region.

Ensuring a local and regional approach to the types of projects and initiatives is critical to their success. Feedback from local governments and the public has indicated community benefits may include the development of transportation infrastructure and recreational facilities such as walking trails and bike paths, environmental initiatives and a pedestrian overpass to connect the Great Blue Heron Way trail and Brunswick Point trail.

Community legacy benefits will continue to be the subject of discussions between Port Metro Vancouver, local governments (including Tsawwassen First Nation), Aboriginal groups and the public throughout the development of the Project.

IMPROVED CAPACITY FOR SUSTAINABLE RESOURCE MANAGEMENT

Through the extensive study programs undertaken during preparation of the EIS, Port Metro Vancouver has made important contributions by collecting information that will enhance local and regional capacity to sustainably manage ecosystems associated with Roberts Bank. Information collected and decision-making tools developed by Port Metro Vancouver will benefit the scientific community, resource managers, stewardship organizations, and future planning or assessment processes within the region. In particular, Port Metro Vancouver advanced the scientific understanding of southern resident killer whales, biofilm and its importance to migratory shorebirds’ use of the Fraser River estuary, ecological linkages of sea pens, and ecosystem modelling at Roberts Bank.
6. PROJECT PLANNING, DEVELOPMENT, AND IMPLEMENTATION

CHAPTER HIGHLIGHTS

The Roberts Bank Terminal 2 Project has undergone a comprehensive feasibility, planning, and public engagement and consultation process.

- **Feasibility and planning for the Project has been underway since 2010.** Port Metro Vancouver has performed extensive analysis of the need for and feasibility of the Project.
- **Port Metro Vancouver has engaged with regulators, Aboriginal groups, local government and the public to gather input regarding the Project.** Input received has been and will be considered, along with technical and economic information, in the development and refinement of the Project.
- **The Roberts Bank Terminal 2 Project requires environmental approval before it can proceed.** The Project is undergoing an environmental assessment by an independent review panel.
- **Port Metro Vancouver is undertaking two separate procurement processes to select a terminal operator and an infrastructure developer.** Project procurement has been initiated in parallel to the environmental assessment process to ensure the capacity provided by the Project can be available when it is required in the mid-2020s.
- **Project construction is anticipated to take five-and-a-half years to complete.** Construction activities include building containment dykes, dredging, soil densification, sand storage and reclamation, caisson installation and piling, as well as development of buildings, equipment and road and rail infrastructure.
This chapter summarizes the multi-phase process Port Metro Vancouver is undertaking for the development of the Project.

6.1 PROJECT DEVELOPMENT PHASES

The current Project design, including the terminal location and orientation, has accounted for lessons learned from previous technical work and feedback from regulators. Current planning, development, and implementation for the Roberts Bank Terminal 2 Project are discussed below with reference to the following activity phases, which are shown in Figure 11:

- Project Feasibility Assessment;
- Project Definition;
- Environmental Studies;
- Environmental Assessment and Permitting;
- Market and Concession;
- Construction; and
- Operation.

**FIGURE 11 PROJECT PLANNING, DEVELOPMENT AND IMPLEMENTATION SCHEDULE**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Feasibility Assessment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Definition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Studies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Assessment and Permitting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market and Concession</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation (startup)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Port Metro Vancouver-Led Consultation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>We Are Here</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This analysis was also undertaken to assess the expected rate of return to Canada that would be generated by the economic activity associated with the Project.

This analysis was conducted based on conservative assumptions of the present value of future added jobs and GDP contributions against the present value of the terminal investment made over the construction and operations phases. This analysis is designed to provide a preliminary indication of the outcome of a full economic cost-benefit analysis, and demonstrated the Project’s early economic viability.

Port Metro Vancouver reviewed past plans, existing studies, and available reports, and engaged in discussions with regulators and marine consultants about the feasibility of a new terminal at Roberts Bank. This feasibility assessment indicated strong Project feasibility and market demand.

---

In 2002, Roberts Bank Terminal 2 was proposed together with the Deltaport Third Berth Project. Based on regulator input, Port Metro Vancouver chose not to advance Roberts Bank Terminal 2 in order to provide more time to complete environmental and engineering studies to explore the best location and design for a new terminal. The Deltaport Third Berth Project proceeded through the regulatory process as a separate project.
PROJECT DEFINITION PHASE

During the Project Definition Phase, which took place in 2011 and 2012, Port Metro Vancouver retained engineering firms to develop a preliminary engineering design for the Project. Throughout 2013 and 2014, Port Metro Vancouver continued to monitor and track economic forecasts, and compared actual container volumes to earlier forecasts to verify growth predictions in the container industry. Forecasts were shared annually through the Project website.

A Port Metro Vancouver-led consultation and engagement program, consisting of several rounds of consultation with government, Aboriginal groups, and the public was initiated in 2011. This has included Pre-Consultation (2011), Project Definition Consultation (2012), Pre-Design Consultation (2013), and Preliminary Environmental Mitigation Concepts (2014). Of the more than 300 meetings that Port Metro Vancouver has participated in regarding the Project since 2011, more than 100 were with communities, local government and businesses through the Local and Regional Government Outreach and Engagement Program, Port Metro Vancouver-led consultation and community outreach activities.

In addition to these Port Metro Vancouver-led consultation activities, there have been multiple opportunities to participate and provide comments to regulators through the environmental assessment process.

ENVIRONMENTAL STUDIES PHASE

Between 2012 and 2014, Port Metro Vancouver undertook environmental studies to build upon the extensive physical, biophysical, and socio-economic data already collected for previous Roberts Bank terminal developments. In response to requests during Project Definition Consultation, Port Metro Vancouver made the terms of reference for field studies available on the Project website. Port Metro Vancouver also distributed monthly field notifications to inform local governments, Aboriginal groups, and the public about the specific environmental studies being undertaken.

During this phase, a Technical Advisory Group process was undertaken to proactively engage with local and international scientific and technical experts to enhance the relevance, quality, and rigour of studies that inform the environmental assessment.

ENVIRONMENTAL ASSESSMENT PHASE

Port Metro Vancouver submitted a Project Description to the CEA Agency in September 2013, which initiated the federal environmental assessment process. In January 2014, the federal Minister of the Environment referred the Project for assessment by an independent review panel. It is anticipated the environmental assessment will take two to three years to complete.

The federal environmental assessment process for the Project is overseen by the CEA Agency and includes multiple opportunities for participation by all levels of government, Aboriginal groups, the public and other stakeholders. These participation opportunities include several public comment periods as well as public hearings to be held by the independent review panel.

In November 2014, the B.C. Environmental Assessment Office identified the Project as reviewable. The Environmental Assessment Office will principally rely on the environmental assessment to be conducted by the federal review panel, and on consultation by the CEA Agency with Aboriginal groups whose interests are potentially affected by the Project.

While not a requirement of the federal or provincial environmental assessment processes, Port Metro Vancouver established a Working Group process to bring together representatives of federal and provincial agencies, regional and local government, and Aboriginal groups to discuss issues relevant to the development of the EIS. Input received through the Working Group process has been considered in the development of the EIS.

This Project requires regulatory approval before it can proceed.

---

8 Annual container volume forecasts are available at portmetrovancouver.com/RBT2.
6.2 MARKET AND CONCESSION PROCESS

Port Metro Vancouver began planning for the Project concession process in 2011. This process analyzed the options and scenarios for the commercial arrangements that will guide the construction and operation of the Project. Finalized concession agreements will define funding requirements, risks and returns for Port Metro Vancouver and any other investors and participants.

TERMINAL OPERATOR PROCUREMENT OBJECTIVES

The Roberts Bank Terminal 2 Project terminal operator procurement objectives are to:

- Accommodate future container growth through the development of sustainable container capacity;
- Ensure that risks to Port Metro Vancouver are manageable;
- Maximize the financial value of the terminal operator bid;
- Ensure sufficient financial strength of the terminal operator;
- Avoid market concentration and ensure fair competition within the Vancouver container sector.

To promote a fair and dynamic container handling market within Vancouver, the Roberts Bank terminal 2 Project will be a multi-user facility, and will therefore be of greater interest to terminal operators of existing multi-user facilities.

Port Metro Vancouver is responsible for leading the Project through federal and provincial environmental assessment processes, and any commercial agreements will be subject to environmental approval.

PROCUREMENT APPROACH

Port Metro Vancouver is undertaking two separate procurements for the terminal operator and for the infrastructure developer. This approach was selected as the preferred procurement arrangement for the project due to the suitable allocation of economic risk and return for each party, as well as the provision of appropriate financial accountability during Project development and operation.

1. The terminal operator will be procured through a competitive process, and will be in place in advance of the procurement of the infrastructure developer. For a period of up to 40 years, the terminal operator will be responsible for terminal facilities, equipment, and ongoing container handling operations. The terminal operator will provide Port Metro Vancouver with regular payment of a concession fee, as well as ongoing pass-through of fees and charges, the form and amount of which will be one of the key selection criteria in the procurement process.

2. The infrastructure developer will be procured through a separate competitive process following the selection of a terminal operator. The infrastructure developer will be responsible for designing, building, financing, and maintaining the terminal land and related infrastructure, including the berth structure. A Cooperation Agreement between Port Metro Vancouver, the terminal operator and the infrastructure developer will specify the role of the terminal operator to influence the terminal requirements and design. Once the Project is operational, and subject to ongoing availability and functioning of the terminal, Port Metro Vancouver will make regular payments to the infrastructure developer over a period of up to 40 years.

The Project will be funded by Port Metro Vancouver and private funding and would not require tax dollars.

PROCUREMENT PROCESS

The selection of a terminal operator and infrastructure developer will include the following common characteristics and steps:

Request for Qualification (RFQ). The RFQ process will be an international, open, transparent and competitive process. Terminal operators and consortia led by terminal operators are eligible to participate. This process is expected to run for approximately six months, and would include notification and marketing of RFQ availability, question and answers through a virtual data room, submission of a qualification document by candidates and the shortlisting of up to five candidates by Port Metro Vancouver. All shortlisted candidates will be invited to the proposal phase.
Request for Proposal (RFP). The RFP process will be limited to the shortlisted candidates, and is expected to require approximately 12 months to complete. During this time, candidates will be able to review draft agreements, participate in question and answers and competitive dialogue meetings, and prepare proposals based on specifications presented in the RFP. Port Metro Vancouver will select a preferred candidate based on the selection criteria outlined in the RFP. The preferred candidate will be invited to enter into final negotiations with Port Metro Vancouver and sign the final agreements and post required securities.

PROCUREMENT SCHEDULE
Port Metro Vancouver has initiated Project procurement, in parallel with the environmental assessment process, to ensure the capacity provided by the Project can be available when it is required in the early to mid-2020s. This procurement approach, consistent with best practice for large infrastructure projects across Canada, will allow Port Metro Vancouver to have the necessary contracts and funding in place shortly after the conclusion of the environmental assessment process. Subject to required environmental permits and approvals, as well as a final investment decision by the selected project partners, construction of the Project could begin as soon as 2018 and will take about five-and-a-half years to complete.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Assessment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terminal Operator Procurement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infrastructure Developer Procurement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Landmass Construction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Superstructure Construction and Equipment Installation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start Operations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6.3 IMPLEMENTATION

CONSTRUCTION ACTIVITIES

Project construction is anticipated to take five-and-a-half-years, and is scheduled to start in 2018, subject to environmental approvals, permits, market conditions and a final investment decision to proceed. The construction schedule and work activities will accommodate fisheries closure periods. In addition, stoppages of marine-based work will occur in accordance with a Project Marine Mammal Observation Plan.

Project component construction activities include building containment dykes, dredging, soil densification, sand storage and reclamation, caisson installation and piling, as well as development of buildings, equipment and road and rail infrastructure.

Temporary construction infrastructure and facilities, necessary for the construction of the new terminal and widened causeway, will be removed once all Project components are complete.

TERMINAL OPERATION

The terminal container handling systems, including maintenance activities, will be operational within approximately six months after completion of construction.

The four main operational activities include:

**Container Ship Manoeuvering**

It is estimated the new marine terminal will handle up to 260 container ship calls per year at full capacity. Depending on wind and wave conditions, two or three large berthing or escort tugs will manoeuvre a ship into or away from its assigned berth. Line boat tugs may also assist in moving the mooring lines from the container ship to the bollards or mooring dolphin, depending on the ship’s assigned berth.

**Marine Terminal Operation**

Operations will be monitored, and any automated equipment will be controlled through terminal operating and computerized automation control systems, which will track container movements into and out of the terminal, as well as container storage locations within the container storage yard. The degree of automation and type of terminal operating system will be determined by the terminal operator.

The terminal is designed to operate 24 hours per day throughout the year.

**Railway Switching and Container Hauling**

Approximately 30 per cent of loaded export containers will be brought to the terminal by rail (via Canadian National Railway or Canadian Pacific Railway), along with empty containers to supply the local export market. Approximately 65 per cent of the imported containers will be moved from the terminal by rail.

There will be four trains per average day, and five trains per peak day, in each direction serving the Project (for a total of eight train movements per average day, or 10 train movements per peak day). Train lengths to and from the Project are expected to be between 8,000 and 12,000 feet (approximately 2,440 and 3,660 metres) long.

**Container Movement by Truck**

Approximately 70 per cent of loaded export containers will arrive at the terminal by truck. Approximately 35 per cent of the imported containers and approximately half of the empty containers returned by rail will be moved from the terminal by trucks.

An estimated 3,700 one-way truck trips will occur at the marine terminal on an average day, and up to 5,100 one-way truck trips on a peak operating day, based on an assumed five-day week for truck gate operations.
7. CONCLUSION

The practice of using containers to transport cargo has had a revolutionary impact on global trade by making it economical to transport a wide array of goods to an equally diverse set of destinations. Vancouver’s container sector has benefited from its proximity to growing trading economies in Asia, as well as efficient rail connections to major North American distribution centres. These advantages are reflected by the continued growth in the port’s container traffic volumes, which reached 2.91 million TEUs in 2014. This trade provides jobs, creates business opportunities and generates tax revenue for all levels of government.

Annual independent container forecasts have indicated traffic through the west coast of Canada will reach 7 million TEUs by 2030 as a result of increasing demand for both Canadian exports and Asian imports. To meet this demand, Port Metro Vancouver’s Container Capacity Improvement Program was established to ensure all opportunities for required capacity on the west coast of Canada were considered. While planned improvements both within and outside of Port Metro Vancouver’s jurisdiction will help meet short-term demand, Canada’s west coast will still experience a shortage of capacity by the early to mid-2020s. Port Metro Vancouver’s analysis concludes the Roberts Bank Terminal 2 Project is the only viable alternative to provide this capacity in the long term.

The Project itself would create significant employment and business opportunities during construction and operation, benefiting Canada, British Columbia and Metro Vancouver. During construction alone, there will be an estimated 12,700 person-years of direct, indirect and induced employment, worth almost $1 billion in wages. In addition, the development of the Project will provide benefits to Aboriginal groups, local communities and the scientific community. Port Metro Vancouver is mandated to support the growth of Canadian trade, ensure a high level of safety and environmental protection, and take into account input from the community. Consistent with its mandate, Port Metro Vancouver has undertaken a multi-phase planning process to ensure economic, environmental and social factors are fully considered in the design, construction and operation of the Project. The Project is currently undergoing federal and provincial environmental assessment processes.

Canada is a trading nation. Canadians continue to reap the benefits of historic investments in rail, highways, bridges and port facilities. This transportation infrastructure serves as the backbone of the national economy, and facilitates the export of Canadian resources products, while providing Canadian consumers and businesses with access to goods and manufacturing inputs. The Roberts Bank Terminal 2 Project strengthens Canada’s access to overseas markets, and will play a vital role in ensuring the continued economic health of Canada for decades to come.
For More Information:
Roberts Bank Terminal 2 Project
Port Metro Vancouver
100 The Pointe, 999 Canada Place
Vancouver, B.C. Canada V6C 3T4
p: 604.665.9337
f: 1.866.284.4271
e: container.improvement@portmetrovancouver.com
w: portmetrovancouver.com/RBT2

Canada