
Port Alberni Trans-shipment Hub (PATH) Feasibility Study

Local Supply Chain and Servicing Requirements



Prepared for
Port Alberni Port Authority

By



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1 – INTRODUCTION AND PROJECT CONTEXT

This study of the local supply chain and servicing requirements for the Port Alberni Trans-shipment Hub (PATH) Feasibility Study is just one component of the overall feasibility analysis. The overall study is being coordinated by Dillon Consulting Limited and considerable work is being undertaken by the engineering firm, Hatch Mott MacDonald, and by CPCS, a transportation infrastructure development consulting firm. The other firms have prepared separate documents reporting on their components of the Feasibility Study. We have drawn upon the concept and operational planning baseline information in those reports to analyze the supply chain and servicing requirements for PATH.

Therefore, this report is focused on identifying and analyzing the specific supply and servicing businesses and services that will need to be in place to meet the proposed operational requirements for PATH, as defined in the work by Hatch Mott MacDonald and CPCS.

1.1 PORT ALBERNI TRANS-SHIPMENT HUB (PATH) CONCEPT AND RATIONALE

The Port Alberni Trans-shipment Hub is intended to be a large-scale intermodal container terminal where ultra-large container ships (ULCSs) will be unloaded and their cargo transferred onto large feeder barges that will transport the containers to their final destinations throughout the Lower Mainland and possibly in Washington State and further south along the coast. A preliminary schematic diagram of possible shipping flows for the PATH Terminal is shown in Figure 1.1.

Figure 1.1: Schematic Diagram of Possible Shipping Flow for PATH Terminal



Source: Port Alberni Port Authority

The PATH intermodal container terminal concept is somewhat similar to the container terminal developed at Prince Rupert in 2007. With that terminal the intermodal transfers are between container ship and rail, rather than barge. The economics of the PATH Terminal concept are in part based on economies of scale and the shorter sailing distance between Port Alberni and Asia compared with Vancouver, Seattle and Tacoma. In addition to the extensive feeder barge network, it is envisaged that any containers destined for Vancouver Island (perhaps 20% of the total) would be off-loaded at the terminal and then transferred onto trucks for transport to distribution centres and other receivers of containers throughout Vancouver Island.

There are several elements to the overall rationale for developing the PATH terminal including the following:

- ◆ It further strengthens Canada's Pacific Gateway adding future capacity to move goods in and out of North America via BC ports. It is intended to be complementary to British Columbia's existing container terminals, and it is likely that among the feeder barge destinations would be some of the Lower Mainland's existing container terminals.
- ◆ The potential to barge significant numbers of containers to multiple destinations within the Lower Mainland will help to alleviate road traffic, as many containers could be taken to their final distribution warehouses directly rather than being trucked from existing container terminals. This would also help to relieve congestion at the existing terminals so that they can be used more extensively as trans-shipment points for containers going further afield than the Lower Mainland.
- ◆ In future some of the very largest ultra-large container ships (e.g. 22,000 TEUs) may not be able to call at some of the Lower Mainland's container terminals (e.g. Fraser Surrey Docks and possibly Vanterm and Centerm), so the feeder barge network would be able to provide a steady flow of containers to those terminals from ships too large to dock there. It is anticipated that the proposed Deltaport Terminal 2 will be able to handle the ultra-large container ships. However, it is possible that the PATH project may be a lower cost option for investing in incremental container terminal capacity than Deltaport Terminal 2.
- ◆ Depending on actual operating cost efficiencies, there is a reasonable likelihood that with sufficient automation and economies of scale the hub and spoke concept of PATH would yield competitive if not lower overall shipping costs between Asia and specific destinations in the Pacific Northwest.

In addition to the various components of the overall rationale just described, the PATH Container Terminal development would be a significant economic development initiative for the Port Alberni region and would spawn a whole series of infrastructure, community and regional benefits, as well as having a significant positive impact on the overall economy of Vancouver Island and British Columbia.

1.2 OBJECTIVES OF THIS ANALYSIS

The overall purpose of the analysis in this report is to undertake an examination of the existing port-related businesses and services that could potentially support and service the operations of the PATH terminal once developed, as well as to determine the supply and servicing gaps that will need to be filled to fully support and service PATH's operation's. These support businesses and services include ships' agents, ship repair services, tug and barge services, and fuelling services, among other things. The specific objectives of our analysis include the following:

1. To conduct a situation analysis in relation to the port itself, including its existing facilities and shipping activity, as well as the overall economic base of the Port Alberni region, as a context for the PATH terminal development.
2. To review the container terminal servicing requirements and related support businesses at comparable container terminals in BC, such as in Vancouver and Prince Rupert.
3. To determine the support businesses, services and government service requirements for the PATH terminal.
4. To identify key servicing and infrastructure gaps relative to the proposed container terminal.
5. To identify and analyze container terminal servicing opportunities including expansion of existing businesses/services and establishment of new ones.
6. To prepare an overall report summarizing the supply chain and servicing opportunities that will support the operation of the PATH terminal.

1.3 STUDY PROCESS

The work on this assignment was undertaken by Economic Growth Solutions Inc. and was led by John Murray, Managing Director of the firm. The consultation, research and analysis involved several steps including the following:

1. Reviewed various existing documents, studies, plans, maps and data in relation to the Port Alberni Port Authority and the City of Port Alberni, as well as the details of the proposed PATH concept and the analysis undertaken by

other consultants involved in the feasibility study, including Hatch Mott MacDonald and CPCS.

2. Conducted interviews with senior officials at the Port Alberni Port Authority, City of Port Alberni Economic Development Department, and local businesses involved in providing services to the Port and ships in Port Alberni.
3. Prepared the overall situation analysis regarding the existing port operations at Port Alberni, principal businesses and services directly related to the Port operation, and the City's overall economic base.
4. Reviewed various aspects of container terminal operations and related support businesses and services in relation to container terminals in the Greater Vancouver Area and Prince Rupert.
5. Undertook an analysis to determine the container terminal servicing requirements and related support businesses that would be needed for the PATH terminal to operate effectively in the Port Alberni area.
6. Prepared an overall supply chain and servicing gap analysis that identified:
 - The servicing needs of PATH that existing businesses already in place could handle
 - Specific gaps requiring expansion of existing businesses and services
 - Gaps that require establishing new businesses and services not currently in place to provide the full range of support and servicing required by PATH.
7. Analyzed the business and servicing opportunities associated with PATH, including expanding existing businesses and services, establishing new ones, along with some other related opportunities in relation to government services that will need to be augmented to fully service PATH when developed.
8. Identified important considerations related to implementation of the supply and servicing requirements for PATH, along with related labour force development implications.

The results of all of this work have been summarized in the following chapters of this report.

2 – PORT SITUATION ANALYSIS

Port Alberni has a sheltered natural harbour at the end of Alberni Inlet and has been handling cargo ships since the Port was first established in 1947. However, it operates at a much smaller scale than the proposed container trans-shipment terminal, so the purpose of this section of the report is to provide some context regarding existing Port operations and the local economy, to better understand the implications and ancillary requirements of this bold new development.

2.1 EXISTING PORT OPERATIONS AT PORT ALBERNI

Port Authority's Facilities and Mandate

The Port is currently operated by the Port Alberni Port Authority, which was established in 1999, taking over from the Harbour Commission. The Port Authority is responsible for all aspects of the day-to-day operations of the harbour, which can handle large freighter vessels up to Panamax size. The Port Authority is responsible for operations of the following facilities:

- ◆ Port Alberni Terminals, which is the freight handling component of the Port
- ◆ Fishermen's Harbour, which is a Small Craft Harbours facility and accommodates Port Alberni's fishing fleet, as well as tugboats, salvage vessels and pleasure craft. Fishermen's Harbour has a total of 500 berths.
- ◆ Three recreational marinas – China Creek Marina and Campground, Clutesi Haven Marina, and Harbour Quay Marina. These three marinas combined have a total of 543 berths.

The Port Authority is also responsible for the long-term development and improvement of Port Alberni's waterfront, including the recreational marinas and secondary industries. The Port Authority's Mission is to:

Facilitate profitable maritime trade and marine-related tourism and industry by offering services and leadership that respect both the community and environment.

Therefore, the Port Authority is committed to building a thriving and diversified port, contributing to the economic diversification of the community. The proposed PATH project will be a major milestone in fulfilling this diversification mandate.

Existing Cargo Handling Facilities

The Port Alberni Port Authority directly operates its own Port Alberni Terminals rather than contracting it out. The facilities consist of three deep-sea berths, four warehouses and a 17-acre storage assembly area. The facilities are summarized in Figure 2.1.

Figure 2.1: Facilities at Port Alberni Terminals

Facility	Specifications
Berths 1 and 2	<ul style="list-style-type: none"> • Length: 320 metres (1,050 ft.) • Depth alongside: 11.4 meters (37.5 ft.) at zero tide
Berth 3	<ul style="list-style-type: none"> • Length: 183 metres (600 ft.) • Depth alongside: 12.2 meters (40 ft.) at zero tide
Warehouses	<ul style="list-style-type: none"> • Four warehouses, totalling 4,645 square metres (50,000 sq. ft.) located at the shipping berths • Storage available for up to 9,000 tonnes • Terminal area is fully floodlit with 24-hour security • Stevedoring companies service the Port. • Manning is through the International Longshore & Warehouse Union

Source: Port Alberni Port Authority

The products exported from the terminal have historically been lumber, pulp, newsprint, plywood, logs and fish/seafood. It is likely that some of these same products will be exported in containers, should the PATH project proceed.

Current Shipping Activity

A summary of existing shipping activity at Port Alberni is shown in Figure 2.2. This shows the predominance of lumber and forest products, as well as the relatively modest level of ship activity, with a total of 67 freighters in 2013 and 56 in 2012.

Figure 2.2: Freight Shipping Activity at Port Alberni, 2013

Statistic	2012	2013
Vessel Traffic (number of freighters)	56	67
Total Lumber Shipped (metric tonnes)	40,884,200	81,950,600
Total Logs Shipped (metric tonnes)	746,993,300	883,211,400
Total Forest Products Shipped (metric tonnes)	787,877,500	965,162,000
Miscellaneous Coastal Cargo (metric tonnes)		778,100
Fish Products (metric tonnes)		3,539,300

Source: Port Alberni Port Authority

The PATH project would likely see a doubling of the number of freighters on an annual basis, with the addition of one or two container ships arriving and departing weekly. Even more dramatic would be the huge increase in tug and barge activity, since the majority of all containers unloaded at the new trans-shipment hub will be re-loaded onto barges for onward distribution.

2.2 PRINCIPAL BUSINESSES AND SERVICES DIRECTLY RELATED TO PORT OPERATION

Aside from the services provided by the Port Authority itself, there are several types of existing businesses and services in Port Alberni that directly relate to the existing Port operation and will also be applicable to the new container trans-shipment terminal. These businesses and services include:

- ◆ Tug and barge companies
- ◆ Ships' agents, freight forwarders and customs brokers
- ◆ Ship repair, welding and machine shops
- ◆ Trucking companies (line haul)
- ◆ Marine surveyors
- ◆ Fuelling services (commercial/industrial)
- ◆ Waste management and environmental services
- ◆ Government services.

To varying degrees it would be likely that businesses in a number of these categories will need to be scaled-up or expanded in some manner, in order to handle the incremental requirements associated with PATH. However, already having many of the key ancillary businesses and services that are required for a successful container terminal operation demonstrates the capability of the Port Alberni area to host this type of facility. These businesses and services already have in place significant infrastructure, facilities, expertise and skilled labour that will be required to support the PATH operation.

We have prepared a list of the existing relevant companies and services operating in the Port Alberni area that offer specific services utilized by ports and ships, as shown in Figure 2.3.

Figure 2.3: Existing Port and Ship Servicing Businesses in Port Alberni

Category	Companies and Organizations in Port Alberni Area
Tug and Barge Companies	<ul style="list-style-type: none"> • Pacific Towing Services Ltd. • A.B. Sea Towing
Ships' Agents	<ul style="list-style-type: none"> • Port Alberni Shipping Co Ltd.
Ship Repair, Welding, Diesel Mechanic and Machine Shops	<ul style="list-style-type: none"> • Alberni Industrial Marine Supply Ltd. • Canadian Alberni Engineering Ltd. • DAST Welding Inc. • DBA Silencing • Marlowe Marine Service Inc. • Port Alberni Marine Industries • Port Machine Works Ltd.
Line Haul Trucking Companies	<ul style="list-style-type: none"> • Dumas Trucking Ltd. • Haggard Trucking Ltd. • J W Berry Trucking Ltd. • L C Trucking Ltd.
Ship electronic navigation and communication systems servicing/ repair	<ul style="list-style-type: none"> • V I Radar
Fuelling Services (commercial/industrial)	<ul style="list-style-type: none"> • Enex Fuels
Waste Management and Environmental Services	<ul style="list-style-type: none"> • Hetherington Industries Ltd. • Burrard Clean
Government Services	<ul style="list-style-type: none"> • Canada Border Services Agency (Port Alberni) • Canadian Coast Guard (Tofino MCTS Centre) • Pacific Pilotage Authority (Cape Beale Boarding Station)

Source: Interviews, online research, and information supplied by Port Alberni Port Authority and City of Port Alberni Economic Development

For the preceding, in some cases, the services to ports, ships and the marine sector represent only a portion of their business, but they do have ongoing relevant experience and the capability to expand within these service areas.

Tug and Barge Companies

As described in the working paper prepared by CPCS regarding the strategic and business requirements and costs and logistics modelling for container delivery, the PATH project will require substantial tug and barge services. Currently there are two tug and barge companies located in Port Alberni, Pacific Towing Services Limited, which is headquartered in North Vancouver, and A.B. Sea Towing. Several other companies based in the Lower Mainland have provided tug and barge services to the Port Alberni region and/or southern Vancouver Island

including Island Tug and Barge Limited, SMIT Marine Canada Inc., Seaspan International Limited, Sea Link Marine Services Ltd., and Harken Towing Company Ltd.

Pacific Towing Services currently have five tugs based in Port Alberni, including two large 1,000 horsepower tugs and three smaller 500 horsepower tugs. They do not base barges in Port Alberni, but the company owns 8 barges based at its North Vancouver headquarters. In addition to a general manager based in Port Alberni, there is a yard crew, tugboat crews, and a mechanic on staff. Activity mainly relates to providing tug services for the large cargo ships that come to the port, as well as considerable log boom work.

Ships Agents, Freight Forwarders and Customs Brokers

Ships agents are typically selected by the shipping line and most of the ships that come into the port are handled by agents based in the Greater Vancouver area such as ACGI, Norton Lilly International Inc., Empire Shipping Agency, and Compass Marine Services, among others. However, as these companies do not have offices in the Port Alberni area, they typically sub-contract ships agent services to the one local company in Port Alberni that is in this business – Port Alberni Shipping Company Ltd.

An important role of a ships agent is to meet face-to-face with the ship's captain and crew on a regular basis (usually daily) while the ship is in port, in order to coordinate any of the services and supplies required by the ship while in port. Typically the ships agent is also involved in handling any paperwork that may be required with respect to customs and immigration in order to clear the ship's crew and its cargo.

Specific activities undertaken by the ships agent in Port Alberni include:

- ◆ Boarding the ship daily in order to liaise with captain and crew and handle their needs while in port
- ◆ Arranging for pilots and tugs
- ◆ Arranging for supplies, water and fuel, where required
- ◆ Coordinating any ship repair services required or any communications or IT equipment repairs that cannot be handled by the crew
- ◆ Coordinating occasional crew changes (via Nanaimo Airport)
- ◆ Generally providing any local trouble-shooting services and errands required, including assisting with medical emergencies or other personal needs of crew members.

Ship Repair, Welding and Machine Shops

Port Alberni is fortunate to have its own small shipyard, which can provide a full range of ship repair services, including welding and machine shop services. This company, Canadian Alberni Engineering, was recently purchased by Canadian Maritime Engineering, which has enhanced its capabilities. The shipyard has a 40,000 sq. ft. building and employs 40 staff including machinists, welders, fabricators, shipwrights, a propeller technician, sandblasters and painters, purchasers and others. It is a full-fledged shipbuilding and ship repair service and the shipyard has built numerous tugs and fishing vessels over the years, as well as some barges and cargo vessels. On-site facilities and services include the following:



- ◆ Fabrication building with railway haul-out system
- ◆ Machine shop
- ◆ Industrial fabrication capabilities, including welding and high-speed plasma cutting
- ◆ Mechanical/hydraulic section
- ◆ Specialized engineering services/products, including towing winches, nozzles and anchors, as well as custom-made equipment.

The company also provides services to the pulp mill, such as machinists and welders when needed, as well as doing a lot of work on cranes and repairs to cargo ships that come into the port. The shipyard is also acquiring a 300-ton floating drydock (350' long and 200' wide) to enhance its overall capabilities.

In addition to the metal fabrication, machine shop and engine repair services provided by Canadian Alberni Engineering, there are several other machine shops, diesel mechanics, and welding shops in Port Alberni that could provide further capabilities related to ship servicing and repairs, particularly for the fleet of tugs and barges that will be required for the PATH project.

Trucking Companies

For the PATH project it is anticipated that in Phase I approximately 200,000 TEUs annually would be destined to locations on Vancouver Island, and the movement of these containers would be handled by trucks. This would provide a major

opportunity for existing trucking companies and new companies, as this would entail the movement of more than 100,000 containers annually.

As a result of requirements associated with the pulp and paper mill and other businesses in Port Alberni, there are already a number of local trucking firms based in the city. One such operator, Haggard Trucking, has a fleet of 19 trucks that it operates, primarily focused on hauling pulp and forest products. Clearly it would be possible for local companies such as this to expand their fleet to do container hauling from the new PATH terminal to major warehousing facilities in various locations on Vancouver Island, particularly in the Greater Victoria area. There will also be significant local trucking requirements associated with PATH.

Fuelling Services

From our interview process it is clear that the ultra-large container ships (ULCSs) are not likely to refuel at Port Alberni. However, there will be major fuelling requirements for the fleet of tugs moving the barges between PATH and their ultimate destinations, as well as availability of diesel fuel for truck refuelling, and gasoline/diesel fuel for vehicles and equipment that operate at the terminal.

A major commercial/industrial fuel services company located on Vancouver Island and based in the Nanaimo area, Enex Fuels, has the capability to provide these services, and is already distributing fuel in Port Alberni at a commercial card-lock facility. Enex has 15 trucks distributing fuel around Vancouver Island and is now running the refuelling facility for Nanaimo Airport. They also provide fuel and lubricants to ships, including Royal Canadian Navy ships at Esquimalt, so are well-qualified to meet the needs of the shipping and trucking industries.

Waste Management and Environmental Services

During the course of our interviews with industry representatives in Prince Rupert and the Greater Vancouver area, it became clear that the ULCS ships are unlikely to require on-going waste management and environmental services, except in the event of emergency situations. However, there will be waste management and environmental services associated with the fleet of tugs involved in doing all of the barge hauling between PATH and the destination terminals, as well as for the extensive on-site equipment at the container terminal itself, including the various cranes, forklifts and other vehicles and equipment used on-site.

This capability exists locally through a company called Hetherington Industries Ltd., which provides a range of waste management and environmental services including waste oil and solvents recovery and disposal. It is already servicing the Port and various businesses associated with the Port. Another company, Burrard Clean, provides local minor oil spill clean-up capabilities at Port Alberni.

Government Services

Certain services provided by the federal government and its agencies will be affected by the development of PATH terminal. These include the following:

- ◆ Canada Border Services Agency – for clearing the ships and their crews, and for monitoring and inspecting containers on-site and off-site.
- ◆ Pacific Pilotage Authority – this is an agency of the Federal Government, responsible for supplying pilots to the container ships to guide their arrival and departure.
- ◆ Canadian Coast Guard – with the dramatically increased ship and tug and barge activity, there may be a need for incremental services from the Coast Guard and its nearby marine communications centre in Tofino.

Other Relevant Services

There are a number of other services that the PATH development would likely require to some extent and are currently available in Port Alberni including the following:

- ◆ **Ship electronic navigation and communication systems servicing and repair.** This is a specialized component of the IT industry and there is a local firm, VI Radar, with sophisticated capabilities that has been called upon to repair such equipment on various ships calling at Port Alberni. This firm is certified with Furuno Electric Company Limited, which is an international manufacturer and distributor of highly sophisticated electronic navigational, radar, communications and other electronic equipment used aboard ships.
- ◆ **Marine and cargo surveyors.** Marine surveyors are required to inspect ships that have incurred damage, as well as the subsequent repairs, and there are a few marine surveyors based in the Port Alberni area. Cargo surveyors are called upon to inspect actual cargos, which in relation to containers will typically occur where they are stuffed.
- ◆ **Information and communications technology (ICT) servicing.** The new PATH development would be highly computerized and automated. While a lot of the IT support would likely be provided in-house, it is usually not possible to have all the expertise required to solve difficult problems, so outsourcing of some IT maintenance and repair services is likely to be the case. Currently there are several firms providing IT services, particularly in relation to computer software and hardware.
- ◆ **Security services.** It is possible that these may be provided in-house by PATH, although another option would be to contract this out to security firms

and there are currently three firms providing relevant security services in the Port Alberni area.

In Figure 2.4 we have provided a list of the principal Port Alberni based companies in each of these sectors that have relevant capabilities. Some of the companies, such as VI Radar, have provided services to the Port and ships it handles.

Figure 2.4: Other Servicing Businesses Relevant to the Port and Shipping

Category	Companies and Organizations in Port Alberni Area
Ship Electronic Navigation and Communication Systems Servicing and Repair	<ul style="list-style-type: none"> • V.I. Radar Inc. (marine electronics)
Marine and Cargo Surveyors	<ul style="list-style-type: none"> • Blue Wave Marine Surveyors • Don Kimura, Marine Surveyor
Information and Communications Technology (ICT) Servicing	<ul style="list-style-type: none"> • Alberni Communications & Electronics Ltd. • Alberni Multimedia • Alberni Technology Solutions Inc. • OnGeek Computer Services
Security Services	<ul style="list-style-type: none"> • Alberni Technology Solutions Inc. (electronic) • Falcon Eye Systems (electronic) • Quay Security (foot patrol)

Source: Interviews, online research and information supplied by Port Alberni Port Authority and City of Port Alberni Economic Development

In the preceding we have focused on companies that serve commercial and industrial clients (not just consumers) and have relevant capabilities in terms of the PATH project.

2.3 PORT ALBERNI'S OVERALL ECONOMIC BASE

The mainstay of the economy of Port Alberni for several decades has been forestry, commercial fishing and tourism. The key economic driver for the local economy is still focused on forestry related processing and manufacturing activities, including wood products, lumber and pulp and paper. The Port itself is primarily dependant on the forestry industry, as indicated earlier in Figure 2.2.

Currently Port Alberni's largest employers are:

- ◆ Vancouver island Health Authority (West Coast General Hospital is a 52-bed acute care facility located in Port Alberni)
- ◆ Western Forest Products
- ◆ School District 70

- ◆ Catalyst Paper
- ◆ Walmart
- ◆ Coulsen Group
- ◆ City of Port Alberni (Municipality).

This shows the importance of the forest products sector as well as public and private sector services.

In Figure 2.5 we have shown a breakdown of the experienced labour force by industry. This again shows the importance of the forest products sector, as well as retail trade, health care, tourism (accommodation and food services), and other public sector services such as education and public administration.

Figure 2.5: Port Alberni Experienced Labour Force by Industry

Industry	2006	% of Total
11 Primary Industry	650	7.9
111-112 Farms	120	1.5
113 Forestry and logging	370	4.5
114 Fishing, hunting and trapping	100	1.2
1151/2 Support activities for farms	-	-
1153 Support activities for forestry	60	0.7
21 Mining and oil and gas extraction	25	0.3
22 Utilities	25	0.3
23 Construction	545	6.7
31-33 Manufacturing	1,245	15.2
311 Food manufacturing	230	2.8
321 Wood product manufacturing	485	5.9
322 Paper manufacturing	340	4.2
41 Wholesale trade	110	1.3
44-45 Retail trade	1,065	13.0
48-49 Transportation & warehousing	255	3.1
51 Information and cultural industries	80	1.0
52 Finance and insurance	160	2.0
53 Real estate & rental/leasing	90	1.1
54 Professional, scientific & tech. serv.	225	2.8
55 Management of companies/enterprises	10	0.1
56 Admin + support, waste management services	300	3.7
61 Educational services	485	5.9
62 Health care and social assistance	865	10.6

Industry	2006	% of Total
71 Arts, entertainment and recreation	225	2.8
72 Accommodation and food services	745	9.1
81 Other services (excl. public admin.)	405	5.0
91 Public administration	500	6.1
All industries (Experienced LF)	8,025	98.2
Industry - Not applicable	150	1.8
Total labour force	8,175	100.0

Source: BC Stats

The Port Alberni economy has typically struggled in recent years as a result of significant downsizing in the forestry sector, so the PATH development would be a major economic boost to the region and represent an initiative that would generate a significant number of incremental jobs and contribute to the longer-term diversification and stability of the region's economy.

An economic impact study conducted for the Port Alberni Port Authority in 2012 indicated that the ongoing operations at the Port support a total of 870 full-time equivalent jobs in the Alberni Valley Region.¹ This includes industries that are dependent upon the Port for shipping their products, such as the pulp mill, along with other port-dependent or port-supported businesses and activities such as terminal operations, stevedoring operations, fishing and seafood processing, tug and barge operations, shipbuilding and repair services, and trucking. Clearly if the PATH project is developed the economic impact of the Port on the region's economy will be much more significant.

¹ Port Alberni Port Authority:2012 Economic Impact Study Final Report, November 2012

3 – CONTAINER TERMINAL SERVICING REQUIREMENTS AND RELATED SUPPORT BUSINESSES

As part of the overall PATH Feasibility Study two other consulting firms are undertaking comprehensive analysis related to the facilities development and operations of the PATH Terminal.

- ◆ *Port Alberni Trans-Shipment Hub Feasibility Study: Planning Criteria* – prepared by Hatch Mott MacDonald, which provides details regarding the terminal development and facilities, as well as analysis of proposed sites.
- ◆ *Examination of Strategic & Business Requirements, Traffic Forecasts, Potential Logistics Cost Advantages, Economic Impacts and Other Benefits* – prepared by CPCS and outlining the overall operational concepts and scenarios for the PATH project, including frequency of ship visits, sizes of container ships anticipated, and logistics and operational details regarding the barging of containers to various destinations in the Pacific Northwest, as well as overall economic impacts.

With a clear idea of the scale and scope of the proposed development and its operational parameters, it is possible for us to project the container terminal servicing requirements and related support businesses that will be needed in the Port Alberni area for this to be a successful operation. These requirements have been determined by examining the supply and servicing businesses and services associated with the inter-modal container terminal in Prince Rupert and the container terminals located in the Greater Vancouver area.

3.1 PATH OPERATIONAL CHARACTERISTICS

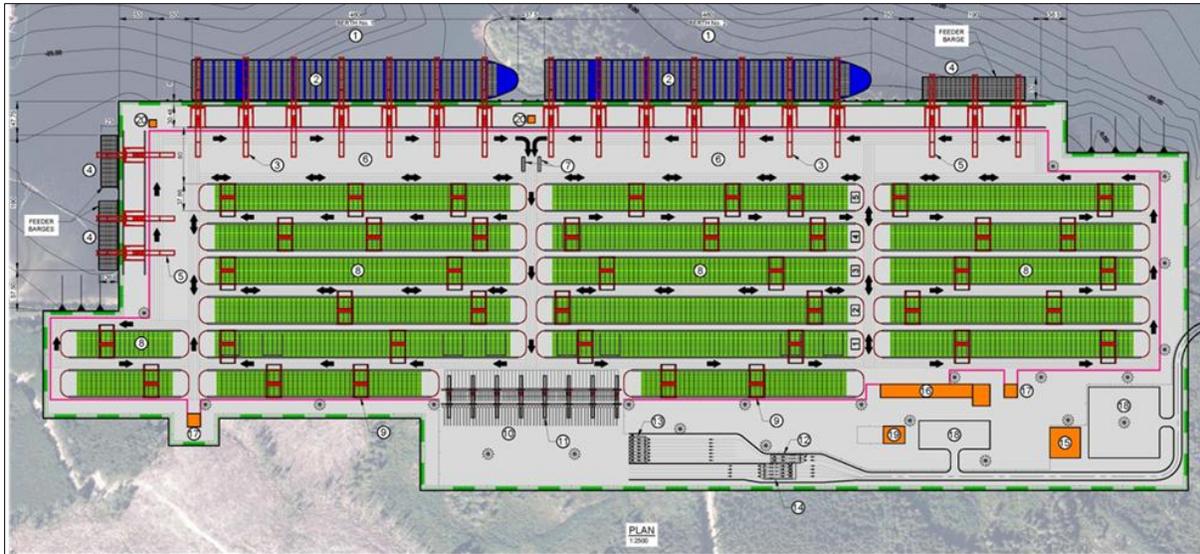
The new terminal facility will be state-of-the-art, fully automated, and designed to accommodate ultra large container ships (ULCSs) with capacities of more than 10,000 TEUs, including vessels as large as 22,000 TEUs. The majority of the containers offloaded at the terminal will be loaded onto barges destined for several locations in the Pacific Northwest including the Greater Vancouver Area and possibly Seattle and Tacoma, among others.

Container Trans-shipment Terminal Concept Plan and Facilities

An overall preliminary site plan for the PATH container terminal concept has been prepared by the engineering firm, Hatch Mott MacDonald, and one option is shown in Figure 3.1. This shows the initial phase of development which would be a two-berth facility each with seven ship-to-shore gantry cranes designed

to achieve approximately 40 moves per hour. Three barge loading/unloading berths are also shown in this particular site plan option for the preferred site, Sarita Bay South.

Figure 3.1: Preliminary Site Plan for PATH Container Terminal



Source: Preliminary site plan developed by Hatch Mott MacDonald

Automatic shuttle carriers and/or automated guided vehicles will transport the containers between the ship-to-shore gantry cranes and the container storage yard, where they will be sorted according to destinations. The same automated shuttle carriers and/or automated guided vehicles could be used to facilitate loading the barges, as well as gantry cranes positioned at each of the barge berths.

The overall specifications for the smallest and largest container ships the berths would be designed to accommodate are shown in Figure 3.2.

Figure 3.2: Size Specifications for Container Ships Berthing at PATH Terminal

Size Dimension (metres)	10,000 TEU Ship	22,000 TEU Ship
Max. Vessel LOA	350.1	460.0
Max. Vessel Beam	48.2	60.0
Max. Vessel Loaded Draft	15	16.0
Max. Vessel DWT	124,479	210,000
Required Water Depth	17.6	18.7

Source: Planning Criteria document prepared by Hatch Mott MacDonald

This indicates that the container vessels could be in the range of 350-460 metres long with vessel beams of 48-60 metres and a vessel draught of 15-16 metres. Ship deadweight tonnage would range from approximately 124,500 to 210,000 DWT.

Each of the two berths would have 7 or 8 gantry cranes, which would be double trolley and have 85-ton capacities. For the barge feeder loading berths there would be 2 to 4 gantry cranes per berth, which would also be double trolley with a 65-ton capacity. This is a substantial amount of heavy equipment, but the economics of the PATH project are dependent upon large-scale speedy loading and unloading of containers for the overseas container ships, as well as the feeder barges.

The engineers at Hatch Mott MacDonald have also been examining alternative sites for this large-scale container terminal development, which will be well out toward the mouth of the Alberni Inlet, perhaps as far as Sarita Bay. The closest road access to the site is the road to Bamfield, which would no doubt have to be substantially upgraded and paved in order to accommodate significant truck traffic and other vehicular traffic associated with the terminal.

Container Terminal Operations

It is anticipated that one or two ULCSs would call at the terminal each week. Based on overall gantry crane productivity of 6,000 TEUs for a 24-hour period, it would take three days to unload a ULCS with the capacity of 18,000 containers. It would take a similar amount of time to reload with a full load of 18,000 TEUs. This 6-day dwell time means that one or two ships will be docked at the terminal most of the time, resulting in continuous loading and unloading of ships and barges on a 24/7 basis.

Container storage yard operations will be handled by automated RMG or ASC cranes aligned either perpendicular or parallel to the ship berths. It is anticipated that individual containers will have an average dwell time in the container yard of 3 to 6 days, depending on whether they are for import or export trans-shipment, or for local import or export.

Container Trans-shipment by Barge

In the analysis by CPCS it was concluded that barge transport would result in the most economical operating costs and have the most flexibility to service the multiple destination coastal terminals. The size specifications of the barges likely to be used are shown in Figure 3.3.

Figure 3.3: Size Specifications for Feeder Barges

Size Dimension (metres)	600 TEU Barge	1,200 TEU Barge
Max. Vessel LOA	97.0	145.0
Max. Vessel Beam	26.0	32.0
Max. Vessel Loaded Draft	6.0	7.0
Required Water Depth	7.2	8.4

Source: Planning Criteria document prepared by Hatch Mott MacDonald

The largest barges to be used, handling approximately 1,200 TEUs, would be 145 m long, have a maximum beam of 32 m and maximum loaded draught of 7 metres. These are very large barges which would require at least 5,000 horsepower tugs to fully control them and move at a reasonable speed. Other characteristics of the barge fleet include:

- ◆ Likely a standardized design, in order to facilitate automated loading and unloading.
- ◆ Possibly a few different sizes, recognizing that the volume of containers being unloaded at some terminals may be much higher or lower than at others.
- ◆ The estimated fleet size would be 40 barges, in order to be able to move containers from a fully loaded ship in a single wave to the various destination terminals.
- ◆ Only half as many tugs would be required, assuming one tug per barge, as on each trip a tug would leave the in-bound barge to be unloaded and pick-up the out-bound barge which has already been loaded.

There are a number of different possibilities regarding ownership and operations of the tugs and barges, but what is essential for the PATH concept to work cost effectively is that tug and barge capabilities are fairly standardized to ensure consistent service. Clearly the tug and barge feeder service would be a major business opportunity for one or several enterprises.

Container Distribution on Vancouver Island

The PATH terminal would also receive an estimated 200,000 TEUs per year of containers destined for locations on Vancouver Island. The terminal would be designed so that this regional distribution function could be expanded to as many as 500,000 TEUs per year in the future. Therefore, the terminal would be designed with a series of truck gates. The truck gate system would be automated as much as possible and enable in-gate processing, including

assignments, inspection and replacement in a period of only two to three minutes and out-gate processing of less than 90 seconds.

Based on a TEU to container ratio of 1.75, this means approximately 114,300 truckloads annually would move to and from the terminal, or an average of 313 truckloads per day, each way. This is why significant road upgrading would be required between the site of the container terminal and Highway 19.

3.2 PRIMARY SHIPPING AND CONTAINERS SERVICE BUSINESS REQUIREMENTS

These are the really essential ancillary businesses that will be required for this large-scale container trans-shipment terminal to be viable. These include the following:

- ◆ Tug and barge companies
- ◆ Ships agents, freight forwarders and customs brokers
- ◆ Ship repair, welding and machine shops
- ◆ Container examination facility (must meet Canadian Border Services Agency specifications)
- ◆ Off-site container stuffing, servicing and storage
- ◆ Trucking companies
- ◆ Fuelling services
- ◆ Environmental and waste management services.

The principal characteristics of each of these businesses are described in the sections that follow.

Tug and Barge Companies

As noted above, the barge feeder service would consist of approximately 40 barges and 20 tugs, and assumes an average barge capacity of 900 TEUs, in order to be able to unload an 18,000 TEU container ship in one wave.

Additional tug requirements are associated with the container ships themselves, which would require two to four tugs per ship when berthing and departing. There are a variety of possible ownership and operational scenarios for the tugs and barges. There is likely merit in not being dependent upon only one operator, so one business model would see the terminal tender out the tug and barge operations to a number of qualified operators who would be required to use barges of standardized specifications that would facilitate the automated loading and unloading at the PATH terminal.

An alternative possible scenario might have the terminal actually owning all the barges and contracting with tug companies that have sufficiently powerful and sophisticated tugs to meet the ongoing turn-around requirements of the barge feeder services.

Characteristics of the tug and barge businesses that would be needed to service the PATH terminal are summarized in Figure 3.4.

Figure 3.4: PATH Requirements for Tug and Barge Businesses

Aspect of Business	Specific Requirements
Principal Services re Container Shipping	<ul style="list-style-type: none"> Operating the feeder barge routes between PATH and destination terminals
Site and Locational Attributes	<ul style="list-style-type: none"> Berthing for tugs at container terminal Access to fuelling facilities Access to emergency repair/maintenance services
Buildings and Structures	<ul style="list-style-type: none"> Small onsite office space for management/admin. staff Maintenance and storage building(s) and yard
Staffing	<ul style="list-style-type: none"> Except for a few companies like Seaspan and SMIT most existing tug and barge operations are fairly small 6 crew will be required onboard 5,000 hp tugs Based upon a typical work duty cycle (e.g. – 2 weeks on, 2 weeks off), this means 12 full-time crew positions per tug
Employee Education and Skill Levels	<ul style="list-style-type: none"> Appropriate Marine certificates for crews At least some post-secondary education/training required, plus significant on-the-job training Office staff with strong computer skills
Technology	<ul style="list-style-type: none"> Sophisticated marine and other communications High tech navigation equipment Telecommunications/high speed Internet Computers, office equipment
Vessels, Machinery , Equipment	<ul style="list-style-type: none"> Tugboats Barges Maintenance/servicing equipment
Outsourced Services	<ul style="list-style-type: none"> Purchase of fuel Some tug and barge repairs, overhauls and refits

Source: Interviews, research and analysis by Economic Growth Solutions Inc.

This shows that the fleet of 5,000 horse-powered tugs would require 6-person crews. Based on a two weeks on / two weeks off crew duty cycle, 12 full-time crew members per tug will be required, which results in 240 full-time jobs for tug

boat captains and crew members, just for the feeder barge distribution component of the PATH concept.

Allowing for occasional illness and other forms of paid absenteeism, means this figure would be slightly higher, in the range of 250 full-time jobs. It is conceivable that a significant proportion of these jobs could be based in the Port Alberni area, although clearly many could be based at the destination terminal locations. Because the tug and barge fleet is covering a portion of sailing routes that would have been handled by foreign container ships, this represents a transfer of employment impact from foreign countries to Canada and to BC in particular.

Ships Agents, Freight Forwarders and Customs Brokers

These three functions are frequently handled by a single company. The ships agents are focused on coordinating all services for ships and their cargo while in port, while the freight forwarders and customs brokers are focused on the documentation associated with the actual cargo. As discussed earlier, the role of the ships agent includes the following functions:

- ◆ Serving as the on-the-ground coordinator of all services provided to the ships while in port
- ◆ Coordinating all of the paperwork and logistical processes associated with the container cargo itself
- ◆ Arranging for all other services required by the ships including:
 - Ship chandler services (food stuff, supplies, etc.)
 - Ship repairs
 - Onboard equipment repairs
 - Facilitating individual needs of captain and crew
 - Assisting with medical emergencies
 - Waste management.

The ships agent serves as the single point of contact for the container ship line, coordinating everything necessary for catering to on-ship requirements and coordination of the supply chain flow of the containers. The principal ships agents that have been handling ships travelling into Port Alberni are based in the Greater Vancouver Area or Victoria, and several are listed in Figure 3.5. As noted earlier, some of these sub-contract the local representation to Port Alberni's own ships agent, Port Alberni Shipping Company Ltd.

Figure 3.5: Examples of Ship's Agents Based in Greater Vancouver Area or Victoria

Company	Vancouver/Victoria Area Location	Other Locations
ACGI Port Agents	• Downtown Vancouver (Head Office)	• Seattle, Portland, San Francisco, Long Beach, Singapore
Colley West Shipping Ltd.	• Downtown Vancouver	• none
Compass Marine Services (CLT Westrans – Shipbrokers)	• Downtown Vancouver	• Seattle (CLT Westrans – Shipbrokers)
Courtney Agencies Ltd.	• Downtown Vancouver	• none
Empire Shipping Agency, Ltd.	• Downtown Vancouver	• Affiliated with General Steamship Lines in U.S.
King Bros. Limited (Ship's Agents / Customs Brokers)	• Victoria	• none
Navitrans Shipping Agencies West Inc.	• Port Moody	• none
Norton Lilly	• Downtown Vancouver	• Part of international group based in U.S. (Alabama)
Pacific North West Ship & Cargo Services	• North Vancouver	• Vancouver, WA
Pangea Logistics Inc.	• Downtown Vancouver	• none
Westward Shipping Ltd.	• Richmond (Head Office)	• Toronto, Montreal

Source: Interviews and online research

The larger companies have several divisions catering to ships and the marine sector, so the ships agency service is just one component of their business. Some international shipping lines have a ships agency division.

Most of the larger agencies have their own freight forwarding and customs broker services in-house. The roles of freight forwarder and customs broker businesses are as follows:

- ◆ Serving as the interface between the shipper (the end receiver of the containers) and the container shipping line.
- ◆ Coordination of all the paperwork and logistical coordination of containers, including trans-shipment via different modes.
- ◆ In the customs brokering role the focus is on fulfilling the paperwork requirements of CBSA. All of this has been streamlined in recent years and is dealt with electronically online.

The PATH project will result in a significant increase (probably doubling) in the number of cargo vessels berthing in the Port Alberni area. This will clearly increase the requirement for locally based ships agents as they typically board the vessel daily and handle multiple errands for captain and crew every day a

ship is in port. In order to handle this on-site requirement and the related coordination services, we anticipate that 3-5 full-time jobs will be created, at least 2-3 of which would need to be based in the Port Alberni area to adequately service the ships.

Ship Repair, Welding and Machine Shops

The large new container ships berthing at the PATH terminal are not likely to require significant ship repair services, at least in the early years of their ships' operations. Typically these ships are well-maintained and have scheduled maintenance services in their home ports in Asia, where ship repair service operating costs are much lower. However, some minor and major emergency repairs may occur on occasion, so having the service available locally is an important asset. Possible emergency repairs could include such things as:

- ◆ Repairs to equipment onboard
- ◆ Deck and minor structural repairs
- ◆ Mechanical and electronic equipment repairs, where this cannot be handled by on-board crew.

The tug and barge fleet required by PATH would be another source of business for ship repair services, welding and machine shops.

- ◆ As the fleet will be locally based, mainly or totally within British Columbia, undertaking regular maintenance and repair services for this fleet will be ongoing and could occur in both Port Alberni and the destination terminal locations.
- ◆ This will likely involve additional work for Port Alberni area suppliers of these services, which may be able to sustain lower operating costs than similar services in the Lower Mainland where it can be more expensive to operate this type of business (e.g. higher land costs, wage rates).

While it is difficult to anticipate precise requirements, and it is recognized that the tug and barge companies themselves can perform much of the day-to-day servicing and maintenance, major overhauls and inspections are required on a regular basis which will yield significant work.

Container Examination Facility

Development of a Container Examination Facility (CEF) in the Port Alberni area will be an essential requirement of the PATH project. This exact situation occurred in Prince Rupert when it first developed its container terminal in 2007. The Canada Border Services Agency (CBSA) requires a secured and bonded

Container Examination Facility that meets their specifications. In Prince Rupert this facility was developed by the private sector and is operated by Quickload CEF Inc., which not only operates the CEF, but provides other container and freight-related logistical services under the operating name Quickload Logistics. A photograph of the Quickload warehouse facility on Ridley Island, which includes the CEF, is shown in Figure 3.6.

Figure 3.6: Quickload CEF Warehouse in Prince Rupert



Source: Quickload CEF Inc.

The principal components and features of the Quickload Container Examination Facility include the following:

- ◆ 35,000 sq .ft. combined Customs related facility and dock door warehouse
- ◆ Adjacent yard area
- ◆ A total site area in excess of 10 acres
- ◆ Equipment includes medium and heavy lift forklifts, yard tractors and chassis required to handle all types of container movements
- ◆ On-site offices for CBSA.

The purpose of the Container Examination Facility is to have a secure off-site location where CBSA officials can open and inspect the contents of individual containers. In the range of 1-2% of all containers arriving at container terminals in Canada are inspected, so this is a significant ongoing process. While containers are x-rayed at the container terminal, there are a number of reasons for inspecting specific containers including: information about specific shipments obtained from the RCMP, CISIS or other government agencies; inadequacies related to documentation of specific shipments; and an ongoing process of random checking of containers. The CBSA agents simply do the actual checking. Therefore, the following services must be paid for by the shipping line and provided by the CEF, its workers and any contracted services required, such as trucking. This includes the following:

- ◆ Trucking of containers between the container terminal and the CEF

- ◆ Presenting containers at loading docks to CBSA officials for opening and inspection
- ◆ Opening and doing any unloading and reloading of containers in the presence of CBSA officials.

In Figure 3.7 we have outlined the principal characteristics of the Container Examination Facility that would need to be developed in the Port Alberni area to fulfil this function.

Figure 3.7: PATH Requirements for a Container Examination Facility (CEF)

Aspect of Business	Specific Requirements
Principal Services re Container Shipping	<ul style="list-style-type: none"> • Inspection of selected containers (likely 1-2%) by CBSA at secure CEF • Trucking of containers between PATH terminal and CEF and handling of containers in CEF • Storage of containers at CEF, as needed
Site and Locational Attributes	<ul style="list-style-type: none"> • 10-20-acre yard • Need off-dock container storage capability • Close proximity to PATH is essential
Buildings and Structures	<ul style="list-style-type: none"> • 30,000+ sq ft. warehouse (includes offices) • Perimeter security • Offices for CBSA on premises
Staffing	<ul style="list-style-type: none"> • 30-40 employees total (excl. CBSA officials) • 10-15 employees/shift
Employee Education and Skill Levels	<ul style="list-style-type: none"> • Small management/administrative staff (5-6) • Workers with equipment operator certificates • Minimum high school education, on-the-job training
Technology	<ul style="list-style-type: none"> • Sophisticated security, surveillance and alarm systems • Radio communications • Telecommunications/high speed Internet • Computers, office equipment
Machinery , Equipment & Vehicles	<ul style="list-style-type: none"> • Forklifts • Yard cranes/trucks for moving containers
Outsourced Services	<ul style="list-style-type: none"> • Local trucking • Fumigation if required • Refrigeration services

Source: Interviews, research and analysis

Offsite Container Stuffing, Servicing and Storage

While much of the container stuffing, servicing and storage is likely to occur in proximity to the destination terminals of the feeder barges to PATH, this type of service will be a requirement on Vancouver Island to service the component of the container traffic (200,000 TEUs annually in Phase1 of PATH) destined for locations on Vancouver Island. Clearly there are existing warehouses and logistics centres on-island that would handle components of this, but with a volume of 200,000 TEUs annually passing through the Port Alberni area, having this type of facility locally would clearly be an asset.

As with Prince Rupert, it may be possible to combine this with the Container Examination Facility in some manner, either on the same site, or with an ancillary site as has occurred in Prince Rupert. Services that could be provided by this business include the following:

- ◆ Container stuffing for outbound cargo:
 - Cargo receiving facilities (truck and possibly barge)
 - Warehouse for container storage plus outdoor yard space for outdoor storage and container sorting
 - Blocking and bracing services
 - Load planning and cargo surveyor capabilities
 - Structured reporting on inventory management and throughput
 - Dray services (local transport of goods and containers).
- ◆ Trans-loading of inbound cargo:
 - Drayage (local trucking) services from ship or barge to warehouse
 - Palletizing, shrink wrapping, and re-packaging services, where needed
 - Trans-loading cargo from a container to domestic trailer, where required
 - Arranging forward shipment of goods through trucking partners.
- ◆ Warehousing and secured storage:
 - Receiving and unloading cargo at dock doors, yard or directly to warehouse floor
 - Moving containers within warehouse and yard
 - Providing security and climate control, as needed.
- ◆ Container cleaning and repair:
 - Provided on an as needed basis
 - Putting in liners/tote bags to handle break bulk products in containers.

Most of these are the types of services that are being provided in Prince Rupert by Quickload Logistics and in the Lower Mainland by a number of operators including a company called Coast 2000. This is a fairly large-scale operation and exterior and interior photos of Coast 2000’s facilities are shown in Figure 3.8.

Figure 3.8: Coast 2000’s Warehouse and Distribution Centre in Lower Mainland



Source: Coast 2000

In Figure 3.9 we have listed the facilities offered by Coast 2000, which handles containers as well as other cargo (mainly pulp and paper). This facility also has the capability to receive barges and may be a good example of a destination terminal that could be tied-in with the PATH project.

Figure 3.9: Details of Coast 2000’s Facilities

Category	Facilities
Warehouse	<ul style="list-style-type: none"> • Rail and truck serviced • 260,000 square foot warehouse with 28 foot clearance • Covered bays for both railcar and container unloading/loading • 56 loading doors • 3 acres designated for lumber storage and container stuffing • 1 covered barge ramp • Specialized equipment to handle cargo and containers with care and efficiency • Rail to container cross-dock • Contract trucking service

Category	Facilities
	<ul style="list-style-type: none"> • EDI capability with forest products mills, railways, and container ocean carriers
Container Yard	<ul style="list-style-type: none"> • 30 acre paved container yard for loaded and empty container storage • Storage capacity in excess of 20,000 TEU's • 9 lane truck access • 36 wash bays • Certified container repair shop • 60 reefer points, expandable to 100
Rail Yard	<ul style="list-style-type: none"> • 5,300 feet of rail trackage • CN-serviced with to CP Rail and connections to U.S. rail lines. • 5 spur lines and 1 pull-back for switching

Source: Coast 2000

It is likely that implementation of the PATH project would result in the need for expanded facilities at operations like Coast 2000, as well as some newly developed facilities.

Trucking Companies

The PATH container terminal will require three types of trucking services:

- ◆ Trucking of selected containers to and from the designated CBSA Container Examination Facility
- ◆ Local trucking or drayage between PATH and the local container stuffing, storage and distribution facility established in the Port Alberni area
- ◆ Trucking of containers from the terminal to various warehouses and customer locations throughout Vancouver Island.

These requirements will be significant, as shown in Figure 3.10 for Phase 1 of PATH based on 1,000,000 TEUs per year coming into the new terminal and 200,000 TEUs per year for local distribution on Vancouver Island.

Figure 3.10: Anticipated Trucking Requirements Associated with PATH

Trucking Service	Estimated No. of Trips Each Way	Total No. of Truck-Trips	Average No. of Trips/Day	No. of Drivers Required
Between PATH and CEF (assume 1.5% of containers)	8,600	17,200	47	8-10
Between PATH and Local Container Distribution and Stuffing Centre (20% of 200,000 TEUs)	22,800	45,600	125	20-30

Trucking Service	Estimated No. of Trips Each Way	Total No. of Truck-Trips	Average No. of Trips/Day	No. of Drivers Required
Between PATH and Other Vancouver Island Warehouses and Distribution Centres (80% of 200,000 TEUs)	91,400	182,800	501	380-400
Total	122,800	245,200	n/a	408-440

Source: Analysis by Economic Growth Solutions Inc.

As shown, these trucking requirements are significant:

- ◆ If 1.5% of all containers coming into the terminal are inspected at the CEF, this would result in the range of 8,600 containers being inspected each year or approximately 24 per day, allowing for some statutory holidays.
 - As an annual requirement, there would be approximately 8,600 trips each way between the container terminal and the CEF for a total of 17,200 truck trips.
 - The length of these trips will depend upon where the facility is located, but if within a 15 to 20 minute drive this could perhaps be handled by 3 trucks doing constant shuttles 24/7.
 - This would translate into at least 3 jobs per truck just to provide this service on a constant basis.
- ◆ For trucking between the terminal and container stuffing/distribution facility, it is assumed that it would be located near the PATH terminal (e.g. 15-20 minute drive) and be the recipient of perhaps 20% of containers destined for locations on Vancouver Island, with the remaining 80% going to other existing and/or newly developed warehouses and distribution facilities in and around the major urban centres.
 - If 20% of the Vancouver Island bound containers are transported to this facility, this represents 40,000 TEUs or approximately 22,800 containers.
 - This means a total of 45,600 truck movements between the stuffing/warehouse facility and the PATH terminal.
- ◆ The number of truck-trips for distribution throughout the rest of Vancouver Island, assuming 80% of the Island-bound containers move in this manner, would result in trucking 160,000 TEUs or 91,400 containers to and from these locations for a total of approximately 182,800 truck-trips.
 - It is conceivable that it could result in even more trips for the truck tractor in that it may not always be possible to bring back an empty container or fully off-load the container, which may simply be left at the warehouse in some cases.
 - For trucking between Port Alberni and the Victoria area it should be possible for truckers to undertake 2 roundtrips per day, but for locations

farther afield on the island, a trucker may only be able to handle one roundtrip per day.

Clearly this extensive amount of trucking provides great opportunities for expansion for local Port Alberni trucking companies, as well as a significant base of operations for one or more new companies to be established in the area. The overall employment impact will be very significant at more than 400 drivers, as shown in Figure 3.10 (plus associated management/administration and dispatch staff).

Fuelling Services

Interviews undertaken in connection with this study indicate that the container ships coming from Asia typically do not take on fuel and can carry plenty for their roundtrips from Asia where the cost of fuel is usually lower. However, a refuelling requirement could still occur from time to time, so it will be essential to have the capability to provide bunker fuel to a container ship when needed. This service can be arranged through local commercial/industrial fuel service companies such as Enex Fuels and would be a matter of barging the bunker fuel to the ship.

The fleet of tugs, however, involved in the extensive feeder barge services associated with PATH, will require refuelling capability at Port Alberni and at their destination terminal locations.

- ◆ There will be a need, therefore, for an on-site diesel refuelling capability for the tugs at the PATH terminal.
- ◆ This type of facility could be developed in conjunction with an existing on-Island company such as Enex, which already provides refuelling services for other major transportation terminals such as the Nanaimo Airport.
- ◆ It may be appropriate to set-up a card-lock system dockside that would be used by the tug services to refuel.

Another aspect of refuelling concerns the truck fleets needed to service PATH, for which a card-lock system could also be made available at or in close proximity to the terminal. Enex Fuels already operates a commercial card-lock system in Port Alberni and several other locations around Vancouver Island including Nanaimo, Victoria, Courtenay and Campbell River. In addition to fuels the company also supplies automotive, industrial, marine and specialty lubricants – these will be required by the PATH terminal itself, the trucking fleet, and tugs fleet. The company currently operates 15 trucks distributing fuel throughout the Island and would clearly need to increase capacity to service PATH.

The overall volume of fuel required on the Island would increase significantly as a result of the PATH project in order to fuel trucks and barges, on-site vehicles and motorized equipment at the terminal, and other diesel and gasoline-powered machinery and vehicles at ancillary facilities such as the CEF and the container stuffing warehouse and other distribution centres. If commercial card-lock facilities are established at or adjacent to the PATH container terminal, it should be possible to barge fuel directly to the storage tanks at these card-lock facilities and for the terminal itself, saving numerous truck-trips across the Island.

Environmental and Waste Management Services

Typically the large container ships making trans-oceanic voyages are quite self-contained when it comes to waste management and only occasional garbage may be offloaded at North American container terminals. These large modern vessels have their own containment systems and can incinerate much of the garbage that is generated onboard, as well as processing sewage. Hazardous waste is most likely disposed of at origin ports in Asia, where this can be done more economically.

However, there will still be a significant requirement for environmental services and waste management associated with the significant fleet of tugs and barges. Any that are based on the Port Alberni end of the feeder barge routes will require these services which will include:

- ◆ Garbage
- ◆ Sewage disposal
- ◆ Used lubricants and other hazardous waste disposal
- ◆ Clean-ups of small fuel/lubricant spills on occasion
- ◆ Garbage disposal.

Some of these services will also be required by the trucking companies that are involved in servicing the PATH terminal, particularly in relation to used lubricants and hazardous waste disposal.

At the PATH terminal itself, there will likely be considerable on-site equipment and vehicles powered by diesel fuel or gasoline that will also generate a certain amount of hazardous type waste such as used lubricants, oil filters, etc.

A local company in Port Alberni, Hetherington Industries Ltd., provides these environmental services including the waste, oil and solvents recovery and other waste management services that will be required. In addition there are

companies based on the Island that can handle environmental clean-ups and provide appropriate supplies if and when needed including:

- ◆ Burrard Clean, which already has clean-up supplies stationed at Port Alberni
- ◆ West Coast Spill Supplies Limited, based in Saanich, Victoria and Vancouver
- ◆ Walco Industries Limited – which provides industrial vacuum tanker service
- ◆ West Coast Spill Supplies, which supplies spill kits, secondary containment, absorbent hazmat and spill response (also based in Saanich).

3.3 PRIMARY GOVERNMENT-PROVIDED SERVICING REQUIREMENTS

These are primarily associated with customs and immigration services provided by the Canada Border Services Agency (CBSA), pilotage by the Pacific Pilotage Authority, and search and rescue and maritime security capabilities that are provided by the Canadian Coast Guard.

Customs and Immigration

The PATH project would clearly generate incremental requirements for the Canada Border Services Agency, which is required to clear cargo and crew for all ships docking at Canadian ports. Similar to other container terminals, CBSA will need to maintain an on-site office at the PATH container terminal for purposes of the following:

- ◆ Clearing crew and cargo when the container ships berth at the terminal
- ◆ Overseeing the x-raying and other forms of checking and monitoring containers being unloaded at the terminal
- ◆ Selecting containers for inspection at the Container Examination Facility
- ◆ Monitoring the local drayage or transport of these containers between the terminal and the CEF
- ◆ Monitoring the arrival and departure of containers at the CEF
- ◆ Monitoring the opening, unloading, reloading and closing of containers at the CEF
- ◆ Inspecting contents of containers at the CEF
- ◆ Customs and Immigration clearance for tugs and barges berthing at the terminal that have originated in the United States (e.g. Seattle, Tacoma).

All of these duties will clearly require additional staff at CBSA, plus additional offices, both at the PATH terminal and the CEF. This will result in additional local

employment opportunities for at least 20-30 CBSA officials in the Port Alberni area.

Pilotage

The ultra-large container ships (ULCSs) would all require pilots to navigate into and out of the PATH container terminal. As these will be extremely large ships, the point at which the pilot would need to board inbound ships may occur further offshore than may be the case for smaller ships. Currently there is a pilot boat boarding station at Cape Beale, located southwest of Port Alberni on Barkley Sound, near the entrance to Trevor Channel.

Along the British Columbia coast in 2012 there were a total of 11,865 coastal assignments by the 98 entrepreneur pilots who have a partnership called Coast Pilots Ltd. Approximately 12% of these assignments or 1,424 were Vancouver Island assignments (primarily Victoria, Nanaimo and Port Alberni).

- ◆ Clearly the number of coastal assignments will increase by more than 100 annually if the PATH terminal is developed, as there would be at least one ship weekly requiring a pilot inbound and outbound.
- ◆ When assignments are more than 8 hours long a second pilot needs to be assigned, although the assignments are more likely to be 3-4 hours for PATH.
- ◆ Our discussions with the Pacific Pilotage Authority indicated that while this would clearly provide additional work for existing pilots, this could easily be handled by the existing roster of pilots. However, it is likely that at least one full-time equivalent pilot job impact could result from the PATH container terminal development.

In addition to increased utilization of existing pilot boats, there may be additional deployment of helicopter services, when this is required for the pilot to board the ship. In most cases there would be incremental fuelling requirements to handle the pilot transfers to and from the ultra-large container ships.

Search and Rescue and Maritime Security

With the increased shipping activity involving ultra-large container ships, as well as extensive tug and barge activity associated with the PATH terminal, there will be an enhanced requirement for search and rescue and maritime security services, which normally fall under the jurisdiction of the Canadian Coast Guard. The Marine Communications and Traffic Services (MCTS) Centre which is responsible for the waters of the Alberni Inlet and adjacent coastlines is MCTS

Tofino. This centre is responsible for much of the west coast of Vancouver Island and has the following staff in place:

- ◆ 1 officer in charge
- ◆ 17 marine communications and traffic services officers
- ◆ 5 electronic technicians
- ◆ 2 administrative support staff.

In addition to requiring more staff time the additional container ship traffic, combined with the large increase in tug and barge traffic, will require incremental Coast Guard related services including the following:

- ◆ Increases in marine communications activities, particularly vessel traffic communications
- ◆ The possible need for additional navigation aids such as radar sites, beacons, buoys in the water
- ◆ Additional officers/office staff connected with MCTS Tofino.

In terms of search and rescue the Canadian Coast Guard jointly staffs three Joint Rescue Coordination Centres (JRCCs) with the Canadian Armed Forces. The JRCC for this region is located in Victoria. The Canadian Coast Guard Auxiliary is also involved in maritime search and rescue activities on a volunteer basis. They make use of privately owned, community owned and vessels loaned by the Canadian Coast Guard for their maritime search and rescue activities. Responsibilities of the Canadian Coast Guard in relation to search and rescue tasks include:

- ◆ Detection of maritime incidents
- ◆ Coordination, control and conduct of search and rescue operations in maritime situations within Canada's jurisdiction, with the assistance of Department of National Defence (DND)
- ◆ Provision of marine resources to help with air SAR operations
- ◆ Coordinates activities with the Canadian Coast Guard Auxiliary.

The PATH project would likely require additional Coast Guard staffing in the region, perhaps as many as 4-6 full-time equivalent positions.

3.4 OTHER SECONDARY SERVICES REQUIREMENTS

Three additional services that may be in demand by the container ships berthing at the PATH terminal include:

- ◆ Marine and cargo surveyors
- ◆ Ships chandler services
- ◆ Refrigeration repair and inspection services for refrigerated containers (“reefers”)
- ◆ Ship electronic navigation and communication systems servicing and repair.

Other secondary requirements for servicing the PATH terminal itself may include the following additional services, although it is possible that major components of these may be handled by in-house staff employed by the terminal operator.

- ◆ Security services
- ◆ Information and communications technology (ICT) servicing
- ◆ Container terminal on-site equipment and vehicles servicing and repair.

These requirements are briefly described in the following paragraphs.

Marine and Cargo Surveyors

Marine and cargo surveyors in relation to the container shipping industry undertake the following types of activities:

- ◆ Vessel condition surveys
- ◆ Vessel damage surveys
- ◆ Surveys of containerized and refrigerated cargoes
- ◆ Shipping container surveys including container damage surveys, container repair inspection, container cleanliness surveys, pre-trip reefer surveys
- ◆ Container stuffing inspections
- ◆ Marine repair inspection surveys.

There are currently a few marine surveyors located in the Port Alberni area, along with others based on Vancouver Island and in the Lower Mainland. The marine and cargo surveyors are able to inspect and certify ships that have not previously visited Canadian waters, where required, as well as doing inspections of selected containers to ensure quality control and the condition of shipments. They are most frequently hired by a shipping line or a cargo underwriter.

Clearly with the significant volume of containers that will be passing through the PATH terminal, there will additional work for marine and cargo surveyors.

Ships Chandler Services

Currently there is no ship chandler service located in Port Alberni, although there are a number in the Lower Mainland that do service the ships that call at Port Alberni. With the increase in cargo vessel traffic that would result from the PATH project, there may be an opportunity to develop a ship chandler service in the Port Alberni area. Examples of full-service ship chandlers in the Vancouver Area include North Star Ship Chandler Inc., Triton Marine Supply and United Maritime Suppliers. Some of these companies provide information on their websites indicating the kinds of products they stock in their warehouses and/or order on short notice to provide to ships as needed.

As a good example, we have summarized this information in Figure 3.11 for North Star Ship Chandler Inc., which provides an indication of the extensive range of technical products and supplies (many specifically ship and marine oriented), technical services, provisions and catering, and bonded stores that are in demand by ships and their crews.

Figure 3.11: Products and Services Supplied by North Star Ship Chandler Inc.

Product/Service Category	Products and Services Supplied
Technical Products and Supplies	<ul style="list-style-type: none"> • American, European and Asian manufactured spare parts • Bearings • Charts, publications and nautical equipment • Chemical, oil protective gloves and clothing • Drills, die, taps and files • Electric motors and supplies • European, American electro material 110/220V 50/60HR Standards • Filter and filter materials • Fire fighting equipment, with Certificates • Flashlights and batteries of all kinds • Galley and Stewart supplies • Hatch cover tape and rubber, foams, heaters, adhesives sealing materials and sounding tapes • Hoses; Fire, Water, High Pressure, and fittings • Imperial and Metric tools, nuts, bolts and screws • Lashing and fastening materials • Marine pyrotechnics • Marine Valves, (Gate, Globe) stainless steel and brass • Medical supplies • Mooring ropes and equipment • Packing, gaskets, "O"-Rings

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Product/Service Category	Products and Services Supplied
	<ul style="list-style-type: none"> • Paint, painting equipment and de-scaling tools • Pipes; high-pressure and hydraulic tubing and fittings • Pressure gauges, feller gauges and engine thermometers • Safety equipment, lifeboat and life raft supplies • SOLAS approved life saving equipment. • SOLAS approved pilot and accommodation ladders • Stationary - European and American standards • Welding equipment, electrodes, cutting tools, chemical and propane accessories • Winter clothing, parkas and winter gloves • Working gloves and overalls
Technical Services	<ul style="list-style-type: none"> • Consolidation and logistics team • Electric motor rewinding and services • Handling of ship's spares in transit • Inspection of fire extinguishers, CO2 Systems and fire fighting equipment • Inspection of lifeboat and lifeboat equipment • Inspection of pilot and accommodation ladders • Life raft re-certification service station • Minor Ship Repairs
Provisions and Catering	<ul style="list-style-type: none"> • All kinds of fish, seafood and caviar; fresh, canned and frozen • Cottage cheese, sour cream • Grade "A" poultry • Highest quality fruits and vegetables; fresh, canned and frozen • Milk/cream, cheeses, yogurt • North American, European, Eastern European, Middle Eastern, Far Eastern and Indian specialty provisions • Prime beef: Canadian and South American (Halal) • Top quality Lamb: Australian, New Zealand or Canadian (Halal)
Bonded Stores	<ul style="list-style-type: none"> • Assorted soft drinks and juices • Canned goods and preserves; jams, condensed milk, etc. • Chocolates, halvah • Cigarettes • Liquor & beer • Spring and sparkling water

Source: North Star Ship Chandler Inc.

It is important that chandlers can cater to foreign crews in terms of foodstuff provisions. Local fresh seafood, meats, fruits and vegetables are frequently in demand by overseas crews. The additional ship traffic that the PATH Container Terminal would generate may help to make a ship chandlery operation viable in

the Port Alberni area, provided that the right price-competitive network of suppliers can be organized.

Refrigeration Repair and Inspection Services for Refrigerated Containers (“Reefers”)

It is estimated that approximately 2% to 3% of all containers are refrigerated containers, normally referred to as “reefers”. The actual percentage can vary substantially by shipping route, depending upon the trade between importing and exporting centres. These refrigerated containers keep their contents in either a refrigerated or frozen state, depending upon the requirements. Prior to loading a reefer, it is essential that it be inspected by certified refrigeration journeymen who can inspect and repair the reefers as needed. This ensures that the environmental control within each reefer is properly set to begin with, so pre-trip inspections are performed on all reefers prior to loading.

- ◆ These pre-trip inspections are normally done off-site, such as in a container-stuffing warehouse.
- ◆ The refrigeration company(s) assigned to these tasks must also stock all of the parts needed for any reefer repairs that are required as everything is time sensitive.
- ◆ Typically supplies are maintained at the container terminal for any inspections and repairs that are done there, as well as at the off-site locations.

In the range of 20% of inspected reefers may need some type of repair, prior to being cleared for transport. In Figure 3.12 we have summarized the requirements for refrigeration service companies catering to the container transport business. These companies typically provide a range of commercial refrigeration services. A local company that may have the capability to provide reefer inspection and repair services is Alberni Valley Refrigeration Ltd.

Figure 3.12: PATH Requirements for Refrigeration Service Companies

Aspect of Business	Specific Requirements
Principal Services re Container Shipping	<ul style="list-style-type: none"> • Conduct pre-trip inspections on reefers • Undertake any needed repairs/adjustments • Potentially 20% of inspected reefers may need repairs
Staffing	<ul style="list-style-type: none"> • Office/admin. staff • Typically 2/3 of staff are refrigeration technicians • Work at refrigeration company site, container stuffing sites, and dockside when container terminal workers

Aspect of Business	Specific Requirements
Site and Locational Attributes	<ul style="list-style-type: none"> Warehouses close to ports Containers with refrigeration repair supplies on-dock
Buildings and Structures	<ul style="list-style-type: none"> 1-3 containers with supplies at all container docks 5,000 square foot warehouse off-dock
Employee Education and Skill Levels	<ul style="list-style-type: none"> Technicians: 4 year journeyman program Office staff are computer literate Manager with container shipping experience
Technology	<ul style="list-style-type: none"> Sophisticated reefer parts: company must be a parts dealer for refrigeration equipment manufacturers Good mobile communications
Machinery , Equipment & Vehicles	<ul style="list-style-type: none"> Large inventory of spare parts so repairs can be handled promptly with no waiting for parts Fleet of service trucks/vehicles for staff transfers between locations Forklifts for warehouse facilities
Outsourced Services	<ul style="list-style-type: none"> Purchase of parts, supplies, equipment

Source: Interviews, research and analysis

Security Services

The PATH Container Terminal may provide its own security via staff positions or it could tender out these services to qualified security companies. A high level of security will be required at the PATH terminal, which meets the requirements of the Canadian Border Services Agency, Transport Canada and the Marine Security Act. In addition to built-in security infrastructure at the terminal, such as gates and fencing, a comprehensive surveillance system via closed circuit video cameras, as well as appropriate alarm systems, there will be need for a significant number of security personnel.

The PATH terminal will be required to meet the International Ship and Port Facility Security (ISPS) Code. This code includes a set of measures designed to enhance the security of ships and port facilities. The International Maritime Organization (IMO) and International Labour Organization (ILO) have jointly developed a *Code of Practice on Security in Ports*, which will also need to be adhered to.

Clearly the CBSA, RCMP, Canadian Coast Guard and Department of National Defence can all play a role in port security, although on-site security personnel, whether terminal staff or contractors, will essentially perform the day-today frontline roles. The relatively remote location of the proposed PATH terminal

may provide better opportunities for perimeter security than some urban locations.

- ◆ The security personnel requirement would be significant as security is a 24/7 operation, which requires an average of 5.1 persons for each on-site security staff presence that must be in place 24/7.
- ◆ Given the size and complexity of the proposed development a requirement for 20 to 30 security personnel on site at any point in time is not unreasonable, as there will be multiple on-site facilities and services. These include the ship berths, the large container storage yard, and various truck gates, berths for tugs and barges, and significant parking required for employee vehicles.
- ◆ This means a security staff contingent in excess of 100 people is likely a requirement at the terminal, whether this is handled by in-house staff or contracted to a security firm.

A detailed plan of the container terminal, various buildings, facilities and services on-site will be required to more accurately determine security needs, along with a comprehensive risk assessment and threat analysis. The entire complex and specific buildings and infrastructure within it will need to be designed with security in mind.

Information and Communications Technology (ICT) Servicing

The new PATH container terminal will be highly automated and require extensive information and communications technology (ICT) infrastructure. Clearly there will be a need for in-house IT experts to undertake ongoing required repairs, servicing and maintenance of computer and communications technology hardware and software. In some cases equipment vendors may need to provide the servicing. However, there will likely be a need for additional outside expertise to help maintain all of the sophisticated computer and communications electronic hardware and software.

This would provide incremental opportunities for ICT service companies, several of which are already located in Port Alberni. However, these companies will likely need to acquire additional expertise in relation to the latest computer and communications hardware and software, in order to provide adequate expert services to the PATH terminal and its various on-site facilities. A few examples of on-site facilities that are computerized, automated and/or involve integrated communications systems include:

- ◆ On-site telecommunications, both wired and wireless

- ◆ Computers used by office staff, dispatchers, and numerous other on-site personnel
- ◆ Security pass cards and surveillance systems
- ◆ Alarm systems
- ◆ Other fire and safety systems
- ◆ Gantry cranes for loading and unloading ships as well as the feeder barges.

Extensive computer software will be required throughout the operation, some of which could be off-the-shelf and some will need to be highly specialized custom software for the PATH terminal and its various functions, facilities and services. There may be opportunities for local computer programmers at ICT companies to participate in custom software development for the terminal, provided they have the leading edge and sophisticated programming skills required.

Ship Electronic Navigation and Communication Systems Servicing

Related to ICT is the servicing of sophisticated ship electronic navigation and communication systems. While ships have in-house technical staff that can undertake much of the maintenance and servicing work, specialized requirements will arise that require expertise not available onboard ship. The types of equipment would include the following:

- ◆ All ship navigation systems, including autopilot and GPS systems
- ◆ Ship radar and sonar
- ◆ Satellite receivers and related equipment
- ◆ Marine communications systems including transponders and receivers
- ◆ Broadband infrastructure, such as INMARSAT Fleet Broadband
- ◆ Navigational and weather monitoring instrumentation.

With the increased ship traffic into Port Alberni, as well as the extensive tug and barge traffic, there will be a greater demand for this type of servicing and repair expertise, not normally available onboard ships or tugs. This will provide a business opportunity for the existing supplier of this service in the Port Alberni area to expand, and/or for an additional service to be established. Technicians will need to be trained and certified by sophisticated equipment manufacturers and distributors such as Furuno.

Container Terminal On-site Equipment/Vehicles Servicing and Repair

This type of service is frequently provided in-house by staff at existing container terminals and can employ in the range of 25 or more people maintaining the extensive array of on-site equipment and machinery including various types of cranes, forklifts, and on-site vehicles. An alternative would be to outsource these repair and maintenance requirements to contractors who would handle this, which could be another new business opportunity and/or a business expansion opportunity for an existing industrial equipment repair and maintenance service. Among the types of equipment that would need to be maintained on an ongoing basis are the following:

- ◆ Container cranes
- ◆ Cone cars
- ◆ Reach stackers
- ◆ Stackers
- ◆ Forklifts
- ◆ Pick-up trucks and other vehicles used on-site
- ◆ Straddle carriers, top lifters and side loaders
- ◆ Rail mounted gantry cranes (RMGs) and rubber tired gantry cranes (RTGs).

Based on the experience of other terminals, in the first phase of PATH it is likely that 30 to 40 personnel would need to be involved in the ongoing maintenance and repair of all of these types of equipment and vehicles.

4 – SUPPLY CHAIN AND SERVICING GAP ANALYSIS

Based on our understanding of the supply chain and servicing needs of the PATH Container Terminal Project we have undertaken a gap analysis to determine what gaps exist in the existing port and shipping supply and service businesses available in the Port Alberni area. While a few existing businesses and services have the expertise and capacity to handle the requirements associated with PATH, the remaining requirements would need to be provided by significantly expanded businesses/services and/or by new businesses and services that do not currently exist in the Port Alberni area.

4.1 PATH SERVICING NEEDS THAT EXISTING BUSINESSES CAN HANDLE

A few of the existing relevant supply and servicing businesses and services are already well-suited to meeting the needs of the PATH Terminal as shown in Figure 4.1.

Figure 4.1: Existing Businesses/Services Already Capable of Meeting PATH's Supply and Servicing Needs

Company/Organization	PATH Related Service Area	Capabilities
Canadian Alberni Engineering	<ul style="list-style-type: none"> Ship, tug and barge repairs 	<ul style="list-style-type: none"> All types of structural, mechanical, engine and propeller repairs
Port Alberni Shipping Ltd.	<ul style="list-style-type: none"> Ships agent services 	<ul style="list-style-type: none"> All aspects of ship's agent services, especially on-site presence as prime or sub-agent
Don Kimura, Marine Surveyor Blue Wave Marine Surveyors	<ul style="list-style-type: none"> Possibly occasional surveys if a container ship, barge or tug incurs damage that has to be repaired while in Port Alberni This requirement is anticipated to be infrequent so will not have a big impact on existing businesses 	<ul style="list-style-type: none"> Vessel condition surveys Damage and repair inspections Hull inspections
Pacific Pilotage Authority	<ul style="list-style-type: none"> Provision of pilotage services to container ships The PATH terminal is located within the compulsory pilotage zone 	<ul style="list-style-type: none"> Providing pilots for all vessels that require them

Source: Analysis by Economic Growth Solutions Inc.

Other than additional work for existing employees and/or some slight increments to the existing workforce, the preceding businesses and organizations are well-suited to and essentially have the capability to meet the needs of the PATH container terminal operations.

4.2 GAPS REQUIRING EXPANSION OF EXISTING BUSINESSES/SERVICES

While Port Alberni is fairly well equipped in terms of port and shipping supply and servicing businesses and services, several of the existing operations will need to be expanded significantly in order to be able to provide the extent of required services associated with the PATH terminal and its operations. These are summarized in Figure 4.2.

Figure 4.2: Gaps – Need to Expand Existing Businesses

Business/Service	PATH Phase I Requirements	Existing Businesses / Services	Gaps Identified
Tug and Barge Companies	<ul style="list-style-type: none"> For feeder barge services need fleet(s) with total of at least 20 new large (5,000 hp or greater) tugs Also need barge fleet(s) totalling 40 new large barges (600-1,200 TEUs) 	<ul style="list-style-type: none"> Pacific Towing Services Ltd. has 5 tugs based in Port Alberni, but all tugs too small; has no barges here A.B. Sea Towing 	<ul style="list-style-type: none"> Tug fleet(s) with total of at least 20 new large (5,000 hp or greater) tugs Need for fleet(s) totalling 40 new large barges (600-1,200 TEUs)
Trucking (local and long-haul)	<ul style="list-style-type: none"> Daily local trucking to/from Container Examination Facility, totalling 17,200 truck-trips per year Daily local trucking to/from local container distribution and stuffing facility, totalling 45,600 truck-trips per year Long haul trucking of containers to/from other destinations on Island totalling 182,800 truck-trips per year 	<ul style="list-style-type: none"> Dumas Trucking Ltd. Haggard Trucking Ltd. J W Berry Trucking Ltd. L C Trucking Ltd. 	<ul style="list-style-type: none"> Truck tractor and chassis fleet for short haul movements (drayage) between PATH terminal and CEF, local container distribution/stuffing facility Large truck tractor and chassis fleet for long haul movements throughout Vancouver Island
Commercial Fuelling Services	<ul style="list-style-type: none"> Need commercial card-lock for tugs, pilot boats and for trucks at or near PATH terminal Need enhanced ship refuelling capability 	<ul style="list-style-type: none"> Enex Fuels – already has commercial card-lock in Port Alberni, but not at port; also refuels and provides lubricants for ships 	<ul style="list-style-type: none"> Commercial card lock for tugs and pilot boats at PATH terminal Commercial card lock for trucks at or near PATH terminal Need enhanced ship refuelling capability

Business/Service	PATH Phase I Requirements	Existing Businesses / Services	Gaps Identified
Environmental and Waste Management Services	<ul style="list-style-type: none"> • Significant incremental hazardous waste disposal from terminal and its on-site vehicles and equipment (used lubricants, etc.) • Incremental fuel spill and clean-up capabilities based in Port Alberni 	<ul style="list-style-type: none"> • Hetherington Industries Ltd. provide these services, but would need to invest in expanded capacity, as well as hiring additional staff • Burrard Clean Operations has four containers plus a barge at Port with pollution control devices and supplies for containment of minor spills 	<ul style="list-style-type: none"> • Requirement for additional hazardous waste removal and recycling • Incremental garbage disposal and general waste recycling from container terminal, tugs and barges, trucking companies • Additional containers and barge with incremental fuel spill and clean-up capabilities based at PATH terminal
Security Services	<ul style="list-style-type: none"> • Electronic surveillance, security and alarm systems management, monitoring and maintenance for PATH terminal, CEF and container distribution/stuffing facility • Security personnel 24/7 for PATH terminal, CEF and container distribution/stuffing facility • Required to meet the International Ship and Port Facility Security (ISPS) code • Also must meet IMO Code of Practice on Security in Ports 	<ul style="list-style-type: none"> • Alberni Technology Solutions Inc. (electronic) • Falcon Eye Systems (electronic) • Quay Security (foot patrol) 	<ul style="list-style-type: none"> • Need for additional electronic surveillance, security and alarm systems management, monitoring and maintenance staff at existing companies specializing in this • Need for additional security personnel at existing company specializing in on-site security personnel

Source: Analysis by Economic Growth Solutions Inc.

The extent of expansion that may be required in some of these cases (such as tug and barge services and trucking services) will be so significant that in addition to expansion of existing businesses, there will be a need to establish new operations in the Port Alberni area. These may be completely new businesses or satellite operations of businesses based elsewhere, such as in the Greater Vancouver Area.

4.3 GAPS REQUIRING ESTABLISHMENT OF NEW BUSINESSES/SERVICES

There are several supply and servicing requirements of the PATH project where there are no existing businesses and services in place to meet these needs in the Port Alberni area. This will require the establishment of new businesses and services, which may be started-up as completely new enterprises, such as the

Quickload logistics operation in Prince Rupert, or could be ancillary or subsidiary operations of existing similar businesses located elsewhere, such as in the Greater Vancouver Area. Note that three of the types of businesses shown are the same as listed under Gaps Requiring Expansion of Existing Businesses – this is because the requirements are so significant that both expansion of existing companies and establishment of new ones in the Port Alberni area will be required to service the PATH terminal and directly related activities. These are summarized in Figure 4.3.

Figure 4.3: Gaps to be Filled by Establishing New Businesses/Services in Region

Business/Service	PATH Phase I Requirements	Existing Businesses / Services	Gaps Identified
Container Examination Facility	<ul style="list-style-type: none"> • CEF warehouse and facilities that can handle up to 8,600 containers per year for CBSA inspections (1.5% of total volume at PATH) • 25-30 containers per day on average • Custom-designed secure, bonded facility • Plenty of warehouse space for storage, sorting and unpacking/repacking of inspected containers 	<ul style="list-style-type: none"> • none 	<ul style="list-style-type: none"> • Need for a full-fledged CBSA approved Container Examination Centre
Container Distribution and Stuffing Centre (local facility)	<ul style="list-style-type: none"> • Distribution/stuffing centre with large warehouse, truck docks, storage and sorting yard • Ancillary services including container repairs and cargo surveying 	<ul style="list-style-type: none"> • none 	<ul style="list-style-type: none"> • Need for a regional distribution/stuffing centre near PATH
Tug and Barge Companies	<ul style="list-style-type: none"> • For feeder barge services need fleet(s) with total of at least 20 new large (5,000 hp or greater) tugs • Also need barge fleet(s) totalling 40 new large barges (600-1,200 TEUs) 	<ul style="list-style-type: none"> • Pacific Towing Services Ltd. has 10 tugs based in Port Alberni, but all tugs too small; has no barges here • A.B. Sea Towing 	<ul style="list-style-type: none"> • Tug fleet(s) with total of at least 20 new large (5,000 hp or greater) tugs • Need for fleet(s) totalling 40 new large barges (600-1,200 TEUs)
Trucking (local and long-haul)	<ul style="list-style-type: none"> • Daily local trucking to/from Container Examination Facility, totalling 17,200 truck-trips per year • Daily local trucking to/from local container distribution 	<ul style="list-style-type: none"> • Dumas Trucking Ltd. • Haggard Trucking Ltd. • J W Berry Trucking Ltd. • L C Trucking Ltd. 	<ul style="list-style-type: none"> • Truck tractor and chassis fleet for short haul movements (drayage) between PATH terminal and CEF, local container distribution/stuffing facility

**Port Alberni Transshipment Hub (PATH) Feasibility Study:
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Business/Service	PATH Phase I Requirements	Existing Businesses / Services	Gaps Identified
	<ul style="list-style-type: none"> and stuffing facility, totalling 45,600 truck-trips per year Long haul trucking of containers to/from other destinations on Island totalling 182,800 truck-trips per year 		<ul style="list-style-type: none"> Large truck tractor and chassis fleet for long haul movements throughout Vancouver Island
Container Cargo Surveyor	<ul style="list-style-type: none"> Cargo surveyors for local container stuffing facility Cargo surveyors for other on-Island container stuffing facilities 	<ul style="list-style-type: none"> None currently 	<ul style="list-style-type: none"> Cargo surveyors for inspecting/monitoring container stuffing
Refrigeration repair and inspection services for refrigerated containers ("reefers")	<ul style="list-style-type: none"> Conduct pre-trip inspections on reefers Undertake any needed repairs/adjustments 	<ul style="list-style-type: none"> Alberni Valley Refrigeration Ltd. 	<ul style="list-style-type: none"> Refrigeration company offering specialized services for inspecting and repairing reefer containers
Security Services	<ul style="list-style-type: none"> Electronic surveillance, security and alarm systems management, monitoring and maintenance for PATH terminal, CEF and container distribution/stuffing facility Security personnel 24/7 for PATH terminal, CEF and container distribution/stuffing facility Required to meet the International Ship and Port Facility Security (ISPS) code Also must meet IMO Code of Practice on Security in Ports 	<ul style="list-style-type: none"> Alberni Technology Solutions Inc. (electronic) Falcon Eye Systems (electronic) Quay Security (foot patrol) 	<ul style="list-style-type: none"> Need for additional electronic surveillance, security and alarm systems management, monitoring and maintenance staff at existing companies specializing in this Need for additional security personnel at existing company specializing in on-site security personnel
Ship's Chandler	<ul style="list-style-type: none"> Local chandler services will be required by overseas container ships as this may be only North American port of call Would cater to other ships calling in at Port Alberni 	<ul style="list-style-type: none"> none locally 	<ul style="list-style-type: none"> Ship's chandler service, focused on needs of container ships and other ships calling at PATH and Port Alberni harbour

Source: Analysis by Economic Growth Solutions Inc.

These businesses represent significant local opportunities for business development in the Port Alberni area.

In the following chapter the business opportunities associated with expanding existing businesses and establishing new businesses in the Port Alberni area are discussed.

5 – CONTAINER PORT SERVICING OPPORTUNITIES

As apparent from the Gap Analysis in the preceding chapter of this report, the principal opportunities are associated with expanding existing businesses and services in the Port Alberni area that cater to the port and shipping, as well as establishing new specialized businesses that will meet the large-scale supply and servicing needs of the PATH terminal.

5.1 OPPORTUNITIES FOR EXPANDING EXISTING BUSINESSES AND SERVICES

Several existing businesses will have a great opportunity to expand as a result of the development of PATH. These include the existing tug and barge companies, local trucking companies that operate line haul services, commercial fuelling services, environmental and waste management services, and security services.

In Figure 5.1 we have summarized the opportunities for expansion, making note of additional facilities, equipment, vehicles and vessels that may be required to help meet the needs of PATH, as well as additional staffing required.

Figure 5.1: Opportunities to Expand Existing Businesses/Services

Business/Service	Opportunity for Expansion	Additional Facilities and Equipment Needed	Additional Staffing Needed
Tug and Barge Companies	<ul style="list-style-type: none"> • Provision of feeder barge services by acquiring and using new large (5,000 hp or greater) tugs • Also need purchase custom-designed barges (600-1,200 TEUs) that meet PATH requirements 	<ul style="list-style-type: none"> • New 5,000 hp tugs • New custom-designed barges 	<ul style="list-style-type: none"> • Approximately 12 crew members per tug to cover 2 weeks on 2 weeks off duty cycle • Additional maintenance, yard and management/administrative support
Trucking (local and long-haul)	<ul style="list-style-type: none"> • Expand operation to handle contract for short-haul movements between PATH and CEF • Expand operation to handle contract for short-haul movements between PATH and local container distribution and stuffing facility • Expand operation to handle contract for long-haul movements throughout 	<ul style="list-style-type: none"> • Numerous truck tractors • Numerous truck chassis for containers 	<ul style="list-style-type: none"> • 8-10 for short-haul movements between PATH and CEF • 20-30 for short-haul movements between PATH and local container distribution and stuffing facility • 380-400 long-haul movements throughout Vancouver Island

**Port Alberni Transshipment Hub (PATH) Feasibility Study:
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Business/Service	Opportunity for Expansion	Additional Facilities and Equipment Needed	Additional Staffing Needed
	Vancouver Island		
Commercial Fuelling Services	<ul style="list-style-type: none"> Development of commercial card-lock fuelling facilities for tugs and pilot boats at or near PATH terminal Development of commercial card-lock fuelling facilities for tugs and pilot boats at or near PATH terminal Enhanced ship refuelling capability, if needed Distribution of lubricants to PATH terminal, tugs and trucks 	<ul style="list-style-type: none"> 2 commercial card-lock facilities – one dockside for tugs and one roadside available for trucks Includes storage tanks Additional trucks for distribution of fuel to truck depots 	<ul style="list-style-type: none"> More drivers for fuel and lubricants distribution trucks Additional tug/barge crew for fuel distribution to new card-lock facilities at or near PATH At least 1 additional administration and/or maintenance staff to manage and maintain new facilities and incremental activities
Environmental and Waste Management Services	<ul style="list-style-type: none"> Handle incremental hazardous waste disposal from PATH terminal and its on-site vehicles and equipment (used lubricants, etc.) Establish incremental fuel spill and clean-up capabilities based at PATH terminal 	<ul style="list-style-type: none"> For Hetherington Industries at least 1 additional truck(s) to handle incremental requirements WCMRC (Burrard Clean) will need to provide containers plus a barge at PATH terminal with pollution control devices and supplies for containment of minor spills 	<ul style="list-style-type: none"> 1-2 full-time equivalent positions will need to be added at Hetherington Industries Perhaps 1 new position at WCMRC (Burrard Clean)
Security Services	<ul style="list-style-type: none"> Installation and servicing of electronic surveillance, security and alarm systems and monitoring for PATH terminal, CEF and container distribution/stuffing facility Provision of sufficient security personnel 24/7 for PATH terminal, CEF and container distribution/stuffing facility 	<ul style="list-style-type: none"> Fixed and mobile communications equipment for security personnel Electronic security systems hardware and software including surveillance and alarm systems 	<ul style="list-style-type: none"> 1-2 staff at security technology companies contracted with PATH terminal 100 staff needed for onsite security at PATH terminal

Source: Analysis by Economic Growth Solutions Inc.

A few of the preceding types of businesses that may enjoy good opportunities to expand would require such significant capacity additions, as a result of PATH's development, that there will be opportunities for new businesses of these types as well.

5.2 OPPORTUNITIES FOR ESTABLISHING NEW BUSINESSES AND SERVICES

There are a number of opportunities for major new businesses to be established in the Port Alberni area as a result of PATH’s development, as summarized in Figure 5.2 and noted below:

- ◆ A private sector business will need to develop a suitable facility to house the Container Examination Facility (CEF) and meet all specifications required by the CBSA.
- ◆ Another major business opportunity is development of a container distribution and stuffing centre located in the Port Alberni area and possibly other similar centres located elsewhere on Vancouver Island.
- ◆ In addition to potential expansion of existing tug and barge companies, the fleet requirements are so significant it is likely that one or more new tug operators may need to establish a base near the PATH Terminal.
- ◆ Another business opportunity will be for a container cargo surveyor business to provide cargo surveyors for monitoring and inspecting the unloading and stuffing of the containers in the local distribution and stuffing facility.
- ◆ Other new business opportunities include a refrigeration repair and inspection service for reefers, as well as a ships chandler, along with additional security services businesses, unless all of the security is handled in-house by the terminal itself.

Figure 5.2: Opportunities for Establishing New Businesses/Services in Region

Business/Service	New Business Opportunity	Facilities and Equipment Needed	Staffing Needed
Container Examination Facility	<ul style="list-style-type: none"> • Development of CEF warehouse and facilities that can handle up to 8,600 containers per year for CBSA inspections (1.5% of total volume at PATH) • Must be custom-designed secure, bonded facility • Plenty of warehouse space for storage, sorting and unpacking/repacking of inspected containers 	<ul style="list-style-type: none"> • CEF warehouse – perhaps 20,000 – 30,000 sq. ft. or more on a 10-15 acre site so a multi-million dollar investment (construction in \$10 million range or more plus land costs) 	<ul style="list-style-type: none"> • 4-6 management/administration • 20-25 warehouse staff • 10-12 security personnel • 15-20 CBSA staff for inspecting containers
Container Distribution and Stuffing Centre (local facility)	<ul style="list-style-type: none"> • Develop a container distribution/ stuffing centre with large warehouse, truck docks, storage and sorting 	<ul style="list-style-type: none"> • Warehouse facility – perhaps 30,000 – 40,000 sq. ft. or more on a 15-20 acre site so also a multi- 	<ul style="list-style-type: none"> • 3-5 management/administration • 15-20 warehouse staff • 6-8 security personnel

**Port Alberni Transshipment Hub (PATH) Feasibility Study:
Local Supply Chain and Servicing Requirements**

Business/Service	New Business Opportunity	Facilities and Equipment Needed	Staffing Needed
	<ul style="list-style-type: none"> yard Provide ancillary services including container repairs and cargo surveying 	<ul style="list-style-type: none"> million dollar investment (construction in \$12 million range or more plus land costs) 	
Tug and Barge Companies	<ul style="list-style-type: none"> Provision of feeder barge services by acquiring and using new large (5,000 hp or greater) tugs Also need purchase custom-designed barges (600-1,200 TEUs) that meet PATH requirements 	<ul style="list-style-type: none"> New 5,000 hp tugs New custom-designed barges 	<ul style="list-style-type: none"> Approximately 12 crew members per tug to cover 2 weeks on 2 weeks off duty cycle Additional maintenance, yard and management/administrative support
Trucking (local and long-haul)	<ul style="list-style-type: none"> Expand operation to handle contract for short-haul movements between PATH and CEF Expand operation to handle contract for short-haul movements between PATH and local container distribution and stuffing facility Expand operation to handle contract for long-haul movements throughout Vancouver Island 	<ul style="list-style-type: none"> Numerous truck tractors Numerous truck chassis for containers 	<ul style="list-style-type: none"> Depends on extent to which local companies expand Up to 8-10 for short-haul movements between PATH and CEF Up to 20-30 for short-haul movements between PATH and local container distribution and stuffing facility Up to 380-400 for long-haul movements throughout Vancouver Island
Container Cargo Surveyor	<ul style="list-style-type: none"> Cargo surveyors for local container stuffing facility Cargo surveyors for other on-Island container stuffing facilities 	<ul style="list-style-type: none"> None currently 	<ul style="list-style-type: none"> 30-40 cargo surveyors
Refrigeration repair and inspection services for refrigerated containers ("reefers")	<ul style="list-style-type: none"> Conduct pre-trip inspections on reefers Undertake any needed repairs/adjustments 	<ul style="list-style-type: none"> Warehouse/workshop for doing repairs that cannot be done at PATH terminal or stuffing facilities Large inventory of reefer spare parts Onsite facilities at PATH terminal and local stuffing centre Fleet of service trucks 	<ul style="list-style-type: none"> If 5% of containers are reefers (50,000/year), may need in the range of 15-20 refrigeration technicians to do all pre-trip inspections and repairs which are needed Additional 5-6 management/ admin. staff
Security Services	<ul style="list-style-type: none"> Installation and servicing of electronic surveillance, security and alarm systems 	<ul style="list-style-type: none"> Fixed and mobile communications equipment for security 	<ul style="list-style-type: none"> 1-2 staff at security technology companies contracted with PATH

Business/Service	New Business Opportunity	Facilities and Equipment Needed	Staffing Needed
	and monitoring for PATH terminal, CEF and container distribution/stuffing facility • Provision of sufficient security personnel 24/7 for PATH terminal, CEF and container distribution/stuffing facility	personnel • Electronic security systems hardware and software including surveillance and alarm systems	terminal • 100 staff needed for onsite security at PATH terminal
Ship's Chandler	• Establish a local chandler service business to cater to container ships and other ships/vessels calling at Port Alberni	• Small office and warehouse for storage (2,000-3,000 sq. ft.) • Refrigerated and frozen storage capability for foodstuffs • Bonded storage capability for duty free items • Delivery truck(s)	• 4-6 staff to start a small chandler service

Source: Analysis by Economic Growth Solutions Inc.

5.3 OTHER RELATED OPPORTUNITIES

In addition to expansion of a number of existing types of businesses and the establishment of new businesses in order to meet the needs of the PATH Terminal development and the feeder barge network, there will be incremental jobs created in the public sector, particularly for services directly related to the container terminal operation including the following:

- ◆ **Canada Border Services Agency/Canada Customs.** These agencies will have additional staff requirements in the Port Alberni area in order to clear ships and their cargo that enter the terminal, along with any tugs and barges coming from the U.S. They will also be involved in inspecting containers at the Container Examination Facility, and will also need to meet the needs of the Canadian Food Inspection Agency, where required.
- ◆ **Pacific Pilotage Authority.** Pilots will be required for all container ships as they enter and depart from the PATH Terminal. Depending on the actual frequency of the ships visiting the terminal, it is likely that two to six pilot assignments per week would be required by the new terminal. This may not require the hiring of new pilots, although will clearly generate additional work for the existing roster of qualified pilots.
- ◆ **Canadian Coast Guard.** Development of the PATH Terminal would result in the doubling of the number of cargo ships coming to Port Alberni, along with

a significant amount of tug and barge activity, likely in the order of an average of six movements per day (three departing, three arriving). This significant increase in shipping activity would necessitate additional staff at MCTS Tofino, along with some additional navigational infrastructure including more marker buoys, beacons and possibly additional radar sites. There would be a need for additional Coast Guard officers and office staff connected with MCTS Tofino, providing additional employment opportunities for residents of the region.

Development of PATH Terminal will have Major Local Impact

The actual development and construction of the terminal will result in a significant business and employment impact in the Port Alberni area. Clearly there are a number of local construction companies, excavation companies, and contractors who could play roles in the development of the new terminal. In a separate component of the feasibility study to be undertaken by CPCS, the economic impacts of the development will be examined.

From a community development perspective the impacts will be huge as a very large-scale construction and development impact over a period of a few years will be followed by a sustained and significant increment to the employment base in the Alberni Valley, likely resulting in at least 12% to 15% more full-time equivalent jobs that currently exist.

6 – IMPLEMENTATION AND RELATED REQUIREMENTS

In this final chapter of the report we have highlighted several relevant aspects of implementation, including some implementation guidelines for encouraging development of the identified business opportunities and services and a brief discussion of labour force development implications.

6.1 PATH SUPPLY CHAIN AND SERVICING IMPLEMENTATION GUIDELINES

There are several implementation guidelines that should be considered for implementing the PATH Terminal development and the related supply and servicing businesses, services and infrastructure. These include the following:

- ◆ **Facilitate land-use planning to ensure suitable locations for key support activities.** It is important that suitable commercial/industrial land is available for some of the key support facilities that will need to be developed in support of the PATH project. This includes such things as the Container Examination Facility, the container distribution and stuffing facility, as well as major truck depots, which are the more land-intensive of the various businesses and services required.
- ◆ **Fully engage the local and regional community including First Nations in the planning and development process.** This applies to the PATH container terminal development itself, as well as the various ancillary facilities and services, plus the connecting transportation infrastructure. Thorough community engagement and sensitive environmental planning will be essential to ensure that this exceptional community development opportunity can be realized.
- ◆ **Work closely with the business community to fill the identified supply and servicing gaps.** Once it is clear that the PATH project is proceeding, it will be appropriate to start working with the business community to encourage investment in some of the major new facilities and services that will be required to support PATH, as described in this report. This can be done through the partnering of the Port Authority, the City's Economic Development Department, First Nations and their Economic Development Departments, and local and regional Chambers of Commerce. Once there is a go-ahead for the overall development it would make sense to convene a forum with all of the above-noted groups to discuss how to best pursue the identified opportunities and maximize the positive impacts and benefits from all of this development.

- ◆ **Determine implications for community and regional infrastructure and plan accordingly.** For example, we estimate that once the PATH terminal and related supply and service businesses are fully operational, there will be a significant addition to the region’s employment base with a significant number of new well-paying jobs. There may be issues, for example, of availability of suitable housing stock that need to be addressed, along with increments to other community infrastructure be it culture and recreation, downtown and waterfront revitalization, social services, and other community amenities conducive to attracting a motivated and highly skilled workforce. It is important to plan well ahead to take best advantage of the opportunities that will spin-off from this development.
- ◆ **Anticipate other possible related businesses, industries and spin-off developments of the PATH container terminal project.** Transportation hubs typically spawn other business and industry well beyond that which directly services the transportation hub itself. The availability of worldwide shipping from a local port provides great international markets and trade access for businesses and industries that wish to locate in the region.

6.2 LABOUR FORCE DEVELOPMENT IMPLICATIONS

Another important implication consideration is labour force development. Based on the identified business and services expansion and new business opportunities identified in the preceding chapter of this report, it is clear that the labour force and employment impacts of PATH will be significant. In Figure 6.1 we have prepared very preliminary order-of-magnitude estimates of the total number of full-time equivalent jobs that would be created by the supply and servicing opportunities associated with PATH.

Figure 6.1: Preliminary Estimate of Employment Opportunities for Servicing PATH

New or Expanded Business/Service	Preliminary Estimate of Employment Opportunities (full-time equivalents)
Tug and Barge Companies	<ul style="list-style-type: none"> • 240 -260 crew members for tugs • 20-30 additional maintenance, yard and management/admin.
Trucking (local and long-haul)	<ul style="list-style-type: none"> • 400-450 truck drivers • 40-50 management/admin./dispatch and maintenance
Commercial Fuelling Services	<ul style="list-style-type: none"> • 3-5 more drivers for fuel and lubricants distribution trucks • 1-2 additional tug/barge crew for fuel distribution • 1-2 additional administration and maintenance
Environmental and Waste Management Services	<ul style="list-style-type: none"> • 1-2 full-time equivalent positions at Hetherington Industries • 1 new position at WCMRC (Burrard Clean)
Security Services	<ul style="list-style-type: none"> • 1-2 staff at security technology companies contracted by PATH

New or Expanded Business/Service	Preliminary Estimate of Employment Opportunities (full-time equivalents)
	<ul style="list-style-type: none"> • 100 staff needed for onsite security at PATH terminal
Container Examination Facility	<ul style="list-style-type: none"> • 4-6 management/ administration • 20-25 warehouse staff • 10-12 security personnel • 15-20 CBSA staff for inspecting containers
Container Distribution and Stuffing Centre (local facility)	<ul style="list-style-type: none"> • 3-5 management/ administration • 15-20 warehouse staff • 6-8 security personnel
Container Cargo Surveyor	<ul style="list-style-type: none"> • 30-40 cargo surveyors
Refrigeration inspection/ repair services for reefers	<ul style="list-style-type: none"> • 15-20 refrigeration technicians • 5-6 management/ admin. staff
Ship's Chandler	<ul style="list-style-type: none"> • 4-6 staff to start a small chandler service
Total	<ul style="list-style-type: none"> • 935-1,072

Source: Preliminary order-of-magnitude estimates prepared by Economic Growth Solutions Inc.

As shown, approximately 900-1,100 full-time equivalent positions may be required by the various businesses that will need to be established or significantly expanded to cater to the needs of the PATH container terminal development once fully operational.

To put this in perspective the employed labour force in Port Alberni as of the 2006 Census was in the range of 7,500 people. For the entire Alberni-Clayoquot Regional District it was a little over 12,000 people. Therefore, the 900-1,100 incremental jobs associated with the servicing of PATH represents an increment in the range of 12-15% to the City of Port Alberni's employment base or 7-9% for the entire Alberni-Clayoquot Regional District's employment base.

This does not include significant employment at the PATH terminal itself. In spite of being highly automated, there will still be a significant employment base at PATH. This whole subject area of employment and economic impacts is being examined in a separate study component being undertaken by CPCS.

What is critically important for implementation is having a strategy in place for educating, recruiting and training the highly skilled labour force that will be required to service the PATH project and its various supply and servicing businesses. As this large-scale economic opportunity is a wealth generating component of the city and regional economy, there will be a substantial service sector spin-off that will add to these labour force development requirements.