

SOME IMPLICATIONS OF RAILWAY BRANCH LINE ABANDONMENT
FOR LOCATION AND CAPACITY OF COUNTRY ELEVATORS IN WESTERN CANADA

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The latter part of the 19th century and the early part of the 20th saw railway lines expand across the Canadian Western Prairies. With them came warehouses and elevators, erected to handle and store grain produced by the settlers. At that time, roads were poor or non-existent and railway companies enjoyed a monopoly in the hauling of grain and most other commodities. When highway transportation became feasible, however, the railways lost much of their traffic. Today, railway companies argue that they are operating at a loss on lines where grain has become the only commodity hauled. They argue (from an economic standpoint) that they should be allowed to abandon the lines which have become unprofitable.

Abandonment of lines would necessarily mean abandonment of grain handling facilities. The degree of loss depends on the facilities existing along the lines to be abandoned. That loss, in physical terms, is what this thesis aims at quantifying. This thesis further attempts to quantify the effects of various policies which could be decided upon by government and/or grain handling firms.

The two basic assumptions made in the thesis are 1) that farmers decide on their delivery point on the basis of minimum distance

2) that the congestion that has prevailed in the country elevator system over the past five years (1956-61) will not subside in the future.

The area studied involves Western Canada. The lines studied as possible abandonments include 4482 miles and 519 elevator points. Adjacent points expected to be affected by this abandonment number 722.

The significant findings are as follows:

1) The abandonment of 4482 miles of railway line in Western Canada will mean the loss of 21.4% of all country elevators and 18.6% of all country elevator capacity. In absolute terms, this means that 1123 elevators of 5244 will be lost or 68.0 million bushels of capacity of a total of 366.4 million bushels. 1241 of a total of 2052 elevator points (60.5%) in Western Canada will be affected by abandonment or by increased handling due to abandonment.

2) If no reconstruction is done after abandonment, 53.3 million bushels of grain that had been held on track would now have to be held on farms.

3) Rebuilding to the point of not allowing the handling to capacity ratios of elevators to exceed 4.0 would mean the replacement of 7.4 million bushels of capacity of a total of 68.0 million lost. Rebuilding to allow a maximum ratio of 3.0 would mean the replacement of 16.4 million bushels. Rebuilding to allow a maximum ratio of 2.0 would mean the replacement of 46.8 million bushels.

4) Policies of farm groups, elevator firms and various government agencies have a definite role to play in deciding the ratio levels at which elevators will operate.

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CHAPTER I

INTRODUCTION

I. THE HISTORICAL SETTING

No one doubts the important role played by the railway in the settlement of Western Canada. Before its appearance, population growth in the prairies was extremely slow. The first settlers had arrived on the banks of the Red River in 1812.¹ Their number, including metis, was only 2390 in 1831. In 1856, shortly before the purchase of the territory that is now Manitoba, Saskatchewan and Alberta, a census was taken and the three provinces had, in addition to Indians, only 6691 inhabitants of which probably 5000 were metis.

By Confederation, 2278 miles of "Intercolonial" railway had been built.² A painstaking effort by government to reach an agreement with the Grand Trunk on the extension of a rail line to the Pacific Coast had failed. In 1873, the government itself undertook to build the Pacific Project.³ However, lack of foreign capital left it in a very difficult position till negotiations opened with a group of private enterprisers from an American midwestern railway to have them

¹Mackintosh, W.A., Prairie Settlement (Toronto: The Macmillan Co. of Canada Ltd., at St. Martin's House, 1934) p. 1

²Easterbrook, W.T., and Aitken, Hugh G.J., Canadian Economic History (Toronto: The Macmillan Co. of Canada Ltd., 1958) p. 316

³Ibid., p. 417

take over the project.⁴ In late 1880, an agreement was reached on the amount of government aid to be forwarded to the new company called the Canadian Pacific Railway Company. The line to the Pacific Coast was completed in 1885.⁵

The period between 1885 and 1904 was one of normal development and coordination. Settlers swept across the prairies and often the railways failed to keep pace.⁶ Such settlements would never have been undertaken though, had the railways not been expected to follow. People settled where it was said a railway would be built, or often where it was already being built.

The next period has been called the period of Twin Transcontinental Fever and lasted till 1918.⁷ During this time, an average 1500 miles of rail were laid per year. Both the Canadian Northern Railway and the Grand Trunk were attempting to build a Transcontinental line. The improvement of world economic conditions, the increase in immigration to Canada, the rapid development of grain production in the West and the desire to weaken the monopoly position of the CPR were factors in-

⁴Ibid., p. 426

⁵Ibid., p. 432

⁶Mackintosh, op. cit., p. 53

⁷Thomson, L. R., The Canadian Railway Problem (Toronto: The Macmillan Co. of Canada Ltd., at St. Martin's House, 1938) p. 164.

fluencing the great amount of railway building.⁸ The mood of new confidence and strength in a young Canada had also spurred the Canadian government to great financial generosity in aiding these two projects.

The period which followed World War I was one of relatively moderate line construction though construction was still going on at the feverish level of 315 miles per year. The mileage increases were mainly the result of intense rivalry in the field of branch-line construction. Thomson, a railway consulting engineer, relates:

The reasons for these extremely large mileage increases were as stated to the Royal Commission,⁹ those of competitive fear. "If we don't build, our rival will", and the prospect of a rival getting into any territory which might be captured could not be entertained.¹⁰

Excessive building occurred here again with the financial encouragement of governments (mostly provincial).¹¹ On the other hand, settlement continued to flourish. The settler could be reasonably certain that branch lines would be constructed if his community could offer sufficient traffic.¹² At the same time, it seems it was economically feasible for the railways to bring all the productive areas in the Prairie Provinces within ten miles of their lines. Mackintosh states: "If plenty of grain

⁸Easterbrook, op. cit., p. 438

⁹The Royal (Duff) Commission was established in 1931 to investigate the whole transportation situation in Canada.

¹⁰Thomson, op. cit., p. 165

¹¹Mackintosh, W.A., Economic Problems of the Prairie Provinces (Toronto: The Macmillan Co. of Canada Ltd., at St. Martin's House, 1935) pp. 35 ff.

¹²Mackintosh, Prairie Settlement, p. 55

is available, railways are eager to build up to the ten-mile limit".¹³ This was in fact done across the whole of the Western Prairies,¹⁴ though in some instances, under the stress of competition, railways built more branch lines than were economically desirable. This is borne out in a statement by Mr. Thomson which reads: "The net result has been that, up to the present, the development of the territories served with this new mileage has not met the expectations of the railways."¹⁵

With the pressing of the railway lines westward, the first local auxiliary facility constructed was the railway siding and the loading platform. It was used by grain producers to load their grain into box cars. The Manitoba Grain Act of 1900 had required construction of loading platforms by the railroads on the basis of local petition.¹⁶ These were partly superceded by flat warehouses. Finally, grain elevators were constructed and these are still scattered in large numbers across the prairies today.¹⁷

What stimulated the great expansion of elevator facilities complementary to railway building is related by Fowke in these terms:

Flat warehouses and loading platforms were poor substitutes for standard elevators, but, paradoxically, the

¹³Ibid.

¹⁴Ibid., p. 54

¹⁵Thomson, op. cit., p. 165

¹⁶Fowke, Vernon C., The National Policy and the Wheat Economy (University of Toronto Press, Toronto, 1957) p. 125

¹⁷Ibid., pp 104 f.

rapid construction of elevators throughout the West immediately prior to the turn of the century was accompanied by an intensification of dissatisfaction with grain handling facilities and by an accumulation of distrust of their operators.¹⁸

Another factor in the expansion in elevator facilities is related by Mackintosh:

The maximum hauling distance within the twenty-mile belt, if stations and sidings are seven to ten miles apart, is twelve to fifteen miles, depending on the direction and location of the roads. Independent evidence suggests that it is not profitable for farmers to haul grain more than fifteen miles.¹⁹

In addition therefore to a certain dissatisfaction with the treatment given them by private elevator companies, farmers in many regions had to haul prohibitive distances to the nearest elevator. To remedy the situation, farmers in a number of areas raised sufficient capital for the construction and operation of individual, local, farmer-owned elevators.²⁰

In the late 1920's and the early 1930's, the general conclusion reached in studies made by the Canadian National Railways²¹ in projecting branch lines was "That while, in exceptional circumstances, grain may be hauled distances up to fifty miles, the practical

¹⁸ Ibid., p. 115

¹⁹ Mackintosh, Prairie Settlement, p.55

²⁰ Fowke, op. cit., p. 127

²¹ A company formed in 1920 by the purchase of The Grand Trunk and the Canadian Northern by the Canadian government.

limit is in the vicinity of ten miles."²² This general feeling among farmers, elevator operators, and railwaymen is probably the main factor that brought various branch lines so close together in the country and induced the construction of so many elevators at so many points. For the farmers, obviously, a railway close at hand with elevators spread along its length was most desirable. For those who lived a prohibitive distance, e.g., fifty miles, specialized wheat growing areas did not develop.²³

The feverish movement of the settlers westward, the building of the first transcontinental railway line and its profitable operation, the air of optimism and youthful vigor of a productively expanding new world, all this gave the population as a whole - the settler, the businessman, the enterpriser, the government - an overwhelming confidence in the Western Prairies. Everyone saw in the greater expansion of railways the means of maximizing the West's output. Spurred by over-optimism and aid from government, the investment by business was too great and went too far. Thomson states:

The net result has been that, up to the present, the development of the territories served with this new mileage has not met the expectations of the railways, and this in turn leaves each of the companies, and indirectly the country, with an increased permanent burden of interest charges on the capital expended.²⁴

²²Mackintosh, loc. cit.

²³Ibid., p. 56

²⁴Thomson, op. cit., p. 165

Similar observations were also made in the Duff Report:

There is no doubt as to the disastrous effects of this competition, and it is imperative that conditions be imposed that will make impossible a repetition of the rivalry in the extension of railway mileage that marked the period from 1923-1931.²⁵

The most recent factor which has worsened the position of the railways is the loss of their monopoly position in the transportation field. The Royal (MacPherson) Commission on Transportation reported in 1961 that "the railways' competitive position relative to other carriers has declined."²⁶ The Commission further states:

The competitive position of the railways has been seriously weakened, we are convinced, because of the burden which the railways continue to carry as a legacy from the monopolistic environment of the past. It is a burden which, in our view, derives in part from public policy and in part from policies pursued by the railway industry. This burden, which bears upon the plant, the rate, and the regulatory structure within which the railways operate, prevents them from adapting fully to the new competitive environment and it must be lifted if the railways are to take their proper place in a transportation system which adequately reflects the needs of our Canadian society.²⁷

The Commission goes on to discuss ways and means of adaptation by the railways to the new circumstances:

Truck competition has been growing for a number of years and will continue to intensify and pervade all sections of Canada. As it does so, the ability of the railways to perform by rail

²⁵The Royal (Duff) Commission Report dated September 13, 1932, p.21

²⁶Report of the Royal Commission on Transportation, Volume I, March 1961, Queen's Printer and Controller of Stationery, Ottawa, p. 27.

²⁷Ibid., p. 28

the functions for which the branch lines were built will progressively deteriorate. Facing the loss of traffic on lines which perhaps never carried sufficient density to justify themselves alone, the railways have attempted first to reduce service and eventually to withdraw it and abandon uneconomic lines. Without seeking to minimize the historic and institutional role played by the railways in Canada and the extent to which this role has built them into the social consciousness of large sections of the country, it is apparent that the nation must now face the fact that the railway branch line network is no longer vital to either the well-being of the communities on the branch lines or the larger society.²⁸

This is the point the Canadian economy has reached in the transportation field. It implies adjustment through abandonment of branch lines, a development which not only will have a great bearing on the economic viability of our railway transportation system, but which will also have far-reaching repercussions on the elevator industry.

II. STATEMENT OF THE PROBLEM

The two major Canadian railway systems, the Canadian Pacific and the Canadian National, have recently submitted applications to the Board of Transport Commissioners for the abandonment of branch lines they have termed "uneconomic". With the abandonment of rail lines, it is generally accepted that facilities for handling grain on these lines become useless and also have to be abandoned.

The closing down of some elevators will necessarily cause a

²⁸ Ibid., p. 39

change in the pattern of farm deliveries. The producers who were delivering grain to what may become abandoned points will be compelled to search for alternative delivery points on adjacent lines. This shift in delivery pattern will increase the amount of grain handled in adjacent elevators and will in certain instances bring about a definite strain on the facilities at these points.

III. THE IMPORTANCE OF THE PROBLEM

The effects of branch line abandonment on the prairies will be felt in three broad areas of the economy:

- 1) the farmers and the farming communities
- 2) the companies operating country elevators
- 3) the two major railways.

If undertaken to the extent proposed by the railways, the removal of branch lines will affect more than half of the country elevators operating in the Western Prairies. The program, in addition, will affect government agencies (i.e., the Board of Grain Commissioners, the Board of Transport Commissioners, the Canadian Wheat Board) and government itself which ultimately makes the final decision in these matters.

The problem is important not only because of its size and scope but also because of its immediacy. A Royal (MacPherson) Commission on Transportation was established by an Order in Council in 1959 "to inquire into and report upon the problems relating to railway transporta-

tion in Canada".²⁹ Certainly, the problem of line abandonment is one of prime concern to policy makers. The railways have been pressing the Board for approval of applications to abandon unprofitable lines and their demands are becoming more and more insistent. Pressure for change is rising and the Commission seems to be quite sympathetic towards the railways' plight. Throughout its reports, the Commission shows the necessity of abandonment, discusses its effects and suggests how it could be done slowly and as painlessly as possible.³⁰

In all probability, then, abandonment is going to occur and will affect many aspects of the Western Canadian economy.

IV. OBJECTIVES

The general objective of this study is, to estimate the possible effects of branch line abandonment on capacity and location of elevators.

The specific objectives are as follows:

- 1) give a comprehensive survey of the situation regarding railway lines and elevator storage and handling capacities in the West,
- 2) estimate what portion of the total country elevator space

²⁹Preamble to Volume I of the Royal Commission on Transportation Report, March 1961.

³⁰These points will be dealt with in greater detail in Chapter III.

would be lost by abandonment,

3) estimate under certain assumptions what amount of reconstruction will have to be undertaken,

4) define the limitations of this study and suggest what areas require further analysis.

V. DEFINITIONS

For the reader who may not be very familiar with grain marketing terminology, an understanding of the following words or expressions will be helpful in following the contents of this thesis.

A point is a railway site on which one or more country elevators are located.

Facilities are country elevators existing at a point.

A country elevator is considered in this study as a public country elevator in which grain is stored or from which it is discharged before it is inspected and graded under the Canada Grain Act.³¹

Space is the actual physical storage capacity in bushels of a country elevator or point as reported in the "Grain Elevators in Canada" and published by the Canada Department of Agriculture. In other words, it can be said that space at a country elevator or point is the maximum amount of grain held in a country elevator or point at any given moment

³¹Revised Statutes of Canada 1952, Volume I, Ch. 25, An Act respecting Grain, Section II, Article 5, p. 692

in time when that elevator or point is completely filled with grain.

Handling is the volume of grain received at country elevators from producers as reported in the "Summary of Country Elevator Receipts at Individual Prairie Points" by crop year compiled and published by the Statistics Branch of the Board of Grain Commissioners for Canada. In this thesis, handling means bushels of grain received at a point over the crop year.³²

Handling-to-capacity ratio is a ratio computed by dividing the actual number of bushels of grain received from producers at a point by the actual space at that point.

Utilization of space is that portion of country elevator storage capacity at a point which is occupied by or which contains grain at a given moment in time. It is usually expressed in percentage terms i.e., as a percent of space taken up by stored grain.

VI. HYPOTHESES

As stated in the report of the Royal Commission on Transportation³³ the abandonment of railway branch lines will have a profound

³²The crop year starts on August 1st of a given year and ends on July 31st of the following year.

³³Report of the Royal Commission on Transportation, Volume I, March 1961, Queen's Printer and Controller of Stationery, Ottawa, pp. 4. ff.

effect on farming communities and firms whose investments are tied to rail movement. Abandonment of railway lines will mean abandonment of elevators on those lines. Delivery patterns will inevitably be changed because of the elimination of facilities.

It is, therefore, hypothesized that due to loss in country elevator space by abandonment, rebuilding will have to be done at some points. It is further hypothesized that the amount of rebuilding will be determined by four factors:

- 1) the ratio of handling to capacity at adjacent points after abandonment,
- 2) the policy of grain handling firms regarding service to farmers and maximization of profit,
- 3) the policy of the Board of Grain Commissioners in regard to the setting of storage and handling charges,
- 4) the policy of government and the Canadian Wheat Board in regard to the "satisfactory" level of on-farm and on-track storage.

It is also hypothesized that abandonment will affect the three prairie provinces to varying degrees and that due to varying amounts of storage capacity in relation to grain available for market by province, abandonment will create a greater adjustment problem in some provinces than in others.

VII. THE SCOPE OF THE STUDY

Due to the exploratory and aggregative nature of this study, the scope is extensive rather than intensive. It was indicated earlier

that the objective of the study is to consider the physical aspects of railway line abandonment and their effects on the elevator industry. The title of this paper suggests that both location and capacity of country elevators in Western Canada will be studied. Though the effects of abandonment on location of elevators has been given some consideration, the deepest scrutiny has been given to capacity.

VIII. AREA COVERED

The lines studied as abandonments have been placed in four categories. The reasons for selection have been indicated, where appropriate.

1) Lines which have been abandoned since the Royal Commission opened in 1960.

2) Lines for which the railways have submitted application for abandonment to the Board of Transport Commissioners. These are used as potential abandonment because they are considered by the railways to be causing the greatest financial burden on them.

3) Most spur lines; i.e., lines that terminate at a dead end. These lines are chosen because the railways have suggested that sooner or later these lines will be abandoned.

4) Lines which are duplicating each other because of their close proximity.³⁴

³⁴Confirmation as to the possibility of a specific 4482 miles of track being abandoned was obtained from various elevator companies who are in close contact with the Board of Transport Commissioners and the railways involved.

The area covered is the Canadian Wheat Board jurisdictional area which comprises the cultivated north western portion of Ontario, all of Manitoba, Saskatchewan and Alberta plus the Peace River Area of British Columbia. The lines considered are 4482 miles of railway which are assumed will disappear within the next twenty years. The points studied as abandoned points under this general program of abandonment number 519. The adjacent points which are expected to be affected by the program through an increase in handling of grain number 722. The total number of points therefore expected to be affected by this program is 1241 or 60.5% of all the Country Elevator points in Western Canada.

IX. SOURCE OF DATA

For the whole of the prairie region, the data on country elevator capacity are taken from the Grain Elevators in Canada annual bulletin compiled by the Board of Grain Commissioners for Canada. The data on handling of grain in Western Canada are taken from the Grain Trade of Canada Annual bulletin compiled by the BGC and published by the Dominion Bureau of Statistics. The data on handling of grain at individual country points are taken from the Summary of Country Elevator Receipts at Individual Prairie Points for each crop year compiled by the Statistics Branch of the BGC. The weekly Canadian Grain Position statements of the BGC for Canada were used in the compilation of weekly data.

X. METHODOLOGY

In order to study physical aspects of abandonment it is necessary to delimit areas served by various elevator points. It is then necessary to delimit the areas that will be served by adjacent points once abandonment has occurred.

The area served by an elevator point to be abandoned is determined by mapping out on grid paper the various points involved and delimiting boundaries on a minimum distance to grid basis.³⁵ The same criterion is applied to determine areas to be served by adjacent points once abandonment has occurred. Certain assumptions are used in delimiting boundaries. These assumptions are enumerated later and the significance of their use is also discussed.

The methodology can be explained as a series of steps:

Step 1: The locations of actual country elevator points on proposed abandoned lines are plotted on grid paper.

Step 2: The actual points on adjacent lines as well as points on lines crossing the proposed abandoned lines are also plotted.

Step 3: A boundary is carved around each proposed abandoned point using as criterion the minimum distance to grid of the abandoned point to each adjacent point.

³⁵Minimum distance to grid is the minimum rectangular distance from any one point to another on the basis of roads running East to West and North to South at every mile. Roads running on a 1 by 2 mile basis (as seems to be the case especially in Alberta) have been considered as running on a 1 by 1 mile basis. Direct diagonal distances are not used, though in some cases roads may follow diagonals rather than the grid system.

Step 4: A boundary is also carved around each adjacent point on adjacent lines ignoring the existence of points which are to be abandoned. The boundary pattern of an actual line considered for abandonment is shown in Figure I.

This method of boundary delineation, based on the criterion that deliveries by producers to country elevators are performed on the basis of minimum grid distance from farm to elevator involves at least two important assumptions; (1) that grain producers are not influenced in their delivery patterns by the size of town to which they deliver nor by the services available to them in various towns, and (2) that they are not influenced by the type of roads they must travel on.

The validity of this assumption may be questioned in the light of individual producer behavior. If a micro-study of one line (or only a few lines) was being conducted, the assumption could be unrealistic because the error term involved probably would be too great. However, since a fairly large number of lines is being studied, the minimum distance to grid assumption will not likely distort the average overall picture of grain deliveries from farm to elevator. The main reason is that producers consider distance as one of the most important criteria in determining their delivery pattern and this in fact is their main reason for objecting to railway branch line abandonment.³⁶

³⁶Board of Transport Commissioners Brandon Hearing, May, 1960;
(a) File No. 39310.40, Application of the CNR to abandon the Rapid City Subdivision - Vol. 1050 and (b) File No. 39310.36, Application of the CNR to abandon operation of the Wakopa Subdivision between Carman Junction and Deloraine, Manitoba. - Vol. 1051.

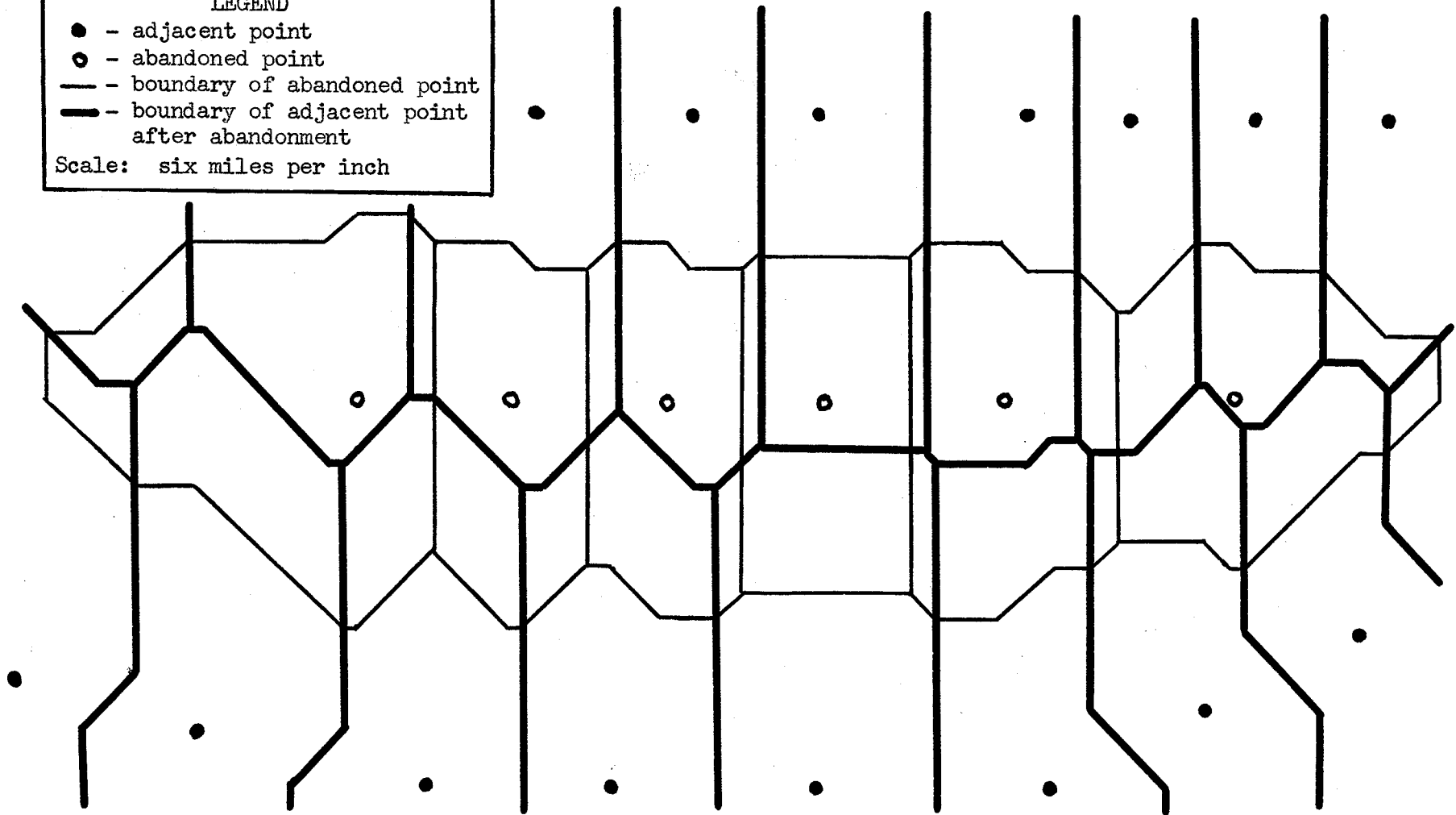
FIGURE I

DELIMITATION OF BOUNDARIES SERVED BY ABANDONED AND ADJACENT ELEVATOR POINTS; ALIDA, SASKATCHEWAN TO LAUDER, MANITOBA

LEGEND

- - adjacent point
- - abandoned point
- - boundary of abandoned point
- - boundary of adjacent point after abandonment

Scale: six miles per inch



However, some grain producers in an elevator area will not adhere to the minimum distance criterion. Farmers hauling further than necessary according to the minimum distance to grid criterion may produce the following effects on adjacent elevator points:

a) They will actually reduce the problem of increased handling at the nearest adjacent elevator if they go to an adjacent point which will be unaffected according to the study.

b) Some farmers will criss-cross on each others' minimum distance area and assuming each haul the same amount of grain to the elevators concerned, their operations will cancel each other out. To all intents and purposes, the two adjacent elevators will both receive the amount of grain allocated to them through the allocation method adopted in this study.

c) Some farmers may be attracted to a big town quite a distance further than our minimum distance criterion would have them go. There is no provision made for instances where in practice producers at an abandoned point might storm an adjacent point outside their minimum distance boundaries. This occurrence is possible where good roads lead to a big grain handling and general merchandising point. But, undue concentration of diverted deliveries at certain points would affect the location rather than the aggregate of new building estimated in this study. This rebuilding in some instances will be more concentrated in larger centers than the analysis suggests. One way or another, the suggested rebuilding will take place. In fact therefore, the minimum distance assumption will not distort the picture of aggregate capacity

to any significant degree.

The over-riding reason for using the minimum distance to grid criterion is that it is the only way, in a preliminary study of limited scope, to present a comprehensive picture of the shift in country grain deliveries throughout the West and thereby estimate the magnitude of the adjustment problem.

Step 5: The total number of square miles served by a proposed abandoned delivery point is summed up.

Step 6: The number of square miles of the abandoned point which is within the adjacent point's boundary is allocated to each adjacent point.

Step 7: Each portion in Step 6 is divided by the total in Step 5, thereby obtaining a percentage figure. This figure is later used in allocating grain produced for market within the "abandoned area"³⁷ to various adjacent points.

Step 8: The average ten year handling for the abandoned point in question is taken from the "Summary of Country Elevator Receipts at Individual Prairie Points"³⁸ and apportioned to the adjacent points in relation to the percent of total abandoned area which falls within the adjacent points boundaries.

³⁷This expression is intended to mean the area served by an elevator that may be abandoned.

³⁸Annual report compiled and published yearly by the Statistics Branch of the Board of Grain Commissioners for Canada.

Using the ten year average handling figure assumes that a point in an area which has handled a certain amount of grain for the past ten years will continue to handle that average amount in future years. This means that possible future changes in yields or patterns of farming are not estimated or taken into account.

Apportioning grain handled at an abandoned point in relation to the apportionment of "abandoned area" assumes grain delivered to an elevator by producers is uniformly distributed over the whole area. This assumption will not be valid for each individual point because some portions of areas may be completely devoid of grain production. But, again, the effect of such exceptions to the rule would be errors in the estimates for only specific points rather than for the entire aggregate "abandoned area" in Western Canada.

Step 10: The handling to capacity ratio at adjacent points after abandonment is computed and compared with the ratio before abandonment in order to measure the effect of abandonment on ratio. This provides an indicator of the relative degrees of strain on handling capacity of the elevators at each adjacent point.

XI. METHODOLOGY DEMONSTRATED

The portion of line from Alida, Saskatchewan to Lauder, Manitoba which is represented in a diagram on page 18 can be used to demonstrate the methodology described in the preceding section.

The distance between Alida and Lauder is approximately 53 miles. Its abandonment would involve the abandonment of six grain de-

livery points, namely Alida, Nottingham, Storthoaks and Fertile in Saskatchewan and Tilston and Broomhill in Manitoba. There are calculated to be 18 adjacent points affected by the abandonment of this portion of line. For each of the abandoned points, the 1961 capacity figure is recorded as well as the 10 year average handling. The ratio of handling to capacity is computed by simply dividing handling by capacity.

The area within the boundary of each abandoned point is calculated in square miles. This area is then apportioned to each adjacent point depending on the area within the boundary of the adjacent point after abandonment. The absolute amounts are converted to percentages. Table I gives the results of these computations.

Table II shows the various adjacent points affected, their capacity, handling and ratios. The grain previously handled at the abandoned points is now allocated to each of the adjacent points on the basis of the percentage of area calculated in Table I.

The results show the absolute increase in handling at adjacent points as well as the increase in ratio.

The tabulations and computations presented here show the work involved in the study of six abandoned points. Similar ground work has been done for the 519 points proposed for abandonment in Western Canada.

TABLE I

APPORTIONING ABANDONED AREA ON THE ALIDA TO LAUDER LINE**

Abandoned Point	Capacity (Thousand Bus.)	Handling	Ratio	Area of Abandoned Point (sq.miles)	Abandoned to adjacent		Adjacent Point
					Area	Percent	
Alida	209.0	447.8	2.14	156.0	13	8	Manor
					10	6	Oxbow
					46	30	Glen Ewen
					24	15	Carnduff
					6.5	4	Redvers
				56.5	37	Wauchope	
Notting- ham	47.0	138.6	2.95	80.0	46.5	58	Redvers
					21	26	Carnduff
					12.5	16	Carievale
Stort- hoaks	113.0	277.8	2.46	79.5	6.5	8	Redvers
					40	51	Frys
					28	35	Carievale
					5	6	Gainsborough
Fertile	48.0	161.1	3.36	85.0	4	5	Frys
					45	53	Antler
					36	42	Gainsborough
Tilston	189.2	260.1	1.37	112.0	4	4	Antler
					47	42	Sinclair
					9	8	Linklater
					15	13	Gainsborough
					33	29	Pierson
				4	4	Elva	
Broomhill	24.0	63.2	2.63	103.0	16.5	16	Linklater
					26	25	Reston
					8.5	8	Pipestone
					25.5	25	Elva
					21.5	21	Melita
				5	5	Napinka	

** Sources: Capacity taken from Grain Elevators in Canada.
Handling taken from Summary of Country Elevator Receipts at Individual Prairie Points, compiled by the Board of Grain Commissioners.

TABLE II

ALLOCATING GRAIN FROM ABANDONED POINTS TO ADJACENT
POINTS ON THE ALIDA TO LAUDER LINE **

Percent Grain From Abandoned to Adjacent Points	Additional Marketings To Adjacent Points	Combined Handling Capacity	Ratios		
			Old	New	
(-- Thousand Bushels--)					
8% Alida - Manor	35.8	348.2	156.0	2.00	2.23
6% Alida - Oxbow	26.9	577.5	338.7	1.62	1.70
30% Alida - GlenEwen	134.3	548.7	218.3	1.90	2.51
15% Alida - Carnduff	67.2	928.9	583.6	1.41	1.59
26% Nottingham - Carn- duff	36.0				
4% Alida - Redvers	17.9	528.4	271.0	1.51	1.95
58% Nottingham-Redvers	80.4				
8% Storthoaks-Redvers	22.2				
37% Alida - Wauchope	165.7	421.7	151.0	1.70	2.79
16% Nottingham - Carievale	22.2	529.6	163.5	2.51	3.24
35% Storthoaks - Carievale	97.2				
51% Storthoaks - Frys	141.8	316.4	48.0	3.47	6.59
5% Fertile - Frys	8.1				
6% Storthoaks - Gains- borough	16.6	576.5	266.2	1.72	2.16
42% Fertile - Gains- borough	67.7				
13% Tilston - Gains- borough	33.8				
53% Fertile - Antler	85.3	451.7	128.0	2.45	3.53
4% Tilston - Antler	10.4				
42% Tilston - Sinclair	109.3	347.2	69.4	3.11	5.00
8% Tilston - Linklater	20.8	162.1	55.6	1.94	2.92
16% Broomhill-Linklater	10.1				

TABLE II (cont'd)

Percent Grain From Abandoned to Adjacent Points	Additional Marketings To Adjacent Points	Combined Handling Capacity	Ratios	
			Old	New
(-- Thousand Bushels--)				
29% Tilston - Pierson	75.4	411.2	145.6	2.31 2.82
4% Tilston - Elva	10.4	119.2	47.0	1.98 2.54
25% Broomhill - Elva	15.7			
25% Broomhill-Reston	15.8	381.6	189.5	1.91 2.01
8% Broomhill-Pipe- stone	5.1	203.2	86.6	2.29 2.35
21% Broomhill-Melita	13.3	394.9	271.0	1.41 1.46
5% Broomhill-Napinka	3.2	252.7	120.5	2.07 2.10

** Sources: Capacity taken from Grain Elevators in Canada. Handling taken from Summary of Country Elevator Receipts at Individual Prairie Points, compiled by the Board of Grain Commissioners.

XII. PREVIEW OF THE ORGANISATION OF FOLLOWING CHAPTERS

Chapter II discusses the length of track to be abandoned and the number and capacity of elevators affected. It gives an estimation of the effects of this abandonment on adjacent points

Chapter III is a digression which discusses various policy questions in relation to abandonment and the rebuilding of lost space in the country; policy of the railways, the Transport Board, the farmers, the grain handling firms, the Board of Grain Commissioners, the Canadian Wheat Board and ultimately the Canadian Government in view of the objectives or goals they have set for themselves.

Chapter IV discusses some of the implications of a policy whereby no extra space is rebuilt and what this will mean for the ratio of handling to capacity at adjacent points.

Chapter V discusses some implications of policies tending toward a complete reconstruction of on-track storage lost by abandonment.

Chapter VI discusses some of the expected results of various handling firm, government and Board of Grain Commissioner policies.

Chapter VII summarizes and concludes the study. Certain areas for further study are recommended.

CHAPTER II

THE PHYSICAL RESULTS OF ABANDONMENT

In this chapter, the length of track proposed for abandonment is studied especially in relation to elevators presently existent along it. The purpose is to show what the results of abandonment will be in regard to loss of elevator storage capacity. An indication is given of how various companies will be affected. An indication is also given as to the increase in handling that will be necessary at points immediately adjacent to those abandoned. Each Province is studied separately and, following this, a picture of the aggregate results for the prairies is given. The provinces are separated in the initial stages because the conditions existing for ratios and storage capacity in relation to handling in each province are quite different. This is explained more fully later.

A breakdown is given in Table III of the miles of track considered for abandonment by province and by railway company. We see from this table that in the aggregate, nearly 4,500 miles have been considered for abandonment, about one-half of which are in Saskatchewan and approximately one-quarter in each of the other two provinces.

Table IV gives a breakdown of the number of lines and portions of lines that have been considered for abandonment. This breakdown is also by province and by railway company. From this table, we see that this study has considered 95 lines or portions thereof.

TABLE III

MILES OF TRACK CONSIDERED FOR ABANDONMENT
BY RAILWAY COMPANY AND BY PROVINCE *

	CPR	CNR	TOTAL
Manitoba	429	573	1002
Saskatchewan	1271	1086	2357
Alberta	638	485	1123
Prairie Prov.	2338	2144	4482

TABLE IV

NUMBER OF LINES PROPOSED FOR ABANDONMENT
BY RAILWAY COMPANY AND BY PROVINCE *

	CPR	CNR	TOTAL
Manitoba	12	11	23
Saskatchewan	23	22	45
Alberta	17	10	27
Prairie Prov.	52	43	95

TABLE V

NUMBER OF POINTS PROPOSED FOR ABANDONMENT
BY RAILWAY COMPANY AND BY PROVINCE *

	CPR	CNR	TOTAL
Manitoba	49	56	105
Saskatchewan	153	135	288
Alberta	69	57	126
Prairie Prov.	271	248	519

* Source: Computed from confidential information received from a number of grain handling firms.

Table V shows the number of elevator points by province and by railway company that will be abandoned if the 4482 miles of track are removed.

For each of the 519 points mentioned, boundaries were delimited on the basis of shortest distance to grid as explained in Chapter I. Adjusted boundaries (after abandonment) were also delimited for each adjacent point. On the basis of the portion of "abandoned area" in the "adjacent area", a specific amount of the grain handled at the abandoned elevator was allocated to the nearest adjacent elevator.

On the basis of these criteria, it is estimated that 258 elevator points of a total of 378 points in Manitoba will be affected, 105 by being abandoned and 153 by increased grain deliveries through diversion. In Saskatchewan, 640 points are affected of a total of 1099. Alberta points affected are 343 in relation to a total of 575 points.

I. RESULTS OF ABANDONMENT IN MANITOBA

Table VI gives a breakdown for Manitoba of the number of elevators and capacity that would be lost by each firm in relation to the total if the proposed abandonment were to be put into effect. Columns 1 and 2 permit a comparison of the number of elevators lost by each firm in relation to the total number of elevators it owns, while columns 5 and 6 permit a comparison of the capacity lost by each firm in relation to its total capacity. From column 3 we can observe the distribution (in percentage terms) of losses of elevators among grain

TABLE VI
EFFECT OF PROPOSED ABANDONMENT
ON LOSS OF ELEVATORS AND CAPACITY, BY FIRM: MANITOBA*

Firm	ELEVATORS				CAPACITY			
	Current Total	of ele- vators	Projected loss as proportion of Man. of firm loss elevators		Current Total	of ca- pacity	Projected loss as proportion of Man. of firm loss capacity	
	(--Number--)		(---Percent---)		(Thousand bus.)		(--Percent--)	
M.P.E.	351	98	58.7	27.9	23469	5957	59.0	25.4
U.G.G.	137	30	18.0	21.9	11494	1833	18.1	15.9
Federal	49	18	10.7	36.7	3184	990	9.8	31.1
Paterson	50	12	7.2	24.0	3707	783	7.8	21.1
National	33	7	4.2	21.2	2180	452	4.5	20.7
McCabe	18	1	0.6	5.6	1731	55	0.5	3.2
Searle	22	1	0.6	4.5	1867	26	0.3	1.4
Pioneer	5	0	0	0	357	0	0	0
P. & H.	2	0	0	0	50	0	0	0
Other	23	0	0	0	1747	0	0	
Total	690	167	100.0	24.2 ^a	49786	10096	100.0	20.3 ^a

Manitoba points abandoned - 105 or 27.8% of total points
 Manitoba adjacent points affected - 153 of 378 total points
 Total affected Manitoba points - 258 or 68.2% of total.

*Sources: Total capacity and numbers of elevators taken from Grain Elevators in Canada compiled by the Board of Grain Commissioners for Canada.

Capacity and elevators lost computed from confidential information received from a number of grain handling firms.

Adjacent points affected computed by the method explained in Chapter I.

Estimates refer to losses that would be incurred if all lines considered for abandonment were actually abandoned.

^aThese figures refer to the percent of elevators and capacity lost as a percent of elevators and capacity in the Province.

handling firms. Manitoba Pool Elevators, for instance, would lose 58.7% of the total number of elevators lost due to abandonment in Manitoba. United Grain Growers would lose 18.0% of the total while other firms would lose smaller amounts. The five firms most seriously affected by abandonment would lose between 21.2 and 36.7% of the total number of elevators they are now operating in the Province (Column 4). On the whole, 24.2% of all the elevators presently existing in the Province would be lost.

Similar percentage figures for loss of capacity are given in Columns 7 and 8. Manitoba Pool Elevators, the largest firm, would lose the greatest proportion of capacity, namely 59.0% of the total amount lost by all firms involved. The various firms would lose different proportions of their capacities (Column 8). Manitoba Pool Elevators would lose 25.4% of the total space they own in the Province while Federal, United Grain Growers and other firms would lose amounts ranging from 1.4% to 31.1%. The complementary tabulation at the bottom of Table VI shows the number of points abandoned, the number of adjacent points affected and the total number of points affected. The effect of the proposed abandonment in Manitoba would be felt in 258 country elevator points or 68.2% of the total Manitoba points.

II. RESULTS OF ABANDONMENT IN SASKATCHEWAN

A similar breakdown for Saskatchewan of the number of elevators and capacity that would be lost by each firm in relation to the total is given in Table VII. Saskatchewan Pool Elevators, the largest

TABLE VII

EFFECT OF PROPOSED ABANDONMENT
ON LOSS OF ELEVATORS AND CAPACITY, BY FIRM: SASKATCHEWAN*

Firm	ELEVATORS				CAPACITY			
	Current of Total	Projected loss			Current of Total	Projected loss		
		of ele- vators	as proportion of Sask loss	of firm elevators		of ca- pacity	as proportion of Sask loss	of firm capacity
(--Number--)	(---Percent---			(Thousand bus.)	(---Percent---			
S.P.E.	1253	319	47.8	25.4	85783	18305	46.6	21.3
U.G.G.	281	65	9.8	23.1	19284	3778	9.7	19.6
Federal	396	91	13.7	23.0	22720	5494	14.0	24.2
Pioneer	320	73	10.9	22.8	24127	5319	13.6	22.0
National	184	28	4.2	15.2	12590	1513	3.8	12.0
Searle	268	57	8.6	21.3	15497	2634	6.7	17.0
McCabe	64	16	2.4	25.0	3957	1011	2.5	25.5
Paterson	55	13	1.9	23.6	4020	831	2.1	20.7
P. & H.	35	5	0.7	14.3	2648	422	1.0	15.9
W.F.M.	17	0	0	0	1260	0	0	0
Other	12	0	0	0	932	0	0	0
Total	2885	667	100.0	23.1 ^a	192818	39307	100.0	20.4 ^a

Saskatchewan points abandoned - 288 or 26.2% of total points
 Saskatchewan adjacent points affected - 352 of 1099 total points.
 Total affected Saskatchewan points - 640 or 58.2% of total.

* Sources: Same as for Table VI

^aThese figures refer to the percent of elevators and capacity lost as a percent of elevators and capacity in the Province.

firm in that Province, would lose the largest number of elevators. It would lose 47.8% of the total elevators lost due to abandonment and 46.6% of the total capacity lost. Federal Grain is next in line with the loss of 13.7% of the total elevators lost and 14.0% of the total capacity lost. Firms incurring losses due to abandonment would lose proportions of their elevators and space ranging from 14 to 25%. Most companies affected would lose approximately one quarter of their present number of elevators in Saskatchewan (Column 4). The complementary table below Table VII shows that points expected to be abandoned in Saskatchewan are 26.2% of the total number of points in that Province. Total points expected to be affected by abandonment or by increased handling through diversion number 640 or 58.2% of the total.

III. RESULTS OF ABANDONMENT IN ALBERTA

Table VIII gives a similar picture for Alberta. Alberta Wheat Pool, the largest firm in this Province, would lose 38.8% of the total number of elevators to be lost due to abandonment. This would represent 20.1% of the elevators it presently possesses in that Province. United Grain Growers on the other hand would lose 12.4% of its elevators in that Province while Alberta Pacific, National Grain and Searle would each lose about 18% of their elevators. The Alberta country elevator system would lose 17.3% of its present number of elevators and 15.0% of its present capacity. The attached short table below Table VIII shows that the total number of points in Alberta expected to be affected by abandonment is 343 or 59.6% of the total

TABLE VIII
 EFFECT OF PROPOSED ABANDONMENT
 ON LOSS OF ELEVATORS AND CAPACITY, BY FIRM: ALBERTA*

Firm	ELEVATORS				CAPACITY			
	Current		Projected Loss		Current		Projected Loss	
	Total	of ele- vators	as proportion of Alta loss	of firm elevators	Total	of ca- pacity	as proportion of Alta Loss	of firm capacity
	(---Number---)	(--Percent--)	(--Percent--)	(--Percent--)	(thousand bus.)	(--Percent--)	(--Percent--)	(--Percent--)
A.P.E.	558	112	38.8	20.1	41617	7299	39.2	17.5
U.G.G.	348	43	14.9	12.4	25689	2645	14.2	10.3
Alta.Pac.	312	55	19.0	17.6	22380	3436	18.5	15.4
National	96	17	5.9	17.7	7286	1259	6.8	17.3
McCabe	6	2	0.7	33.3	340	83	0.4	24.4
Searle	171	31	10.7	18.1	10778	1701	9.1	15.8
Pioneer	115	24	8.3	20.9	10334	1891	10.2	18.3
P. & H.	27	4	1.4	14.8	1749	182	1.0	10.4
Ellison	18	1	0.3	5.6	1699	107	0.6	6.3
Other	18	0	0	0	1972	0	0	0
Total	1669	289	100.0	17.3 ^a	123842	18603	100.0	15.0 ^a

Alberta points abandoned - 126 or 21.9% of total points
 Alberta adjacent points affected - 217 of 575 total points
 Total affected Alberta points - 343 or 59.6% of total

* Sources: Same as for Table VI.

^aThese figures refer to the percent of elevators and capacity lost as a percent of elevators and capacity in the Province.

number of points in that Province.

IV. A COMPARISON AMONG PROVINCES

A comparison among Provinces reveals that in each, some two-thirds of the country elevator points will be affected directly by abandonment or by diversion of grain caused by abandonment. Manitoba and Saskatchewan would lose similar proportions of their present space (some 20%), while Alberta would lose only 15%. The percentage of points abandoned in each Province exceeds the percentage of capacity lost, reflecting the fact that the points to be abandoned are in general smaller than average capacity points. For instance in Manitoba, if 27.8% of the total number of points are abandoned, only 20.3% of the total capacity would be lost. Looking at the reverse situation, 72.2% of the points that remain hold 79.7% of the capacity, indicating that points remaining are on more economic lines and have generally a higher proportion of space relative to points expected to be abandoned. Similar comparisons made for Saskatchewan and Alberta reveal the same phenomenon.

V. RESULTS OF ABANDONMENT IN THE PRAIRIES

The total effect of abandonment on numbers of elevators and storage capacity for the whole of the Prairie Provinces is shown in Table IX. The fourth row of the table gives an aggregate view of the physical effect of abandonment on the three Western Pools. This row indicates that the Pools would lose 47.1% of the total number of elevators

TABLE IX

EFFECT OF PROPOSED ABANDONMENT
ON LOSS OF ELEVATORS AND CAPACITY, BY FIRM: PRAIRIE PROVINCES*

Firm	ELEVATORS				CAPACITY			
	Current Total	of ele- vators	Projected Loss as proportion		Current Total	of ca- pacity	Projected Loss as proportion	
			of P.P. loss	of firm elevators			of P.P. loss	of firm capacity
(---Number---)	(---Percent---)	(---Percent---)	(---Percent---)	(---Thousand bus)	(---Percent---)	(---Percent---)	(---Percent---)	
M.P.E.	351	98	8.7	27.9	23469	5958	8.8	25.4
S.P.E.	1253	319	28.4	25.4	85783	18305	26.9	21.3
A.P.E.	558	112	10.0	20.1	41617	7299	10.7	17.5
Three Pools	2162	529	47.1	24.5	150869	31562	46.4	20.9
U.G.G.	766	138	12.3	18.0	56467	8256	12.1	14.6
Federal	446	109	9.7	24.4	25984	6483	9.5	25.0
Alta Pac.	312	55	4.9	17.6	22380	3436	5.1	15.4
Paterson	106	25	2.2	23.6	7821	1614	2.4	20.6
National	313	52	4.6	16.6	22056	3224	4.7	14.6
McCabe	88	19	1.7	21.6	6028	1149	1.7	19.0
Searle	461	89	7.9	19.3	28143	4361	6.4	15.5
Pioneer	440	97	8.7	22.0	34818	7210	10.6	20.7
P. & H.	64	9	0.8	14.1	4446	604	0.9	13.6
Ellison	18	1	0.1	5.6	1699	107	0.2	6.3
W.F.M.	17	0	0	0	1260	0	0	0
Other	51	0	0	0	4475	0	0	0
Total	5244	1123	100.0	21.4 ^a	366446	68006	100.0	18.6 ^a

Prairie Provinces points abandoned - 519 of 25.3% of total points.
 Prairie Provinces adjacent points affected - 722 of 2052 total points.
 Total affected Prairie Province points - 1241 or 60.5% of total.

* Sources: Same as for Table VI

^a These figures refer to the percent of elevators and capacity lost as a percent of elevators and capacity in the Prairies.

expected to be lost in Western Canada and 46.4% of the capacity that is expected to be lost. Column 4 shows that the Pools, Federal Grain and Paterson would lose approximately one quarter of their elevators while United Grain Growers, Alberta Pacific, McCabe, Searle and Pioneer would each lose approximately a fifth of theirs. National Grain, Parrish and Heimbecker and Ellison Milling would lose lesser amounts.

Final figures in columns 4 and 8 show that the percent of total elevators lost if the proposed abandonment is put into effect would be 21.4% and the percent of total capacity lost would be 18.6%. The tabulation below Table IX reveals that 25.3% of all present country elevator points would be lost by the proposed scale of abandonment and a total of 1241 points or 60.5% of all elevator points would be affected by the proposed abandonment program.

VI. SUMMARY

The first and most obvious effect of abandonment is loss of facilities and total capacity at abandoned points. The second effect is the increased demand for the use of facilities at adjacent points to which grain deliveries from abandoned points will be diverted. On the basis of shortest grid distance, 722 adjacent points will be affected by diversion of deliveries from the 519 points abandoned. These points will be affected in varying degrees but all of them will be affected in the same manner, i.e., they will all be faced with the prospect of increased handling, assuming as much grain continues to

move to the lakehead and ocean ports as has been moving in the past ten years.

Two useful measures of the demand for elevator facilities are the ratio of handling to capacity and the degree of utilization of storage space. Abandonment has an effect on the demand for both these services. With abandonment, handling ratios will rise and presumably, storage space will be strained. A study of the effects of abandonment on these two factors will be presented in Chapters IV and V.

The purpose of this chapter has been to show the physical effects of abandonment on railways and elevator companies, showing the loss of elevators and storage capacity of the latter. Total capacity lost due to the proposed abandonment is shown in Table IX as being some 68 million bushels. The loss of such a sizable amount of space will definitely cause some disruption in country elevator operations as the following chapters will show.

CHAPTER III

A DIGRESSION ON POLICY OBJECTIVES

Various enterprises and government agencies are involved in the transportation and grain marketing processes. In this chapter, their policies are reviewed with these specific objectives in mind: to suggest causes for the railway and elevator problem as it exists today and to determine policies of various groups and agencies.

I. RAIL POLICY

From the time of first settlement, various circumstances have determined grain handling policies and these in turn have influenced economic developments in the Western Prairies. One of the first policies evolved concerned railways as they were vital to the settlement of the West. The private railway interests were anxious to extend their facilities to all parts of Canada and the government was only too happy to encourage them to do so. The most recent Royal Commission maintains that:

The existence of the functional monopoly served national policy objectives. With public assistance in construction, service was extended by branch lines into areas where by strictly commercial considerations no railway would have gone. Managerial vision and foresight and public assistance operated to give the Canadian nation a network of railways offering swift accessibility to markets comparable to that available in nations of smaller size and greater population. The private and public costs of building and operating the network were necessary pre-conditions of

national growth - and, it was assumed, would be repaid when this growth took place.¹

Thomson in turn suggests that "a case could be made out for the fairness of the mileage which each generation has constructed under the then existing social and economic conditions and circumstances".²

Thomson goes on to enumerate the factors which demanded the construction and determined the optimum amount of railway mileage.

These were:

- a) The magnitude, varying densities, and distribution of human population.
- b) The nature, quantity, and geographic distribution of those natural resources serviceable to mankind.
- c) The magnitude, intensity, and distribution, both of economic development and of economic activity, within any given country.
- d) The magnitude, intensity, and distribution of the external trade of any country.
- e) The amount, the stage of development, and the distribution, both of complementary and of competing forms of other transportation agencies. These other agencies of transportation may be either co-ordinated or unco-ordinated with rail.
- f) The degree to which the country accepts the philosophy of, and depends upon competition, between steam railway systems, to insure that rail facilities and service adequate to the national needs will be provided.³

The factors which should and do control wise railway building must lie within these borders. According to Thomson, these factors did

¹The Royal Commission on Transportation Report, Volume I, March 1961, p. 36.

²Thomson, L.R., The Canadian Railway Problem (Toronto: The Macmillan Co. of Canada Ltd., 1938) p. 167.

³Ibid.

An additional factor not mentioned by Thomson might be the economies of building immediately with the expectation of profitable operation in the future.

determine railway building in the West except for the period of the Twin Transcontinental Fever.

Today, the circumstances have changed. Item (e) of Thomson's enumeration is the most important factor in the problem we face today.

The Commission states that:

The development of the motor truck accompanied by large public expenditures on improved main and secondary roads, upset this assumption (that cost of building and operating railways should be repaid when national growth took place) and removed from the railway practically all monopoly in the performance of the "feeder" function and began, almost at the same time, to erode the monopoly of main-line haul over increasing distances for the more highly-rated goods.⁴

Rail policy, due to these circumstances, has now turned toward abandonment. Many lines have become unprofitable and the railways have searched for ways of disbanding them. The Commission comments:

The problem of over-capacity was particularly serious since it was readily apparent that the railways needed to make significant adjustments in the size of their plant if they were to bring it into line with existing conditions. In this they were handicapped, not only by federal regulatory requirements, but also by public pressure which customarily took the form of intense resistance to the dislocations which might be occasioned by these adjustments.⁵

Rail policy is therefore aimed at removing all branch lines which have become unprofitable due to the low density of traffic.

⁴The Royal Commission on Transportation Report, Volume I, March 1961, p.37.

⁵Ibid., p. 11

II. TRANSPORT BOARD POLICY

The railways are slow in adjusting but they are not free to determine the pace. They must apply to the Board of Transport Commissioners for permission to abandon lines and their applications must be approved. The process is a slow one as the BTC is quite hesitant to acquiesce to railway demands. The Commission gives reasons for this:

Because of the institutional and social considerations associated with the railways' historic role as instruments of national policy and because of the close economic ties of certain industries to the rails, an abruptly implemented programme of rail line abandonment will cause dislocations which would not be in the interests of the community as a whole.⁶

III. FARM POLICY

The interests of each farming community have been (as stated in the historical review of Chapter I), and still are, in maintaining the shortest distance of haul to the elevator for the marketing of grain. This is what the farm organisations (who supposedly reflect farmers' views) have to say on the matter. First, a statement from the National Farmers' Union:

We want to be sure that any decisions made regarding the abandonment of branch lines take into consideration, not only the dollar and cent effects on the

⁶Ibid., p. 41

railways, but also the economic and social effects on rural people and their communities. It must not be permitted to happen that farmers are left out in the wilderness having to drive unduly long distances to get to the closest place of business.⁷

Secondly, a statement from the Manitoba Federation of Agriculture:

This policy (of abandonment on the part of the railways) will cause hardship in some communities and create difficulties in transporting goods to markets in other areas... Every attempt (should) be made by the Manitoba Government to provide all weather market roads for farmers in these areas prior to abandonment of the branch line.⁸

We recommend that the government and Board of Transport Commissioners insist that a long range plan for abandonment and relocation of displaced elevators and other facilities should be developed that will embrace in one plan the operations of both railways.⁹

Farmers are coming to accept abandonment as inevitable but they want guarantees for themselves and for their elevators.

IV. POLICY OF GRAIN HANDLING FIRMS

Fowke states that before the establishment of the Canadian Wheat Board:

It was occasionally stated as a rule of thumb that a country elevator would have to be filled three times a year to pay its way, that is, an elevator with a capacity

⁷Submission to the Government of Canada by the NFU., January 31, 1962 on Railways.

⁸Presentation to the Premier and Members of the Cabinet by the Manitoba Federation of Agriculture, February 3, 1961.

⁹Idem, February 27, 1962.

of thirty thousand bushels would have to handle upwards of one hundred thousand bushels of grain a year to pay. In addition to the income from the initial handling charge, there would be an indeterminate revenue from grain left in storage beyond the fifteen-day minimum.¹⁰

Today as in the past, it can be assumed that the primary aim of every company operated on an economic basis is that of maximizing profit, and this is assumed to hold for grain handling firms.

The objective of profit maximization can be reached by meeting two conditions: 1) maximization of total revenue for a given elevator unit if costs per unit are continuously stable or declining and 2) minimization of cost for a given amount of grain handled and stored.

1) Maximizing total revenue is a condition for maximization of profit assuming (a) the total revenue function is linear (b) bushel unit costs of handling and (c) bushel unit costs of storage remain constant or decline as handling increases.

(a) The total revenue function is assumed to be linear because the revenue per bushel of handling and storing grain is fixed. Obviously therefore, increases in handling or storage of grain will cause a constant linear increase in revenue.

(b) It is assumed that the cost per bushel of handling is stable or decreases as total handling increases and this assumption is probably valid for the following reason: Ratios of handling to capacity

¹⁰Fowke, V.C., The National Policy and the Wheat Economy (University of Toronto Press, Toronto, 1957) p. 129.

over a period of five years for various points studied have been found to vary relatively little. Very few elevators have had ratios greater than 4.0. Ratios up to the level of 4.0, if considered in their historical context, have not shown any significant evidence of causing any strain on the facilities involved. In other words, a ratio of 4.0 presents no problem as far as the elevator handling facilities are concerned. If the investment in equipment is fixed at a given level, the fixed cost per bushel handled when the ratio moves from less than 1.0 to 4.0 will decrease. Assuming that variable costs per unit do not rise appreciably up to a ratio of 4.0, total cost per bushel handled will decrease as total handling increases. This assumption on variable costs is quite acceptable in view of the fact that variable costs over the relevant range of handling to capacity ratios (i.e., from 0 to 4.0) actually can rise only slightly due to the structure of elevator operations. Given a fixed plant with fixed equipment and a fixed operator, the only variable costs that may be incurred in this range of operating ratios will be a small increase in bonus pay for the operator and a slightly increased power bill. Over this range of operation in fact, practically all costs are fixed and indeed, variable cost increases being approximately nil, per unit costs can only decline, or remain constant, as handling increases in the observable range.

(c) It is further assumed that costs per bushel stored decline as the amount of grain stored over the year rises for a given plant. If we consider a plant of 100,000 bushels capacity storing on the

average over the year 70% of its capacity, it will be storing 70,000 bushels. And if, through increases in efficiency of operation or otherwise, it increases its storage of grain over the year to 80%, because per bushel storage charges on grain are fixed, its total revenue from storage will obviously rise. On the other hand, costs of storing are all or mostly all fixed once the plant has been constructed. There are in fact no variable charges incurred in the storage of grain unless it is damp and must be turned over occasionally. This may mean the help of an extra man over a short period and can only increase costs very slightly and certainly not affect to any appreciable extent the declining costs per bushel of storage as the amount of grain stored in a plant rises.

Because total revenue is maximized by maximizing the use of the facilities in existence over the crop year within the relevant ratio range of 0 to 4.0 and because costs per unit decline as handling and storage are increased over that range, it can be concluded that profit is maximized by the maximization of use of facilities over the range.

2) The second condition which must be met in order to further maximize profit is the minimization of cost for a given amount of grain handled and stored within the relevant range. This can be achieved by using the least cost techniques of operation in the plant. A study of this nature is beyond the scope of this thesis.

A final consideration in the study of grain handling firm policy must be made. Some firms may claim that service is their main

objective. This is a secondary objective in a grain firm's operation because the provision of good service is essential to profit maximization. Efforts are made to provide good service in order that profits may be maximized. In fact, in order to maintain a high degree of utilization of elevator space it is necessary to have as large a source of supply as possible. This means that it is necessary to have as many customers as possible so that the elevator space emptied by rail shipment can be refilled by producers as soon as it is emptied. The elevator, therefore, strives to handle as much grain as possible. This is the only way for it to both maximize "service" and profit, the two main objectives of grain firms in determining their policy.

These objectives have existed since grain handling facilities were first established on the Prairies. The profit motive both for private and cooperative firms created the necessary incentive for offering customers the best possible service. Elevator facilities sprang up in every small town and hamlet. Today, the companies operating these facilities hold a legacy of inefficiency from the past. Given these existing facilities, and given the policies of grain handling firms, elevator companies will want to maintain operation of their country elevators, even on uneconomic branch lines.

V. POLICY OF THE BOARD OF GRAIN COMMISSIONERS

The Canada Grain Act states that "the Board (of Grain Commissioners) may make regulations or orders not inconsistent with this Act fixing or approving the maximum charges to be made for the

discharge of grain into and out of elevators and for the insurance against fire, storage, cleaning, treatment and handling of grain while in any elevator".¹¹

The maximum storage and handling charges elevator operators are permitted to impose on producers are a matter for negotiation each year between the Board of Grain Commissioners and the grain handling firms. The BGC has the final authority in fixing the rates. By varying these rates (especially on storage) the BGC can encourage or discourage the building of extra space by elevator companies.

VI. GOVERNMENT AND CANADIAN WHEAT BOARD POLICY

The elevator companies as well as the railways are used as instruments of public policy. As the building of railways was encouraged by government through its policy of financial assistance, so was the building of elevators encouraged by government through a policy of fixing storage and handling charges at a level where it would pay the elevator company to store most of the grain it handled over the year.

The first attempt by government to influence directly the amount of country elevator space to be built in the country was made in 1940. MacGibbon relates:

Car distribution at country points between elevator companies was based on the amount of licensed permanent storage possessed by each company.¹²

¹¹ Revised Statutes of Canada 1952, Volume I, Chapter 25, Section 15, Article 18, p. 700

¹² MacGibbon, D.A., The Canadian Grain Trade 1931-51, (University of Toronto Press: 1952) p. 107

All grain-handling organizations were feverishly increasing their storage capacity at country points by the construction of temporary annexes. In the crop year of 1940-41 temporary storage to the extent of 72,485,477 bushels was provided, the high point being reached in 1943-44 with 112,657,126 bushels. The Dominion Government encouraged the building of country annexes by a concession with respect to the rate at which depreciation could be written off. ¹³

Today, the system seems to be operating on a more or less automatic basis. The objective of public policy appears to be to minimize the amount of grain carried over in on-farm storage at the end of each crop year. To a certain extent, on-farm storage depends on carryovers from previous years, crop yields, and exports.

Government has had an influence on on-track storage in the past and can readily influence the amount of reconstruction that will take place in the country if the proposed abandonment program goes into effect. By a policy of tax concessions or compensation for losses of elevator space due to abandonment, government can encourage companies to rebuild to any level depending on the size of the concessions and/or compensations.

The Canadian Wheat Board was established in 1935 to stabilize and maintain prices. It started doing so by keeping Canadian wheat off the world market in times of abundance and is still doing so. Its policy therefore determines the amount of grain left in the country over the year and this in turn influences the optimum storage capacity country elevator firms must have to maximize utilization and

¹³ Ibid

handling throughout the year.

The Canadian Wheat Board could also influence the government to adopt a policy of encouragement for the rebuilding of country elevator space if it felt that it did not have enough grain in readiness on-track because of loss of on-track storage due to abandonment.

VII. SUMMARY

Rail policy favors abandonment; farm policy is directed toward minimum abandonment for minimum readjustment; elevator policy is directed towards satisfying producers and the profit requirements of their directors; government policy seeks to minimize the economic hardships of railways and farmers; and finally, Canadian Wheat Board policy is to maintain high World prices for wheat by withholding wheat from the market thereby increasing stocks in the country. Whether this wheat will lie on-track or on-farm is dependent:

a) on the policy of the elevator companies in regard to rebuilding on-track storage after abandonment.

b) on the tax incentives placed before these companies by the government, and

c) on the agreements made between the Board of Grain Commissioners and the elevator companies in regard to handling and storage charges.

CHAPTER IV

SOME IMPLICATIONS OF "LAISSEZ-FAIRE" POLICY

This chapter and the one following are concerned with a more detailed study of some implications of branch-line abandonment for location and capacity of country elevators. In Chapter II, the loss of elevators and capacity was estimated. In this chapter, the implications for adjacent points of an ultimate loss of 4482 miles of track will be examined. The immediate effect is that supply of services (handling and storage space) is curtailed. At the outset, therefore, the effects of abandonment will be considered under the assumption that no extra space is rebuilt.

In Chapter V, this assumption will be relaxed and an assessment will be made of some of the implications of rebuilding to the point where all the storage capacity lost is rebuilt, i.e., to the point where the past historical ratio and elevator on-track storage is restored. Later, effects of policies expounded in Chapter III will be examined.

Specifically, it is assumed in this chapter that:

- 1) the proposed 4482 miles of track are all abandoned and that no reconstruction whatsoever takes place;
- 2) future acreage and yields will remain stable from year to year at the ten-year average level of 1951-52 to 1960-61;
- 3) sales will continue at the same average level as in the

past ten years, which means that carryovers in the country will remain at the same level as in the past. The effects of the proposed abandonment on ratio of handling to capacity and on country elevator space utilization will now be assessed.

In terms of the physical aspects of grain operations, abandonment of country elevators without reconstruction on adjacent lines will produce:

- 1) a loss of country elevator space;
- 2) a loss of country elevator handling facilities;
- 3) an increase in the ratios of handling to capacity at adjacent points; and
- 4) an increase in on-farm storage.

The importance of the first two items was clearly shown in Chapter II. The possible magnitude of the last two factors is examined below.

I. EFFECTS ON RATIO

The basic concept used in the analysis is the relationship or ratio between actual handling or turnover and storage capacity of country elevators. The relationships are considered by Province as there is a distinct difference of ratios among Provinces. It can be readily seen in Table X that capacity has been increasing over the past ten years in each Province except in the years 1960-61. The reduction in that year was entirely due to the fact that the Board of Grain Commissioners for Canada revised its system of compiling capacity

TABLE X

RATIOS OF HANDLING TO CAPACITY BY PROVINCE, 1951-52 to 1960-61*

Crop Year	Manitoba			Saskatchewan			Alberta			Total		
	Han.	Cap.	Ratio	Han.	Cap.	Ratio	Han.	Cap.	Ratio	Han.	Cap.	Ratio
1951-52	110	37	2.97	395	151	2.62	222	101	2.20	727	288	2.52
1952-53	119	40	2.98	475	158	3.01	241	105	2.30	835	303	2.76
1953-54	88	43	2.05	339	165	2.05	174	108	1.61	601	317	1.90
1954-55	77	44	1.75	287	174	1.65	155	112	1.38	519	331	1.57
1955-56	73	45	1.62	337	179	1.88	151	118	1.28	561	342	1.64
1956-57	92	47	1.96	319	186	1.72	168	122	1.38	579	354	1.64
1957-58	84	48	1.75	337	191	1.76	155	124	1.25	576	363	1.59
1958-59	90	49	1.84	303	196	1.54	160	127	1.26	553	371	1.49
1959-60	78	50	1.56	288	200	1.44	149	128	1.16	515	379	1.36
1960-61	79	48	1.64	325	188	1.73	145	123	1.18	549	358	1.53
Total 1951-61	890	451	1.97	3405	1787	1.90	1720	1168	1.47	6015	3406	1.77
Total 1956-61	423	242	1.75	1572	960	1.64	777	624	1.24	2772	1825	1.52

*Source: Grain Trade of Canada compiled by the Board of Grain Commissioners and published by the Dominion Bureau of Statistics.

Figures include Wheat, Oats, Barley, Rye, Flaxseed and Corn.

Capacity figures are taken from Grain Elevators in Canada compiled by the Board of Grain Commissioners for Canada.

statistics and also revised the method of computing actual elevator bushel capacity.¹

It will be noted that ratios have been consistently lower for Alberta than for the other two provinces. This reflects the fact that Alberta elevators turn over their grain much more slowly than do Saskatchewan or Manitoba elevators. During the last five years, as indicated in the sub-total for 1956-61, Saskatchewan also turned over its grain at a slower rate than did Manitoba. This indicates that Alberta has more capacity relative to handlings than has Saskatchewan and that both Alberta and Saskatchewan had greater relative capacities than did Manitoba, at least during the last five years. The effect of this inter-provincial difference in ratio is that, as ratios rise at adjacent elevators due to increased handling caused by abandonment, they will rise to generally higher levels in Manitoba than they will in Saskatchewan. They will also rise to higher levels in both Manitoba and Saskatchewan than they will in Alberta. These differences will be estimated later.

The immediate and necessary expected result of railway line and elevator abandonment is obviously to increase the amount of grain available for delivery at adjacent points. If facilities remain constant in number and size at these adjacent points, ratios must rise if

¹Preamble to the Interim Report on Grain Elevators in Canada as at December 1, 1959 published by the Board of Grain Commissioners.

as much grain is to be handled throughout the West as was handled in the past ten years. Table XI indicates the shift in ratio at adjacent points in Manitoba that would occur with the proposed abandonment and no rebuilding. The number of elevators within given ratio-ranges before abandonment can be compared with the number within the same ratio-ranges after abandonment. There are almost three times as many elevators within the 1.00 to 1.99 ratio range before abandonment than after. The number of elevators in the 4.00 to 4.99 range would increase from three before abandonment to twenty after. This directly reflects the increase in ratio due to increased handling.

The percentage of total adjacent elevators affected by abandonment are also given by ratio-range and can readily be compared before and after abandonment. Before abandonment, 53.1% of adjacent elevators are in the ratio-range of 1.00 to 1.99 while only 18.3% of the elevators are in that range after abandonment. It can also be seen that 96.2% of the elevators have ratios less than 4.0 before abandonment while only 70.7% are in that range after abandonment. This is merely another way of showing the same thing: that due to abandonment without reconstruction, ratios rise as elevator capacities are held constant.

Similar observations can be made in Table XII which depicts the relationship between ratios and number of elevators affected within each ratio-range for Saskatchewan. Only four elevators out of 352 have ratios greater than 4.0 before abandonment while 108 are in that category after abandonment. In percentage terms, 98.9% of all adjacent

TABLE XI

EFFECT OF PROPOSED ABANDONMENT
ON ELEVATOR HANDLING TO CAPACITY RATIOS: MANITOBA*

Ratio	Before Abandonment			After Abandonment		
	Number of points	Percent of total	Cumulative Percent	Number of Points	Percent of total	Cumulative Percent
0- .99	1	0.6	0.6	0	0	0
1.00-1.99	81	53.1	53.7	28	18.3	18.3
2.00-2.99	47	30.7	84.4	47	30.8	49.1
3.00-3.99	18	11.8	96.2	33	21.6	70.7
4.00-4.99	3	2.0	98.2	20	13.1	83.8
5.00-5.99	1	0.6	98.8	8	5.2	89.0
6.00-6.99	0	0	98.8	4	2.6	91.6
7.00-7.99	1	0.6	99.4	5	3.3	94.9
8.00-8.99	1	0.6	100.0	0	0	94.9
9.00-9.99	0	0		1	0.6	95.5
10.00-10.99	0	0		0	0	95.5
11.00-11.99	0	0		1	0.6	96.1
12.00-12.99	0	0		2	1.3	97.4
13.00-13.99	0	0		0	0	97.4
14.00-14.99	0	0		0	0	97.4
15.00-15.99	0	0		0	0	97.4
16.00-16.99	0	0		2	1.3	98.7
17.00-17.99	0	0		0	0	98.7
18.00-18.99	0	0		0	0	98.7
19.00 or more	0	0		2	1.3	100.0
TOTAL	153	100.0		153	100.0	

*Source: Grain Elevators in Canada compiled by the Board of Grain Commissioners for Canada and the Summary of Country Elevator Receipts at Individual Prairie Points, also compiled by the BGC.

TABLE XII

EFFECT OF PROPOSED ABANDONMENT
ON ELEVATOR HANDLING TO CAPACITY RATIOS: SASKATCHEWAN*

Ratio	Before Abandonment			After Abandonment		
	Number of Points	Percent of Total	Cumulative Percent	Number of Points	Percent of Total	Cumulative Percent
0- .99	1	0.3	0.3	0	0	0
1.00- 1.99	207	58.8	59.1	76	21.6	21.6
2.00- 2.99	113	32.1	91.2	109	31.0	52.6
3.00- 3.99	27	7.7	98.9	59	16.8	69.4
4.00- 4.99	4	1.1	100.0	32	9.1	78.5
5.00- 5.99	0	0		24	6.8	85.3
6.00- 6.99	0	0		11	3.1	88.4
7.00- 7.99	0	0		11	3.1	91.5
8.00- 8.99	0	0		5	1.4	92.9
9.00- 9.99	0	0		6	1.7	94.6
10.00-10.99	0	0		5	1.4	96.0
11.00-11.99	0	0		2	0.6	96.6
12.00-12.99	0	0		0	0	96.6
13.00-13.99	0	0		2	0.6	97.2
14.00-14.99	0	0		2	0.6	97.8
15.00-15.99	0	0		0	0	97.8
16.00-16.99	0	0		0	0	97.8
17.00-17.99	0	0		2	0.6	98.4
18.00-18.99	0	0		3	0.8	99.2
19.00 or more	0	0		3	0.8	100.0
TOTAL	352	100.0		352	100.0	

*Source: Grain Elevators in Canada compiled by the Board of Grain Commissioners for Canada and the Summary of Country Elevator Receipts at Individual Prairie Points, also compiled by the BGC.

elevators lie within the range of 4.0 before abandonment while only 69.4% lie within that range after abandonment.

Table XIII gives a similar picture for Alberta. In this Province, before abandonment, 100% of all adjacent elevators have ratios smaller than 4.0 while after abandonment, 89.4% of the adjacent elevators lie within that range. It is indicated that few elevators in Alberta will be affected to the point of having their ratios pushed beyond 4.0. In comparing Alberta with the other two Provinces with regard to the 4.0 ratio level, Manitoba has 29.3% of its elevators with ratios beyond 4.0 after abandonment while Saskatchewan has 30.6% of its elevators beyond that point. Alberta only has 10.6% of its elevators beyond the 4.0 ratio level after abandonment.

In terms of ratios therefore, Alberta finds itself in a much more favorable position than either Manitoba or Saskatchewan once abandonment is put into effect.

II. A DIGRESSION ON UTILIZATION OF SPACE

A discussion on utilization of space² is inserted here as it is essential to have a clear idea of problems involved in space utilization before proceeding to a study of the effects of abandonment on on-farm storage.

²Utilization is the percent of storage capacity (or space) of an elevator or point filled with grain over a given period of a week or a year as the case under discussion may suggest.

TABLE XIII

EFFECT OF PROPOSED ABANDONMENT
ON ELEVATOR HANDLING TO CAPACITY RATIOS: ALBERTA*

Ratio	Before Abandonment			After Abandonment		
	Number of Points	Percent of total	Cumulative Percent	Number of Points	Percent of total	Cumulative Points
0- .99	30	13.8	13.8	6	2.8	2.8
1.00- 1.99	160	73.8	87.6	112	51.6	54.4
2.00- 2.99	23	10.6	98.2	55	25.3	79.7
3.00- 3.99	4	1.8	100.0	21	9.7	89.4
4.00- 4.00	0	0		12	5.5	94.9
5.00- 5.99	0	0		5	2.3	97.2
6.00- 6.99	0	0		1	0.5	97.7
7.00- 7.99	0	0		2	0.9	98.6
8.00- 8.99	0	0		0	0	98.6
9.00- 9.99	0	0		1	0.5	99.1
10.00-10.99	0	0		0	0	99.1
11.00-11.99	0	0		2	0.9	100.0
12.00-12.99	0	0		0	0	
13.00-13.99	0	0		0	0	
14.00-14.99	0	0		0	0	
15.00-15.99	0	0		0	0	
16.00-16.99	0	0		0	0	
17.00-17.99	0	0		0	0	
18.00-18.99	0	0		0	0	
19.00- or more	0	0		0	0	
TOTAL	217	100.0		217	100.0	

*Source: Grain Elevators in Canada compiled by the Board of Grain Commissioners for Canada and the Summary of Country Elevator Receipts at Individual Prairie Points, also compiled by the BGC.

The years 1956-57 to 1960-61 have been termed "congested" because there has been in general a carryover of deliverable grain on farms due to the fact that the country elevator system could not handle all the grain produced for market. During this period, as shown in Table XIV, the average percentage of capacity filled over the year ranged between a low of 73.9 and a high of 83.6 for the Prairies. The five year period shows an average degree of utilization for the Prairies of 78.5% and recognizing the fact that even though in certain actual cases overall utilization can go higher than that, as shown in fact in this table, it is assumed that maximum elevator space utilization is 75.5% for Manitoba, 78.0% for Saskatchewan and 80.4% for Alberta - of the actual physical country storage space.

There seem to be three reasons for elevator operators not being able to make 100% use of their facilities:

- 1) They must keep a certain amount of "working space".³
- 2) Some bins hold odd grades of grain and although these bins are not full, they cannot be filled unless more of these odd grades are delivered to the elevator.
- 3) Seasonal variation in receipts of grain and shipments out of the elevator make for a normal seasonal dip in stocks in store at country elevators around the 43rd week of the crop year. This is readily

³ Working space is included in the space figures reported in the Grain Elevators in Canada published annually by the BGC.

TABLE XIV
 PERCENT UTILIZATION OF SPACE BY PROVINCE AND BY
 YEAR*

	Country	Average	Percent
	Elevator	Bushels	Of Capacity
	Capacity	In Store	Filled ^a
	(million bushels)	(million bushels)	(%)
1956-57	Manitoba	46.8	73.5
	Saskatchewan	185.8	79.0
	Alberta	123.7	82.1
	TOTAL	356.3	79.4
1957-58	Manitoba	47.9	77.9
	Saskatchewan	190.7	78.1
	Alberta	126.0	82.2
	TOTAL	364.6	79.5
1958-59	Manitoba	48.9	74.2
	Saskatchewan	195.6	75.7
	Alberta	129.9	79.0
	TOTAL	374.4	76.6
1959-60	Manitoba	49.7	71.8
	Saskatchewan	200.5	72.3
	Alberta	128.4	77.6
	TOTAL	378.6	73.9
1960-61	Manitoba	47.7	80.1
	Saskatchewan	187.9	85.6
	Alberta	122.7	81.8
	TOTAL	358.3	83.6
TOTAL			
1956-61	Manitoba	241.0	75.5
	Saskatchewan	960.5	78.0
	Alberta	630.7	80.4
	TOTAL	1832.2	78.5

*Sources: Country elevator capacity figures were taken from Grain Elevators in Canada published by the Board of Grain Commissioners. Average bushels in store were calculated from weekly figures given in The Weekly Canadian Grain Position statements of the BGC.

^aComputed by dividing the second column of figures by the first, and expressing the result as a percentage.

shown in Table XV, especially for the years 1957-58, 1959-60 and 1960-61. Stocks in store are normally high at the beginning of the crop year because of the harvest coming in and the opening of quotas. Stocks remain high throughout the year till about the 40th to 45th week. In the above mentioned years, stocks reached their low points in the 43rd and 44th weeks. At this time of the year, the farmer waits to see what his following year's crop will do before delivering the remainder of the grain he wants to deliver to the elevator. If the crop yield prospects are good, he will increase his deliveries and replenish the country elevator stocks before the closing of the crop year. This seasonal dip in farmer deliveries causes a fall in the weekly stocks in store figure and necessarily lowers the average stocks in store figure for the crop year.

These are the main factors limiting the degree of utilization of country elevator space even during periods of chronic congestion. The average percentage utilization over a five year period 1956-61 for Manitoba, Saskatchewan and Alberta was 75.5, 78.0 and 80.4% respectively. The average for the Prairie Provinces as shown in Table XIV was 78.5%.

The above discussion has been presented in order to show the limitations and in fact the impossibility of 100% utilization of elevator space. Even under extremely congested conditions which usually occur at the beginning of the crop year, the utilization of country elevator space never went beyond 88% for the Prairies in general. It is believed and assumed therefore that, due to the structure of elevator operations, it is highly unlikely for the country

TABLE XV

PERCENT UTILIZATION OF COUNTRY ELEVATOR SPACE BY WEEK
FOR THE PRAIRIE PROVINCES: YEARS 1956-57 to 1960-61*

Week	1956-57	1957-58	1958-59	1959-60	1960-61
1	82	86	80	85	88
2	79	84	79	83	86
3	76	83	77	80	85
4	74	83	77	78	85
5	72	84	77	78	86
6	71	83	79	77	86
7	70	83	80	76	87
8	71	82	80	75	87
9	73	83	80	75	87
10	75	83	79	75	87
11	77	83	79	74	86
12	77	82	78	73	86
13	79	82	78	72	86
14	79	80	77	71	85
15	80	80	76	71	84
16	80	78	75	72	84
17	80	78	74	72	84
18	80	78	73	73	85
19	80	77	74	74	84
20	80	77	74	76	84
21	80	79	75	77	83
22	81	79	75	77	83
23	81	79	73	77	84
24	81	79	72	77	86
25	81	80	72	76	87
26	80	80	72	75	87
27	80	80	72	75	87
28	79	80	72	74	87
29	79	80	73	74	86
30	79	80	73	73	86

TABLE XV (cont'd)

Week	1956-57	1957-58	1958-59	1959-60	1960-61
31	80	80	75	72	86
32	80	81	76	71	86
33	80	81	77	70	85
34	81	81	77	70	85
35	80	80	78	70	84
36	81	78	78	70	83
37	82	78	78	70	83
38	82	79	78	70	83
39	81	79	79	70	82
40	81	78	79	72	82
41	81	77	78	71	80
42	79	75	77	69	79
43	79	73	74	69	77
44	80	73	75	68	78
45	80	74	75	69	78
46	80	75	75	71	78
47	80	76	76	72	78
48	82	76	77	73	78
49	83	75	77	74	77
50	83	75	78	76	77
51	83	76	77	76	77
52	86	84	85	85	79
Ave. %	79.4	79.5	76.6	73.9	83.6

* Source: Canadian Grain Position published weekly by the Board of Grain Commissioners.

elevator system in each province to operate beyond the historic level of utilization of the past five years. These figures will be useful as a basis for subsequent discussions of utilization and on-farm storage.

III. EFFECTS ON ON-FARM STORAGE

A loss in country elevator space due to abandonment under conditions of congestion means (using, for example, the 75.5% criterion for Manitoba) that, for every 1000 bushels capacity lost, 755 bushels of grain will now have to be kept on-farm. Table XVI gives an indication on this basis of the average increase over the year in on-farm storage that will be incurred due to loss of country elevator space under the assumptions stated at the beginning of the chapter.

On the basis of Table XVI, it is estimated that Manitoba, Saskatchewan and Alberta producers would have to accommodate respectively 7.6, 30.8 and 15.0 million bushels more grain on farms.

IV. SUMMARY

Abandonment of 4482 miles of track affecting 722 adjacent elevator points would have the effect of raising the ratio in some instances to a level which would be quite unworkable in present day conditions. Ratios of 10.0 to 20.0 are quite out of line with present performance. Abandonment will not necessarily put a great strain on physical handling capacity except in a few rare instances. In the years 1951-52, ratios were at a much higher level than they are today

TABLE XVI

INCREASE IN ON-FARM STORAGE: PRAIRIE PROVINCES*

	Expected Capacity Loss (million bushels)	Percent Utilization (%)	Increase in On- Farm Storage (million bushels)
Manitoba	10.1	75.5	7.6
Saskatchewan	39.3	78.0	30.7
Alberta	18.6	80.4	15.0
TOTAL	68.0	78.5	53.3

* Sources: Expected capacity loss is taken from the total for Manitoba in Table VI, from the total for Saskatchewan in Table VII and from the total for Alberta in Table VIII. Percent utilization is taken from the final figures from each Province in Table XIV. Increase in on-farm storage is computed by multiplying the first column by the second.

as was shown in Table X. Ratios could easily double or triple without presenting any great strain on the handling facilities if sales to foreign countries were to increase. Storage space is the really critical factor limiting deliveries. If therefore no on-track storage is rebuilt, farmers in the Prairies (assuming yields and sales continue at the present level) will find themselves obliged to construct a great amount of on-farm storage in order to accommodate on their farms over 53 million extra bushels of grain.

The intensity of effects expected to be brought about by abandonment as discussed in this chapter are not realistic because of the restrictiveness of the assumptions made. However, the primary purpose of this chapter was to show in broad terms the nature and direction of effect of abandonment if there were no counterbalancing reaction such as the building of more country elevator space or terminal space. More specifically, the purpose was to point up the potential impact of abandonment. This is clearly demonstrated in this chapter and, unrealistic as the assessment device used may be, the overall picture provides an insight into the actual real problems which the farmers, elevator companies and government will face if abandonment is effected on such a large scale.

The model set up in this chapter lacks realism since farmers and their grain companies as well as private companies themselves will want to maintain their share of the market. Some grain companies will be impelled, by their own internal policy of service to the farmer, to build extra space. One or other of these reasons will be sufficient to

induce grain companies to rebuild in various locations. Government, because of its commitments and responsibility in the whole matter of branch line abandonment, will probably find it necessary to evolve a policy that will minimize the financial burden on the elevator companies. This may take the form of government encouragement to companies to rebuild space on adjacent lines through tax concessions or other means.

This chapter has endeavoured to show what would happen on the Prairies if 4482 miles of railway line were abandoned and if farmers, government and grain companies took no positive action to adjust to the change. The following chapter will attempt to qualify this picture by considering how the parties involved may react to abandonment through reconstruction.

CHAPTER V

SOME IMPLICATIONS OF A RECONSTRUCTION POLICY

A rapid rate of branch line abandonment would probably change the grain handling system primarily at the farmer's expense. He would find himself suddenly without the facilities he had customarily used. He would also be financially burdened by having to haul greater distances and requiring better hauling equipment. Consequently an attitude of extreme conservatism appears to prevail throughout the country. Donald Gordon, president of the Canadian National Railways expressed it in this way: "Experience has taught me that vested interest is a jealous guardian. When complicated by conflicting jurisdictions, it tends towards the extreme in the protection of the entrenched positions!"¹

In this chapter, the assumption that the proposed 4482 miles of track are abandoned is maintained but it is further assumed that the period of time over which abandonment takes place will be long enough to permit adjustments by reconstruction to be made. The assumption that future yields will remain stable from year to year at the ten year average level of 1951-52 to 1960-61 is also maintained. Finally,

¹Address by Mr. Gordon to the Winnipeg Canadian Club on September 26, 1962.

it is again assumed that sales will remain at a level such that as much grain will remain out in the country as was left there in the past ten years. The assumption in other words, is that a condition of congestion will continue to exist.

As previously mentioned, Chapter IV presented quite a simplified and to that extent not very realistic picture of abandonment effects because it was assumed that there would be no elevator reconstruction. Some new construction will inevitably take place in instances where the influx of grain is much too high to be absorbed by existing elevator facilities at a point. It is expected that construction would take place in the first instance where there exists the greatest lack of adequate elevator space. This would be reflected in a ratio of handling to capacity far above the previous historical limits.

This chapter is divided into four sections, each section constituting a special study of the effects of lowering the ratios from their post-abandonment levels to specific levels ranging from 4.0 down to a level which would require complete reconstruction of all elevator space lost by abandonment. The first section examines the implication of a programme of reconstruction that would bring the ratio of handling to capacity back down to a maximum of 4.0.

The second section repeats the analysis for a maximum ratio of 3.0. The third section studies the implications of a maximum ratio of 2.0. Finally, the last section presents a model on a basis that would reallocate province by province the capacity each has lost

through abandonment.

I. A RATIO OF 4.0

Table XVII gives a complete picture of the storage capacity that would have to be rebuilt in Western Canada to maintain a maximum ratio of 4.0. This table was constructed under the assumption that a ratio of handling to capacity of 4.0 would be feasible for placing the country elevator system back in a working position. Reconstruction on this basis would replace only a small portion of the storage capacity lost by abandonment. Calculations are made to show the expected increase in on-farm storage that would result from this low level of reconstruction.

At the outset, two observations should be made:

1) A ratio of 4.0 is historically extremely rare. In a sample of 722 points, only 10 had ratios greater than 4.0.² Physically, it would not strain an elevator to handle four times its capacity. But, according to historical operations of elevators (cf. Table X) it has not been the preferred ratio at which to operate. In spite of that, a study on the basis of a ratio of 4.0 is considered quite useful. It gives an indication of how little would have to be done in reconstruction to alleviate the pressures at all points faced with ratios greater than 4.0 after abandonment.

²Taken from Tables XI, XII and XIII.

TABLE XVII

IMPLICATIONS OF REBUILDING CAPACITY TO MAINTAIN A RATIO OF 4.0*

	MAN.	SASK.	ALTA.	TOTAL
(1) Total adjacent points affected	153	352	217	722
(2) Number of adjacent points with ratio greater than 4.0 before abandonment	6	4	0	10
(3) Number of adjacent points with ratio greater than 4.0 after abandonment	45	108	23	176
(4) Number of these points needing a capacity greater than 15,000 bushels ^a	27	79	11	117
(5) Significantly affected adjacent points as % of total adjacent points.	17.6	22.4	5.1	16.2
(6) Total capacity lost (million bushels).	10.1	39.3	18.6	68.0
(7) Total capacity replaced (mil. bus.) ..	1.5	5.4	0.5	7.4
(8) Percent of total capacity replaced ...	15.3	13.8	2.7	11.0
(9) Total capacity not replaced (mil. bus.)	8.5	33.9	18.1	60.5
(10) Utilization of space (percent)	75.5	78.0	80.4	78.5 ^b
(11) Increase in over-the-year on-farm storage (million bushels).	6.5	26.4	14.6	47.5

*Sources: Rows 1, 2 and 3 were taken from Tables XI, XII and XIII.

Row 4 was computed from master tables. Actual extra capacity needed was computed for every point by using the formula:
(handling - capacity x 1/ratio)

Row 5 was computed by dividing row 4 by row 1

Row 6 was taken from Table VI, VII and VIII

Row 7 was computed from the master tables by using the formula above

Row 8 was computed by dividing row 7 by row 6

Row 9 was computed by subtracting row 7 from row 6

Row 10 was taken from Table XIV

Row 11 was computed by multiplying row 9 by row 10

^a15,000 bushels are considered a capacity that could be significant enough to warrant reconstruction.

^bThis figure is not used to calculate the final figure in the last column.

2) Of the elevators having ratios greater than 4.0, some will be in a range close to 4.0 and therefore will require only nominal amounts of extra space. Table XVII, row (3), shows the number of elevator points that could require construction of at least 15,000 bushels of space to bring their ratios down to 4.0. This latter figure is believed to be much more significant and revealing than the number of elevator points listed in the third row. It is obvious that if only 600 bushels of extra space were required at an elevator point, no elevator company would add this amount to its present facilities. It is also felt that this would be the case for elevators needing less than 15,000 bushels of extra capacity. The line was drawn arbitrarily at 15,000 bushels. Row (4) therefore gives a better indication of the number of points that will be affected significantly by abandonment.³

Table XVII lists the number of adjacent points affected by abandonment. It also lists the number of points which would need extra capacity greater than or equal to 15,000 bushels. On this basis, 117 points will need extra storage space. If this amount of reconstruction were actually undertaken, 7.4 million bushels of storage capacity would be rebuilt on the Prairies. This is only a small portion of the 68 million bushels of space that would be lost. Table XVII shows in effect that only 11.0% of the capacity lost would have to be replaced to keep ratios from rising above the 4.0 level at all points.

³On the other hand, the "total capacity replaced" figures in row 7 include all extra capacity needed, even the nominal amounts. These are in fact so small in relation to the total that they do not affect the figures to any significant degree.

Reconstruction of only 11.0% of the storage capacity lost in the country might well be sufficient to put the elevator companies back in a workable position but unfortunately, an actual loss of 89.0% of the capacity proposed for abandonment would have far-reaching and much more damaging effects on the position of the farmer. He would find himself obliged to store much more grain on his farm. This might mean great hardship.

It is also demonstrated that historically low ratios would imply less replacement of abandoned storage space if ratios alone were taken as the guiding criterion. Alberta ratios are historically much lower than either Saskatchewan or Manitoba ratios. The total capacity replaced at a ratio of 4.0 would be 7.6 million bushels. Of this total, Alberta would have to replace only 0.5 million bushels of capacity and all its points would be below 4.0 after abandonment. Alberta would replace only 2.7% of its total capacity lost while Manitoba and Saskatchewan would replace 15.3% and 13.8% respectively.

It was earlier suggested that each province utilized its capacity to varying degrees. Historically, Manitoba utilized 75.5% of its actual storage capacity for storage over the year, Saskatchewan utilized 78.0% and Alberta, 80.4%. These percent figures are used to estimate the amount of on-farm storage that would be necessary over the year to replace the amount of storage that was previously performed at the elevator. For instance, if Alberta were to lose 18.1 million bushels of capacity, i.e., on-track storage, and this capacity had been utilized for the storage of grain at an 80.4% level, 14.6 million

additional bushels of grain would now have to be stored on-farm.

Therefore, on the basis of these percentage levels of utilization of elevator space and a ratio of 4.0, 60.5 million bushels of elevator space lost would not be replaced and 47.5 million bushels of grain which was previously kept in storage on-track will have to be kept on-farm.

II. A RATIO OF 3.0

The implications of a replacement program designed to maintain a maximum ratio of 3.0 are indicated in Table XVIII. In these calculations it is assumed that a ratio level of 3.0 is necessary for the satisfactory operation of the country elevator system. Using a ratio level of 3.0 as the criterion for building new elevator space, the reconstructing of capacity to fulfill the requirements of this level would result in the rebuilding of 24.1% of the total capacity lost on the Prairies. Of the 722 adjacent points affected, 289 have ratios greater than 3.0 after abandonment and 223 of these would require construction of 15,000 bushels or more. Manitoba would have to rebuild 35.4% of the capacity lost while Saskatchewan would rebuild 28.8%. Alberta on the other hand (having historically low ratios) would have to rebuild only 7.9% of its lost capacity. For the Prairies in general, 16.4 million bushels of capacity would have to be replaced to maintain maximum ratios of 3.0. This would leave 51.6 million bushels not replaced. Considering again the fact that over the year, this capacity has been utilized in varying degrees depending on the province, we find

TABLE XVIII

IMPLICATIONS OF REBUILDING CAPACITY TO MAINTAIN A RATIO
OF 3.0*

	MAN.	SASK.	ALTA.	TOTAL
(1) Total adjacent points affected	153	352	217	722
(2) Number of adjacent points with ratio greater than 3.0 before abandonment...	24	31	4	59
(3) Number of adjacent points with ratio greater than 3.0 after abandonment . .	78	167	44	289
(4) Number of these points needing a capacity greater than 15000 bushels ^a .	60	137	26	223
(5) Significantly affected adjacent points as % of total adjacent points .	39.2	38.9	12.0	30.9
(6) Total capacity lost (million bushels).	10.1	39.3	18.6	68.0
(7) Total capacity replaced (mil. bus.) ..	3.6	11.3	1.5	16.4
(8) Percent of total capacity replaced ...	35.4	28.8	7.9	24.1
(9) Total capacity not replaced (mil.bus.)	6.5	28.0	17.1	51.6
(10) Utilization of space (percent)	75.5	78.0	80.4	78.5 ^b
(11) Increase in over-the-year on-farm storage (million bushels)	4.9	21.8	13.8	40.5

*Sources: Same as for Table XVII.

^a15,000 bushels are considered a capacity that could be significant enough to warrant reconstruction.

^aThis figure is not used to calculate the final figure in the last column.

that 40.5 million bushels of grain which was held on-track before abandonment would now have to be held on-farm.

III. A RATIO OF 2.0

Assuming that 2.0 is the maximum acceptable ratio for effective operation of the system, 500 of the 722 adjacent points affected by abandonment would be subjected to strain (Table XIX). Of these, 458 would need new capacity greater than or equal to 15000 bushels to maintain a ratio of 2.0. Again Alberta would be compelled to rebuild much less of its lost capacity than the other two provinces. Capacity replaced in Alberta would be only 32.0% of the total capacity lost whereas in Saskatchewan it would be 78.6% and in Manitoba, 98.5%. This means that to maintain a ratio of 2.0, Manitoba would replace most of its capacity. Saskatchewan on the other hand would replace approximately 31 million bushels of its 39 million lost and Alberta, approximately 6 million of its 18.6 million lost. Following the same procedure as in the previous tables for calculating the extra on-farm storage needed in the three provinces, it is estimated that Manitoba farmers would have to increase their on-farm storage by 113 thousand bushels, Saskatchewan farmers by 6.5 million bushels and Alberta farmers by 10.2 million for a total increase of on-farm storage of 16.8 million bushels.

IV. COMPLETE RECONSTRUCTION

Finally, it would be of interest to examine the implications of rebuilding by province all the capacity lost. Manitoba, as has been

TABLE XIX

IMPLICATIONS OF REBUILDING CAPACITY TO MAINTAIN A RATIO OF 2.0*

	MAN.	SASK.	ALTA.	TOTAL
(1) Total adjacent points affected . . .	153	352	217	722
(2) Number of adjacent points with ratio greater than 2.0 before abandonment	71	144	27	242
(3) Number of adjacent points with ratio greater than 2.0 after abandonment	125	276	99	500
(4) Number of these points needing a capacity greater than 15000 bushels ^a	113	260	85	458
(5) Significantly affected adjacent points as % of total adjacent points	73.8	73.9	39.2	63.4
(6) Total capacity lost (million bushels) . . .	10.1	39.3	18.6	68.0
(7) Total capacity replaced (mil. bus.).	9.9	30.9	6.0	46.8
(8) Percent of total capacity replaced .	98.5	78.6	32.0	68.8
(9) Total capacity not replaced (mil.bus)	0.2	8.4	12.6	21.2
(10) Utilization of space (percent) . . .	75.5	78.0	80.4	78.5 ^b
(11) Increase in over-the-year on-farm storage (million bushels)	0.1	6.5	10.2	16.8

Sources: same as for Table XVII

^a15000 bushels are considered a capacity that could be significant enough to warrant reconstruction.

^bThis figure is not used to calculate the final figure in the last column.

indicated, would have its capacity just about 100% restored at a ratio of 2.0. Saskatchewan and Alberta on the other hand would remain at a lower capacity level than they were previously. Saskatchewan would still lack 21.4% of its capacity while Alberta would lack 68.0% of its capacity at this point. This obviously raises some interesting problems regarding criteria for administering a national policy of tax concessions or subsidies to assist adjustment to rail abandonment. These aspects will be considered in the following chapter. It may be indicated now that a ratio of approximately 1.8 would be necessary to restore all of the 39.3 million bushels capacity lost in Saskatchewan and a ratio of around 1.4 to do the same in Alberta.

V. SUMMARY

Moving through distinct steps by studying implications of ratio levels of 4.0, 3.0 and 2.0, an attempt has been made to show the real effects of abandonment on country elevator capacity by province. Handling to capacity ratios have been used as a criterion for estimating the amount of new construction required by province to maintain various degrees of capacity in the system. Going through the four steps has also given an indication of the magnitude of the problems to be faced by farmers in different provinces with regard to on-farm storage.

CHAPTER VI

EFFECTS OF POLICY

Groups, associations and firms involved in or affected by railway branch line abandonment have developed policies and attitudes toward the problem. These policies were discussed in Chapter III. The present chapter endeavours to show how extensive a role each concern can play in permitting or influencing a change in the present situation.

I. EFFECT OF RAIL POLICY

Railway company policy, it would be recalled, is to abandon some 4482 miles of railway on the Western Prairies. Not being masters of their own fate in so far as being able to abandon lines as they please, railway companies have applied a great deal of pressure on government through the Board of Transport Commissioners, to get permission to abandon lines. It is expected this pressure will be sufficient to move the government into permitting the railways to abandon these 4482 miles of line.

II. EFFECT OF FARM POLICY

Farm policy, as discussed in Chapter III, tends toward minimum abandonment because farmers are conservative at heart and prefer the status quo rather than accept change or be compelled to re-

adjust.

However, in all fairness to the farmer, it may be pointed out that it is possible to suggest reasons that are probably quite valid for his attitude. Farmers affected individually by abandonment of the facilities they are using for marketing their produce have probably nothing to gain and only something to lose by abandonment of railway branch lines, unless of course they are amply compensated financially for the hardships caused. As spelled out by their organisations (cf. discussions in Chapter III, p.39), policy of farmers is to convince the Board of Transport Commissioners to discourage abandonment.

The main reasons put forward against abandonment are the following: 1) Loss of property and farm value.

2) Increased distance of haul for most farmers within the minimum grid distance of haul (excepting those who are at minimum grid distance but for which there are no practicable roads to the nearest elevator or those who prefer hauling further in any event).

3) Poor roads to adjacent elevators.

4) Loss of business and revenue to the towns and therefore possible abandonment of some towns.

5) Loss of tax revenue to certain municipalities causing them double hardship: (a) decreased revenues due to loss of business and property tax and, (b) increased costs for a better and more exten-

sive road system.¹

Farmers within tractor hauling distance of an elevator proposed for abandonment will incur financial hardship by being compelled to invest in a truck or having to have their grain hauled by someone else at an increased cost. Farmers with facilities for trucking grain or having it trucked in any event before abandonment will find their costs rising due to additional distances of haul after abandonment.

Two further arguments are seemingly quite important but have not (to the writer's knowledge) been put forward in the fight to keep railway branch lines operating.²

1) Farmers in general are going to suffer the burden of higher carryovers over the year. An indication of this is given in Table XX which is constructed under the supposition that 44.82 miles of track were abandoned on July 31, 1957. Table XX shows what the effects of such an abandonment would be on on-farm carryovers.

2) Delayed quotas would be another overall general effect of abandoning large amounts of railway line. With less space on-track to

¹Source of arguments: Board of Transport Commissioners Brandon Hearing, May 1960; (a) File No. 39310.40, Application of the CNR to abandon the Rapid City Subdivision - Vol. 1050 and (b) File No. 39310.36, Application of the CNR to abandon operation of the Wakopa Subdivision between Carman Junction and Deloraine, Man.--Vol. 1051.

²The reason for this is probably that the arguments hold for large scale abandonment that would affect the overall grain handling system. The hearings referred to were hearings on applications for abandonments of individual short lines where these overall general effects would not be apparent and probably not even be felt.

absorb grain produced for market, farmers are not only going to have increased on-farm carryovers and the burden of building space to lodge that carryover but they are also going to suffer a delay in "hard needed" receipt of cash. The opportunity for farmers to accept advanced payment on farm stored grain partly eliminates this difficulty.³

Briefs have been presented to government by farm groups. They have tried to force the government to maintain a "status quo" on the branch line question. The true effects of their policy are not known in fact, but the groups believe they have a decided influence on government decisions.

III. EFFECT OF GRAIN FIRM POLICY

Elevator policy, it was shown, is directed toward satisfying farmers by providing for them the best service that is economically possible and feasible. Elevator companies must also keep in mind the profit objectives of their directors.

³The writer suggests that the difficulty is only "partly" eliminated because in his many encounters with farmers, he finds they are very weary about taking advanced payments on grain. Their argument is that, when they deliver and sell the grain, it is very frustrating and annoying to only get 30 or 35 cents per bushel (the difference between the advanced payment and the actual initial payment made by the firm). Interviews with Canadian Wheat Board officials have also suggested to the writer that advanced payments are not very popular with the farmer.

TABLE XX

EFFECT PROPOSED ABANDONMENT WOULD HAVE HAD ON-FARM STORAGE
SINCE 1957*

Province	July 31 year	Total Farm Stocks (million bushels)	Increased Farm Stocks ^a (million bushels)	Average % Rise In Stocks
Manitoba	1956-57	55.8	63.4	
	1957-58	35.6	43.2	
	1958-59	132.5	140.1	
	1959-60	29.7	37.3	
	1960-61	24.5	32.1	
	Average	55.6	63.2	13.7%
Saskatchewan	1956-57	345.9	376.7	
	1957-58	214.2	245.0	
	1958-59	140.1	170.9	
	1959-60	99.4	130.2	
	1960-61	122.3	153.1	
	Average	184.4	215.2	16.7%
Alberta	1956-57	159.0	174.0	
	1957-58	100.3	115.3	
	1958-59	65.1	80.1	
	1959-60	64.4	79.4	
	1960-61	52.0	67.0	
	Average	88.2	103.2	17.0%
Prairies	1956-57	560.8	614.2	
	1957-58	350.1	403.5	
	1958-59	337.7	391.1	
	1959-60	193.4	246.8	
	1960-61	198.8	252.2	
	Average	328.2	381.6	16.3%

*Source: The Wheat Review, a monthly publication by the DBS, Agriculture Division. (Figures are taken from the August report of each year in question).

^aTaken from Table XVI, p.66. 7.6 million bushels are added to the first column for Manitoba, 30.8 for Saskatchewan and 15.0 for Alberta.

Effects of these objectives have been for grain companies to object to branch line abandonment. Companies stand to lose the capital investment they have tied to the railway line and their long established patronage.

IV. EFFECT OF BOARD OF GRAIN COMMISSIONERS POLICY

The board of Grain Commissioners has a role to play in permitting the companies to charge the farmers more for the handling and/or storing of grain. If the grain companies receipts are higher for storage of grain than they have previously been, this will encourage them to build more storage space. If storage charges are decreased, incentives for building more space will be thwarted.

V. EFFECT OF GOVERNMENT POLICY

Assuming sales remain at their historical level and assuming no financial help from the government, it is impossible to estimate the degree of reconstruction the elevator companies would effectuate on their own. A whole cost study of elevator operations and returns from capital investments would be necessary to determine the optimum adjustment. This is beyond the scope of the present study. Regardless of financial assistance, the grain companies would probably reconstruct at least to the 4.0 ratio level. This as shown in Chapter V, p. 72, would mean that 7.4 million bushels of the 68 million bushels of lost capacity would be replaced. Considering the fact that historically,

only 10 points of the 722 adjacent points under study had ratios greater than or equal to 4.0 in the Prairies, it seems reasonable to assume that the elevator companies would not operate at a ratio beyond 4.0. Assuming therefore that the government stood on the sidelines, the burden of deciding the extent of reconstruction would rest upon the management of the private elevator companies affected and on the farmers who own the cooperative companies. It would seem that in addition to ratio considerations, grain firms would reconstruct if they had the assurance that their storage facilities would be utilized to the fullest extent possible. This would satisfy their profit maximizing objective discussed in Chapter III, pp. 43 ff.

On the other hand, government may commit itself to helping the grain companies in the transitional period. This help could be based on two alternative criteria.

- 1) Offer each company that finds its affected elevators operating at a ratio greater than some selected level the necessary tax incentives or subsidies to permit them to rebuild to a point where the ratios of their elevators would not exceed the specified level.

- 2) Offer each company tax incentives or subsidies to rebuild all the elevator space that it has lost due to line abandonment.

Both these alternatives involve inequities. The first alternative, at a specified ratio of 2.0, would (as shown in Table XIX, p.78) permit Manitoba to rebuild 98.5% of the capacity it loses while Saskatchewan would only be assisted in rebuilding 78.6% of its lost capacity and Alberta only 32.0%. Government would probably be accused of favoritism or discrimination.

On the other hand, if government followed the second alterna-

tive, it would obviously be accepting the historical status of each province by encouraging each to reconstruct all the capacity it loses. In this way it would encourage Alberta to perpetuate the relatively high capacity position it has had in the past. The existence of more ample capacity is evidenced by the historical ratio Alberta has had in relation to the other two Provinces (Table X, p. 53).

What in fact does a low ratio in Alberta really mean? We assume that a uniform quota on a "per specified acre" basis is issued by the Canadian Wheat Board during the crop year for each of the Prairie Provinces. We assume also that the crop year in question is the average shown in Table XXI. We assume further that all elevators are empty at the beginning of the crop year. From Table XXI we see that Alberta can maintain on-track a greater amount of grain than Manitoba or Saskatchewan on a specified acre basis. This can be vividly brought out in the following way: assume in the model established here that the Canadian Wheat Board opens a 3.6 bushel quota. Manitoba will utilize its capacity to its normal 75.5% level and fill its 36.4 million bushel capacity. On the basis of 3.6 bushels per specified acre quota, Saskatchewan will receive 144 million bushels of grain and have 5.9 million bushels of space to spare. On the same basis, Alberta will receive 81.4 million bushels of grain and have 20 million bushels of space to spare. It is proved therefore that both Saskatchewan (to a small degree) and Alberta (to a greater degree) are overbuilt in relation to Manitoba. It is apparent that Alberta therefore built a greater amount of space

TABLE XXI

COUNTRY ELEVATOR CAPACITY AND STOCKS MAINTAINED ON-TRACK IN RELATION
TO SPECIFIED ACREAGE BY PROVINCE*

Province - Years	Specified Acres (millions)	Capacity		Stocks	
		of country elevators (million bushels)	per speci- fied acres (million bushels)	maintained on track (million bushels)	per speci- fied acre
Manitoba					
1956-57	9.3	46.8	5.0	34.4	3.7
1957-58	9.9	47.9	4.8	37.3	3.8
1958-59	10.6	48.9	4.6	36.3	3.4
1959-60	10.6	49.7	4.7	35.7	3.4
1960-61	10.8	47.7	4.4	38.2	3.5
Average	10.2	48.2	4.7	36.4	3.6
Saskatchewan					
1956-57	37.6	185.8	4.9	146.8	3.9
1957-58	37.9	190.7	5.0	149.0	3.9
1958-59	41.0	195.6	4.8	148.1	3.6
1959-60	41.7	200.5	4.8	144.7	3.5
1960-61	41.8	187.9	4.5	160.8	3.8
Average	40.0	192.1	4.8	149.9	3.7
Alberta					
1956-57	20.5	123.7	6.0	101.6	5.0
1957-58	21.8	126.0	5.8	103.6	4.8
1958-59	23.1	129.9	5.6	101.8	4.4
1959-60	23.7	128.4	5.4	99.6	4.2
1960-61	24.1	122.7	5.1	100.4	4.2
Average	22.6	126.1	5.6	101.4	4.5
Prairies					
1956-57	67.4	356.3	5.3	282.8	4.2
1957-58	69.6	364.6	5.2	289.9	4.2
1958-59	74.7	374.4	5.0	286.2	3.8
1959-60	76.0	378.6	5.0	280.0	3.7
1960-61	76.7	358.3	4.7	299.4	3.9
Average	72.9	366.4	5.0	287.7	4.0

*Source: The Canadian Wheat Board Summary of Seeded Acreages
Reported on 1956-61 permits. Capacity and Stocks taken from Table XII, p.57
Specified acres include Wheat, Oats, Barley, Rye, Summer-fallow,
Forage acreages for years 1956-58 plus Durum acreages for years 1958-61.

relative to its specified acreage at one time or other in the past. But, because of the fact that Alberta is utilizing its space at a level of 80.4% (Table XIV, p. 61), it is also apparent that it was able to fill that space and keep it full ever since. With its "over-capacitized"⁴ elevator system filled and grain flowing through them normally over the year, Alberta finds itself with a low handling-to-capacity ratio.

In effect, therefore, a policy of encouraging elevator companies by means of financial assistance to rebuild to the point of regaining all the capacity lost in each province would mean a perpetuation of the historical geographical imbalance between elevator capacity and the volume of grain to be moved through the country elevator system.

On the other hand, government, through a policy of equalising ratios may not permit Alberta or Saskatchewan to build to their historical levels. This will mean a change in the historical movement of grain. Manitoba ratios may remain the same, but Saskatchewan ratios will rise as well as Alberta's if as much grain is to move through their elevator systems as was moving previously.

VI. SUMMARY

In general therefore it may be said that grain companies follow-

⁴This expression suggests over-capacity in relation to handling over a crop year period and is often applied to Alberta in comparing it to Manitoba and Saskatchewan.

ing their own policy of service and profit maximization through keeping the highest possible number of customers, will rebuild to a certain level. If storage and/or handling charges are raised by authorization of the Board of Grain Commissioners, grain companies will be encouraged to rebuild to a higher level. Finally, government intervention could induce elevator companies to rebuild fully or partly the capacity they would lose due to abandonment, depending upon the nature and extent of government intervention.

CHAPTER VII

SUMMARY AND RECOMMENDATIONS

I. SUMMARY

Towards the end of the last century and during the first quarter of this one, railway lines had burgeoned across the West. Government incentives offered to the railways and competitive fear among railway companies brought them to build lines to a much greater extent than was necessary or economically justifiable. Expectations of profitable operation of branch lines over the long run in many instances did not materialize, and today the railway companies are asking for permission to abandon these lines.

The purpose of the present study has been to identify and assess some implications of abandoning railway lines to the extent proposed by the railways, especially those implications dealing with location and capacity of country elevators.

Some 4482 miles of railway line have been considered for abandonment. Under the assumption that the lines involved will be abandoned, a study of the individual points on these lines is made in regard to the capacity of the elevators and the amount of grain handled. The adjacent lines are also studied and their actual capacity and yearly handling is also recorded on the basis of 1960-61 figures for capacity and the 10 year average handling 1951-52 to 1960-61 for

handling.

Areas are delimited for the abandoned points and for the adjacent points once the abandoned points are removed. On the basis of these areas, grain previously handled at abandoned points is re-allocated to the adjacent points expected to be affected.

Ratios for the adjacent points are compiled before and after abandonment. It is found that only in 10 cases out of 722 are the ratios greater than or equal to 4.0 before abandonment whereas 59 points have ratios greater than or equal to 3.0 before abandonment and 242 points have ratios greater than or equal to 2.0 before abandonment. On the other hand, after abandonment 176 points would have ratios greater than or equal to 4.0, 289 points greater than or equal to 3.0, and 500 points greater than or equal to 2.0.

Effects of abandonment on adjacent points have therefore been studied on a ratio basis and it is found that if in reconstruction a maximum ratio of 4.0 was maintained, of the 68.0 million bushels of capacity lost, only 7.4 would be reconstructed. On the basis of 3.0, 16.4 million bushels would be reconstructed and on the basis of 2.0, 46.8 million bushels would be reconstructed.

On-farm storage on the basis of 4.0 ratio would increase by 47.5 million bushels, on the basis of 3.0 by 40.5 and on the basis of 2.0 by 16.8 million bushels assuming yields and sales maintain their historical level.

In general, "wholesale" railway branch line abandonment in the prairies would cause a very substantial disruption in the grain

storage function. When one considers that of 366 million bushels of country elevator capacity (Table IX), 68 million could be removed causing some 53 million bushels of grain to back up on farms, one recognizes the possibility of formidable hardships to individual farmers.

It has been observed that policy of the grain companies, the Board of Grain Commissioners and the government will affect the degree of reconstruction in the country. Assessment of the overall economic feasibility of total reconstruction is beyond the scope of this paper but would be vital in getting an overall picture of the real change-over to be effected in the country elevator system due to abandonment.

This study has therefore endeavoured to give a comprehensive report on a limited number of aspects of the main problem of removal of branch lines. It has given a comprehensive survey of the situation regarding railway lines and elevator storage and handling capacities in the West. It has estimated the portion of total country elevator space which would be lost by abandonment. Finally, it has estimated, under certain assumptions regarding policy, what amount of reconstruction will have to be undertaken.

II. RECOMMENDATIONS FOR FURTHER STUDY

As already indicated, the problem of branch line abandonment has many facets and obviously all have not been discussed in depth in this study.

Three broad areas of the economy will be affected by removal of branch lines and all aspects of each area should be considered simultaneously for a general solution. First, there is the effect on farmers and farming communities. This has only been given superficial treatment in the present study in that it was suggested that hardships could accrue from abandonment. Further study could be made of the actual expected financial burden that will be imposed on farmers as a result of diverting their grain to adjacent points and incurring extra cost due to longer hauls. The possibility of benefits accruing to farmers due to the decrease in storage and handling charges made possible by economies accruing from larger scale operations of elevator firms would also have to be studied to balance the picture. Further analysis would also be required to test and confirm or modify the assumption that farmers are predominantly attracted to a grain delivery point because of its proximity.

Secondly there is the effect on companies operating country elevators. A study in depth has been made on the aspects of location and capacity of country elevators but the whole dimension of costs has not been treated. A cost study of individual elevator operations in particular and of the elevator industry in general is paramount to giving this study its full economic value. Two main aspects would be important in such a study:

- 1) The financial loss of capital investment due to loss of abandoned elevators.
- 2) The financial gains due to economies of larger scale

operations, i.e., decrease in number of elevators, decrease in number of elevator operators, lower cost per bushel of maintaining and operating larger units. A study along these lines has recently been undertaken for selected points in Manitoba. Similar studies encompassing all elevator points in Western Canada would have to be made before a rational reconstruction policy could be implemented.

The third area of the economy affected by abandonment is obviously the railways. This study has treated the railway aspect as given. A further study could be made on the economics of railway grain transportation in general and of branch line operations in particular. Figures on specific lines given in submissions by the railways to the Board of Transport Commissioners could be tested for their validity and objectivity.

A final interesting study could be made on the cost to government of maintaining branch lines versus the cost of subsidising reconstruction of elevators and of compensating the farmer for the loss of service; a service brought to his door-step mainly because of government policy.

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