Alberta Containerized Intermodal Freight Analysis (Exploratory Study)

Prepared
for

Alberta Transportation

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GTS *Group International*

ACTIVATION ANALYSIS GROUP INC.

DISCLAIMER

The opinions expressed in this report are those of the consultant and shippers and do not represent government policy. The report was written by GTS Group International. Alberta Transportation removed references to specific companies and replaced them with generic references to stakeholder groups prior to making this report public.

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EXECUTIVE SUMMARY

GTS Group International in association with Activation Analysis Group Inc. was contracted by Alberta Transportation to conduct an exploratory study of the intermodal containerized freight system serving Alberta.

The study comprised an extensive structured interview component with both system providers and system users conducted over a six-month period from spring to late fall of 2003. System providers included the West Coast ports, port container terminals, international steamship companies, railways, trucking companies, airlines and air carriers. System users included a cross section of Alberta businesses that import and export goods, as well as a number of third parties. In all, there were 28 service providers and 40 Alberta shippers included in the study. Their participation in lengthy interviews was appreciated and greatly contributed to the results of the study.

The overall objectives of the study were to:

- Describe the system and how it is used by Alberta companies
- Identify issues
- Identify advantages and disadvantages
- Identify impediments to the success and growth of the intermodal containerized freight transport system serving Alberta
- Evaluate competitiveness of the system
- Determine areas for policy discussion
- Determine areas for further study

The responses from participants reflected conditions and practices that existed in the latter half of 2003.

Summary of Findings

Findings of the study were determined by compiling interview responses from the 68 study participants. As the study was exploratory in nature, many questions were open-ended to allow issues to be raised and perspectives on the system to be gathered.

The sample was targeted rather than random. It represents the opinions of the respondents rather than facts in most cases. However, the sample selected was comprehensive in terms of service providers. Also, the companies representing system users constitute a good cross-section of Alberta importers and exporters.

Although the results are not statistically valid, they are reliable indicators of how the system is used and how well it is working for Alberta companies.

The Existing System

The intermodal system serving Alberta are comprised of domestic, US transborder, Mexico and international intermodal services.

Services include local drayage of containers, rail intermodal terminals, and rail line haul between terminals for domestic intermodal. For US transborder intermodal, terminals in US destinations are added along with US railway partners. Mexico intermodal is limited at present, but is expanding with investments being made in terminal facilities that extend the reach and scope of Mexican intermodal services and systems.

International intermodal services comprise local drayage of containers, inland rail intermodal terminals in Edmonton and Calgary, rail line haul between inland rail terminals and port container terminals, port container terminals and international steamship lines serving offshore origins/destinations.

Our review of Alberta's system tells us that most intermodal containerized freight is transported in and out of the Edmonton and Calgary regions where intermodal rail terminals are located. Containerized shipments are most often used for international cargo. Alberta shippers corroborated this.

Canadian West Coast container traffic is dominated by 40' containers, which is not surprising given that general merchandise and consumer goods are imported in these containers. Most containers handled are dry containers. However, there is a growing number of 20' temperature-controlled units coming from Oceania, and in turn Alberta is increasing its temperature-controlled exports.

Typically companies that have operations located some distance from the intermodal terminals in Edmonton and Calgary do not use intermodal transport. This is due in part to distance from the terminals and lack of intermodal rail services to their region, but it is also due to trucking drayage costs and a lack of available containers.

Steamship lines expect to see fewer containers traveling inland, with more large distribution centres opening up in the Vancouver area.

Port container terminal operators are anticipating larger ships and the need for more terminal capacity and container handling capacity at the ports. To stay competitive, steamship lines will require port terminals to maintain present turn around times with the larger ships, meaning that terminals must be more productive and still be cost effective. This will necessitate the need for more on-terminal intermodal rail capacity, more internet-based EDI, more security, and less rail and truck congestion at the port terminals than what is currently the case.

Steamship lines face a number of challenges including market uncertainty and competitiveness factors. In particular, rail carrier connectivity, consistency and railcar supply are seen as crucial. Security requirements have imposed new challenges.

Port and port terminals are approaching capacity and see the need for expansion while at the same time facing challenges of infrastructure funding. Plans are in place for expansion that, if realized, will go a long way toward meeting future needs. Total container terminal capacity in the Vancouver area is estimated at about 1.9 million TEUs per year with throughput of over 90%. If plans come to fruition, capacity would increase for these terminals to an estimated 2.6 million TEUs by 2008. Additional capacity of over two million TEUs could be realized if both DeltaPort II and the Fraser Richmond site are developed.

Although air cargo is not technically part of the intermodal containerized freight system, selected airports and airlines were interviewed to get a picture of air cargo shipments for Alberta. Air cargo is discussed separately in Chapter 8 of the report.

How Alberta Companies Use the Intermodal System for Containerized Freight

About two-thirds of shippers and one-half of third parties[1] interviewed indicated that they used international steamship line intermodal services. Domestic intermodal was used by 38% of the system users interviewed and US transborder and Mexico intermodal was used much less frequently.

The types of products being shipped in containers by intermodal services included:

- Outbound Products: Machinery or parts, chemicals, forestry and wood products, and agricultural and food products

- Inbound Products: Consumer goods, raw materials, machinery and equipment, parts and packing materials

Factors seen to influence the growth of outbound intermodal containerized shipments to all markets for these Alberta companies were:

- Availability of temperature-controlled equipment
- Global sales efforts
- Acceptance of Alberta's food and agricultural products
- Competitive intermodal costs
- Exchange rates

Meanwhile, factors influencing inbound volumes mentioned were:

- Labour costs remaining low for imported materials/products
- Overseas prices and working relationships
- Customer acceptance of products
- Exchange rates

[1] Third parties are freight forwarders, expediters, logistics providers and intermodal marketing companies

The inbound factors above apply mainly to off-shore sourcing. Most companies anticipate the same volume or some increase of intermodal containerized shipments over the next five years.

In terms of how Alberta companies use the system, study participants were also asked what logistics services they used and whether or not they provided them in-house or not. Seventy percent or more of companies were using each of local drayage, container stuffing, customs brokerage, documentation, warehousing and freight forwarding. In addition to freight forwarding, customs brokerage and local pickup and delivery are most often outsourced. Documentation is usually done in-house. A little less than half of the companies interviewed are electronically integrated with service providers. These users are typically integrated for shipment tracing, documentation and invoicing.

The study was interested in identifying logistics factors that influence Alberta companies in using an intermodal service provider. Results showed that price is a key factor, while service reliability and availability/suitability of equipment are also important.

About three-quarters of the sample of system users indicated that they had outbound shipments, and a little over half had inbound shipments, where they did not use intermodal. For example, US transborder and domestic markets are usually accessed through truck or rail, not intermodal.

Intermodal was not used when on-time performance was important, or handling facilities and equipment availability were not conducive to using intermodal. Companies' choice of transport mode was dictated by customer needs, which may have included bulk railcar or truck delivery and just-in-time delivery. Transloading into containers at port is another factor that has decreased the need for inland intermodal services.

Intermodal volumes over the next five years

Companies that expect growth in Alberta intermodal containerized traffic indicated that:

- The strong Alberta economy will continue to drive the need for consumer goods
- Alberta forestry, chemical, agriculture and food processing industries are expected to grow, increasing intermodal traffic

Issues facing Alberta's Intermodal Containerized Freight Transport System

A key part of the study was to ascertain issues and impediments faced by Alberta's system.

Many issues were raised and are presented in the main body of the report. Examples of issues related to marine, rail and truck aspects of the intermodal system include:

Terminal Access:
- Reduction in free time and limited hours of operation for port terminals and intermodal rail terminals, most notably at Edmonton intermodal terminals
- Lack of terminal access outside of Edmonton and Calgary

Congestion:
- Congestion at port terminals, largely due to lack of railcars
- Congestion at intermodal rail terminals, in particular Edmonton and Vancouver resulting in extra transit time and costs

Volume/Capacity:
- Road capacity and access issues, both BC lower mainland and in Edmonton and Calgary
- Lack of intermodal railcars and temperature-controlled equipment
- Lack of terminal capacity for loading/unloading at inland intermodal terminals

Container Handling:
- Lack of truck drivers and equipment
- Lack of container handling equipment and empty lifting equipment at Edmonton intermodal terminals

Customs, Security:
- US Customs and documentation requirements for vessel ports of call

Other Issues:
- Labour issues, predominantly port labour, but also rail labour, and shortage of drivers in the trucking industry
- Inadequate rail car equipment availability, and inadequate container availability (and suitability)
- Reliability and lack of temperature-controlled equipment and services (rail)
- Rail demurrage charges at intermodal terminals
- Issue of customer service of railways
- Lack of priority by railways for Alberta inbound cargo
- Longer transit times by rail than road
- High fuel taxes
- Lack of communication and coordination between system service providers

Respondents were also asked to provide ideas to solve these issues. A summary of suggested solutions would be:

- Add more port terminal capacity
- Extend hours of operation for port terminals
- Extend hours of operation for rail intermodal terminals
- Have shipping lines allocate more temperature-controlled containers to the Canadian market
- Provide more containers inland
- Add more intermodal options for temperature-controlled services
- Upgrade roads in the BC lower mainland
- Lower fuel taxes
- Railways add capacity and equipment to handle loads
- Add equipment at Edmonton intermodal terminals
- Railway should increase length of trains to add capacity
- Improve on-time performance
- Improve relationships and communication between service providers

Issues related to air cargo were also gathered in the study. Results are found in Chapter 8 of the report. To summarize, the lack of services using wide body aircraft at Alberta airports is a deterrent to air transport of cargo, along with a number of regulatory and legislative issues affecting the ability to provide air cargo services.

Impediments to Intermodal System Success and Growth in Western Canada

The study objective was to gain insight into the barriers that would constrain intermodal transport for Alberta's containerized freight. Respondents provided many points to consider, which are summarized below.

Legislative or regulatory impediments:
- Municipal tax levied on ports and port terminals
- Restrictions through the *Canada Marine Act* on capital borrowing
- US Customs 24-hour rule for vessel manifests, which will also be introduced by Canada Customs
- US Air Bilateral Agreement

Economic and Financial Impediments:
- Taxes on rail, ports and port terminals
- Security costs
- Infrastructure funding
- Expense of intermodal versus rail pool cars

Infrastructure Impediments:
- Inability of rail intermodal infrastructure, including equipment, to handle traffic
- Ports and port terminals approaching capacity
- Lack of ring roads for Alberta's major cities

Labour Impediments:
- Potential for labour problems at the ports

Other Rail Impediments:
- Services, cost and on-time performance
- Lack of competition

Competitiveness of the System

Respondents rated western Canada ports very well as compared to US ports in terms of competitiveness. Benefits of serving the Canada ports recognized by the steamship lines were:
- Lower port costs
- Lower rail costs
- Proximity to north China
- Rail connection to US Midwest
- Multi-year labour agreement at the Port of Vancouver

All participants were asked to rate overall effectiveness of the intermodal containerized freight system serving Alberta. On a scale of one to five, with 5.0 being very good, the average rating was 3.4.

Advantages and Disadvantages of the System Serving Alberta

Advantages:
- Canadian ports were seen to be stable, less expensive and more reliable than US ports
- A competitive rate structure
- Alberta is seen to be a desirable market for international cargo
- Low value of the Canadian dollar

Disadvantages:
- Distance from the Ports
- Canada Marine Act, specifically the provisions allowing the taxing of port terminal facilities by municipalities, and the cap on capital borrowing by ports. These measures affect costs and competitiveness, and the ability to provide necessary facilities and capacity
- Lack of a National Transportation Plan/Strategy, which ensures that system participants and infrastructure providers act in a coordinated manner to meet system

needs and objectives, and that funding for infrastructure needs has been identified and earmarked
- Rising costs in general
- US Customs and security regulations, particularly as these relate to additional administrative and documentation requirements and costs, and the need to provide documentation to US Customs 24 hours in advance of vessel departure from Canada if that vessel subsequently calls at a US port
- Railways in general, including lack of customer service, demurrage costs and reduced free time at intermodal terminals, railcar shortages, lack of coordination between providers
- Inadequate road system and infrastructure, particularly the road system serving port terminals in the BC lower mainland, lack of ring roads around Edmonton and Calgary, and the poor condition of the Trans Canada Highway
- High cost of connection to the intermodal system at Edmonton and Calgary by companies located outside of the Edmonton and Calgary regions
- Inland portion (comprised of truck drayage costs, intermodal rail terminal charges and rail line haul charges) is cost-prohibitive
- Inadequate container inventory in Alberta, mainly by international steamship lines, but also at times containers for domestic, US transborder and Mexico markets

What is needed to ensure success and growth of the intermodal containerized freight system serving Alberta

- Supportive legislation, particularly changes to the Canada Marine Act with regard to taxation and appropriate and adequate access to capital
- A National Transportation Plan/Strategy, to ensure that an adequate and efficient transportation system exists and serves the interests and objectives of Canada and Canadian shippers
- Continued investment by port, terminal operators and railways in terminals, facilities and equipment to meet system needs
- Infrastructure and equipment in place to handle growth and increasing volumes
- Equipment availability, including the availability of railcars and containers for Alberta cargo. Lack of containers in Alberta affects export cargoes, while railcar shortages primarily affect Alberta inbound cargo
- Reliable rail operations, responsive to customers and with competitive freight rates

Study Conclusions:

- Containers are used mostly for international shipments. Alberta companies most often use intermodal services for transporting containerized freight by international steamship through the Port of Vancouver and Fraser Port.

- While domestic, US Transborder and Mexico shipments are most often trucked or shipped by conventional rail equipment, intermodal services are also used to access these markets.

- Companies located near the Edmonton and Calgary rail intermodal terminals are more likely to use intermodal. Distance from these terminals, lack of rail intermodal services into the regions, high truck drayage costs and the lack of available containers, deter intermodal use by plants located outside of Alberta's two major cities.

- Products typically transported in containers via the intermodal system out of Alberta are machinery and parts, chemicals, forestry and wood products, and agriculture and food products.

- Products typically transported in containers via the intermodal system into Alberta are consumer goods, raw materials, machinery and equipment, parts and packing materials.

- As more distribution facilities locate on tidewater in the Vancouver area, more import containers are being unloaded at the port and the cargo shipped inland by domestic intermodal or by truck. This in turn results in less empty containers being available in Alberta for export shipments.

- Also, steamship lines are becoming reluctant to keep inventories of containers inland because of the high opportunity cost of keeping the boxes out of pacific eastbound revenue service. This is because of very high pacific eastbound ocean container rates. The result is even fewer empty containers available in Alberta for exports.

- Alberta import containers are experiencing delays at the docks of up to six to ten days due to a lack of railcars and low priority for Western Canada inbound intermodal cargo relative to US Midwest and Central Canada by the railways. Western Canadian Ports are a major gateway for Chinese imported goods destined for the US. These delays and unpredictable delivery times reduce Alberta's ability to engage in or attract just-in-time production activities that involve global sourcing because planning becomes impossible.

- There is a trend, particularly with larger shippers, to transload cargo into containers at the port, rather than source loading them at the plant in Alberta. This is due to the intermodal system not being competitive in the regions and a lack of empty

containers being available for export. Conventional truck and rail services are used for the inland transport portion.

- Certain business trends do not support the use of intermodal by Alberta companies; rather they indicate an increasing demand for motor carriers to access North American markets or to transport goods to tidewaters where they will be transloaded. This is due in part to the requirement for on-time performance and just-in-time delivery. Alberta businesses have to meet these customer demands in order to compete.

- Given these trends, the inland portion of international intermodal services used by Alberta shippers will likely decline unless truck cost gets worse relative to intermodal.

The effectiveness of the intermodal system serving Alberta for container traffic is dependent on:

- A competitive rate structure
- The availability of containers for Alberta exports
- The availability of railcars to transport goods from the Ports to Alberta and to take goods to the Ports for international shipment
- Competitive trucking services to move goods to and from intermodal container terminals in Alberta or to Port safely and cost-effectively
- Ports and Port Terminals remaining price competitive and customer-focused (as they are now)
- Capital investment in road, rail and port infrastructure and equipment.

- The study found that the Ports and Port Terminals are customer friendly, price competitive and efficiently operated.

- Port container terminals in the BC lower mainland are experiencing capacity problems. Programs and plans are in place to greatly expand capacity in the next several years.

- Meanwhile, railways are perceived to be creating obstacles to the intermodal transport system serving Alberta. Alberta companies are experiencing poor customer service, lack of railcars, congestion at rail terminals, increasing demurrage charges and little or no flexibility.

- The trucking industry is found to be a reliable and efficient mode of transport. However, its ability to meet growing demand for its services is deteriorating because of driver shortages, equipment shortages, high fuel costs, and proposed changes to driver regulations.

- Western Canadian Ports are a major gateway for imported goods from China destined for Central and Midwest US, and there is consensus that Asian import cargo destined for the US Midwest will drive future container volumes through Canadian West Coast ports.

- There is a need for a risk and impact assessment on the Canadian intermodal system from US cargo being diverted or repatriated back to US ports, for whatever reason.

- The intermodal transport system serving Alberta for containerized freight is not integrated or seamless for users. At times, system service providers seem to act in isolation on their individual components to maximize their own benefits, often to the detriment of overall system performance.

- Alberta has a strong economy and demand continues to grow for Alberta imports and exports. At the same time, there are some significant threats to the international intermodal transport system serving Alberta because of the limited capacity of rail and truck providers, the increasing trend to load export containers at the port, and increased costs and lack of capital for the ports.

Air Cargo Conclusions

- A major change in federal air policy is required with regard to granting traffic rights to international carriers
- Policy restrictions related to air cargo/courier services in the US Air Bilateral Agreement should be eliminated
- A liberalized and separate the policy regime for air cargo from air passenger to ensure the competitiveness of all Canadian cities
- There is need for consistent and continuous flight schedules with wide body aircraft at Alberta airports in order to meet competition for air cargo from other airports

Recommendations:

Recommendation 1. Areas Identified for Policy Discussion

It is recommended that Alberta Transportation initiate discussions with its western provincial counterparts, British Columbia in particular, as a starting point in the development of a National Transportation Policy/Plan.

The following areas have been identified for policy discussion:

1. The *Canada Marine Act*, specifically giving municipalities the ability to tax the Ports and Port Terminals and the limits to capital financing imposed on Ports ***[Alberta has already submitted a position with the other western provinces]***

2. The need for a National Transportation Plan/Strategy and how Alberta and the other western provinces fit into the plan

   "Canada lacks a national policy/economic strategy for moving forward and for providing guidance for transportation policy and hence for intermodal policy. All thinking and decisions are current, not long term and strategic.
   Each individual municipality can dictate and veto against greater good. This goes back to the lack of a National Transportation Policy. The federal government has abandoned transportation in Canada. In terms of transportation, the federal government is not governing. There is a lack at all levels, federal, provincial and municipal. It's a huge problem, as nobody seems to understand the linkages. The USA understands this so well, and has a national transportation policy. If we keep doing this, we will eventually force the traffic south to the US system"[Quote by system service provider]

3. Capital for infrastructure, in order to keep Canada's Ports competitive, and to ensure overall system performance

4. Air Cargo: The US Air Bilateral Agreement as it relates to air cargo and courier services, in particular the co-terminalization clause, international traffic rights, and a distinct policy regime for air cargo

Recommendation 2. Areas Identified for Further Research

This study was exploratory in nature, identifying many issues and impediments to success, but also some potential opportunities. It is recommended that further study be undertaken in the following areas:

1. Determine and assess impacts on/threats to Alberta's intermodal system and larger economy from trends such as Alberta import containers being delayed at port, Alberta import containers being unloaded at port, steamship lines' increasing reluctance to keep an inventory of empty containers in Alberta, and trend to transload exports at port

2. Assess the feasibility of establishing transloading facilities in Alberta for import containers destined for Central Canada

3. Examine intermodal containerized freight transportation for Alberta regions outside of Edmonton and Calgary to determine the intermodal demand opportunities and the cost-benefit implications of expanding facilities and/or services

4. Determine the current and future supply and demand of temperature-controlled units for Alberta shippers

5. Determine capacity and economics of the Alberta trucking industry, given expectations of increasing demand

6. Determine capacity of the rail (intermodal) system, given expectations of increasing demand

7. Examine the level of integration of the intermodal containerized freight system serving Alberta, including electronic integration and coordination of service delivery between service providers

8. Focusing on where intermodal transport is currently not used or does not work, determine what would encourage intermodal use.

Recommendation 3. Share the Results of this Exploratory Study

It is recommended that the results of this exploratory study be widely shared. It is one of the first studies conducted on intermodal containerized freight and can be used to stimulate discussion and expand knowledge for system providers, users and policy makers.

1. As a means of initiating dialogue, provide copies of the Report to system providers, appropriate Alberta government departments, to government counterparts in other provinces, the federal government and interested municipalities

2. Provide copies of this Report to the companies that participated in this study and make a copy available on the department website for interested persons

1. Introduction

Intermodal freight transportation is defined as being or involving transportation by more than one form of carrier during a single journey.

Alberta Transportation recognized that there has been relatively little research undertaken on the intermodal freight transport system serving Alberta companies. In 2001, over $22 billion in export goods were moved from Alberta by air, railway, truck and ship. In turn, Alberta imported $13 billion in goods by these same modes. Many of these shipments used intermodal freight transport and many were containerized. Containerized freight includes domestic containers, intermodal trailers and international ISO (International Standards Organization) containers.

Given the importance of intermodal transportation and the role that containerization plays in the modern economy, Alberta Transportation initiated this research study to investigate the effectiveness of the system for cargo movement to and from Alberta. The purpose of this exploratory research study is to encourage dialogue in Canada on public policy and issues that could help foster more efficient intermodal freight transportation. The study is exploratory, with one objective being the identification of areas where further research is warranted.

Economic competitiveness in many value-added industries depends on an effective intermodal transport system, particularly in the global context. Modern logistics requirements dictate that an intermodal freight transportation system be accessible, speedy, flexible and reliable. The ability to move products to markets efficiently and effectively plays an important part in business location decisions and the choice of global supply chain for production decisions.

GTS Group International was contracted by Alberta Transportation in the spring of 2003 to undertake this study. Working closely with Alberta Transportation staff, the consulting team developed a study design and conducted detailed interviews, the results of which were compiled and are presented in this report.

A number of study constraints should be noted.

- The study is exploratory in nature, designed to identify issues and opportunities for Alberta's containerized freight intermodal transport system
- The sample was targeted and not random. Although results are good indicators, they do not have statistical validity
- Companies interviewed were restricted in providing commercially-sensitive information
- Companies do not record shipments in a standardized fashion (i.e. TEUs), therefore the study does not contain reliable volume data

This Report presents the findings from the exploratory study. Chapter 2 provides information on project/research methodology and the sample of project participants. Chapter 3 describes and provides information on the current intermodal system serving Alberta. Chapter 4 provides information on Alberta companies' use of the system and how they use it. In Chapter 5, system users' and system service providers'expectations, challenges and plans for the next five years are, presented, as are port terminal capacity expansion plans and expected changes in customer needs. Chapter 6 presents intermodal issues and system impediments. In Chapter 7, system competitive advantages and disadvantages are identified, the overall effectiveness of the system as perceived by project participants is presented, and the requirements for success and growth of the intermodal system serving Alberta are presented. Chapter 8 contains the air cargo information provided by system users and system service providers. Conclusions and recommendations are contained in Chapter 9.

Detailed interview results have been compiled in Appendix A and a listing of Study participants is provided in Appendix B. Cross-references from the text of this Report to corresponding charts in the Appendix have been made in the left margins where appropriate.

The responses from participants reflect conditions and practices as they existed in the latter half of 2003.

2. Background

This Chapter provides information on the project objectives, rersearch methodology, and the sample of intermodal system users and service providers that participated in the project.

2.1 Project Methodology

The research objective for the study is:

To determine what is required to increase the competitiveness of Alberta's value-added industries by identifying and raising the awareness of any logistics, regulatory, market or service impediments affecting the current use, growth and development of the containerized intermodal freight transport system.

The study is exploratory in nature aimed at identifying how the containerized intermodal freight transport system is used by Alberta companies, how effective is it, and where there are gaps or opportunities for increasing its use and its effectiveness.

It was determined that personal interviews would be the best approach for maximizing response and exploring issues. Using this methodology ensures a better response rate and also provides the opportunity in an exploratory study to determine issues.

Both the supply and demand sides of the system, the service providers and system users[1], were viewed as critical respondents. Representing the supply side were the seaports, port terminals, international steamship lines, railways, trucking companies, airlines and airports. A cross-section of Alberta companies was targeted to represent system users, taking into consideration location and industry sector.

A great deal of time and effort was put into survey design. It was felt that this time was warranted to ensure a solid research base for the questions.

Due to the diverse nature of the sample, structured interview formats were developed specifically for each sample group. A common set of questions related to issues, opportunities and effectiveness were included on all interview forms. Depending on the sample group, questions were modified on how the responding company was involved with intermodal transport; whether from a shipper's viewpoint (demand side) or from a supplier of freight transport (supply side).

Questions were aimed at intermodal traffic characteristics, intermodal linkages, and evaluating competitiveness of the system. The study team developing the question set included the consultants and Alberta Transportation staff. Alberta Transportation was intimately involved in question design; while the consulting team determined the sample

[1] System users include Third Parties, comprised of freight forwarders, expediters, logistics providers and intermodal marketing companies

group, conducted interviews, and compiled and analyzed the results. Interview forms were kept confidential with only coded responses and compiled results provided to Alberta Transportation.

A fundamental principle of question design was clarity so that regardless of the interviewer or interviewee, results should be consistent. By using a standardized format, consistent coding and compilation of results; every effort was made to ensure confidentiality for respondents.

Most of the interviews were conducted in person at the respondent's place of business. In a few instances, due to scheduling difficulties, the form was supplied to the respondent and the interview was either conducted by telephone, or written responses were confirmed by telephone. The interviewers from GTS Group were the same three individuals involved in the research study, ensuring continuity and a high awareness of the study's objectives.

Company addresses and contact names were supplied to Alberta Transportation who in turn sent letters introducing the project and the consultants. Consultants then followed up by telephone or electronic mail to schedule interviews. Given the number of participants and their diverse geographic location, interviewers were conducted over a several month period starting in September 2003 through January 2004. Interviews were generally one to two hours in length. Follow-up telephone calls were made for some interviews conducted early on in the process to confirm that results were still valid.

Participation in the study was requested from senior managers either who responded themselves, redirected the interviewer to one of the company's managers, or who included other managers in the interviews. The level of response was very good. Of a total possible sample of nearly one hundred companies, 68 interviews were completed.

For quality control, the interview team met weekly and reviewed completed interview forms to ensure consistency and confirm responses for coding purposes. If there were missing or ambiguous answers, these were confirmed by telephone or electronic mail with participants. There were very few follow-up calls required.

Not all questions applied to every firm that was interviewed. Participants were asked all questions, but encouraged to move on quickly if questions did not apply to them. Sufficient time was allowed for open-ended response. As an exploratory study, it was recognized that there was a need for open-ended questions, along with objective or numeric responses. Although this poses a greater challenge for compiling results, it was the most effective methodology for seeking out and exploring issues.

The flow chart on page 6 provides a pictorial view of the research study design.

2.2 The Sample

Care and attention was placed on selecting a target sample group that would be representative of both service providers (the supply side) and Alberta shippers who use the intermodal system (the demand side).

In all, 93 companies were identified and sent letters by Alberta Transportation requesting their participation. Follow up telephone calls by the consultants to arrange interviews and encourage involvement were successful, resulting in an excellent response rate of 73% or 68 completed interviews.

Interviews were conducted in Vancouver, British Columbia; and in Alberta, primarily in Edmonton and Calgary. The length of interviews varied from approximately 45 minutes to over two hours. All interviews followed a structured interview guide.

2.2.1 Study Participants - Service Providers Of Containerized Intermodal Freight Transport

Service providers involved in all aspects of the intermodal system of the transport of containerized freight were targeted for the study. These included:

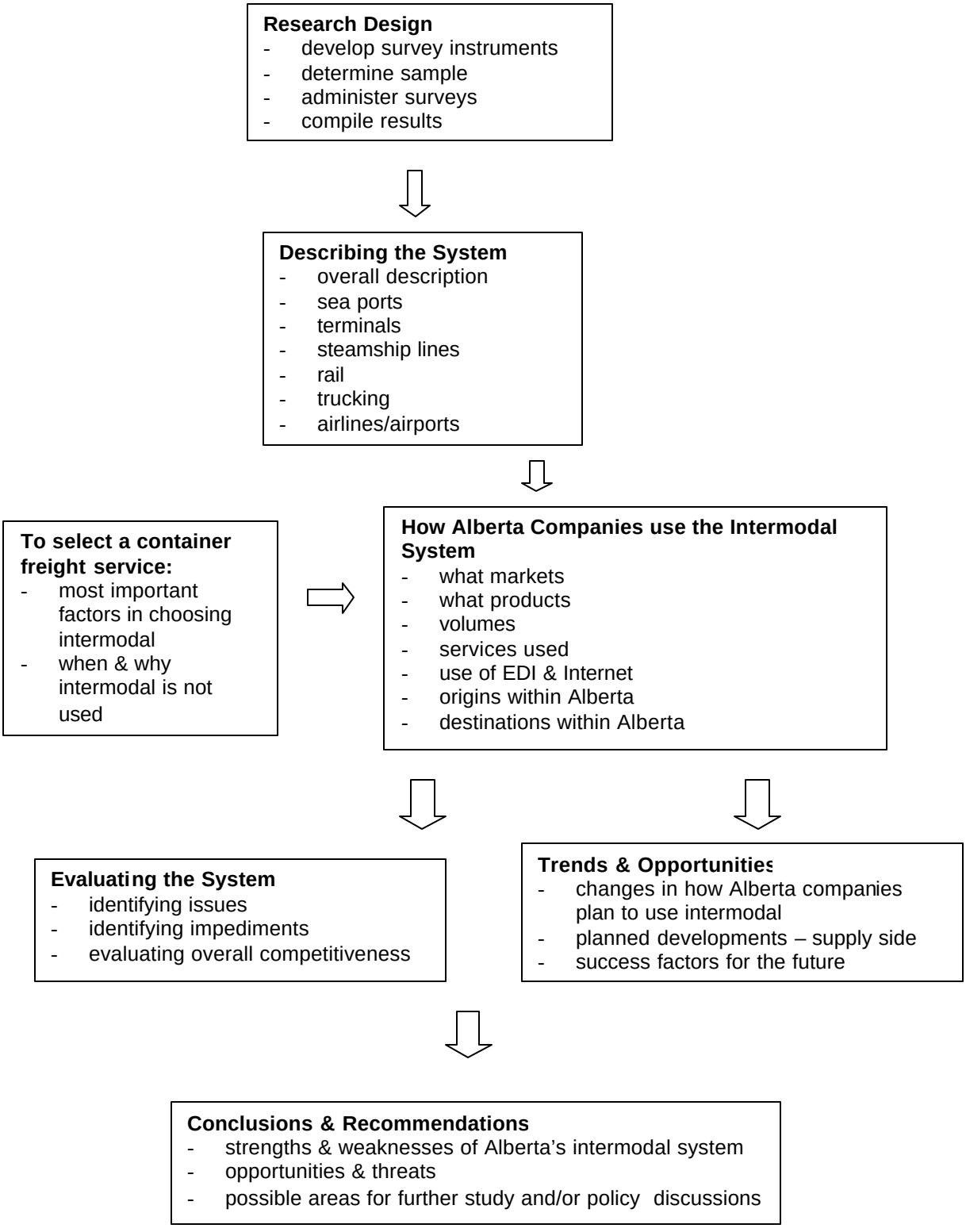
- International steamship lines for off-shore movements
- Rail intermodal - Canadian Domestic, US transborder and Mexican movements
- Trucking companies
- Port terminals and Ports
- Airlines and Airports

In all, 28 interviews were completed with service providers, broken down as follows:

Table 2.1
Service Providers Participant Group

Supply Side Respondents	**Number**
Class 1 Railways	2
Regional Railways (in Alberta)	4
Ports	2
Port Terminals	4
Steamship Lines	5
Airports	2
Airlines	4
Motor Carriers	4
Inland Container Terminal	1
Total	**28**

Figure 2.1
EXPLORING ALBERTA'S INTERMODAL CONTAINERIZED FREIGHT SYSTEM



This represents a comprehensive sampling of Alberta's intermodal system service providers. The results of these interviews provide a reliable picture of the system, the intermodal linkages, plans for future expansion, and key issues.

2.2.2 Study Participants, Alberta Users Of The System – The Demand Side

Alberta's economy is dominated by resource industries, with important sectors also in food processing and manufacturing. Knowledge of Alberta companies and extensive senior management personal contacts by GTS Group enhanced the consulting team's ability to determine a representative targeted sample and also to secure a high level of participation in the study.

Sectors targeted by the study were:

- Forestry and wood products
- Food processing and agriculture
- Oil and gas/chemicals
- Consumer goods
- Manufacturing, Primary Metals, etc.
- Third parties

In all, 40 interviews were conducted with Alberta companies, six of which were third parties.

Industries represented by the sample are the major drivers of the Alberta economy. Their plans for market and product expansion will drive the need for freight transport in the future.

The factors most critical in their decisions on how to transport goods to and from Alberta are good indicators of what is needed to increase utilization of the containerized intermodal system. The following table summarizes the 'demand side' participants involved in the study by industry sector.

Table 2.2
Alberta Exporters/Importers Study Participants By Industry Sector

Industry Sector	Number
Forestry & Wood Products	7
Food processing & Agriculture	8
Oil & Gas, Chemicals	6
Consumer goods	4
Manufacturing, Primary Metals, etc.	9
Third parties	6
Total:	40

3. The Surface Intermodal Transportation Systems Serving Alberta

Section 3.0 describes the surface intermodal systems serving Alberta, which are comprised of domestic, US transborder, Mexico and international intermodal services.

Information was documented from interviews with service providers and Alberta companies that use Alberta's intermodal system to move containerized freight.

3.1 Domestic Intermodal Services

Domestic intermodal services comprise the following logistics components:

- A domestic container is picked up at a rail intermodal terminal by a drayage agent and brought to the shipper's plant
- The container is loaded and brought directly back to the rail intermodal terminal
- Rail line haul from origin rail intermodal terminal to destination rail intermodal terminal
- The container is picked up by a drayage agent at the destination terminal and brought to the consignee's premises
- The container is unloaded and brought empty directly back to the rail intermodal terminal

The direct service providers in the domestic intermodal system are the two Class 1 railways, CN Rail and CP Rail and drayage agents (motor carriers providing pick up and delivery of containers using tractors and container chassis). Shippers may access the system directly, which is most common for domestic services, or through third parties.

Rail line haul is done on scheduled, high priority trains between the railways' intermodal terminals. The majority of movements occur in railway-owned 48' and 53' dry and temperature-controlled domestic containers. Intermodal dry and temperature-controlled trailers, also owned by the railways, are still in use. International steamship line (ISO) containers are used to move domestic cargo from Central Canada to Western Canada under the "one incidental domestic move" rule[2], in order to position containers for subsequent export moves at little or no cost.

CN Rail intermodal terminals are located in the cities of Vancouver, Edmonton, Calgary, Saskatoon, Winnipeg, Brampton (Toronto), Montreal, Moncton and Halifax.

CP Rail intermodal terminals are located in the cities of Vancouver, Edmonton, Calgary, Saskatoon, Regina, Winnipeg, Dryden, Thunder Bay, Toronto and Montreal.

[2] International containers can be used for one move loaded with domestic cargo without having to pay Canadian import duty and taxes on the equipment. This one move must be in the direction of, or to the location where, export cargo will be loaded into the container. This rule facilitates what is referred to as the "domestic repositioning program" whereby international containers are repositioned from Central Canada to Western Canada filled with domestic cargo. It is the main source for international containers inventoried in Alberta.

3.2 US Transborder Intermodal Services

US transborder intermodal services are comprised of these logistics components:

- A domestic or NACS (North American Container System) container is picked up at a rail intermodal terminal by a drayage agent and brought to the shipper's plant
- The container is loaded and brought directly back to the rail intermodal terminal
- Rail line haul from Canadian origin rail intermodal terminal to US destination rail intermodal terminal, without interchange if destination is on CN's or CP's own US system component, or
  container is interchanged to a US railway at an appropriate interchange point and brought to the destination US rail intermodal terminal
- The container is picked up by a US drayage agent at the US destination terminal and brought to the consignee's premises
- The container is unloaded and brought empty directly back to the US rail intermodal terminal

US transborder moves have Customs pre-clearance, but are subject to inspection. The direct service providers in the US transborder intermodal system are the two Class 1 railways of CN Rail and CP Rail in conjunction with two US Class 1 railways, UPSP and BNSF, and Canadian and US local drayage agents. Other US Class 1 railways may also be involved on an interline basis.

Shippers most often access the system through third parties. Canadian railways have working or contractual agreements with third parties for US transborder services.

CN Rail generally provides US transborder integrated services together with BNSF, while CP Rail provides such services together with the UPSP railroad. BNSF offers direct booking of Canadian origin services on CN Rail on its web site. It is also possible for Alberta shippers to access the BNSF system at Shelby, Montana. This access is through BNSF's intermodal agent in Shelby, and involves trucking in BNSF intermodal trailers from Alberta origins to Shelby, where the trailers enter the BNSF system.

The types of equipment used for US transborder intermodal services are essentially the same as for Canadian domestic services. There is an equipment interchange agreement in place between US and Canadian participating Class 1 railways called the North American Container System (NACS). Moves can be made in equipment not designated as NACS. Generally, NACS moves have lower freight rates but less 'free time' applied for loading and unloading. Demurrage is higher if free time is exceeded. A small amount of transborder cargo moves in ISO containers from Chicago to Alberta, in order to position containers for subsequent export moves at little or no cost.

In addition to its Canadian domestic intermodal terminals, CN Rail lists US intermodal terminals in Arcadia, Wisconsin; Peoria and Chicago, Illinois; Detroit, Michigan; Laredo and Dallas, Texas; Shreveport and New Orleans, Louisiana; Auburn, Maine; Jackson,

Mississippi; Kansas City, Missouri; and Memphis, Tennessee. Some of these can be reached directly on CN Rail's system, while others are accessed through their partner railways.

In addition to its Canadian domestic intermodal terminals, CP Rail lists US intermodal terminals in Chicago and Bensenville, Illinois; Detroit, Michigan; Minneapolis, Minnesota; Oak Island, New Jersey; Philadelphia, Pennsylvania; and Milwaukee, Wisconsin.

The reach of the US intermodal system extends beyond the terminals listed above to include all intermodal terminals operated by CN Rail and CP Rail US partner railways.

All intermodal cargo moving between Canada and the US is pre-cleared, but may be inspected at the border.

3.3 Mexico Intermodal Services

Mexico intermodal services are comprised of these logistics components:

- A domestic container is picked up at a rail intermodal terminal by a drayage agent and brought to the shipper's plant
- The container is loaded and brought directly back to the rail intermodal terminal
- Rail line haul from Canadian origin rail intermodal terminal to an appropriate US rail intermodal terminal
- Interchange of the container to a US railway at the US rail intermodal terminal
- Rail line haul by US railway from US rail intermodal yard to US – Mexico border
- Interchange from US railway to Mexican railway
- Rail line haul from US – Mexican border by Mexican railway to Mexican destination rail intermodal terminal
- Mexican Customs clearance at destination rail intermodal terminal
- The container is picked up by a Mexican drayage agent at the Mexican destination terminal and brought to the consignee's premises
- The container is unloaded and brought empty directly back to the Mexican rail intermodal terminal

CN Rail generally provides Mexico integrated intermodal services together with BNSF and Mexican railway partners, while CP Rail provides such services together with UPSP and Mexican railway partners. The BNSF offers direct booking on its web site of Canadian intermodal shipments to Mexico originating on CN Rail. It is also possible for Alberta shippers to access the BNSF system at Shelby, Montana. This access is through BNSF's intermodal agent in Shelby. It involves trucking in BNSF intermodal trailers from Alberta origins to Shelby, where the trailers enter the BNSF system. US railways hold substantial equity positions in Mexican railways.

While there have been relatively few rail intermodal terminals in Mexico, this is changing rapidly as substantial investments are being made in terminal facilities thus extending the reach, extent and scope of Mexican intermodal services and systems.

All rail intermodal shipments into Mexico are pre-cleared through US – Mexico border crossings, with customs clearance taking place at the destination intermodal terminal. This can represent a substantial advantage over motor carrier movements, which have to clear Mexican customs at the US – Mexico border. Such motor carrier freight clearances can take several days and can be costly.

The types of equipment used are essentially the same as for Canadian domestic services.

3.4 International Intermodal Services

International intermodal services from Alberta are comprised of the following logistics components:

- An empty steamship line/ISO marine container is picked up at an Alberta rail intermodal terminal by a drayage agent and brought to the shipper's plant
- The container is loaded and brought directly back to the rail intermodal terminal
- Rail line haul from origin rail intermodal terminal to a port container terminal at the exit port
- The container is loaded onto a container ship at the exit port
- The container is moved to the destination country by the container ship

Service providers for international intermodal services are the two Class 1 railways of CN Rail and CP Rail, Canadian local drayage agents, port container terminals and international steamship lines. Shippers may access the system directly or through third parties. International freight is booked with the steamship lines and the steamship lines have contracts with either CN or CP for inland carriage of containers. The railway used for a particular move depends on the steamship line being used. Most steamship lines keep an inventory of containers in Edmonton and Calgary.

For rush shipments, drayage agents do provide 'hot shot' over-the-road transport between Alberta and BC lower mainland ports. A very small amount of containers are also moved on flatbed trucks.

While the majority of Alberta shipments move through the Port of Vancouver and Fraser Port in BC's lower mainland, Alberta cargo is also known to move through the Ports of Seattle, Tacoma, Montreal, Halifax and Houston. The choice of port depends upon destinations and the transportation services/routings desired/required by the beneficial owner of the cargo.

ISO containers are used for international intermodal services. They are predominantly 20' and 40' containers, both dry and temperature-controlled, with a small number of 45'

containers. These containers are all owned or controlled by the international steamship lines.

The Port of Vancouver and Fraser Port are well served by steamship lines, with services available to all corners of the world.

3.5 The Role Of Trucking In Intermodal Transport

The role of trucking in the intermodal system goes beyond simple drayage of containers as described above. For the intermodal system serving Alberta, trucking respondents identified these additional services:

- "Hot shot" container-on-chassis service between Alberta and west coast ports for urgent shipments
- Service with regular trucking equipment from northern, central and southern Alberta to Edmonton/Calgary for transloading into containers
- Service with regular trucking equipment from Alberta to ports (e.g. Vancouver, Seattle, Montreal, Houston) for transloading cargo into containers at port
- Service with regular trucking equipment from Vancouver to Alberta for imports transloaded from containers at the port
- Service with temperature-controlled trailers from Alberta to Vancouver for transloading of refrigerated food products into containers at port
- Positioning of containers from the west coast to Edmonton/Calgary using flatbeds
- Regular long-haul trucking services using rail intermodal for part of the trip
- Ancillary services such as marine container storage and container repairs in their own yards

3.6 Positioning Of Containers And Alberta Container Inventory

Steamship lines have traditionally kept an inventory of empty dry containers in Edmonton and Calgary. These containers are brought to Alberta full with imports, repositioned filled with domestic cargo, or brought in empty. Table 3.1 shows how the five steamship lines interviewed for this study position dry containers into Alberta.

All of the five lines keep an inventory of dry containers in Alberta. Two of the lines are committed to continue maintaining an inventory in the province. Two lines do so only conditionally and not on spec, to take care of bookings. One line is reviewing, and may no longer keep an inventory in Edmonton/Calgary.

Table 3.1
Steamship Line Dry Container Positioning into Alberta

	Line 1	Line 2	Line 3	Line 4	Line 5
Full with import cargo	20%	7%	70%	70%	30%
Full domestic cargo from West Coast by rail		6%			
Full domestic cargo from West Coast by truck		7%			
Empty from West Coast	80%				
Full domestic cargo from Central Canada		70%	20%	30%	
Empty from Central Canada			10%		70%
Full transborder cargo from Chicago		10%			

None of the five lines interviewed keep an inventory of temperature-controlled containers in Alberta. One line does not handle Alberta temperature-controlled traffic, and another will not let these containers move inland from West Coast ports. Of the remaining three, one line moves all such containers inland by truck for immediate loading and return to port. Another moves all such containers inland to Alberta by rail. The third line moves 95% of such containers in by rail and 5% by truck, and moves all Alberta to Asia traffic out through Tacoma, while Alberta to Europe traffic is handled through Montreal.

3.7 Equipment Imbalances

One railway indicated that there were equipment imbalances in the Alberta market. Specifically, as Calgary is a distribution centre, there are substantial volumes of 48' and 53' dry and temperature-controlled domestic containers shipped to Calgary, with only limited outbound traffic. A large amount of this equipment is positioned empty to Vancouver, where it is loaded with import cargo transloaded from marine containers and then shipped to Central Canada. One possible solution suggested to this problem is to make Calgary a marine container transload centre for Central Canada imports instead of transloading these containers in Vancouver.

Edmonton is quite balanced for equipment, mainly because of outbound lumber volumes. US transborder and Mexico intermodal are fairly balanced. Some marine containers are being repositioned empty from Edmonton and Calgary to Vancouver.

3.8 Container And Modal Mix At Port Container Terminals

Interviews with the port container terminals provided information about the container and modal mix[3] at their terminals. Table 3.2 provides information on full and empty containers, size and type of containers and the modal mix at the terminals.

Regarding empty containers:

- A large number of empty containers are handled at port container terminals in the BC lower mainland. On an annual basis, an estimated 40 % of total containers handled, or more than 687,000 TEUs, are empty (estimate is based on typical weekly volumes in late 2002/early 2003 provided by terminal operators)

- There is considerable variation between terminals, ranging from 10% empty at Centerm to an estimated 60% empty at Vanterm. The relatively high number of empties is not surprising, as it is known that the shipping lines are deadheading empty containers back to Asia in order to meet demand and take advantage of much higher Pacific eastbound freight rates.

In terms of trends for empty containers, interview results indicated that there is:

- A decrease in empty containers on vessels inbound to Canada from Asia
- An increase in empty containers returning by rail from the US
- Routing of empties from California to Vancouver for return to Asia by steamship lines

Regarding the size of containers:

- Canadian West Coast container traffic is dominated by 40' containers. This is not surprising given that general merchandise/consumer goods imports move predominantly in 40' boxes. Large export commodities such as forest products and specialty crops also move in 40' containers. The percentage of 40's handled at the various terminals range from 70% at Fraser Surrey Docks to 85% at Deltaport.

In terms of trends regarding container sizes, the following was indicated:

- More 40' and 45' containers overall
- An increase in 40' due to increased imports
- A growing number of inbound hi-cube 40' with consumer goods from Asia
- A growing number of inbound 20' temperature-controlled containers from Oceania
- Growing exports in 20' containers
- Growing capacity for the export of pulses and seeds from Alberta to South America in hi-stress (structurally reinforced and strengthened) 20' containers @ 30MT payload
- Imports are growing much faster than exports

[3] Container mix refers to proportions of container sizes, empty and loaded containers, and dry and temperature controlled containers. Modal mix refers here to the proportion of containers handled by rail and truck.

Table 3.2
Container And Modal Mixes – West Coast Port Container Terminals

Table 3.2.1
Estimated Annual Number Of Containers, Loaded & Empty By Terminal
(in thousands of TEUs or twenty-foot equivalent units)

	Imports			Exports			Total			
Terminal	**Loaded**	**Empty**	**Total**	**Loaded**	**Empty**	**Total**	**Loaded**	**Empty**	**Total**	**% Loaded**
Vanterm*	N/A	N/A	N/A	N/A	N/A	N/A	145	221	366	40%
Centerm	N/A	N/A	N/A	N/A	N/A	N/A	270	30	300	90%
Deltaport*	N/A	N/A	N/A	N/A	N/A	N/A	461	354	814	57%
Fraser Surrey Docks	138	0	138	55	83	138	193	83	276	70%
Total							**1,069**	**687**	**1,756**	**60%**

***** Weekly averages provided by port terminals have been extrapolated for an annual estimate based on typical volumes and mix for late 2002/early 2003

Table 3.2.2
Estimated Container Mix By Size Of Containers And Port Terminal

	20’ Containers	40’ Containers
Vanterm	20%	80%
Centerm	20%	80%
Deltaport	15%	85%
Fraser Surrey Docks	30%	70%

Table 3.2.3
Estimated Container Mix By Type Of Containers And Port Terminal

	Dry Containers	Refrigerated Containers
Vanterm	93.5%	6.5%
Centerm	90%	10%
Deltaport	97.2%	2.8%
Fraser Surrey Docks	87.5%	12.5%

Table 3.2.4
Estimated Rail/Road Modal Mix By Port Terminal

	Inbound		Outbound		Total	
	Rail	Road	Rail	Road	Rail	Road
Vanterm	N/A	N/A	N/A	N/A	50%	50%
Centerm	N/A	N/A	N/A	N/A	45%	55%
Deltaport	N/A	N/A	N/A	N/A	75%	25%
Fraser Surrey Docks	60%	40%	60%	40%	60%	40%

Regarding types of containers:

- The vast majority of containers handled on Canada's West Coast are dry containers, with only a very small proportion of temperature-controlled boxes. The highest proportion of refrigerated containers handled is 12.5% at Fraser Surrey Docks. The lowest proportion of refrigerated containers handled is at DeltaPort, where only 2.8% of boxes are temperature-controlled
- There are heavy imports of temperature-controlled in the fall and high volumes of refrigerated seafood exports in the summer

Regarding modal mix at port container terminals:

- In terms of modal mix, the ratio of rail to road mix by port terminal is found on Table 3.2.4. With the exception of Fraser Surrey Docks, port terminals were only able to provide estimates for total traffic. These varied from a ratio of rail to road of 45:55 at Centerm to 75:25 DeltaPort. Fraser Surrey Docks indicated that its mix for outbound and inbound was the consistent for rail to road at 60:40. The vast majority of terminal truck traffic is assumed to be local drayage in the BC lower mainland

3.9 Meeting Port Terminals' Customer Needs

Appendix A Chart 1

Port container terminal respondents were asked how well they believed they were meeting the needs of their customers, both shippers and steamship lines. Port terminals cited many positive customer service aspects such as:

- Service and price
- Good equipment
- Good, reliable infrastructure
- Good electronic communications
- On-dock rail
- Good truck reservation system
- Labour, labour relations, labour peace

- Efficient system
- Good employees
- High reliability
- Customer service focus
- Earlier/longer receiving dates, 2 - 3 weeks compared to 5 days at VPC terminals
- More free time on import containers
- Increasing capacity to meet steamship line requirements

3.10 Current Challenges Facing Steamship Lines

Appendix A Chart 2

The steamship lines were asked to identify the major challenges they face today. The responses tended to be specific to each steamship line's situation and circumstance. Current challenges facing steamship lines include:

- Overall market and economic uncertainty
- To maintain competitiveness
- To keep operating costs down
- To maintain or increase ocean freight rates in the current competitive environment
- To maintain on-time performance
- Rail carrier connectivity, consistency of service and railcar supply
- Customer service orientation
- US security issues for cargo transiting through Canada to US versus cargo going to the US direct

3.11 Port And Port Container Terminal Congestion

Appendix A Chart 3

The ports, the port terminal operators and the steamship lines were asked about the incidence of congestion in the ports and in the port terminals. Choices provided for response were 'Never', 'Rarely', 'Sometimes', 'Often' and 'Very Often'.

Port terminals were found congested on occasion due to insufficient railcars and/or in the peak season. Steamship lines reported that ports were rarely congested.

4. Using The Intermodal Containerized Transportation System

A total of 40 Alberta companies were interviewed to determine how they use the intermodal system for transporting containerized freight. The sample comprised 34 shippers and 6 third parties. These firms were asked a number of questions to determine what intermodal services they were using, what products were being shipped, where shipments were originating for outbound cargo, and where inbound cargo was destined for in Alberta.

Companies were also asked what logistics services they used, either in-house or through outsourcing. They also indicated what changes they anticipated in their use of intermodal services over the next five years.

The following section summarizes what was learned from Alberta shippers, while the Appendix provides detailed results.

4.1 Alberta's Intermodal Containerized Shipments

System users were asked what intermodal services they used. "Users" included Alberta companies who import and export, as well as third party shippers such as freight forwarders or expediters. Interview results are provided in Table 4.1 on the following page. Highlights are:

- Alberta companies interviewed primarily use intermodal containerized freight for international markets accessed by steamship line
- About two-thirds of shippers and one-half of third parties indicated that they use international steamship line intermodal services
- International air cargo services were used by most third parties, while 29% of shippers use air for international cargo
- Domestic intermodal services were used by 38% of the system users interviewed
- US Transborder and Mexico intermodal services were used by 23% and 8% of users respectively
- Of the companies interviewed, 20% indicated that they did not use any intermodal services

Firms indicated that they use international air cargo most often to transport samples or to supply parts needed on an immediate basis. Air cargo is not usually containerized and includes the use of courier services.

Table 4.1
Intermodal Services Used By The Alberta Shippers Interviewed

Intermodal Service	Used by Shippers # & (%) of total number of shippers	Used by Third Parties* # & (%) of total number of third parties	All System Users # & (%) of users interviewed
International Steamship Line Intermodal	23 (68%)	3 (50%)	26 (65%)
International Air Cargo	10 (29%)	4 (67%)	14 (35%)
Domestic Intermodal	13 (38%)	2 (33%)	15 (38%)
Domestic Air Cargo	7 (21%)	1 (17%)	8 (20%)
US Transborder Intermodal	7(21%)	2 (33%)	9 (23%)
Mexico Intermodal	2 (6%)	1 (17%)	3 (8%)
Do not use intermodal services	7 (21%)	1 (17%)	8 (20%)
Total – Companies Interviewed	34	6	40

* Third parties in the sample include four forwarders, one expediter and one third-party warehouser

4.2 Alberta's Intermodal Catchment Area

This exploratory study collected information on Alberta's catchment area for intermodal traffic moving through CN Rail and CP Rail Edmonton and Calgary intermodal terminals.

The most comprehensive and reliable information was obtained from Alberta drayage agents that participated in the study. Drayage agents pick up all originating containerized traffic and deliver all containerized destination traffic. They are very knowledgeable and their intermodal traffic catchment areas are representative of the intermodal traffic handled at Alberta terminals. Information from the two agents participating in the study is summarized on Table 4.2. They both operate in Edmonton and Calgary.

Northern Alberta is defined as the area north of Highway 16. Central Alberta is defined as the area between Highway 16 and Highway 1. Southern Alberta is defined as the area south of Highway 1. The Edmonton area is the greater Edmonton Metropolitan Area as defined by Statistics Canada. The Calgary area is the greater Calgary Metropolitan Area as defined by Statistics Canada.

Table 4.2
Alberta's Catchment Areas For Containerized Intermodal Freight
(As a % of total containerized intermodal traffic through Alberta Terminals)

Geographic Area	Outbound*	Inbound*
Northern Alberta	10 to 11%	5 to 10%
Central Alberta	5 to 10%	5 to 10%
Edmonton Metro Area	30 to 35%	30 to 35%
Southern Alberta	10%	5 to 10%
Calgary Metro Area	35 to 40%	40 to 45%
Northeastern BC	1%	2%
Saskatchewan	1%	0.5%
NWT	-	0.5%
Montana	2%	1.5
Idaho	-	0.5%
Total	100%	100%

*Range of Estimates, so total may not add up to 100%

*Does not include products loaded into containers at the ports such as pulp from northern Alberta; petrochemicals, food refrigerated products, and other products that would not normally flow through the Alberta intermodal terminals

Source: Interviews with Alberta Drayage Agents (2)

Characteristics of Alberta's traffic for containerized intermodal freight include:

Outbound:

- Edmonton generates between 30% and 35% of intermodal outbound traffic, while Calgary is estimated to generate 35% to 40% of the traffic. Approximately 10% of outbound traffic originates in northern Alberta and southern Alberta respectively. Central Alberta generates an estimated 5% to 10% of outbound traffic.

- Out-of-province origins, serviced by one of the participating agents include Northeastern BC and Saskatchewan at 1% of traffic, and Montana origins at 2%. The Montana exports are grain products moving in 20' containers through CP Rail's Calgary intermodal terminal and through the Port of Montreal to Europe. This routing is reportedly lower cost than a routing using a US railway and a US exit port. To handle this traffic, the drayage agent has designed special purpose three-axle

extendable chassis that increase the payload to 21.4 tonnes, up from 15.4 tonnes normally allowed in Montana with a tandem axle chassis.

Inbound:

- Most inbound containerized intermodal freight is destined for the Edmonton and Calgary metropolitan areas. Edmonton takes 30% to 35% of inbound, while Calgary takes 40% to 45%. This constitutes some three-quarters of containerized intermodal inbound traffic to Alberta.

- Approximately 5% to 10% are destined for each of northern, central and southern Alberta.

- Out-of-province destinations were serviced by one of the respondents. Northeastern BC represents 2%, Montana 1.5%, and Saskatchewan, NWT and Idaho 0.5% each of inbound destination traffic. Inbound traffic to Montana/Idaho are imports from Europe being routed through the Port of Montreal and CP Rail's Calgary intermodal terminal, as the Canadian routing is lower cost than a routing through a US port with a US inland rail haul.

Alberta's catchment area for containerized intermodal freight was confirmed by interviews with Alberta companies across the province. In summary, intermodal services are most commonly used in Edmonton and Calgary, where intermodal terminals are located and operations most suited to using intermodal are located.

There is Alberta intermodal traffic that is not moving through CP Rail and CN Rail intermodal terminals. This includes inbound traffic that is unloaded in Vancouver and trucked to Alberta. On the outbound side, substantial Alberta volumes (estimated by the consultant to be tens of thousands of TEUs) are being transloaded into containers at port position in Vancouver.

4.3 Products Shipped Via Intermodal Containerized Freight By Alberta Companies Participating In The Study

A wide variety of products are shipped to and from Alberta using the containerized freight intermodal transport system. The study sample was targeted rather than random and therefore the products shipped reflect the sample's composition. However, the sample was selected because it represented a good cross-section of Alberta business activity.

Appendix A Chart 4

Outbound products included machinery or parts, chemicals, forestry and wood products, and frozen foods and other food products. Inbound products include raw materials, machinery and equipment, parts, packing materials and consumer goods. Appendix A contains a detailed listing of products provided by the companies interviewed in the study.

4.4 Offshore Steamship Line Intermodal Shipments, Source Loaded At The Plant Or Transloaded

System users were asked if offshore steamship line intermodal shipments were source loaded into containers at plant or transloaded into containers at port.

Appendix A Chart 5

Of the forty companies interviewed, 22 responded to these questions.

- Over 70% source loaded all or part of their steamship line shipments.
- About 55% transloaded some or all of their international intermodal cargo.

When asked why they transloaded at port or a transload centre, responses given included:

- Lack of capacity/equipment to load containers at source
- The distance of the plant from a container terminal
- Access to containers or availability of containers
- Less-than-Container-Load (LCL) that are consolidated at the Port
- Require refrigerated trucks to transport product to Port

4.5 Logistics And Service Factors That Influence Choice Of An Intermodal Transportation Service Provider

Appendix A Charts 6 - 9

Shippers and third parties in the study were asked to rank up to three important factors in their decision to choose an intermodal service provider. They were asked this question for the modes of marine, truck and rail.

- Rates/prices were ranked as the number one factor for choosing truck, rail and marine intermodal service providers

- Service reliability was ranked as the second most important factor for choosing truck, rail and marine intermodal service providers

- Equipment availability/suitability was ranked as the third most important factor for choosing truck, rail and marine intermodal service providers

- Transit time was also cited as important for marine intermodal, while service frequency was an important factor for trucking providers

4.6 Logistics Services Used By Alberta Companies

Participating companies were provided with a list of logistics services. For each service they used, they were asked whether they were supplied in-house or outsourced.

Appendix A Chart 10

- Seventy percent or more of companies required each of local pick up and delivery, container stuffing, customs brokerage, documentation, warehousing and freight forwarding
- Of these, freight forwarding, customs brokerage and local pick up/delivery are most often outsourced
- Documentation is more likely to be done in-house
- Container stuffing was done within companies about as frequently as it is outsourced

4.7 Evaluating Intermodal Service Factors By System Users

Appendix A Chart 11

Shippers and third parties were asked to rate a number of service factors for each transport mode including marine, steamship lines, rail, and trucking. Results showed that most respondents were satisfied with these services. It was not a qualitative question. It only asked if respondents were 'satisfied' or 'unsatisfied'. In most cases, the factors were rated as satisfactory and also respondents indicated that little change or some improvement in quality had occurred over the past five years.

4.8 How Firms Use Electronic Information And Business Processes

Study participants were specifically asked about use of electronic data interchange (EDI) and use of Internet services.

Appendix A Chart 12

Results show that a little under one-half of the companies interviewed are electronically integrated with transportation service providers. Those that are not gave the following reasons:

- Their systems are not compatible or need updating first
- They use freight forwarders
- Do not need it
- Their customers do not use it

Internet is a commonly used tool, most often within the company itself. Companies also reported that they use Internet with final business customers, with product and material suppliers, marine transport suppliers and motor carriers.

Functions for which companies are electronically integrated most often include shipment tracing, documentation and invoicing.

Appendix A Chart 13

Study participants were asked what plans they had in the future to expand use of EDI or Internet. While six had no plans and two companies did not know, most did indicate that they would be expanding. Increased integration of business functions such as inventory control, bills of lading, customer interface and electronic ordering are examples.

4.9 Reasons Why Companies Do Not Use Intermodal

Appendix A Chart 14

Of the companies interviewed, 73% have *some* outbound shipments and 53% have *some* inbound shipments for which they do not use intermodal transport.

US transborder and domestic markets are often accessed through truck or rail, not intermodal. Participants who provided percentage estimates indicated that the majority of their shipments are break bulk, with a small proportion being intermodal.

Reasons given for not using intermodal include:

- The nature of handling facilities required
- Customer needs - some customers require bulk railcar delivery, some require truck delivery
- Need on-time delivery and on-time inventory
- Sensitive delivery times and the need for door to door service
- Lack of 53' intermodal containers/trailers
- Size of order and location of customer
- Need for the best price
- Service and damage concerns
- Destinations are not conducive
- Products too large to fit in containers
- Use own company fleet

5. The Next Five Years – Users And Providers

This chapter provides information regarding shippers' and system service providers' expectations, challenges and plans for the next five years. Numeric volume forecasts were not undertaken in this exploratory study. Companies interviewed were asked about their expectations for growth of intermodal container traffic over the next five years. They were also asked to indicate key drivers for growth.

5.1 Users

5.1.1 Changes In The Need For Intermodal Services In The Next Five Years

Appendix A Chart 15

Companies were asked what changes they anticipated in their need for containerized intermodal freight services over the next five years. Responses showed that while 33% anticipate no change, some 65% expect increases. Two percent were unsure about their future needs. Comments with regard to future needs for intermodal services included:

- Volumes could grow by 30% in five years time
- 15% increase in 2004
- We plan on increasing our intermodal freight by about 5% in 2004
- Considering that volumes will continue to grow, so will the need for containers. Estimate 20% volume increase yearly
- Growth in US traffic
- Expect to convert more over-the-road freight into intermodal in the future. We are currently examining opportunities to ship product intermodal to Mexico
- Not unless break-bulk rail gets too expensive. Could then possibly truck to Edmonton and load containers there
- No changes. Pattern the same with increased growth
- Use intermodal for international. Use own fleet for North America. Tried intermodal four years ago, but big problem due to speed, cost and damage. Did recently look at intermodal for moving one product, but delivery times are a challenge in North America
- Resumption of Asian shipments when BSE issue is settled

5.1.2 Outbound From Alberta In The Next Five Years

Appendix A Charts 16 - 17

Over the next five years, companies interviewed expect that their outbound container volumes would be characterized by:

- Increases in the export of forest products, petrochemicals, oil and gas equipment, food and agricultural products

- Regional demand and sales growth, the expansion of eastern Canadian markets, changes in interplant shipments within Canada, oil and gas equipment and supplies shipments
- An increase in shipments to US markets in all regions
- Growth in international shipments depending on increased sales growth in south east Asia, Europe, Japan and Australia

Factors seen to influence growth are:

- Availability of temperature-controlled containers and accessibility to new foreign ports
- Global sales efforts across the world
- Acceptance of Alberta's food and agricultural products
- Competitive intermodal costs
- Currency exchange rates

5.1.3 Inbound To Alberta In The Next Five Years

Over the next five years, companies interviewed indicated that their inbound container volumes will be driven by:

- Domestic market expansion
- Increase in interplant shipments within Canada
- Increased shipments from eastern Canada
- Increase in US transborder shipments of furniture from the southeastern states, oil and gas equipment from Texas, and continued shipments from New York, Tennessee and California
- Increase in products and shipments to Alberta from Mexico, China and South East Asia, Europe and South Africa
- Products will include retail goods, furniture, and oil and gas related products

Improved services that will influence intermodal growth include:

- On-time delivery
- Door-to-door service
- Specified delivery times
- Lower prices
- Higher quality of intermodal services.

Other factors that are seen to influence growth of inbound traffic are:

- Currency exchange rates
- Continued low labour costs of imported materials
- Overseas prices and working relationships with overseas agents
- Product packing

- Maintaining customer product acceptance
- U.S. Helms-Burton law (forces local companies who do business in the U.S. to buy internationally when local supplier is active in Cuba)

5.2 Providers

This section provides expectations, challenges and plans over the next five years as expressed by truckers, railways, ports, port terminals and steamship lines.

5.2.1 Trucking Expectations, Challenges, Plans

In terms of overall intermodal moves over the next five years, truckers expect:

- Moves of dry containers on chassis will increase significantly
- Moves of temperature controlled containers on chassis will increase somewhere between 'somewhat' and 'significantly'
- No change is expected in containers moving on flatbeds (mostly empty positioning)
- Moves of dry intermodal trailers will increase somewhat
- No change is expected in moves of temperature controlled intermodal trailers

Truckers expect drivers of outbound intermodal volumes to be as follows:

Markets:

- Domestic: Ontario, Vancouver, Winnipeg, Montreal
- US Transborder: All of USA
- International: China, Korea, Japan, Europe

Products:

- Agricultural products
- Forest Products
- Chemicals
- Fibreglass strands
- Furniture
- Nickel
- Magnesium Oxide
- Consumer goods

Other Drivers:

- Currency exchange rate

Overall, truckers expect outbound container volumes to increase somewhat, for the following main reasons:

- It is more economical to move product by intermodal than over the road
- Improved intermodal services
- Lack of long-haul drivers to handle loads – driver shortage

A major increase in empty container availability in Alberta could precipitate outbound volumes to increase significantly.

Truckers expect drivers of inbound intermodal volumes to be as follows:

Origins:

- Domestic: Toronto and Montreal
- US Transborder: All of USA
- International: China, other Asia, Europe

Products:

- Consumer goods
- Industrial equipment
- Steel
- Furniture
- Chemicals
- Food products
- Construction products

Other Drivers:

- Currency Exchange rate
- Alberta economy

Overall, truckers expect inbound container volumes to increase significantly, for the following main reasons:

- It is more economical to move product by intermodal than over the road
- Improved intermodal services
- Lack of long-haul drivers to handle loads – driver shortage

Truckers expect changes in customer needs for intermodal services over the next five years to be as follows:

Outbound:

- If rail does not improve (demurrage costs, transit times, delays), there will be more truck to Vancouver with transload into containers at port
- More products will move intermodal as there are significant cost savings and improvements in intermodal transit times

Inbound:

- If rail does not improve (demurrage costs, transit times, delays), there will be more transload in Vancouver with truck into Alberta
- More products will move intermodal as there are significant cost savings and improvements in intermodal transit times

Trucking firms indicated they have the following changes in services planned for the next 5 years:

- Computerized dispatch tied into accounting and invoicing systems
- Add empty container stacker (5 high) to increase storage yard capacity
- Add other/more chassis equipment. Maybe a chassis with built-in lifter similar to chassis used in Europe, needed for oil industry shipper-owned boxes.
- Increase container repair, including mobile and in-house
- Add a container surveyor for export loads and for containers themselves
- Increased service in all areas to handle extra volumes

5.2.2 Railway Expectations, Challenges, Plans

Railways expect drivers of outbound intermodal services for the next five years to be as follows:

Markets:

- Domestic: Ontario, Quebec
- US Transborder: Chicago, Memphis
- International: Markets served through the port of Vancouver (very little through Montreal and/or Halifax)

Only limited information on product drivers was provided:

Products:

- Domestic: Lumber, specialty seeds/crops, insulation
- International: Seeds to Montreal for transload to Europe

Other Drivers:

- The health of the shipping and consuming economies
- GDP (gross domestic product)
- Employment levels
- Consumer confidence
- Corporate investment
- Currency exchange rates
- The level and mix of agricultural crops from year to year

Railways expect changes in outbound container volumes over the next five years as follows:

- Domestic Volumes: One railway expect outbound volumes to increase significantly, while the other expect volumes to increase somewhat
- US Transborder Volumes: Both railways expect outbound volumes to increase somewhat
- Mexico Volumes: Both railways expect outbound volumes to increase somewhat
- International Volumes: One railway expect outbound shipments to increase significantly, but notes that there could be substantial transloading of resource exports at port, which could change inland outbound international intermodal volumes. The other railway expect outbound volumes to decrease somewhat, because of the continued shift away from source loading containers in Alberta and moving product to port in bulk for transloading into containers.

Railways expect drivers of inbound intermodal services for the next five years to be as follows:

Origins:

- Domestic: Ontario, Quebec
- US Transborder: Chicago, Memphis
- International: No specific drivers expected

Products:

- Consumer products

Services:

- One railway feels that their plan for a slot reservation service with financial incentive for early reservation will be a driver, and also expect this to result in more yard/terminal capacity

Other drivers:

- The health of the shipping and consuming economies
- GDP (gross domestic product)
- Employment levels
- Consumer confidence
- Corporate investment
- Currency exchange rates

Railways expect changes in inbound container volumes over the next five years as follows:

- Domestic Volumes: One railway expect inbound volumes to increase significantly, while the other expect volumes to increase somewhat
- US Transborder Volumes: Both railways expect outbound volumes to increase somewhat
- Mexico Volumes: Both railways expect outbound volumes to increase somewhat
- International Volumes: Both railways expect no change in their inbound volumes. One railway noted that although consumer demand would drive a 5% increase, there is a shift to transloading imports from marine containers in Vancouver

One railroad indicated that their overall domestic intermodal volumes are growing at twice the rate of growth in GDP (gross domestic product), and expects that to continue.

In terms of types of containers, the railways expect the following overall growth patterns over the next five years:

- Dry Containers: One railway expects dry container volumes will increase significantly, while the other expects volumes to increase somewhat
- Temperature Control Containers: One railway expects temperature-controlled container volumes will increase significantly, while the other expects volumes to increase somewhat. The reason for the significant increase is expected to be new food products/grocery moves

Railways expect changes in customer needs for intermodal services over the next five years to be as follows:

- More consistent services (better reliability, better predictability)
- More capacity because of modal shift trend from trucks to intermodal (already happening in the USA)

- Need for more domestic 53' containers
- Faster inland rail transit times for international import and export containers

Railways provided limited information on plans for new services over the next five years. Mentioned were:

- Improvements in transit times
- Introduction of temperature controlled equipment for US transborder services (limited to the system owned by the railway)
- Wholesaling only of US transborder services to all destinations requiring interlining with another railway system. Door-to-door retail will only be available within the railway's own system
- Automated gates at intermodal terminals with biometrics readers
- Reservation system at terminals and for slots on trains

One railway has plans for new terminal facilities in Toronto and Memphis, and for expansion of facilities in Calgary and Vancouver.

5.2.3 Marine Expectations, Challenges, Plans

Ports, port terminals and steamship lines were asked about their expectations, challenges and plans for the next five years.

In terms of outbound traffic drivers, expectations are:

Markets:

- Ports: China, Asia in general
- Port Terminals: Japan, Korea, Taiwan, Asia in general, Australia/New Zealand
- Steamship Lines: Japan, China, Korea, Hong Kong, Taiwan, Central/South America

Products:

- Ports: Forest products, food products, specialty crops, pulp and newsprint to South America and Europe
- Port Terminals: Forest products, pulp, specialty crops, hides, malt to Asia, food products (beef, poultry, pork, McCain fries and pulses to South America, apples, seafood)
- Steamship Lines: Forest products, agricultural products, chemicals, reefer cargo (food products), scrap waste paper from US Midwest

Other Drivers:

- Ports: No suggestions
- Port Terminals: Asian economy, Canadian economy, currency exchange rates, supply and demand
- Steamship Lines: Currency exchange rates, world economic conditions, world health Issues, success of exporters

In terms of inbound traffic drivers, expectations are:

Origins:

- Ports: China, Hong Kong, Korea, Japan, Chile
- Port Terminals: China, Korea, India, South America
- Steamship Lines: China, Hong Kong, Asia generally, Australia

Products:

- Ports: Consumer goods, Chilean value added forest products
- Port Terminals: Consumer goods; forest products, fish meal and wine from South America; leather goods and fruit from Chile
- Shipping Lines: Consumer goods

Other drivers:

- Ports: US traffic
- Port Terminals: US economy, growth of intermodal services to USA through Canadian west coast ports, currency exchange rates
- Steamship Lines: US economy, first port of call (FPOC) will drive cargo from China into US Midwest and east coast, growth in Midwest and Eastern US, consumer demand

One port made the observation that US traffic drives their business and that there is potential vulnerability and risk of US retaliation against Canada, for whatever reason, leading to border closure. An assessment of vulnerability and risk is beyond the scope of this exploratory study.

Appendix A Chart 18

Expectations with regard to container volumes to and from Alberta over the next five years are as follows:

- Ports: One port responded, with no change in volumes
- Port Terminals: Two terminals expect volumes to increase somewhat
- Steamship Lines: Two steamship lines expect Alberta volumes to increase significantly, one expects volumes to increase somewhat, and one line expects no change

Products, reasons and conditions relevant to Alberta volume expectations included:

- More chemical shipments
- Growth in agricultural products
- Growth in temperature controlled products
- Growth in forest products shipments
- More imports of consumer goods
- Dependent upon agriculture harvest conditions/crop yields
- Alberta has a good economy
- Alberta - Vancouver transportation costs must remain competitive
- Rail car equipment must be available
- Steamship line has a strategy to increase Alberta market share

Appendix A Chart 19

Ports, port terminals and steamship lines were asked if Alberta temperature controlled traffic could be expected to grow faster than dry shipments. Responses were mixed.

- Two steamship lines indicated there would be no change
- One port terminal indicated there would be no change unless the BSE problem is sorted out
- One steamship line indicated that temperature controlled shipments would grow faster if Japanese and Chinese demand improve
- One port terminal believed that temperature controlled shipments would grow faster than dry shipments
- One shipping line believed dry shipments would grow at a faster rate, due to import shipments to Calgary distribution centres

Appendix A Chart 20

Steamship lines, ports and the port container terminal operators were asked if they saw any need for new and/or upgraded intermodal services. The following suggestions were made:

- Ports: Opportunities for South America and Australia temperature-Controlled services because of summer/winter opposites Relative to Canada
- Port Terminals: Inland temperature-controlled carrying capacity needs to be expanded
- Steamship Lines:
  - Increase rail service for temperature-controlled units
  - There is a need for an intermodal terminal in Lethbridge
  - Resurrect Alberta Intermodal Services[4]

[4] Alberta Intermodal Services (AIS) was established by the Province of Alberta in 1986 to lower inland container freight rates for international container shipments, and to promote the use of such services to Alberta exporters. The company operated inland container terminals in Edmonton and Calgary, owned a fleet of intermodal railcars, and provided local drayage and over-the-road dry and temperature controlled container services between Alberta and Vancouver. The company achieved a substantial reduction in inland freight costs, and precipitated rapid growth in

- A slot agreement[5] for Alberta traffic between CN and CP to get two-day service to both Calgary and Edmonton on either railway
- Match inbound and outbound traffic for two-way loaded moves
- Improve (add) Coquitlam to Fraser Surrey Docks rail switching

Two steamship lines out of the five interviewed felt that Western Canada was well served and that existing services were adequate.

Interview results show wide variation in growth forecasts ranging from 3% per year to 25% per year overall through Canadian west coast ports over the next five-year period. Responses from ports, port terminals and steamship lines show that the single most important driving factor for future traffic levels overall will be an increase in import traffic driven by China, with a major destination for imports being the US Midwest.

5.2.3.1 Port Capacity And Plans For Expansion

Port capacity information was obtained from the companies that operate the port container terminals in the Port of Vancouver and Fraser Port. Current port container terminal capacities (2002-2003) and throughputs are shown on the following table.

Table 5.1
Container Capacities And Throughputs In '000s Of TEUs

Terminal	Current Estimated Capacity	Current Throughput			Year Expected to Reach Capacity
		Exports	Imports	Total	
Vanterm	442	168	198	366	2008/09
Centerm	350	150	150	300	2004
Deltaport	850	427	388	814	At capacity
Fraser Surrey Docks	250	138	138	275	At capacity
Total	1,892	883	873	1,756	

Alberta international container shipments. In 1993, AIS was considered to have achieved its objectives, and was sold off in pieces by the Province.

[5] In this context, a slot agreement means that each railway (CN and CP) will set aside a certain amount of space (or slots) on intermodal railcars for steamship line containers normally moved on the other railway in order to improve transit times by CN to/from Calgary and by CP to/from Edmonton.

Estimated container terminal capacity in the Vancouver area is 1.89 million TEUs, with a current throughput of some 1.76 million TEUs or 93% of total capacity.

Fraser Surrey Docks in Fraser Port is currently at capacity and Deltaport is also considered to be close to capacity. Centerm is expected to reach capacity in 2004, while Vanterm still has excess capacity.

All the port container terminals plan to expand. At the Port of Vancouver, expansion plans have three components:

1. Utilization: Reconfigure, upgrade and expand for better utilization of current infrastructure. Vanterm will provide additional capacity of 150,000 TEUs and Centerm will be reconfigured (Total cost of $40 million to $50 million)

2. Productivity: Increase lifts per hour for container cranes

3. Capital Expansion: Centerm will expand from 350,000 TEU to 600,000 TEU, and Vanterm from 500,000 TEU to an expected eventual 670,000 TEU. Additional berth at Deltaport in 2007 will increase capacity by 50,000 to 100,000 TEUs. The development process is underway for Terminal II (Deltaport II) at Roberts Bank at 1.2 million TEU, with plans to open in 2009

Specific plans at individual existing terminals are as follows:

- Vanterm: CFS (container freight station) shed and the office building currently located on the terminal will be removed by the end of 2004 increasing capacity by 19% from 442,000 TEU to 527,000 TEUs

- Centerm: Expansion in 2004 to 600,000 TEUs by adding one crane; deepening berths; and increasing intermodal capacity (number of rail tracks and how they are worked, i.e. rail gantries)

- Deltaport: A third berth is planned for Deltaport in 2007 at an estimated cost of $215 million. This is estimated to increase capacity by 50,000 to 100,000 TEUs to 900,000 to 950,000 TEUs

- Fraser Surrey Docks: Phase I expansion plans at Fraser Surrey Docks started in 2003 and comprise four new container cranes; reorganization of the terminal's intermodal operation; and re-jigging and expansion of the rail intermodal yard with ability to load/unload two full trains (a full train cannot currently be handled). With these changes in Phase I, capacity is expected to reach 500,000 TEUs by around 2008. There is a Phase II plan being considered that would increase capacity to 800,000 TEUs

The above expansions will increase existing BC lower mainland port container terminal capacity from approximately 1.89 million TEUs to an estimated 2.6 million TEUs by the year 2008.

In addition to the expansions at existing terminals, the Port of Vancouver has started the development process for Deltaport II at Roberts Bank, with a plan to open in the year 2009. This new terminal is expected to add approximately 1.2 million TEUs to capacity. While actual costs were not provided, it is estimated that Deltaport II could cost $700 to $800 million; and that additional investments might be required in road/rail infrastructure for grade separations, over and underpasses along access routes.

In Fraser Port, the Fraser Richmond site has 130 acres set aside for a future deep-sea terminal site, likely for containers. Coast 2000, a full service container freight station, is located at the site along with the Hudson Bay Company's distribution centre. If all 130 acres were dedicated to a new container terminal, it would add substantial capacity upward of 1.0 million TEUs.

With these developments, BC lower mainland port container terminal capacity in the next five to ten years could reach approximately 3.58 million TEUs without the Fraser Richmond site, and upwards of 4.58 million TEUs with the Fraser Richmond site being developed.

In addition to capacity in the BC lower mainland, it appears that a container terminal at the Port of Prince Rupert is moving closer to reality. This terminal would be located at the Fairview Terminal site and would have an estimated capacity of 450,000 TEUs, with potential to expand to 1.0 million TEUs. One estimate has the terminal open and operational by the end of 2005.

With the inclusion of Prince Rupert, Canada's West Coast port container terminal capacity could reach 3.0 million TEUs by 2008, and could reach 5.5 million TEUs in the next five to ten years if all the planned development is realized.

5.2.3.2 Expected Changes In Customer Needs And Affect On Ports And Port Terminals Over The Next Five Years

Steamship lines participating in the Study anticipated increased traffic and growth for the West Coast Ports.

Port container terminal operators expect a number of changes in steamship line requirements over the next five years. Interview results indicated that:

- There is an expectation of larger ships and the need for more terminal capacity and more container handling capacity at the ports
- Port container terminal operators are anticipating larger ships and the need for more terminal capacity and container handling capacity at the ports. To stay competitive,

steamship lines will require port terminals to maintain present turn around times with the larger ships, meaning that terminals must be more productive and still be cost effective. This will necessitate the need for more on-terminal intermodal rail capacity, more internet-based EDI, more security, and less rail and truck congestion at the port terminals than what is currently the case.

- Steamship lines will require increased productivity at the terminals to maintain turn around time with larger ships; and steamship lines will expect costs reductions

Appendix A Chart 21

Port and port terminals respondents were asked how changes to steamship line operations would affect them. Responses included:

- The need for capacity increases at both the port terminals and ports. It was felt that the demand for increased service levels and lower rates will be challenging for port terminals
- Current rate levels are too low to adequately cover costs

5.2.3.3 Expected Changes In Customer Needs And Challenges Facing Steamship Lines In The Future

Steamship lines were asked what changes they expected to see in the needs of their customers, what changes they planned to make, and how changes they made would affect the ports or port terminals. Examples of possible changes cited include:

- Less import containers traveling inland with more large distribution centres opening up in the Vancouver area and provinces other than BC served by domestic intermodal
- More source loading at plant sites
- Increased demand for specialized temperature-controlled rail container flat/stack cars

Appendix A Chart 2

The steamship lines were asked to identify what challenges they expect five years from now. The responses tended to be specific to each steamship line's situation and circumstance. When looking five years into the future, the steamship lines see the following challenges:

- State of the world economy
- China's influence
- Possible changes in ports and vessel rotations
- New vessel capacity coming on stream versus North American economic growth
- Labour as an ongoing concern
- Efficiency of ports, rail and motor carriers
- Terminal congestion (as opposed to marine vessel port congestion)
- Similar to today's challenges - to stay competitive

Steamship lines were also asked how changes to their operations would affect the ports and or port terminal operators.

- They expect to increase volume and traffic
- In particular, the introduction and reintroduction of larger vessels will increase port volumes, increase jobs and increase revenues

5.3 User Versus Provider Expectations In The Next 5 Years

There seems to be broad convergence of users' and system service providers' expectations over the next five years. Specifically;

- There is agreement on growth for forest products, agricultural products, food products and chemicals
- Expected growth rates expressed by users and providers are comparable
- Both users and railways expect increases in domestic and US transborder intermodal volumes
- Both users and providers understand that freight rates must stay competitive for intermodal services to be a viable alternative
- Both users and the railways understand that improvement in intermodal services (transit times, reliability, predictability, costs) can lead to incremental modal switch from motor carriers
- Both users and providers understand that currency exchange rates and world market conditions are significant determinants of intermodal traffic volumes

6. Issues And Impediments Facing The Intermodal Containerized Freight Transport System Serving Alberta

As exploratory research, a fundamental objective of the study was to determine issues and impediments for Alberta's intermodal containerized freight transport system. Interviews with service providers and with users focused on problems that may be occurring in all parts of the system including marine, rail and motor carrier. This chapter provides the results of questions related to issues and impediments.

Note that issues are often presented verbatim or paraphrased from interview results. They represent the opinions of the respondents and are not necessarily founded in fact.

6.1 Issues And Suggested Solutions Identified By Study Participants

Participants in all groups were asked to identify and discuss problems with access, congestion, capacity, container handling, customs, security and other issues. Respondents were also asked to identify any environmental issues, but no responses were given.

Issues within the categories mentioned above were specifically identified for the truck/road, rail and marine components of the intermodal systems serving Alberta. Project participants were also asked to provide solutions to the issues they identified. The marine component includes port and port terminal related issues.

Interview results are presented for each of the three components of road/truck, rail and marine. These findings are a compilation of open-ended responses from interviews with ports, port terminals, railways, trucking companies, shippers and third parties.

The results represent opinions rather than facts. Nevertheless, they are good indicators of the type and range of issues that both service providers and users of the intermodal system face when transporting containerized freight to and from Alberta. Consistent questions were asked of all participant groups in order to identify themes and recurrent issues.

6.1.1 Road/Truck Issues

Road/truck issues identified and suggested solutions are presented in Table 6.1. No solutions were offered to a number of issues.

Table 6.1
Road/Truck Issues

TERMINAL ACCESS ISSUES: **Issues:**	**Suggested Solutions:**
• **Road/Truck access to BC lower mainland port container terminals** *Ports* identified the following issues:	
- Knight Street access to both Centerm and Vanterm is congested	- Improvements/upgrading of Knight Street is in the Greater Vancouver Regional District Transportation Plan
- Access from Deltaport Way to Highway 1, which includes both Highway 17 and Highway 10, is congested	- A South Fraser Perimeter Road will be needed to solve road congestion to Deltaport
- River Road in the Municipality of Delta needs to be upgraded from two to four lanes. To date, the municipality has not decided on the upgrade to accommodate commercial traffic. This affects access to Fraser Surrey Docks	- A plan is being considered to split River Road in Delta in two, and make two one-way streets
- Fraser Perimeter Road has helped Fraser Surrey Docks terminal access, but traffic increases has taken up capacity	- Put a premium price on terminal service between 0800 to 1700 hours to alleviate congestion
CONGESTION ISSUES: **Issues:**	**Suggested solutions:**
• **Street congestion**	
- Intermodal transport is causing congestion in major centres such as Edmonton because new truck traffic is being created. For example, in 2002, one Edmonton logistics provider received 80% of its traffic by rail box car/pool car on trackage directly into their facility. In 2003, as a result of its head office signing a contract with a railway for intermodal services, 80% of its traffic is intermodal and 1 boxcar = 2 containers + 2 trucks + 2 drivers *[system user issue]*	- In Edmonton, use 137th Avenue in order to avoid Yellowhead Trail
- A lack of traffic lights at the Edmonton intersection into the industrial area at 51st Avenue and 75th street causes congestion and is getting worse as industrial activity grows *[trucker issue]*	- In Edmonton, traffic lights should be installed at 51st Avenue and 75th Street to facilitate industrial area access/egress
- Vancouver is generally congested *[port issue]*	- See terminal access above
- Knight Street congestion in Vancouver is an issue *[port issue]*	- See terminal access above
- Deltaport Way to Highway 1 in the BC lower mainland is congested *[port issue]*	- Put a premium price on terminal service between 0800 to 1700 hours to alleviate congestion

• **Local warehousing/distribution centres are normally open only during regular business hours of 0800 – 1700, only 1/3 of available hours** *[port terminal issue]* • **Bunching of containers** Raised by a system user. Bunching refers to related cargo all arriving at the same time, i.e. in bunches, such as e.g. seasonal Christmas merchandise, summer sporting and recreational goods, etc. This results in peaking/spiking of volumes and congestion at certain times (This affects all system components) *[system user issue]* • **Truck delays at Vancouver port container terminals.** From October 15 - April 15, inbound liquor/beer/wine containers to Alberta are transloaded at port into heated trucks to bring the cargo to Alberta *[system user issue]*	- No solution. Cannot get around this
VOLUME/CAPACITY ISSUES: **Issues:** • **A lack of drivers** (There are a number of reasons why there is a shortage of truck drivers. Domestic intermodal services which have replaced traditional rail pool car services have resulted in new demand for local drayage trucking services, and hence demand for more truck drivers.) *[system user issue, trucker issue]* • **Issue: A general need for more road capacity.** This issue refers to the BC lower mainland as a whole *[port issue, port container terminal issue]*	**Suggested solutions:** - Train more truck drivers - More road capacity needs to be built. All levels of government have to put more money into road capacity. A National Transportation Plan is required - To ensure that an adequate and efficient transportation system exists and serves the interests and objectives of Canada and Canadian shippers - To ensure that all system participants and infrastructure providers act in a coordinated fashion to ensure system requirements and performance - To ensure that funding sources are identified and funding earmarked for necessary system infrastructure investments
CONTAINER HANDLING ISSUES: **Issue:** • **Cannot handle/ship a trailer without a lift pad and reinforcement** A regular highway trailers must have reinforced lifting points in order to be placed onto a rail intermodal car *[rail carrier issue]*	**Suggested Solution:**

CUSTOMS/SECURITY ISSUES:	
Issues:	**Suggested solutions:**
• **US Customs documentation and clearance is time consuming and causes delays** Delays at the border caused by documentation errors and omissions can last as long as a day, which is very problematic for just-in-time suppliers.(this issue was raised by a service provider which ships trailers intermodal Alberta to Toronto, and then crosses into the US by road) *[trucker issue]*	- More cooperation is required between motor carriers, truck drivers and shippers to make sure documentation is complete and correct
• **Shippers' documentation not ready and/or incorrect when trucker picks up the load** *[trucker issue]*	- More communication with customers on customs documentation
• **New FDA requirement that all paperwork must be completed prior to entry into intermodal terminal** *[rail carrier issue]*	
OTHER ROAD/TRUCK ISSUES:	
Issues:	**Suggested solutions:**
• **Issue: Equipment availability** Raised by several system users, this included: - General equipment availability at the time the equipment was needed *[system user issue]* - Lack of 48' and 53' trailers *system user issue]* - Seasonal shortages of temperature-controlled equipment including domestic temperature-controlled trailers and domestic/transborder intermodal temperature-controlled equipment *[system user issue]*	- Use contract carriage with guaranteed equipment availability as a clause - More equipment is needed - Need mo re intermodal options
• **Proposed changes to regulations regarding driving hours for drivers.** Would add waiting time, coffee breaks, etc. into driving time, which will exacerbate the current driver shortage *[system user issue]*	- Rethink changes to the regulations. Bring in owner/operators of trucks/trucking and discuss it with them. Single unit lease operators will really be negatively affected. This is unnecessary.
• **Line-ups/delays in and out of Edmonton intermodal terminals.** - One railway wants importer to go 24/7, but importer does not want to. May have to *[system user issue]* - Drayage agents have problems at the Edmonton intermodal terminals. There are reportedly repeated changes in requirements and processes used. It can take four hours to pick up a container, so drayage agents sometimes add a surcharge to pick up boxes from the terminals *[trucker issue]*	- Appointment scheduling, but the railways don't have people and resources to handle it.

• **State of the TransCanada Highway** It was suggested that road infrastructure is unreliable, especially for getting from Vancouver to Edmonton and getting around Edmonton. No elaboration or clarification was provided *[system user issue]*	- There needs to be infrastructure investment in the TransCanada Highway. There should be no road closures between Vancouver and Edmonton
• **Issue: Fuel surcharges by truckers** *[system user issue]*	
• **Issue: Taxes** Taxes that were cited as issues include fuel taxes, municipal property taxes, berth taxes and corridor taxes *[system user issue, port issue, port terminal issue]*	- Lower fuel taxes

6.1.2 Rail Issues

Rail issues identified and suggested solutions are presented in Table 6.2. No solutions were offered to a number of issues.

Table 6.2
Rail Issues

TERMINAL ACCESS ISSUES: **Issues:**	**Suggested solutions:**
• **Access to Edmonton intermodal terminals** Respondents made the following comments in regards to access to Edmonton intermodal terminals.	
- Hours of operation should be 24/7 *trucker issue, system user issue]*	- 24/7 operation at Edmonton intermodal terminals
- There are truck line-ups to gain access to the terminal *[trucker issue]*	- Not much can be done
- Time at the gate is excessive *[trucker issue]*	
- One terminal hours are 0500 to 2100 hours, and only open until 1800 hours for truck access, while the other terminal is open 24 hours *[trucker issue]*	
- Time between container arrival at Edmonton yard and availability for pick-up at the intermodal terminal can be three to four hours *[system user issue]*	
- Trucks that belong to the railways get preference for terminal entry and have 24/7 terminal access *[trucker issue]*	
- Some logistics provider partners of the railways have 24/7 terminal access *trucker issue]*	
- Construction of 184th Street overpass at Yellowhead Trail affects access to the terminal *[trucker issue]*	- Completion of 184 Street overpass will ease the problem
- Edmonton terminals cut-off time for train is 1630 hours *[system user issue]*	
- Weather can cause problems with the new automatic gate system *[system user issue]*	

• **Rail Access to port container terminals in the Vancouver area** - It takes an extra 12 hours in transit time between BC lower mainland main yards and Centerm/Vanterm (it is not direct in and out) *[port terminal issue]* - Local rail access from Vancouver yards into Centerm/Vanterm is a problem. Limitation of 1,200' train length because of passenger trains, sidings and crossings *[port terminal issue]* - There are problems with Deltaport because it (was designed as) a 'direct hit by rail' facility, and that is not the way the terminal and the cargo handled at it works [Deltaport handles local cargo drayed by truck, and railcars are spotted from the main yards rather than full trains bypassing the yards and moving directly to Deltaport]*[port terminal issue]* - Rail causeway already at capacity at Deltaport *[port issue]* - With sale of BC Rail to CN, the rail line to Deltaport will become an orphan asset. The line should be independent [The pending sale of BC Rail to CN Rail does not include the line to Deltaport] *[port issue]* - CN New Westminster rail bridge needs to be upgraded *[port issue]* - How rail services (e.g. switching) the entire BC lower mainland is an issue *[port issue]* • **Issue: Limited hours at Thunder Bay intermodal terminal** *[system user issue]* • **Issue: Lack of rail intermodal terminals** - Lack of rail intermodal terminal facilities outside of major centres was cited as a deterrent to using intermodal *[system user issue]*	- Build more on-dock rail capacity - Bring in minimum length of 6,000' of cars to Centerm. Centerm needs to work 1,000' per hour and 20,000' to 22,000' of railcars per day to maximize the terminal - Possible grade separations on lines accessing port container terminals - Capital upgrading of the rail line to Deltaport
CONGESTION ISSUES: **Issues:** • **Congestion at Edmonton intermodal terminals** - Terminal congestion at peak times of the day *[trucker issue]* - There are delays, congestion and down time at Edmonton intermodal terminals *[trucker issue]* - Even if a container cannot be moved because of terminal congestion, the railway that operates that terminal will still charge a $75/day demurrage if free time is exceeded *system user issue]* - There are tie-ups in truck line-ups at gates into Edmonton intermodal terminal with two lanes in and one lane out and only one inbound lane normally kept open. The second inbound gate is only opened if line-ups get too long. This causes delays that affect the number of daily dray trips	**-Suggested Solutions:** - Pick-up and delivery during off-peak hours - Not much can be done - Better management. Railway oligopoly - put in demurrage charge because they can - Have two lanes into the Edmonton intermodal terminal continuously open

possible, which in turn affects drayage revenues and rates that have to be charged *[trucker issue]*	
• **Inbound Congestion at Vancouver intermodal terminals** *[system user issue]*	
• **Rail congestion at Eurasia transload facility in Vancouver** *[system user issue]*	- Develop terminal facilities outside BC lower mainland, like in Prince Rupert
• **Rail congestion affects transit/transfer time through major hubs to final destination** - Vancouver yard was given as an example *[system user issue]*	- Better rail operations
• **Issue: Delays at interchange points between railways** [This affects primarily US and transborder intermodal services. There is no interchange between Class 1 railways for domestic and international intermodal services] *[system user issue]*	
• **No congestion at Calgary for intermodal shipments** *[system user comment]*	
• **Lack of planning by rail companies** [This issue was raised by a system user. No elaboration or clarification was provided] *[system user issue]*	
VOLUME/CAPACITY ISSUES:	
Issues:	**Suggested Solutions:**
• **Rail Car Supply** - There are railcar supply problems at Port of Vancouver terminals *[port issue, port terminal issue, system user issue]* - Railcar availability in Vancouver can be very poor. One of the railways provides Deltaport with 1,100' of cars per day, while a ship is 80,000' of containers on average *[port terminal issue]* - The railways need to resolve problems with service and supplying railcars *[port terminal issue, system user issue]* - Policy of running a scheduled railway (with no flexibility) makes the car supply issue somewhat artificial [This issue was raised by a system provider. No elaboration or clarification was provided] *[port terminal issue]* - The railcar supply issue results in containers being left at the docks, terminal congestion, and double and triple lifting/grounding of containers at extra costs to the port terminal operator. The railways' insistence that the terminal block containers according to inland destination for loading also results in extra handling and costs. One of the railways has been asked to supply extra cars to	- Railways should dedicate more equipment

cover demand requirements since it carries approximately 80% of containers at Deltaport. *[port terminal issue, steamship line issue, system user issue]* - Alberta inbound import cargo waits 6 to 7 days at the docks. As a result, , just-in-time inventory/production management does not work in Western Canada for parts sourced off-shore and brought in by steamship line containers, as no planning is possible *[system user issue]* - Alberta inbound containers are low priority for the railways. Chicago is first priority, then central Canada *[steamship line issue, system user issue]* - Waits in Montreal and Halifax for Alberta cargo are 10 to 15 days, worse than Vancouver *[system user issue]*	
- Lack of flat cars at Calgary intermodal terminals causes delays *[system user issue]* - Lack of specialized temperature-controlled rail container flat/stack cars *[steamship line issue]*	- The railways have ordered additional flat cars to handle the extra volumes
• **Insufficient space on intermodal trains to handle peak volumes** *[system user issue]*	- Capacity to handle the number of loads required to be moved by the rail carrier
• **Lack of reefer containers of all kinds** *[system user issue]*	- Require railways to invest in equipment and offer service
• **Lack of storage space at Calgary intermodal terminal** *[trucker issue]*	- Off-site storage - Extend operating hours to handle volumes (Calgary terminal is closed between 2000-0600 hours)
• **Lack of port terminal capacity for loading and unloading intermodal trains** - Cited as a key issue at Fraser Surrey Docks, as the terminal cannot currently handle full train *[port terminal issue]*	- FSD is adding intermodal rail yard capacity
• **BC lower mainland switching** - The Port of Vancouver could be more efficient if there was a single operator switching all of the port's assets (terminals) west of the main yards *[port issue]* - CN and CP should dispatch to Deltaport, not BC Rail (Southern Railroad of British Columbia). BC Rail has shorter train lengths resulting in fewer cars per train and less capacity. BC Rail's operating philosophy is much stricter than CN and CP *[port issue]*	

CONTAINER HANDLING ISSUES: **Issues:** • **<u>Lack of handling equipment at Edmonton intermodal terminals</u>** - Not enough equipment at Edmonton intermodal terminals to handle containers properly *[trucker issue, system user issue]* - There is insufficient lifting equipment, in particular, no empty lifting equipment. Most terminals have a separate empty lift line for handling, which improves terminal efficiency and reduces time spent within the terminal *[trucker issue]* - Due to the shortage of container handling equipment, capacity is affected when one piece breaks down *[trucker issue]* • **<u>Week-end operation at one of the Edmonton intermodal terminals</u>** - On Saturdays and Sundays containers are only mounted on chassis until 2:00 PM, while 67% of this firm's inbound traffic arrives Saturday, Sunday and Monday AM *[system user issue]* • **<u>One of the terminals has only one lifter in Calgary</u>** [This issue was raised by a service provider. No elaboration or clarification was offered] *[trucker issue]*	**Suggested Solutions:** - Acquire more equipment - Acquire empty lift equipment for the Edmonton intermodal terminal of concern
CUSTOMS/SECURITY ISSUES: **Issues:** • **<u>Documentation requirements and customs procedures</u>** - Canada Customs import clearance system can cause delays and congestion *[trucker issue]* - US Customs. Every other train used to be stopped and inspected by US Customs. Now it is once every other vessel. Trains are pre-cleared in Winnipeg. All product descriptions must be accurate for US Customs *[steamship line issue]* - Mexico customs and documentation requirements and rules are extreme and onerous *[system user issue]* *Respondents were generally happy with Canada Customs*	**Suggested Solutions:**

OTHER RAIL ISSUES:	
Issues:	**Suggested Solutions:**
• **Equipment availability and suitability** - Occasional equipment availability problems [This issue was raised by a system user. No elaboration or clarification was provided] *[system user issue]* - Equipment suitability – need intermodal trailers with removable/collapsible sides (to make loading of lumber easier) *[system user issue]* - Intermodal equipment availability to Mexico and tracking/tracing problems when product has entered into Mexico *system user issue]* - Domestic and US transborder - intermodal equipment availability *[system user issue]* - Lack of temperature-controlled equipment *[system user issue]* - Lack of 53' domestic containers and intermodal flat/stack railcars *[system user issue]* - Lack of railcar equipment *[port terminal issue, steamship line issue, system user issue]*	- Provide more equipment (containers) inland intact with imports or through domestic repositioning - Require railways to invest in equipment and offer service - Require railways to invest in equipment and offer service - Railways should dedicate more equipment
• **Temperature-controlled services** - Service reliability problems with temperature-controlled services *[system user issue]* - Lack of service into Mexico for temperature-controlled equipment *[system user issue]*	
• **Rail demurrage, decreased free time and increased cost** - One of the terminals used to offer five days of free time, excluding weekends. Container free time in their terminals has decreased to three calendar days, including weekends and holidays, and demurrage has increased from $50/day per container to $75/day per container. If a container comes in on Thursday and cannot be delivered on Friday, then all free time is used by Sunday. With boxes delayed at the docks by the railways, planning is not possible. Total demurrage cost can now run into thousands of dollars for a shipper. There are plans to go to one-day free time and to increase demurrage from $75/day per container to $150/day per container *[system user issue]* - The other mainline has four days of free time excluding weekends, and still charges $50/day per box *[system user comment]*	- Action by government to require the railways to offer a reasonable free time, not including weekends and holidays when no one is working - Better management of rail. With just two Class 1 railways, demurrage charges can be increased arbitrarily

• **Lack of rail customer service** Lack of customer service is an issue for many railway users: - No customer service with one railway *[system user issue]* - Difficult to get assistance to move product *[system user issue]* - Struggle to get information and cumbersome to get results *[system user issue]* - Telephone systems and voice mail problematic when trying to get in contact with people *[system user issue]* [No elaboration or clarification was provided for above]	- How to change when they (railways) don't care
• **Railway intermodal priorities** Users indicated that railway intermodal priorities with regard to international steamship line containers do not include Alberta/Western Canada. - East Coast to Central Canada is priority, Manitoba next, and Saskatchewan and Alberta last. Containers will wait 10 to15 days out of Montreal to come west as compared to Toronto where deliveries are made very quickly *system user issue, steamship line issue]* - Railroads are holding up western Canada containers at the ports of Montreal, Halifax and Vancouver *[system user issue]* - Railway priorities from West Coast are US first, central Canada second and western Canada third Canadian routes are not profitable, so are not a priority *[steamship line issue, port terminal issue, system user issue]* - One of the railways has placed its emphasis south of the border *[system user issue]*	- Change executive management team in both railways - Try to improve priority of Alberta inbound shipments delayed on the docks, and not leave them on the dock
• **Lack of railway competition** - The two major railways have captive markets with the steamship lines *[steamship line issue]* - Few rail companies result in a lack of competition to open up new markets *[system user issue]*	- Build partnerships with the railways to "sing from the same song sheet" - Negotiate proper agreements and contracts
• **Access to intermodal booking information** - Drayage agents used to be able to phone a railway to confirm a booked container before sending a truck to pick it up. The railway will no longer give the drayage agent booking information on whether or not they have empty boxes available, even though the drayage agent is on line with that railway through EDI with all other applicable business processes. This results in two to three 'burnt' loads per day (truck shows up at the intermodal terminal, but the booking has not yet been entered into the railway's computer system) and the truck has to return empty. The drayage agent charges the	- Provide access to booking information as before

customer $72 for a 'burnt' load. It also results in a delay of a day or so in moving the cargo. Steamship lines still have access to the booking information. This is only a problem with one railway *[trucker issue]*	
• **Other miscellaneous issues** - Rail intermodal transit times are longer than by road (Only use rail intermodal when shipment is not in a hurry. Otherwise use full truckloads in North America) *[system user issue]* - Frequency of service[This issue was raised by a system user. No elaboration or clarification was offered] *[system user issue]* - Railway planning not responsive to customers, e.g. lack of 53' and rail cars *[system user issue]* - Constraints in production can result in missed rail bookings[This issue was raised by a system user. No elaboration or clarification was provided. Presumably, cargo booked for a move before it has been produced can miss its booking if production is delayed for any reason] *[system user issue]* - Reliability of rail services *[system user issue]* - Lack of communication between operators (railroads, trucks, shipping lines, port terminals) *[system user issue]*	- Better on-time performance - The railways should ask their customers about ways to improve the system instead of looking at only one side of the issue - Improve working relationships and communication between system service providers

6.1.3 Marine Issues

Marine issues identified and suggested solutions are presented in Table 6.3. No solutions were offered to a number of issues.

Table 6.3
Marine Issues

TERMINAL ACCESS ISSUES:	
Issues:	**Suggested Solutions:**
• **Reduction in port container terminal free time[6] from ten days to five days prior to vessel departure** Shippers indicate that five days free time is inadequate. If the vessel subsequently calls at a US port, (e.g. Seattle, Tacoma, Oakland, Long Beach, Los Angeles) – which is normal if Vancouver is first port of call – then free time is reduced to four days as it takes 24 hours to get US security clearance. This issue applies primarily to Port of Vancouver terminals, and not to Fraser Surrey Docks at Fraser Port which allows free time of up to 30 days *[system user issue]*	
• **Limited hours at port container terminals.** This issue refers to the daily time period in which the terminal is open for truck pick-up and delivery of containers *[system user issue]*	- Extend port container terminal hours
• **Draft limitations[7] in the Fraser River** The current draft limitation is 10.7 metres in the Fraser River, but will be increased to 11.7 metres in 2004. Water depth at the George Massey Tunnel is 13.4 metres *[port issue]*	- It is recognized that there is an absolute water depth limitation in the Fraser River dictated by the water depth over the George Massey Tunnel. Dredging is seen to be necessary in order to deepen the existing channel and to maintain depth
CONGESTION ISSUES:	
Issues:	**Suggested Solutions:**
• **Congestion at port container terminals** A number of system users cited congestion at the port container terminals as an issue. Rail is seen to contribute to port container terminal congestion. Comments include *[all system user issues]*: - Containers are backed up at the port - There are dock delays - Terminal congestion will get much worse when 8,000/9,000 TEU ships come on stream, as terminals are not prepared to handle staging/set-down, loading/unloading of these vessels. More waiting and congestion will result. It was indicated that Long Beach is experiencing some of this now - There is delay in the Port of Houston with truck delivery of freight from Alberta that has to be transloaded	- Terminal infrastructure investment - Extend port container terminal hours - Revamp terminal receiving and gate systems

[6] Free time refers to the number of days a container can be situated/stored at a terminal before a daily (storage) charge is incurred.
[7] The maximum draft a vessel can have in the Fraser River, or the depth of the vessel below the water line.

VOLUME/CAPACITY ISSUES: **Issues:**	**Suggested Solutions:**
• **Late vessel arrivals result in loss of fixed berthing time/spots at terminals, leading to delays and increased transit times** All container vessels operate on fixed schedules and have fixed scheduled berthing times/spots at port terminals. When they are late, terminals cannot guarantee their berthing time/spot *[system user issue]*	- Changes to shipping line operations
• **Ships are overbooked** Overbooking of vessels can result in cargo being left at the dock. Also, as ships are full, movement of specialized equipment, such as flat rack containers used to move oil and gas industry project freight, may have to wait for several sailings *[system user issue]*	- No way of resolving. The lines do what they want
• **Capacity when vessels are bunched/delayed, then congestion results** *[rail carrier issue]*	- Railways need to work with ports, terminals and shipping lines to solve the capacity problem. This will become more of an issue (as volumes grow). CN Rail is looking at Prince Rupert
• **Capacity to transload ISO containers to domestic containers in Vancouver** There is a shortage of domestic containers in Vancouver *[rail carrier issue]*	- More repositioning of domestic equipment to Vancouver - Open transload centres in Edmonton and Calgary for import traffic to Central Canada
CONTAINER HANDLING ISSUES: **Issues:**	**Suggested Solutions:**
• **Containers are being left out in the rain at port terminals[8], but situation is improving** *[system user issue]*	
CUSTOMS/SECURITY ISSUES: **Issues:**	**Suggested Solutions:**
• **Security measures mandated in ports and port terminals by the federal government are not funded** While ports and port terminals must implement required security measures, there is no funding available, and ports and terminals are expected to pay. This is different in the US, where the Department of Homeland Security funds all mandated security measures. Port terminals may have no choice but to pass on these costs to shippers *[port terminal issue]*	

[8] It should be noted that all containers are stored/staged out in the open

NOTE! Since the interviews were conducted, the federal government has announced funding for port security measures • **Impact of US Security Clearance Requirements** For vessels calling on US port(s) subsequent to a Canadian port, all paperwork must be completed 24 hours before leaving the Canadian port and the vessel's cargo and manifest must be made available to US Customs 24 hours before departure. All Canadian export cargo on the vessel is affected. *[system user issue, port terminal issue, steamship line issue]* Some related comments were: - US Customs/FDA prior notice requirements result in increased lead time and planning efforts *[system user issue]* - There are fines (for steamship lines) for non-compliance *[steamship line issue]* - US security clearance requirements cut down on terminal free time *[system user issue]* - All US Customs and security issues are driven by the US Department of Homeland Security *[system user comment]* - Canadian containers in transit have been known to have been pulled off vessels and inspected by US Customs *[system user issue]*	
OTHER MARINE ISSUES: **Issue:** • **Port labour issues, strikes and operational disruptions** While comments referred to Canadian ports, it was also recognized that strikes in US ports cause further delays in Canadian ports as US cargo is diverted *[system user issues]* • **Container availability** *Container availability was raised as an issue by several system users* - Availability of dry containers - Availability of containers in Edmonton - Lack of marine refrigerated containers (seasonal) • **Freight Rates and Charges** - Shipping lines are arbitrarily tacking on ancillary charges to freight rates *[system user issue]* - Rates from Edmonton to Europe are 100% higher than US shipments to Europe *[system user issue]*	**Suggested Solution:** - Long term labour agreements - Less strikes and operational disruptions - Labour stability - Proactive government involvement to prevent and stop strikes (through ensuring negotiations and mediation) - Lines need to allocate more temperature controlled containers to Canadian market during periods of excess demand/shortage of supply - No way of resolving. The lines do what they want

• **Documentation by shipping lines** - Most shipping lines have centralized their documentation activities in their North American head offices in the US. Consequently, documentation for Canadian shipments is done in the US and transmitted by EDI. This leads to substantial errors and delays, as US personnel are unfamiliar with Canadian documents and documentation requirements, rules and regulations *[system user issue]* • **Restrictions on winter shipment through the Port of Montreal** - Winter shipments through the Port of Montreal are restricted due to St. Lawrence freeze-up *system user issue]* • **Inefficient ports** - It was suggested that Canadian and US ports are far behind ports in other parts of the world, which are more technologically advanced [This issue was raised by a system user. No elaboration or clarification was provided] *[system user issue]*	- No way of resolving. The lines do what they want

6.2 Impediments To Intermodal System Success And Growth In Western Canada

In addition to issues related to the various aspects of the system (Section 6.1), impediments or barriers to success were also of interest in this exploratory research study. Participants were all asked the same question set relative to their views on impediments in the following areas:

- Legislative or Regulatory Impediments
- Economic or Financial Impediments
- Infrastructure Impediments
- Labour Impediments
- Other Impediments

Participants were asked to describe any impediments and also offer suggestions on what could be done to overcome them. Findings from a compilation and review of interview results are presented below. They provide significant insight into barriers that may be hampering the success and growth of the intermodal freight system serving Alberta today.

6.2.1 Legislative Or Regulatory Impediments

The *Canada Marine Act* has a direct impact on ports and port terminals. It was reported that the legislation has made port and port terminals considerably more expensive. This issue was raised by ports, port terminals and shipping lines. Two specific concerns were identified that require changes to the *Canada Marine Act*.

1. Ports and port terminals now pay taxes

   These include property taxes, payments in lieu of taxes and stipend taxes – whereby 6% of port gross revenues go to the federal government.

   Concurrently, there have been changes in how the BC government Assessment Branch interprets *BC Assessment Act*. Port terminals are now being assessed municipal tax. It was asserted that property taxes would be potentially greater than gross revenues for port terminals, particularly if attempts to tax the sea/river bed were successful.

   With taxes higher than terminal rent costs charged by the ports, local governments could tax port terminals out of existence. Possible effects of increased taxes on terminals indicated in the study were:

   - A cost increase of approximately $50 per container to cover tax increases
   - Increased port costs will be passed on to shippers, resulting in an increase in transportation costs and negative effect on competitiveness
   - Ports (West Coast) could become non-competitive with US ports

   A coalition of ports and wharf operators (port terminals) has been formed and is lobbying the BC government to change the way port terminals are assessed and taxed. It was suggested that the province (BC) must place controls on municipalities such as capping local taxes and creating a port land reserve.

   This issue has been addressed by the Government of British Columbia since the interviews were conducted.

2. Inability of Ports to finance or seek capital for infrastructure and expansion

   Canada, not the ports, now owns the lands, and these lands can no longer be used as pledge/security against capital loans. Additionally, the federal government has restricted port authorities' ability to borrow with a "borrowing cap". It is claimed that this cap is too low and there is no way to finance new facilities and equipment. This is in stark contrast to US ports, where revenues generated from the Harbor Maintenance Fund are used to pay for infrastructure. The Harbor Maintenance Fund assesses a fee on cargo at 1% of cargo value.

Shipping lines, shippers and third parties also cited the US Customs 24-hour Rule for vessel manifests, which is a security measure implemented subsequent to 9/11. If a vessel is to call on a US port, vessel manifests must be delivered to US Customs 24 hours prior to the vessel leaving origin port(s). This rule affects all container vessels where Vancouver is the first port of call, and subsequent calls are made at US ports as part of vessel rotations.

All Alberta and Canadian export shipments are affected. The effects of this rule are increased lead time for shipments; no rush shipments are possible within 24 hours of departure; and shipments may be rejected by US Customs or be subject to inspection.

Canada Customs is scheduled to implement its 24-hour rule for vessel manifests in the first half of 2004, affecting all imports into Canada. Some forwarders believe this to be a positive development, as they will now be assured of receiving accurate documentation in a much more timely manner.

New US and Canadian customs and security regulations were also raised by motor carriers and shippers, who noted that it will add time and costs to shipments.

One railway suggested that there was unequal tax treatment and handling of the rail mode as compared to the motor carrier mode.

6.2.2 Economic And Financial Impediments

Both service providers and shippers identified a wide variety of economic and financial impediments.

Taxes on railroads, ports and port terminals, and specifically BC municipal taxes were identified as impediments to growth and success for the intermodal system by ports, port terminals and steamship lines. Suggested solutions included revisions to the *Canada Marine* Act; joining the BC Ports Competitiveness Group (Port of Vancouver, Fraser Port, all BC wharf [terminal] operators) to lobby the BC government to change the situation; or lobbying on your own.

The municipal tax issue has been addressed by the Government of British Columbia since the interviews were conducted.

In addition to the cap on borrowing, Canadian ports are seen to be at a disadvantage vis-a-vis US ports and port facilities because the US facilities receive financial support for infrastructure through the Harbor Maintenance Fund. Respondents also indicated that US port and rail on-dock infrastructure is subsidized/funded by government. These impediments were raised by port terminals. No solutions were suggested.

In Canada, ports and port terminals will pay for all security measures and procedures mandated by the federal government in response to 9/11. In the US, the Department of

Homeland Security funds are available to port terminals to cover costs associated with mandated security measures and procedures.

Canadian port terminals, which raised this impediment, indicate that such costs will likely be passed on to users, further increasing what is already perceived as a high cost for intermodal.

Subsequent to completion of interviews, the federal government has announced that funding will be available for port security measures.

More comments on the high cost of intermodal transport, all raised by shippers and third parties were:

- Cost of intermodal transport in general is too expensive
- Rail container rates are too high
- Large rate increases have been implemented
- Impact of the recent increase in the value of the Canadian dollar
- Rail pool cars were more economical. For example, the content of one pool car is equivalent to approximately two domestic container loads, which now have to be picked up at the rail intermodal terminal, increasing costs by the equivalent of two drayage hauls. Also, urban roads have become more congested as two new truck hauls have been introduced for each pool car replaced by intermodal containers
- Economics are not there for plant loading of containers versus break-bulk rail from plant to port

Solutions suggested were to facilitate real rail competition or implement a rate freeze.

The lack of investment in the system, along with a resistance to seek private sector solutions, was mentioned as possible financial impediments by a shipper. The highway built by the private sector near Toronto was given as an example to follow.

6.2.3 Infrastructure Impediments

A number of comments were made about infrastructure impediments that affect the potential for the intermodal system.

Inefficient rail routings, capacity constraints and lack of investment in rail equipment for intermodal services are seen by steamship lines to impede the system.

Many shippers/third parties and drayage agents find that one of the Edmonton intermodal terminals congested and in need of more container handling equipment. Overall, handling equipment inside rail terminals was seen as inadequate. It was indicated that the Edmonton terminal throughput must be improved to facilitate growth in intermodal shipments. The ability of rail intermodal terminals to handle increasing volumes is recognized as an impediment to the system.

The following solutions to rail impediments were suggested:

- A Class 1 railway co-operative effort is needed to remove rail infrastructure bottlenecks[9]
- The Class 1 railways should enter into a slot agreement for Alberta traffic, so that the can handle each other's traffic
- A single rail switching operator for all Vancouver area port terminals should be implemented[10]
- Railcar equipment supply needs to be solved in a group with all affected parties. Work together in a unified way to solve the problem
- Add more trains, or increase the overall length of trains to accommodate more volume[11]
- Invest in more people and equipment for rail intermodal terminal facilities to handle growing volumes
- Improve truck access and throughput at rail terminal gates

Regarding infrastructure impediments at the ports and port terminals, there is a pressing need for expansion but constraints to securing capital to solve capacity and congestion problems.

A lack of ring roads for Alberta's major cities, highway congestion and overall lack of investment in road infrastructure were cited as impediments by shippers and third parties.

Other infrastructure impediments raised by shippers and third parties included:

- A lack of equipment and drivers in the trucking industry (not really an infrastructure impediment)
- The distance to container terminal facilities from Alberta plants located outside of Edmonton and Calgary (not really an infrastructure impediment)
- The fact that most existing warehouse/shed facilities are not set up for intermodal services

6.2.4 Labour Impediments

A number of comments were made by port terminals, railways, shippers and third parties about labour impediments, directed most often at ports. Labour is an ongoing concern of users of the system and is often seen to be a significant impediment. Examples of labour-related impediments provided by the study participants were:

- Power of port labour unions
- Port disruptions by labour at the Port of Vancouver

[9] This issue was raised by a system user. No elaboration or clarification was provided.
[10] This issue was raised by a system provider. No elaboration or clarification was provided.
[11] This issue was raised by a system user. No elaboration or clarification was provided.

- Labour is only an impediment when there is a strike
- Port and dock workers strikes are all extremely problematic, and make it appear we have a constant labour problem in Canada
- Strikes at ports are impediments
- Labour is always a problem at seaports

The following solutions to port labour impediments were suggested:

- Long term labour contracts
- Political influence or intervention
- More proactive government positions
- Make stevedores essential service
- Legislate ports as essential services

Similarly, strikes or work stoppages for rail are viewed as problematic by some shippers, possibly calling for government intervention.

6.2.5 Other Impediments

Other impediments identified by steamship lines, shippers and third parties included rail services, rail costs, rail on-time performance and transit time. Concern was expressed that rail is a duopoly.

Ways suggested to overcome the impediments were:
- An overall Rail Master Plan is needed, in consultation with affected parties
- Users need to convince railways to institute reasonable operating policies
- Need to introduce foreign railway competition

One railway suggested that equipment imbalances are an impediment to system effectiveness [see Section 3.7]

7. System Analysis

This chapter provides the study respondents' views on system advantages and disadvantages, port competitiveness, the overall effectiveness of the intermodal system serving Alberta, and what is required to ensure the success and growth of that intermodal system.

7.1 Advantages And Disadvantages

7.1.1 Competitive Advantages

Appendix A Chart 22

Study participants were asked what advantages and disadvantages there were for the intermodal containerized freight system serving Alberta.

Service providers include ports, container port terminals, railways, steamship lines and motor carriers that participated in interviews, 28 in all. System users include 34 Alberta importers and exporters and 6 third parties.

Table 7.1
Competitive Advantages Of The Intermodal Containerized Freight System Serving Alberta

Service Providers:	• Canadian ports are stable, less expensive and more reliable than US ports • Location and approach to business by the ports • Lower and fewer port charges in Canada • Lower costs for intermodal as compared to trucking • Cost and capacity • Alberta has a healthy balance and sufficient volume of exports and imports to make it a desirable market for international cargo • The low value of the Canadian dollar is an advantage for the Canadian system • The domestic repositioning program of steamship line containers
System Users:	• Lower rates, including Alberta outbound domestic and US transborder rates • The rate structure achieved by Alberta Intermodal Services in 1986 helped make Alberta competitive • Container availability in Alberta is better than other in Saskatchewan and Manitoba • Accessibility of truck • The low value of the Canadian dollar

7.1.2 Port Competitiveness

Appendix A Chart 23

Ports, port terminals and steamship lines were asked to rate the competitiveness of Western Canada Ports as compared to US West Coast ports. For container transport, the steamship lines would be the customers of the ports and therefore, respondents were asked to rate competitiveness from the perspective of steamship lines.

The Western Canada ports were rated highly, with two-thirds of those interviewed responding that they would rate them as "very good" on both overall competitiveness and on cost competitiveness.

The ports interviewed suggested that the value of the Canadian dollar versus the US is a major factor. It was indicated that the competitive advantage of Canadian versus US port routings starts to diminish as the dollar approaches $0.75 and would not be competitive if the dollar reached $0.80.

Port terminals indicated that the Canadian ports are as good or better than US West Coast ports in terms of service, cost and productivity. They agree that Canadian ports are competitive because of the value of the Canadian dollar. In addition, the harbour maintenance fee at US ports is not charged in Canada and Vancouver offers first port of call incentives. It was reported that wharfage rates have stayed the same for the past five years. Concerns were expressed that increasing municipal taxes and costs of security could erode the cost advantage.

The steamship lines were also asked if there were any benefits that favoured serving the Port of Vancouver or Fraser Port versus US West Coast ports. The following benefits of using Canadian ports were identified:

- Lower port costs
- Lower rail costs
- Proximity to North China
- 4.5 year labour agreement
- Rail connection to US Midwest has a transit time advantage
- Canadian cargo is being handled through Canadian ports

Results of the interviews support the conclusion that the Port of Vancouver and Fraser Port are very competitive with US West Coast ports

7.1.3 Competitive Disadvantages

Appendix A Chart 22

Service providers include ports, container port terminals, railways, steamship lines and motor carriers that participated in interviews, 27 in all. System users include 34 Alberta importers and exporters and six third parties.

Table 7.2
Competitive Disadvantages Of The Intermodal Containerized Freight System Serving Alberta

Service Providers:	• Distance of Alberta from tide water • Canada Marine Act • Lack of a national plan or economic strategy for transportation • Municipal taxation of port terminals ***(Has been addressed by the Province of British Columbia)*** • Rising costs • Rail operations and services • US Customs and security regulations • Weak Canadian dollar can result in higher ocean carrier costs • Railways, including customer service, demurrage costs and reduced free time, railcar shortages • Ease of doing business. Rail intermodal is not as easy as doing business with a motor carrier. Technology will change this disadvantage • Unwillingness of steamship lines to service due to low ocean rates
System Users:	• Distance from the ports • Intermodal terminal locations • Lack of connection to the intermodal system by companies outside of Edmonton or Calgary • Road system and infrastructure, including lack of ring roads around major centres • Inadequate container inventory in Alberta • Transit time to reposition containers to Alberta • Occasional equipment shortages for domestic, US and Mexico • Cost advantage to stuff containers in Vancouver • High costs of transportation • Price is prohibitive for Canadian inland portion of international markets and for North American markets • Railcar supply • Lack of coordination between rail providers • No flexibility with rail mode

7.2 Overall Effectiveness Of The Intermodal Containerized Freight System Serving Alberta

Study participants were asked to rate the overall effectiveness of the system on a scale of one to five, with five being very effective. Of those who responded, overall effectiveness was rated on average at 3.4. Ratings for sub-groups are shown in Table 7.3

Table 7.3
System Effectiveness Ratings

Participant Group	Rating
Ports & port terminals	3.7
Steamship Lines	3.1
Truckers	3.0
Rail	4.5
Shippers	3.4
Freight forwarders/Expediters	2.9
Average of all participants	3.4

7.3 What Is Required To Ensure The Success And Growth Of Intermodal Containerized Freight Services For Alberta

All participant groups were asked what would be required to ensure the success and growth of intermodal containerized freight services for Alberta.

In summary, key results from study interviews indicated the requirement for:

Appendix A
Chart 24

1. Reliable and sufficient infrastructure to facilitate required services
2. Equipment availability, railcars and containers in particular
3. Increased customer service emphasis by rail providers
4. Keeping costs low
5. Need for a national transportation plan and national decision making

Containers need to be in place in Alberta through imports to facilitate the province's strong export demand. Also, the lack of railcars is viewed as a real threat to the system.

Table 7.4 provides a listing of ideas provided by service providers and system users interviewed in this exploratory study.

Table 7.4
What Is Needed To Ensure Success And Growth Of The Intermodal Containerized Freight System Serving Alberta

Service Providers:	Ports • Need supportive legislation that attracts capital investment • Need incentives for investment in facilities and services • Need national decision making for transportation, which is now primarily at the local level Port Terminals • Need for continued investment by port, terminal operators and railways • Infrastructure needs to be in place to handle increased volumes • Equipment availability must be ensured • More responsiveness to customers by rail • Ongoing review of tax regime to ensure competitiveness in world markets Steamship lines • Reliable overall infrastructure • Reliable rail operation essential for western Canadian intermodal system • Competitive rail freight rates, availability of railcars • No labour disruptions Railways • Keep costs low • Improve capacity • Improve consistency (of service) • Make it easy to do business
System Users:	• Need adequate infrastructure, including better roads and rail • Need to increase system coordination and reliability • Need to improve/increase access points such as rail intermodal terminals • Need to improve rail customer service • Need to maintain truck and rail services • Need to maintain cost competitiveness • Need to increase availability of railcars and containers • Alberta has a strong export demand and containers need to be in place through imports to facilitate loading of exports

8. Air Cargo

Air cargo is not normally containerized and is not a direct part of the intermodal containerized freight transport system. However, interviews with companies did include questions on air cargo in order to gain a full picture of how Alberta companies move their shipments. Of the forty companies interviewed, a little over one-third indicated that they use air cargo for some of their shipments. Alberta's major Airports in the Cities of Edmonton and Calgary, as well as three airlines and one air cargo agent representing three international and one domestic air courier, were also interviewed as part of this exploratory study. Results of interviews with these companies are provided in summary form in this section and in greater detail in Appendix A.

8.1 Airport Air Cargo Facilities

The following air cargo facilities were identified at each airport.

8.1.1 Air Cargo Facilities At The Edmonton International Airport

The following facilities were identified at the Edmonton International Airport:

Common User Facilities:

- Multi-tenant building owned by International Aviation Terminals, Vancouver (IAT), #1
- Multi-tenant building owned by IAT, #2

Dedicated User Facilities:

- Air Canada Cargo. Although 20 years old, it was indicated that this is a modern air cargo facility with a complete aircraft interface. It can handle 747 noseloads, MD11, DC8 and 727 freighters and also has cold room facilities
- First Air Cargo serving the NWT
- Braden Burrey Expediting (includes cold room/freezer facilities)
- Echo Bay Passenger and Freight Terminal
- Federal Express

8.1.2 Opportunities For New Facilities At The Edmonton International Airport

The following opportunities for new facilities were identified by the Edmonton Regional Airports Authority:

- Airside Cargo Terminal and Ramp - There are concrete plans in place for this facility with a private developer. The Edmonton Regional Airport Authority will provide the apron and taxiway
- Ground side warehousing
- Fixed base operation/hangar (similar to Shell Aerocentre) for corporate/private aircraft
- Truck terminal to accommodate intermodal movements and to increase system efficiency
- Minor building modifications ($100,000 to $300,000) to increase live animal charters. (One carrier is currently doing eight charters per year with live horses going to Japan)

8.1.3 Air Cargo Facilities At The Calgary International Airport

The following facilities were identified at the Calgary International Airport:

Common User Facilities:

- Multi-tenant building owned by IAT, #1
- Multi-tenant building owned by IAT, #2
- Esso Aviata

Dedicated User Facilities:

- Federal Express
- Purolator

8.1.4 Opportunities For New Facilities At The Calgary International Airport

The following opportunities for new facilities were identified by the Calgary Airport Authority:

- Modification of current facilities to meet security requirements and for the increase in perishable freight
- Purpose-built perishable facilities

8.2 Services And Roles Of Airport Authorities For Air And Project Cargo

The Airports identified the following services and roles for themselves:

- Provision of basic infrastructure
- Landlord and facility provider
- Business attraction, support and development activities
- Provision of aircraft parking ramps and taxiways
- Provision of heavy duty, main deck loader for freighters

8.3 Competition For Air Cargo

The Airports were asked to identify their competitors for air cargo. Edmonton identified truck competition and competition from other airports. There is evidence that as much as 80% of air cargo exports originating in the Edmonton region are trucked to other airports, up from 37% five years ago. This is corroborated by a domestic carrier that indicated that they truck virtually all international air cargo to Calgary due to lack of flights out of Edmonton. A truck runs daily from the Edmonton air cargo facility of the air carrier to Calgary.

Edmonton identified the following airports as competitors: Calgary, Vancouver, Seattle, Toronto, Montreal, Los Angeles, Chicago, Miami and Houston.

Calgary Airport identified competition from truck, rail and other airports. It indicated that the root cause of truck and rail competition is due to poor air services by the national carrier. Shippers/exporters and importers have had no alternative but to use road and rail to transfer cargo to other airports offering the destinations required. The Calgary Airport Authority indicated that it was working to attract new international carriers. This work has been carried out to make Alberta's exporters more competitive in the global market and to offer passengers an alternative for longer trips that transit through other airports en route to overseas destinations.

Calgary identified the following airports as their competitors: Vancouver, Toronto and US airports. Calgary indicated that it is currently unable to supply direct services to Asia, Pacific Rim, South America and much of mainland Europe because of traffic rights issues.

8.4 Aircraft Capacity Limitations

The following air cargo capacity problems were indicated by airlines in the sample:

- Mexicana serves Vancouver with A319 Airbus aircraft with no containers. If Alberta cargo to be moved is less than 300 lbs. or has a dimension less than 45" x 34", then the cargo moves by air to Vancouver from Alberta. If the cargo weights more than

300 lbs. or is over-dimensional, it is trucked from Alberta to Los Angeles to go on a Mexicana Boeing 727 freighter aircraft (there is one Air Canada wide body flying from Calgary to LA, which can be used if it has space available).
- For other airlines that serve Vancouver with wide body aircraft, overweight/over-dimensional Alberta cargo is trucked from Alberta to Vancouver
- There is not always space on scheduled aircraft for air cargo. Luggage takes priority over cargo.

8.5 Use Of Air Cargo

Air cargo was used to a much lesser extent than surface intermodal services. Overall use as indicated by companies interviewed was as follows:

Table 8.1
Percentage Of Companies Interviewed That Use Air Cargo

Air Cargo Service:	Shippers (Sample: 34)	Third Parties (Sample: 6)	Shippers & Third Parties
Air Cargo Domestic	9%	17%	10%
Air Cargo International	29%	67%	35%
Both Domestic and International	9%	17%	10%

Of those that use international air cargo, 43% use it infrequently. Infrequent users gave the following reasons for using air transport:

- Outbound product samples only
- Inbound replacement/spare parts for plant(s)
- Rush outbound parts
- Specialty product with only one inbound shipment per year

Companies did not anticipate any changes in their needs for air cargo services in the next five years.

8.5.1 Products And Volumes

Appendix A Chart 25

Alberta air cargo users interviewed are shipping a wide diversity of products ranging from oilfield valves and fittings, to disposable medical products and electronics. Appendix A provides a listing of inbound and outbound products that are transported by air indicated by respondents.

In addition to shippers and third parties, airlines and Alberta's major airports in Edmonton and Calgary were interviewed. They corroborated the listings of products that are imported or exported from Alberta by air.

For those companies that use air cargo, estimates of annual air cargo volumes ranged as follows:

- Annual domestic outbound volume: From 1,500 to 2,400,000 kilograms
- Annual international outbound volume: From 0 to 100,000 kilograms
- Annual domestic inbound volume: From 0 to 500,000 kilograms
- Annual international inbound volume: From 1,000 to 150,000 kilograms

Three carriers provided information on the proportion of cargo coming from or going to various markets. One carrier reported that 100% of its outbound cargo was domestic. Another carrier reported that domestic cargo accounted for 40%, US transborder for 20% and international cargo for 40%. The third carrier was an international carrier and international cargo accounted for 100%.

8.5.2 Air Cargo Catchment Areas And Airport Linkages

8.5.2.1 Air Cargo Catchment Areas

The two Airports identified the following catchment areas:

Table 8.2
Air Cargo Catchment Areas

Edmonton Airport Catchment Area	Calgary Airport Catchment Area
• NWT • Yukon • Northeast British Columbia • Northern Saskatchewan • Alberta north of Red Deer	• British Columbia • Saskatchewan • Manitoba • Ontario • Alberta

The airports were asked how cargo is brought to the airport. In Edmonton, 95% of cargo arrives at the airport by truck and 5% by air. No information was provided for Calgary.

Direct Air-to-Air Transfer

In Calgary, there is direct transfer between international, transborder and domestic freight on the operational apron. There is no direct transfer in Edmonton.

8.5.2.2 Linkages With Regional Airports

Both Calgary and Edmonton indicated that they have linkages with regional airports for air cargo. These linkages are served with scheduled passenger flights.

Table 8.3
Airport Regional Linkages

Edmonton Airport Regional Linkages	Calgary Airport Regional Linkages
• Whitehorse, Yukon • Yellowknife, MWT • Other NWT and Nunavut points • Fort St John, BC • Grande Prairie • Peace River • High Level Fort McMurray • Calgary	• Whitehorse, Yukon • Yellowknife, MWT • Lethbridge • Grande Prairie • Fort McMurray • Saskatoon • Edmonton

8.5.3 Evaluating Air Cargo Service Characteristics

Appendix A
Chart 26

Shippers and third parties were asked to rate air cargo terminals and air carrier cargo services on a number of service characteristics. They were asked to rate services as 'satisfactory' or 'unsatisfactory' for the year 2002 and whether or not the quality of services had increased or decreased over the past five-year period.

For air cargo terminals, services were most often rated as satisfactory and no change was reported in level of service over the past five years. Six companies responded to this question.

When asked to evaluate air carriers, more companies responded (9). While Internet transactions and equipment availability/suitability were most often rated as satisfactory, more problems were evident in cargo damage/claims handling, cargo handling, on-time performance, and most notably prices or rates.

'No change' in the quality of service level for air carriers was the most frequent response, with the exception of cargo handling, which was seen to have improved somewhat over the past five years. Service frequency was reported to have declined by one-third of those responding.

8.5.4 Factors Important In Selecting Air Cargo Services

Appendix A Chart 27

Similar to choosing other modes of transport, rates or prices were mentioned most often as one of the top three factors in selecting air cargo services. On-time performance was ranked as the number one factor by one-third of those responding. Cargo handling/product care was also important.

8.6 The Next Five Years

8.6.1 Users

Appendix A Chart 28

Shippers and third parties were asked about their expectations regarding air cargo volumes over the next five years. Most shippers indicated that they anticipated no change.

Factors that were seen to drive air cargo volume in the future included:

- Products currently shipped
- North American sales volumes
- Need for short delivery times.

8.6.2 Airports

Alberta's major airports were also asked about air cargo volumes over the next five years. In contrast to the shippers interviewed, the airports indicated that air cargo would increase significantly over the next five years. The following reasons were given:

- Diversion from truck to air (both Edmonton and Calgary)
- Population increase
- Robust and business-friendly economy
- Value-added manufacturing
- Northern development
- More direct international connections
- Truck leakage to BC, Ontario and US airports is being reversed

For Calgary, air cargo was identified as its fastest growing sector, and it is expected to remain the focus in coming years.

No capacity issues were identified in Calgary, while the need for cargo and ramp development, as well as the need for a highway interchange, was noted for Edmonton.

Anticipated changes in needs for air cargo services over the next five years that were identified by airports interviewed were:

- Big increase in lift (both in service origins/destinations and in aircraft numbers/capacity/size)
- Specialized on-airport cargo facilities to handle freight now transported by road or rail to other airports

8.6.3 Air Carriers

Air carriers were asked what markets, products or services would drive their inbound cargo volume over the next five years. The following were identified:

Markets:

- Domestic: Ontario, Maritimes, NWT (Inbound and outbound)
- US Transborder: Florida, California, Texas (Inbound and outbound)
- International: Germany, Sweden, Mexico, Philippines (Inbound)
- International: Saudi Arabia, Mexico, France, United Arab Emirates, Philippines, Belgium and the Caspian region of Russia (Outbound)

Products:

- Same as those presently carried

Other Factors:

- Aircraft types available, specifically the availability of wide body aircraft
- Flight frequencies, i.e. continuous year round service
- Carrier preference for freight to the NWT

8.7 Air Cargo Issues And Impediments

Both system users and providers were asked to identify issues associated with air cargo. Specifically, they were asked about road/truck issues and aircraft/air cargo issues. The questions were identical to those asked for the surface intermodal system.

8.7.1 Road/Truck Issues

TERMINAL ACCESS ISSUES: **Issues:** • **Increased truck traffic through the Highway 2/Highway19 Interchange at Edmonton International Airport** The interchange is inadequate and will become a safety problem. Six to eight Super B-trains with jet fuel also use the interchange every day *[airport issue]*	**Suggested Solutions:** - Action by the joint Alberta Transportation, Edmonton Airports, County Committee
CONGESTION ISSUES: **Issues:** • **Truck congestion at IAT and First Air terminals at Edmonton International Airport** *[airport issue]*	**Suggested Solutions:**
VOLUME/CAPACITY ISSUES: **Issues:** • **Roads and intersections on-site at Edmonton International Airport need widening for increased truck traffic and new terminals** *[airport issue]* • **Truck/trailer overnight parking is very limited at Edmonton International Airport. Container storage is also limited at terminals** *[airport issue]*	**Suggested Solutions:**
CONTAINER HANDLING ISSUES: No container handling issues were identified	
CUSTOMS/SECURITY ISSUES: No customs/security issues were identified	
OTHER ISSUES: No other issues were identified	

The Calgary Airport Authority did not report any issues, but noted that:

- There is easy access to container parks
- Purpose-built machinery for on-airport container handling is available
- The airport has the only Customs vehicle X-ray unit on-airport, which is capable of x-raying full trucks and aircraft containers. This will only help to further speed up ground operations.
- As volumes continue to increase, new truck terminals would have to be built. This is identified in their new long-term airport plans.

8.7.2 Aircraft/Air Cargo Issues

TERMINAL ACCESS ISSUES: No terminal access issues were identified	
CONGESTION ISSUES: No congestion issues were identified	
VOLUME/CAPACITY ISSUES: **Issues:** • **FedEx and other providers are using smaller/slotted segments on planes causing shipment size constraints** *[system user issue]* • **Due to flight schedules and lack of flights at Edmonton International Airport, there are many trucks going to Calgary daily (including daily trucks by Air Canada) to access flights and to consolidate cargo in Calgary. Customers need year round service** A lot of customers need continuous 12 months/year service, so it is hard to sell cargo with/to a temporary summer or winter schedule *[air carrier issue]* • **Aircraft capacity currently used on passenger routes** For example, there is one wide body Boeing 767 per day from Edmonton to Toronto that can be down-sized on a day's notice, limiting cargo capacity. If down-sized to an A320, the seven containers available are used as follows: five for baggage, one for mail, and one for cargo. If baggage is heavy, the cargo is bumped *[air carrier issue]* • **Trend to move away from wide body aircraft to smaller aircraft** Many smaller aircraft do not have containers and cargo has to be loaded loose. Loose loading is limited to 300 lbs. or less because of worker compensation rules *[system user issue]* • **Lack of wide body aircraft services to/from Edmonton** *[system user issue]*	**Suggested Solutions:** - Get some competition - Larger aircraft (for Calgary services) - Need 12/months/year permanent service - Cannot be solved
CONTAINER HANDLING ISSUES: **Issues:** • **Size of crates** Large pieces create a problem as they need to be under 63" *[system user issue]*	**Suggested Solutions:**

CUSTOMS/SECURITY ISSUES:	
Issues:	**Suggested Solutions:**
• **Documentation not getting through in time** *[system user issue]*	- Canada Customs should move to paperless Electronic Data Interchange (EDI) with carriers and shippers
• **Small US transborder shipments by courier have problems with US Customs.** To the US, can be held up a number of days. No hold up coming into Canada *system user issue]*	- Regulations and processes should be aligned
• **Security costs imposed by airlines** Domestic @ $0.10 per kilo, Mexico @ $0.23 per kilo, Philippines @ $0.15 per kilo *[air cargo agent issue]*	
• **Security measures** Including shipper identification and inspections *[system user issue, air carrier issue]*	
OTHER ISSUES:	
Issues:	**Suggested Solutions:**
• **Rates are too expensive** [This issue was raised by a system user. No elaboration or clarification was provided]*[system user issue]*	
• **Equality of air cargo rates** For same air cargo trip (same Air Canada plane, same route) quote from China end is $3.50/kg versus Air Canada quote from Canadian end for same service is $5.00/kg *[system user issue]*	- Resolve these issues
• **Labour disruptions** *[system user issue]*	- Resolve these issues
• **Weather resulting in flight delay** Pilot says whether it goes or plane sits at airport, and no one advises the firm. Edmonton airport OK - others a problem *system user issue]*	
• **Need to handle dangerous goods internationally from Edmonton by air** *[system user issue]*	- Service in Edmonton for dangerous good internationally (to Asia). Cargolux does Europe.
• **Availability of investment capital** The province could take a more long-term view of airport investment dollars. Alberta airports are trying to serve importers/exporters, but are limited in funds to invest in air cargo infrastructure *[airport issue]*	- Consider provincial partnership on long-term financing of infrastructure

• **Traffic rights for international carriers** Current legislation is stifling the growth of our export and import markets with the process weighed heavily in favour of the national carrier. If objections are made to a carrier's application for scheduled service, then traffic rights will never be granted, further hurting provinces and cities that are poorly serviced by the national carrier *[airport issue]*	- The airport(s) must take the issue of traffic rights to the federal government for action to encourage continued economic growth in our region
• **Hub operations** Concern that the national carrier intends to operate through two hubs, Toronto and Vancouver, which would alienate the rest of Canada and have serious implications on commercial business growth (in Alberta) *[airport issue]*	
• **US Bilateral Agreement** Whereby jet freighters cannot go beyond gateway, and second airports limited to aircraft with less than 35,000 lbs take-off weight. Clause referred to as "co-terminalization" *[airport issue]*	- Amend the US Bilateral Agreement, as this was a clause required by Canada

8.7.3 Air Cargo Impediments and Suggested Solutions

LEGISLATIVE/REGULATORY IMPEDIMENTS:	
Impediments:	**Suggested Solutions:**
• For Edmonton, the "Open Skies" agreement with the US is a major obstacle for courier service	- Liberalize policy and bilateral agreements, particularly for air cargo services
• Lack of bilateral rights for foreign carriers.	- Liberalize policy and bilateral agreements, particularly for air cargo services
• Chapter 3 ICAO Noise Regulations urged by Europe and implemented April 1, 2002, eliminated Illushyn IL-76 freighters for oil field charters. IL-76 was used for heavy/oversized loads. Antonov 124 is still OK, but will be eliminated in the next step.	- Transport Canada exemption for Edmonton - they will consider exemption on flight by flight basis now
• Restricted use of foreign aircraft for Canadian carriers. Relates to ability to move oversized equipment. First Air has a rear loading Hercules, but not generally available. Lots of Russian aircraft could be utilized, but Transport Canada makes it difficult for such equipment to be brought in. "If it is not a US or Canadian aircraft, it is not safe."	- Amend Transport Canada/Canadian Transportation Agency Policy

• 25% foreign ownership limit on air carriers • Traffic Rights. Alberta, Saskatchewan and Manitoba have suffered badly at the hands of the current legislation. Traffic rights can only be issued to an interested non-Canadian carrier if, and only if, there is no impact on a Canadian carrier. In almost all cases, the national carrier will lodge argument to prevent issuance. The national carrier, for example has chosen to make its hubs Toronto and Vancouver, so all cargo is trucked or airlifted to these points. This places all other Canadian cities and their commercial business base at a disadvantage, over their overseas counterparts. Calgary is unable currently to supply direct services to Asia, Pacific Rim, South America and much of mainland Europe because of traffic rights issues. Thus, Alberta customers have to use the other airports. • Security issues	- Increase foreign ownership cap to at least 49% - The only way to resolve this issue is to allow overseas carriers to apply for traffic rights based on the region's requirements for an air service. Submissions of support from provincial, city government and members of the local business community should make the basis for a license issuance. Current legislation is destroying the competitiveness of Canadian business, as time is lost having to transit commercial goods through non-Alberta airports
ECONOMIC AND FINANCIAL IMPEDIMENTS: **Impediments:** • Alberta fuel tax on international jet fuel. Edmonton would like to become the first North American inbound tech stop, which Anchorage is now. But Anchorage has a fuel cost advantage as cheap jet fuel is barged in from Washington state. Also need to become competitive with Vancouver, where there is no tax on international jet fuel • Lack of capital for start-up airlines • Mad Cow • SARS • West Nile virus • Navcan too costly. Now charges $0.06 per kilo. Air Canada defaulted $22 million to Navcan, so Navcan now charges more to others	**Suggested Solutions:** - Eliminate the fuel tax **[THE GOVERNMENT OF ALBERTA HAS LOWERED THE TAX ON INTERNATIONAL JET FUEL SINCE THE INTERVIEWS WERE CONDUCTED]** - Increase foreign ownership cap to at least 49%

INFRASTRUCTURE IMPEDIMENTS: **Impediments:** • Airport and city access for trucks (Edmonton) • Dependent on future cargo growth, more investment in cargo aprons and buildings will have to take place (Calgary) • One versus two international gateways in Alberta	**Suggested Solutions:** - Finish Anthony Henday Drive - Rebuild Highway 2/19 interchange - Plans and investment have been created for this
LABOUR IMPEDIMENTS: **Impedi ments:** • Shortage of available skilled labour with warehousing experience • Low skill level of ramp and terminal staff	**Suggested Solutions:** -Alberta's minimum wage should be increased to attract more people to the province, which may also increase other wages as well, making Alberta comparable to other provinces for warehousing labour - More training programs for cargo handling, warehousing and distribution staff, especially on new security regulations, dangerous goods, tracking technology, etc.
OTHER IMPEDIEMENTS: **Impediments:** • Calgary has always been viewed as the hub. Calgary = Banff and is promoted. Edmonton = Jasper and is not promoted	**Suggested Solutions:**

8.8 Competitive Advantages And Disadvantages Of The Air Cargo System Serving Alberta

Table 8.4
Competitive Advantages And Disadvantages Of The Air Cargo System Serving Alberta

Advantages:	• Low cost trucking feeder services • Productive labour • Lack of air congestion • The Calgary Airport has the only main deck carrier offering dedicated air cargo freighter service between Europe/Middle East and Alberta. This has acted as an economic stimulant for the region. Exports which would have traveled to Vancouver are being handled directly from Alberta • The Edmonton Air Canada Cargo terminal itself is an advantage but it is underutilized • Long runways in Edmonton, so aircraft can, within limits, carry more weight • Better weather • In line with polar route • Lots of Asia connections through Vancouver • Flexibility (for the carrier responding) in terms of ability to change aircraft seat/cargo configuration to fit circumstances and demand • More capacity is available
Disadvantages:	• US Bilateral Agreement • Federal Air Policy • Lack of air cargo carriers • Calgary as the passenger hub becomes the cargo hub, (which is a disadvantage for Edmonton) • Small industrial base suitable for air cargo • Lack of single international gateway in Alberta

8.9 What Is Required To Ensure Success And Growth Of Air Cargo Services For Alberta

The following requirements for air cargo were suggested:

- A major change in federal air policy
- Eliminate policy restrictions
- Liberalize and separate the policy regime for air cargo from air passenger to ensure the competitiveness of all Canadian cities
- Need consistent and continuous flight schedules with wide body aircraft

- For First Air, continued development in NWT
- Need capacity[12]
- Need (air carrier) competition
- Need demand for Western Canadian-made products in world wide destinations[13]
- Need unified air transport in Alberta (versus two competing airports)

[12] This was raised by a system provider in Edmonton. No elaboration or clarification was provided.
[13] This issue was raised by a system user. No elaboration or clarification was provided.

9. Conclusions and Recommendations

9.1 Observations And Conclusions

- Containers are used most often for international shipments. Alberta companies most often use intermodal services for transporting containerized freight by international steamship through the Port of Vancouver and Fraser Port.

- Domestic, US Transborder and Mexico shipments also use intermodal services, but to a lesser extent than trucking or conventional rail services and equipment.

- Companies located near the Edmonton and Calgary rail intermodal terminals are more likely to use intermodal. Distance from these terminals, lack of rail intermodal services into the regions, cost and the lack of available containers, deter intermodal use by plants located outside of Alberta's two major cities.

- Products typically transported in containers via the intermodal system out of Alberta are machinery or parts, chemicals, forestry and wood products, and agriculture and food products.

- Products typically transported in containers via the intermodal system into Alberta are consumer goods, raw materials, machinery and equipment, parts and packing materials.

- As more distribution facilities locate on tidewater in the Vancouver area, more import containers are being unloaded at the port and the cargo shipped inland by domestic intermodal or by truck. This in turn results in less empty containers being available in Alberta for export shipments

- Also, steamship lines are becoming reluctant to keep inventories of containers inland because of the high opportunity costs of keeping the boxes out of pacific eastbound revenue service. This is because of very high pacific eastbound ocean container rates. The result is even fewer empty containers available in Alberta for exports.

- Alberta import containers are experiencing delays at the docks of up to six to ten days due to a lack of railcars and low priority for Western Canada intermodal cargo relative to US Midwest and Central Canada by the railways. Western Canadian Ports are a major gateway for Chinese imported goods destined for the US. This reduces Alberta's ability to engage in or attract just-in-time production activities that involve global sourcing because planning becomes impossible.

- There is a trend, particularly with larger shippers, to transload cargo into containers at the port, rather than source loading them at the plant in Alberta. This is due to the intermodal system not being competitive in the regions and a lack of empty

containers being available for export. Conventional truck and rail services are used for the inland transport portion.

- Certain business trends do not support the use of intermodal by Alberta companies; rather they indicate an increasing demand for motor carriers to access North American markets or to transport goods to tidewaters where they will be transloaded. This is due in part to the requirement for on-time performance and just-in-time delivery. Alberta businesses have to meet these customer demands in order to compete.

- Given these trends, the inland portion of international intermodal services used by Alberta shippers will likely decline.

- The effectiveness of the intermodal system serving Alberta for container traffic is dependent on:

  - A competitive rate structure

  - The availability of containers for Alberta exports

  - The availability of intermodal railcars to transport goods from the ports to Alberta and to take goods to the ports for international shipment

  - Competitive trucking services to move goods to and from intermodal container terminals in Alberta or to port safely and cost-effectively

  - Ports and port terminals remaining price competitive and customer-focused (as they are now)

  - Capital investment in road, rail and port infrastructure and equipment.

- The study found that the ports and port terminals are customer friendly, price competitive and efficiently operated.

- Port container terminals in the BC lower mainland are experiencing capacity problems. Programs and plans are in place to greatly expand capacity in the next several years.

- Meanwhile, railways are perceived to be creating obstacles to the intermodal transport system serving Alberta. Alberta companies are experiencing poor customer service, lack of railcars, congestion at rail terminals, increasing demurrage charges and little or no flexibility.

- The trucking industry is found to be a reliable and efficient mode of transport. However, its ability to meet growing demand for its services is deteriorating because

of driver shortages, equipment shortages, high fuel costs, and proposed changes to driver regulations.

- Western Canadian Ports are a major gateway for imported goods from China destined for Midwest US, and there is consensus that Asian import cargo destined for the US Midwest will drive future container volumes through Canadian West Coast ports.

- There is a need for a risk and impact assessment on the Canadian intermodal system from US cargo being diverted or repatriated back to US ports, for whatever reason.

- The intermodal transport system serving Alberta for containerized freight is not seen as integrated or seamless for users. At times, system service providers seem to act in isolation on their individual components to maximize their own benefits, often to the detriment of overall system performance.

- Alberta has a strong economy and demand continues to grow for Alberta imports and exports. At the same time, there are some significant threats to the international intermodal transport system serving Alberta because of the limited capacity of rail and truck providers, the increasing trend to load export containers at the port, and increased costs and lack of capital by the ports.

9.2 Recommendations

The two-fold objectives of this study were to:

- Identify issues for policy discussion
- Identify areas for further research

The wealth of information and insight gained from the extensive interview process resulted in a number of recommendations relative to these two objectives.

Recommendation 1. Areas Identified for Policy Discussion

It is recommended that Alberta Transportation initiate discussions with its western provincial counterparts, British Columbia in particular, as a starting point in the development of a National Transportation Policy/Plan.

The following areas have been identified for policy discussion:

1. The *Canada Marine Act*, specifically giving municipalities the ability to tax the Ports and Port Terminals and the limits to capital financing imposed on Ports ***[Alberta has already submitted a position with the other western provinces]***

2. The need for a National Transportation Plan/Strategy and how Alberta and the other western provinces fit into the plan

   "Canada lacks a national policy/economic strategy for moving forward and for providing guidance for transportation policy and hence for intermodal policy. All thinking and decisions are current, not long term and strategic.
   Each individual municipality can dictate and veto against greater good. This goes back to the lack of a National Transportation Policy. The federal government has abandoned transportation in Canada. In terms of transportation, the federal government is not governing. There is a lack at all levels, federal, provincial and municipal. It's a huge problem, as nobody seems to understand the linkages. The USA understands this so well, and has a national transportation policy. If we keep doing this, we will eventually force the traffic south to the US system"[Quote by system service provider]

3. Capital for infrastructure, in order to keep Canada's Ports competitive, and to ensure overall system performance

4. Air Cargo: The US Air Bilateral Agreement as it relates to air cargo and courier services, in particular the co-terminalization clause, international traffic rights, and a distinct policy regime for air cargo

Recommendation 2. Areas Identified for Further Research

This study was exploratory in nature, identifying many issues and impediments to success, but also some potential opportunities. It is recommended that further study be undertaken in the following areas:

1. Determine and assess impacts on/threats to Alberta's intermodal system and larger economy from trends such as Alberta import containers being delayed at port, Alberta import containers being unloaded at port, steamship lines' increasing reluctance to keep an inventory of empty containers in Alberta, and trend to transload exports at port

2. Assess the feasibility of establishing transloading facilities in Alberta for import containers destined for Central Canada

3. Examine intermodal containerized freight transportation for Alberta regions outside of Edmonton and Calgary to determine the intermodal demand opportunities and the cost-benefit implications of expanding facilities and/or services

4. Determine the current and future supply and demand of temperature-controlled units for Alberta shippers

5. Determine capacity and economics of the Alberta trucking industry, given expectations of increasing demand

6. Determine capacity of the rail (intermodal) system, given expectations of increasing demand

7. Examine the level of integration of the intermodal containerized freight system serving Alberta, including electronic integration and coordination of service delivery between service providers

8. Focusing on where intermodal transport is currently not used or does not work, determine what would encourage intermodal use.

Recommendation 3. Share the Results of this Exploratory Study

It is recommended that the results of this exploratory study be widely shared. It is one of the first studies conducted on intermodal containerized freight and can be used to stimulate discussion and expand knowledge for system providers, users and policy makers.

1. As a means of initiating dialogue, provide copies of the Report to system providers, appropriate Alberta government departments, to government counterparts in other provinces, the federal government and interested municipalities

2. Provide copies of this Report to the companies that participated in this study and make a copy available on the department website for interested persons

APPENDIX A
DETAILED INTERVIEW RESULTS

INTERVIEW RESULTS

The following tables provide a compilation of interview results by participant group. Not all questions were asked of all respondents, therefore, results do not always reflect the total number of participants in the study.

Responses to questions were recorded by the interviewer during a personal interview and subsequently entered into a database of responses. In some cases, responses were provided in writing that were confirmed by telephone with the respondent.

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CHART 1. INTERVIEW RESULTS – IN RESPONSE TO "HOW WELL ARE YOU (PORT AND PORT TERMINALS) MEETING THE NEED OF SHIPPERS AND STEAMSHIP LINES?"
(Number of respondents provided in brackets)

Participant Group	Q. How well are you meeting the needs of steamship lines?	Q. How well are you meeting the needs of Shippers?
Ports (2)	Not asked	• The port needs an Intermodal Transfer Facility. Boxes unloaded off ships should be moved directly off terminals to a transfer facility that would sort and block for the railroads for Western Canada, USA and Central Canada. Terminals should not sort and block as they do now, as it is inefficient and costly. This is a terminal efficiency issue.
Port Terminals (4)	• Service and price • Good equipment • Good, reliable infrastructure • Good electronic communications • On-dock rail • Good truck reservation system • Labour, labour relations, and labour peace • Cost competitive • Efficient system • Good employees • High reliability • Customer service focused • Give lines lots of attention – tender loving care (terminal is targeting niche container areas - mid-size operators with up to 4,500 TEU vessels) • Increasing capacity to meet their requirements • More flexible to meet needs than other terminals	• Service and price • Good equipment • Good, reliable infrastructure • Good electronic communications • On-dock rail • Good truck reservation system • Labour, labour relations, and labour peace • Cost competitive • Efficient system • Good employees • High reliability • Customer service focus • More flexible to meet needs than other terminals • Earlier/longer receiving dates, 2 - 3 weeks compared to 5 days at other terminals • More free time on import containers

CHART 2. INTERVIEW RESULTS – IN RESPONSE TO "WHAT CHALLENGES ARE CURRENTLY FACED BY STEAMSHIP LINES; WHAT CHALLENGES WILL THERE BE IN FIVE YEARS TIME?"
(Number of respondents provided in brackets)

Participant Group	Q. Current challenging facing the steamship lines?	Q. Challenges facing the steamship lines in five years?
Steamship Lines (5)	• To try and increase export freight rates (with surplus space) • Rail carrier consistency and car supply • US security issues for cargo transiting through Canada to US vs. cargo going to US direct • Maintaining competitiveness • Keeping operating costs down • Ensuring that ocean freight rates do not go down again (No more rate wars) • Maintaining vessel and schedule integrity • Customer service orientation • Lack of product in Vancouver – this line now serving port of Vancouver on another carrier's vessels through a vessel sharing agreement • Rail connectivity in Vancouver • Overall market and economic uncertainty • New vessel capacity coming on stream versus North American economic growth • To stay competitive	• Nature of challenges five years from now will depend upon the state of world economy • China could substantially influence what happens • Possibly changes in ports and vessel rotations • Challenges five years from now will be the same as today • Ability to improve their product in Vancouver (dependent on market conditions and line internal decisions) • New vessel capacity coming on stream versus North American economic growth • Labour always a concern • Port efficiency • Rail efficiency • Truck efficiency • Congestion • To stay competitive

CHART 3. INTERVIEW RESULTS – RESPONSES TO "THE INCIDENCE OF CONGESTION AT THE PORTS AND PORT TERMINALS"
(Number of respondents provided in brackets)

Congestion at Port Terminals

Participant Group	Never	Rarely	Sometimes	Often	Very Often
Steamship Lines (5)		1	4		
Ports (2)			2		

Congestion at Ports

Participant Group	Never	Rarely	Sometimes	Often	Very Often
Steamship Lines (5)		4	1		
Ports (2)			2		

Comments

Participant Group	Comments on Port Terminal Congestion	Comments on Port Congestion
Steamship lines	• Land side congestion when the railways deliver insufficient cars (2) • In peak season, July to the end of September • Sometimes congested with empty boxes	• If late, must anchor to wait for dock slot • Any disruption in the US will divert ships to Canada and congest the port

CHART 4. INTERVIEW RESULTS – RESPONSES TO QUESTIONS ON TYPES OF PRODUCTS SHIPPED TO AND FROM ALBERTA USING INTERMODAL CONTAINERIZED FREIGHT

Question Participant Group: 40 companies, comprising 34 shippers and 6 third parties
(Number of multiple respondents provided in brackets)

ALBERTA INBOUND – Products shipped in containers using the intermodal system	**ALBERTA OUTBOUND – Products shipped in containers using the intermodal system**
• Raw materials • Chemicals (3) - Solvents/Chemicals, Chemicals/soda ash, additive chemicals/resins • Metals (2) – cobalt, nickel • Metal castings and forgings • Plant machinery and equipment • Steel coils • Nuts and bolts for direct resale • Metal and wood parts • Valves (2) – parts, valves/fittings • Finished parts • Printing equipment • Frozen foods (2) • Salty snacks • Wine, Beer or Spirits (3) • Electronics (2) - consumer electronics • Recreational boats • Furniture (3) - upholstered furniture, wood furniture, knock-down furniture • Disposable medical apparel • Packaging (3) - Cardboard packaging, Packing materials, Packaging (bags and drums) • Product returns • Honey or bee supplies (3) Packed honey, Bee supplies, Bee pollen • Dry goods, case goods, canned food products, spices (4) • Toys (2) • Pet food (2) • Mixed freight	• Natural gas equipment and plants • Valves (2) – spare valve parts • Dozer blades • Ground engaging tools • Nuts and bolts • Agricultural equipment • Oilfield equipment (2) • Compressor equipment • Cutting edges • Wood products including resins, pulp (3), lumber (2), MDF boards (2), plywood, studding lumber, finger joint studs, walls, furniture (2), flooring, seating • Powders (3) – nickel ,copper and cobalt powders • Carbon black • Magnesium oxide • Polyethylene • Active pharmaceutical ingredients • Plastic film products • Frozen foods (2), including frozen french fries and related products • Salty snacks • Meat (2) -beef products, pork cuts • Packed honey (2), Bee supplies (2) • Rye (whiskey) • Pet food • Packaging supplies, i.e. empty bottles • Empty beer kegs • Freight of all kinds • Equipment (4) – used printing equipment, mining equipment, dental equipment

CHART 5. INTERVIEW RESULTS, RESPONSES TO QUESTION: "FOR OFFSHORE STEAMSHIP LINE INTERMODAL SHIPMENTS – ARE ALL PRODUCTS SOURCE LOADED AT THE PLANT, OR ARE THEY TRANSLOADED AT PORT OR TRANSLOAD CENTRE? IF TRANSLOADED, WHY?"

Question Participant Group: 40 companies, comprising 34 shippers and 6 third parties
(Number of companies that responded to this question: 22)

Response: Yes, source load	Response: Yes, transload	Reasons given for transloading
• Lumber is source loaded in AB mills or transloaded in Edmonton	• Wood pulp is all transloaded in Vancouver	• More economical, access to containers, and inability to load volumes required at plant
	• 100% transloaded	• Plant container loading and inland container transport costs are higher than going rail break-bulk to the coast • Note plant is not located near container terminals. May be different if it was in Edmonton/Calgary and also had direct access to containers
	• 100%	• No container loading at either mill • All done at transload centre
	• 100%	• Use rail and truck to go to port
	• 100% at Port	
• FCL is 100% at plant	• LCL 100% at Port	• For consolidation
• 100%		
• 5%	• 95%	
• 100% at plant, refrigerated		
	• 100%	• To try and put more competition in place for ocean freight
• 100%		
• 100%		
• 100%		
• 80%	• 20%	• Transloaded due to insufficient equipment and timing requirements
	• 100%	• Beef going to port in refrigerated trucks for transload
• 85%	• 15%	• Container availability to Hawaii • Cheaper when shipping to Europe through Montreal
• 100%		
• 100%		
• 100%		
• 100%		
• 90%	• 10%	
• 100%		
Number of firms that indicated that they source load in all or in part: (16)	Number of firms that indicated that they transload all or in part: (12)	

CHART 6. INTERVIEW RESULTS – RESPONSES TO QUESTIONS ON THE THREE MOST IMPORTANT LOGISTICS AND SERVICE FACTORS THAT INFLUENCE USERS' CHOICE OF INTERMODAL SERVICE PROVIDER FOR MARINE INTERMODAL

Question Participant Group: 40 companies, comprising 34 shippers and 6 third parties

COMPANIES WERE ASKED TO RANK THE FOLLOWING FACTORS IN SELECTING MARINE CONTAINER SERVICE

FACTOR	Ranked No. 1 in Importance	Ranked No. 2	Ranked No.3	Total # Who Responded
	#	#	#	#
Rates/Prices	8	5	4	17
Service Reliability	1	3	5	9
Equipment availability/Suitability	3	1	1	5
Availability of direct service	1	1	1	3
Transit time	-	2	5	7
Choice of service/carriers	-	1	-	1
Cargo handling	1	-	-	1
On-time performance	1	1	1	3
Service frequency	1	2	-	3
Space Availability	-	1	1	2
Shippers preference	-	-	-	-
Overall quality of service	-	1	-	1
Number who responded	18	18	18	

Some companies utilize freight forwarders or logistics providers and do not chose their intermodal service provider(s) directly
Respondents were asked to rank the three most important factors

CHART 7. INTERVIEW RESULTS – RESPONSES TO QUESTIONS ON THE THREE MOST IMPORTANT LOGISTICS AND SERVICE FACTORS THAT INFLUENCE USERS' CHOICE OF INTERMODAL SERVICE PROVIDER FOR TRUCK INTERMODAL

Question Participant Group: 40 companies, comprising 34 shippers and 6 third parties

COMPANIES WERE ASKED TO RANK THE FOLLOWING FACTORS IN SELECTING TRUCK CONTAINER SERVICE

FACTOR	Ranked No. 1 in Importance	Ranked No. 2	Ranked No.3	Total # Who Responded
	#	#	#	#
Rates/Prices	7	3	4	14
Service Reliability	1	3	5	9
Equipment availability/Suitability	2	2	2	6
Availability of direct service	0	1	0	1
Transit time	1	0	1	2
Choice of service/carriers	0	0	0	0
Cargo handling	2	1	0	3
On-time performance	1	3	0	4
Service frequency	1	3	2	6
Space Availability	0	0	0	0
Shippers preference	0	0	0	0
Overall quality of service	2	1	2	2
Shipment tracing	0	0	0	0
Number who responded	17	17	16	

CHART 8. INTERVIEW RESULTS – RESPONSES TO QUESTIONS ON THE THREE MOST IMPORTANT LOGISTICS AND SERVICE FACTORS THAT INFLUENCE USERS' CHOICE OF INTERMODAL SERVICE PROVIDER FOR RAIL INTERMODAL

Question Participant Group: 40 companies, comprising 34 shippers and 6 third parties

COMPANIES WERE ASKED TO RANK THE FOLLOWING FACTORS IN SELECTING RAIL CONTAINER SERVICE

FACTOR	Ranked No. 1 in Importance	Ranked No. 2	Ranked No.3	Total # Who Responded
	#	#	#	#
Rates/Prices	14	3	1	18
Service Reliability	0	9	4	13
Equipment availability/Suitability	3	2	6	11
Availability of direct service	1	1	3	5
Transit time	1	1	2	4
Choice of service/carriers	0	1	0	1
Cargo handling	0	1	1	2
On-time performance	2	1	1	4
Service frequency	0	2	0	2
Space Availability	0	0	0	0
Shippers preference	0	1	0	1
Overall quality of service	1	0	3	4
Shipment tracing	0	0	1	1
Number who responded	22	22	22	22

CHART 9. INTERVIEW RESULTS – SUMMARY OF KEY LOGISTICS AND SERVICE FACTORS THAT INFLUENCE USERS' CHOICE OF INTERMODAL SERVICE PROVIDER

Question Participant Group: 40 companies, comprising 34 shippers and 6 third parties

SUMMARY - THE THREE MOST IMPORTANT FACTORS FOR SELECTING CONTAINER SERVICE

FACTOR	FOR MARINE INTERMODAL	FOR TRUCK INTERMODAL	FOR RAIL INTERMODAL	TOTAL – For all modes, three most important factors
	#	#	#	# of times mentioned
Rates/Prices	**17**	**14**	**18**	**49**
Service Reliability	**9**	**9**	**13**	**31**
Equipment availability/ Suitability	**5**	**6**	**11**	**22**
Transit time	**7**	**2**	**4**	**13**
On-time performance	**3**	**4**	**4**	**11**
Service frequency	**3**	**6**	**2**	**11**
Availability of direct service	**3**	**1**	**5**	**9**
Overall quality of service	**1**	**2**	**4**	**7**
Cargo handling	**1**	**3**	**2**	**6**
Choice of service/carrier	**1**	**0**	**1**	**2**
Space Availability	**2**	**0**	**0**	**2**
Shippers preference	**0**	**0**	**1**	**1**
Number of companies who responded	**(18)**	**(17)**	**(22)**	

Note that a number of companies utilize freight forwarders or logistics providers and do not chose their intermodal service provider(s) directly
Respondents provided up to three important factors each

CHART 10. INTERVIEW RESULTS – COMPANIES WERE ASKED HOW VARIOUS LOGISTICS SERVICES ARE PROVIDED

Question Participant Group: 40 companies, comprising 34 shippers and 6 third parties

For the logistics services that they use, companies indicated whether or not they provided the service within the firm, outsourced or used a combination of both.

Logistics Services	Provided within the Firm	Outsource	Both	NR/NA*
Bonded warehousing	4	10	0	26
Container stuffing	11	12	0	17
Container de-stuffing	7	10	0	23
Cross-dock transloading	3	15	0	22
Customs brokerage	1	22	1	16
Documentation	14	5	7	14
Freight forwarders	3	14	9	14
Local pick up/delivery	7	19	5	9
Packing	13	7	1	19
Temperature Controlled	3	4	2	31
Unpacking	10	4	0	26
Warehousing	10	7	12	11

*NR/NA = No Response or Not Applicable

CHART 11. INTERVIEW RESULTS, EVALUATING SERVICE FACTORS BY SHIPPERS AND THIRD PARTIES

Rating the quality of the following factors as they apply to MARINE/TERMINALS & PORTS

Service Factors	In 2002		Changes in service quality over the last five years				
	Satisfactory	Unsatisfactory	Increase Significantly	Increase somewhat	No Change	Decreased Somewhat	Decreased Significantly
Ability to perform transaction over the internet	4	1	-	2	2	-	-
Cargo damage/claims handling	8	-	-	-	7	-	-
Cargo handling/product care	8	1	-	2	5	1	-
Equipment availability/suitability	9	-	-	1	6	1	-
Overall service quality	8	-	-	2	5	-	-
On-time performance	8	1	-	1	7	-	-
Rates/prices	7	2	-	1	5	-	2
Service Frequency	8	-	-	1	6	-	-
Service Reliability	8	1	-	-	8	-	-
Transit time	7	-	-	2	4	-	-

Rating the quality of the following factors as they apply to INTERNATIONAL STEAMPSHIP LINES

Service Factors	In 2002		Changes in service quality over the last five years				
	Satisfactory	Unsatisfactory	Increase Significantly	Increase somewhat	No Change	Decreased Somewhat	Decreased Significantly
Ability to perform transaction over the internet	10	2	3	4	4	-	-
Cargo damage/claims handling	16	1	-	2	15	-	-
Cargo handling/product care	17	-	-	4	12	-	-
Equipment availability/suitability	13	4	1	5	7	2	1
Overall service quality	19	-	1	6	11	-	-
On-time performance	19	-	-	4	14	-	-
Rates/prices	13	5	1	4	5	2	5
Service Frequency	15	3	-	4	13	-	-
Service Reliability	16	2	-	5	13	-	-
Transit time	18	1	-	4	14	-	-

Note that the format for this question was provided by Alberta Transportation

CHART 11 CONTINUED. INTERVIEW RESULTS, EVALUATING SERVICE FACTORS BY SHIPPERS AND THIRD PARTIES

Rating the quality of the following factors as they apply to RAIL INTERMODAL service

Service Factors	In 2002		Changes in service quality over the last five years				
	Satisfactory	Unsatisfactory	Increase Significantly	Increase somewhat	No Change	Decreased Somewhat	Decreased Significantly
Ability to perform transaction over the internet	8	1	3	2	2	1	-
Cargo damage/claims handling	12	1	1	1	9	-	1
Cargo handling/product care	15	-	1	3	10	-	-
Equipment availability/suitability	9	8	2	1	8	5	-
Overall service quality	11	8	1	5	5	5	2
On-time performance	12	6	1	3	7	3	2
Rates/prices	15	3	1	6	7	2	-
Service Frequency	16	4	2	3	7	3	1
Service Reliability	12	6	2	3	7	3	1
Transit time	12	6	2	4	6	2	2

Rating the quality of the following factors as they apply to TRUCKING service

Service Factors	In 2002		Changes in service quality over the last five years				
	Satisfactory	Unsatisfactory	Increase Significantly	Increase somewhat	No Change	Decreased Somewhat	Decreased Significantly
Ability to perform transaction over the internet	10	1	-	2	6	-	-
Cargo damage/claims handling	16	-	1	-	13	-	-
Cargo handling/product care	18	-	-	2	14	-	-
Equipment availability/suitability	17	2	1	1	13	2	-
Overall service quality	17	2	2	1	12	2	-
On-time performance	18	1	1	1	14	1	-
Rates/prices	16	3	1	1	13	3	-
Service Frequency	16	3	1	1	13	3	-
Service Reliability	17	2	-	2	13	3	-
Transit time	18	1	1	2	13	2	-

CHART 11 CONTINUED. INTERVIEW RESULTS, EVALUATING AIR CARGO SERVICE FACTORS BY SHIPPERS AND THIRD PARTIES

Rating the quality of the following factors as they apply to AIR TERMINAL/CARGO service

Service Factors	In 2002		Changes in service quality over the last five years				
	Satisfactory	Unsatisfactory	Increase Significantly	Increase somewhat	No Change	Decreased Somewhat	Decreased Significantly
Ability to perform transaction over the internet	2	-	-	1	1	-	-
Cargo damage/claims handling	4	1	-	1	3	-	1
Cargo handling/product care	5	1	-	2	3	-	1
Equipment availability/suitability	3	1	-	1	2	-	1
Overall service quality	4	1	-	2	2	-	1
On-time performance	4	1	-	2	2	-	1
Rates/prices	2	3	-	1	2	-	1
Service Frequency	4	1	-	1	3	-	1
Service Reliability	5	1	-	3	2	-	1
Transit time	4	1	-	1	2	-	1

Rating the quality of the following factors as they apply to AIR CARRIER/CARGO service

Service Factors	In 2002		Changes in service quality over the last five years				
	Satisfactory	Unsatisfactory	Increase Significantly	Increase somewhat	No Change	Decreased Somewhat	Decreased Significantly
Ability to perform transaction over the internet	5	1	-	-	2	1	-
Cargo damage/claims handling	5	3	-	-	5	-	1
Cargo handling/product care	6	3	-	5	3	-	1
Equipment availability/suitability	7	2	-	1	7	-	1
Overall service quality	6	2	-	3	4	-	1
On-time performance	6	3	-	1	5	1	1
Rates/prices	5	4	-	2	6	-	1
Service Frequency	7	2	-	2	4	2	1
Service Reliability	7	2	-	2	6	-	1
Transit time	7	2	-	3	5	-	1

Note that the format for this question was provided by Alberta Transportation

CHART 12. INTERVIEW RESULTS – COMPANIES WERE ASKED HOW THEY USE ELECTRONIC INFORAMTION

Question Participant Group: 40 companies, comprising 34 shippers and 6 third parties

	Type of Technology					
	Electronic Data Interchange (EDI)			Internet		
	Use Now	Don't use now	NA/NR	Use Now	Don't use now	NA/NR
With final business customers	25%	30%	45%	56%	8%	36%
With final consumers	3%	30%	67%	28%	13%	59%
With products & material suppliers	8%	38%	54%	35%	20%	45%
With government	8%	30%	62%	28%	23%	49%
With air transportation service provider	3%	25%	72%	25%	13%	62%
With marine transportation service provider	15%	30%	55%	35%	13%	52%
With rail transportation service provider	18%	28%	54%	30%	18%	52%
With trucking transportation service provider	8%	40%	52%	33%	15%	52%
Within your company	25%	33%	42%	63%	3%	34%

For those who do not use EDI, reasons given were:

Our system is old, not EDI friendly (2 companies)
Not required (4 companies)
Use freight forwarders, e-mail, phone and fax (2)
Not large enough and/or customers do not use it (3 companies)
Our other location is (but this location is not) (2 companies)

Note that the format for this question was provided by Alberta Transportation

CHART 13. INTERVIEW RESULTS – RESPONSES FROM COMPANIES WHO WERE ASKED WHAT PLANS THEY HAD IN THE FUTURE TO EXPAND USE OF EDI OR INTERNET

Question Participant Group: 40 companies, comprising 34 shippers and 6 third parties

Increased Integration	Web – Internet Use	In General	No Plans/Do not Know
• More integration of business functions • Better integration of inventory control • Bills of Lading with steamship lines • Moving towards EDI system compatibility • Customers may demand EDI. Firm is ready and will implement when necessary, dependent upon business opportunity • Hope to integrate EDI with our major transportation suppliers • Our EDI will expand to include automated invoice payment • Customer interface for ordering • Will be looking at EDI system in the future • Moving to EDI - next 2 - 3 years	• Develop own web page • Will be totally web based with all business relationships down to final customer. Eliminate all/most paperwork. • Electronic ordering (of pulp) • Want 50% of customers and 50% of transactions based on internet	• Implement throughout company as applicable • More but not sure of the extent; we are expanding all the time. • Expand in use for order processing; shipping documents; and bar coding • Are purchasing a TMS (Transportation Management System) that will allow increased visibility through order - ship – delivery – payment, basically the whole order cycle • Plan increased use • Will have in 2004	• No plans: 6 companies • Do not know: 2 companies

CHART 14. INTERVIEW RESULTS – PERCENTAGE OF COMPANY SHIPMENTS THAT ARE NOT INTERMODAL AND REASONS WHY

Question Participant Group: total possible sample of 40 comprising 34 shippers and 6 freight third parties

Do you have shipments that you do not use intermodal to transport?	**Yes** **Frequency and (%)**	**No** **Frequency and (%)**
For Outbound Cargo	29 (73%)	11 (27%)
For Inbound Cargo	21 (53%)	19 (47%)

Not using intermodal for the products and markets of:	**Reasons given:**

• 75% of shipments to domestic and US are break bulk, 24% is offshore break bulk to Europe and Asia and 1% is containers to Europe and Asia
• Of total annual shipments, 30% go to North American markets by rail, 65% go off-shore by break bulk and containers are about 5%
• To Alberta, Saskatchewan, Manitoba, BC , NWT, and Ontario
• Use truck for western Canada markets
• All local shipments done by truck
• Use own company fleet to deliver in Western Canada and use intermodal for delivery to distribution centres in Vancouver, Winnipeg and Ontario
• Canada and US and to company locations
• All Asia, American Mexico and most Canadian shipments
• Local region, no shipments outside of the region offshore break bulk to Europe and Asia and 1% is containers to Europe and Asia
• To US, lumber and boards
• Wood pulp to the US (use rail) or Europe (not intermodal)
• Dimension lumber goes by truck
• Plastic resins and finished film to the US
• Movable walls, furniture, flooring, lighting
• Magnesium oxide to Canada and the US
• All air cargo, 10% domestic, 75% US transborder and 15% international
• Truck crated manufactured goods
  • Ontario – domestic
	• Primarily US bulk shipments by rail and truck relative to customers' needs and handling facilities
	• (Truck) due to volume of order and location of customer, looking for the best price
	• do not use intermodal because of time sensitive delivery times, the need for door to door service and lack of equipment (53')
	• Not the best price
	• Intermodal is not cost competitive
	• Do not use intermodal due to cost, service and damage concerns
	• Products too large to fit into containers
	• Truck is used to ZUS and Mexico because of destinations and to go between plants
	• Intermodal not always the most efficient mode of transport. Some customers require bulk rail car delivery and some require truck delivery. Mode of transport is sometimes determined by the customer
	  • Capacity limitations on marine containers
	  • Domestic distribution preferences.

CHART 15. INTERVIEW RESULTS – RESPONSES TO QUESTION "DO YOU ANTICIPATE ANY CHANGES IN THE NEED FOR INTERMODAL CONTAINERIZED CARGO WITHIN THE NEXT FIVE YEARS?"

Question Participant Group: 40 comprising 34 shippers and 6 freight third parties

Unsure	Little or no change	Increase	Comments made by participants on anticipated changes in the need for intermodal
2%	33%	65%	• 15% increase in 2004 • Growth in US traffic • Rapid growth, see an exponential need for the service (3) • Volumes could grow by 30% in five year time • Volumes, both domestically and internationally will continue to grow at a significant annual rate • Volumes both domestically and internationally will continue to grow at a significant annual rate • Expect to convert more over-the-road freight to intermodal in the future. We are currently examining opportunities to ship product intermodal to Mexico • Plan on increasing our intermodal freight by about 5% in 2004 • Depends on markets. Domestic determines international (out of North America) shipments • Not unless break-bulk rail gets too expensive. Could then possibly truck to Edmonton and load containers there • Considering that the volumes will continue to grow, so will the need for containers. Estimate 20% volume increase yearly • Little or no change. Six tons high value • Unsure. Depends upon markets and orders secured • No changes. Pattern the same with increased growth • Resumption of Asian shipments when BSE issue is settled • No. For North America, use own fleet. Their business is very time sensitive, so cannot use intermodal. They tried intermodal four years ago, but big problem due to speed, cost and damage. Did recently look at intermodal for cost of moving one product, but delivery times are a challenge in North America. They go right to customer's site, so intermodal makes no sense. Use intermodal for international • May eventually do documentation all in house. Need guarantee of container availability

CHART 16. INTERVIEW RESULTS – RESPONSES TO QUESTIONS ON CHANGES TO INBOUND AND OUTBOUND INTERMODAL CARGO VOLUME EXPECTED BY SHIPPERS OVER THE NEXT FIVE YEARS

Question Participant Group: comprising shippers and third parties

INBOUND ALBERTA TRAFFIC – EXPECTED CHANGE OVER NEXT FIVE YEARS IN VOLUME INBOUND BY SHIPPERS INTERVIEWED
Percent of the 40 companies interviewed

	Increase Significantly	Increase Somewhat	No Change	Decrease Somewhat	Decrease Significantly	No Response/ Not applicable
Domestic Intermodal	0	6 (15%)	10 (25%)	1 (2.5%)	0	23 (57.5%)
US Transborder Intermodal	0	2 (5%)	8 (20%)	1 (2.5%)	0	29 (72.5%)
Mexico Intermodal	0	1 (2.5%)	6(15%)	0	0	33 (82.5%)
International Intermodal	4 (10%)	4 (10%)	8 (20%)	0	0	24 (60%)

OUTBOUND ALBERTA TRAFFIC – EXPECTED CHANGE OVER NEXT FIVE YEARS IN VOLUME OUTBOUND BY SHIPPERS INTERVIEWED
Percent of the 40 companies interviewed

	Increase Significantly	Increase Somewhat	No Change	Decrease Somewhat	Decrease Significantly	No Response/ Not applicable
Domestic Intermodal	1 (2.5%)	9 (22.5%)	9 (22.5%)	0	0	21 (52.5%)
US Transborder Intermodal	0	5 (12.5%)	5 (12.5%)	1 (2.5%)	0	29 (72.5%)
Mexico Intermodal	0	5 (12.5%)	2 (5%)	0	0	33 (82.5%)
International Intermodal	2 (5%)	15 (37.5%)	6 (15%)	0	0	17 (42.5%)

CHART 17. INTERVIEW RESULTS – COMMENTS PROVIDED BY SHIPPERS INTERVIEWED ON CHANGES TO INBOUND AND OUTBOUND INTERMODAL CARGO VOLUME EXPECTED OVER THE NEXT FIVE YEARS

Question Participant Group: 40 companies, comprising 34 shippers and 6 third parties

Comments on Inbound Volume of Intermodal	Comments on Outbound Volume of Intermodal
Over the next five years: • Small amounts inbound to Alberta • Depends on sales growth of products • Depends on location of source • Depends on expansion of lines	Over the next five years: • Will depend on ocean container rates to the far east markets and container availability • Depends on markets • As long as they have the right "unloader" at the other end • For international, no change expected. Building plants in Thailand and China • Largely dependent on the global economy and where business develops. One can expect up to a 20-30% increase overall • Out of the Alberta plant, US shipments will divert to Winnipeg. (Over next five years) Redefining traffic plans - i.e. shipments to Oregon from Edmonton instead of from Winnipeg • Outbound volume from Alberta should increase at a rate of about 5% per year over the next five years. This will depend upon our overall sales growth in Western Canada. This volume will be to our distribution centres in Vancouver, Winnipeg and Ontario • Expect our international business from our pork and potato facilities in Lethbridge to grow • International is dependent on BSE issue being solved and markets opened • Growth of three containers/year. Brokers are staying away from exports because of paperwork and liability mistakes and errors, which are a major problem • Normal growth • Steady growth and always looking for more • The direction of change, if any, will largely depend on economic parameters effecting global competitiveness • It will increase as volumes dictate and with company growth • Return of empty beer kegs; increase in (outbound) rye and possibly cream liqueur from Alberta distillers

CHART 18. INTERVIEW RESULTS – RESPONSES TO QUESTIONS ASKED OF PORTS, PORT TERMINALS AND STEAMSHIP LINES REGARDING GROWTH IN ALBERTA TRAFFIC VOLUME
(Number of respondents provided in brackets)

Anticipated Growth in Alberta Traffic over the Next Five Years

Participant Group	Decrease Significantly	Decrease Somewhat	No Change	Increase Somewhat	Increase Significantly	Do not know
Steamship Lines (5)			1	1	2	1
Port Terminals (2)				1		1
Ports (2)			1			1

Comments provided with regard to future growth of Alberta shipments over next five years:

- Alberta has a good economy
- There will be more imports of consumer goods
- There will potentially be more beef to Asia when “mad cow” issue is resolved
- Alberta traffic growth depends on crop yields
- Alberta traffic levels depend upon harvest conditions for agricultural products
- Increase in frozen food exports
- Increase due to resin expansion
- More forest products
- They (steamship line) have a strategy to increase Alberta market share
- Alberta-Vancouver transportation costs must remain competitive
- Rail car equipment must be available

CHART 19. INTERVIEW RESULTS – RESPONSES TO QUESTIONS ASKED OF PORTS, PORT TERMINALS AND STEAMSHIP LINES ON PROPORTION OF DRY TO REFRIGERATED ALBERTA SHIPMENTS OVER NEXT FIVE YEARS
(Number of respondents provided in brackets)

Growth in Alberta Traffic over the Next Five Years

Participant Group	Less Temperature-controlled	No Change	Increase in Temperature-controlled	Do not know	Comments
Steamship Lines (5)	1	2	1	1	• Dry increase more than reefers because of amount of warehousing and distribution available in Alberta • Increase if Japanese and Chinese demand improves, but will be dependent on freight rates
Port Terminals (2 Operators on behalf of 4 terminals)			2		• Increase once mad cow issue resolved
Ports (2)			1	1	• Overall port reefer traffic is increasing, as is Alberta reefer traffic

CHART 20. INTERVIEW RESULTS – RESPONSES TO "WHAT NEEDS ARE THERE FOR NEW OR UPGRADED INTERMODAL SERVICES TO AND FROM WESTERN CANADA?"
(Number of respondents provided in brackets)

Participant Group	Need for Intermodal Services	Need for Temperature-controlled Services in particular
Steamship lines (5)	• Resurrect Alberta Intermodal Services • Slot agreement for Alberta traffic between Class 1 railways to get two-day service to both Edmonton and Calgary on either railway, suggest 100 slots per day (one railway now takes four days to reach Calgary. Calgary containers go to Saskatoon where the train is broken. Cars then go from Saskatoon to Calgary) • Matching of inbound/outbound traffic for two-way loaded moves • Coquitlam to Fraser Surrey Docks rail switching • Western Canada is well served and existing services are adequate (2)	• Possibly more rail for reefers • Dedicated reefer service (a dedicated reefer train) • Rail direct reefer service to Fraser Surrey Docks (railways do not provide direct reefer service to FSD. Line picks up their reefers at DeltaPort or main Coquitlam yard and truck them to FSD)
Ports (2)	• Opportunities for improved South America and Australia reefer services because of opposite summer/winter climates relative to Canada	• Need to increase inland reefer carrying capacity
Port Terminals (4)	• Need an intermodal terminal in Lethbridge	

CHART 21. INTERVIEW RESULTS – IN RESPONSE TO "WHAT CHANGES ARE EXPECTED IN THE NEEDS OF STEAMSHIP LINE CUSTOMERS; WHAT CHANGES ARE PLANNED BY THE STEAMSHIP LINE OVER THE NEXT FIVE YEARS; and HOW WILL THESE CHANGES AFFECT PORT TERMINALS/PORTS?"
(Number of respondents provided in brackets)

Participant Group	Q. What changes are expected in needs of steamship line customers?	Q. What changes are planned by the steamship line?	Q. How will changes affect Port Terminal Operators or Ports?
Steamship Lines (5)	• Less import containers will be going inland as more large distribution centres open in Vancouver (e.g. the Bay and Westfair Foods moving part of their distribution from Calgary); i.e. from where Canada will be served via domestic intermodal • More source loading at plants • More rail service • Increased demand for specialized rail reefer cars of which there will be a shortage • More responsive rail services • No change. Services are good now for the amount of traffic in and out of Alberta, but rail car supply from the railways is important • Changes will be in the US rather than in Canada	• The line is always looking at new opportunities, but nothing specific as of now • Looking at better vessel rotations • Must go where the cargo is • The line is hopeful about increased services for Vancouver. Proposals are being evaluated, but nothing concrete • Possibly bring 5250 TEU vessel service back to Vancouver. Last year the line had 2 services: One 1900 TEU vessel/week FPOC 9first port of call) service, and one 5250 TEU vessel/week LPOC 9last port of call) service. Now, the line's service is one 2800 TEU vessel/week FPOC service (of which another line has 20% of vessel space). So, less capacity now than before, and service/space for biggest customers has been reduced	Impact on the Ports • (Could be) Increased or decreased volumes • Increased traffic • Growth • Increased employment • Increased port revenues • Reintroduction of larger vessels will increase port volume, increase jobs, and increase revenues • Seattle may become a better alternative if US security issues persist (have already spun off some cargo to Seattle that used to go through Vancouver) • The railways could have an impact (on port and on lines)

CHART 21 CONTINUED. INTERVIEW RESULTS – IN RESPONSE TO "WHAT CHANGES ARE EXPECTED IN THE REQUIREMENTS OF INTERNATIONAL STEAMSHIP LINES OVER THE NEXT FIVE YEARS?" and "HOW WILL CHANGES AFFECT PORT TERMINALS/PORTS?" (Number of respondents provided in brackets)

Participant Group	Q. What changes are expected to the requirements of Steamship Lines?	Q. How will changes affect Port Terminal Operators or Ports?
Port Terminals (4)	• An increased need for rail service with the move to larger ships (2) • Need an end to rail and truck congestion • More terminal capacity • Increased internet based EDI with everybody (terminals, railways, shippers) • Higher terminal productivity needed as the lines want to keep the same turn-around with larger ships (3) • Cost reductions from ports and terminals • Bigger cranes • Security - but who will pay for it	For Port Terminals: • There will be more onus and increased costs to increase service levels, but the terminals may not be able to charge for it. Are carriers prepared to pay a premium? Current rates are inadequate and will not cover increased services and new equipment. Government-imposed security costs have been passed on to customers since July 1, 2003 • Changes in operating practices may be needed to meet expectations • More terminal capacity will be needed. If not, Port of Vancouver and Canada will have a problem
Ports (2)	• More berths • More container handling capacity • More intermodal rail capacity (both on and off-dock)	For Ports: • The ports indicated that more berth capacity is being planned, as are other capacity increases

CHART 22. INTERVIEW RESULTS – ADVANTAGES AND DISADVANTAGES OF THE INTERMODAL SYSTEM BY PARTICIPANT GROUP
(Number of respondents provided in brackets)

Participant Group	Advantages of the Intermodal System	Disadvantages of the Intermodal System
Ports (2)	• Canadian ports are less expensive than US ports • Canadian ports are more efficient than US ports • The value of the Canadian dollar • Canadian ports are more reliable than US ports • Vancouver is our sovereign gateway • Canadian ports are stable	• Port legislation (Canada Marine Act) [see report text for details] • Canada lacks a national policy/economic strategy for moving forward and for providing guidance for transportation policy and hence for intermodal policy. All thinking and decisions are current, not long term and strategic. • Each individual municipality can dictate and veto against greater good. This goes back to the lack of a National Transportation Policy. The federal government has abandoned transportation in Canada. In terms of transportation, the federal government is not governing. There is a lack at all levels, federal, provincial and municipal. It's a huge problem, as nobody seems to understand the linkages. The USA understands this so well, and has a national transportation policy. If we keep doing this, we will eventually force the traffic south to the US system • Taxation issues • Possible toll access fees to bridges and other infrastructure in the lower mainland
Port Terminals (4)	• One port container terminal saw no competitive advantage with the Canadian intermodal system • At DeltaPort go directly from on-dock rail to a single transcontinental line with no need to interchange. This is not possible in the US • Lots of on-dock rail, but the US is catching up, using federal funds to do it. • Track sharing between Class 1 railways in the Fraser Canyon • Low value of the Canadian dollar .	• Taxes • Rising costs • Local lower mainland rail operations and services • Winter weather conditions (rail line blockages/outages)

CHART 22 CONTINUED. INTERVIEW RESULTS – ADVANTAGES AND DISADVANTAGES OF THE INTERMODAL SYSTEM BY PARTICIPANT GROUP
(Number of respondents provided in brackets)

Participant Group	Advantages of the Intermodal System	Disadvantages of the Intermodal System
Steamship Lines (5)	• One steamship line saw no competitive advantages with the Canadian intermodal system Lower rail costs than in the US • Lower and fewer port charges in Canada • There are no filing of rates required • The value of the Canadian dollar • Availability of two railways provides a competitive edge • The location, cost and approach to business by the Port of Vancouver and Fraser Port • There are lots of off-dock container yards for loading and storage, which allows for creativity and cost savings • Supply chain participants are more involved as a group than in other ports	• US Customs/security regulations. Cargo entering US via the Canadian land bridge is treated differently than cargo entering the US through a US port • Weak Canadian dollar results in higher cost for ocean carrier, as everything is paid in US dollars • Railways in general • Alberta intermodal services can be a problem for ocean carriers that use only one railway to serve both major cities in Alberta. • The railways are no longer customer service oriented • Intermodal terminal free time is too short and demurrage costly • Rail car shortages • Small population base • Taxation on railways • No revenues generated to build and expand port infrastructure
Motor Carriers (3)	• Lower costs (over road trucking) • Alberta has good balance and large volume of exports and imports, which makes Alberta a desirable market for steamship lines • Alberta is a logical distribution centre	• Distance to tidewater • Facilities running at near capacity
Class 1 Railway (2)	• Cost and capacity • The domestic repositioning program for steamship line containers	• Ease of doing business. Rail intermodal is not as easy as doing business with a motor carrier. Technology will change this disadvantage • Seasonal volumes • Unwillingness of steamship lines to service due to low ocean rates
Third Parties (6)	• Three out of the five participating freight forwarders saw no intermodal system competitive advantages, and one indicated that they did not know • Geographical location • Pricing/rate advantages	• One respondent did not know • Transit times • Intermodal terminal locations • Road system structure • Lack of ring roads around major centres

CHART 22 CONTINUED. INTERVIEW RESULTS – ADVANTAGES AND DISADVANTAGES OF THE INTERMODAL SYSTEM BY PARTICIPANT GROUP

(Number of respondents provided in brackets)

Participant Group	Advantages of the Intermodal System	Disadvantages of the Intermodal System
Shippers (34)	• Nine shippers saw no intermodal system competitive advantages, and two 'did not know' • Low Alberta outbound domestic and US transborder rates • Lower rates in general • The rate structure achieved by Alberta Intermodal Services ten years ago (*it is actually 17 years ago)* helped make Alberta competitive • Container availability is better in Alberta than in the other prairie provinces • Truck accessibility • Advantage over US because of higher load limits • Other economic factors influence competitive advantage/disadvantage more substantially than transportation	• Four shippers saw no system competitive disadvantages, and two 'did not know' • Inadequate container inventory in Alberta for big shippers • Occasional equipment shortages domestic, USA, Mexico • Not enough steamship lines place containers in Alberta • Equipment availability at times • P & D problems • Rail car supply problem, but not unique to Alberta • Lower total transport costs by stuffing containers in Vancouver • Intermodal is price prohibitive for North American markets and Canadian inland portion of international markets • Three respondents indicated prices/high cost/transportation costs • Distance • Distance from ports • Landlocked • The intermodal system cannot serve plant location 200 km north of Edmonton economically • Plants outside of Edmonton and Calgary where the intermodal terminals are located are disconnected from the intermodal system • Need for better coordination between Class 1 railways • Need for complete coordinated east-west supply chain • Rail driven by union problems • No flexibility with rail mode • The railways see Alberta as a secondary market and Edmonton even more so • Time that it takes to get containers repositioned to Alberta • Transit time • Head haul issue because nothing coming in • Service

CHART 23. INTERVIEW RESULTS, RATING WESTERN CANADA PORTS VS. US PORTS (from the perspective of Steamship Lines)

(Number in each participant group that responded is indicated in brackets)

RATING OVERALL COMPETITIVENESS OF WESTERN CANADA PORTS VS. US PORTS

	Poor	Average	Good	Very good	NA
Ports (2)				2	
Port Terminals (3)			1	2	
Steamship Lines (5)		1	1	2	1
Total	0	1	2	6	1

RATING COST COMPETITIVENESS OF WESTERN CANADA PORTS VS. US PORTS

	Poor	Average	Good	Very good	NA
Ports (2)				2	
Port Terminals (3)			1	2	
Steamship Lines (5)			2	2	1
Total	0	0	3	6	1

Participant Group	**COMMENTS PROVIDED ON PORT COMETITIVENESS BY STUDY PARTICIPANTS**
Ports (2)	• Competitiveness is almost too good, but that it is dollar value dependent • Both ports handle substantial container volumes destined for the US Midwest. For rail/truck transport to US, the competitive advantage versus US ports routings diminishes at a 75 – 80 cent dollar, and becomes non-competitive above an 80 cent dollar
Port Terminals (3)	• The ports are as good or better than US West Coast ports on service, cost and productivity • The ports are competitive because of the value of the Canadian dollar (last year 40% lower labour costs) • The Canadian ports have no harbour maintenance fee @ 1% of value of cargo • BC ports are now competitive but municipalities are trying to increase taxes. BC government is looking at capping municipal taxes for ports/terminals
Steamship Lines (5)	• Competitiveness is predicated upon railways meeting their commitment to supply sufficient rail cars. • The value of the Canadian dollar. • The fact that Vancouver offers FPOC (first port of call) incentives. • No increases in wharfage costs/rates for the last five years. • Competitive based on a comparison with a terminal that the line owns in the Port of Tacoma • Terminal costs will increase substantially due to higher taxes and security costs, and • Because the Port of Vancouver has increased costs to terminals. A shipping line that rated the ports as “Good” both overall and on a cost basis noted that the rating was • The shipping line that had no opinion did note that port productivity is lower than in California

CHART 24. INTERVIEW RESULTS – WHAT RESPONDENTS THINK IS NEEDED TO ENSURE SUCCESS AND GROWTH OF INTERMODAL SERVICES FOR ALBERTA
(Number of respondents provided in brackets)

Participant Group	Responses - What is Needed
Ports (2)	• Need for supportive legislation that attracts capital investment. Canada is in the trade business. Trade needs transportation, and transportation needs infrastructure. We cannot just serve Canada. We must serve North America in order to keep maintaining and attracting steamship line services • Need for national decision making in transport (all decision making is now at the lowest level) • Need for a policy • Must be incentive for investment in facilities and services • There must be capital funding capability, otherwise there is no incentive to provide new facilities, other than band-aid solutions for existing facilities
Port Terminals (4)	• Need for continued investments by ports, terminal operators and railways, but there must be return on investment • Enough infrastructure must be in place to handle increased volumes • Equipment availability must be ensured • Power availability must be ensured • A clear rail plan is needed that the railways are committed to, and that matches growth in the port • Because the railways control system access, the railways must be more responsive to customers and more customer-friendly. A little common sense is needed • Ongoing review of taxes (fuel taxes, taxes on infrastructure) to ensure exporters' competitiveness in world markets

CHART 24 CONTINUED. INTERVIEW RESULTS – WHAT RESPONDENTS THINK IS NEEDED TO ENSURE SUCCESS AND GROWTH OF INTERMODAL SERVICES FOR ALBERTA
(Number of respondents provided in brackets)

Participant Group	Responses - What is Needed
Steamship Lines (5)	• Reliable overall infrastructure • Port container terminal expansion – DeltaPort Terminal II is needed • Reliable rail operation. Without it, there is no Western Canadian intermodal system • Availability of rail cars. Lack of rail cars is a threat to the system. If the railways keep their commitment to supply extra cars, cargo could increase dramatically • Competitive rail freight rates • Railways to make a profit on intermodal services • No labour disruptions A shipping line prominent in the Alberta market suggested that inland intermodal services may decline, because: • Distribution facilities are now locating in and moving to Vancouver • Cost of inland container positioning • Cost of, and foregone revenues of storing containers inland
Motor Carriers (3)	• Motor carriers offered no opinions on 'what I needed, but suggested that there is no easy solution, and that the ability of Alberta to be an effective intermodal origin/destination is diminishing, as evidenced by: • Import delays at port terminals (due to railways not supplying enough railcars) and by railways, and • Increased transloading outside of Alberta by large exporters
Class 1 Railway (2)	• Keep costs low • Improve capacity • Improve consistency (of service) • Make it easy to do business • Efficient and competitive transportation infrastructure

CHART 24 CONTINUED. INTERVIEW RESULTS – WHAT RESPONDENTS THINK IS NEEDED TO ENSURE SUCCESS AND GROWTH OF INTERMODAL SERVICES FOR ALBERTA

(Number of respondents provided in brackets)

Participant Group	Responses - What is Needed
Shippers (34)	• Ensure adequate infrastructure • Infrastructure should be integrated on a provincial level. Alberta, with its leading economy can be a leader. It is in Alberta's best interest to upgrade to a first class TransCanada highway system (to avoid Canadian domestic east-west traffic travelling through the USA) • Better roads • Better rail • More intermodal terminal facilities • Maintain truck and rail services • Increased availability of (rail car) equipment • Ensure (rail car) equipment availability • More container available (better container availability) • More trucking operations for options • Improvements in access points (rail intermodal terminals) • Increased (system) coordination • Increased (system) reliability • More schedule flexibility (train schedules) • Increased service offerings by the railways, particularly to Mexico • A more efficient rail system. Generally, the rail system in Canada is inefficient • "Rail" means old, slow and complicated. They do not have a value system of "seamless delivery" • Better service from the railways • Improved customer service • There should be three or four more rail carriers to provide competition • More competition in rail and ocean transport • Cost reductions • Cost competitiveness • Ensuring that rail companies do not take advantage of lack of space on trains to increase the rates to a level that would push a lot of volume back on the road • Captive locations should be protected better (*Note! For intermodal, there are no captive locations. Both railways have intermodal terminals in Edmonton and Calgary, and hinterland drayage is done by truck to/from any location. A shipper could be captive to one railroad only in the sense of using a shipping line that has contracted with one or the other railways to carry its containers inland)* • Expose more industries/companies to intermodal. Lots use truck only because it used to take too long by rail, but intermodal has improved and come a long way in terms of transit time. Companies may not be aware of this • Possibly more involvement by the private sector
Third Parties (6)	• Need to ensure that containers are in place in Alberta through imports to facilitate loading of exports • Strong export demand

CHART 25. INTERVIEW RESULTS – COMPANIES THAT USE AIR CARGO

Question Participant Group: 40 companies, comprising 34 shippers and 6 third parties (third parties)
(Number of companies that responded to this question:)

Use the following Air Cargo Service:	**Shippers**	**3rd Parties**	**Total**
Air Cargo Domestic	3 (9%)	1 (17%)	4 (10%)
Air Cargo International	7 (29%)	4 (67%)	11 (35%)
Use both Domestic and International	3 (9%)	1 (17%)	4 (10%)
Do not use air cargo services	24 (71%)	2 (34%)	26 (65%)
Number of companies who responded:	34	6	40

TYPICAL PRODUCTS SHIPPED BY AIR CARGO PROVIDED BY SHIPPERS AND THIRD PARTIES

INBOUND PRODUCTS	**OUTBOUND PRODUCTS**
• Oilfield equipment, including valves and fittings • Pressure vessel parts • Mechanical and electrical components • Solvents and chemicals • Various medical instruments and disposable medical products • Computers and software • Mining equipment for repair (from NWT) • Perishables • Mining samples • General cargo • Fabrics	• Oilfield equipment, including valves, filters and parts • Agricultural equipment • Chemicals, specialty chemicals and pharmaceutical ingredients • Mining equipment (to NWT) • Machinery spares and parts • Emergency parts for plant shut-downs • Perishable food products • Computers and software • Electronic consumer goods • Lighting and furniture components

Interviews with airlines and airports supported this listing of typical products

CHART 26. INTERVIEW RESULTS, EVALUATING AIR CARGO SERVICE FACTORS BY SHIPPERS AND THIRD PARTIES

Shippers and Third parties - Rating the quality of the following factors as they apply to air terminal/port cargo service

Service Factors	In 2002		Changes in service quality over the last five years				
	Satisfactory	Unsatisfactory	Increase Significantly	Increase somewhat	No Change	Decreased Somewhat	Decreased Significantly
Ability to perform transaction over the internet	2	-	-	1	1	-	-
Cargo damage/claims handling	4	1	-	1	3	-	1
Cargo handling/product care	5	1	-	2	3	-	1
Equipment availability/suitability	3	1	-	1	2	-	1
Overall service quality	4	1	-	2	2	-	1
On-time performance	4	1	-	2	2	-	1
Rates/prices	2	3	-	1	2	-	1
Service Frequency	4	1	-	1	3	-	1
Service Reliability	5	1	-	3	2	-	1
Transit time	4	1	-	1	2	-	1

Shippers and Third parties - Rating the quality of the following factors as they apply to air carrier/cargo service

Service Factors	In 2002		Changes in service quality over the last five years				
	Satisfactory	Unsatisfactory	Increase Significantly	Increase somewhat	No Change	Decreased Somewhat	Decreased Significantly
Ability to perform transaction over the internet	5	1	-	-	2	1	-
Cargo damage/claims handling	5	3	-	-	5	-	1
Cargo handling/product care	6	3	-	5	3	-	1
Equipment availability/suitability	7	2	-	1	7	-	1
Overall service quality	6	2	-	3	4	-	1
On-time performance	6	3	-	1	5	1	1
Rates/prices	5	4	-	2	6	-	1
Service Frequency	7	2	-	2	4	2	1
Service Reliability	7	2	-	2	6	-	1
Transit time	7	2	-	3	5	-	1

CHART 27. INTERVIEW RESULTS – RESPONSES TO QUESTIONS ON THE KEY LOGISTICS AND SERVICE FACTORS THAT INFLUENCE USERS' CHOICE OF AIR CARGO SERVICE PROVIDER

Question Participant Group: 40 companies, comprising 34 shippers and 6 third parties
Nine companies answered this question

COMPANIES WERE ASKED TO RANK THE FOLLOWING FACTORS IN SELECTING AIR CARGO SERVICES

FACTOR	Number who responded	Ranked No. 1 in Importance	Ranked No. 2	Ranked No.3
	#	#	#	#
Rates/Prices	6	1	2	3
On-time performance	5	3	1	1
Availability of Direct Service	3	1	1	1
Service frequency	3	-	2	1
Cargo handling/product care	2	2	-	-
Service Reliability	2	-	1	1
Availability of wide body aircraft	1	1	-	-
Transit time	1	-	1	-
Space Availability	1	-	1	-
Dangerous goods access (for samples) to international markets	1	1	-	-
Overall quality of service	1	-	-	1
Number who responded	9	9	9	8

Comments:

- **Use FedEx and it is an excellent service**
- **There is no wide body aircraft serving Edmonton**
    - **Calgary freight rates are very high**

CHART 28. INTERVIEW RESULTS, EXPECTED CHANGE IN AIR CARGO VOLUME OVER NEXT FIVE YEARS

EXPECTED CHANGE IN VOLUME OF AIR CARGO OVER NEXT FIVE YEARS AS PROVIDED BY SHIPPERS AND THIRD PARTIES

(Number of respondents provided in brackets)

	No Change	Increase Somewhat	Increase significantly
Domestic Inbound (7)	71.5%	28.5%	-
International Inbound (10)	70.0%	10.0%	20.0%
Domestic Outbound (7)	71.5%	28.5%	-
Domestic Inbound (10)	60.0%	20.0%	20.0%

No respondents indicated that they expect a decrease in air cargo

WHAT FACTORS WILL DRIVE AIR CARGO VOLUME CHANGE OVER THE NEXT FIVE YEARS - SHIPPERS & THIRD PARTIES, AIRLINES

Inbound Air Cargo – Shippers & Third Parties	**Outbound Air Cargo – Shippers & Third Parties**
• China and Europe were identified by third parties as international markets that will drive inbound volumes in the next five years • Present air cargo products are expected to continue to drive volumes • North American sales volumes • Customers will drive volumes since they specify source of production inputs • Dependent upon types of orders received • Turn-around times required • Local market demand • Availability of product	• North American sales volumes • Short delivery times • NWT was identified as a domestic destination driver • International market drivers are Europe and wherever the oil and gas industry was active • Present air cargo products are expected to continue to drive volumes • Air as a back-up in urgent cases (Examples Air to Ontario paid triple freight costs to get disposable gowns immediately due to SARS)
Inbound Air Cargo - Airlines	**Outbound Air Cargo – Airlines**
• Domestic – Ontario, Maritime & NWT • US Transborder – Florida, California & Texas • International – Germany, Sweden, Mexico & the Philippines • Same products as today • Aircraft availability and flight frequencies	• Domestic and US Transborder – same markets as inbound • International – Saudi Arabia, United Arab Emirates, Mexico, Philippines & Europe • Same products as today • Aircraft availability and flight frequencies

CHART 29. INTERVIEW RESULTS – PROPORTION OF INBOUND AND OUTBOUND ALBERTA CARGO THAT IS INTERMODAL FOR SHIPPERS AND THIRD PARTIES INTERVIEWED

Intermodal Service	Shippers		Third Parties	
	Number Using Service	% of shippers in sample	Number using service	% of third parties in sample
International Steamship Line	23	68%	3	50%
Domestic	13	38%	2	33%
US Transborder	7	21%	2	33%
Mexico	2	6%	1	17%
Air Cargo Domestic	3	9%	1	17%
Air Cargo International	10	29%	4	67%
Do not use intermodal	7	21%	1	17%
Total Number of Companies in Sample	34		6	

EXTENT OF USE - % OF SHIPMENTS (excludes respondents that do not use intermodal)

	OUTBOUND		INBOUND	
	Number	% of Respondents (24)	Number	% of Respondents (25)
Do not use	1	4%	11	44%
Use but % not specified	4	17%	3	12%
10% or less	3	12.5%	3	12%
11 to 20%	5	21%	2	8%
21 to 30%	1	4%	1	4%
31 to 40%	3	12.5%	1	4%
41 to 50%	2	8%	-	-
51 to 60%	1	4%	1	4%
61 to 70%	-	-	-	-
71 to 80%	1	4%	-	-
81 to 90%	1	4%	-	-
91 to 100%	2	8%	3	12%
Total number of respondents	24		25	

APPENDIX B
List of Participants

Appendix B. List of Study Participants

AeroMexico / Mexicana Cargo
Agra Terminal (Moose Jaw) Inc.
Air Canada
Alberta Forest Products Shippers Association
Alberta Pacific Forest Industries Inc.(ALPAC
Alberta Rail Net
Allcargo Forwarders
AT Plastics Inc.
Athabasca Northern Railway
Baymag Inc.
Bee Maid Honey Ltd.
Big Rock Brewing Ltd.
Black Cat Blades Ltd.
Braden Burrey Epediting Ltd.
Buchanan Lumber
Canadian National Railway
Canadian Pacific Railway
Cancarb Ltd.
Cargill Foods
Cargolux Airlines International S.A.
Champion Petfoods Ltd.
Clarke Transport
Columbus Lines
Connect Logistics Services Inc.
COSCO Canada Inc.
Dick Irvine Inc.
Dow Chemical Canada Inc.
Edmonton Regional Airport Authority
Enerflex (Presson Mfg. Ltd)
First Air
Fraser River Port Authority
Fraser Surrey Docks Ltd.
Frito Lay Canada
Goodyear Canada Inc.
Grief Brothers Canada Ltd.
H.H. Smith Ltd.
Hanjin Shipping
Hostess Frito Lay Co. Ltd.
Jager Homes
J.F. Hillebrand Canada Inc.
Kleysen Transportation
Lakeland Waterways Railway
Mackenzie Northern Railway
Maersk Canada Inc.
Maple Leaf Foods International - (Pork & Potatoes)
Maple Leaf Foods International - (Poultry)
Master Flo Valve Inc.
Matrikon Inc.
McCain Foods (Canada),
Midwest Furniture & Appliances
Miller Western Forest Prods. Ltd.
Overland Container Transportation Services Corp. (OCTS)
P & O Ports
Pratt & Whitney
PriMED Medical Products
Raylo Chemicals
SMED
Sokil Express Lines Ltd.
Supply Chain Mgmt. Inc. (Walmart)
The Brick Warehouse Corporation
The Calgary Airport Authority
TSI Terminal Systems Inc.
Umicore Inc.
Universal Industries Corp.
Vancouver Port Authority
West Fraser Mills Ltd.
Weyerhauser Alberta
Zim Israel Navigation Co. Canada Ltd.