

PATH – PRE FEASABILITY STUDY PROJECT BRIEF

PROJECT OVERVIEW

The Port Alberni Port Authority (PAPA) is pursuing a strategic opportunity to develop a new container trans-shipment hub in the Alberni Inlet to enhance capacity and create greater efficiencies, resiliency and environmental benefits throughout the Asia-Pacific Gateway.

The Port Alberni Trans-Shipment Hub (PATH) is envisioned to become a modern, fully automated container terminal, able to efficiently handle any size vessel, including new Ultra Large Container Ships up to 22,000 TEU's. This project would create one the largest container terminals in Canada.

PATH is premised on a hub and spoke container trans-shipment model, which has been used successfully throughout Europe and Asia. The primary focus of PATH as the "hub", is to service the "spokes", the container handling facilities in Salish Sea area ("lower mainland and Puget sound) with dedicated cellular barges. The barges will deliver presorted cargo at the right time and at the closest point to the end destination. In addition PATH conceptually envisions servicing Vancouver Island's "captive" market and ever growing business and population base. PATH also provides an opportunity to service coastal trade; providing an opportunity to combine Pacific Northwest and Pacific Southwest service in one.

As envisioned, PATH provides an opportunity to truly expand and maximize the use of our "marine highway".



The Pre-Feasibility study, which was equally funded by Transport Canada and PAPA, was completed by a multi-disciplinary team of industry leaders to assess technical, economic, logistics, social and environmental opportunities and impacts related to PATH.

"Port Alberni Transshipment Hub is the "PATH" to a new, more efficient, cost effective and environmentally friendly Gateway," PAPA President & CEO, Zoran Knezevic

SOCIO & ECONOMIC IMPACT BENEFITS

- Increase Canada GDP by \$21.3 B
- Full Time Equivalent (FTE) jobs would be 288,079 in Canada
- Increase Tax Revenue \$1,6B
- Reducing 14.4 million truckkilometers annually
- Reducing commuter's time in George Massey Tunnel alone by 98,750 hours; time and fuel savings by at least \$ 6 mill. p/a
- Total Positive impact on social structure of \$74.6 Million p/a
- Relieves pressure from Lower Mainland already congested transportation infrastructure

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PRE-FEASIBILITY ASSESSMENT AND HIGHLIGHTS

Engineering studies undertaken have included operational planning; evaluation of potential sites; preliminary design; and the development of first order of magnitude capital cost estimates. Two suitable sites have been identified in Alberni Inlet and preliminary layouts were developed. Optimization of each site configuration has occurred to balance functional layout and construction cost to achieve a first order of magnitude total cost estimate from "first shovel to first container" at approximately \$1.7B.

An analysis of navigation issues, such as channel characteristics and open sea wave, current, wind and weather conditions associated with "short sea" tug and barge container operations in Alberni Inlet was completed. While challenging navigation conditions occur from time to time along the proposed shipping routes, appropriately sized and configured tugs and barges, combined with standard operating procedures, allow navigation issues to be effectively managed.



The Pre-Feasibility Assessment included a review of potential markets, strategic and business requirements, and potential logistics cost advantages of the PATH concept. Under a PATH Single Port of Call scenario, it is estimated that the typical rotation (Asia-Vancouver-Seattle) of an ocean shipping line would be reduced by as many as three to four days and generate an estimated net savings for the shipper of \$540,000 (time and fuel) for each vessel call. An analysis of supply chain (handling charge) price differential between PATH and status quo concepts was also considered. As this model was evaluated it was determined that the single port of call model offers an opportunity to achieve significant savings in overall transportation costs. Very high level estimates are that PATH has room to charge at least \$205 per TEU for lower mainland cargo, \$114 per TEU for intermodal cargo and more than \$500 per TEU for Vancouver Island Cargo and not surpass cost incurred in the present model.

An overview screening of environmental characteristics and resources of potential sites and the marine transportation corridor was undertaken to identify possible constraints and risks to developing PATH. Minor terrestrial environmental constraints were identified. Higher level of risk to aquatic resources occurs at both locations. The marine transportation corridor of Trevor Channel (Barkley Sound) is environmentally sensitive and important as habitat for marine mammals, birds, fish and vegetation. Trevor channel and area is used as a main transportation corridor for Port Alberni for a number of decades and has developed to coexist in harmony with environment.

PRE-FEASIBILITY ASSESSMENT HIGHLIGHTS

- 480 NM shorter Sailing time
- Savings of \$20 per TEU port cost/ \$ 550,000 per each vessel visit PNW
- 3 days' time savings
- 50% Truck Trips reduction in PMV
- Combining PNW/PSW savings of over 30 million per annum
- Combining two PNW services over 50 million savings per annum
- **Gateway resiliency**
- **Expansion of inland** distribution
- **Opportunity for development** of warehouses and distribution centers on Vancouver Island

ENVIROMENTAL IMPACT REDUCTIONS/SAVINGS

- 22,000 Tons of CO2
- 470 tons of Nitrogen Oxides
- 16 tons of Sulfur
- 8 tons of PM₂₅
- 14.5 million truck kilometers
- Reduce wear and tear on the municipal infrastructure

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KEY ADVANTAGES AND BENEFITS OF PATH

PATH is expected to generate considerable advantages and benefits for communities, residents and businesses of Vancouver Island and BC's Lower Mainland, marine shippers and Asia-Pacific trade in support of the entire Canadian economy. Highlights of such benefits include but are not limited to:

≥<mark>`@</mark>≦ Broader and more direct distribution of containers to coastal and inland terminals, reducing congestion and potential conflicts from truck transportation (drayage) on local roads, and improving air quality



Additional and cost-efficient automated container terminal and handling capacity to support growing Asia-Pacific trade and the Government of Canada's Asia-Pacific Gateway and Corridor Initiative

Effective TEUs Voy Cost (\$mil) Cost Per TEU Class 6000 5,600 Ś 2.92 Ś 522 8000 7,091 \$ \$ 500 3.55 Combined 12.691 Ś 6.47 Ś 510 Alternate: PATH - Service Design 2 4.37 \$ 367 Ś 143

Benefit of Consolidating PNW Services Using PATH

Savings Per TEU

"This analysis shows that deployment of a single string of 13000 TEU ships in lieu of 6000 and 8000 TEU strings would generate a vessel network cost savings of \$143 per round trip TEU. IF the use of the PATH system was what allowed the deployment of 13,000 TEU ships in the Asia-PNW trade (because the ships could not otherwise be deployed on a direct call basis), then this savings can be attributed to the PATH system, greatly increasing the network savings attributable to PATH."

DIRECT COST BENEFITS

- **Reduced Ocean Shipping Cost** •
- **Reduced Trucking Cost**
- **Reduced Terminal handling** Cost
- **Reduced Drayage Cost**
- **Reduced Land Transportation** Cost
- **Reduced Transportation Cost** for Vancouver Island

QUANTIFIABLE BENEFITS

- Strengthen Canada's Gateway **Resiliency and Stability**
- Innovative approach to marine transportation
- Increase competitiveness of the Gateway
- Allows development and better use of the new and existing port facilities
- Provides more options for port • users
- Opportunity to capture more cargo destined to US
- Opportunity to have coastwise transportation link

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Ability to accommodate Ultra-Large Container Ships at a specifically designed, purpose-built facility and attract additional container volumes through Gateway.

	#Ships	Class	Capacity	Distance	Speed	Port	ort Hours Vsl\$ Port\$ Fuel\$*					Total\$\$Voy		Transit Days		
Service																
			Eff TEU	N M iles	(Knots)	FE	NAM	Total		R	ound-Trip		(Mil)	Dep-Arr	Dep-Arr	Dep-Ап
SERVICE DESIGN 1:														SHG-TAC	SHG-VBC	
FE - Tacoma - Vancouver - FE	6	6000	5,600	12,118	15.3	90	96	186	228	45	248	522	2.924	14.1	16.6	
FE - Tacoma - Vancouver - FE	6	8000	7,091	12,118	15.4	97	98	195	215	45	240	500	3.548	14	16.5	
FE - Tacoma - Vancouver - FE	6	10000	9,400	12,118	15.9	115	103	218	187	37	210	434	4.084	13.7	16.4	
FE - Tacoma - Vancouver - FE	6	13000	11,908	12,118	16.1	122	105	227	170	35	195	400	4.758	13.6	16.3	
FE - Tacoma - Vancouver - FE	6	18000	16,369	12,118	16.3	129	107	236	158	29	179	366	5.997	13.5	16.2	
SERVICE DESIGN 3														SHG-LAX	SHG-OAK	
FE - Los Angeles - Oakland - FE	6	6000	5,600	13,240	16.7	90	96	186	228	42	299	570	3.191	14.5	18.5	
FE - Los Angeles - Oakland - FE	6	8000	7,091	13,240	16.8	97	98	195	215	41	291	547	3.878	14.3	18.4	
FE - Los Angeles - Oakland - FE	6	10000	9,400	13,240	17.4	115	103	218	187	35	255	477	4.484	14	18.2	
FE - Los Angeles - Oakland - FE	6	13000	11,908	13,240	17.6	122	105	227	170	33	237	440	5.243	13.9	18.2	
FE - Los Angeles - Oakland - FE	6	18000	16,369	13,240	17.8	129	107	236	158	28	219	405	6.627	13.8	18.1	
										Weighted	Average:	535				
SERVICE DESIGN 5														SHG-P AB	SHG-LAX	SHG-OAK
FE - P ATH - Los Angeles - Oakland - P ATH - FE	6	6000	5,600	13,827	17.3	90	87	177	228	62	351	642	3.593	12.1	15.1	18.1
FE - P ATH - Los Angeles - Oakland - P ATH - FE	6	8000	7,091	13,827	17.5	97	89	186	215	60	341	617	4.374	12	14.9	18
FE - P ATH - Los Angeles - Oakland - P ATH - FE	6	10000	9,400	13,827	18	115	93	208	187	50	299	536	5.036	11.8	14.7	17.8
FE - P ATH - Los Angeles - Oakland - P ATH - FE	6	13000	11,908	13,827	18.2	122	95	217	170	46	278	494	5.881	11.7	14.6	17.7
FE - P ATH - Los Angeles - Oakland - P ATH - FE	6	18000	16,369	13,827	18.5	129	97	225	158	38	257	453	7.422	11.6	14.4	17.6

"This analysis indicates that a meaningful reduction in mainline vessel slot costs could be achieved through the combination of PNW and PSW markets using the PATH terminal. As outlined above, a carrier or carrier group that combined a 6000 TEU class PNW string with an 8000 TEU class PSW string into a single 13000 TEU class service for both markets, could reduce its average slot costs from about \$535/TEU to about \$494/TEU, a savings of about \$41/TEU slot for the roughly 12,000 TEU slots on the service. Annual savings from this network change would thus amount to about \$25 million. If the savings applied to the 5600 TEUs per week of capacity previously dedicated to the PNW, the savings per TEU is about \$96/TEU. While not all carriers and shippers would be equally willing to consider a ½ day transit extension for California cargo, it seems that such a service design could be feasible."

- Gateway resiliency, sustainability and diversity
- Employment and business growth for local and regional communities
- Reduced shipper costs for expensive land and drayage associated with terminals, warehousing and distribution centers.
- Unlocking Land and Gateway Potential Upstream of the Fraser River, Puget Sound and Vancouver Island.
- MARSEC Security

"Path provides clear potential for further economic development for Vancouver Island, Lower Mainland and Puget Sound. Such seismic change in the way of distributing containers would provide new and innovative opportunities for producer's shippers and carriers "

SOCIAL LICENCE

- Support from Local First Nations
- Support From local Government
- Support from Provincial Government
- Support from Federal Government
- Support from Vancouver Island
- Support from Lower Mainland municipalities
- Community at large support
- Industry support
- Labor Support

PATH Technical Specs

- 250 acres
- 2 Main Berths 1500 m
- 3 Barge Berths
- 14 Ship Cranes- Dual hoist/trolley
- 6 Barge Cranes Dual hoist
- 43 Yard Cranes ASC
- 135 yard truck/robots AGV battery operated
- 8 gate cranes
- All equipment -electrical

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