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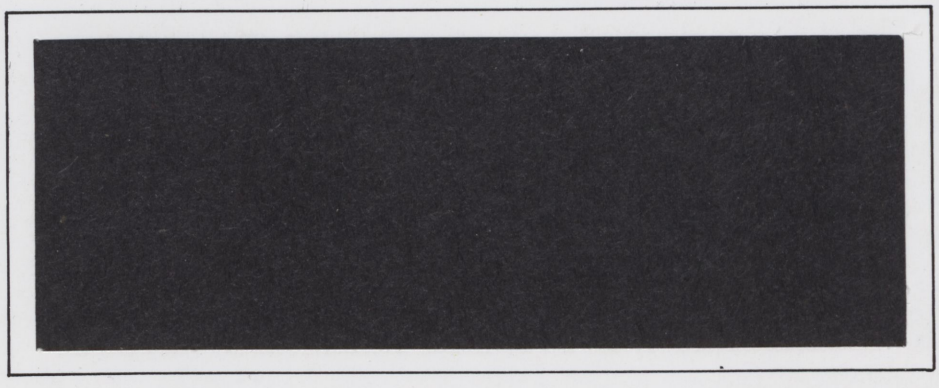

WORKING PAPER

Policy Branch

Direction générale des politiques

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AN OVERVIEW OF THE EASTERN TRANSFER ELEVATOR SYSTEM

(Working Paper 11/87)

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Food Markets Analysis Division
Planning Coordination and Analysis Directorate
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Agriculture Canada

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Acknowledgement

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Of course, full responsibility for the use of the data and information in the report rests with the author.

Executive Summary

The expansion of the Welland Canal in 1932 and the opening of the St. Lawrence Seaway in 1959 were two major developments in transportation infrastructure which facilitated the evolution of the transfer elevator system east of Thunder Bay. Once constructed the Welland Canal faciliated lake vessel travel through the Great Lakes to St. Lawrence and Maritime ports. The St. Lawrence Seaway system made vessel movement along the Seaway more efficient by eliminating the need for canal vessels which used to transfer grains and permitted larger vessels to use the route.

Transfer elevator construction which began in the early 1900's intensified in the years between 1910 and 1930, and then tapered off in the ensuing period. The number of elevators reached its highest point in 1960-61 when 32 units were in existence. Since then, the number has dropped to 24 in 1985-86 with one, Montreal No. 3, slated for closure in 1987. The rather significant drop (25 percent) in elevator numbers resulted in a relatively small decrease (13 percent) in total elevator system storage capacity which was at 3.4 million metric tonnes in 1986.

There are several reasons for the reductions of the number of eastern transfer elevators. The most important causes for closure stem from reduced storage and throughput activity, and the deterioration of some structures. Reduced grain volumes at some elevators became inevitable once the Welland was constructed. Before the construction of the Canal, traffic moved from Thunder Bay to either Georgian Bay or Lake Huron from where it was forwarded by rail further east and then transfered to draft vessels. Expansion of the Welland had the effect of reducing traffic volumes to Georgian Bay and Upper Great Lakes ports by facilitating the use of larger vessels thereby diminishing the role of some elevators in the eastern grain handling system.

The eastern transfer elevator system could be broken down into five groups. One, the Georgian Bay group consists of three elevators at Midland, and one each at Port McNicoll, Collingwood and Owen Sound. Two, the upper Great Lakes group consists of two elevators at Goderick and one each at Sarnia and Windsor. In the third group -- Lower Lakes/Upper St. Lawrence -- there are three elevators at Port Colborne and one at Prescott. The major functions of elevators in these three groups are the storage of Ontario and Western produced grain for eventual marketing; and, the transfer of grain from lake vessels to railway cars for shipment to Lower St. Lawrence and Atlantic ports. The fourth group -- Lower St. Lawrence elevators -- comprises three at Montreal and one each at Sorel, Trois Rivières, Quebec City, Baie Comeau and Port Cartier. Most of these are high throughput elevators which facilitate Canada's export grain trade. The final group of elevators is located on the Atlantic Coast and comprises one each at Halifax and Saint John. They serve both the local domestic market and Canada's export grain trade.

In terms of grain receipts and shipments, the Lower St. Lawrence group of elevators is the most dominant. These elevators handle more than 40 percent of total Canadian grain exports. The other elevators play a complementary role in that they provide valuable storage space for Ontario and Prairie grain so that marketing acitivites are spread out over an extended period of time. They also concentrate, to some degree, on serving the domestic flour milling and feed industries.

The modes of transportation to and from elevators are usually water, rail, truck and, in some instances, spout. Western produced grain normally moves by train to Thunder Bay then by vessel or train to Lower St. Lawrence and Maritime ports. In some instances grain moves from Prairie locations to export positions on the St. Lawrence by train only. Ontario produced grain going to the domestic market and nearby transfer elevators for storage moves by truck. It then moves by vessel or train to Lower St. Lawrence or Atlantic export positions. To qualify for the 'At and East subsidy' producers must allow the grain to move ex-water from Georgian Bay and/or Great Lakes transfer facilities. The routing and additional handling of grain using the 'At and East' route have implications for system efficiency.

The 'At and East' freight subsidy affects the long term viability of some transfer facilities. Those that appear to be most affected by the subsidy program are two at Midland, one each at Port McNicoll, Owen Sound, Halifax and Saint John. The reason for this is the fact these elevators, in particular, handle a very large proportion of 'At and East' grain relative to their total grain handling activity. In 1985, the subsidy amounted to $23.04/tonne for grain and $63.58/tonne for flour.

In comparing various routes and associated costs of positioning Ontario and Prairie grain and flour at export positions it is quite clear that the most costly and inefficient route is the 'At and East'. The least costly option is the rail-water route. However, in the case of flour, the least cost option would involve the milling of grain into flour at the port of export, eg. Montreal, instead of the current practice of milling at mostly inland points. The 'At and East' program, while costly to Canadian taxpayers in general, does provide benefits to some sectors of the economy. Among the beneficiaries are Ontario and Prairie grain produers, some transfer elevators, eg. Port McNicoll and Halifax, companies which own small, old bulkers, the railways and the flour milling industry.

In the absence of the subsidy program some economic units that are most affected by its presence would have to re-orient their acitivites or go out of business. This is probably true of a number of eastern transfer elevators and, to a lesser extent, inland flour mills. It is doubtful that elimination of the subsidy would have a significant effect on the western Canadian grain industry. It would necessitate some adjustments to the storage and transportation

of Ontario produced grain. One major likely benefit of eliminating the subsidy is that such action would probably lead to a faster rationalization of the eastern transfer elevator network and cost-efficient movement of grain along the St. Lawrence Seaway system.

In terms of the viability of the eastern transfer elevator network, other circumstances apart from the absence of the 'At and East' have to be considered in assessing this prospect. In the absence of the 'At and East' a greater proportion of grain would move through Lower St. Lawrence elevators which are the dominant group in terms of grain handled. While it may be true that the number of elevators could fall to 18 from the current 24 as a result of the elimination of the 'At and East', this reduction, although large, would not threaten the long term viability of the system since most of the elevators that would be affected are storage facilities eg. Midland and Port McNicoll, and government assistance could foster the development of alternative storage facilities.

It would appear that the future viability and performance of the eastern transfer elevator network depends, to a greater degree, on Canada's ability, through the Canadian Wheat Board, to market its grain and grain products through the Great Lakes/St. Lawrence Seaway system. There are a number of factors which affect the Seaway route, eg. costs, strikes and alternative routes for moving grain. Once production levels are achieved, the eastern transfer network should get its share of throughput if the markets are available and the factors affecting the Seaway route do not put it at a distinct disadvantage relative to competing systems.

CHAPTER 1

INTRODUCTION

From an agricultural standpoint, the eastern transfer elevator system is an integral part of the collection and distribution system for Canadian grains. The system serves as a conduit for the western and eastern Canadian grain trade. In large measure, this elevator network is especially important to the Ontario grain industry which relies on many of these facilities to provide storage space for the eventual marketing of its crop in the domestic and international market place. Roughly half of Western Canada's grain exports also pass through these facilities.

In recent times, considerable attention has been focussed on the freight rates that shippers pay to transport their product through the transfer system. There is evidence that federal government assistance to producers through subsidization of freight rates has affected the viability of some elevators, especially those in the Georgian Bay region of Ontario and on the Atlantic coast. This subsidy program, termed the "At and East" rates, has been in place since the early 1960's, but it has not generated the level of emotion and intensity of debate in the agricultural sector observed during the period when the Crow rates were under review.

Much of the research work relating to the eastern transfer elevator system has concentrated attention either on the impact of the At and East subsidy program on these facilities and other components of the grain handling and transport system or on the broader question of eastern grain handling and transportation system efficiency. Some of the studies are discussed briefly below.

The Canada Grains Council issued a report in 1979 entitled Eastern Grain Handling and Transportation Report[1]. The report discussed, among other things, the mode of grain transport, storage capacity of transfer elevators, "At and East" freight rates and Feed Grain Policy. It made

recommendations covering all aspects of the study. In terms of the "At and East" rates, it recommended continuation of the subsidy program. With regard to transfer elevators, the report recommended the upgrading of the Halifax elevator, the installation of facilities for receiving grain from self-unloading vessels at the port of Saint John and the enhancement of storage space at elevators number 3, 4 and 5 at the port of Montreal.

In 1980, Westburn Consultants, on behalf of the Grains Group published a report on Demand for Grain Handling and Transportation Capabilities in Canada To 1990-An Eastern Perspective.[2] Westburn concluded that there were a number of areas where additional capability would be required by 1990. Among the major requirements were: a) additional hopper cars in Western Canada; b) possible additional capacity at Thunder Bay; c) additional lake carrying capacity; d) additional transfer elevator capacity on the St. Lawrence; and e) review of continued use of Maritime ports and At and East rates.

This was followed by another study in 1982 - Towards a more Efficient Handling and Transportation System in Ontario[3] - which examined transport and handling issues in Ontario. The general conclusions of this study were that a decision should be taken as to whether or not it is desirable to subsidize export flour. If sufficient justification exists, there may be more effective methods of subsidization than employing the At and East; the At and East subsidy should be removed with respect to grain; there should be increased rail receiving and unloading capabilities in the Lower St. Lawrence. The Canadian Wheat Board's rail program should be expanded. Other recommendations included: continued utilization of the Ontario transfer/laker/ St. Lawrence transfer route for the positioning of Onatrio export grain in Lower St. Lawrence elevators; continued expansion of on-farm storage and drying capacity sufficient to handle expected Ontario production increases; increased direct rail of Prairie domestic and export grains to Eastern Canada; and designation of the Ontario transfer elevators as a distinct category unto themselves for licensing and establishment of allowable tariffs by the

Canadian Grain Commission. Because it concentrated mainly on the Ontario grain handling and trasport system this study side stepped some broader system efficiency issues in Eastern Canada.

Two studies were released by the Canadian Transport Commission in June 1984. One[4], by the Economics and Social Research Branch, examined the impact of the At and East grain and flour subsidy program on the various sectors of the economy which derive benefits from or are affected by its existence. The study identified certain inefficiencies associated with the program notwithstanding the benefits which accrue to certain sectors. The other[5], by the Planning and Evaluation Directorate, used cost/benefit techniques in evaluating the At and East program. It is similar to the Social Research Branch study in identifying the beneficiaries of the program and the inefficiencies associated with its application. It is different in the sense that it identifies specific benefits and costs, in dollar terms, of keeping the program or opting for alternatives.

These studies and others have contributed to our understanding and appreciation of the grain handling and transport system in Eastern Canada. However, none of them has dealt exclusively with the eastern transfer elevator system and its role in facilitating Canadian grain production and trade. This study is intended to fill that void. Although it stresses some of the issues, for example the At and East subsidy program, discussed in the other studies, it is different in that it examines the transfer network strictly from an agricultural point of view and does not look at overall port performance.

The study consists of four chapters. Chapter two profiles the eastern transfer elevator system in terms of its evolution, ownership, location, productivity and the origin and destination of grain receipts and shipment at each transfer facility. The focus of chapter three is on freight rates/tariffs for positioning grain and flour moving east of Thunder Bay. This chapter also discusses the At and East freight rates and their impact on various components of the system, especially grain

producers and the transfer elevator network. As well, it examines possible alternative routing of Ontario and prairie grain. The final chapter discusses the future of the transfer elevator network in terms of circumstances that would likely affect the Great Lakes/Seaway traffic activity.

FOOTNOTES

1. Canada Grains Council, Eastern Grain Handling and Transportation Report, April, 1979.

2. Westburn Consultants, Demand for Grain and Transportation Capabilities in Canada to 1990 - An Eastern Perspective, December 1980.

3. Westburn Consultants, Towards a More Efficient Handling and Transportation System in Ontario, February 1982.

4. Canadian Transport Commission, An Examination of the Impact of the Act and East Grain and Flour Subsidy Program, June, 1984.

5. Canadian Transport Commission, Report on the Evaluation Study of the At and East Grain and Flour Subsidy Program, June 1984.

CHAPTER 2

A PROFILE OF THE EASTERN TRANSFER ELEVATOR SYSTEM

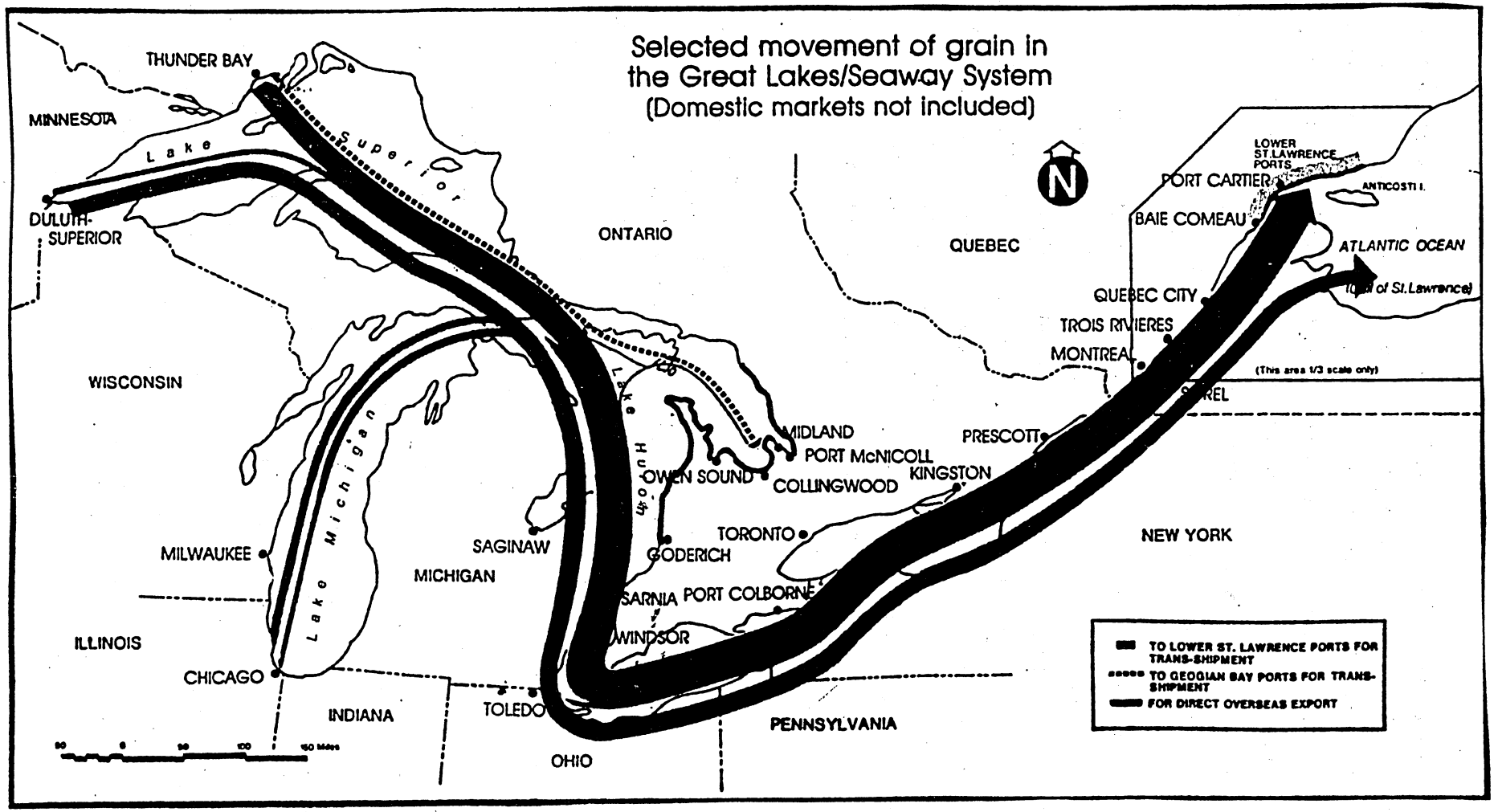
A profile of the eastern transfer elevator system is presented in this chapter. A transfer elevator is described in the Canada Grain Act as:

a) "An elevator in the Western Division or the Eastern Division the principal use of which is the transfer of grain that has been officially inspected and officially weighed at another elevator, and

b) An elevator in the Eastern Division, the principal uses of which are the transfer of grain that has been officially inspected and officially weighed at another elevator and the receiving, cleaning and storing of eastern grain or foreign grain."[1]

The eastern transfer elevator system has evolved as a result of two major developments in transportation infrastructure. The first related to the expansion of the Welland Canal in 1932. This allowed lake vessels to travel through the Great Lakes with commodities bound for export at St. Lawrence or Maritime ports. Before the expansion of the Welland Canal, lake travel was restricted by the inadequacy of the Seaway system. Traffic moved from Thunder Bay to either Georgian Bay or Lake Huron from where it was forwarded by rail further east and then transferred to shallow draft vessels. The expansion of the Welland Canal has also had the effect of reducing traffic volumes to Georgian Bay and Upper Great Lakes ports since it facilitated the use of larger lake vessels through the waterway.

The other major development was the opening of the St. Lawrence Seaway in 1959. Once the Seaway was opened for business it eliminated the need for canal vessels which were used for the transfer of grain.


Selected movement of grain in the Great Lakes/Seaway System
(Domestic markets not included)
THUNDER BAY
MINNESOTA
Lake Superior
DULUTH-SUPERIOR
ONTARIO
QUEBEC
N
LOWER ST.LAWRENCE PORTS
PORT CARTIER
ANTICOSTI I.
BAIE COMEAU
ATLANTIC OCEAN
(Gulf of St.Lawrence)
QUEBEC CITY
TROIS RIVIERES
MONTREAL
(This area 1/3 scale only)
SOREL
WISCONSIN
Lake Michigan
Lake Huron
MIDLAND
PORT McNICOLL
OWEN SOUND
COLLINGWOOD
PRESCOTT
KINGSTON
TORONTO
NEW YORK
MILWAUKEE
SAGINAW
MICHIGAN
GODERICH
SARNIA
PORT COLBORNE
WINDSOR
ILLINOIS
CHICAGO
INDIANA
TOLEDO
PENNSYLVANIA
OHIO
TO LOWER ST. LAWRENCE PORTS FOR TRANS-SHIPMENT
TO GEOGIAN BAY PORTS FOR TRANS-SHIPMENT
FOR DIRECT OVERSEAS EXPORT

As a result, the port and transfer elevator facilities along the St. Lawrence river which were originally designed for the transfer of grain from shallow canal vessels to ocean ships, and for the storage of export grain, were able to accept greater traffic volumes and encourage additional throughput activity. The Seaway route facilitated travel from Thunder Bay directly to export positions on the St. Lawrence river and locations further east.

In terms of location, ports located on the eastern shore of Lake Huron are known as the Georgian Bay and Upper Great Lakes Ports. The Georgian Bay group consists of Collingwood, Midland, Owen Sound and Port McNicoll while the Upper Lakes group consists of Goderich, Sarnia and Windsor. These ports experienced some decline in business when the Welland Canal was expanded in 1932. Other ports located on the Lower Lakes and Upper St. Lawrence were also affected by this development. This group consists of three elevators at Port Colbourne and one at Prescott.

Further downstream on the Lower St. Lawrence is another group of ports consisting of Montreal, Sorel, Trois Rivieres, Quebec, Baie Comeau, and Port Cartier. Elevators at Montreal, Sorel, Trois Rivieres, and Quebec City were initially constructed to facilitate the transfer of grain from shallow draft canal vessels to ocean ships. Moreover, these elevators were designed as storage facilities in order to position grain for the export market and to serve the local market on a continuous basis. However, the storage function of these elevators was relegated to secondary importance in the 1960's as large volumes of grain moving through these ports required the development of additional throughput capacity.

The transfer elevators at Baie Comeau and Port Cartier were constructed as a result of the strong export demand for grain through the Lower St. Lawrence Ports plus the development of large iron ore deposits to the north of the St. Lawrence. These deposits allowed lake vessels to utilize their capacity more efficiently through back

TABLE 1

Historical Record of Eastern Transfer Elevators by Crop Year, Number and Storage Capacity

Crop Year	No. of Transfer Elevators	Storage Capacity (Tonnes)
1955-56	30	2,508,771
1956-57	30	2,561,024
1957-58	30	2,561,024
1958-59	31	2,564,426
1959-60	31	2,660,769
1960-61	32	3,005,532
1961-62	32	3,019,684
1962-63	30	3,040,530
1963-64	32	3,348,860
1964-65	32	3,369,860
1965-66	32	3,425,870
1966-67	31	3,426,710
1967-68	31	3,426,710
1968-69	31	3,712,680
1969-70	30	3,691,680
1970-71	30	3,691,680
1971-72	29	3,654,130
1972-73	28	3,598,120
1973-74	28	3,500,250
1974-75	28	3,500,250
1975-76	27	3,425,720
1976-77	26	3,411,720
1977-78	27	3,425,720
1978-79	27	3,485,370
1979-80	27	3,527,380
1980-81	27	3,586,100
1981-82	27	3,582,430
1982-83	27	3,690,430
1983-84	25	3,466,390
1984-85	25	3,466,390
1985-86	24	3,436,730

Sources Canadian Grain Commission, Grain Elevators In Canada Crop Years 1955-56 to 1985-86.

haul from the lower St. Lawrence. However, backhaul opportunities have dropped off significantly due to slack demand for iron ore deposits.

The final group of eastern transfer elevators is located at the Atlantic ports of Halifax and Saint John. These ports are ice free in winter months and they serve both the local and export market when navigation is impossible along the St. Lawrence Seaway.

Over the years, the number of transfer elevators has declined considerably. Table 1 shows that between 1965-66 and 1985-86 the number of elevators fell from 32 to 24, a decrease of 25 percent. Another elevator, Montreal No. 3, is slated for closure sometime in 1987 due to its declining throughput and deterioration. There are a number of reasons for this reduction in elevator numbers. Some closures resulted from the drop in volume of grain handled. For example the elevators at Kingston and Toronto became obsolete due to steadily decreasing grain traffic through these facilities. In other cases, the structures had deteriorated to the point where it became economical to destroy the building rather than do renovations eg. Montreal Nos 1 and 2. Two elevators in Atlantic Canada-St. John and West Saint John "B" - closed because of a combination of the circumstances mentioned above. The closure of these elevators has not affected volumes at other storage oriented elevators in a significant way. Rather, it has served to increase the throughput at Lower St. Lawrence transfer facilities.

Table 2 shows the regional distribution of transfer elevators. Ontario is the dominant region with 14 located at various points across the province, Quebec has 8 while New Brunswick and Nova Scotia have one each. An abbreviated profile of transfer elevators in Eastern Canada is presented in Table 2.

Of all the eastern transfer elevators, those located on the Lower St. Lawrence are the most efficient. Using turn rates as a measure of

TABLE 2
Summarized Profile of Eastern Transfer Elevators

Transfer Elev. by Location	Elevator Capacity (tonnes)	Initial Year of Construction*	Licensee/	Function	Railway(s) Serving
ONTARIO					
Prescott	154,020	1930	Canada Ports Corporation	Transfers grain from lake vessel to rail cars. Provides grain storage.	C.N.-C.P.
Port Colborne	84,010	1909	Port Colborne Grain Terminal-Division of Goderich Elevators Ltd.	Transfers grain from lake vessels to rail cars. Stores grain.	C.N.-C.P.
Port Colborne	63,010	1910	Maple Leaf Mills Ltd.	Services Local flour mill.	C.N.
Port Colborne	59,650	1940	Robin Hood Multifoods Inc.	Services Local flour mill.	C.N.
Windsor	56,010	1980	United Co-operatives of Ontario and Patrons Elevator Ltd.	Provides Storage for nearby oilseed crushing Plant.	C.N.-C.P.
Sarnia	151,220	1927	Maple Leaf Mills Ltd.	Transfer of grain from lake vessel to rail cars. Provides grain storage.	C.N.
Goderich	84,010	1906	Goderich Elevators Ltd. No.1	Transfer of grain from lake vessel to rail cars. Grain storage.	C.N.-C.P.
Goderich	44,810	1910	Goderich Elevators Ltd. No.2	Transfer of grain from lake vessel to rail cars. Grain storage.	C.N.-C.P.
Owen Sound	112,020	1925	The Great Lakes Elevator Co. Ltd.	Transfer of grain from lake vessels to rail cars. Provides grain storage.	C.N.-C.P.
Collingwood	56,010	1929	Collingwood Terminals Ltd.	Transfer of grain from lake vessels to rail cars. Capable of cleaning, drying, aerating and processing grain.	C.N.
Port McNicoll	182,030	1910	Maple Leaf Mills Ltd.	Transfer of grain from lake vessels to rail cars. grain storage.	C.P.

.../cont.

TABLE 2 (continued)
Summarized Profile of Eastern Transfer Elevators

Transfer Elev. by Location	Elevator Capacity (tonnes)	Initial Year of Construction*	Licensee/	Function	Railway(s) Serving
Midland	74,210	1918	Ogilvie Mills Ltd.	Services the local flour Mill.	C.N.-C.P.
Midland	119,020	1927	Maple Leaf Mills Ltd.	Services the local flour mill.	C.P.
Midland (Tiffin)	130,220	1908	Canadian National Railways	Transfer of grain from lake vessels to railcars and storage of Ontario and Western produced grains.	C.N.
QUEBEC					
Montreal #3	123,200	1924	Montreal Port Corp.	Receives grain from lake vessels and railcars and ships grain by ocean vessel, rail and truck.	C.N.-C.P.
Montreal #4	262,000	1963	Montreal Port Corp.	Receives grain from lake vessels and rail cars and ships grain by ocean vessels, rail and truck.	C.N.-C.P.
Montreal #5	130,000	1905	Montreal Port Corp.	Receives grain from lake vessels and rail cars and ships grain by ocean vessels, rail and truck.	C.N.-C.P.
Sorel	146,460	1929	Sorel Elevators Ltd.	Receives grain from lake vessels and transfers grain to Ocean ships.	C.N.
Trois Rivières	167,380	1936	ULS International Inc.	Receives grain from lake vessels and transfers grain to Ocean ships.	C.N.
Quebec City	224,030		Bunge of Canada Ltd.	Receives grain from lake vessels and transfers grain to Ocean ships.	C.N.-C.P.
Baie Comeau	469,840	1960	Cargill Ltd.	Transfer of grain from lake vessels ocean ships.	not on track
Port Cartier	292,980	1967	Joint venture Between Louis Dreyfus Canada Ltd., and Range Grain Co. Ltd.	Transfer of grain from lake vessels ocean ships.	not on track

TABLE 2 (continued)
Summarized Profile of Eastern Transfer Elevators

Transfer Elev. by Location	Elevator Capacity (tonnes)	Initial Year of Construction*	Licensee/	Function	Railway(s) Serving
NOVA SCOTIA					
Halifax	144,290	1925	Halifax Port Corporation	Receives and ships grain from rail and vessels. Provides storage.	C.N.
NEW BRUNSWICK					
West St. John	44,160	1929	Maple Leaf Mills Ltd.	Transfers grain from rail to vessel. Provides storage.	C.P.

Sources: Canadian Grain Commission, Grain Elevators in Canada and Canada Grains Council, Eastern Grain Handling and Transportation Report, April 1979.

*Additions and renovation have been done on nearly all of these elevators since the initial year of construction.

TABLE 3
Eastern Transfer Elevators by
Location, Crop Year and Turn Rates

Location	1974-75 Capacity (Tonnes)	1974-75 Shipment (Tonnes)	1974-75 Turn Rate	1979-80 Capacity (Tonnes)	1979-80 Shipment (Tonnes)	1979-80 Turn Rate	1984-85 Capacity (Tonnes)	1984-85 Shipment (Tonnes)	1984-85 Turn Rate
GEORGIAN BAY									
Collingwood	56,010	99,586	1.8	56,010	118,607	2.1	56,010	81,074	1.4
Midland--Ogilvie	74,210	164,062	2.2	74,210	150,165	2.0	74,210	156,883	2.1
Midland--CNR	130,220	205,920	1.6	130,220	185,413	1.4	130,220	122,830	1.0
Midland--Maple Leaf	119,020	199,714	1.7	119,020	174,780	1.5	119,020	185,921	1.6
Owen Sound	112,020	140,638	1.3	112,020	120,144	1.1	112,020	146,280	1.3
Port McNicoll	182,030	224,973	1.2	182,030	299,175	1.6	182,030	222,072	1.2
Average			1.6			1.6			1.4
UPPER GREAT LAKES									
Goderich--No.1	84,010	224,592	2.7						
Goderich--No.2	44,810	119,874	2.7	128,820+	458,716+	3.6	128,820+	427,436+	3.3
Sarnia	151,220	373,091	2.5	151,220	575,599	3.8	151,220	624,372	4.1
Windsor	-	-	-	56,010	55,467	0.9	56,010	607,261	10.8
Average			2.6			2.5			6.1
LOWER LAKES/UPPER ST. LAWRENCE									
Kingston[X]	65,810	67,473	1.0	65,810		2.7			1.3
Port Colborne--Goderich	84,010	145,763	1.7	206,670*	238,261*	1.6	206,670*	118,161*	0.6
Port Colborne--Mple Leaf	63,010	n/a							
Port Colborne--Rbn Hood	59,650	n/a							
Prescott	154,020	274,074	1.8	154,020	309,866	2.0	154,020	95,734	0.6
Toronto[X]	112,020	n/a		112,020	305,994	2.7			
Average			1.5			2.3			0.8
LOWER ST. LAWRENCE									
Montreal--No.1[X]	112,020	328,383	2.9	112,020	412,274	3.7			
Montreal--No.2[X]	74,550	218,922	2.9	-	-	-			
Montreal--No.3	140,020	526,048	3.8	140,020	317,844	2.3	140,020	376,229	2.7
Montreal--No.4	154,020	1,307,736	8.5	154,020	1,895,173	12.3	262,020	2,034,483	7.8
Montreal--No.5	142,820	612,250	4.3	142,820	494,405	3.5	142,820	539,626	3.8
Baie Comeau	385,820	1,818,701	4.7	413,840	2,598,711	6.3	469,840	2,752,789	5.9
Port Cartier	292,980	2,883,746	9.8	292,980	4,788,131	16.3	292,980	3,367,602	11.5
Quebec City	224,030	1,492,800	6.7	224,030	4,249,688	19.0	224,030	3,455,255	15.4
Sorel	146,460	893,078	6.1	146,460	1,814,979	12.4	146,460	137,768	0.9
Trois Rivieres	164,660	723,118	4.4	164,660	1,462,572	8.9	167,380	878,301	5.2
Average			5.4			9.4			6.7

cont/...

TABLE 3 (contd')
Eastern Transfer Elevators
by Location, Crop Year and Turn Rates

Location	1974-75 Capacity (Tonnes)	1974-75 Shipment (Tonnes)	1974-75 Turn Rate	1979-80 Capacity (Tonnes)	1979-80 Shipment (Tonnes)	1979-80 Turn Rate	1984-85 Capacity (Tonnes)	1984-85 Shipment (Tonnes)	1984-85 Turn Rate
ATLANTIC PORTS									
Saint John[X]	14,000	28,756	2.1						
West Saint John[X]	28,000	150,616	5.4						
West Saint John	44,160	237,570	5.4	44,160	438,538	9.9	44,160	209,362	4.7
Halifax	144,290	459,671	3.2	144,290	430,468	3.0	144,290	293,335	2.0
Average			4.0			6.5			3.4

\+ Capacity and shipment volumes for Goderich nos. 1 & 2.
* Capacity and shipment volumes for only CPC Port Colborne elevator.
x These elevators are no longer in business.
SOURCES: Canadian Grain Commission, Grain Elevators In Canada and Canada Grains Council, Grain Movements through the Eastern Transfer Elevator System.

elevator efficiency, Table 3 shows that between 1974-75 and 1984-85, Lower St. Lawrence elevators individually and as a group consistently have higher turnover ratios. Those located in Georgian Bay, Upper Great Lakes and Lower Lakes/Upper St. Lawrence have generally experienced less than three turns per year. In large part this reflects the impact of direct routing of grain to the Lower St. Lawrence for export and the storage orientation which most Ontario facilities have assumed. Elevators located in Goderich, Sarnia and Windsor, although not as efficient as those further downstream on the Lower St. Lawrence, could realize improved efficiency, in part, because of their location in the major crop producing area of Southern Ontario.

2.1 GRAIN MOVEMENTS THROUGH THE TRANSFER ELEVATOR SYSTEM[2]

The grain handling capability and role of each elevator within the transfer network are, to a large extent, dependent on its location. High throughput facilities located on the Lower St. Lawrence tend to handle more grain traffic than those elevators located elsewhere. This section examines the origin and destination of grain receipts and shipments at each transfer elevator. This traffic flow is analyzed in terms of type and proportion of grain and the modes of transport involved in the transfer function.

Table 4 shows that eastern transfer elevators play a very important role in Canada's export grain trade. Between 1975-76 and 1983-84, these elevators have consistently handled more than 50 percent of Canadian grain exports. Since 1982-83, however, the eastern share has declined as a result of weak demand for Canadian grains through these ports. The Lower St. Lawrence group has figured, and continues to figure, prominently in export shipments. Over 40 percent of Canada's grain exports and 80 percent of exports moving east of Thunder Bay have been handled by these facilities. These elevators not only facilitate Canada's export grain trade but also assist in securing local domestic requirements.

TABLE 4
BULK EXPORTS OF GRAIN BY PORT,
CANADA AND EASTERN CANADA
('000 TONNES)

CROP YEAR	ST. LAWRENCE PORTS	ATLANTIC PORTS	THUNDER BAY	EASTERN CDN PORTS TOTAL	TOTAL CANADA
1975-76	8,444 (49.0)+	865 (5.0)+	548 (3.2)+	9,857 (57.2)+	17,247
1976-77	8,144 (44.4)	792 (4.3)	1,050 (5.7)	9,986 (54.4)	18,351
1977-78	9,247 (45.7)	806 (4.0)	916 (4.5)	10,969 (54.2)	20,224
1978-79	7,946 (43.6)	575 (3.2)	742 (4.0)	9,263 (50.8)	18,234
1979-80	9,886 (45.5)	801 (3.7)	1,225 (5.6)	11,912 (54.8)	21,739
1980-81	9,656 (45.6)	730 (3.4)	809 (3.8)	11,195 (52.8)	21,185
1981-82	11,957 (45.9)	862 (3.3)	908 (3.5)	13,727 (52.7)	26,049
1982-83	14,618 (51.7)	657 (2.3)	607 (2.1)	15,882 (56.1)	28,295
1983-84	14,381 (48.8)	760 (2.6)	883 (3.0)	16,024 (54.4)	29,441
1984-85	9,542 (43.3)	450 (2.0)	917 (4.2)	10,909 (49.5)	22,025
1985-86*	9,148 (39.4)	616 (2.7)	825 (3.6)	10,589 (45.6)	23,221

+ () Expressed as a percentage of total Canadian exports.
* Based on data as of July, 1986. Hence, numbers represent only preliminary estimate.

SOURCE: Canada Grains Council, Statistical Handbook, 1986.

A brief description of each elevator's role in eastern grain handling in the period 1981-82 to 1985-86 is presented below.

2.2 GEORGIAN BAY ELEVATORS

Collingwood

Between 1981-82 and 1985-86, Collingwood's average grain receipts were just over 90,000 tonnes (Table 5). This volume represented only 0.5 percent of total average receipts, in the same time frame, at transfer facilities in Eastern Canada. A significant portion of receipts at this elevator, about 70 percent, originated from Western Canada, 24 percent came from local sources and 6 percent originated from the U.S. Western Canadian grain receipts comprised mainly wheat, oats and barley while local and U.S. grain consisted mostly of corn.

Collingwood's principal function is to service the local grain market. Traditionally, the non-local grain trade has represented only a small share of total shipments. Between 1981-82 and 1985-86 non-local shipments of grain from Collingwood represented only about 7 percent of total receipts. Most of the grain arriving at this elevator is transported by vessel with the truck and rail modes playing a less significant role. In terms of shipments, however, truck is the dominant mode since most of the grain is destined to local users e.g. maltsters, flour mills and feed outfits.

MIDLAND (Ogilvie Flour Mills)

Average grain receipts at this Midland elevator in the period 1981-82 to 1985-86 were about 148,000 tonnes, roughly 0.7 percent of total average receipts at all eastern transfer elevators. All receipts originated outside the local area and comprised only wheat. Vessel is the principal means used to forward grain to this elevator from Thunder Bay. Rail and trucks are utilized to smaller extent as shown in Table 5.

TABLE 5
RECEIPTS AND SHIPMENTS OF GRAIN BY
CROP YEAR AND MODE OF TRANSPORT, GEORGIAN BAY ELEVATORS
('000 Tonnes)
COLLINGWOOD

	RECEIPTS					SHIPMENTS				
Crop Year	Vessel	Rail	Truck	Other	Total	Vessel	Rail	Truck	Other	Total
1981-82	52.4	2.7	38.4	-	93.5	18.4	-	82.1	-	100.5
1982-83	69.7	0.4	28.0	-	98.1	-	-	83.9	-	83.9
1983-84	66.2	5.1	12.2	-	83.5	-	0.5	102.5	-	103.0
1984-85	80.1	2.3	6.6	-	89.0	-	-	81.1	-	81.1
1985-86	75.4	5.3	9.3	-	90.0	1.1	14.9	72.4	-	88.4
5yr. average	68.8	3.2	18.9	-	90.8	3.9	3.1	84.4	-	91.4

MIDLAND (Ogilvie Mills Ltd.)

	RECEIPTS					SHIPMENTS				
Crop Year	Vessel	Rail	Truck	Other	Total	Vessel	Rail	Truck	Other	Total
1981-82	130.7	15.4	0.04	-	146.1	-	-	1.3	138.5	139.8
1982-83	105.5	25.5	-	-	131.0	-	-	-	147.1	147.1
1983-84	112.4	36.7	-	-	149.1	-	-	0.6	158.5	159.1
1984-85	135.4	29.3	0.9	-	165.6	-	-	-	156.9	156.9
1985-86	126.5	19.4	0.3	-	146.2	-	5.6	0.8	147.0	153.4
5yr. average	122.1	25.3	0.2	-	147.6	-	1.1	0.5	149.6	151.3

MIDLAND-CNR

	RECEIPTS					SHIPMENTS				
Crop Year	Vessel	Rail	Truck	Other	Total	Vessel	Rail	Truck	Other	Total
1981-82	198.1	1.1	-	-	199.2	26.7	201.1-	3.4	-	231.2
1982-83	135.4	-	-	-	135.4	16.3	99.8	10.5	1.3	127.9
1983-84	188.4	-	-	-	188.4	25.1	109.6	34.6	-	169.3
1984-85	154.4	-	-	-	154.4	-	118.8	4.0	-	122.8
1985-86	140.2	-	-	-	140.2	29.5	144.4	4.6	-	178.5
5yr. average	163.3	0.2	-	-	163.3	19.5	134.7	11.4	0.3	165.9

/cont...

TABLE 5 (cont')
RECEIPTS AND SHIPMENTS OF GRAIN BY
CROP YEAR AND MODE OF TRANSPORT, GEORGIAN BAY ELEVATORS
('000 TONNES)

MIDLAND (Maple Leaf Mills)

	RECEIPTS					SHIPMENTS				
Crop Year	Vessel	Rail	Truck	Other	Total	Vessel	Rail	Truck	Other	Total
1981-82	203.1	-	2.6	-	205.7	8.1	125.7	71.6	-	205.4
1982-83	238.1	-	0.04	-	238.1	-	47.6	178.1	-	225.7
1983-84	270.0	-	-	-	270.0	-	47.2	194.5	0.3	242.0
1984-85	176.1	-	-	-	176.1	-	24.3	161.6	-	185.9
1985-86	191.4	16.0	-	-	207.4	1.6	35.9	184.9		234.2
5yr. average	215.7	3.2	0.5	-	219.5	4.3	56.1	158.1	0.06	218.6

OWEN SOUND

	RECEIPTS					SHIPMENTS				
Crop Year	Vessel	Rail	Truck	Other	Total	Vessel	Rail	Truck	Other	Total
1981-82	114.6	0.05	2.5	-	117.1	14.1	42.0	73.8	-	129.9
1982-83	146.2	-	3.4	-	149.6	25.6	32.3	100.2	-	158.7
1983-84	188.4	-	-	-	188.4	-	49.0	99.5	0.6	148.5
1984-85	144.4	-	0.1	-	144.5	-	43.7	102.5	-	146.2
1985-86	131.1	-	-	-	131.1	5.1	45.2	101.8	-	152.1
5yr. average	144.9	0.01	1.2	-	144.9	9.0	42.4	95.6	0.1	147.1

PORT MCNICOLL

	RECEIPTS					SHIPMENTS				
Crop Year	Vessel	Rail	Truck	Other	Total	Vessel	Rail	Truck	Other	Total
1981-82	308.7	-	-	-	308.7	50.6	283.8	8.9	-	343.3
1982-83	250.4	-	-	-	250.4	22.9	209.9	9.4	-	242.2
1983-84	14.8	246.2	3.2	-	264.2	258.0	-	-	-	258.0
1984-85	296.0	-	-	-	296.0	-	191.2	30.9	-	222.1
1985-86	214.2	-	-	-	214.2	13.6	249.3	5.1	-	268.0
5yr. average	216.8	49.2	0.6	-	216.8	69.0	186.8	10.9	-	266.7

Source: CANADA GRAINS COUNCIL, Grain Movements Through The Transfer Elevators In Eastern Canada.

All the grain received at this elevator between 1981-82 and 1985-86 was forwarded to the local market and used up by flour mills. A combination of modes, i.e. truck and flour mills conveyor belt, were used to move the grain out of this elevator.

MIDLAND (Canadian National Railways)

This elevator depends upon the winter export program of the Canadian Wheat Board (CWB) and considerable quantities of Ontario grain for its throughput. The grain arrives by vessel and is transfered to cars for forwarding on Canadian National Railway lines. Average receipts for the period 1981-82 to 1985-86 amounted to just over 163,000 tonnes or 0.8 percent of average total receipts at eastern transfer facilities. About 4 percent of receipts, mostly wheat, originated from local sources.

Once received, over 90 percent of this grain was shipped to ports in Atlantic Canada while about 9 percent was destined to flour mills and feed operations in the local area. Rail continues to be the principal means used in moving grain out of the elevator. However, trucks and vessels are instrumental in this process as well.

MIDLAND (Maple Leaf Mills Ltd.)

As Table 5 shows, average receipts at this elevator between 1981-82 and 1985-86 were just over 219,000 tonnes or 1 percent of total average receipts at transfer facilities in Eastern Canada. The greatest proportion of grain receipts came from Western Canada destined for local flour mills. Only about 5 percent of grain receipts originated from local sources while just under 2 percent came from the United States. Wheat is the principal grain received at this elevator. Since most of the grain originates in Western Canada, vessel transport is the dominant mode used in moving grain from Thunder Bay. Less than 1 percent of grain receipts arrive by truck.

This elevator ships a substantial volume of grain to the local market. In the five year period under consideration, an average of 145,733 tonnes of grain was shipped to local users and the balance about 72,867 tonnes went to non-local users. Local flour mills are the principal beneficiaries of this traffic although feed mills do share in the local trade as well. Rail and truck are the chief means used to move grain out of the elevator. Only small amounts move by vessel.

OWEN SOUND

Like other Georgian Bay elevators, Owen Sound receives most of its throughput from Western Canada. Between 1981-82 and 1985-86, over 97 percent of grain receipts came from the Prairies. The principal grains were wheat, oats, barley and screenings. As Table 5 shows, virtually all receipts arrived by vessel with insignificant proportions moved by rail and truck. A small amount of U.S. corn is shipped to this elevator as well.

In terms of shipment, between 1981-82 and 1985-86 over 60 percent of receipts were forwarded to the local market for use principally by flour mills and, to a lesser extent, by feed operations. The rest was forwarded to Atlantic ports for export and domestic use. Because of the dominance of the local market in grain movements through this elevator, a large porportion of grain is moved out by truck (Table 5). Rail also plays a significant role in the throughput process.

PORT McNICOLL

Table 5 shows average receipts at this elevator have been over 216,000 tonnes or 1.3 percent of total average receipts for all eastern transfer elevators. Almost all receipts were comprised of wheat, over 97 percent of which originated from Western Canada. Local receipts, comprising only of wheat accounted for about 3 percent of the total. As with the other Georgian Bay elevators, vessel has been the principal means of moving grain into the elevator from Thunder Bay. Very small amounts moved by rail and truck.

TABLE 6
RECEIPTS AND SHIPMENTS OF GRAIN BY CROP YEAR
AND MODE OF TRANSPORT, UPPER GREAT LAKES ELEVATORS
('000 TONNES)

GODERICH

	RECEIPTS					SHIPMENTS				
Crop Year	Vessel	Rail	Truck	Other	Total	Vessel	Rail	Truck	Other	Total
1981-82	171.0	21.3	320.6	-	512.9	351.2	0.2	173.9	-	525.3
1982-83	226.7	12.2	208.5	-	447.4	189.8	0.6	229.4	0.2	420.0
1983-84	246.8	0.6	205.8	-	453.2	209.3	0.4	243.3	0.1	453.1
1984-85	174.7	-	251.3	-	426.1	248.9	0.09	178.5	-	427.4
1985-86	147.6	-	249.9	-	397.5	253.9	7.6	154.1	-	415.6
5yr. average	193.4	6.8	247.2	-	447.4	250.6	2.1	195.8	0.06	448.3

WINDSOR

	RECEIPTS					SHIPMENTS				
Crop Year	Vessel	Rail	Truck	Other	Total	Vessel	Rail	Truck	Other	Total
1981-82	73.8	28.6	326.5	2.1	431.0	260.4	-	0.5	181.2	442.1
1982-83	63.9	32.4	325.5	2.5	424.3	237.7	0.9	2.3	185.3	426.2
1983-84	58.4	72.9	334.3	0.6	466.2	190.7	2.3	4.6	260.0	457.6
1984-85	60.7	79.9	473.9	2.5	617.1	318.3	0.5	2.2	286.2	607.3
1985-86	80.5	58.1	286.1	1.5	426.2	189.2	27.7	7.1	207.0	431.0
5yr. average	67.5	54.4	349.8	1.8	472.9	239.3	6.3	3.3	223.9	472.8

SARNIA

	RECEIPTS					SHIPMENTS				
Crop Year	Vessel	Rail	Truck	Other	Total	Vessel	Rail	Truck	Other	Total
1981-82	142.2	-	501.1	-	643.3	496.6	139.9	25.6	0.2	662.3
1982-83	82.5	6.3	410.0	-	498.8	389.7	86.8	20.0	-	496.5
1983-84	214.9	-	526.5	-	741.4	581.0	132.6	27.9	-	741.5
1984-85	61.2	2.8	602.1	-	666.1	598.9	7.4	18.0	--	624.4
1985-86	37.6	14.3	545.8	-	597.7	503.1	101.5	20.0	-	624.6
5yr. average	107.7	4.7	517.1	-	629.5	513.9	93.6	22.3	0.04	629.9

Source: CANADA GRAINS COUNCIL, Grain Movements Through The Transfer Elevators In Eastern Canada.

The principal use of this elevator is to forward grain receipts to the Atlantic Ports for export. About 96 percent of grain receipts was moved out to these ports while about 4 percent was retained for local domestic use by flour mills. Rail was the dominant mode used in forwarding grain receipts. However, vessels and, to some extent, trucks have also played a supporting role.

2.3 UPPER GREAT LAKES ELEVATORS

GODERICH NOS. 1 & 2

Average receipts at Goderich between 1981-82 and 1985-86 were just over 447,000 tonnes or 2.2 percent of total average receipts at eastern transfer facilities during this period. Roughly, 44.3 percent of receipts originated from Western Canada and about 54.6 percent came from local sources. Less than 1 percent originated from the U.S. Local grain comprised mainly corn supplemented by small amounts of wheat and barley. Western grain comprised wheat, oats, barley and screenings.

As Table 6 shows, the principal modes used in the forwarding of grain to Goderich were vessel and truck. This split reflects the origin of grain receipts which move from Thunder Bay via vessel and from local areas via trucks. In terms of grain shipments from Goderich, the modes of transportation were the same i.e. vessel and truck. Most of the grain leaving this elevator moves into the local domestic market i.e. flour mills and feeding operations.

WINDSOR

Because of its location near the principal agricultural region of Ontario, Windsor has relied more on receipts of grain from the local area than from outside sources. As Table 6 shows, five-year average receipts were about 473,000 tonnes. This represented about 2.2 percent of average total receipts at eastern transfer facilities

during this period. Of total receipts, nearly 18 percent originated from Western Canada, about 73 percent came from the local area and 9 percent from the U.S. Local grain consisted mainly of wheat, flax, sunflower seed, soybeans and corn. Western grain consisted mainly of flax, rye and canola and U.S. grain was mainly soybeans. Because of the predominance of supply from local sources and the fact that only small self-unloaders could be accomodated at this elevator, the principal mode used in forwarding grain to the elevator was truck. Only small amounts moved by rail and vessel.

Almost all grain receipts at this elevator were shipped into the local domestic market. This elevator services the nearby Archer, Daniel and Midland (ADM) oilseed crushing plant and the local feed grain trade.

SARNIA

Like Windsor, Sarnia has always relied on the local area for most of its grain receipts. Between 1981-82 and 1985-86 Sarnia's average receipts were 630,000 tonnes. This was about 3.0 percent of total average receipts at eastern transfer elevators. Only 20.2 percent of average total receipts originated from Western Canada while 79.7 percent of receipts came from the local area. A very small portion, 0.1 percent consisting of corn and soybeans, came from the U.S. Local grain comprised mainly corn with small amounts of wheat, barley and soybean. Like Windsor, most of the grain receipts were trucked to the elevator with small amounts transported by vessel and rail.

Average five year shipments were almost identical to receipts. Approximately 12 percent of grain receipts was transferred to Maritime ports, about 87 percent went by vessel to Lower St. Lawrence ports for export and less than 1 percent, comprising principally barley, went to the U.S. As Table 6 shows, the principal mode used in the outward movement was vessel.

TABLE 7
RECEIPTS AND SHIPMENTS OF GRAIN BY CROP YEAR
AND MODE OF TRANSPORT, LOWER LAKES/UPPER ST. LAWRENCE ELEVATORS*
('000 TONNES)

PORT COLBORNE - (GODERICH TERMINALS LTD.)

	RECEIPTS					SHIPMENTS				
Crop Year	Vessel	Rail	Truck	Other	Total	Vessel	Rail	Truck	Other	Total
1981-82	-	-	314.7	-	314.7	310.1	-	11.7	-	321.8
1982-83	32.2	-	196.1	-	228.3	156.9	3.9	44.8	-	205.6
1983-84	-	-	153.9	-	153.9	125.7	2.3	44.2	-	172.2
1984-85	-	1.9	136.1	-	138.0	76.2	0.4	41.6	-	118.2
1985-86	-	-	108.4	-	108.4	87.8	-	37.4	-	125.2
5yr. average	6.4	0.4	181.8	-	188.7	151.3	1.3	35.9	-	188.6

PRESCOTT

	RECEIPTS					SHIPMENTS				
Crop Year	Vessel	Rail	Truck	Other	Total	Vessel	Rail	Truck	Other	Total
1981-82	280.3	5.3	27.0	-	312.6	87.2	43.0	148.2	12.1	290.5
1982-83	172.1	6.9	41.3	-	220.3	98.2	52.0	69.1	9.8	229.1
1983-84	136.2	15.4	38.7	-	190.3	50.0	53.1	107.8	13.7	224.6
1984-85	202.8	1.7	49.2	-	253.8	30.5	83.9	74.8	7.5	196.7
1985-86	164.0	0.9	0.06	-	221.0	129.8	40.2	52.3	7.6	230.0
5yr. average	191.1	6.0	31.3	-	239.6	79.1	54.4	90.4	10.1	234.2

* Kingston closed in 1986.

Source: CANADA GRAINS COUNCIL, Grain Movements Through The Transfer Elevators In Eastern Canada.

2.4 LOWER LAKES/UPPER ST. LAWRENCE ELEVATORS

PORT COLBORNE

In the five year period 1981-82 to 1985-86, the Goderich elevator at Port Colborne received most of its grain from the local area. Only about 3 percent of grain receipts originated outside the local area. Infrequently, the elevator receives grain, mostly corn, from the U.S. Average five year receipts were 189,000 tonnes or 1.1 percent of total receipts at eastern transfer facilities, almost all of which arrived by truck. Table 7 shows that only very small quantities arrived by vessel and rail. Local grain comprised mainly corn, wheat, rye, soybean and barley.

Most of the grain receipts were shipped out of the local area. Only 22.7 percent of receipts was retained for local use, and about 2 percent, mostly rye, was shipped to the U.S. Local users were mainly maltsters, flour mills and feeding operations. Vessel was the most siginficant means used for transporting grain from the elevator.

PRESCOTT

Between 1981-82 and 1985-86, Prescott's average receipts were just over 239,000 tonnes. This represented about 1.2 percent of total average receipts at eastern transfer elevators. Most of the grain receipts originated from Western Canada. However, a significant portion, 27.4 percent, originated from the local area and 12.7 percent made up of mostly corn came from the U.S. Local grain comprised mainly wheat, oats, barley and screenings. Almost all grain receipts arrived by vessel. As Table 7 shows only marginal quantities arrived by truck and rail.

Over the same time frame, most of the grain shipped from this elevator was destined for the local market where it was used by flour mills and feeding operations. Of the five year total average shipment of 234,000 tonnes, over 79,000 tonnes were transported by vessel, 54,000 tonnes by rail and approximately 100,000 tonnes by truck and other modes combined.

TABLE 8 BY
RECEIPTS AND SHIPMENTS OF GRAIN BY CROP YEAR AND MODE OF TRANSPORT, LOWER ST. LAWRENCE ELEVATORS ('000 TONNES)

BAIE COMEAU

	RECEIPTS					SHIPMENTS				
Crop Year	Vessel	Rail	Truck	Other	Total	Vessel	Rail	Truck	Other	Total
1981-82	3,302.7	-	-	-	3,302.7	3,289.1	-	0.3	-	3,289.4
1982-83	3,625.4	-	-	-	3,625.4	3,632.5	-	-	-	3,632.5
1983-84	3,568.7	-	-	-	3,568.7	3,610.5	-	-	-	3,610.5
1984-85	2,931.4	-	-	-	2,931.4	2,752.8	-	-	-	2,752.8
1985-86	2,652.1	-	-	-	2,652.1	2,752.7	-	-	-	2,752.8
5yr. Aver.	3,216.1	-	-	-	3,216.1	3,207.5	-	0.06	-	3,207.6

MONTREAL - NO. 3

	RECEIPTS					SHIPMENTS				
Crop Year	Vessel	Rail	Truck	Other	Total	Vessel	Rail	Truck	Other	Total
1981-82	355.6	33.1	13.4	-	402.1	-	-	283.1	112.2	395.3
1982-83	410.6	39.1	20.6	-	470.3	14.1	-	300.0	123.1	437.2
1983-84	443.6	2.1	1.5	-	447.2	1.9	-	328.5	118.9	449.3
1984-85	355.4	4.5	2.5	-	362.4	-	-	247.0	129.2	376.2
1985-86	120.6	45.9	11.1	-	177.6	1.0	-	79.4	110.6	191.0
5yr. average	337.2	24.9	9.8	-	371.9	3.4	-	247.6	118.8	369.8

MONTREAL - NO. 4

	RECEIPTS					SHIPMENTS				
Crop Year	Vessel	Rail	Truck	Other	Total	Vessel	Rail	Truck	Other	Total
1981-82	2,247.7	322.4	1.0	-	2,570.5	2,581.5	-	3.0	-	2,584.5
1982-83	2,333.6	227.0	5.6	-	2,566.2	2,460.3	-	41.8	-	2,502.1
1983-84	2,480.9	120.8	-	-	2,601.7	2,617.4	-	38.8	-	2,656.2
1984-85	2,128.4	20.9	0.03	-	2,149.3	2,019.6	-	14.9	0.05	2,034.5
1985-86	1,561.1	138.4	5.4	-	1,704.9	1,619.1	-	84.4	-	1,703.5
5yr. Aver.	2,150.3	165.9	2.4	-	2,318.5	2,259.6	-	36.6	0.01	2,296.2

/cont...

TABLE 8 (cont')
RECEIPTS AND SHIPMENTS OF GRAIN BY CROP YEAR AND MODE OF TRANSPORT, LOWER ST LAWRENCE ELEVATORS
('000 TONNES)
MONTREAL - NO. 5

	RECEIPTS					SHIPMENTS				
Crop Year	Vessel	Rail	Truck	Other	Total	Vessel	Rail	Truck	Other	Total
1981-82	423.0	78.8	0.7	-	502.5	-	-	199.3	310.4	509.7
1982-83	545.0	2.8	-	-	547.8	1.6	-	203.3	318.2	523.1
1983-84	553.7	2.8	1.5	-	558.0	-	-	235.2	319.9	555.1
1984-85	511.7	2.6	12.3	-	526.6	12.3	-	224.2	303.1	539.6
1985-86	495.6	12.5	3.1	-	511.2	17.7	-	213.0	287.1	517.8
5yr. average	505.8	19.9	3.5	-	529.2	6.3	-	215.0	307.7	529.1

PORT CARTIER

	RECEIPTS					SHIPMENTS				
Crop Year	Vessel	Rail	Truck	Other	Total	Vessel	Rail	Truck	Other	Total
1981-82	4,631.3	-	-	-	4,631.3	4,590.4	-	-	-	4,590.4
1982-83	4,519.8	-	-	-	4,519.8	4,648.9	-	-	-	4,648.9
1983-84	3,549.6	-	-	-	3,549.6	3,552.8	-	-	-	3,552.8
1984-85	3,465.5	-	-	-	3,465.5	3,367.6	-	-	-	3,367.6
1985-86	2,553.5	-	-	-	2,553.5	2,527.4	-	-	-	2,527.4
5yr. average	3,743.9	-	-	-	3,743.9	3,737.4	-	-	-	3,737.4

QUEBEC CITY

	RECEIPTS					SHIPMENTS				
Crop Year	Vessel	Rail	Truck	Other	Total	Vessel	Rail	Truck	Other	Total
1981-82	4,234.1	865.0	0.3	-	5,099.4	4,567.1	-	535.5	-	5,102.6
1982-83	4,464.9	620.1	-	-	6,085.0	4,557.1	-	536.2	-	5,093.3
1983-84	3,943.6	252.6	-	-	4,196.2	3,835.3	-	378.7	-	4,214.0
1984-85	3,448.0	92.9	-	-	3,540.9	3,097.2	-	358.1	-	3,455.3
1985-86	2,071.8	610.8	1.5	-	2,684.2	2,457.1	-	238.8	-	2,695.9
5yr. average	3,632.5	488.3	0.3	-	4,321.1	3,702.8	-	409.5	-	4,112.2

/cont...

TABLE 8 (cont')
RECEIPTS AND SHIPMENTS OF GRAIN BY CROP YEAR AND MODE OF TRANSPORT, LOWER ST LAWRENCE ELEVATORS
('000 TONNES)
SOREL

Crop Year	RECEIPTS Vessel	Rail	Truck	Other	Total	SHIPMENTS Vessel	Rail	Truck	Other	Total
1981-82	1,143.0	145.4	23.0	-	1,311.4	1,223.7	-	53.9	-	1,277.6
1982-83	918.0	26.4	5.0	-	949.4	918.5	-	55.8	-	974.3
1983-84	1,339.4	-	1.9	-	1,341.3	1,289.5	-	54.6	-	1,344.1
1984-85	162.8	-	-	-	162.8	132.4	-	5.4	-	137.8
1985-86	598.6	19.2	-	-	617.8	586.4	-	20.5	-	606.9
5yr. average	832.4	38.2	6.0	-	876.5	830.1	-	38.0	-	868.1

TROIS RIVIERES

Crop Year	RECEIPTS Vessel	Rail	Truck	Other	Total	SHIPMENTS Vessel	Rail	Truck	Other	Total
1981-82	977.7	50.5	-	-	1,028.2	875.0	-	75.9	-	950.9
1982-83	775.6	218.4	-	-	994.0	969.0	-	73.6	-	1,042.6
1983-84	1,172.8	14.7	-	-	1,187.5	1,102.2	-	56.2	-	1,158.4
1984-85	824.2	34.0	-	-	858.2	819.9	-	58.4	-	878.3
1985-86	612.0	19.0	-	-	631.0	664.2	-	15.5	-	679.7
5yr. average	872.5	67.3	-	-	939.8	886.1	-	55.9	-	941.9

GRAINS

SOURCE: CANADA COUNCIL, Grain Movements Through the Transfer Elevators in Eastern Canada.

2.5 LOWER ST. LAWRENCE ELEVATORS

MONTREAL -- NO. 3

Receipts at Montreal No. 3 elevator averaged about 372,000 tonnes between 1981-82 and 1985-86. This was about 2 percent of total average receipts at transfer facilities in Eastern Canada. Normally, most of the grain is received by vessel via Thunder Bay and U.S. lake ports. In the five year period under consideration, 78.2 percent of grain receipts originated from the prairies, 4.3 percent came from local sources and 17.5 percent originated from the U.S. Prairie grain consisted mostly of wheat, oats and barley while local and U.S. grain comprised mainly corn. As Table 8 shows, most of grain receipts at this elevator arrived by vessel. Only marginal quantities arrived by rail and truck.

Unlike most of the Lower St. Lawrence elevators, Montreal No. 3 services the local feed grain and flour milling industries. About 99 percent of grain receipts was forwarded to these local outlets. The principal mode in this movement was truck, however a combination of modes was also utilized in putting grain through this facility. Quebec's fast emerging self-sufficiency in feed grains has, however, made this elevator less important than it used to be and a prime target for closure.

MONTREAL -- No. 4

Being the most modern of the three Montreal elevators this elevator handles more grain and has a higher throughput capacity than the other two. Table 8 shows that average five year (1981-82 to 1985-86) receipts were 2.3 million tonnes. This level of receipts represented 11.5 percent of total average receipts at eastern transfer facilities. About 97 percent of the grain receipts originated from the Prairies and about 3 percent, consisting mainly of wheat, corn and soybeans, came from the U.S. Vessel was, and still is, the principal mode utilized in the transfer function. Small amounts of grain arrive by rail.

Almost all the grain received at this elevator is exported. In the five year period, 1981-82 to 1985-86, an average of 99 percent of grain receipts was exported and 1 percent went to the local market. Local users were principally flour and feed mills. Vessel was the most significant mode in the outward movement of grain with trucks being utilized, to a lesser degree, to transport grain to the local market.

MONTREAL -- No. 5

This elevator services the local grain processing industry. Grain can be directly transferred through the shipping galleries to adjacent elevators operated by Ogilvie Flour Mills Limited and Canada Malting Company. Average receipts between 1981-82 and 1985-86 were 529,000 tonnes. This was about 2.5 percent of total average receipts at eastern transfer facilities. Almost all grain receipts originated from Western Canada. A very small amount, less than 1 percent comprising mainly corn and barley for the local feed grain market, originated from the U.S. Vessel was the principal mode used in forwarding grain to this elevator. A relatively small amount arrived by truck.

In recent years most of the grain has moved out of the elevator by truck or by direct transfer to flour mills and the Canada Malting Company. In the time period under consideration, about 95 percent of grain receipts was shipped to the local market. As Table 8 shows, trucks played an important role in moving grain out of the elevator. However, other means such as conveyor belts, were just as important in the transfer function.

SOREL

In the time period under consideration, average receipts at Sorel were about 877,000 tonnes. This represented 4.8 percent of total average grain receipts at all eastern transfer elevators. About 88.5 percent of receipts originated from Western Canada, 6 percent from the U.S. and 5.5 percent from local sources. U.S. grain consisted mainly of wheat, oats, barley, sunflowerseed, corn and soybeans while local grain comprised

mainly corn and barley. Vessel, rail and truck were involved in forwarding grain to this elevator, with vessel being the most significant mode.

Most of the grain received at this facility was exported. Only about 6 percent of grain receipts was shipped to the local market. Local users included feed mills and other processing plants. Vessel was the principal mode used in the outward movement of grain with trucks accounting for a very small quantity.

TROIS RIVIERES

As Table 8 shows, average receipts at Trois Rivières during the 1981-82 to 1985-86 period were about 940,000 tonnes. This represented 4.5 percent of total average receipts at eastern transfer facilities. The origin of grain receipts was distributed among three sources - Western Canada, local area and the U.S. From Western Canada, this elevator received 75 percent of its volume. The U.S. provided 24.5 percent and less than 1 percent originated from local sources. U.S. grain consisted mostly of wheat, barley, soybeans, corn and rye while local grain receipts comprised mainly corn. Vessel was the principal means employed in forwarding grain to the elevator, although small amounts arrived by rail.

In terms of shipments, over 92 percent of grain receipts was destined for off-shore markets and 7.5 percent was used locally. Local users were feed mills and processors.

QUEBEC CITY

Between 1981-82 and 1985-86, average receipts at this elevator were 4.3 million tonnes. This represented 20.7 percent of total average receipts at all eastern transfer facilities. The largest proportion (84%) of total grain receipts arrived by vessel from Thunder Bay via the Prairies and about 7.8 percent originated from the U.S. This consisted mainly of wheat, barley, soybeans and corn. Less than 1 percent of grain

receipts originated from local sources. Local grain comprised mainly corn and wheat. Vessel is the principal mode used in forwarding grain to this elevator and, as Table 8 shows, the trend has continued. A small portion (11%) of receipts arrived by rail.

With the emphasis on throughput, shipments were almost identical to receipts. About 88 percent of grain receipts was exported and about 12 percent used up locally by the feed industry. Trucks were used to move grain to the local market while vessels were employed in the export trade.

BAIE COMEAU

Between 1981-82 and 1985-86 Baie Comeau received an average of 3.2 million tonnes of grain nearly all of which was exported. The level of receipts represented about 15.9 percent of total average receipts at eastern transfer facilities. Most of this elevator's grain receipts originated from Western Canada. For example, between 1981-82 and 1985-86, 61.6 percent of grain receipts came indirectly from the prairies and 38.1 percent originated from the United States. Less than one-half of one percent originated from the local area. Prairie grain receipts comprised mainly wheat, barley, soybeans and corn. Vessel was the only mode used for forwarding grain to this elevator since it does not have rail facilities.

Being a high throughput facility, all receipts are quickly shipped out to the export and local domestic market. Vessel was the most significant mode in the outward movement, although an insignificant amount of grain was moved by truck to the local market. Receipts and shipment data are in Table 8.

PORT CARTIER

This elevator has a lower capacity than the elevator at Baie Comeau. However, it tends to handle larger volumes of grain as indicated in Table 8. Average five year receipts were 3.7 million tonnes or 19.4 percent of total average receipts at all transfer elevators in Eastern

TABLE 9
RECEIPTS AND SHIPMENTS OF GRAIN BY CROP YEAR AND MODE OF TRANSPORT, ATLANTIC ELEVATORS
('000 TONNES)

WEST SAINT JOHN

Crop Year	RECEIPTS Vessel	Rail	Truck	Other	Total	SHIPMENTS Vessel	Rail	Truck	Other	Total
1981-82	-	411.4	-	-	411.4	416.4	-	2.6	-	419.9
1982-83	-	284.2	-	-	284.2	283.0	-	0.5	-	283.5
1983-84		340.1	-	-	340.1	345.3	-	-	-	345.3
1984-85	-	212.2	-	-	212.2	209.3	-	0.09	-	209.4
1985-86	-	315.1	1.0	-	316.1	317.7	-	2.6	-	320.3
5yr. average	-	312.6	-	-	312.8	314.3	-	1.2	-	315.7

HALIFAX

Crop Year	RECEIPTS Vessel	Rail	Truck	Other	Total	SHIPMENTS Vessel	Rail	Truck	Other	Total
1981-82	106.3	415.2	1.9	-	523.4	445.9	0.2	10.2	36.8	492.9
1982-83	152.3	265.1	2.1	4.1	423.6	374.3	-	9.1	51.6	435.0
1983-84	168.9	295.6	7.0	-	471.5	414.4	-	1.8	44.0	460.2
1984-85	165.2	133.7	4.8	-	303.7	241.1	-	5.3	46.9	293.3
1985-86	166.5	199.0	6.7	-	372.2	298.5	-	12.7	73.8	385.0
5yr. average	151.8	261.7	4.5	0.8	418.9	354.8	0.04	7.8	50.6	413.3

SOURCE: CANADA GRAINS COUNCIL, Grain Movement Through the Transfer Elevators in Eastern Canada.

Canada. About 60 percent of grain receipts originated from Western Canada and a sizeable portion, 40 percent, from the U.S. Grain from the U.S. consisted chiefly of wheat, barley, soybeans and corn. Vessel was the only mode used in forwarding grain to the elevator because the elevator does not have rail facilities.

Port Cartier has the highest throughput ratio of all eastern transfer facilities. Most of the grain received at this elevator is normally exported. This holds true for the period under consideration. Vessel is the only mode used in the outward movement of grain.

2.6 ATLANTIC ELEVATORS

WEST SAINT JOHN

Most of the grain received at this elevator comes under the At and East program. A considerable amount of Ontario grain is forwarded to this elevator under the program. Between 1981-82 and 1985-86, all the grain received, 313,000 tonnes on average, at West Saint John originated outside the Atlantic region. This elevator handled only 1.5 percent of total average receipts at eastern transfer elevators. The principal grains were wheat, barley and screenings.

Almost all receipts were shipped to the off-shore market. Less than 1 percent of grain receipts was retained for domestic use. Barley and screenings were the principal grains used locally in the feed industry.

HALIFAX

Halifax, like West Saint John, receives almost all of its grain from outside the local area. As Table 9 shows, between 1981-82 and 1985-86, average receipts at this facility were about 419,000 tonnes. This was about 2 percent of total average receipts at eastern transfer elevators. Local grain receipts accounted for less than 1 percent of the total and comprised mainly wheat and rye. Most of the grain arrived by rail but a sizeable portion came by vessel as well. Trucking activity was only marginal.

The elevator services the local flour mill and acts as a source of supply for the local feed trade. However, most of the grain received at this elevator goes to off-shore markets. Only about 13 percent of receipts was shipped to the local market. Vessel was the principal mode involved in the outward movement of grain. Trucks were utilized to a lesser extent.

Based on receipts and shipments data, it is clear that the eastern grain handling system is characterized by many transfer units which handle marginal quantities of export and domestic grain and they rely on a blend of modes, i.e. water, rail, truck, for their grain traffic activity. The most dominant group of elevators, in terms of efficiency and throughput, are those located on the Lower St. Lawrence. As a group, these elevators handle more than 40 percent of total Canadian grain exports. In other words, eight elevators out of a total of twenty-four account for almost all the eastern Canadian grain trade. This raises questions about the future viability of most of the existing transfer units east of Thunder Bay.

FOOTNOTES

1 Canadian Grain Commission, Grain Elevators in Canada.

2 Much of the grain receipts and shipments data were drawn from a series of Canada Grains Council publications entitled: Grain Movements Through the Eastern Transfer Elevator System (1979-1986).

CHAPTER 3

AT AND EAST FREIGHT RATES AND THE ECONOMICS OF POSITIONING GRAIN AND FLOUR

This chapter examines transportation freight rates/tariffs for grain and flour moving to eastern export positions and the effects of transportation pricing on the eastern elevator system. A good deal of attention will be devoted to the At and East freight rates and their influence on the mode and route of export grain and flour. Initially, the rationale for the subsidy, its impact on the transfer elevator system and how it affects the positioning costs of export grain and flour are discussed. Then, some of the inefficiencies associated with the subsidy program, are described. This is followed by identification of the principal beneficiaries and some economic implications of using an alternative route which is cheaper, and perhaps more efficient, than the At and East.

3.1 RATIONALE FOR THE AT AND EAST SUBSIDY PROGRAM

The At and East grain rates were initially introduced for the export movement of western grain by rail in carload lots from ports located along the shores of Georgian Bay, the Lower Lakes and Upper St. Lawrence River to Montreal and Maritime ports. Traditionally, these rates were closely related to American rail rates for grain movements from Buffalo to ports on the Atlantic seaboard in order to offset the economic advantage associated with the shorter hauling distance, greater handling facilities and more extensive shipping services at these ports compared to Canadian ports[1]. The export rates to Montreal were equated to those in Philadelphia. The rates to other St. Lawrence ports and Halifax and Saint John were related to the Buffalo to Boston, Portland and New York rates even though the Canadian hauling distances were much greater[2]. The term "At and East" therefore referred to Canadian freight rates which would be comparable to the American rates At and East of Buffalo.

The origin of the At and East rates can be traced back to the MacPherson Royal Commission on Grain and Handling and Transportation in 1959-60. During the Commission's hearing, the two major Canadian railways - Canadian National (CN) and Canadian Pacific (CP) - reviewed the rates they were charging for export grain and flour railed through the Atlantic ports of Halifax and Saint John and found this traffic was moving at a loss. As a result, they filed tariff amendments to increase rates effective January 2, 1961. The regulatory agency at that time was the Board of Transport Commissioners, the precursor to the Canadian Transport Commission (CTC).

The Board of Transport Commissioners acted by suspending the proposed increase in rates and called upon the railways to demonstrate reasons for the requested increase. The railways contended that the existing rates were non-compensatory and, therefore, could not lawfully be continued. They insisted that the proposed increase in rates was just and reasonable and was closely related to export rates which had been previously approved by the Board[3].

Opposition to the proposed increase in freight rates came from those who felt that it was against national policy relating to freight rates. They argued that it violated the 'freeze' on freight rates under the Freight Reduction Act of 1959 and any increase was contrary to the principle of equality of rates to Maritime and U.S. ports and would most likely result in the diversion of traffic to U.S. and Western Canadian ports to the detriment of the Maritime economy. They also contended that the increased cost of moving grain could not be added to the price of the commodity without reducing total sales and, therefore, would have to be charged against producers who, the railways had admitted, could not bear increased grain rates without difficulty[4].

In the final analysis, the Board disallowed the proposed rates, but it prescribed a new base level of compensatory rates which reflected a compromise between the railways' request and the level of existing rates. Those compensatory rates covered variable costs and made some contribution to railway constant costs.

Because the MacPherson Royal Commission had not yet completed its work there was a general desire to await its recommendations. In the interim, the old rates were maintained in effect by Order-in-Council through a series of six month extensions. This continued from the effective date of the new rates, i.e. December 1960 to June 1966, when the railways were paid the difference between the rates in effect in November, 1960, and the compensatory rates that had been approved by the Board of Transport Commissioners[5]. The payment preceded the actual implementation of the legislation resulting from the MacPherson Royal Commission (i.e. the National Transportation Act of 1967).

The At and East rates on grain and flour were incorporated into the Railway Act and thus made statutory under Section 272[6]. Section 272 of the Railway Act provides the mandate for the subsidy program, i.e. "to encourage the continued use of eastern ports". The Act also states that the railways must receive rates which are compensatory and the CTC should establish this compensatory level for the rates. The Government of Canada, through the CTC, would provide a payment equal to the difference between the statutory fixed rate and the compensatory rate on each unit of grain and/or flour moved. The subsidy applies to:

a) grain moving for export by rail received ex-water at Lake ports on Georgian Bay, Lake Huron, Lake Ontario and the Upper St. Lawrence as far as Prescott;

b) flour moving for export from any point in Canada, east of the 90th degree of west longitude (roughly Thunder Bay).

The rail destination may be any port on the St. Lawrence east of and including Montreal as well as Saint John, N.B. and Halifax.

At first, the At and East subsidy applied only to the movement of western grain and flour to eastern Canadian ports. However, on February 23, 1978, the CTC, through Order No. R-26479 extended the coverage of Section 272 of the Railway Act to include Ontario export grain, provided

TABLE 10
"AT AND EAST", GRAIN AND FLOUR VOLUMES AND SUBSIDY PAYMENTS
(1976-1985)

YEAR	GRAIN PAYMENT ($ Million)	GRAIN TONNES	GRAIN $ PER TONNE	FLOUR PAYMENT ($ Million)	FLOUR TONNES	FLOUR $ PER TONNE	TOTAL PAYMENT ($ Million)
1976	14.2	876,838	16.17	9.7	401,439	24.25	23.6
1977	15.3	846,599	18.05	12.1	455,186	26.66	27.8
1978	11.7	684,618	17.14	17.4	469,152	37.20	29.2
1979	12.7	692,657	18.31	22.0	567,044	38.88	34.7
1980	16.3	869,116	18.80	19.7	460,953	42.81	36.1
1981	15.6	739,776	21.09	22.9	475,207	48.19	38.5
1982	16.8	717,677	23.41	18.1	321,812	56.24	34.9
1983	14.5	630,172	23.00	16.2	277,397	58.40	30.7
1984	15.0	642,083	23.36	22.9	394,248	58.08	37.9
1985	13.0	564,154	23.04	15.3	240,645	63.58	28.3
1976-1985 (Average)	14.5	726,369	19.96	17.6	406,308	43.32	32.2

SOURCE: Canadian Transport Commission (CTC).

TABLE 11
RAIL STOP OFF-CHARGES
(1976-1985)

YEAR	AMOUNT ($)
1976	725,000
1977	850,000
1978	983,513
1979	1,058,289
1980	840,923
1981	851,596
1982	652,000
1983	633,261
1984	614,417
1985	513,448
TOTAL	7,722,447
AVERAGE	772,244

SOURCE: Canadian Transport Commission.

that "the traffic is received ex-water at the terminals involved" (namely Collingwood, Owen Sound, Port McNicoll and Midland)[7].

In addition to the statutory subsidy paid to the railways, a subsidy is paid to western Canadian millers to equalize rail stop-off charges for milling grain into export flour with those paid by eastern millers. Section 272 of the Railway Act freezes the stop-off charges at the 1966 level of 3 cents per 100 lbs in Eastern Canada. Western millers receive the difference between the frozen eastern rate and the higher compensatory rate which they are charged. In 1986, the compensatory rate was 31 cents per 100 lbs.

Between 1976 and 1985, the Federal Government has paid out annually an average of $32.2 million in At and East subsidies (Table 10) and $772,244 in stop-off charges (Table 11). The At and East subsidy in 1985 amounted to $23.04/tonne for grain and $63.58/tonne for flour.

In addition to rail stop-off charges, the railways impose an "off-line" penalty for milling-in-transit privileges for those locations situated off the main line. For example, the flour mill at Port Colborne is assessed this penalty if the flour milled-in-transit is not destined for Halifax or Saint John. On the other hand grain milled in Montreal is considered to be "on-line" from the railway point of view and, therefore, not subject to the penalty[8].

The major grains eligible for the At and East subsidy are wheat, oats, barley, corn/rye, soybeans and buckwheat. These grains may be eligible for the subsidy on railway movements from Bay port elevators to Montreal and Quebec City[9].

3.2 IMPACT OF "AT AND EAST" GRAIN ON TRANSFER ELEVATORS

In terms of grain handled, the transfer elevators which benefit the most from the At and East subsidy program are those which are located on Georgian Bay and the Atlantic coast. These elevators handle a

TABLE 12
"AT AND EAST" GRAIN SHIPMENTS BY TRANSFER ELEVATOR 1981-82 TO 1985-86
(TONNES)

ELEVATOR LOCATION	TYPE OF GRAIN SHIPMENTS	1981-82	1982-83	1983-84	1984-85	1985-86	5 Year Average
GEORGIAN BAY							
Collingwood	"At and East"	-	-	-	-	14,816	2,963
	Total Shipments	100,457	83,885	102,958	81,074	88,488	91,372
	Share of "At and East" (%)	-	-	-	-	16.7	3.2
Midland	"At and East"	313,348	136,231	162,728	135,578	160,607	181,698
	Total Shipments	576,382	500,773	570,259	465,635	566,108	535,831
	Share of "At and East" (%)	54.4	27.2	28.5	29.1	28.4	33.9
Owen Sound	"At and East"	38,768	32,886	53,849	47,367	45,174	43,609
	Total Shipments	129,912	158,807	148,534	146,280	152,047	147,116
	Share of "At and East" (%)	29.8	20.7	36.3	32.4	29.7	29.6
Port McNicoll	"At and East"	273,122	199,503	262,725	181,352	247,980	232,936
	Total Shipments	343,308	242,204	264,164	222,072	268,015	267,953
	Share of "At and East" (%)	79.6	82.4	99.5	81.7	92.5	86.9

SOURCES: Canada Grains Council, Grain Movements Through the Transfer Elevators in Eastern Canada (Feb. 1984, April 1985-1987); Canadian Transport Commission.

significantly large proportion of subsidized grain from Western Canada and Ontario. This grain is transshipped by rail for export or stored temporarily for eventual forwarding by vessel to overseas destinations. The pattern and use of transportation modes, i.e. rail and/or water, are also influenced by seasonal conditions. During the winter months, the ports of Halifax and Saint John remain ice-free and this condition permits the railing of grain for export through Atlantic port elevators.

Georgian Bay Elevators

Of the Georgian Bay group of elevators, Collingwood is the only facility which has not handled much At and East grain in recent times. This is due primarily to the fact that the Collingwood transfer elevator handles grain for domestic and industrial uses. On the other hand, Midland, Owen Sound and Port McNicoll, as Table 12 shows, have depended heavily on subsidized grain for their activity. In the period, 1981-82 to 1985-86, Port McNicoll has relied almost exclusively on At and East grain shipments. Average total shipments amounted to 267,953 tonnes of which 232,936 tonnes or 87 percent was At and East grain. Data for earlier years (see Appendix) suggest that this is a continuing trend.

In the period 1981-82 to 1985-86, total average shipments from the Midland elevators amounted to 535,831 tonnes of which 181,698 tonnes or 33.9 percent was At and East grain. However since 1982-83, as Table 12 shows, At and East grain as a proportion of total shipments has declined from a high of 53.9 percent in 1981-82 to only 28.4 percent in 1985-86. Historically, these elevators have relied on At and East grain shipments for over 50 percent of their traffic (see Appendix).

Owen Sound has experienced wide fluctuations in the proportion of At and East grain handled. In the period 1981-82 to 1985-86, subsidized grain as proportion of total shipped fluctuated between 20.7 percent in 1982-83 and 32.4 percent in 1984-85. The five year average was 29.6 percent. In the past, this elevator has relied on At and Fast shipments for over 40 percent of its throughput (See Appendix).

TABLE 13
"AT AND EAST" GRAIN SHIPMENTS BY TRANSFER ELEVATOR 1981-82 TO 1985-86
(TONNES)

ELEVATOR LOCATION	TYPE OF GRAIN SHIPMENTS	1981-82	1982-83	1983-84	1984-85	1985-86	5 Year Average
UPPER GREAT LAKES							
Windsor	"At and East"	-	-	-	-	26,877	5,375
	Total Shipments	442,162	426,177	457,549	607,261	431,020	472,834
	Share of "At and East" (%)	-	-	-	-	6.2	1.1
Goderich	"At and East"	-	-	-	-	5,230	1,046
	Total Shipments	525,227	419,839	453,178	427,436	415,505	448,237
	Share of "At and East" (%)	-	-	-	-	1.3	0.2
Sarnia	"At and East"	106,131	75,456	134,459	627	76,727	78,680
	Total Shipments	662,229	496,438	741,506	624,372	624,637	629,836
	Share of "At and East" (%)	16.0	15.2	18.1	0.1	12.3	12.5

SOURCES: Canada Grains Council, Grain Movements Through the Transfer Elevators in Eastern Canada (Feb., 1984, April 1985, 1986 and 1987) and Canada Transport Commission (CTC).

Upper Great Lakes

Recent data indicate that the Upper Great Lakes transfer elevators do not rely on At and East grain shipments for significant grain handling activity. Of the three elevators in this group, Sarnia is the only one that has handled subsidized grain between 1981-82 and 1984-85. However, both Windsor and Goderich handled At and East grain in 1985-86. As Table 13 shows, of the total average shipments of 629,836 tonnes through Sarnia, only 78,680 tonnes or 12.5 percent was At and East grain. Earlier data indicate a much higher proportion (21.5 percent) of At and East grain traffic relative to the total (see Appendix). Based on historical data, the proportion of At and East grain shipments through Sarnia, although subject to significant fluctuation, is declining. It has not surpassed 20 percent since 1979-80 and fell to an all time low of 0.1 percent in 1984-85.

The transfer facilities at Goderich and Windsor have not handled much At and East grain traffic in recent years. Table 13 indicates that these elevators have handled significant volumes of grain between 1981-82 and 1984-85, but none of it was At and East grain. In earlier years, At and East grain shipments as a proportion of the total averaged only 5.4 percent (see Appendix). In fact, since 1972-73 when 24 percent of grain traffic represented At and East shipments, Goderich's At and East shipments each year have been less than 10 percent of total grain traffic. This elevator serves the local grain trade.

Windsor transfer elevator has handled only limited quantities of At and East grain shipments since it commenced operation in 1980. It serves the local grain industry and ADM oilseed crushing plant. Over the five year period, 1981-82 to 1985-86, the volume of grain shipments from this elevator has generally increased.

The Upper Great Lakes group of transfer elevators have, in recent years, demonstrated that their viability is not dependent on At and East grain traffic. Sarnia is the only elevator to show any sensitivity to At

TABLE 14
"AT AND EAST" GRAIN SHIPMENTS BY TRANSFER ELEVATOR 1981-82 TO 1985-86
(TONNES)

ELEVATOR LOCATION	TYPE OF GRAIN SHIPMENTS	1981-82	1982-83	1983-84	1984-85	1985-86	5 Year Average
LOWER LAKES/ UPPER ST. LAWRENCE							
Port Colborne	"At and East"	-	4,998	-	2,946	2,519	2,093
	Total Shipments	321,823	205,614	172,201	118,161	125,199	188,600
	Share of "At and East" (%)	-	2.4	-	2.5	2.0	1.1
Prescott	"At and East"	42,875	45,481	36,829	42,729	39,069	41,397
	Total Shipments290,501	290,501	229,105	224,612	196,769	230,001	234,198
	Share of "At and East" (%)	14.8	19.9	16.4	21.7	17.0	17.7

* Estimated total shipments for 1985-86.

SOURCES: Canada Grains Council, Grain Movements Through the Transfer Elevators in Eastern Canada (Feb. 1984, April 1985-87); Canadian Transport Commission (CTC).

and East grain and even this facility has, in recent times, become less reliant on the subsidized traffic.

Lower Lakes/Upper St. Lawrence

The Goderich elevator at Port Colborne receives most of its grain from the local area and it is this source that has enabled the elevator to remain viable. Table 14 shows that this elevator, except for small shipments in 1982-83, 1984-85 and 1985-86, has not participated in the At and East program. Between 1981-82 and 1985-86 only 1.1 percent of total average grain shipments moved under the subsidy program. Historically, the Port Colbourne transfer facility has only handled marginal quantities of At and East grain. For example, according to earlier years data, At and East grain as a proportion of total shipments averaged only 0.9 percent (see Appendix). The elevator serves mostly as a storage facility for Ontario grain.

Prescott, like Port Colborne, serves the local feed grain industry and the local flour mill. It is regarded as a storage facility for Ontario and western produced grains. At and East grain shipments out of this elevator, although subject to considerable fluctuation, have remained fairly constant, on average, in the period 1981-82 to 1985-86. Table 14 shows At and East shipments as a proportion of total grain shipments have averaged 17.7 percent in that five year period. In the seventies, At and East grains shipments have been sporadic averaging only 1.8 percent and were virtually non-existent in most years (see Appendix).

Lower St. Lawrence Elevators

The Lower St. Lawrence group of transfer elevators - Port Cartier, Quebec, Sorel, Trois Rivières, Baie Comeau and Montreal - are high throughput facilities which facilitate Canada's export grain trade. The majority of grain (about 90 percent) arrives by vessel from either Thunder Bay or U.S. lake ports. The remainder generally arrives by rail

TABLE 15
"AT AND EAST" GRAIN RECEIPTS BY TRANSFER ELEVATOR 1981-82 TO 1985-86
(TONNES)

ELEVATOR LOCATION	TYPE OF GRAIN RECEIPTS	1981-82	1982-83	1983-84	1984-85	1985-86	5 Year Average
LOWER ST. LAWRENCE							
Port Cartier	"At and East"	-	-	-	-	-	-
	Total Receipts	4,631,338	4,519,752	3,549,656	3,367,602	2,527,445	3,719,159
	Share of "At and East" (%)	-	-	-	-	-	-
Quebec	"At and East"	5,784	-	2,753	38,004	124,094	34,127
	Total Receipts	5,099,364	5,085,053	4,196,234	3,455,255	2,695,936	4,106,368
	Share of "At and East" (%)	0.1	-	-	1.1	4.6	0.8
Sorel	"At and East"	-	-	-	-	19,160	3,832
	Total Receipts	1,115,269	949,428	1,341,259	137,768	606,872	830,119
	Share of "At and East" (%)	-	-	-	-	3.2	0.5
Trois Rivières	"At and East"	7,081	-	14,941	14,086	19,044	11,030
	Total Receipts	1,028,196	994,006	1,187,486	878,302	679,788	953,556
	Share of "At and East" (%)	0.7	-	1.3	1.6	2.8	1.2
Baie Comeau	"At and East"	57	-	-	-	-	11.4
	Total Receipts	3,302,686	3,625,396	3,568,705	2,752,789	2,752,702	3,200,456
	Share of "At and East" (%)	-	-	-	-	-	-
Montreal	"At and East"	-	-	3,068	16,714	72,898	18,536
	Total Receipts	3,475,139	3,584,273	3,606,889	2,950,340	2,412,356	3,205,799
	Share of "At and East" (%)	-	-	0.1	0.6	3.0	0.6

SOURCES: Canada Grains Council, Grain Movements Through the Transfer Elevators in Eastern Canada (Feb., 1984; April, 1985-1987); Canadian Transport Commission.

through programs such as the Canadian Wheat Board (CWB) Winter Rail Program or by truck. These elevators have not participated in the At and East program in a significant way.

Table 15 shows that between 1981-82 and 1984-85, Port Cartier and Sorel have not handled any At and East Grain and only marginal quantities were received at the other facilities. Port Cartier and Baie Comeau do not participate in the At and East program because they do not have rail service. Quebec, Montreal and Trois Rivieres were the most likely destination for At and East grain. Between 1981-82 and 1985-86, the proportion of At and East grain to total receipts at Quebec, Montreal and Trois Rivieres averaged 0.8 percent, 0.6 percent and 1.2 percent respectively. In earlier years the trend was almost identical (see Appendix).

Atlantic Elevators

As indicated earlier, the Atlantic transfer elevators owe much of their importance to the fact that they are ice-free during the winter months. Hence, they facilitate the export of grain when some eastern ports are inaccessible. The elevator at Saint John is normally operational in the months of December to March. It is not equipped to receive grain by vessel. Halifax received about one-third of its grain by water. The remaining two-thirds is received by rail during the winter months. Almost all the grain receipts at Saint John are exported whereas Halifax normally retains a sizeable portion for domestic use. Both elevators rely heavily on Bay ports for their grain traffic.

Like the Bay port transfer elevators, the Atlantic transfer elevators rely almost exclusively on the "At and East" subsidy program for their grain traffic. The Saint John elevator owes its existence to subsidized grain receipts. Table 16 shows Saint John's share of At and East grain as a percentage of total receipts averaged almost 100 percent during the period 1981-82 to 1985-86. Data for an earlier period (see Appendix) indicate that this is a continuing trend. At Halifax, subsidized grain

TABLE 16
"AT AND EAST" GRAIN RECEIPTS BY TRANSFER ELEVATOR 1981-82 TO 1985-86
(TONNES)

ELEVATOR LOCATION	TYPE OF GRAIN RECEIPTS	1981-82	1982-83	1983-84	1984-85	1985-86	5 Year Average
ATLANTIC ELEVATORS							
Saint John	"At and East"	409,145	281,271	362,018*	173,269	251,978	295,536
	Total Receipts	411,372	284,235	340,143	209,362	316,085	312,239
	Share of "At and East" (%)	99.5	99.0	106.4	82.8	79.7	94.7
Halifax	"At and East"	401,233	258,991	322,721	138,415	136,558	251,584
	Total Receipts	523,434	423,598	471,563	293,336	372,218	416,830
	Share of "At and East" (%)	76.7	61.1	68.4	47.2	36.7	60.4

SOURCES: Canada Grains Council, Grain Movements Through the Transfer Elevators in Eastern Canada (Feb., 1984; April 1985-1987); Canadian Transport Commission.

* Discrepency apparently due to differences in recording payment and shipment years.

TABLE 17
14 YEAR AVERAGE "AT AND EAST" GRAIN SHIPMENTS BY
EASTERN TRANSFER ELEVATORS
(1972-73 to 1985-86)

TRANSFER ELEVATORS	AT AND EAST SHIPMENTS 14 YEAR AVERAGE	TOTAL SHIPMENTS 14 YEAR AVERAGE	SHARE OF AT AND EAST (%)
	--- TONNES ---		
GEORGIAN BAY GROUP			
Port McNicoll	238,069	262,777	90.6
Midland	240,650	487,795	49.3
Owen Sound	54,313	155,785	34.9
Collingwood	1,350	106,711	1.3
UPPER GREAT LAKES			
Windsor	-	188,772	-
Goderich	14,012	414,378	3.4
Sarnia	90,796	520,622	17.4
LOWER LAKES/UPPER ST. LAWRENCE			
Port Colbourne	1,579	207,722	0.7
Prescott	18,743	274,412	6.8
LOWER ST. LAWRENCE*			
Montreal	3,741	3,200,906	0.1
Sorel	1,825	1,138,078	0.2
Trois Rivières	2,579	1,016,454	0.3
Quebec	7,424	3,264,753	0.2
Port Cartier	-	3,895,620	-
Baie Comeau	-	3,055,801	-
ATLANTIC PORTS*			
Saint John	366,438	383,047	95.7
Halifax	300,740	447,186	67.3

*Volume data represent receipts rather than shipments.

SOURCES: Derived from Tables 12 to 16 and Appendix Table 1.

and flour shipments have averaged about 67 percent of the total since 1971. Heavy reliance on "At and East" traffic emanating from Bay port transfer elevators has had implications in terms of capacity utilization of Atlantic elevators. They are used to capacity only for a short period of time during each year and this imposes a financial burden on the operators. Of the two elevators, Halifax seems to be more important in terms of its impact on the local economy. The Halifax elevator serves the nearby Dover flour mill and the local feed grain industry. As well, it provides a greater number of jobs than the elevator at Saint John which is basically an export outfit.

In a general sense, the degree to which eastern transfer elevators rely on At and East grain traffic could be evaluated by using a somewhat arbitrary scale. The assumption could be made that the degree of elevator dependence could be measured by the proportion of subsidized grain handled. Given total shipments or receipts, elevators could be classified as very dependent, marginally dependent or not dependent on the At and East grain traffic when 30 percent or higher, 10 percent or higher, or less than 10 percent respectively of total shipments or receipts are accounted for by At and East statutory grain.

Table 17 identifies elevator dependence on At and East grain traffic over a fourteen year period. The most dependent elevators, according to this scale are Saint John, Port McNicoll, Halifax, two at Midland, and Owen Sound. Sarnia is marginally dependent on the program. All others are not dependent on the subsidy. Hence, of the twenty-four transfer facilities in Eastern Canada, the At and East subsidy program is critical to only six and these are located in Georgian Bay and the Atlantic ports.

3.3 COSTS OF POSITIONING EXPORT GRAIN AND FLOUR

Major Grain Flows

The positioning of export and domestic grains in eastern Canada involves a variety of transport modes and routes:

Prairie Grain

Domestic:

i) Rail and laker ex Thunder Bay to domestic markets in Eastern Canada.

ii) Rail direct from the Prairies to domestic marekts in Eastern Canada (includes producer cars and grain moved on account of shipper - referred to as Plan C in the C.W.B. Handling Agreement).

Export:

i) Rail and laker ex Thunder Bay to lower St. Lawrence River ports for subsequent export.

ii) Direct ocean vessel ex Thunder Bay.

iii) Laker ex Thunder Bay to Georgian Bay ports for subsequent rail movement to lower St. Lawrence and Maritime ports.

Ontario Grain

Domestic:

i) Rail or truck from country elevators to processors in Ontario and Quebec.

ii) Laker ex Ontario transfer elevators to domestic markets.

iii) Trucked from Ontario farms to domestic markets in Quebec.

Export:

i) Laker ex Ontario transfer elevators to lower St. Lawrence River ports for subsequent export.

ii) Ocean vessel direct from Ontario transfer elevators.

iii) Rail from Georgian Bay Ports to lower St. Lawrence River and Maritime Ports.

An outline of subsidy programs affecting the various modes/routes is presented below.

a) Saskatoon Primary Elevator| WGTA subsidized Rail Rate to Thunder Bay | Laker from Thunder Bay to Lower St. Lawrence Port.

b) Saskatoon Primary Elevator| WGTA subsidized Rail Rate to Thunder Bay | Laker from Thunder Bay to Bay Port elevator | subsidized "At and East" rail rate from Bay port to Maritime Port.

c) Direct rail at Commercial rate from Prairie elevator to Lower St. Lawrence.

d) Saskatoon Primary elevator | WGTA subsidized rate to Thunder Bay | CWB Winter Rail movement from Thunder Bay at negotiated rate to Lower St. Lawrence Port.

Ontario produced grain moving to the domestic and export market utilizes the route options outlined above. For the most part, Ontario production moves at negotiated rates and is accorded the At and East subsidy only when the grain is received ex-water at an Ontario transfer elevator. This implies that grain trucked or railed into a transfer elevator must be lifted and transported by laker into another transfer elevator to be eligible for the At and East subsidy.

The costs of positioning export grain and flour at Eastern Canadian ports are influenced by the statutory At and East rates and the competitive nature of the rail and water modes. Some studies[10] have demonstrated certain inefficiencies associated with the At and East program. The main argument against the program is that it tends to discourage the shipment of grain and flour through the most cost efficient route. As a result, it distorts resource allocation in the transportation and agricultural sectors in Eastern Canada. This section examines various transport routes and modes for the export of flour and grain through eastern ports so as to identify the most cost efficient alternative.

TABLE 18
POSITIONING COSTS/(TARIFFS) OF EXPORT GRAIN (WHEAT) FROM SASKATCHEWAN TO EASTERN CANADIAN PORTS, 1985

EXPORT ROUTE	SHIPPERS' RATES PORT OF EXPORT		COMPENSATORY RATES PORT OF EXPORT		
	Montreal	Saint John/Halifax	Montreal	Saint John	Halifax
1. Wheat, all rail		- $ PER TONNE -			
a) Wheat via rail from elevator (Saskatoon) to Thunder Bay	5.90	5.90	5.90	5.90	5.90
b) Thunder Bay fobbing to rail	5.79	5.79	5.79	5.79	5.79
c) Wheat via rail from Thunder Bay to Port of Export	30.62	44.18	30.62	44.18	44.18
d) Elevation to "in store" at Port of Export	3.37	3.38	3.37	3.38	3.38
Total Cost	45.68	59.25	45.68	59.25	59.25
2. Wheat, rail-water-rail					
a) Wheat via rail from elevator (Saskatoon) to Thunder Bay	5.90	5.90	5.90	5.90	5.90
b) Wheat via water from Thunder Bay to Lake Port (Midland)	19.04	19.04	19.04	19.04	19.04
c) Elevation at Lake Port to rail	.80	.80	.80	.80	.80
d) Wheat via rail from Lake Port to Port of Export*	5.11	5.57	26.77	32.49	39.93
e) Elevation to "in store" at Port of Export	3.37	3.38	3.37	3.38	3.38
Total Cost	34.22	34.69	55.88	61.61	69.05
3. Wheat, rail-water					
a) Wheat via rail from elevator (Saskatoon) to Thunder Bay	5.90	5.90	5.90	N/A	5.90
b) Wheat via water from Thunder Bay to Port of Export (Includes T.B. fobbing to water and elevation to "in store" at Port)	20.75	31.26+	20.75	N/A	31.26
Total Cost	26.65	37.16	26.65	N/A	37.16

*Shows the "frozen" portion of shippers rates.
+Applicable only to Halifax because no marine facility exists at Saint John.

SOURCES: Canadian Transport Commission (CTC), Canada Grains Council (CGC) and Atlantic Provinces Transportation Commission (APTC).

Prairie and Ontario produced grains moving for export through eastern ports could utilize any of a number of export routes. Assuming that grain originates from the prairies, it could move either by rail, or a combination of rail-water-rail or just rail-water. Of these options, the rail-water-rail route is the only one which would qualify for the At and East subsidy since it would normally involve the transshipment of grain from one of the eastern transfer elevators. Table 18 identifies the costs of using the above mentioned routes.

Shippers pay the full costs of positioning grain moving by rail from Thunder Bay to any of the export ports further east. In the case of the all rail movement from a prairie location, shippers pay less than the full costs of transportation to Thunder Bay because of the subsidy under the Western Grain Transportation Act (WGTA) on statutory grain. Table 18 shows that the shippers' rates and compensatory rates are identical for the all rail as well as the rail-water routes. The per tonne costs to shippers using the rail-water route are generally less than the costs involved in using either the all rail or rail-water-rail option. Table 18 shows that the subsidized rail-water-rail route, however, is the most expensive option in the absence of the subsidy for movements from Saskatoon, Saskatchewan to Montreal, Saint John and Halifax. For movements to Montreal from Saskatoon, the difference in per tonne costs in 1985 between the rail-water-rail and the rail-water route was $31.89 ($69.05-$37.16). To Saint John there was only a marginal difference. With the At and East subsidy, the rail-water-rail route, although less expensive to shippers relative to the all rail route, is still more costly than the rail-water alternative.

A cost comparison for transporting a tonne of flour as wheat from a selected number of origins to certain destinations has also been developed. The origins under consideration are Saskatoon, Saskatchewan; Midland, Ontario and Hanover, Ontario. The destinations are Montreal, Saint John and Halifax.

TABLE 19
POSITIONING COSTS/(TARIFFS) OF EXPORT FLOUR FROM SASKATCHEWAN TO EASTERN CANADIAN PORTS, 1985

EXPORT ROUTE	SHIPPERS' RATES PORT OF EXPORT		COMPENSATORY RATES PORT OF EXPORT		
	Montreal	Saint John/Halifax	Montreal	Saint John	Halifax
1. Flour, all rail, milled in Western Canada			- $ PER TONNE -		
a) Flour via rail from mill (Saskatoon) to Thunder Bay	5.90	5.90	5.90	5.90	5.90
b) Flour via rail from Thunder Bay to Port of Export*	11.52	11.74	47.92	64.06	76.94
c) Wharfage	.59	.67	.59	.67	.67
Total Cost	18.01	18.31	54.41	70.63	83.51
2. Flour, rail-water-rail, milled at Lake Port (Midland, Ont.)					
a) Wheat via rail from elevator (Saskatoon) to Thunder Bay	8.14	8.14	8.14	8.14	8.14
b) Wheat via water from Thunder Bay to Lake Port (Midland)	26.28	26.28	26.28	26.28	26.28
c) Outward elevation to flour mill	1.73	1.73	1.73	1.73	1.73
d) Flour via rail from Lake Port (Midland) to Port of Export*	8.54	8.76	31.33	50.57	71.76
e) Wharfage	.59	.67	.59	.67	.67
Total Cost	45.28	45.58	68.07	87.39	108.58
3. Flour, all rail, milled at Lake Port (Midland, Ont.)					
a) Wheat via rail from elevator (Saskatoon) to Thunder Bay	8.14	8.14	8.14	8.14	8.14
b) Thunder Bay fobbing to rail	7.99	7.99	7.99	7.99	7.99
c) Wheat/flour via rail from Thunder Bay to Port of Export*. (Milled in Transit at Midland...rate includes deliver to Wharf)	11.52	11.74	59.13	79.17	102.90
d) Stop-off charge	.66	.66	Incl.	Incl.	Incl.
e) Out of line haul charge	.66	.66	Incl.	Incl.	Incl.
f) Wharfage	.59	.67	.59	.67	.67
Total Cost	29.56	29.86	75.85	95.97	119.70

cont/...

The initial cost comparison involves the movement of flour via rail from Saskatoon to Montreal, Saint John and Halifax. Flour milled in Saskatoon could move to the three selected eastern export ports exclusively by rail or by the rail-water-rail mode. Alternatively it could move as grain from Saskatoon, milled-in-transit in Eastern Canada, then railed to export position. Table 19 shows the costs involved in each option.

In the all rail movement of flour from Saskatoon to an eastern port, the table shows that in 1985 the per tonne costs to shippers using the At and East route were $18.01 and $18.31 to Montreal and Halifax/Saint John respectively. Excluding the subsidy, the real costs to these destinations, i.e. Montreal, Saint John and Halifax were $54.41/tonne, $70.63/tonne and $83.51/tonne respectively.

When flour moves as wheat via rail from Saskatoon to Thunder Bay, milled-in-transit after being moved as grain to a Bay port elevator by laker and then transported by rail to export position, the costs are much higher than the all rail option (Table 18). In 1985, the per tonne costs to shippers who used this option were $45.28 and $45.58 to Montreal and Saint John/Halifax respectively. In the absence of the subsidy, the per tonne costs to shippers would have been $68.07, $87.39 and $108.58 to Montreal, Saint John and Halifax respectively.

Instead of being transported by laker from Thunder Bay to Midland for eventual processing, Prairie grain moving as export flour could be transported exclusively by rail despite being milled in transit. By using only the rail mode, shippers pay relatively less to move their commodity than would otherwise be the case if they use the rail-water-rail option. Discounting the subsidy, the all rail option for milling-in-transit is more costly than the rail-water-rail alternative. Table 19 shows the costs associated with this option in 1985. Per tonne costs to shippers using only the rail mode were $29.56 and $29.86 to position flour at Montreal and Saint John/Halifax respectively. Excluding the subsidy, the costs per tonne to shippers should have been $75.85, $95.97, and $119.70 to position floor at Montreal, Saint John and Halifax respectively.

TABLE 19 (cont')
POSITIONING COSTS/(TARIFFS) OF EXPORT FLOUR FROM SASKATCHEWAN TO EASTERN CANADIAN PORTS, 1985

EXPORT ROUTE	SHIPPERS' RATES PORT OF EXPORT		COMPENSATORY RATES PORT OF EXPORT		
	Montreal	Halifax/Saint John	Montreal	Saint John	Halifax
4. Flour, rail-water-rail, milled Inland (Hanover, Ont.)		- $ PER TONNE -			
a) Wheat via rail from elevator (Saskatoon to Thunder Bay	8.14	8.14	8.14	8.14	8.14
b) Wheat via water from Thunder Bay to Lake Port	26.28	26.28	26.28	26.28	26.28
c) Wheat/flour via rail from Lake Port to Port of Export*	8.54	8.76	46.52	60.30	69.51
d) Stop-off charge	Incl.	Incl.	Incl.	Incl.	Incl.
e) Out of line haul charge	1.27	1.27	Incl.	Incl.	Incl.
f) Wharfage	.59	.67	.59	.67	.67
Total Cost	44.82	45.12	81.53	95.39	104.60
5. Flour, all rail, milled Inland (Hanover, Ont.)					
a) Wheat via rail from elevator (Saskatoon) to Thunder Bay	8.14	8.14	8.14	8.14	8.14
b) Thunder Bay fobbing to rail	7.99	7.99	7.99	7.99	7.99
c) Wheat/flour via rail from Thunder Bay to Port of Export*. (Milled in transit at Hanover...rate includes delivery to wharf)	11.52	11.74	59.13	70.37	91.47
d) Stop-off charge	.66	.66	Incl.	Incl.	Incl.
e) Out-of line haul charge	1.27	1.27	Incl.	Incl.	Incl.
f) Wharfage	.59	.67	.59	.67	.67
Total Cost	30.17	30.47	75.85	87.17	108.27

cont/...

The main reason for the difference in costs to shippers between the rail-water-rail route and the all rail route is because grain is treated as flour from the point of origin to destination and the all rail route is subsidized under regulation. In other words, a through rate[11] applies to the all rail movement. Under through rate regulations, flour millers can purchase wheat for which the maximum freight rate payable on movements to the mill is the same that applies to flour from the mill to port. In the all rail example, the per tonne costs to shippers, under the At and East program, in 1985, for the movement of wheat/flour from Thunder Bay to either Montreal or Saint John/Halifax were only $11.52 and $11.74 respectively compared to per tonne costs of $26.28 to move wheat via water from Thunder Bay to Midland, a much shorter destination.

Most flour milling activity takes place at inland locations. The costs of positioning export flour from these inland milling facilities can also be used in comparing route costs. Hanover, Ontario provides a good example of an inland flour milling location. To be milled into flour, the grain can be transported from Western Canada, say Saskatoon, then milled and forwarded to an export position. Transportation from origin to destination could be either the rail-water-rail or all rail route.

First, consider the rail-water-rail route. Table 19 illustrates this example. Wheat is railed from an elevator in Saskatoon to Thunder Bay at the WGTA statutory rate. It is then unloaded on to a laker which takes it to Owen Sound, Ontario, from where it goes to Hanover to be milled into flour and then moved for export by rail to either Montreal, Halifax or Saint John. This grain incurs a stop-off charge and an out-of-line haul charge because it is milled-in-transit into export flour and the milling facility is off a main line. In 1985, the per tonne costs to shippers under the At and East program were $44.82 and $45.12 for movements to Montreal and Saint John/Halifax respectively. In the absence of the subsidy, shippers would have incurred per tonne costs of $81.53, $95.39 and $104.60 for movements to Montreal, Saint John and Halifax respectively.

TABLE 19 (cont')
POSITIONING COSTS/(TARIFFS) OF EXPORT FLOUR FROM SASKATCHEWAN TO EASTERN CANADIAN PORTS, 1985

EXPORT ROUTE	SHIPPERS' RATES PORT OF EXPORT		COMPENSATORY RATES PORT OF EXPORT		
	Montreal	Saint John/Halifax	Montreal	Saint John	Halifax
6. Flour, all rail, milled at Port of Export		- $ PER TONNE -			
a) Wheat via rail from elevator (Saskatoon) to Thunder Bay	8.14	8.14	8.14	N/A	8.14
b) Thunder Bay fobbing to rail	7.99	7.99	7.99	N/A	7.99
c) Wheat/flour via rail from Thunder Bay to Port of Export*. (Milled in transit at Port of Export. rate incl. delivery to Wharf	11.52	11.74	40.45	N/A	59.26
d) Stop-off charge	.66	.66	Incl.	N/A	Incl.
e) Elevation from rail car to mill	6.38	7.80	6.38	N/A	7.80
f) Wharfage	.59	.67	.59	N/A	.67
Total Cost	35.28	37.00	63.55	N/A	83.86
7. Flour, rail-water, milled at Port of Export					
a) Wheat via rail from elevator (Saskatoon)	8.14	8.14	8.14	N/A	8.14
b) Wheat via water from Thunder Bay to Port of Export	28.64	43.14+	28.64	N/A	43.14
c) Elevation to mill at Port of Export	3.17	3.15	3.17	N/A	3.15
d) Trucking to Wharf	4.00	6.00	4.00	N/A	6.00
e) Tailgating	1.95	N/A	1.95	N/A	N/A
f) Wharfage	.59	.67	.59	N/A	.67
Total Cost	46.49	61.10	46.49	N/A	61.10

*Shows the "Frozen" portion of Shippers' Rates.
+Applicable only to Halifax because no marine receiving facility exists at Saint John.

SOURCES: Canadian Transport Commission, Canada Grains Council and Atlantic Provinces Transportation Commission.

If the rail mode was the only means of transportation used in this movement the cost picture would have been different. Again, Table 19 illustrates the routine and costs involved. In this example, the through rate applies. Grain is treated as flour from origin to destination in the rate application. Because only the rail mode is utilized in this particular movement, the difference in costs to move grain to an export position is substantial. In 1985, the all rail route from Saskatoon to Montreal was $14.56 per tonne less ($44.82-30.17) than the cost of the rail-water-rail movement from the same origin and distination. For Halifax and Saint John, the difference was $14.65 per tonne. Even under compensatory freight rates, the all rail route is cheaper than the rail-water-rail route for movements to Montreal, Saint John and Halifax.

Another option available is to mill wheat into flour at the port of export. In terms of transportation, the choice of mode could be either all rail movement from origin to destination or the rail-water alternative. Grain can move from Western Canada and under the all rail option, milled at the port of export from where it is exported. Table 19 provides two examples of these movements and costs. When grain is milled into flour at the port of export, the all rail route is cheaper to shippers than the rail-water alternative. This occurs because shippers receive the At and East subsidy on all rail movements whereas in the rail-water case they have to pay the full costs of transporting the grain from Thunder Bay by vessel to export port. Table 19 shows that in 1985 shippers using the all rail route paid $11.21/tonne ($46.49-$35.28) and $24.10/tonne ($61.10-$37.00) less to position flour at Montreal and Halifax/Saint John respectively. However, there is a reversal in the cost comparisons when the At and East rate is discounted. In this instance, the rail-water option is the cheaper route. The differences in per tonne costs to Montreal and Halifax were $17.06 ($63.55-$46.49) and $22.76 ($83.86-$61.10) respectively. For all rail movement, the subsidy amounted to $28.27/tonne ($63.55-$35.28) to Montreal and $46.86/tonne ($83.86-$37.00) to Halifax. No data were available for Saint John.

TABLE 20
COMPARISON OF POSITIONING COSTS+ FOR WHEAT AND FLOUR BY EXPORT ROUTE, 1985

EXPORT ROUTE	TO MONTREAL			TO SAINT JOHN			TO HALIFAX		
	Ships' Rates (S)	Compen. Rates (C)	At & East Subsidy (C-S)	Ship's Rates (S)	Compen. Rates (C)	At & East Subsidy (C-S)	Ship's Rates (S)	Compen. Rates (C)	At & East Subsidy (C-S)
	- $ PER TONNE -								
1. Export flour									
a) Flour, all rail, milled in Western Canada	18.01	54.41	36.40	18.31	70.63	52.32	18.31	83.51	65.20
b) Flour, all rail, milled at Lake Port (Midland, Ont.)	29.56	75.85	46.29	29.86	95.97	66.11	29.86	119.70	89.84
c) Flour, all rail, milled inland, (Hanover, Ont.)	30.17	75.85	45.68	30.47	87.17	56.70	30.47	108.27	77.80
d) Flour, all rail, milled at Port of Export	35.28	63.55	28.27	N/A	N/A	N/A	37.00	83.86	46.86
e) Flour, rail-water-rail, milled inland (Hanover, Ont.)	44.82	81.53	36.71	45.12	95.39	50.27	45.12	104.60	59.48
f) Flour, rail-water-rail, milled at Lake Port (Midland)	45.28	68.07	22.79	45.58	87.39	41.81	45.58	108.58	63.00
g) Flour, rail-water, milled Port of Export	46.49	46.49	NIL	N/A	N/A	N/A	61.10	61.10	NIL
2. Export grain (wheat)									
a) Wheat, rail-water	26.65	26.65	NIL	N/A	N/A	N/A	37.16	37.16	NIL
b) Wheat, rail-water-rail	34.22	55.88	21.66	34.69	61.61	26.92	34.69	69.05	34.36
c) Wheat, all rail	45.68	45.68	NIL –	59.25	59.25	NIL	59.25	59.25	NIL

* TABLE derived from TABLES 18 and 19.
\+ Positioning costs difference for any single value is a reflection of the "frozen" rail freight rate for grain and flour export plus stop-off charges for flour.

Table 20 summarizes the data presented in Tables 18 and 19. In terms of export flour, it shows the increasing level of the subsidy for movements to Montreal, Saint John and Halifax where the subsidy is the highest. In 1985, the subsidy ranged from a low of $22.79 per tonne for movements by the rail-water-rail route for flour milled at Midland and then transshipped to Montreal, to a high of $89.84 per tonne for all rail movement of flour milled at Midland and railed to Halifax. Table 20 also shows that the least cost route for positioning export flour is the rail-water option with milling at the port of export. Because of the absence of marine receiving facilities at Saint John there are no cost data for the rail-water route. The data indicate that all rail movement of flour milled in Western Canada is the cheapest option for positioning flour at Saint John.

For export grain moving east of Thunder Bay, Table 20 shows that where the subsidy is applicable, i.e. the rail-water-rail route, its level increases progressively from Montreal to Halifax. However, the level of grain subsidization is much lower than that for flour. The least cost route for moving export grain east of Thunder Bay is the rail-water mode. In the case of Saint John the all rail option is the least costly. From general observation of Table 20 it is quite clear that for both export grain and flour moving east of Thunder Bay, the least costly option is the rail-water route and this would involve the milling of grain into flour at the port of export.

The rates/tariffs for positioning At and East grain and flour compare favourably with those of alternate routes. However, the true cost of the At and East program should reflect the cost of the subsidy which is ultimately borne by the Canadian taxpayer. The cost comparisons have shown that the At and East is the most expensive route when compared with other alternatives.

3.4 INEFFICIENCIES ASSOCIATED WITH "AT AND EAST" RATES

Apart from being the most costly transportation route for the positioning of prairie and Ontario export grain and flour at eastern ports, the At and East Subsidy program causes certain economic distortions by contributing to equipment, volume and system inefficiencies in railway operations. Some of the reasons for these anomalies are presented below.

a) Distortions Affecting the Use of Railway Equipment

Because of the limited supply of railway cars, grain shippers and the railways do not normally agree on the most efficient way in which these cars should be utilized. Historically, approximately 1,000 cars have been allocated for the transport of grain east from Thunder Bay and a further 600 to 700 cars have been earmarked to operate out of the Georgian Bay/Great Lakes area. However, these quantities are not guaranteed and have, in fact, been declining in recent years[12].

Over the years the situation has been made worse because the average distance of grain traffic has increased causing the average length of haul of grain to be twice as great as that for all other commodities. This has only served to increase the waiting time that shippers experience in acquiring empty cars.

Table 21 shows that car cycle times for the At and East route average about 17 days longer than the direct rail route (Manitoba to Montreal). The longer cycle times associated with the At and East route combined with the decreasing supply of cars and increasing traffic demands have all contributed to keen competition for the available cars. The railways do not receive full compensation on this traffic since it is carried at less than full compensatory rates. In order to achieve cost reduction on a per unit basis, they would prefer to

TABLE 21
1985 COSTS PER TONNE OF POSITIONING WHEAT AT
EASTERN PORTS USING ALTERNATE ROUTES

ROUTE	COST PER TONNE ($)	EXPORT POSITION	CYCLE TIME (Days)
1. Conventional Rail/Laker			
- Grain is moved by rail from Manitoba elevator to Thunder Bay under WGTA rates and is forwarded by lake carrier at commercial rates.	25.87	Montreal	15
2. Direct Rail Route			
- Grain is moved by rail under WGTA rates to Thunder Bay and commercial rates beyond Thunder Bay.	44.90	Montreal	8-10
3. Canadian Wheat Board Winter Rail Program			
- This is similar to the all rail route the only difference is that grain moves at negotiated rates beyond Thunder Bay.	47.15	Montreal	8-10
4. 'At and East' Route			
- Grain is railed to Thunder Bay under WGTA rates, forwarded by laker to a Georgian Bay port and then railed to eastern ports of export under the At and East rates.	33.44	Halifax	32
- The At and East subsidy per tonne	21.66		
- Total At & East Route	55.10		

SOURCES: Derived from Table 4.1.3 in Canadian Transport Commission study "An Examination of the Impact of the At and East Grain and Flour Subsidy Program, June, 1984, p. 65. Costs updated to reflect recent data.

Note: Costs Per Tonne adjusted to reflect grain movement from Manitoba instead of Saskatoon, Saskatchewan as shown in Table 19.

utilize their equipment on a year round basis[13]. However, due to the nature of the subsidy and its effect on traffic pattern, the railways are unable to enjoy the economies associated with efficient equipment utilization.

The use of a limited number boxcars to transport At and East grain has only served to exacerbate the resource allocation problem. Although covered hopper cars are being used in larger numbers than ever before, the efficiency gains from this improvement in carriage is small because most of the available hoppers are devoted to the transportation of other commodities, e.g. potash. Transfer elevator companies in Georgian Bay and Great Lakes prefer the use of hopper cars because of their greater per unit capacity, their more efficient loading and unloading characteristics and the fact that they are less susceptible to problems of leakage and contamination which are common problems with boxcars. Boxcars also have to be loaded and unloaded manually. Hence, the longer cycle times and less efficient cars used for At and East grain leads to higher railway costs and greater levels of subsidizaton.

b) Volume Inefficiences

At and East grain traffic also tends to lead to certain inefficiencies. For instance, grain shipments originating from the Southwestern Ontario/Georgian Bay area are a fragmented movement because several transfer elevators with limited storage capacity are involved. As a result, the traffic pattern is sporadic and it is characterized by relatively small volumes moving from individual points in an unco-ordinated manner[14]. Good examples of this pattern are illustrated by origin points such as Owen Sound, Goderich and Collingwood which have very little outbound rail traffic.

On the other hand, the railways have been able to use solid trains out of Thunder Bay destined primarily for Lower St. Lawrence ports, e.g. Quebec, under negotiated rates with the Canadian Wheat Board. The railways are more interested in this movement because the service is generally faster and more efficient[15]. However, in recent years this arrangement has been sporadic at best.

At and East grain traffic from the Georgian Bay area is, for the most part, irregular. The exact timing of shipments out of this area is unpredictable due to the mismatching of schedules. In order to maximize throughput, transfer elevators have to maintain a rapid turnover particularly in peak season while the railways are not always able to co-ordinate these shipments with other demands for their equipment.

The diverse location of Ontario transfer elevators and the relatively low volumes of traffic complicate the distribution, allocation and collection of cars[16]. All At and East traffic is carried to destination by either the CNR or CPR. However, much of the traffic originates on lines which require switching or interline transfers, a complication which requires the carrier at the origin to supply the empty cars to shippers.

c) System Inefficiencies

The At and East subsidy program causes inefficiences in the allocation, positioning, distribution, collection and handling of railcars.

For example, Table 21 shows that, in terms of cycle times, the At and East route is more costly and inefficient. Cycle times from the Western Canada, i.e. Manitoba, to Maritime ports average approximately 32 days whereas a return trip by direct rail route from Thunder Bay to the Lower St. Lawrence ports is

approximately 10 days. The longer turnaround time prevents cars from becoming available in a minimum time period and prevents the railways from securing other potential traffic. The fact that the primary destination of the cars carrying At and East traffic is the Maritimes may also limit the backhaul possibilities from that region.

Demurrage charges are normally assessed by the railways when shippers fail to unload their grain on time. However, these charges are so low that they do not encourage expeditious unloading. As a result, railways generally fail in their attempt to realize the efficient turnaround of railcars.

The milling-in-transit process also has implications in terms of railway efficiency, as well as the scheduling, availability and allocation of railway equipment. This process tends to assist the speedy turnaround of railway cars in the sense that flour mills tend to coordinate the inward movement of grain and the outward movement of flour in an effective manner in order to claim their subsidy. This allows the railways to position railcars both for inbound and outbound movements in an effective manner.

Stop-off charges tend to distort resource allocation. The intent of these charges is to equalize the cost of milling flour across Canada. The At and East subsidy effectively puts all flour mills on the same footing in terms of exports in that they all face the same basic transportation costs. The freight rate paid by flour mills is not compensatory and, hence, it tends to distort the location and efficiency of many mills.

3.5 BENEFICIARIES OF THE AT AND EAST SUBSIDY

Notwithstanding the inefficiencies inherent in the At and East subsidy, there are benefits associated with the program. These benefits accrue primarily to the flour milling industry, eastern and western grain producers, the railways, and some eastern transfer elevators. A brief description of how the subsidy benefits these participants is presented below.

The milling industry benefits significantly from the subsidy program without which the export flour trade might become extinct. Between 1976 and 1985, the flour industry exported 406,308 tonnes, on average, annually under the program. Approximately 70 percent of the flour shipped for export was milled in Eastern Canada. In 1985, the industry received about $16 million in subsidy payments compared to about $9.7 million in 1976. However, despite the increase in subsidy payments, Canada's share of the world flour market has been declining steadily. From about 32 percent in 1960, Canada's share of the market now stands at roughly 9 percent. Much of the decrease in Canadian export flour trade can be attributed to the significant market share captured by the EEC. European Community members have been heavily subsidized under The Common Agricultural Policy and this financial assistance has enabled them to increase their share of the the world flour market from about 8 percent in 1970-71 to 58.9 percent in 1984-85[17].

Grain producers in Eastern and Western Canada benefit through freight cost savings on shipments made under the program and the realization of higher average returns by spreading out marketable quantities of grain throughout the year. This is particularly true of Ontario grain producers. The Ontario Wheat Producers Marketing Board (OWPMB) exports about 450,000 to 600,000 tonnes of grain, of which about 150,000 tonnes move under the At and East subsidy program. The existence of the Georgian Bay/Great Lakes transfer elevator facilities enable Ontario producers to store their crop and market it over an extended period of time, thereby yielding producers the best average return.

The OWPMB considers the Georgian Bay terminals as excellent, available and capable storage facilities for Ontario wheat[18]. The fact is there is not enough rail equipment nor Atlantic storage space to move Ontario wheat to export positions in direct shipments. Hence, the transfer elevator network provides a good storage alternative. Farm storage accounts for only about 1 to 2 percent of the Ontario crop on a long term basis and country elevator storage is only temporary since wheat normally has to be moved out to make room for other crops such as soybeans and corn.

The railways - CN and CP-receive the subsidy for the transportation of grain and flour at the frozen rate. They also gain from the handling of grain at railway owned and/or operated elevators in Georgian Bay and Saint John, N.B. In 1985, the railways received average subsidies of $23.04 per tonne for grain and $63.58 per tonne for flour (see Table 9).

As noted earlier, a number of old Ontario elevators and the elevators at Halifax and Saint John owe their existence to the At and East subsidy program. It is conceivable that Port McNicoll, Midland and Owen Sound would not exist as transfer facilities without the subsidy. The same is true of the Maritime elevators. Based on an average annual handle of 750,000 tonnes during the 1981-82/1985-86 period, the Bay port elevator companies are estimated to have received about $3 million in revenue in 1985 due to the subsidy. Bay port elevators provide Maritime elevators with most of their At and East grain traffic. This traffic accounts for 95 percent and 70 percent of total receipts at Saint John and Halifax respectively.

Those companies which own small, old bulkers and intermediate sized bulkers currently serving the short haul market, i.e. Thunder Bay to Georgian Bay and other Ontario ports, appear to benefit under the program as well. In the absence of the subsidy, it is likely that a portion, if not all, of the subsidized traffic would have been carried by intermediate or large sized bulkers. Considerable employment is also generated by the subsidy. The railways and transfer elevator companies

employ many people who perform grain handling and other functions. Undoubtedly, some of these people would be affected if the subsidy is repealed.

4.6 SOME ECONOMIC IMPLICATIONS OF USING THE LEAST COST ROUTE

As shown in section 3, strictly from an economic standpoint, there is a more cost efficient alternative associated with the positioning of grain and flour at eastern export position than the At and East route. The general expectation would be that in the absence of the subsidy and facing higher costs on the At and East route, shippers would adjust their routing of grain and flour shipments so as to minimize the increase in their transportation charges. According to Table 20, this would involve the movement of grain through the least cost rail-water route. In the case of flour, the routing could be rail-water as well. However, flour would be transported as grain by water to a Lower St. Lawrence port for milling and eventual export.

The feasibility of all flour and grain being shipped through the least cost route is questionable. There is no doubt that grain can and will move from Western Canada to Thunder Bay by rail. However, it is not clear that western and eastern produced grain can rely solely on the water mode as a feasible route to export position. Water transport is only available during the months the Seaway is open, namely from April through December. The Ontario Wheat Producers Marketing Board contends that all of Ontario and/or western grain for export cannot be shipped to St. Lawrence ports and all flour cannot be ground in Montreal.

Table 17 indicates that the Georgian Bay elevators of Port McNicoll, Midland and Owen Sound, the Upper Great Lakes elevator at Sarnia and the Atlantic port elevators at Halifax and Saint John would be seriously affected by the absence of At and East traffic. Without the At and East, it is conceivable that these elevators, perhaps with the exception of Sarnia, could not remain viable and would be obliged to close. This circumstance could have economic implications for eastern and western grain producers and other participants in the At and East subsidy program.

Between 1975-76 and 1985-86, eastern grain producers shipped an average of 154,415 tonnes of wheat through the Maritime ports of Halifax and Saint John for export (see Table 22). This represented about 20 percent of Ontario wheat production, but over 41 percent of total eastern Canadian grain exports. In the absence of the At and East subsidy this volume of grain would have to be moved through an alternative route.

In the event that the Georgian Bay elevators became non-operational, Ontario grain producers would lose a large part of their storage capacity. Up to one-third of Ontario wheat is stored in the Bay and Upper Lakes transfer elevators with Midland and Port McNicoll accounting for most of the storage. At least 20 percent of Ontario wheat production has been stored in these transfer elevators. This means that the Ontario wheat crop will have to compete more directly with other crops for elevator space and transportation facilities to move wheat out of Southern Ontario. Undoubtedly, this would accentuate storage and transportation problems in Ontario.

In order to position export grain, Ontario producers would have to move their commodity from Chatham or Sarnia to the Lower St. Lawrence. Under this option it would cost more than is normally the case under the At and East program. This means that receipts to Ontario wheat producers will be less by the higher cost of moving that portion of volume which formerly moved under the At and East. For example, in 1985, Ontario wheat producers paid about $35.00 per tonne to position grain at Lower St. Lawrence ports compared to about $17.00 per tonne via the At and East route. If all Ontario export grain were move to the Lower St. Lawrence in 1985, wheat producers would have received $3.60 per tonne less (.20 x $18.00). Combined with the lack of transportation facilities and inadequate storage capacity, this cost increase would have adversely affected the incomes of Ontario wheat farmers.

There is insufficient farm storage to accomodate the Ontario grain crop. The country elevator storage capacity is only short-term and wheat must move out soon after harvest to make room for succeeding crops, such

TABLE 22
WHEAT EXPORTS THROUGH THE MARITIME PORTS IN RELATION TO TOTAL WHEAT EXPORTS - CROP YEARS 1975/76 TO 1985/86
(TONNES)

CROP YEAR	WHEAT EXPORTS FROM MARITIME PORTS			TOTAL EASTERN CANADIAN WHEAT EXPORTS	TOTAL CANADIAN WHEAT EXPORTS	% EASTERN WHEAT EXPORTS FROM MARITIME PORTS
	ALL WHEAT	EASTERN WHEAT	WESTERN WHEAT			
1975-76	745,130	106,005	639,125	326,829	11,637,000	32.4
1976-77	674,457	64,796	609,661	336,035	12,711,000	19.3
1977-78	714,245	257,282	456,963	592,730	15,246,000	43.4
1978-79	506,580	104,398	402,182	109,624	12,302,000	95.2
1979-80	625,840	219,502	406,338	416,709	15,215,000	52.7
1980-81	526,000	292,023	233,977	346,379	15,567,000	84.3
1981-82	607,000	174,068	432,932	419,927	17,972,000	41.5
1982-83	559,588	60,328	499,260	106,848	20,840,803	56.5
1983-84	574,742	141,446	433,296	453,046	21,222,206	31.2
1984-85	450,343	80,466	369,877	455,508	16,912,177	17.7
1985-86	578,048	198,248	379,800	548,931	17,310,823	36.1
Average	596,543	154,415	442,128	373,870	16,085,092	41.3

SOURCE: Canadian Grain Commission, Canadian Grain Exports.

as soybeans and corn. Ontario farmers contend that there is no incentive to build on-farm storage facilities because of the cost-price squeeze. Currently there are about 200 licensed primary elevator units in Southwestern Ontario, most of which are located in the London-Windsor area. It is likely that, in the absence of the subsidy, the transfer facilities at Georgian Bay and the Upper and Lower Great Lakes would be maintained as storage houses for Ontario grain in the short term. However, it would be difficult for these elevators to survive, in the long run, on revenues from storage charges.

Western produced grain accounts for the bulk of shipments under the At and East program. In 1985-86, an unusually low volume year, western wheat exports through the Maritime ports accounted for over 65 percent of wheat shipments from those ports (Table 22). However, it accounted for only 2.2 percent of Canadian wheat exports and less than 3 percent of western grain exports. In the absence of the At and East program, these exports would have to find the next least cost mode of transport other than water transport since the majority of exports from the Atlantic ports occur when navigation on the Great Lakes is closed and because the transportation system is at full capacity during the navigation season. According to Table 21, the next least cost route would be direct rail movement from Western Canada during the winter months.

By using the direct rail route, western grain farmers who rail grain for export through St. Lawrence ports would incur an increase in costs. The cost of moving grain by rail from Thunder Bay to the Quebec transfer elevator was about $40.00 per tonne in 1985. To move grain f.o.b. Thunder Bay to Bay ports and then rail it to Maritime ports via At and East rates cost about $28.00 per tonne in 1985. Hence, moving western produced export wheat to Quebec during the winter months would have increased the cost to western farmers by $12.00 per tonne ($40.00-$28.00). Taking the portion of receipts that grain moving to the Maritimes represented, western grain farmers would have incurred additional costs of about 36 cents per tonne ($12.00 x 3 percent). Given the relatively small amount of western grain that is exported through the

TABLE 23
FLOUR EXPORTS FROM MARITIME PORTS
(TONNES)

YEAR	EXPORTS THROUGH MARITIME PORTS	TOTAL CANADIAN FLOUR EXPORTS	PERCENT EXPORTED THROUGH MARITIME PORTS
1976	309,809	506,000	61.2
1977	374,779	544,000	68.9
1978	359,441	579,000	62.1
1979	400,278	498,000	80.4
1980	345,148	700,000	49.3
1981	283,180	791,000	35.8
1982	261,676	570,000	45.9
1983	323,820	596,000	54.3
1984	233,347	595,000	9.2
1985	232,103	590,000	39.3
Average	312,358	597,000	52.3

SOURCE: Canadian Transport Commission.

TABLE 24
SHIPMENTS OF FLOUR MOVING UNDER AT AND EAST RAIL RATES,
BY ORIGIN, MILLING POINT AND PORT OF EXPORT,
1975/76 TO 1985/86 (TONNES)

Year	Origin	Milling Point	Montreal	Quebec	Halifax	St. John	Total
1975/76	Thunder Bay	Western Canada	9,885.1		83,232.6	45,564.8	138,682.5
	Thunder Bay	Montreal			25,597.3	25,274.4	50,871.7
	Thunder Bay	Inland Points			7,033.2	3,527.4	10,560.6
	Bay Ports	At Port	1,263.5		33,645.7	22,883.2	57,792.4
	Bay Ports	Inland Points	2,431.8		16,524.3	21,559.6	40,515.7
	Total		13,580.4		166,033.1	118,809.4	298,422.9
1976/77	Thunder Bay	Western Canada	68,229.6	45.6	129,236.9	52,879.7	250,391.8
	Thunder Bay	Montreal			29,274.7	3,660.1	32,934.8
	Thunder Bay	Inland Points			20,042.6	3,607.1	23,649.7
	Bay Ports	At Port	9,136.8	319.4	18,664.8	6,922.3	35,043.3
	Bay Ports	Inland Points	25,643.3		28,319.7	17,201.1	71,164.1
		Total	103,009.7	365.0	225,538.7	84,270.3	413,183.7
1977/78	Thunder Bay	Western Canada	21,388.4		101,928.7	52,863.8	176,180.9
	Thunder Bay	Montreal			22,890.2	10,384.6	33,274.8
	Thunder Bay	Inland Points	12,251.4		64,901.0	30,662.6	107,815.0
	Bay Ports	At Port	4,273.6	109.1	13,877.5	12,051.3	30,311.5
	Bay Ports	Inland Points	8,527.2		38,431.2	26,788.0	73,746.4
	Total		46,440.6	109.1	242,028..6	132,750.3	421,328.6

.../cont

TABLE 24 (cont')

SHIPMENTS OF FLOUR MOVING UNDER AT AND EAST RAIL RATES,
BY ORIGIN, MILLING POINT AND PORT OF EXPORT,
1975/76 TO 1985/86 (TONNES)

Year	Origin	Milling Point	Montreal	Quebec	Halifax	St. John	Total
1978/79	Thunder Bay	Western Canada	22,114.9	59.3	74,343.6	88,450.1	184,967.9
	Thunder Bay	Inland Points	56,460.8		88,363.0	47,707.0	192,530.8
	Bay Ports	At Port	6,268.9		7,467.8	8,468.8	22,205.5
	Bay Ports	Inland Points	6,530.0		24,663.4	19,976.9	51,170.3
	Total		91,374.6	59.3	194,837.8	164,602.8	450,874.5
1979/80	Thunder Bay	Western Canada	17,452.5	26.4	90,696.3	83,867.5	192,042.7
	Thunder Bay	Inland Points	54,518.4		88,499.5	67,080.0	210,097.9
	Bay Ports	At Port	3,437.1		14,478.8	8,246.8	26,162.7
	Bay Ports	Inland Points	4,268.3		28,591.6	18,818.0	51,677.9
	Total		79,676.3	26.4	222,266.2	178,012.3	479,981.2
1980/81	Thunder Bay	Western Canada	4,618.7		43,527.8	58,470.8	106,617.3
	Thunder Bay	Inland Points	47,767.3		96,453.1	62,049.4	206,269.8
	Bay Ports	At Port	1,572.7		22,493.7	9,050.1	33,116.5
	Bay Ports	Inland Points	4,347.9		30,803.4	22,299.2	57,450.5
	Total		58,306.6		193,278.0	151,869.5	403,454.1
1981/82	Thunder Bay	Western Canada	4,691.6		80,588.1	30,663.4	115,943.1
	Thunder Bay	Inland Points	57,845.7		96,572.7	47,523.5	201,941.9
	Bay Ports	At Port	478.7		9,556.1	1,833.9	11,868.7
	Bay Ports	Inland Points	1,149.0		9,289.0	7,153.2	17,591.2
	Total		64,165.0		196,005.9	87,174.0	347,344.9

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TABLE 24 (cont')
SHIPMENTS OF FLOUR MOVING UNDER AT AND EAST RAIL RATES,
BY ORIGIN, MILLING POINT AND PORT OF EXPORT,
1975/76 TO 1985/86 (TONNES)

Year	Origin	Milling Point	Montreal	Quebec	Halifax	St. John	Total
1982/83	Thunder Bay	Western Canada	613.3		64,276.0	23,957.2	88,846.5
	Thunder Bay	Inland Points	18,484.6		119,659.9	41,635.9	179,780.4
	Bay Ports	At Port			3,773.5	261.5	4,035.0
	Bay Ports	Inland Points	450.6		5,210.1	2,902.2	8,562.9
	Total		19,548.5		192,919.5	68,756.8	281,224.8
1983/84	Thunder Bay	Western Canada	1,929.0		100,515.0	33,376.7	135,820.7
	Thunder Bay	Inland Points	22,932.0		142,338.6	39,509.9	206,465.5
	Bay Ports	At Port	0.0		2,452.4	42.2	2,494.6
	Bay Ports	Inland Points	2,768.9		4,218.3	1,367.6	8,354.8
	Total		27,629.9		249,524.3	74,296.4	353,135.6
1984/85	Thunder Bay	Western Canada	4,281.8	0.0	83,770.6	12,330.0	100,382.4
	Thunder Bay	Inland Points	19,498.3	1,616.1	112,674.0	20,508.1	154,296.5
	Bay Ports	At Port	0.0	0.0	0.0	0.0	0.0
	Bay Ports	Inland Points	559.0	38.8	3,540.3	524.8	4,662.9
	Total		24,339.1	1,654.9	199,984.9	33,362.9	259,341.8
1985/86	Thunder Bay	Western Canada	5,691	-	50,450	9,512	65,653
	Thunder Bay	Inland Points	20,789	-	106,641	13,554	140,984
	Bay Ports	At Port	-	-	-	-	-
	Bay Ports	Inland Points	783	38.8	2,240	984	4,007
	Total						210,643

Sources: Canadian Transport Commission (CTC); Canada Grains Council.

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Maritime ports, the impact on western producers of using the least cost route would have been negligible.

The impact of the At and East program on flour exports is significant. Canadian flour markets have been declining due largely to the growing dominance of the EEC in world flour markets. The At and East program has encouraged the inefficient location of flour production which raised transportation costs by more than the amount of the subsidy. The subsidy program and related stop-off charges for grain milled in transit has also served to equalize transportation costs for millers across the country.

Without the subsidy program, the natural economies of transporting and producing flour for export would favour the transportation of grain by water to a Lower St. Lawrence port for milling and eventual export. Such a change in transportation pattern and milling activity would involve massive dislocation of Canadian flour milling operations. The majority of flour mills are located in Eastern Canada, with those located in Ontario and Quebec accounting for over 65 percent of the milling capacity in Canada. The mills in the Prairie provinces account for approximately 30 percent and those in British Columbia and Nova Scotia account for the balance[19]. Of the mills in Eastern Canada, most are located at or in the vicinity of ports such as Montreal, Toronto, Port Colbourne and Midland. However, most of the flour milling activity occurs at inland locations, e.g. Hanover. For example, in 1985-86, of the 210,643 tonnes of At and East flour milled in Canada 65,653 tonnes or 31.2 percent was milled in Western Canada and 140,984 tonnes or 66.9 percent was milled at inland locations (see Table 24). In the absence of the subsidy almost all this activity would be concentrated in Quebec, and there would be additional costs for transporting the by-products of milled wheat, ag. bran and shorts, to the domestic market in Ontario.

The absence of the subsidy would also mean that there would be a significant shift in the export position of Canadian flour. Table 23 shows that in the ten year period 1976 to 1985, an average of over 52

percent of Canadian flour exports exited the country from the Maritime ports of Halifax and Saint John. It is likely that those export volumes would leave the country through Lower St. Lawrence ports and much of the income and employment generated by the Dover flour mill in Halifax and the elevators at Halifax and Saint John would disappear.

Closure of the Maritimes transfer elevators may also affect the grain economy of that region. From the regional livestock feeder's point of view, the continued existence of the Halifax elevator is critical from a transportation pricing perspective. Its importance stems from the competitive impact that the existence of water competitive rates are able to have on rail transportation rates for feed grains moving into the region. Without this influence, livestock feeders could expect to pay even more for their current feed requirements unless compensation through Feed Freight Assistance increases. On the other hand, higher grain prices should act as an incentive to increase Maritime self-sufficiency in feedgrains. However, higher grain prices in the Maritimes might not increase self-sufficiency if higher prices make grain products uncompetitive with products produced outside the region.

It is expected that there would also be some impact on the revenues of companies which own small lakers serving the Lake Ports. The greatest proportion of bulker capacity was built during the decade immediately following the opening of the St. Lawrence Seaway in 1959. As a result, many of these vessels would probably become useless in the absence of At and East grain traffic. Already several of these old carriers are being scrapped and not being replaced.

There is clear evidence that the At and East grain subsidy program has been, and still is, of significant importance to Ontario grain producers, Maritime and Bay port transfer elevators and their associated local economies, and the Canadian flour milling industry. Other sectors of economy do derive benefits from the program but it is doubtful that its elimination would seriously affect their viability. In the absence of the subsidy program, economic units that have considerable dependence

on the program would have to re-orient their activities or go out of business. In the case of the flour milling industry, it is likely that the size and scope of this sector would be greatly reduced and the export market might disappear, unless the government introduced some sort of assistance program. With regard to the transfer elevator network, it is doubtful that elimination of the subsidy would adversely affect the system. It may, however, lead to the rationalization of the system.

FOOTNOTES

1 Canada Grains Council, Eastern Grain Handling and Transportation Report, April, 1979, p. 10.

2 Ibid., p. 10.

3 Canadian Transport Commission, Report On The Evaluation Study Of the At and East Grain and Flour Subsidy Program, June, 1984, p. 7.

4 Ibid., p. 8.

5 Ibid., p. 9.

6 Canadian Transport Commission, An Examination Of The Impact of the 'At and East' Grain and Flour Subsidy Program, June, 1984, p. 7.

7 Ibid., p. 13.

8 Ibid., P. 38.

9 Ibid., p. 15

10 Both studies done by the CTC in June, 1984 pay considerable attention to the inefficiencies resulting from the At and East program.

11 In Western Canada the through rate is the rate from the primary elevator to Thunder Bay; whereas, in Eastern Canada it is from Thunder Bay to a St. Lawrence or Maritime port.

12 Canadian Transport Commission, An Examination of the Impact of the At and East Grain and Flour Subsidy Program, June, 1984, p. 31.

13 Ibid., p. 32.

14 Ibid., p. 34.

15 Ibid.

16 Ibid., p. 35.

17 See International Wheat Council, World Wheat Statistics.

18 Ontario Wheat Producers Marketing Board (OWPMB), Submission To The Minister of Transport on the At and East Grain and Flour Program, February 27, 1985.

19 Canadian Transport Commission, An Examination of the Impact of the At and East Grain and Flour Subsidy Program, June, 1984, p. 67.

CHAPTER 4

FUTURE VIABILITY OF THE TRANSFER ELEVATOR NETWORK

The preceeding chapters have highlighted the importance of the transfer elevator system in eastern grain handling and the effects of transportation freight rates/tariffs on the system. The function of the transfer network in facilitating domestic and international grain trade has been emphasized. It is obvious that the system is critical to Ontario's and, to a lesser extent, Western Canada's grain industry. While it appears true that government subsidization of freight rates through the At and East program has resulted in the continued existence of some of these elevators, the claim could be made that the future viability of the eastern transfer system is not entirely dependent on the At and East since this subsidy is considered critical to only the Georgian Bay and Atlantic Coast elevators; these elevators account for less than 10 percent of average total grain receipts. It would appear that the future viability and performance of the transfer network depends, to a greater degree, on Canada's ability to continue to use the Great Lakes/St. Lawrence Seaway system as a viable alternative to market its grain and grain products. This chapter discusses the future prospects of the eastern transfer elevator system in connection with some of the economic and other factors which have affected, and could probably affect, Seaway traffic and, ultimately, elevator performance in the future.

There are a number of factors which have affected Seaway traffic in the past. These include the world and domestic grain supply/demand conditions; the agricultural policies of major grain producers as well as traditional consumers; the Soviet Union - North American grain trade situation; the capacity of the grain transportation system in both Canada and the U.S; U.S. agricultural and foreign aid policy; and the comparative costs of transportation, both inland and by water. A brief discussion of some of these factors is presented below.

Grain, iron ore and coal are the major cargoes which have used, and still use, the Seaway system. However, grain is by far the greatest single most important bulk commodity in terms of volume. It accounts for about 45 percent of Seaway traffic while iron ore, coal, other bulk and general cargo account for 19 percent, 13 percent, 16 percent and 7 percent respectively.[1] The movement of grain down the Seaway provides a backhaul for the upbound movement of steadily decreasing volumes of iron ore. Reduction of iron ore volumes and, therefore, opportunities for backhaul cause Seaway grain transport costs to increase. Most of the grain moving through the Seaway system is destined for Europe, the U.S.S.R., North Africa/Middle East and Latin America.

In 1984, Canadian produced grain accounted for 67 percent of Seaway grain traffic while U.S. export shipments made up the rest. Wheat is the most important component of Canadian grain shipments. In 1984, it accounted for 82 percent, followed by barley 12 percent and corn 4 percent. In contrast, U.S. grain traffic represented 33 percent of total grain flow comprising of 40 percent wheat, 30 percent corn, 13 percent soybeans, 10 percent sunflower seeds and 7 percent barley.[2]

In recent years grain shipments on the Seaway have experienced wide fluctuations. In 1985, grain exports from North America fell dramatically in face of plentiful world supplies and extremely competitive market conditions. Total Canadian and U.S. grain shipments via the Seaway in that year dropped about 30 percent compared to 1984. The total of 16 million tonnes for 1985 represented a rather substantial decline from the 25 million tonne average experienced over the preceeding seven years.

At present, world grain markets show no indication of becoming less competitive and the decline of the U.S. dollar vis-a-vis other major currencies together with that government's export enhancement program could make some inroads into traditional Canadian markets in the future. This could have serious implications for Seaway traffic volume and elevator capacity utilization.

Recent data indicate that the share of Canadian grain export shipments through the Seaway is declining compared to the amounts moving to the west coast outlets at Vancouver and Prince Rupert. Traditionally, an average of well over 50 percent of Canadian exports have moved by rail to Thunder Bay and by water to transfer elevators on the Lower St. Lawrence. In 1985, however, the Seaway's share dropped to about 47 percent. Much of this decrease could be attributed to weak demand for Canadian and U.S. grain. At the same time, however, there are some indications that the traditional export policies of the Canadian Wheat Board (CWB) may be undergoing a fundamental change - one that would seem to favour grain movements to the west coast for export rather than east through Thunder Bay to the Lower St. Lawrence.

There has been a suggestion[3] that this change in port preference is primarily due to the fact that transportation costs, which are reflected both in the price to the customer and the return to the producer, are significantly lower via the Pacific route than via the Seaway. For example, in the past, there was a premium of between $5 and $6 per tonne in selling grain out of the St. Lawrence versus Vancouver. This premium covered the freight rate of moving grain from Thunder Bay to the Lower St. Lawrence. However, the premium has disappeared leaving the price of grain in the St. Lawrence identical to the price at Vancouver. Along with this circumstance, ocean freight rates have equalized and lake rates and fobbing costs at Thunder Bay have increased to the point that moving grain through the St. Lawrence costs the CWB $22.00 per tonne more than by taking possession of the grain at Vancouver.[4] This $22.00 per tonne is a direct cost to farmers who deliver because the cost comes out of their pool. In view of the transportation costs and the Board's desire to maximize producer returns, it is conceivable that attempts would be made to put as much tonnage as possible through the west coast.

There are other factors which have affected, and still have the potential to affect, Seaway grain traffic performance. Two of them are dealt with here. One is the reliability of the Seaway system as a dependable export route. This is an important consideration in view of

three major shutdown incidents due to labour disputes and infrastructure problems in the last two years. These circumstances have caused difficulties to those who use or provide Seaway services and call into question the long term competitiveness of the route. The drastic reduction in productivity which resulted from Seaway shutdowns only served to embolden some groups to ask for more Inland terminals in Western Canada to clean grain for eventual export via the direct rail route.

Another factor is Seaway tolls. When Canada and the U.S. agreed in the 1950's to jointly construct and operate a deep waterway between Montreal and Lake Ontario, it was understood that these costs would be paid for by tolls levied on those who benefited most directly, i.e. the users. Thus, since 1959 Seaway tolls and finances have been a continuing and highly controversial issue in the evolution of the transportation system. The St. Lawrence Seaway Authority is expected to implement a toll policy designed to ensure that its operation and maintenance costs would be met without the need for assistance from the public purse. This is a very difficult task in view of declining demand for Seaway services. Increasing the level of tolls may only serve to discourage the use of the waterway in the future, especially when U.S. routes are becoming more attractive.

The Seaway competes with the Mississippi River for grain and other traffic. Some studies[5] have found that it is cheaper to move Canadian grain via the Mississippi route rather than Thunder Bay. If the costs of shipping on the Seaway escalates it is likely that there would be pressures put on the CWB to consider the use of the Mississippi or other Canadian routes to the detriment of the Seaway and the transfer elevator system.

Notwithstanding the real and potential difficulties which have been identified, the St. Lawrence Seaway Authority has projected increasing volumes of grain traffic through both sections - the Welland Canal and Montreal/Lake Ontario - to the year 2000.[6] The Authority has concluded

that grain traffic through the waterway would fluctuate between a minimum of 23 million tonnes and a maximum of 42 million tonnes in the year 2000, the exact level depending on the production levels of Eastern Block counties, especially the Soviet Union, and the political environment resulting from the relationship between the U.S.S.R. and the U.S. This forecast would seem to be unrealistic in view of recent volume trends.

Other forecasts of grain traffic through the Seaway are less optimistic. For example, Carter[7] states that the Authority figures are too high for a number of reasons. A few are mentioned here. First, U.S. grain shipments through the Seaway are falling. Second, U.S. Gulf port shipments have gained relative to Seaway shipments. This is partly due to the changing freight rate relationships in the U.S. Third, the CWB has recognized the cost advantage of expanding exports through the Pacific ports rather the Seaway system. Carter insists that if these economic conditions prevail, Canadian grain exports through the Seaway system may begin to decline as they have in the U.S.

The difficulties in arriving at an acceptable forecast are well understood. In the long run, however, if grain exports through the Seaway achieve a level of sustained growth, then it is quite likely that some eastern transfer elevators would continue to be utilized to capacity, especially those located in the Lower St. Lawrence. It is doubtful whether increasing volumes of grain moving east would have any significant impact on the productivity of transfer facilities with inherent volume constraints. If shipments through Thunder Bay decline in the long run, the consequences could be severe for the high throughout facilities on the Lower St. Lawrence.

In the short run, Great Lakes and Bay port elevators will continue to be used as storage houses. However, if the government were to eliminate the At and East subsidy, it is likely that Bay port and Atlantic coast elevators would face serious difficulties and most of them might go out of business in the long term.

In the event that Bay Port and Atlantic transfer elevators go out of business, there would be a rationalization and restructuring of the transfer network. It is likely that increasing volumes of grain would be moved to Lower St. Lawrence ports for export since Upper and Lower Great Lakes facilities are essentially storage oriented. Higher levels of throughput at Lower St. Lawrence elevators would serve to improve their turnover ratios and enhance their revenues. Closure of At and East dependent elevators would also result in a more orderly movement of grain. Instead of the "backward movement" of Prairie and Ontario grain through Bay Port facilities, grain would move from Thunder Bay by laker/train to St. Lawrence ports thereby cutting down on cycle times and improving the efficiency of the eastern grain handling system.

Some form of government assistance would be necessary to cushion the full effects of such a transition. In Ontario, it may be necessary for the government to assist with an on-farm storage program or some other type of program which would help ensure adequate storage space for Ontario grain and cash crops. In Atlantic Canada, government assistance could be provided through increased levels of Feed Freight Assistance payments or to projects designed to increase grain storage for processing and livestock use.

In the final analysis, the development of a more efficient eastern transfer elevator system cannot be achieved without significant modification to the existing routes and modes of transportation. It is obvious that there would be gainers and losers in effecting change but the obstacles to change are not insurmountable.

FOOTNOTES

1. See H. Ghonima, "The Future of the Seaway Traffic". Feb., 1986. Paper presented at the University of Manitoba Transport Institute Conference on The Future of the Great Lakes - St. Lawrence System, June 1986 p. 5.

2. Ibid, p. 6.

3. See D. Kraft's comments in University of Manitoba Transport Institute Conference Proceedings on The Future of the Great Lakes - St. Lawrence Seaway System p. 41.

4. Ibid.

5. See Gerry E. Fruin "The Mississippi River Alternative - Or is There an Alternative to the Mississippi River". Paper presented at University of Mabitoba Transport Institute Conference on the Future of the Great Lakes - St. Lawrence Seaway System, June '86.

6. See H. Ghonima, Op. cit p. 14.

7. See Colin A. Carter "Projecting Future Grain Flows" in University of Manitoba Transport Institute Conference Proceedings on the Future of the Great Lakes - St. Lawrence Seaway System, June, 1986, pp. 29-30.

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APPENDIX

"AT AND EAST" GRAIN SHIPMENTS BY
TRANSFER ELEVATOR 1971/72 TO 1980/81
(TONNES)

ELEVATOR LOCATION	TYPE OF GRAIN SHIPMENTS	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77
GEORGIAN BAY/UPPER LAKE PORTS							
Port McNicoll	"At and East"	249,624.6	278,887.5	130,165.5	200,829.3	298,794.7	238,697.2
	Total Shipments	252,211.3	291,632.2	192,594.7	224,973.4	329,404.9	287,711.9
	Share of "At and East" (%)	99.0	95.6	67.6	89.3	90.7	98.6
Midland	"At and East"	264,712.6	302,487.4	162,226.5	300,844.0	349,444.2	261,354.8
	Total Shipments	464,445.6	517,120.3	376,417.6	569,695.6	509,685.0	487,149.0
	Share of "At and East" (%)	57.0	58.5	43.1	52.8	68.6	53.6
Collingwood	"At and East"	-	8,406.0	-	-	228.9	-
	Total Shipments	67,979.6	93,487.5	110,143.1	99,585.9	105,768.0	93,350.7
	Share of "At and East" (%)	-	9.0	-	-	0.2	-
Owen Sound	"At and East"	84,320.5	93,796.6	38,303.1	39,015.5	113,450.6	65,015.1
	Total Shipments	174,912.9	191,796.1	174,560.4	140,637.5	206,633.9	172,770.4
	Share of "At and East" (%)	48.2	49.9	21.9	27.7	54.9	37.6
Goderich	"At and East"	63,800.7	83,815.2	14,754.4	-	26,912.7	3,018.6
	Total Shipments	307,228.4	348,212.7	380,111.2	344,465.9	292,165.7	399,485.9
	Share of "At and East" (%)	20.8	24.1	3.9	-	9.2	0.8
Sarnia	"At and East"	93,038.0	110,918.7	111,012.7	117,029.2	119,923.0	32,586.2
	Total Shipments	361,161.1	350,541.2	350,243.4	323,091.5	404,278.1	441,746.3
	Share of "At and East" (%)	25.8	31.6	31.7	31.4	29.7	18.7
Windsor	"At and East"	-	-	-	-	-	-
	Total Shipments	-	-	-	-	-	-
	Share of "At and East" (%)	-	-	-	-	-	-
LOWER LAKE/UPPER ST. LAWRENCE PORTS							
Port Colbourne	"At and East"	15,578.2	-	-	-	-	-
	Total Shipments	136,308.6	211,760.8	102,841.5	145,763.4	196,322.9	164,901.6
	Share of "At and East" (%)	11.6	-	-	-	-	-
Kingston	"At and East"	43,636.0	4,235.3	4,910.2	44,153.4	63,550.3	-
	Total Shipments	92,914.6	140,948.2	65,246.7	67,472.9	100,635.4	81,965.7
	Share of "At and East" (%)	47.0	3.0	7.5	65.4	63.1	-

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"AT AND EAST" GRAIN SHIPMENTS BY
TRANSFER ELEVATOR 1971/72 TO 1980/81
(TONNES)

ELEVATOR LOCATION	TYPE OF GRAIN SHIPMENTS	1977/78	1978/79	1979/80	1980/81	10 Yr. Average
GEORGIAN BAY/UPPER LAKE PORTS						
Port McNicoll	"At and East"	259,098.7	175,482.0	298,447.0	241,231.9	241,625.8
	Total Shipments	293,898.7	175,840.8	299,175.4	259,679.8	260,712.6
	Share of "At and East" (%)	88.2	99.8	99.8	92.9	92.6
Midland	"At and East"	252,850.0	204,801.5	275,298.7	243,924.8	261,794.5
	Total Shipments	486,646.1	410,146.2	510,360.2	436,109.3	476,777.3
	Share of "At and East" (%)	51.9	49.9	53.9	55.9	54.6
Collingwood	"At and East"	6,486.4	3,786.5	-	-	1,890.2
	Total Shipments	130,098.0	165,431.7	118,607.8	124,119.5	110,859.5
	Share of "At and East" (%)	5.0	2.3	-	-	1.2
Owen Sound	"At and East"	88,033.5	34,184.6	25,865.7	29,922.9	61,190.5
	Total Shipments	168,824.7	151,556.2	120,144.6	125,707.9	162,754.6
	Share of "At and East" (%)	52.1	22.5	21.5	23.8	37.6
Goderich	"At and East"	3,489.9	380.1	-	-	19,617.4
	Total Shipments	479,084.4	398,228.0	458,716.8	491,096.5	389,889.5
	Share of "At and East" (%)	0.7	0.1	-	-	5.4
Sarnia	"At and East"	40,110.3	84,147.0	128,769.5	78,870.1	96,640.3
	Total Shipments	499,634.2	364,568.2	575,599.5	781,960.1	450,282.3
	Share of "At and East" (%)	8.0	14.9	22.4	10.1	21.5
Windsor	"At and East"	-	-	-	-	-
	Total Shipments	-	-	55,467.6	421,488.0	47,695.1
	Share of "At and East" (%)	-	-	-	-	-
LOWER LAKE/UPPER ST. LAWRENCE PORTS						
Port Colbourne	"At and East"	-	-	-		1,575
	Total Shipments	347,327.5	102,593.9	238,261.8	325,969.7	197,205.7
	Share of "At and East" (%)	-	-	-	-	0.9
Kingston	"At and East"	-	-	-	-	16,048.1
	Total Shipments	58,000.3	11,043.1	174,999.3	76,400.6	86,962.5
	Share of "At and East" (%)					18.1

"AT AND EAST" GRAIN RECEIPTS OR SHIPMENTS BY
TRANSFER ELEVATOR 1971/72 TO 1980/81
(TONNES)

ELEVATOR LOCATION	TYPE OF GRAIN SHIPMENTS	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77
Toronto	"At and East"						
	Total Shipments						
	Share of "At and East" (%)						
Prescott	"At and East"	15,766.0	-	-	-	-	13,249.4
	Total Shipments	252,806.4	368,357.8	283,768.5	274,073.6	330,221.7	281,394.5
	Share of "At and East" (%)	6.2	-	-	-	-	4.7
LOWER ST. LAWRENCE PORTS							
Montreal	"At and East"	2,206.6	-	-	-	-	-
	Total Receipts	2,188,783.7	3,630,105.8	3,742,715.8	2,993,339.2	3,226,223.1	2,377,186.9
	Share of "At and East" (%)	0.1	-	-	-	-	-
Sorel	"At and East"	-	-	-	-	-	-
	Total Receipts	1,202,379.3	1,046,665.3	875,673.4	893,077.9	1,011,751.6	1,018,761.3
	Share of "At and East" (%)	-	-	-	-	-	-
Trois Riv.	"At and East"	-	-	-	-	-	-
	Total Receipts	809,895.3	1,274,918.6	1,035,039.1	723,117.7	880,032.2	857,359.1
	Share of "At and East" (%)	-	-	-	-	-	-
Quebec	"At and East"**	-	-	-	-	-	-
	Total Receipts	1,674,446.4	2,180,446.7	2,099,841.5	1,492,800.8	2,355,017.3	2,138,402.9
	Share of "At and East" (%)	-	-	-	1.0	0.6	-
Port Cartier	"At and East"	-	-	-	-	-	-
	Total Receipts	3,034,711.0	2,906,023.9	4,400,201.2	2,883,745.6	3,689,503.5	3,306,432.7
	Share of "At and East" (%)	-	-	-	-	-	-
Baie Comeau	"At and East"	-	-	-	-	-	-
	Total Receipts	3,076,004.6	3,082,744.1	2,206,385.5	1,818,701.3	3,063,986.1	2,872,099.1
	Share of "At and East" (%)	-	-	-	-	-	-

"AT AND EAST" GRAIN RECEIPTS OR SHIPMENTS BY
TRANSFER ELEVATOR 1971/72 TO 1980-81
(TONNES)

ELEVATOR LOCATION	TYPE OF GRAIN SHIPMENTS	1977/78	1978/79	1979/80	1980/81	10 Yrs. Average
Toronto	"At and East"	-	-	18,438.6	-	-
	Total Shipments	363,530.1	353,005.7	305,994.3	319,231.0	134,176.1
	Share of "At and East" (%)	-	-	6.0	-	0.6
Prescott	"At and East"	14,027.5	-	-	35,097.8	7,814.1
	Total Shipments	290,406.9	228,742.9	309,866.7	277,281.8	289,792.1
	Share of "At and East" (%)	4.8	-	-	12.6	1.8
LOWER ST. LAWRENCE PORTS						
Montreal	"At and East"	31,558.0**	1,363.3**	1,647.9**	49.9**	3,628.5
	Total Receipts	3,325,341.4	1,945,267.7	3,119,697.0	4,252,916.1	3,080,157.7
	Share of "At and East" (%)	0.9	0.1	0.1	0.001	0.1
Sorel	"At and East"	-	995.4**	24,554.9**	-	2,555.0
	Total Receipts	1,244,341.0	1,494,852.0	1,814,979.0	1,476,919.0	1,207,939.9
	Share of "At and East" (%)	-	0.1	1.3	-	0.1
Trois Riv.	"At and East"	-	-	-	-	-
	Total Receipts	1,053,355.0	1,352,586.0	1,472,572.0	870,072.3	1,032,894.7
	Share of "At and East" (%)	-	-	-	-	-
Quebec	"At and East"**	15,978.8	-	18,324.3	784.5	6,403.7
	Total Receipts	3,207,444.0	2,914,505.0	4,249,688.0	4,406,271.0	2,671,886.4
	Share of "At and East" (%)	0.5	-	0.4	0.02	0.3
Port Cartier	"At and East"	-	-	-	-	-
	Total Receipts	4,370,691.0	4,558,652.0	4,788,131.0	4,686,587.0	3,762,467.9
	Share of "At and East" (%)	-	-	-	-	-
Baie Comeau	"At and East"	-	-	-	-	-
	Total Receipts	2,907,265.0	3,552,757.0	2,598,711.0	3,682,192.0	2,886,084.6
	Share of "At and East" (%)	-	-	-	-	-

"AT AND EAST" GRAIN RECEIPTS BY
TRANSFER ELEVATOR 1971/72 TO 1980/81
(TONNES)

ELEVATOR LOCATION	TYPE OF GRAIN RECEIPTS	1971/72	1972/73	1973/74	1974/75	1975/76	1976/77
MARITIME PORTS							
Saint John****	"At and East"**	433,395.4	523,298.9	221,458.8	368,073.0	468,457.0***	451,922.7
	Total Receipts	463,146.6	524,748.6	243,646.2	466,942.4	439,938.4	469,547.3
	Share of "At and East" (%)	93.6	99.7	90.9	78.8	106.5	96.2
Halifax	"At and East"	399,463.8	349,196.1	233,343.4	310,897.8	466,314.2	279,875.9
	Total Receipts	589,389.4	525,743.7	441,792.0.	459,670.9	479,497.3	384,650.1
	Share of "At and East" (%)	67.8	66.4	52.8	67.6	93.1	72.8

"AT AND EAST" GRAIN RECEIPTS BY
TRANSFER ELEVATOR 1971/72 TO 1980/81
(TONNES)

ELEVATOR LOCATION	TYPE OF GRAIN RECEIPTS	1977/78	1978/79	1979/80	1980/81	10 Yrs. Average
MARITIME PORTS						
Saint John****	"At and East"**	377,827.2	283,964.1	409,565.7	366,452.1	390,441.5
	Total Receipts	416,649.9	276,829.1	438,538.1	376,040.9	411,602.8
	Share of "At and East" (%)	90.7	102.6	93.4	97.4	95.0
Halifax	"At and East"	240,577.8	216,458.9	316,765.7	288,426.4	310,132.0
	Total Receipts	477,827.8	388,290.8	430,468.7	408,899.0	458,623.0
	Share of "At and East" (%)	53.7	55.7	73.6	70.5	67.4

* Port Colborne Ports Canada only;
** Refers to receipts under "At and Receipts" rates, not shipments;
*** Discrepancy apparently due to differences in recording payment and shipments years
**** Combines data from Saint John and West Saint John;
***** Includes all F.F.A. and "At and East" grain shipped from Port Colborne for the years 1971/72 to 1976/77.

SOURCES: Canada Grains Council, Easterns Grain Handling and Transportation Report, Winnipeg; April 1979.
Canada Grains Council, Selected Statistics on Grain Movements Through the Transfer Elevators in Eastern Canada, 1977/78 to 1980/81, Winnipeg, September 1982.

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