ALASKA – CANADA RAIL LINK STUDY

MULTIMODAL PORT ACCESS
WORK PACKAGE B2 (a)
DATA DEVELOPMENT

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Prepared for:

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Table of Contents

1.0 Introduction

This study is part of The Alaska Canada Rail Link Feasibility Project. A major impact of this Rail Link will be to strengthen the economies of Alaska and the Yukon.

Natural resource development will play an important part in this increased economic activity in the North. This will lead to the inbound movement of materials and supplies to create and sustain resource-oriented projects and the outbound movement of shipments of the resources developed.

In most cases, markets for resource commodities will be overseas, mainly in Asia and shipment will be via deep sea vessels to these overseas markets. Similarly, many inbound supply shipments will be imported via ocean-going transportation.

The importance of minimizing substantial transportation costs will dictate that most bulk resource commodity exports will need to be transported by the most efficient land link to reach the closest port access to deep sea shipping. Similarly, volume bulk supplies such as large diameter steel pipe from distant steel mills will need to access destination points by the most efficient combination of deep sea vessel receiving terminal and inland truck and/or rail transportation to destination.

In support of the development of Alaska and Yukon resource projects, this study identifies the ports and terminals in South Central and South East Alaska and Northern British Columbia that could, theoretically at least, facilitate new inbound and outbound shipments from the area.

This part of the study, Multimodal Port Access Data Development, outlines in tabular form present capabilities and planned potential for handling outbound resource commodities and inbound cargoes for each of these ports and terminals.

A separate component of this study (Work package B2 (d) – Multimodal Port Access – Operations Evaluation) analyzes the various ports and terminals in terms of the issues that may need to be addressed to realize existing and potential capabilities to service resource development in Alaska and the Yukon.

The map on the following page provides an overview of the Alaska – Yukon Multimodal Port Access Study Hinterland Area surrounding the Gulf of Alaska.

<Electronic version of the Map available: P50854_W1_06AJan25_PORTS.pdf>

2.0 Port of Anchorage, Alaska

The Port of Anchorage on Knik Arm is a well established multi–purpose deep sea port for goods into and out of South-Central Alaska. The Port also has major offloading facilities (not reported here) for the export of bulk refined petroleum products, principally for the Fairbanks refinery but also for refineries on the Kenai Peninsula and Valdez plus barge shipments for distribution to other Western Alaskan communities. In addition, jet fuel is imported for the military to a tank farm in Anchorage.

Port of Anchorage – General Characteristics	
Latitude / Longitude	61 N, 149 W
Multimodal Access	
Marine	▪ Deep sea access via Cook Inlet and Knik Arm ▪ Knik Shoal draft limitation restricts maximum vessel loading to Panamax vessels with some tidal restrictions
Road	▪ Glenn Highway connecting to Alaska Highway ▪ Approximately 300 miles (480 km)
Rail	▪ Alaska Railroad Corporation
Navigation	
Pilotage	▪ Compulsory from Homer ▪ Approximately 100 miles (160 km)
Tugs	▪ Local
Marine Conditions	
Tidal Change	▪ 29 ft (9 metres)
Currents	▪ Not an issue
Wind / Wave	▪ Not an issue
Ice	▪ Occasional pan ice build-up in winter
Port Management	▪ Municipality of Anchorage
Local Taxation	▪ US port taxation model. This may involve low or no taxes and can involve capital contribution to facilities
Back-up land	▪ 130 acres (52 ha) adjoining Port to the East of which over 80 acres (32 ha) under long term lease including: ▪ 27,000 sq ft (2,430 sq metres) of covered warehouse space ▪ 31 acres (12 ha) of staging and storage space controlled by Horizon Lines of Alaska LLC and Totem Ocean Trailer Express

The photo below provides a view of the facilities in the Port of Anchorage looking North in winter conditions.

Port of Anchorage

2.1 Intermodal No 1 and No 2 Terminal

Intermodal No 1 and No 2 Terminal	
Ownership or Control	▪ No 1 - Port of Anchorage ▪ No 2 - Horizon Lines of Alaska
Site area	▪ Estimated 20 acres (8 ha)
Berth face	▪ No 1 - 600 ft (182 metres) ▪ No 2 - 610 ft (185 metres)
Draft	▪ 35 ft (11 metres)
Dock surface	▪ Concrete
Vessel capacity	▪ Handymax bulk vessel ▪ 50,000 GRT cruise vessel
Labour force	▪ Unionized
Existing facilities	▪ Two x 30 tonne and One x 40 tonne container cranes ▪ Mobile cranes to 150 tonnes
Existing activity	▪ Containers ▪ General and project cargo ▪ Cruise ships
Rail access	▪ Alaska Railway
Road access	▪ Local road to Glenn Highway

2.2 Intermodal No 3 Ro / Ro

Intermodal No 3 Ro / Ro	
Ownership or Control	▪ Totem Ocean Trailer Express
Site Area	▪ Limited
Berth Face	▪ 1,011 ft (308 metres)
Draft	▪ 35 ft (10.5 metres)
Dock Surface	▪ Concrete
Vessel Capacity	▪ Approximately 35,000 GRT
Labour Force	▪ Unionized
Existing Facilities	▪ Two Ro / Ro ramps ▪ Portable cranes to 150 tonnes ▪ Fork lifts to 30 tonnes
Existing Activity	▪ Containers ▪ General ▪ Project cargo
Rail Access	▪ Alaska Railway
Road Access	▪ Local road to Glenn Highway

2.3 Anderson Dock

Anderson Dock	
Ownership or Control	▪ North Shore Terminal and Stevedoring Co
Site Area	▪ Limited
Berth Face	▪ 376 ft (115 metres)
Draft	▪ 25 ft (7.5 metres)
Dock Surface	▪ Crushed asphalt
Vessel Capacity	▪ Barges only
Existing Facilities	▪ Four mobile cranes to 300 tonnes ▪ Fork lifts to 50 tonnes
Existing Activity	▪ Project cargo
Rail Access	▪ Access to Alaska Railway
Road Access	▪ Local road to Glenn Highway

3.0 Port Mackenzie, Alaska

Matanuska – Susitna Borough has developed a barge and bulk vessel terminal at Port Mackenzie, located almost directly across Knik Arm from Anchorage.

This facility, which opened in 2004, is presently exporting woodchips with plans to load out gravel in 2006. The present port configuration is the outgrowth of plans to develop a deep water bulk port at this location.

Port Mackenzie – General Characteristics	
Latitude / Longitude	61 N, 149 W
Multimodal Access	
Marine	▪ Deep sea via Cook Inlet and Knik Arm ▪ Same Knik shoal draft limitation as Anchorage
Road	▪ Via Port Mackenzie Road (last 14 miles / 22 km gravel) to Wasila and Alaska Highway
Rail	▪ None
Navigation	
Pilotage	▪ Compulsory from Homer ▪ Approximately 100 miles
Tugs	▪ Local - Anchorage
Marine Conditions	
Tidal Change	▪ 29 ft (9 metres)
Currents	▪ Up to 5 knots
Wind / Wave	▪ Not an Issue
Ice	▪ Occasional pan ice build-up in winter
Port Management	▪ Matanuska – Susitna Borough
Local Taxation	▪ US port model
Back-up land	▪ 14 sq miles (36 sq km) of non-contiguous, elevated uplands dedicated to commercial / industrial development

The photo below shows the recently completed deep sea berth at Port Mackenzie. The view is looking West from the Anchorage side of Knik Arm.

Port Mackenzie, Matanuska – Susitna Borough

3.1 Port Mackenzie Terminal

Port Mackenzie Terminal	
Ownership or Control	▪ Matanuska –Susitna Borough ▪ NPI LLC (woodchips) lease bulk facility and contributed US$11 million capital to its construction
Site Area	▪ 18 acres (7 ha) storage ▪ 2 acres (0.8 ha) barge dock with 8 acre (3.2 ha) addition this year
Berth Face	▪ Barge dock – 500 ft (152 metres) ▪ Bulk berth – 1,200 ft (366 metres)
Draft	▪ Barge dock – 20 ft (6 metres) ▪ Bulk berth – 60 ft (18 metres)
Dock Surface	▪ Gravel
Vessel Capacity	▪ Panamax vessel ▪ Load limited by Knik shoal
Labour Force	▪ Either union or non-union
Existing Facilities	▪ Barge dock - load capacity 1,000 lbs per sq ft ▪ Bulk berth - 18 acres (17.2 ha) non-sea level storage, 3,000 ft (914 metres) , 5 ft (1.5 metres) wide inclined 2,000 tonnes per hour capacity multi purpose conveyor via 485 ft (56 metres) trestle to bulk berth
Existing Activity	▪ Barge dock - general and project cargo, modular housing ▪ Bulk berth - outbound wood chips
Rail Access	▪ None ▪ Planned 45 mile (72 km) Alaska Railway branch line from Houston to Port Mackenzie
Road Access	▪ 1.25 mile (2 km) local access road

4.0 Port of Whittier, Alaska

Whittier is within an unorganized borough 47 air miles (75 km) Southeast of Anchorage, the Port of Whittier is located at the head of Passage Canal, a fjord of Prince William Sound. The Port of Whittier is the freight exchange hub for train barge service to and from Seattle and Prince Rupert. The Port has a small ferry dock plus a dedicated cruise ship dock (Lynden-Princess Cruise Ship Dock) serviced by a temporary platform and rail spur for charter train service. Most waterfront terminal activity is operated by Alaska Railroad Corporation (ARRC) which owns the majority of the waterfront and city core land.

Port of Whittier – General Characteristics	
Latitude / Longitude	60 N, 148 W
Multimodal Access	
Marine	▪ Passage Canal via Prince William Sound ▪ Approximately 20 miles (32 km)
Road	▪ Highway to Alyeska then Seward Highway to Anchorage
Rail	▪ Alaska Railroad Corporation
Navigation	
Pilotage	▪ Compulsory from Cape Puget, Prince William Sound ▪ Approximately 50 miles (80 km)
Tugs	▪ Local - Valdez
Marine Conditions	
Tidal Change	▪ Normal - 12.1 ft (3.6 metres) ▪ Maximum - 18.7 ft (5.7 metres)
Currents	▪ Not an issue
Wind / Wave	▪ Subject to strong winds, fog and heavy precipitation
Ice	▪ Not an issue
Port Management	▪ Whittier Ports and Harbour Commission (Whittier City Council) but limited authority over ARRC owned lands
Local Taxation	▪ US port model

The photo below provides an overview of the Port of Whittier looking toward the head of Passage Canal.

Port of Whittier

4.1 Whittier Loading Facility: Marginal Wharf and Warehouses, Delong Pier

Whittier Loading Facility: Marginal Wharf and Warehouses, Delong Pier	
Ownership or Control	▪ Alaska Railroad Corporation (ARRC)
Site Area	▪ Limited
Berth Face	▪ Marginal Dock - 1,100 ft (335 metres) ▪ Delong Pier - 425 ft (130 metres)
Draft	▪ Marginal Dock - 30 ft (9 metres) ▪ Delong Pier - 36 ft (11 metres)
Vessel Capacity	▪ Handymax vessel
Labour Force	▪ Unionized
Existing Facilities	▪ Marginal wharf scheduled for demolition / rebuild ▪ Pier ▪ Barge slip
Existing Activity	▪ Alaska Railbelt Marine (Lynden) rail barge service from Seattle and CN Aquatrain rail service from Prince Rupert: ▪ Containers and rail cars ▪ General and project cargo such as, pipe, chemicals, machinery, etc. ▪ Up to 25% of ARRC's state-wide freight revenue is transported through the Port of Whittier
Rail Access	▪ Alaska Railroad – joins mainline from Seward at Portage
Road Access	▪ Highway access via alternating one way 2.5 mile (4 km) long Anton Anderson Memorial Rail / Highway Tunnel to Alyeska
Back-up Land	▪ ARRC has limited freight and passenger railcar marshalling areas

5.0 Port of Seward, Alaska

The Port of Seward is located at the head of Blye Sound about 50 air miles Southwest of Whittier. Seward is the terminus of the Alaska Railroad system. In addition to being an important fishing and pleasure craft port, Seward has a cruise ship facility, a coal dock and general freight dock all owned by the Alaska Railroad Corporation. The freight dock was reconstructed to serve as a passenger-only 2 berth cruise ship facility, separate from a new freight dock.

Port of Seward Alaska	
Latitude / Longitude	60 N, 148 W
Multimodal Access	
Marine	▪ Deep sea access via Blye Sound
Road	▪ Seward Highway 9 to Alyeska and Anchorage
Rail	▪ Alaska Railroad Corporation (ARRC)
Navigation	
Pilotage	▪ Pilot boat 1 mile (1.6 km) SE of Caines Head Light - 10 to 15 miles (15 to 25 km)
Tugs	▪ Local
Marine Conditions	
Tidal Change	▪ 10.5 ft (3 metres)
Currents	▪ Not an issue
Wind / Wave	▪ Not an issue
Ice	▪ Not an issue
Port Management	▪ Private facilities (ARRC)
Local Taxation	▪ US port model

The photos below provide an overview of Seward and the Port of Seward in Resurrection Bay.

Port of Seward

5.1 Seward Coal Loading Facility

Seward Coal Loading Facility	
Ownership or Control	▪ Alaska Railroad Corporation
Site Area	▪ 34 acres
Berth Face	▪ 900 ft - 1,360 ft (274 metres to 414 metres) mooring dolphin to dolphin
Draft	▪ 53 to 58 ft (16 to 17.5 metres)
Dock Surface	▪ Conveyor trestle
Vessel Capacity	▪ Maximum loading 92,000 tonnes ▪ Capesize (small) ▪ Maximum beam 140 ft (43 metres)
Labour Force	▪ Unionized
Existing Facilities	▪ 120,000 tonne stockpile ▪ 6,590 ft (2,000 metres) belt conveyor with 700 to 1,000 tonnes per hour capacity to Cape Size bulk loading finger berth with single point shiploader
Existing Activity	▪ Outbound coal loading of up to 1,000,000 tonnes ▪ Well under 3,000,000 tonnes annual capacity
Rail Access	▪ Alaska Railroad
Road Access	▪ Local road to Seward Highway

5.2 Seward Freight Dock

Seward Freight Dock	
Ownership or Control	▪ Alaska Railroad Corporation
Site Area	▪ 3 acres (1.2 ha)
Berth Face	▪ 640 ft (195 metres) plus catwalk to mooring dolphin
Draft	▪ 33 ft (10 metres)
Dock Surface	▪ Asphalt
Vessel Capacity	▪ 40,000 tonnes - Handymax
Labour Force	▪ Unionized
Existing Facilities	▪ Truck access and direct rail access to ARRC rail yard ▪ Lighted, open cargo handling area
Existing Activity	▪ General and project cargo including logs, pipe
Rail Access	▪ Alaska Railroad
Road Access	▪ Local road to Seward Highway

5.3 Seward Passenger Dock

Seward Passenger Dock	
Ownership or Control	▪ Alaska Railroad Corporation
Site Area	▪ 3.5 acres (1.4 ha)
Berth Face	▪ Two x 736 ft (224 metres) ▪ One berth on each side of dock
Draft	▪ 33 ft (10 metres)
Dock Surface	▪ Asphalt
Vessel Capacity	▪ Two 50,000 GRT size cruise ships
Labour Force	▪ Unionized
Existing Facilities	▪ Dedicated cruise ship passenger terminal with direct rail / bus / ferry connections for passengers and baggage separate from freight operations
Existing Activity	▪ Cruise ships
Rail Access	▪ Alaska Railroad
Road Access	▪ Local road to Seward Highway

6.0 Port of Valdez, Alaska

The Port of Valdez, located on Prince William Sound is the Southern terminus of the trans-Alaska oil pipeline (Alyeska Pipeline) from the North slope. In addition to being a major crude oil loading position the Port of Valdez has a combined grain and intermodal terminal facilitated by a floating berthing structure. Valdez was close to the epicenter of the disastrous April 1964 earthquake and the ongoing seismic risk in this area is considerable.

Port of Valdez – General Characteristics	
Latitude / Longitude	60 N, 146 W
Multimodal Access	
Marine	▪ Deep sea access via Prince William Sound
Road	▪ Local access to the Richardson Highway and Glenn Allen
Rail	▪ No direct rail service except via Alaska Marine Highway Barge Service
Navigation	
Pilotage	▪ Compulsory from Cape Puget via Prince William Sound ▪ Approximately 50 miles (80 km)
Tugs	▪ Local
Marine Conditions	
Tidal Change	▪ 12 -14 ft (3.6 – 4.2 metres)
Currents	▪ Not an issue
Wind / Wave	▪ Not an issue ▪ Seismic risk rated as high
Ice	▪ Not an issue
Port Management	▪ Port of Valdez ▪ City of Valdez
Local Taxation	▪ US port tax model

The photo below provides an overview of the Port of Valdez on Valdez Arm on Prince William Sound. The port features a landfill and floating berth connected to the upland by a causeway.

Port of Valdez

6.1 Valdez Container / Grain Terminal

Valdez Container / Grain Terminal	
Ownership or Control	▪ Operated by City of Valdez
Site Area	▪ 21 acres (8.4 ha) connected by 2 x 200 ft (61 metres) ramps to concrete floating dock
Berth Face	▪ 700 ft (213 metres) up to 1,200 ft (366 metres) with two dolphins
Draft	▪ 50 ft (15 metres)
Dock Surface	▪ Concrete
Vessel Capacity	▪ Post Panamax container vessel ▪ Capesize bulk vessel
Labour Force	▪ City Employees and North Star Terminal and Stevedoring (ILWU US)
Existing Facilities	▪ 21 acre (8.4 ha) marshalling yard ▪ Three x 100 tonne container cranes ▪ Nine concrete 112 x 33 ft (10 metres) grain silos
Existing Activity	▪ Container handling ▪ Grain ▪ Ro / Ro ▪ Lift on / Lift off operations
Rail Access	▪ No direct rail service except via Alaska Marine Highway barge service
Road Access	▪ Local access to Richardson Highway

6.2 Valdez City Dock

Valdez City Dock	
Ownership or Control	▪ City of Valdez
Site Area	▪ Small
Berth Face	▪ 600 ft (183 metres)
Draft	▪ 26 ft (8 metres)
Dock Surface	▪ Timber
Vessel Capacity	▪ Small coastal vessels
Labour Force	▪ City Employees and North Star Terminal and Stevedoring (ILWU US)
Existing Facilities	▪ Small covered storage building
Existing Activity	▪ Miscellaneous and small general cargo ▪ Fueling and waste water disposal
Rail Access	▪ No direct rail service except via Alaska Marine Highway barge service
Road Access	▪ Local access to Richardson Highway

7.0 Port of Skagway, Alaska

Skagway, located at the head of the Lynn Canal is a historic transportation hub and gateway to the Klondike. It has since become a principal tourism centre and cruise ship destination. Existing terminal facilities have been increasingly converted for ferry and cruise ship use with cruise tourism now the major economic driver in the Port and City of Skagway.

Port of Skagway – General Characteristics	
Latitude / Longitude	59 N, 135 W
Multimodal Access	
Marine	▪ Deep sea access via Cross Sound, Lynn Canal and Taiya Inlet
Road	▪ Klondike Highway ▪ 114 miles (182 km) to Whitehorse
Rail	▪ White Pass and Yukon Railway - narrow gauge
Navigation	
Pilotage	▪ Compulsory pickup point at Point Retreat approximately 150 miles (240 km)
Tugs	▪ Juneau
Marine Conditions	
Tidal Change	▪ 26 to 27 ft (8 metres)
Currents	▪ Not an issue
Wind / Wave	▪ South wind can affect vessel berthing and create three foot waves in harbour
Ice	▪ Not an issue
Port Management	▪ Port of Skagway (City of Skagway) ▪ Individual owner operators
Local Taxation	▪ US port tax model
Back-up land	▪ 80 acre (32 ha) Russell upland property (White Pass and Yukon) about 3 miles (5 km) from Port for sale. This land is under environmental remediation, adjacent to highway, across the river from rail, zoned industrial.

The photos below provide two views of the Port of Skagway looking North from the Lynn Canal.

Port of Skagway

7.1 Rail Dock

Rail Dock	
Ownership or Control	▪ White Pass and Yukon Railway
Site Area	▪ 3 acres
Berth Face	▪ 1,674 ft to 2,000 ft (510 to 610 metres) with mooring dolphins ▪ Two x 800 ft (244 metres) cruise berths
Draft	▪ 35 ft (11 metres)
Dock Surface	▪ Concrete - inland 800 ft (244 metres) reinforced
Vessel Capacity	▪ Two x 50,000 GRT cruise ships
Labour Force	▪ Teamsters
Existing Facilities	▪ Passenger and baggage handling equipment ▪ 800 ft (244 metres) of dual gauge rail on inland side of dock
Existing Activity	▪ Cruise passenger day handling five months per year ▪ WP&YR have tested handling inbound 80 ft (24 metres) pipe via rail potentially to dormant Utah transload yard in Whitehorse
Rail Access	▪ 800 plus ft (244 metres) of dual gauge track along land side of dock connecting to narrow gauge WP&YR
Road Access	▪ Short local road to Klondike Highway

7.2 State of Alaska: City Dock

State of Alaska: City Dock	
Ownership or Control	▪ State of Alaska
Site Area	▪ Adjoining 120,000 sq ft (10,800 sq metres) staging area
Berth Face	▪ Floating dock and transfer bridge
Draft	▪ 35 ft (11 metres)
Dock Surface	▪ Concrete
Vessel Capacity	▪ Alaska State ferries ▪ 200 ft (61 metres) barges
Labour Force	▪ Unionized
Existing Facilities	▪ Floating dock and transfer bridge both with 80 tonne gross deck load capacity for pass / pass operations ▪ One x 2 tonne harbour crane
Existing Activity	▪ Alaska Ferry service ▪ Alaska Marine Highway ▪ Container barges
Rail Access	▪ Indirect access only to narrow gauge WP&YR
Road Access	▪ Short distance on local roads to Klondike Highway

7.3 Broadway Dock

Broadway Dock	
Ownership or Control	▪ White Pass and Yukon Railway
Site Area	▪ 1 to 2 acres (0.4 to 0.8 ha)
Berth Face	▪ 650 ft (198 metres) to 1,000 ft (305 metres) with dolphins
Draft	▪ 35 ft (11 metres)
Vessel Capacity	▪ 50,000 GRT cruise ship
Labour Force	▪ Teamsters
Existing Facilities	▪ Passenger and baggage handling capabilities
Existing Activity	▪ Cruise ship service five months per year ▪ Little capability for general cargo service
Rail Access	▪ Access to narrow gauge WP&YR
Road Access	▪ Short distance on local roads to Klondike Highway

7.4 Skagway Ore Terminal

Skagway Ore Terminal	
Ownership or Control	▪ Land leased to Alaska Industrial Development and Export Authority - own improvements and land lease from City to 2023 ▪ Partial North end sublease to Alaska Marine Lines - Lynden Marine
Site Area	▪ 6.7 acres (2.7 ha)
Berth Face	▪ 1,600 ft (488 metres) to 1,800 ft (549 metres) with dolphins ▪ 150 ft (46 metres) at North end of berth unusable due to height restrictions from non-functioning fixed point bulk shiploader
Draft	▪ 35 ft (11 metres) ▪ Except for contaminated sea floor area under shiploader
Dock Surface	▪ Concrete
Vessel Capacity	▪ One 50,000 GRT cruise ship, historically handled handysized ore carriers (+/- 25,000 to 30,000 tonnes)
Labour Force	▪ Unionized
Existing Facilities	▪ Cruise passenger and baggage equipment, ▪ 120,000 sq ft (10,800 sq metres) staging area including a 98,000 sq ft (8,820 sq metres) 16 inch (40 cm) thick concrete pad (former ore storage warehouse) ▪ Various buildings ▪ Offices ▪ Enclosed shiploading conveyors ▪ Non-functional fixed point bulk shiploader ▪ 0.37 acre (0.12 ha) adjacent lot with fuelling facility (2 x 10,000 and 4 x 30,000 gallon / 135,000 litres storage tanks) ▪ AML pass-pass barge facility with 100 tonne GVW capacity ▪ 45 tonne and 30 tonne forklifts ▪ Petro-Marine petroleum storage and distribution facility
Existing Activity	▪ Cruise ship five months season ▪ AML weekly barge service ▪ Petro-Marine fuel barge service
Rail Access	▪ Direct access to WP&YR narrow gauge rail
Road Access	▪ Direct access to Klondike Highway
Back-up Land	▪ See Section 7.0 Port of Skagway

7.5 Proposed Rebuilt Skagway Ore Terminal

Proposed Rebuilt Skagway Ore Terminal	
Proponents	▪ Pacific Contract Company LLC - Paul Taylor
Concept	▪ Redevelopment of present ore terminal by reclamation and filling in of a portion of the Skagway River estuary to create an extended bulk terminal to the Northwest filling in the channel between the existing ore dock and terminal to create an expanded and separate cruise ship facility on the former ore dock.
Site Area	▪ Approximately 25 to 30 acres (10 to 12 ha)
Rail Configuration	▪ Standard gauge 3,300 ft (1,000 metres) loop track for efficient 70 car unit railcar handling ▪ 8 car thaw shed ▪ Single railcar bottom dump unloader feeding conveyors to storage or shiploader ▪ Multi track intermodal terminal
Surge Storage	▪ Covered storage domes for 171,000 tonnes coal and 117,000 Tones mineral concentrates sheds ▪ 4.7 acre (1.9 ha) container and storage yard
Berth Face	▪ Bulk berth – 1,100 ft (335 metres) ▪ Cruise ship berth - 1,700 ft (518 metres) including 300 x 50 ft (15 metres) floating dock over deep water ▪ 40 x 140 ft (43 metres) rail barge ramp
Draft	▪ Bulk berth – 45 to 50 ft (14 to 15 metres) ▪ Cruise ship berth – 30 to 35 ft (9 to 11 metres)
Vessel Capacity	▪ Bulk berth – Capesize - 140,000 tonnes ▪ Cruise ship berth 60,000+ GRT
Estimated Annual Throughput Capacity	▪ 1.5 million tonnes of coal plus 500,000 to 1.3 million tonnes of concentrates depending on number of grades ▪ 450,000 tonnes of inbound pipe
Estimated Cost	▪ Up to US$100 million

7.6 Proposed Refurbished Skagway Ore Terminal: Alaska Industrial Development and Export Authority (AIEDA)

Proposed Refurbished Skagway Ore Terminal: AIEDA	
Proponents	▪ Cash Minerals Ltd, Minto Exploration Ltd
Concept	▪ Low capital coal handling and storage system ▪ Truck unloading, open storage and conveyors to existing shiploader ▪ Features mobile equipment, non-automated handling
Site Area	▪ 15 acres (6 ha)
Rail Configuration	▪ Delivery by truck only
Surge Storage	▪ 120,000 tonnes
Berth Face	▪ Existing concrete dock structure
Draft	▪ 36 ft (11 metres)
Vessel Capacity	▪ Panamax 60,000 DWT
Estimated Annual Throughput Capacity	▪ 1.2 million tonnes per year
Estimated Cost	▪ US$8 million for terminal improvements, not including mobile equipment

8.0 Port of Haines, Alaska

The port of Haines comprises two areas: Portage Cove and Lutak Inlet. Portage Cove is a fishing and small craft harbour with a cruise ship passenger facility. Lutak Inlet is the site of the Haines Borough Dock and adjacent industrial and military facilities located on tidewater. This study focuses on the present and potential industrial terminals on Lutak Inlet.

Lutak Inlet – General Characteristics	
Latitude / Longitude	59 N, 135 W
Multimodal Access	
Marine	▪ Deep sea via Lynn Canal and Chilkoot Inlet
Road	▪ Haines Highway to Alaska Highway
Rail	▪ No direct rail service except via Alaska Marine Highway barge service
Navigation:	
Pilotage	▪ Compulsory from Cape Retreat ▪ Approximately 125 miles (200 km)
Tugs	▪ Juneau
Marine Conditions	
Tidal Change	▪ 26 ft (8 metres)
Currents	▪ Not an issue
Wind / Wave	▪ Not normally an issue at Lutak terminal sites
Ice	▪ Not an issue
Port Management	▪ Borough of Haines
Local Taxation	▪ US port tax model
Back-up land	▪ US Army tank farm property – well over 100 upland acres (40 ha) under remediation ▪ Environmental remediation, sloping terrain and distance from protected tidewater and existing tanker offloading trestle pier limit potential for terminal use

The navigation chart image below provides an overview of the Lutak Inlet industrial area at Haines.

Port of Haines, Alaska

8.1 Lutak City Dock

Lutak City Dock	
Ownership or Control	▪ Borough of Haines
Site Area	▪ 16 acres (6.4 ha) ▪ Approximately 5 acres (2 ha) utilized for Alaska State Ferry Terminal ▪ 1 to 2 acres (0.4 to 0.8 ha) utilized for Delta Western tank farm
Berth Face	▪ 1,000 ft (305 metres), 250 ft (76 metres) utilized for Alaska State Ferry
Draft	▪ 36 ft (11 metres)
Dock Surface	▪ Gravel
Vessel Capacity	▪ Up to Panamax vessel
Labour Force	▪ Non union
Existing Facilities	▪ Ferry transfer bridge ▪ Ro / Ro ramp ▪ 14 tanks with 3.2 mm USG capacity ▪ Petroleum truck load rack ▪ Container / general cargo staging area
Existing Activity	▪ AML weekly container barge / general cargo service ▪ Delta Western inbound petroleum tanker barges and outbound truck distribution ▪ Alaska Ferry traffic - daily in summer, 3 to 4 per week in winter ▪ Plenty of capacity for additional cargo
Rail Access	▪ No direct rail service except via Alaska Marine Highway barge service
Road Access	▪ Local improved truck route access to Haines and on to Haines Highway

8.2 Chilkoot Lumber Property

Chilkoot Lumber Property	
Ownership or Control	▪ Private: Ed Lapeyri – for sale ▪ Grandfathered 50 year renewable leases - next renewal in 15 years
Site Area	▪ 20 acres (8 ha)
Berth Face	▪ 500 ft (152 metres) – could be extended
Draft	▪ 36 ft (11 metres)
Dock Surface	▪ Timber - would need refurbishing
Vessel Capacity	▪ Handled 44,000 tonne bulk chip carrier
Labour Force	▪ To be determined
Existing Facilities	▪ Derelict sawmill and barge ramp
Existing Activity	▪ Abandoned
Rail Access	▪ No direct rail service except via Alaska Marine Highway Barge Service
Road Access	▪ Local improved truck route to Haines and on to Haines Highway
Back-up Land	▪ 20 acres (8 ha) contiguous industrial zoned waterfront land - for sale

9.0 Stewart, British Columbia and Hyder, Alaska

The combined facilities at Stewart, BC and Hyder, AK form a unique bi-national port located on the Alaska / BC border at the head of the Portland Canal.

Ports of Stewart and Hyder– General Characteristics	
Latitude / Longitude	55.5 N, 130 W
Multimodal Access	
Marine	▪ Deep sea access from Pacific Ocean 90 miles (145 km) via the Portland Canal
Road	▪ Highway 37A connecting to Highway 37, Cassiar route
Rail	▪ None
Navigation	
Pilotage	▪ Triple Island, two pilots in / out 10 to 12 hour transit
Tugs	▪ Sometimes required from Prince Rupert
Marine Conditions	
Tidal Change	▪ 26.7 ft (8 metres)
Currents	▪ Not an issue
Wind / Wave	▪ Not an issue
Ice	▪ Not normally an issue
Port Management	▪ Stewart: District of Stewart ▪ Hyder: To be determined
Local Taxation	▪ Stewart: District of Stewart, BC Assessment Authority ▪ Hyder: US port tax model

The photo below provides a unique aerial view of the Stewart – Hyder town sites and port facilities at the head of the Portland Canal. Hyder, on the estuary of the Salmon River is in the foreground and Stewart is on the estuary of the Bear River in the background.

Ports of Stewart and Hyder

9.1 Arrow / Cassiar Barge Ramp, Stewart

Arrow / Cassiar Barge Ramp, Stewart	
Ownership or Control	▪ District of Stewart
Site Area	▪ Approximately 10 acres (4 ha)
Draft	▪ 15 ft (5 metres)
Labour Force	▪ ILWU (Canada) ▪ ILWU (US)
Existing Facilities	▪ Hydraulic barge ramp ▪ Intermodal transit ▪ Gravel backup land area
Existing Activity	▪ Currently inactive. In the past occasional project cargo and re-supply.
Rail Access	▪ None
Road Access	▪ Gravel road over causeway on mouth of Bear River to Highway 37 A ▪ 45 miles (72 km) to Mezziadin Junction

9.2 Stewart Bulk Terminal

Stewart Bulk Terminal	
Ownership or Control	▪ Private Owner - operator ▪ Al Soucie and Jack Elsworth
Site Area	▪ Approximately 12 acres (5 hectares)
Berth Face	▪ 89 ft (244 metres)
Draft	▪ 4.3 ft (12 metres)
Vessel Capacity	▪ Up to 50,000 tonnes using mooring dolphins
Labour Force	▪ Non union
Existing Facilities	▪ Fixed point bulk shiploader at 750 tonnes per hour ▪ Covered storage for 12 x 15,000 and 6,000 tonnes of concentrates
Existing Activity	▪ Bulk concentrate loading – estimated 30,000 / 40,000 tonnes Eskay Creek (decreasing to 12,000 tonnes in 2006, 0 tonnes in 2007) ▪ Up to 160,000 tonnes Huckleberry ▪ Estimated annual capacity is up to 300,000 tonnes
Rail Access	▪ None
Road Access	▪ Local road to Highway 37 A - Mezziadin Junction – 45 miles (72 km)

9.3 Proposed Hyder Deep Sea Terminal

Proposed Hyder Deep Sea Terminal	
Proponents	▪ Roanan Corporation – Walter Moa
Concept	▪ Roanan Corporation of Vancouver is advancing plans for a deep sea terminal at Hyder adjacent to the mouth of the Salmon River ▪ The concept calls for a large scale land reclamation behind a cellular sheet pile berthing structure ▪ Creation of a deep sea berth by using 30 million cubic yards (23 million cubic metres) of fill conveyed from nearby Salmon River to create dock and supporting land area parallel to channel and adjacent to existing State of Alaska trestle dock
Site Area	▪ 125 acres (50 ha) with a further 125 acres (50 ha) non-contiguous upland available
Berth Face	▪ 1,2000 ft (366 metres)
Draft	▪ 45 plus ft (14 metres)
Vessel Capacity	▪ Up to 2 Handymax or 1 Capesize or 1 Post Panamax container vessel
Storage	▪ Undetermined but sufficient for 500,000 + tonnes of coal, up to 2 million TEUs of containers assuming 50% dock space allocation ▪ Space for other bulk or break bulk commodities
Labour Force	▪ N/A
Proposed Inbound Activity	▪ Inbound general cargoes and pipeline supply – over 500,000 tonnes per year, containers
Proposed Outbound Activity	▪ Outbound bulk products – coal up to 6 million +/- tonnes per year ▪ Concentrates up to 1.5 million tonnes per year
Rail access	▪ Proposed rail tunnel and Bear Pass rail line
Road Access	▪ Road via Stewart town site
Estimated cost	▪ Up to US$100 million ▪ US$30 to US$40 million for base facility not including transportation and infrastructure costs

10.0 Port of Kitimat, British Columbia

Kitimat is located at the head of Kitimat Arm off Douglas Channel with sheltered passage from the Pacific Ocean. The Port of Kitimat is a private port consisting of privately owned and operated deep sea terminals supporting industrial manufacturing plants. The Port is actively promoted by the District of Kitimat.

Port of Kitimat – General Characteristics	
Latitude / Longitude	54 N, 130 W
Multimodal Access	
Marine	▪ Deep sea access via Douglas Channel ▪ Approximately 130 miles (210 km) from open water
Road	▪ Mile 0 of Highway 37 which joins the Alaska Highway near Watson Lake, Yukon, 36 miles (58 km) South of Yellowhead Highway 16
Rail	▪ CN Rail 263,000 lb (120,000 Kg) line weight branch line connects daily to CN mainline at Terrace, BC
Navigation	
Pilotage	▪ Pilot mandatory 8 hours from Caamano Sound
Tugs	▪ Local
Marine Conditions	
Tidal Change	▪ 12 ft (4 metres) mean ▪ 18 ft (6.4 metres) maximum
Currents	▪ 1.1 to 3.5 miles per hour (1.8 to 5.5 km per hour) in channel ▪ Not an issue in Port
Wind / Wave	▪ Not an issue
Ice	▪ None
Port Management	▪ District of Kitimat
Local Taxation	▪ District of Kitimat mill rates ▪ BC Assessment Authority Valuation

The photograph below provides an overview of the Port of Kitimat located at the head of the Douglas Channel which combines waterfront industry with multi-product terminals.

Port of Kitimat

10.1 Methanex Liquid Terminal

Methanex Liquid Terminal	
Ownership or Control	▪ Methanex Corporation
Site Area	▪ NA - finger pier to loading area
Berth Face	▪ 157 ft (430 metres) long ▪ Width 33 ft (90 metres)
Draft	▪ 42 ft (13 metres)
Vessel Capacity	▪ 50,000 DWT product tankers up to 580 ft (177 metres)
Labour Force	▪ Non union
Existing Facilities	▪ Inbound and outbound liquid handling ▪ Pipeline connected to inland plant site with rail yard and railcar unloading / loading racks ▪ Storage for 66,000 tonnes methanol, 27,000 tonnes refrigerated anhydrous ammonia and 44,000 tonnes of other petrochemical liquids
Existing Activity	▪ Western Canada methanol production has diminished causing exports of up to approximately one million tonnes to be switched to 150,000 tonnes methanol imports (growing) ▪ Potential condensate imports ▪ Capacity for over one million tonnes per year liquids.
Rail Access	▪ None at dock – pipeline to rail connection at upland plant storage and transfer station
Road Access	▪ Local roads to Highway 37

10.2 Alcan Terminal

Alcan Terminal	
Ownership or Control	▪ Alcan Smelters and Chemicals Ltd.
Site Area	▪ 8 to 10 acres (3 to 4 ha)
Berth Face	▪ 750 ft (228.6 metres)
Draft	▪ 35 ft (10.7 metres)
Dock Surface	▪ Concrete / asphalt
Vessel Capacity	▪ 50,000 DWT up to 513 ft (175 metres)
Labour Force	▪ Unionized
Existing Facilities	▪ Two pneumatic bulk unloading towers discharging to a belt container to the adjacent smelter ▪ Kangaroo crane for bulk or general cargo lifts
Existing Activity	▪ Outbound over 200,000 tonnes of aluminum ingots ▪ Inbound over 600,000 tonnes of bulk raw material imports (alumina ore, green coke, liquid pitch) ▪ Up to 200 vessels annually
Rail Access	▪ Direct connection to CN branch line to Terrace
Road Access	▪ Alcan road ▪ Local roads to Highway 37

10.3 Rivtow Marine Barge Ramp

Rivtow Marine Barge Ramp	
Ownership or Control	▪ Rivtow Marine Inc, Kitimat Marine Division
Site Area	▪ 4 acres (1.6 ha)
Berth Face	▪ Ro / Ro all tidal ramp
Ramp Capacity	▪ 60 tonnes
Labour Force	▪ ILWU
Existing Facilities	▪ Warehouse space ▪ 4 acres (1.6 ha) of storage yards and commercial trailer parking ▪ Highway tractors / trailers ▪ Tugs ▪ Heavy lift equipment
Existing Activity	▪ Weekly barge service to / from Vancouver ▪ Project cargo
Rail Access	▪ Via truck to CN Rail
Road Access	▪ Via Alcan access road

10.4 Eurocan Terminal

Eurocan Terminal	
Ownership or Control	▪ West Fraser Timber Co Ltd (Eurocan Pulp and Paper)
Site Area	▪ 137 acres (55 ha) including 7 acres (2.8 ha) open storage ▪ 5 acres (2 ha) contiguous vacant land
Berth Face	▪ 2 x 50 ft (137 metres) ▪ Ro / Ro ramp
Draft	▪ Berth 1 – 45 ft (14 metres) ▪ Berth 2 – 36 ft (10.9 metres)
Dock Surface	▪ Concrete / asphalt
Vessel Capacity	▪ 50,000 DWT vessel
Labour Force	▪ Unionized
Existing Facilities	▪ Berth 1 – 550,000 sq ft (49,500 sq metres) warehouse ▪ Berth 2 – 100 Ro / Ro barge loading ramp
Existing Activity	▪ 200,000 / 250,000 tonnes annual pulp and paper exports ▪ Considerable capacity for compatible cargo at Berth 2 which is underutilized as lumber and woodchip shipments have ended
Rail Access	▪ None but CN Rail service direct to Eurocan mill and other nearby port terminals
Road Access	▪ Short local access to Highway 37

10.5 Other Port of Kitimat Terminal Proposals

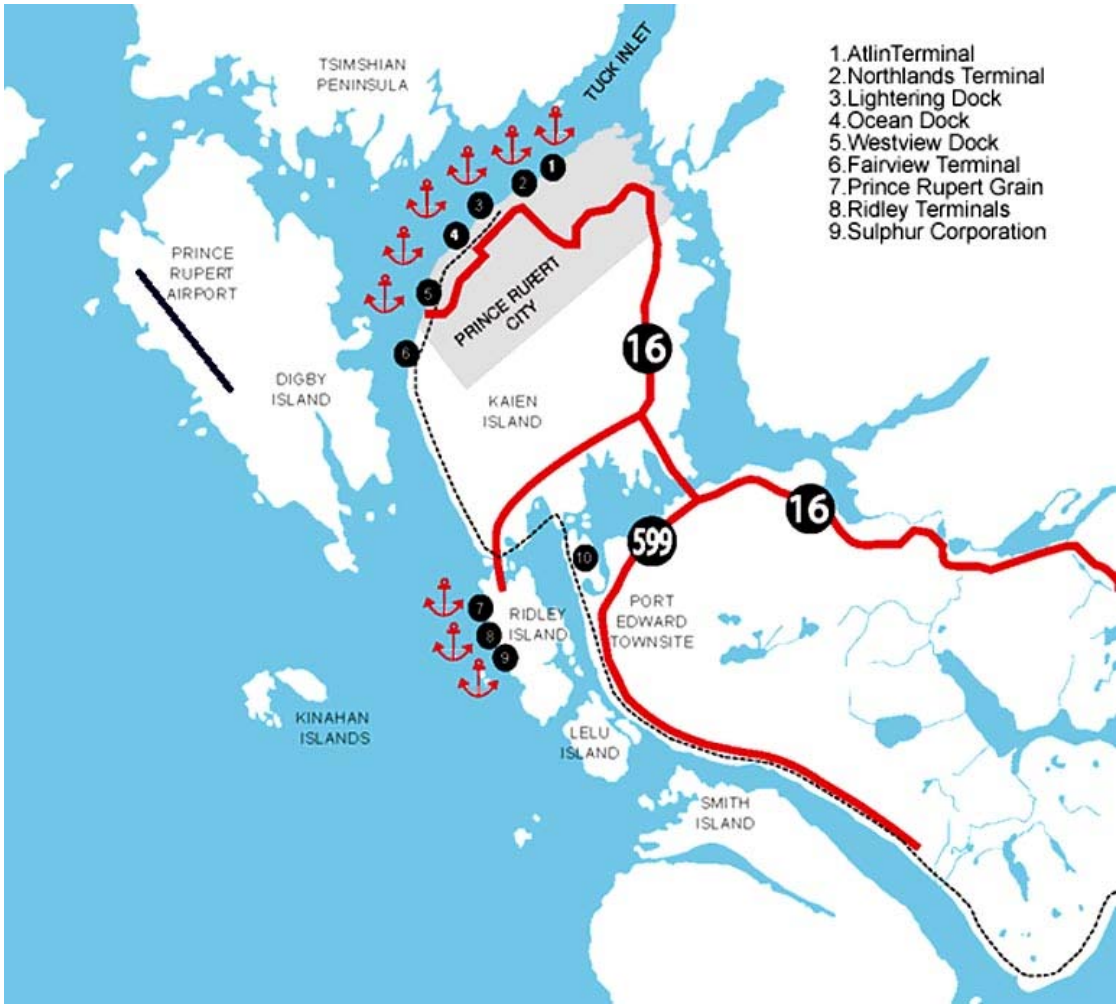
Other Port of Kitimat Terminal Proposals	
Proponents	▪ Proposed terminal developments include: • Encana (agreement with Methanex for import of condensates) • Galveston LNG Inc for a new liquid natural gas import terminal at Emsley Cove • Enbridge Pipelines Inc Gateway project to ship crude and import condensates at Harbour West • Terasen Inc Spirit Pipeline project to import 100,000 barrels per day of condensate via Kitimat • Cascadia Minerals to process and export aggregates through an estimated cost C$90 million terminal at Harbour West • Copper smelter producing 150,000 to 200,000 tonnes copper annually proposed for Harbour backup lands at an announced cost of C$500 million ▪ Some of these are at least in part competing projects and none are in an advanced stage at this time. Kitimat does have potential development sites and infrastructure to support an infrastructure to support projects of this magnitude.

11.0 Port of Prince Rupert, British Columbia

The Port of Prince Rupert is part of Canada's national port system and is administered by the Prince Rupert Port Authority. Located in Northern British Columbia, the port facilitates a range of marine activities. Passenger ferry services along the British Columbia and Alaska coasts and the CN Aqua Train to Alaska are based in Prince Rupert harbour. During the Alaska cruise ship season the port accommodates visits by passenger cruise vessels based in Vancouver and Seattle. Of greater interest to this study are the large scale bulk marine terminals at Ridley Island and the potential to expand at Ridley Island and the South Kaien Island property. The port management is presently advancing plans to enter the container business by converting the Fairview bulk / break-bulk Terminal in the inner harbour for large scale container operations.

Port of Prince Rupert – General Characteristics	
Latitude / Longitude	54 N, 128 W
Multimodal Access	
Marine	▪ Direct deep sea access
Road	▪ Highway 16 to Terrace and Prince George
Rail	▪ CN mainline to Prince George
Navigation	
Pilotage	▪ Mandatory from Triple Island – 26 miles (42 km)
Tugs	▪ Local
Marine Conditions	
Tidal Change	▪ 15 ft (4.9 metres)
Currents	▪ Not an issue
Wind / Wave	▪ Subject to extreme gusts during South East gales ▪ Tidal swell an issue for less than Panamax vessels at Ridley Island terminals
Ice	▪ Not an issue
Port Management	▪ Prince Rupert Port Authority
Local Taxation	▪ City of Prince Rupert mill rates ▪ BC Assessment Authority Valuation
Back-up land	▪ At least 2,500 acres (1,000 ha) (see Section 11.7)

The map below shows the Port of Prince Rupert. A Canadian Port Authority, Prince Rupert is Western Canada's second largest deep water port. Prince Rupert has two working areas, the inner harbour next to the city and the outer port at Ridley Island.



Port of Prince Rupert

11.1 Ridley Coal Terminal

Ridley Coal Terminal	
Ownership or Control	▪ Ridley Terminals Inc ▪ Government of Canada – currently in a disputed sale process to the private sector
Site Area	▪ 137 acres (55 ha) ▪ Storage up to 1.2 million tonnes of coal
Berth Face	▪ 1,065 ft (325 metres)
Draft	▪ 72 ft (22 metres)
Vessel Capacity	▪ Up to 250,000 DWT Capesize ▪ LOA 1065 ft (325 metres) ▪ Beam 165 ft (50 metres)
Labour Force	▪ ILWU
Existing Facilities	▪ Tandem rotary railcar dumper 65 cars / 6,000 tonnes per hour service high speed ▪ Wide conveyors to two stacker / bucket wheel reclaimers with stacking capacity of 7,000 tonnes per hour each and combined reclaim of 7,000 tonnes per hour ▪ Shiploading by two quadrant shiploaders with capacity of 4,500 tonnes per hour each ▪ Full environmental protection facilities ▪ Liquid sulphur receiving facility – 80% completed but abandoned
Existing Activity	▪ Coal, petroleum coke ▪ Total annual shipments running well below 3 million tonnes ▪ Expected to increase to up to 6 million tonnes by 2007 ▪ Capacity is 16 million expandable to 26 million tonnes per year
Rail Access	▪ On site loop track connects directly to CN Northern main line
Road Access	▪ Local roads direct to Highway 16 Trans Canada / Yellowhead route

11.2 Prince Rupert Grain Terminal

Prince Rupert Grain Terminal	
Ownership or Control	▪ Prince Rupert Grain Ltd ▪ Major Canadian grain companies
Site Area	▪ Estimated approximately 100 acres (40 ha)
Berth Face	▪ Offshore pier connected by conveyors
Draft	▪ 48 ft (14.5 metres)
Vessel Capacity	▪ Up to 145,000 DWT Capesize
Labour Force	▪ Grain Workers Union
Existing Facilities	▪ 10 miles (17 km) of rail holding tracks ▪ 200,000 tonnes elevator storage ▪ Cleaning ▪ Three tower mounted shiploaders with combined 4,000 tonnes per hour shiploading capacity
Existing Activity	▪ Throughput has been running from 1 to 2 million tonnes per year with capacity of 7 million tonnes per year
Rail Access	▪ Direct CN Northern mainline
Road Access	▪ Local road to Highway 16 TransCanada / Yellowhead route

11.3 Fairview Container Terminal: Under Development

Fairview Container Terminal: Under Development	
Ownership or Control	▪ Prince Rupert Port Authority, Maher Terminals of Canada Corp, CN Rail partnership to develop facility on former Fairview break-bulk terminal site
Site Area	▪ Phase I - 58 acres (23 ha) ▪ Phase II - 65 acres (26 ha)
Berth Face	▪ Phase I – 1,300 ft (400 metres) ▪ Phase II – 2,600 ft (800 metres)
Draft	▪ 51 ft (16 metres)
Dock Surface	▪ Concrete / asphalt
Vessel Capacity	▪ Up to 12,000 TEU vessels
Labour Force	▪ ILWU
Planned Capabilities Phase I	▪ Intermodal rail - seven working tracks and six storage tracks to build 17,000 ft (5,100 metres) of train ▪ 7,000 TEU container storage plus 3,000 TEU temporary storage ▪ Three Super Post Panamax Cranes for 500,000 TEU annual capacity
Planned Capabilities Phase II	▪ Two more Super Post Panamax Cranes ▪ Tripling of container yard to two million TEU capacity annually
Rail Access	▪ Direct CN Northern mainline
Road Access	▪ Local road to Highway 16 TransCanada / Yellowhead route

11.4 Skeena Cellulose Terminal

Skeena Cellulose Terminal	
Ownership or Control	▪ In receivership ▪ Negotiations continue for potential purchase
Berth Face	▪ Built to service pulp mill ▪ 1,180 ft (360 metres) long
Draft	▪ 36 ft (10.6 metres)
Vessel Capacity	▪ Up to 30,000 DWT Handysize
Labour Force	▪ Unionized
Existing Facilities	▪ Limited dock apron adjacent to mill
Existing Activity	▪ None
Rail Access	▪ CN Northern mainline
Road Access	▪ Local road to Highway 16 TransCanada / Yellowhead route

11.5 CN Aquatrain Barge Ramp

CN Aquatrain Barge Ramp	
Ownership or Control	▪ CN Rail
Site Area	▪ 10.9 acres (4.5 ha) - 0.77 acres (0.3 ha) upland
Labour Force	▪ Unionized
Existing Facilities	▪ Ro / Ro ramp
Existing Activity	▪ Scheduled service from Prince Rupert
Rail Access	▪ CN Northern mainline
Road Access	▪ Local road to Highway 16 TransCanada / Yellowhead route

11.6 Alaska Marine Highway Terminal

Alaska Marine Highway Terminal	
Ownership or Control	▪ State of Alaska
Site Area	▪ 3.2 acres (1.3 ha)
Labour Force	▪ Unionized
Existing Facilities	▪ Ro / Ro ramp
Existing Activity	▪ Scheduled service
Rail Access	▪ Direct to CN
Road Access	▪ Local road to Highway 16 TransCanada / Yellowhead route

11.7 Other Port of Prince Rupert Terminal Proposals / Possibilities

Other Port of Prince Rupert Terminal Proposals / Possibilities	
Proponents / Proposals	▪ The Prince Rupert Port Authority has approximately 2,500 acres (1,000 ha) of developable waterfront land in Prince Rupert, South Kaien, Ridley, Coast and Lelu Islands. ▪ Proposed or possible terminal developments include most of the potential Canadian importers of LNG and condensates as well as the proponents of crude oil exports via pipelines from Northern Alberta. ▪ Of more particular interest for potential bulk commodity shippers are the following possibilities: • South Kaien Terminal property – possible multi-purpose liquid and dry bulk terminal connected to Ridley Island access road and CN Rail • 40 acre land parcel North of Fairview Terminal development with deep draft waterfront and road and rail connections could be developed as a bulk or break-bulk terminal • This is considered superior to the abandoned Westview site (old grain terminal closer to downtown) with its limited land base (approximately 8 acres divided East / West by CN Rail tracks)

Glossary of Vessel Size Groups

Vessel Size Groups in deadweight tons (DWT). Major ship size groups include:

- **Handy and Handymax:** Traditionally the workhorses of the dry bulk market, the Handy and more recent Handymax types remain popular ships with less than 50,000 DWT. This category is also used to define small-sized oil tankers.

- **Panamax:** Represents the largest acceptable size to transit the Panama Canal, which can be applied to both freighters and tankers; lengths are restricted to a maximum of 275 meters, and widths to slightly more than 32 meter. The average size of such a ship is about 65,000 DWT.

- **Capesize:** Refers to a rather ill-defined standard which have the common characteristic of being incapable of using the Panama or Suez canals, not necessarily because of their tonnage, but because of their size. These ships serve deepwater terminals handling raw materials, such as iron ore and coal. As a result, "Capesize" vessels transit via Cape Horn (South America) or the Cape of Good Hope (South Africa). Their size ranges between 80,000 and 175,000 DWT.

Source: UNCTAD (2000) Review of Maritime Transport, Lloyd's Register information sheet.