

AN INVESTIGATION OF THE
IMPACT OF HIGHWAYS
ON THE TOWN OF
CARBERRY, MANITOBA

A Thesis

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by

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INTRODUCTION

In recent years the phenomenon of urbanization, and the shift of rural population towards urban centres have been the theme of many conferences and discussion groups. People have expressed their concern about the loss of rural population and the subsequent rapid growth and, in some cases, congestion of bigger urban centres. This has been a significant trend of human settlements in Canada and in many other countries, especially after the Second World War.

Manitoba, like other provinces of Canada, has generally followed this trend, and various reasons have been given for this. There has been a general increase in population either from the excess of births over deaths or by immigration, and the additional population has located in a much greater number in larger settlements than in smaller ones. In general, the trend of faster growth of larger centres exists, but the culmination of the trend may be in varying degrees, depending upon various restraints and factors.

Certain factors quicken the process of growth of centres, and of these, the transportation system plays a very important role. In the province of Manitoba, highways, amongst other means of transportation, may be considered to be playing an important role by having a great influence on urban or rural centres. The importance of railways, as evidenced in the early history of transportation in the province, is now taken over by highways.

OBJECTIVE

The objective of this thesis is to investigate the impact construction of new highways has had on a Manitoba community, in an attempt to discern the effect they have had on the growth of this community: did it grow, did it decay or was there any effect at all?

SCOPE OF STUDY

In order to achieve this objective two aspects were selected. The effect of bypassing a highway and the influence of highways on industrial location were chosen as the fields of investigation.

One of the main reasons leading to the choice of studying the impact of highway by-pass on a town is the scarcity¹ of studies of this kind in Canada. In the U. S. A. the Highway Revenue Act of 1956 led to a series of investigations about the benefits of highway improvements, and many agencies and universities have taken part in research in this field leading to a considerable amount of work being done already.

In Canada, however, there does not seem to be much work done in this field, and even more so in the case of Manitoba. In a country becoming rapidly urbanized such as Canada, a wider knowledge of the effect of highway improvements (by-passes, upgrading, rerouting, etc.) on com-

1. A reference to Om P. Tangri, Transportation in Canada and the United States, A Bibliography of Selected References 1945-1965, University of Manitoba, Winnipeg will reveal this.

munities seemed to be a legitimate subject of study so that a more realistic and sound set of policies on highway planning might be formulated. It is hoped that this study might be helpful in gaining an insight into the effects of highway relocations, and shed light in areas which might provide some background knowledge for the field of planning in Manitoba.

The influence of highway on industrial location was chosen as the second aspect of this thesis. These days, industry is considered to be a very important factor in boosting the economy of a community, and consequently many of the static or declining communities in Manitoba are trying to attract new industries to assist in their growth. The second aspect may therefore provide the same kind of background knowledge as in the case of the first aspect, that is, the effect of bypassing a highway.

STATEMENT OF THE PROBLEM

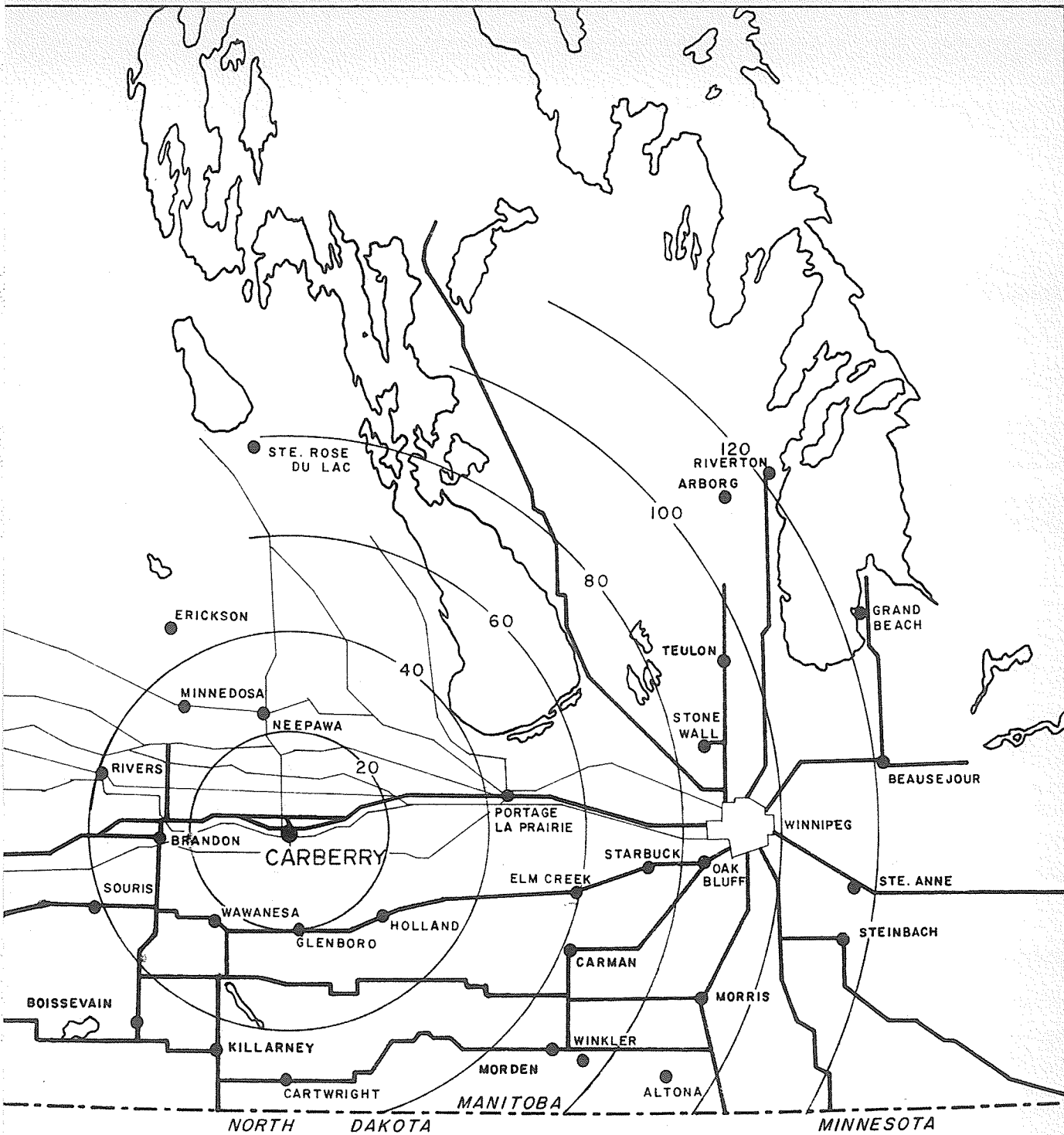
Community to be Studied

Carberry, Manitoba was chosen as the community to be investigated for this study, because it has been affected by some kind of highway improvement (see Map No. 2, page 21). Again, it is of such a size that the effects of the improvement might be investigated without much difficulty; whereas a larger community such as, say Brandon would include so many variables that the magnitude of the work would be outside the scope of this study. Also Carberry had some new industries which made it possible to investigate the second aspect in the same community. At first the impact of highway by-pass on Carberry will be examined, and

subsequently the influence on industrial location.

Carberry is about 105 miles west of Winnipeg (Map No. 1, page 5), and is a service centre of southwest Manitoba. The major volume of west-bound traffic from Winnipeg used to travel through the town of Carberry along the old highway - now Provincial Road 351. Since the completion of the section of Trans Canada Highway No. 1 from the junction of the Provincial Road 351 to Douglas and the subsequent diversion of the east-west traffic away from Carberry through the new highway, Carberry has lost a large volume of through traffic. The new highway now runs east-west about 1 1/2 miles north of Carberry as shown on the Map No. 2, page 21.

The section of Trans Canada Highway No. 1 bypassing Carberry has been open since 1957, and henceforth in this study the date of highway by-pass around Carberry would mean the year 1957. Since highways are usually opened during the construction season, this date would be between July and October of 1957.



LEGEND

- RAILWAY LINES
- HIGHWAYS

MAP NUMBER ONE

TOWN OF CARBERRY

LOCATION MAP

Circles At 20 Mile Intervals

CHAPTER I

IMPACT OF THE HIGHWAY BY-PASS

METHOD OF STUDY

A number of studies² have already been made in the U. S. A. dealing with the effect of highway improvements on various communities. Here, highway improvements mean bypassing, relocating, or upgrading of highways. By examining all these studies it was found that highway improvements have affected the communities in different manners viz. favourably, adversely, or without any effect worth mentioning. In some cases, for example in the studies made by the California Highway Commission, the studies generally indicate favourable economic results as a consequence of a by-pass; whereas in some other cases, such as in the studies made in Oregon by the Bureau of Business Reserach, University of Oregon, the experience is that the economic benefits in the affected towns seem to be less than the economic losses. Again, in some cases the "total" loss or gain was so small, compared with the total income of the community, that the opening of the by-pass was not reflected in any of the general indicators of business activity.

From an investigation of existing studies it seemed that whenever there were some appreciable changes as a result of highway improvements, those changes were reflected through certain indicators, which were in general common to most of the communities. A discussion of these indicators would further clarify the methods adopted for investigating the impact in the present study:

2. For a description of these studies see Appendix.

Population

Any change in population and the rate of increase or decrease will be one of the major considerations for assessing if a community was growing or decaying.

Travel Pattern

The change in travel pattern following the relocation of the highway facility is important, because such relocation changes the travel pattern, which in turn changes other characteristics of the affected community.

Land Value

The land values, before and after highway improvement, of properties which changed hands during the study period would give an indication of land value trends. The lands may be grouped according to land use and thus trends for different uses may be established.

Business Sales

The amount of sales before and after highway improvement studied for different types of business would give an indication of how different types are affected by the improvement.

Land Use Change

The study of change in land use pattern resulting from highway improvements would point to the favourable or adverse effects on

the community in relation to different kinds of land use.

In the light of the above indicators, which were already used in some American studies, the investigation was conducted at Carberry to examine the situation there resulting from highway improvement.

Before proceeding further with the investigation, it would be helpful to know the history of the growth of Carberry, which would provide the necessary perspective for the study.

HISTORICAL BACKGROUND³

Manitoba entered confederation at the close of the Riel Rebellion in 1870. At that time, the province did not include the area known as the Big Plains. It was not until 1881 that Manitoba's borders were extended from Sidney to Elkhorn. Thousands of settlers from the East moved west between 1878 and 1890 to take up the homesteads offered by the John A. MacDonald Government in its intensive campaign to settle the fertile land of the Western Plains. Many of the settlers established themselves on the Big Plains. Many of the farmsteads around Carberry still bear the family names of the people who went there in 1878. A few miles north of Carberry still stands the log house built by the MacLarens in 1879.

The Beginning of Carberry

The C. P. R. by 1882 had proceeded across the grassy plain where Carberry was soon to stand. At that time, some C. P. R. officials became interested in land within the townsite of De Winton, a booming town which was immediately east of the site of the town of Carberry. Since the policy of the railway was to keep its officials from making personal profits on land speculation, the Directors of the C. P. R. acted promptly when they

3. The following sources were referred to: Welland Stonehouse, The Carberry Plains, Issued by The Carberry Agricultural Society, The Rural Municipality of North Cypress, The Town of Carberry. Wartime Souvenir of Carberry, Carberry News-Express, Carberry, Manitoba, August, 1942.

came to know that some railway men held land in De Winton. As a result of the quick action taken by the C. P. R. , one night in the spring of 1882 the De Winton station was moved by 100 specially employed men two miles west to a spot which became the Town of Carberry.

Growth of Carberry

The spring of 1882 thus marked the birth of Carberry. Unlike the pioneer settlement on the Plain, Carberry followed rather than preceded the railroad. From the beginning, the town has been on the main line of the C. P. R. Later the C. N. R. built a branch through Carberry from Brandon Junction north to Neepawa. In more recent years, with the development of motor travel, Carberry was included in the route served by the province's Number One Highway, slightly bypassing Carberry, which has been incorporated into the Trans Canada Highway, an all weather road carrying heavy traffic. By this highway the journey to Winnipeg can now be made in less than two hours - a journey that took the first settlers six days with their creaking Red River carts.

The railway station was the first building in Carberry and T. D. Stickle was the first station agent. He later became a business man and mayor. In July of 1882 the second building in Carberry, a store, was built. In the same year, a post office was built, and H. A. Parley was the first postmaster, who a few years later built the Western Hotel on the corner of Main Street and Fourth Avenue. Following the first store came two others, built by the Lyons Brothers and Smith & McCall. The first residence was built by M. Wallace, the owner of a furniture store.

In 1883 Carberry had a population of over one hundred; with the increase in population, places of business and homes became more numerous. In 1890 Carberry was incorporated as a village, and in 1896 fire devastated the central part of Carberry. In the place of destroyed frame buildings were built brick structures which are in use even now.

Carberry, with its seven grain elevators, was one of the largest wheat shipping centres in Manitoba. These elevators were later removed to other towns on the Big Plain. A creamery started in 1897 and continued operation until 1919. The Carberry Machine & Manufacturing was incorporated in 1903, and the Carberry Flour Mill produced for twenty years until in 1907, it was forced to close down due to financial difficulties. Until recently, there was no major industry located at Carberry.

The first school in Carberry was built in 1883 - a simple one-room building. The present brick school building was built in 1895. Perhaps the period of greatest change and advancement was between 1895 and 1910. Carberry reached its peak population, about 1250, in about 1901 and for a time enjoyed the distinction of being the largest grain shipping centre in Western Canada.

The pioneer stage of Carberry was considered over by 1905. It was incorporated as a town in 1905, and the first Mayor was J. M. Eaton. Two years later the Town Hall was built.

Carberry, in 1915, was served by three banks, but the Depression led to a reorganization in the banking system. In 1934, the former Union Bank Building became the home of Carberry's remaining bank, the Bank of

Montreal which is still serving Carberry.

Two of Carberry's early hotels are on the corner of Fourth Avenue and Main Street. A third hotel once stood on the corner of Toronto Street and Third Avenue. The first hotel built was burned down in the early part of the century, and on this property in 1909 a brick structure was built which later became known as Nelson Hotel.

In 1889, the Carberry "News" was established. This was followed by the "Express" which was established in 1892. These two papers merged in 1910. The printing plant subsequently changed hands and is now publishing, the "News-Express," which is a weekly publication and the only newspaper published from Carberry.

Carberry in the Wars

During the World Wars, hundreds of Carberry men served in the armed forces. During World War II, the Air Force men from England, Australia, New Zealand, Ireland, Argentina, and Chile were in Carberry Airport for training purposes under the Commonwealth Air Training Plan. With thousands of airmen moving in and out, Carberry experienced a boom during World War II. After the airport was closed, business in the town resumed its normal pace.

Behind the prosperity and growth of Carberry since its beginning as a village there was always a group of public-spirited individuals. Its Mayors and Councillors are examples of unselfish men who devoted their time and energy to the betterment of the Town. These were the people due to whose effort Carberry became what it is now.

PRELIMINARY FIELD INVESTIGATION AT CARBERRY

At the outset, it was thought proper to make some sort of preliminary investigation by way of field study. The purpose of this investigation was to find out what happened since the by-pass opened, and to test the applicability of the indicators, mentioned earlier, to Carberry.

The approach was to have a general idea of the effect of the by-pass by Trans Canada Highway No. 1 by having a knowledge of the opinion of the residents of Carberry. For this purpose, some selected citizens and businessmen were interviewed. The results of these interviews are recorded below in the form of brief statements from these people.

1. Drug Store:

No adverse effect due to highway by-pass was felt. On the other hand, sometime after the opening of the by-pass the business went up, which was very likely due to the establishment of the Carnation Foods Company Limited plant at Carberry, and the additional money spent by the employees of the plant.

2. Printing Business:

This includes the publication of a weekly newspaper. No adverse effect was felt by the business as a result of the by-pass. As a matter of fact, there was more business after the by-pass opened than there was before, and all this probably happened due to the establishment of the Carnation plant.

3. Jewelry and Gift Shop:

The amount of business fell by approximately 20%, as a result of the by-pass. After Carnation's establishment, this loss in business was regained to the previous level, if not more. In the opinion of the owner, Provincial Road 258 helps bring more people through the town and has led to the increased sale of his merchandize.

4. Grocery and Dry Goods:

There was no apparent adverse effect on this business due to the by-pass.

5. Clothing Store:

The amount of this business also was unaffected by the opening of the by-pass.

6. Restaurants and Cafes:

There were four cafes before the by-pass opened, and since then three of the four continued their business in the town. The fourth one moved out of Carberry and relocated at the junction of Trans Canada Highway No. 1 and the access road (Provincial Road 258) to Carberry. Presumably it did so to improve business, or to get away from the loss of business, which might result from by-passing transient tourist traffic. At this junction, there was another new cafe established beside the one which relocated at that site. Thus, there are now two eating establishments at this site, one of them being operated in conjunction with a motel and the other with a gas station.

7. Gas Station and Service Garages:

Before the by-pass there were four gas stations, two of them having snack bars. Since the opening of the by-pass, one of the gas stations which had a snack bar in it, had to close down apparently due to the decline in business. The other three also had suffered some loss. It was difficult to get any estimate of the loss incurred by the gas stations, since two of the existing three stations had changed hands since the by-pass. The ownership of the third gas station, however, has been in the same hands since the by-pass opened.

Some indication of the adverse effects of the by-pass was obtained from the interview with the owner of this gas station. The gas station used to be open upto 10 P. M. all seven days a week, but after the by-pass was open for traffic, the flow of traffic reduced to such an extent that he had to keep the station completely closed for one day a week. He had also to reduce the business hours by closing it at 6P. M. In the year following the by-pass, the yearly sale of gasoline had dropped to 55,000 gallons from 125,000 gallons in the previous year. The owner had suffered a loss of approximately \$5,000 in his take-home money, compared with the amount he earned in the year before the by-pass was built.

This owner, besides selling gas, also deals in parts and implements. Since the starting of the Carnation plant in 1961, just outside the town limits, his total sales has been increasing steadily due to the sale of implements to nearby potato growers, who supply their produce

to the plant. Now he feels that his temporary loss due to the highway by-pass has been more than made up, and he thinks that, on the whole, his business has not been adversely affected except for one or two years immediately after the by-pass.

8. Real Estate:

The real estate agent interviewed started his business after the by-pass opened, and no other real estate firm was available which could give a picture of the real estate market before and after the by-pass. The real estate man interviewed did not have enough records of sales to indicate if there was any favourable or adverse effect due to the by-pass. But from his personal knowledge of the overall situation in Carberry, he did not think that the by-pass really had any adverse effect on business. The same person is also the owner of a liquor store, which also had been started since the by-pass opened, and the sales figures from this establishment led him to believe that the business had been on the increase steadily. He thought that the reason for all this was due to the establishment of the Carnation plant, which had been paying a good amount of money, in the forms of wages and price for potato, to the residents of Carberry. He further thought that, even if the by-pass had had some adverse effects immediately after its opening, that loss had been more than made up after some time due to the increased economic activity in Carberry, initiated by the Carnation plant.

9. Chamber of Commerce:

The president of the local Chamber of Commerce was interviewed, but he informed me that the record of sales in different businesses were not available for the period starting from the opening of the by-pass up to this date. Therefore, he could not give any definite figures, but his opinion, based on personal knowledge, was that business in Carberry, in general, followed an upward trend.

10. Town of Carberry:

The views expressed by the Mayor and the Secretary-Treasurer corroborated those expressed by the President of the Chamber of Commerce. The Secretary-Treasurer also referred to a number of new residences which were built on the old highway since the by-pass opened. Presumably, this was due to the road-side properties becoming more suitable for residential purposes, because the by-pass diverted the main flow of vehicular traffic away from the old highway route. He also mentioned the renovation and face-lifting of many existing houses which took place to meet the increased demand for better quality housing for the Carnation plant employees - another indication of the favourable effect of the Carnation plant.

From the result of the preliminary investigation, as recorded above, a general picture of the situation in Carberry began to emerge. This picture gave an impression that there was probably little adverse effect as was suspected on the basis of the knowledge in similar situations. Referring to the

American situation we find that:

"The experiences of California cities and towns upon being bypassed have been reported in numerous studies of the California Highway Commission. They almost universally indicate favourable economic results to follow the opening of the by-pass. These experiences differ from those of Oregon, where the economic losses seem to outweigh the economic benefits in the affected towns. The reasons for this probably are two: (1) The highway traffic in California is generally heavier than in Oregon and a principal highway through the main business artery has a far more choking effect on business than a similar situation in Oregon. (2) California's current rate of growth is much greater than that of Oregon. . . . "4

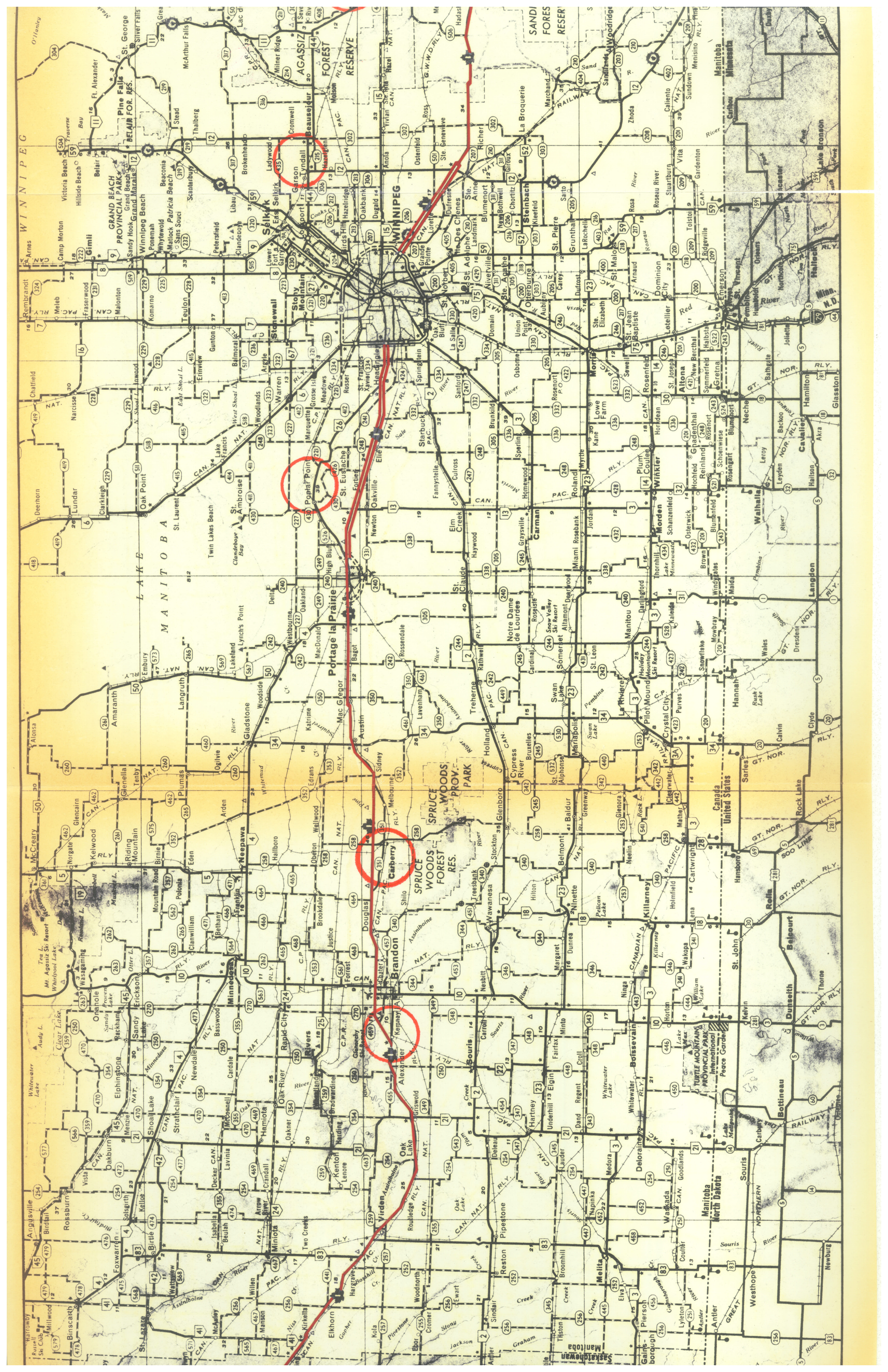
Thus, judging from the American experience, it seemed that a place with a low rate of population growth and a low traffic volume, was likely to have more economic losses than economic benefits. With a knowledge of the rate of growth and volume of traffic in Carberry, and following the general trend as observed in the United States, (while acknowledging the fact that there were so many factors uncommon to the American and Canadian scenes) the changes taking place in Carberry as a result of the opening of the by-pass could be anticipated.⁵

A reference to the Table 8.1, page 49 showing the population figures for Carberry would indicate that the rate of growth of Carberry during the

-
4. University of Oregon, Bureau of Business Research, Economic Effects of Through Highways Bypassing Certain Oregon Communities, Eugene, Oregon, 1956.
 5. The condition in Manitoba can be compared with that in Oregon rather than that in California; therefore, in Manitoba, a situation similar to Oregon might be expected following the by-pass.

period was not high. Unfortunately, the figures for the volume of highway traffic through and around Carberry before and after the by-pass were not available from the Highways Department of the Province of Manitoba. But it seemed that the volume was not heavy in the sense it was in California.

Thus it appeared, referring back to the American experience, that Carberry should have had more economic losses than economic benefits. But the preliminary investigation indicated that the reverse was true. What then were the reasons for that situation? It was felt that a further investigation would be useful, and that might be done by examining other communities in Manitoba which were subjected to similar changes, and by comparing Carberry with those communities. The examination of, and comparison with other communities were expected to be useful in determining if Carberry was different from American examples due to some specific reasons, or if the communities in Manitoba, in general, behaved differently from those in the States. For making this comparison, some selected Manitoba communities were examined.



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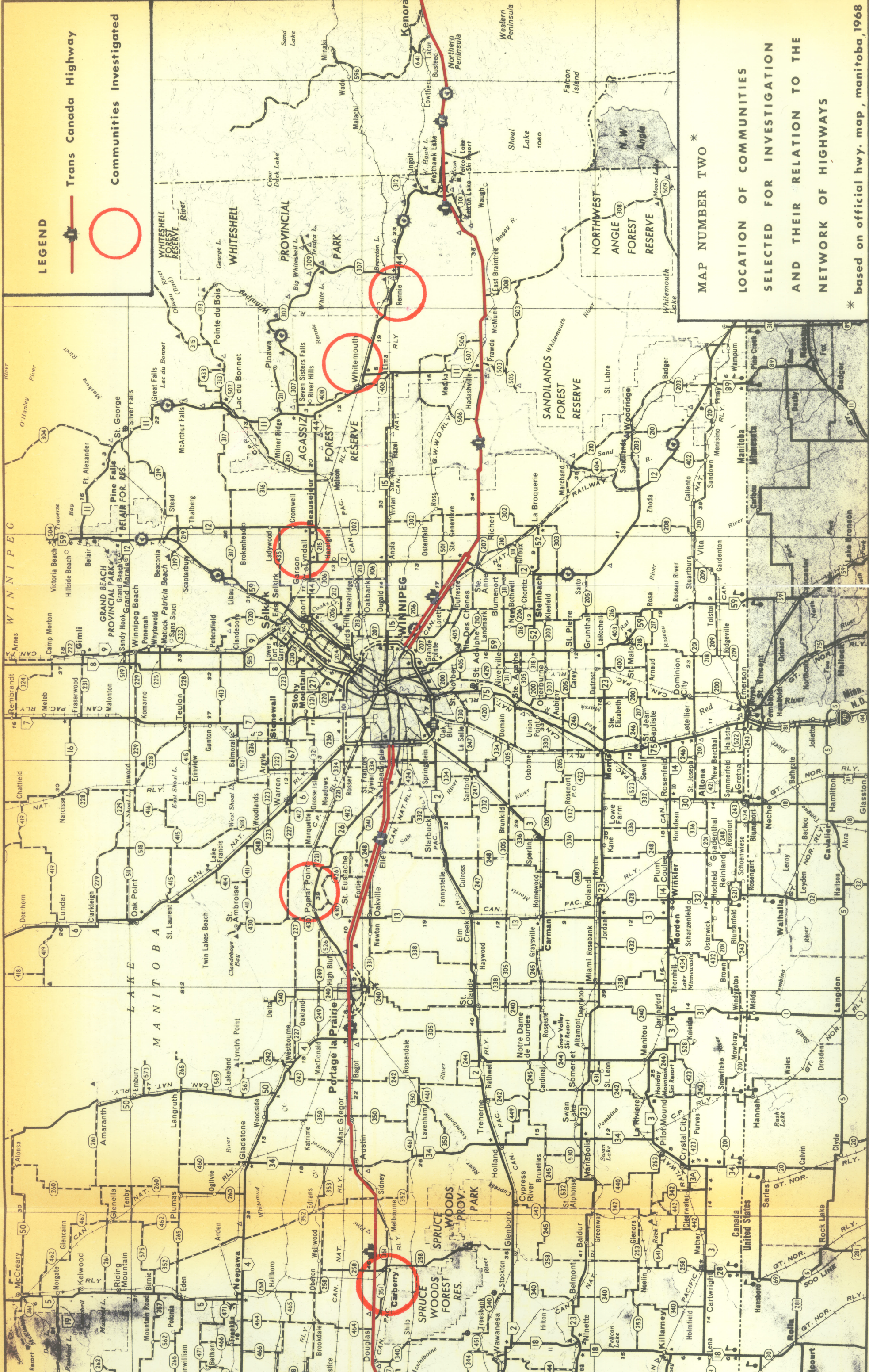
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LEGEND

Trans Canada Highway



Communities Investigated

MAP NUMBER TWO *

LOCATION OF COMMUNITIES
SELECTED FOR INVESTIGATION
AND THEIR RELATION TO THE
NETWORK OF HIGHWAYS

* based on official hwy. map, manitoba, 1968

TABLE 1

DATES OF OPENING TO TRAFFIC OF
DIFFERENT SECTIONS OF TRANS CANADA HIGHWAY No. 1

Section	Date Year
West Hawk Lake to Provincial Trunk Highway 11	1956
Provincial Trunk Highway 11 to Provincial Trunk Highway 12	1955
Provincial Trunk Highway 12 to Winnipeg	1954
Headingley to Portage la Prairie	1956
Provincial Trunk Highway 34 to junction of Provincial Road 351	1958
Junction of Provincial Road 351 to Provincial Road 258	1957
Provincial Road 258 to Provincial Trunk Highway 10	1956
Provincial Trunk Highway 10 to west junction of Provincial Trunk Highway 1A	1958
West junction of Provincial Trunk Highway 1A to Provincial Road 250	1951

Source: Design Office, Highways Department,
Province of Manitoba

OTHER MANITOBA COMMUNITIES EXAMINED

In order to select some other communities of Manitoba which were subjected to the same kind of impact as did Carberry, a number of communities which were bypassed were chosen. For this purpose, all the communities, which lost the major east or west bound traffic by the opening of the Trans Canada Highway No. 1, were considered irrespective of their distance from said highway. It is to be noted that, though the communities were not bypassed in the way Carberry was, they lost the major east-west traffic by the opening of new sections of the Trans Canada Highway, which thus diverted the traffic from the existing routes. For example, Poplar Point was not bypassed as such, but since the section of Trans Canada Highway between Headingley and Portage la Prairie was opened, the traffic flow was reduced considerably through the existing highway - now Provincial Trunk Highway 26. It was noticed that most of these communities were quite small in size.

The next step was to examine the indicators, referred to in pages 8 and 9, separately for each of the communities, which were to form a basis of comparison for the assessment of the situation at Carberry. Though field investigations were done for Carberry, it was not possible, due to limitation of time, to do field investigations for all these communities. The method adopted, therefore, was to gather whatever information was available in Winnipeg and in libraries.

From a tentative list of some eleven communities, only those of

some reasonable size and with some information available, were selected. The rest were eliminated because of being too small (Melbourne, Chater), or too big (Brandon) in size, or because of being under some influence which was absent in the case of Carberry. For example, Lockport was considered to be influenced by its location with respect to Winnipeg. Finally the following communities were selected for a more detailed investigation, as to how they were affected by by-passes:

1. Rennie
2. Whitemouth
3. Tyndall
4. Poplar Point
5. Kemnay

Map No. 2, page 21 shows the location of these communities in relation to the network of highways, both the existing ones through the communities and the ones which bypassed them. Dates of opening of different sections of Trans Canada Highway are shown in Map No. 3, page 30.

INDICATORS TO BE APPLIED

The following indicators, already used in some previous studies, were tentatively chosen to be applied for the examination of the communities, and the scope of their application were considered:

1. Effect on Traffic:

The effect of by-pass on traffic in terms of traffic volume could

not be obtained from the Highways Department of the Province of Manitoba. This indicator, therefore, could not be applied.

2. Population:

Population figures were considered for the period 1941 - 1961. In view of the fact that major shift of population in Canada did not occur to any pronounced degree before World War II, the population figures for the period starting from 1941 Census were considered. Again, though the census report for 1966 had just been published, it did not include information on unincorporated centres. So the latest census information available for both incorporated and unincorporated centres was up to and including 1961 figures. Therefore, population figures were considered for the period 1941-1961.

For the purpose of this study, also, the above period was appropriate since the latest year when any of the communities mentioned were bypassed was 1958, as shown in Table 1, page 22. This meant that the population figures were considered up to at least three years from the date of the opening of a by-pass. A period of three years seemed sufficient to cover any probable time lag between the opening of the by-pass and the consequent changes in the community, if any, in response to the by-pass. The population figures were based on census reports published by the Dominion Bureau of Statistics.

3. General Business:

As pointed out earlier, due to limitation of time it was not possible to make any field investigation in the five communities to determine the change in the level of business. Also, it was not possible to find any source of information dealing with business levels in those communities. An indirect method, therefore, was chosen where some relevant indicators would point to the general business level. The following indicators were selected to get an idea, indirectly, of the business level:

(a) Bank Debits - Cheques charged against customers' accounts.

A reference to the Bank Directory⁶ revealed that, except White-mouth, none of the communities had any bank. The banking activities of these places were carried through banks located at other places, and no separate figures were available for them. Moreover, bank authorities were not willing to release details of their transactions carried out in each branch as a safeguard against any possible gains to be made by other competing banking organizations. This indicator, therefore, had to be abandoned.

(b) Postal Revenue - Total postal revenue of a community could be used as an indicator of the level of business. Postal revenue

6. Bank Directory of Canada, Houstons Standard Publications Limited, Toronto, November, 1967.

for different post offices were obtained by making a reference to the records⁷ maintained at the Main Post Office, Winnipeg.

(c) Consumption of Electricity - The consumption of electricity could serve as an indicator of the general activities and business in a community, especially in the highway-oriented businesses. The total number of meters and total consumption in terms of kilowatt hours on an annual basis were available.⁸ No figures, however, for highway-oriented and other businesses respectively were available. The number of meters might be taken as representing the number of users, since most of the users had one meter; there were, however, some exceptions where a user had more than one meter. On the whole, the total consumption of electricity gave an indication of the total business and other activities in a community.

(d) Gasoline Sales - Figures indicating sale of gasoline would be most useful in determining the effect of by-pass on highway-oriented service stations, whose bulk of business depended on sale of gasoline. Those figures were not available from oil com-

7. List of Post Offices with revenues for the year ended March 31, Issued under the authority of the Postmaster General of Canada, 1954-1961, 1967.

8. These figures were obtained from Manitoba Hydro, Winnipeg.

panies, since it was not their policy to release retail figures for business reasons; also they had no record of sales figures as far back as 1955 or 1956. Therefore, the indicator could not be used.

Thus only postal revenue and consumption of electricity were to be used as indicators of the level of general business.

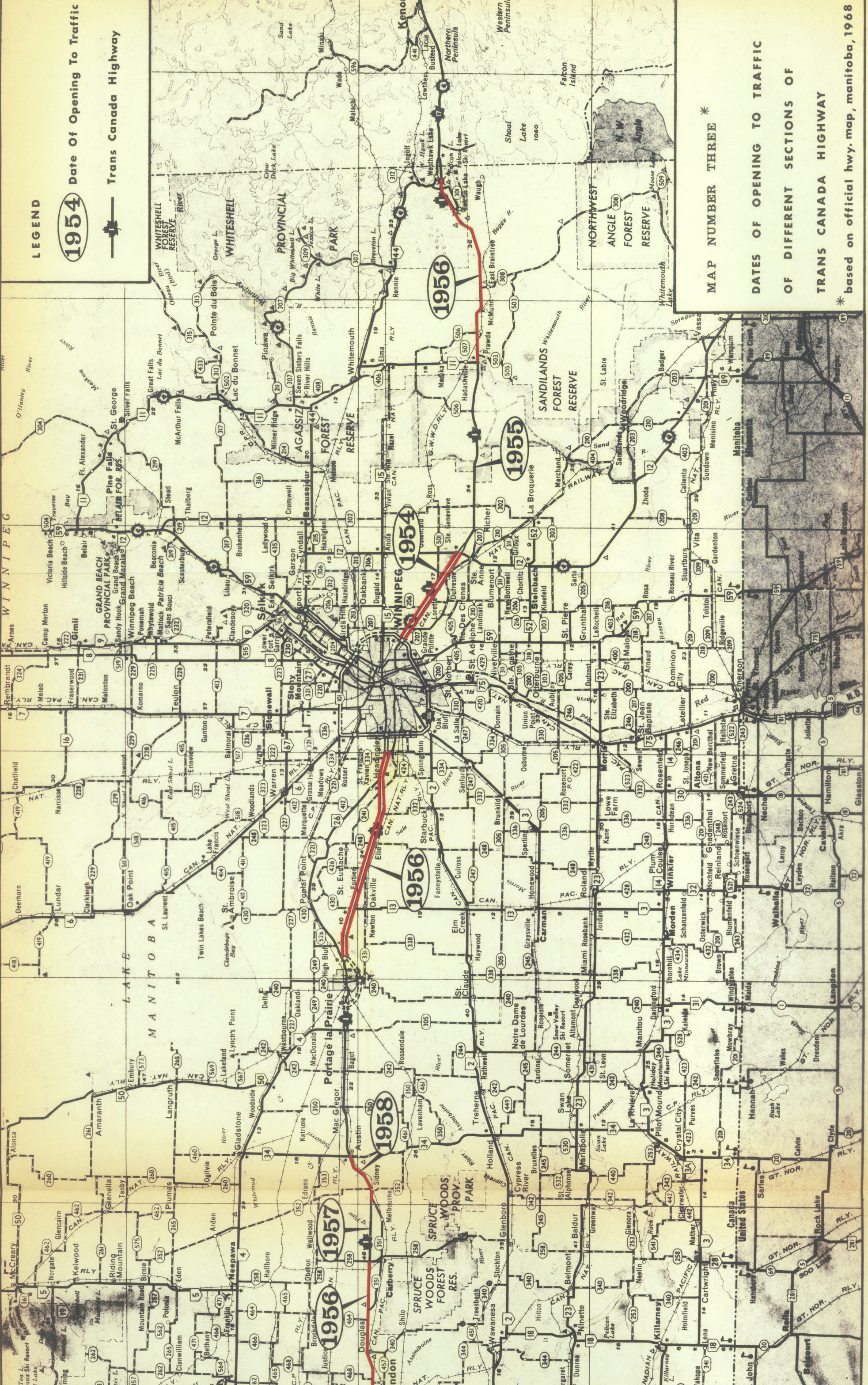
4. Property Values:

Information on assessment of properties might be used as an indication as to whether a community was prospering or declining. Assessment of all properties in the communities were available at the Municipal Assessment Branch, Winnipeg only for the current year, 1968. Due to nonavailability of assessment for previous years no comparison could be made between the assessment for the periods before and after the highway by-pass.

However, business assessment for the communities were available. In the case of some communities, the business assessment figures were recorded for a number of years, whereas in some others they were available for just one year. Wherever assessment figures were not available for more than one year, they had not been considered since the figure for one year could not give any indication of the trend. In any case, the business assessment, based on rental value, reflected the economic activity of the community, and served to get a picture of the overall trend of increasing or decreasing prosperity. The business assessment figures might, therefore, be used as another indicator.

Thus, from the tentative list of applicable indicators population, postal revenue, consumption of electricity, and business assessment were finally chosen to be applied to all the communities to get an insight into what happened after they were bypassed as a result of the construction of new highways. The general trend, as evidenced in the five communities, were then compared with the trend followed by Carberry to see if Carberry did or did not follow the trend evident in other communities chosen as basis for comparison.

Each of the communities listed on page 24 was examined in the light of the four indicators chosen for the purpose. In those cases where information on any indicator was incomplete, and no meaningful application was possible, that particular indicator for the community was not considered at all.



RENNIE

Date of completion of the highway

causing by-pass - 1956

TABLE 2.1

POPULATION OF RENNIE,

AND THE RELATED L. G. D. AND CENSUS DIVISION

Year	Rennie		Reynolds L. G. D.		Census Div. 19	
	Population	% change over 1941	Population	% change over 1941	Population	% change over 1941
1941	142	-	*	-	23,412	-
1951	131	-7.7	1,608	-	20,687	-11.6
1956	124	-12.6	1,664	-	20,363	-13.0
1961	135	-4.9	1,583	-	19,921	-14.9

* 1941 population not available

TABLE 2.2
YEARLY POSTAL REVENUE
EARNED FROM RENNIE
FOR THE PERIOD ENDING MARCH 31

Year	Postal Revenue \$
1954	1,051.01
1955	1,170.59
1956	1,101.53
1957	1,048.01
1958	1,091.80
1959	1,006.29
1960	1,060.32
1961	1,058.67
1967	993.00

TABLE 2.3
NUMBER OF METERS AND CONSUMPTION OF
ELECTRICITY IN RENNIE

12 month period ending March 31	Number of meters	Average yearly growth rate	Kilowatt hours	Average yearly growth rate
1953	Not served		Not served	
1954	Not served		Not served	
1955	18		3,454	
1956	53		151,390	
1957	49	15.8%	289,740	13.6%
1958	49		265,132	
1959	55		285,516	
1960	60		321,181	
1961	63		330,015	

Business Assessment:

No business assessment figures were available.

WHITEMOUTH

Date of completion of the highway
causing by-pass - 1956

TABLE 3.1

POPULATION OF WHITEMOUTH,
AND THE RELATED R. M. AND CENSUS DIVISION

Year	Whitemouth		R. M. of Whitemouth		Census Div. 19	
	Population	%change over 1941	Population	% change over 1941	Population	% change over 1941
1941	214	-	2,809	-	23,412	-
1951	318	+48.5	2,232	-20.5	20,687	-11.2
1956	245	+14.4	2,182	-22.3	20,363	-13.0
1961	385	+79.9	2,156	-23.2	19,921	-14.9

TABLE 3.2
YEARLY POSTAL REVENUE
EARNED FROM WHITEMOUTH
FOR THE PERIOD ENDING MARCH 31

Year	Postal Revenue \$
1954	3,320.25
1955	3,524.10
1956	3,452.57
1957	3,577.08
1958	3,660.53
1959	3,734.87
1960	3,721.98
1961	3,925.45
1967	4,682.00

TABLE 3.3
NUMBER OF METERS AND CONSUMPTION OF
ELECTRICITY IN WHITEMOUTH

12 month period ending March 31	Number of meters	Average yearly growth rate	Kilowatt hours	Average yearly growth rate
1953	164		660,524	
1954	172		777,424	
1955	181		945,093	
1956	189		1,121,032	
1957	235		1,276,035	
1958	252	5.4%	1,334,167	12.9%
1959	265		1,543,267	
1960	177		1,767,079	
1961	253		1,876,745	

TABLE 3.4

BUSINESS ASSESSMENT IN WHITEMOUTH

Type of Business	Year	Business Assessment \$
Electrical	1963	150
	1965	0
Implement Dealer	1963	600
	1965	400
Bus (charter)	1963	360
	1965	0
Service Station	1963	360
	1967	360
Service Garage	1963	570
	1965	960
Bulk Plant (oil)	1963	540
	1966	0
Implement Dealer	1963	660
	1967	180
Drug & Liquor Store	1963	420
	1967	0
Repair Shop	1964	600
	1965	0
Elevator	1963	1,170
	1965	1,830
General Store	1963	120
	1968	0

TYNDALL

Date of completion of the highway causing by-pass - 1956

TABLE 4.1

POPULATION OF TYNDALL,

AND THE RELATED R. M. AND CENSUS DIVISION

Year	Tyndall		R. M. of Brokenhead		Census Div. 5	
	Population	% change over 1951	Population	%change over 1941	Population	%change over 1941
1941	15	-	5,119	-	32,128	-
1951	229*	-	3,573	-30.2	28,896	-10.0
1956	351	+50.0	3,498	-31.6	29,667	- 7.6
1961	241	+ 5.2	3,202	-37.4	31,402	- 2.2

* Sudden increase attributable to opening of new industry.

TABLE 4.2

YEARLY POSTAL REVENUE EARNED FROM TYNDALL

FOR THE PERIOD ENDING MARCH 31

Year	Postal Revenue \$
1954	1,107.58
1955	1,200.65
1956	1,108.92
1957	1,137.29
1958	1,229.62
1959	1,202.75
1960	1,150.81
1961	1,198.67
1967	1,678.00

TABLE 4.3

NUMBER OF METERS AND CONSUMPTION OF
ELECTRICITY IN TYNDALL

12 month period ending March 31	Number of meters	Average yearly growth rate	Kilowatt hours	Average yearly growth rate
1953	122		208,748	
1954	117		260,616	
1955	126		315,858	
1956	125	2.6%	399,338	16.8%
1957	131		446,138	
1958	132		481,788	
1959	137		575,394	
1960	142		680,972	
1961	149		773,116	

TABLE 4.4

BUSINESS ASSESSMENT IN TYNDALL

Type of Business	Year	Business Assessment \$
Variety Store	1958	210
	1966	0
Fuel Dealer	1958	270
	1965	0
Elevator & Flour Shed	1958	690
	1961	1,140
	1963	1,740
Flour & Feed	1965	150
	1967	0
General Store, Grocery Dry Goods	1958	390
	1964	0

POPLAR POINT

Date of completion of the highway causing by-pass - 1956

TABLE 5.1

POPULATION OF POPLAR POINT,

AND THE RELATED MUNICIPALITY AND CENSUS DIVISION

Year	Poplar Point		Mun. Portage la Prairie		Census Div. 6	
	Population	% change over 1941	Population	% change over 1941	Population	% change over 1941
1941	137	-	7,630	-	26,614	-
1951	217	+58.3	6,700	-12.1	25,806	- 3.0
1956	258	+88.3	9,208	+20.6	30,233	+13.5
1961	257	+87.5	8,079	+5.8	30,929	+16.2

TABLE 5.2

YEARLY POSTAL REVENUE EARNED FROM POPLAR POINT

FOR THE PERIOD ENDING MARCH 31

Year	Postal Revenue \$
1954	1,647.79
1955	1,813.88
1956	1,608.25
1957	1,611.34
1958	1,658.02
1959	1,609.25
1960	1,619.65
1961	1,490.62
1967	1,526.00

TABLE 5.3
NUMBER OF METERS AND CONSUMPTION OF
ELECTRICITY IN POPLAR POINT

12 month period ending March 31	Number of meters	Average yearly growth rate	Kilowatt hours	Average yearly growth rate
1953	88		430,110	
1954	99		556,196	
1955	104		642,790	
1956	111	3.5%	761,730	12.4%
1957	113		855,393	
1958	116		904,374	
1959	118		1,000,217	
1960	120		1,102,035	
1961	118		1,203,947	

TABLE 5.4

BUSINESS ASSESSMENT IN POPLAR POINT

Type of Business	Year	Business Assessment \$
Garage	1957	600
	1958	100
Bulk Sales (oil), Tank Sales	1957	270
	1958	270
General Store	1957	600
	1958	600
	1962	640
Service Station	1957	450
	1958	450
	1965	150
Lumber Yard	1957	960
	1958	960
	1965	750
Groceries, Meats and Confectionary	1957	450
	1958	450
	1962	450
	1965	390
	1967 (April)	Deleted
Service Station and Lunch Counter	1957	360
	1958	360
	1965	240
Bulk Sales	1957	360
	1958	360
	1963 (October)	Deleted
Garage	1957	570
	1958	570
	1966	150
Electrical Repairs, Wood Working Shop and Plumbing	1957	480
	1958	480
	1960	570
	1964	520
	1965	480

TABLE 5.4 (cont'd.)

Type of Business	Year	Business Assessment \$
Garage	1957	450
	1958	450
	1965	150
Grain Buying, Flour Sales, and Coal Dealer	1957	1950
	1958	1950
	1961	1830
	1962	2490
Hunting Lodge	1957	100
	1958	100

KEMNAY

Date of completion of the highway causing by-pass - 1958

TABLE 6.1

POPULATION OF KEMNAY,

AND THE RELATED R. M. AND CENSUS DIVISION

Year	Kemnay		R. M. Whitehead		Census Div. 8	
	Population	%change over 1941	Population	% change over 1941	Population	% change over 1941
1941	38	-	1,464	-	17,803	-
1951	48	+26.3	1,315	-10.1	19,565	+ 9.8
1956	54	+42.1	1,230	-15.9	22,171	+24.5
1961	81	+113.1	1,191	-18.6	21,617	+21.4

TABLE 6.2

YEARLY POSTAL REVENUE EARNED FROM KEMNAY

FOR THE PERIOD ENDING MARCH 31

Year	Postal Revenue \$
1954	272.62
1955	289.05
1956	293.59
1957	341.24
1958	378.13
1959	307.54
1960	337.75
1961	357.54
1967	509.00

TABLE 6.3
NUMBER OF METERS AND CONSUMPTION OF
ELECTRICITY IN KEMNAY

12 month period ending March 31	Number of meters	Average yearly growth rate	Kilowatt hours	Average yearly growth rate
1953	20		102,756	
1954	18		114,500	
1955	20		129,174	
1956	21		159,898	
1957	24		187,481	
1958	24	5.4%	194,082	14.4%
1959	28		235,085	
1960	29		253,088	
1961	30		300,706	

Business Assessment:

Since the business assessment figures were available for only one year (1968), these figures were not considered here.

TABLE 7

Summary of the general trend, in the five communities, of the indicators after the opening of the by-pass in comparison with the situation before the by-pass opened.

Community	Population	Business		Property Value Business Assessment
		Postal Revenue	Consumption of Electricity	
Rennie	+	-	+	No information available
Whitemouth	+	+	+	-*
Tyndall	-	+	+	-*
Poplar Point	No change	+	+	-
Kemnay	+	-	+	No information available

+ Increase

- Decrease

* Information was not available starting from the year following the by-pass. But if there was a time lag for the effect of the by-pass to be felt on the business, the trend might have been influenced by the by-pass.

The picture that was obtained from the summary of studies of the communities showed that different communities behaved differently. There was, however, one uniformity in that the use of electricity had gone up in all of them. Each of the indicators were examined after the effective date of opening of the by-pass, and had shown different trends for different communities. These indicators were already used in some American studies, where adverse or favourable effects of by-pass were reflected through these indicators in a more or less consistent manner. For example, in the Oregon studies⁹ some of the indicators used in the present study were reported to be influenced, following a by-pass, in a similar way for different communities.

Therefore, it could be said that the growth or decline of the five communities examined in the present study were not affected by the by-pass to such an extent as to be reflected in the indicators. One important point to be noted was that, in terms of population, the communities investigated in this study were much smaller than those examined in the American studies.

DETAIL INVESTIGATION OF CARBERRY

A comparison of the result of the preliminary field investigation at Carberry with the findings for other five communities indicated that the effect of the highway by-pass on Carberry probably was similar to that on other communities. In other words, the growth or decline of Carberry probably was not affected to any great extent by the highway by-pass. But before

9. University of Oregon, Bureau of Business Research, op. cit.

being able to make a proper assessment, the effect of the by-pass on Carberry had to be examined in a greater detail.

This examination besides confirming or not confirming the findings of the preliminary investigation, was to provide a clearer picture of the changes taking place in Carberry before and after the opening of the by-pass. In addition to all the indicators, except business assessment, used for other communities some more indicators were used for Carberry. The information on these indicators was obtained by making field trips, by more detailed investigation, and by obtaining published materials on Carberry.

TOWN OF CARBERRY

Date of completion of the highway causing by-pass - 1957

TABLE 8.1

POPULATION OF CARBERRY,

AND THE RELATED MUNICIPALITY AND CENSUS DIVISION

Year	Town of Carberry		Mun. North Cypress		Census Div. 7	
	Population	% change over 1941	Population	% change over 1941	Population	% change over 1941
1941	931	-	2,465	-	36,669	-
1951	912	- 2.0	2,294	- 6.9	40,791	+11.2
1956	1,065	+14.3	2,822	+14.4	45,923	+25.2
1961	1,113	+19.5	2,304	- 6.5	49,536	+35.0

TABLE 8.2

YEARLY POSTAL REVENUE EARNED FROM CARBERRY

FOR THE PERIOD ENDING MARCH 31

Year	Postal Revenue \$
1954	8,156.74
1955	9,835.95
1956	9,217.96
1957	9,167.94
1958	9,098.10
1959	9,224.23
1960	9,449.10
1961	9,526.06
1967	14,626.00

TABLE 8.3
 NUMBER OF METERS AND CONSUMPTION OF
 ELECTRICITY¹⁰ IN CARBERRY

12 month period ending March 31	Number of meters	Average yearly growth rate	Kilowatt hours	Average yearly growth rate
1956	458		2,104,064	
1957	466		2,183,539	
1958	470		2,153,530	
1959	481		2,441,699	
1960	484		2,602,860	
1961	506	1.98%	3,050,555	9.82%
1962	541		3,350,000	
1963	545		5,145,503	
1964	552		5,382,206	
1965	542		5,871,001	
1966	569		5,721,397	
1967	569		6,034,581	

Bank Debits:

A discussion with the authorities of Bank of Montreal at the Winnipeg Main Office revealed that transactions at their Carberry branch (the only bank at Carberry) was comparatively lower during the period 1953 - 1965.

10. Kilowatt hour consumption by the Carnation Foods Limited has been excluded from these figures.

From 1965 onwards, the growth in transactions has been more rapid. Besides this no further information was available from them.

TABLE 8.4
ASSESSMENT FOR REAL PROPERTY AND
BUSINESS IN CARBERRY

Year	Real Property \$			Business \$
	Land	Building	Total	
1957	108,350	560,350	668,700	33,330
1958	145,720	697,710	843,430	32,010
1959	146,045	697,130	843,175	31,770
1960	146,055	719,820	865,875	31,410
1961	145,140	723,750	868,890	30,810
1962	148,170	777,390	925,560	29,910
1963	153,160	915,880	1,069,040	35,730
1964	153,610	942,600	1,096,210	34,530
--	--	--	--	--
1968	238,910	1,222,740	1,461,650	43,810

Source: Municipal Budget and Finance Branch, Province of Manitoba.

TABLE 8.5

ASSESSMENT OF PROPERTIES ON MAIN STREET,
CARBERRY FOR THE YEARS 1957 AND 1968

Description			Assessment \$ 1957			Assessment \$ 1968		
Lot	Block	Plan	Land	Building	Total	Land	Building	Total
52	9	44	510	4,700	5,210	930	8,400	9,330
21	24	44	710	8,730	9,440	630	5,920	6,550
22	24	44	570	4,000	4,570	890	4,620	5,510
23/25	24	44	1,470	8,980	10,450	2,380	7,710	10,090
26/27	24	44	960	5,320	6,280	1,530	5,580	7,110
28/29	24	44	940	2,760	3,700	750	5,370	6,120
30/34	24	44	2,120	6,070	8,190	3,600	6,690	10,290
35/38	24	44	1,680	6,330	8,010	2,760	5,570	8,330
39/40	24	44	890	720	1,610	1,320	430	1,750
22/25	41	44	2,180	17,270	19,450	3,510	25,030	28,540
26/27	41	44	700	6,860	7,560	470	3,570	4,040
28	41	44	430	3,100	3,530	790	2,510	3,300
29	41	44	540	2,720	3,260	790	7,170	7,960
36	41	44	540	2,060	2,600	790	3,070	3,860
37	41	44	540	2,280	2,820	790	2,470	3,260
38	41	44	470	2,720	3,190	790	3,910	4,700
39	41	44	540	2,580	3,120	790	2,990	3,780
40	41	44	810	6,460	7,270	1,050	5,330	6,380

TABLE 8.5 (cont'd.)

Description			Assessment \$ 1957			Assessment \$ 1968		
Lot	Block	Plan	Land	Building	Total	Land	Building	Total
19	23	44	510	1,120	1,630	740	1,260	2,000
20	23	44	770	2,190	2,960	1,050	2,300	3,350
1	42	44	810	4,290	5,100	1,050	4,340	5,390
2	42	44	540	2,620	3,160	790	4,600	5,390
3	42	44	520	3,130	3,650	380	1,950	2,330
6	42	44	540	3,100	3,640	290	1,840	2,130
7	42	44	540	3,900	4,440	340	2,920	3,260
8	42	44	540	900	1,440	790	1,170	1,960
9	42	44	560	4,890	5,450	340	1,930	2,270
10/11	42	44	1,060	10,300	11,360	700	4,310	5,010
16/19	42	44	2,180	9,220	11,400	1,290	2,470	3,760

Source: Town of Carberry (for 1957 figures)

Municipal Assessment Branch (for 1968 figures)
Province of Manitoba.

TABLE 8.6

ASSESSMENT OF SOME OTHER PROPERTIES

LOCATED IN DIFFERENT PARTS

(OTHER THAN MAIN ST.) OF CARBERRY

Description			Assessment \$					
Lot	Block	Plan	1957	1959	1960	1961	1962	1968
14	8	44	800	-	-	1,220	-	1,410
56/58	11	44	2,250	-	-	-	1,940	4,120
5/6	12	44	1,700	-	-	-	2,860	4,180
14/16	28	44	2,570	-	-	-	3,500	4,250
10/13 ex E16' of 10	A	47	-	340 (land only)	340 (land only)	-	-	-
N38' of 1	5	7930	-	640	640	-	-	-

Source: Town of Carberry &

Municipal Assessment Branch, Province of Manitoba.

TABLE 8.7

CHANGES OF TITLE OF CERTAIN PROPERTIES IN CARBERRY
THROUGH SALE, AND THEIR SALE PRICES

Lot	Description		Location	Sale Price \$			
	Block	Plan		1959	1960	1961	1962
N 1/2 of 37 & all of 38	6	44	Dufferin Street	-	1,500	-	4,600
19	23	44	Main Street	3,600	-	4,000	-
N38' of 1 & S75' of 4	5	7930	Young Street	1,100	800	-	-

Source: Municipal Assessment Branch,
Province of Manitoba.

An examination of Carberry in the light of the different indicators, based on as much information as was available from various sources, gave a picture of the situation there before and after the by-pass.

First, considering the population trend, it was found that the population figure from 1941 steadily increased except for 1951. The small decrease during the period 1941-1951 probably reflected some loss of people after the closure of the Air Force Training School at the end of World War II. The population figures between the period 1956-1961, during which the by-pass opened, showed an increase. During that period, there was also no additional increase in population due to other reasons - Carnation Foods Limited had barely started - and the overall population increased slightly. Therefore, it might be assumed that the by-pass did not have any adverse effect on population by way of causing closure of some businesses and thus making these businessmen leave the community.

The postal revenue (Table 8.2, page 49) for the year 1958, the year following the by-pass, showed a little decrease from the previous year, and then steadily kept increasing. It might be noted that there was also a decrease in the revenue from 1956 to 1957, a period during which the by-pass was not opened. So it could not be said with certainty that the decrease in 1958 was as a result of the by-pass.

The figures showing the consumption of electricity (Table 8.3, page 50) indicated that there was a drop in the number of kilowatt hours consumed in 1958, the year following the opening of the by-pass. Afterwards, from 1959 it had been steadily on the increase. It was quite probable that this

decrease in the use of electricity in 1958 was as a result of the by-pass and the consequent decrease of business. Since then, that loss has been made up.

Bank transactions showed that there was no particular effect noticeable in the years 1958 or 1959. Up to 1965 the rate of growth of banking was more or less the same.

Assessment for real property and business (Table 8.4, page 51) showed that the real property assessment went up steadily from 1957, whereas the business assessment declined from the year 1958, one year after the by-pass. That trend of decline continued until it went up again from 1963. As far as could be established this upward trend of business assessment resulted from the favourable economic influence of the Carnation Foods Limited.

Assessment for properties on Main Street, the principal shopping area of the town, were available for the years 1957 and 1968 (Table 8.5, page 52), and figures for these two years could be taken as a reflection of the situations before and after the by-pass. Since, in some properties, buildings might have been constructed, demolished, or altered it was considered safer to take into account the assessment of land only. This table showed that about one-third of the properties had a drop in land assessment, while the others showed increases, which were in some cases, quite high. Assessment available for some other properties in other parts of the town for different years (Table 8.6, page 54) also showed that the assessment went up steadily between the years 1957 and 1968.

Information on changes of titles of properties was available from the Municipal Assessment Branch, Province of Manitoba for the years 1959-1962

inclusive, which showed the sale prices of all properties sold during that period. The properties which were once sold as vacant lots and then resold with buildings on them, were not considered since in those cases proper comparisons were not possible. The information on changes of title (Table 8.7, page 55) was obtained from sales and assessment information covering many more properties.¹¹ Since the sales information was not available starting from 1957 it was not possible to determine from that set of information if the market value of a particular property increased or decreased due to the by-pass. It appeared from the table that, out of the three properties, the market value increased for two, while it decreased for the third.

With respect to change in land use, the locations of sites on which new residential buildings were erected since the opening of the by-pass, appeared in Map No. 4, page 59. This indicated that Provincial Road 351 became more desirable for constructing new homes. That road, which was the old highway running east-west through the town, used to carry a large volume of traffic. Since the by-pass had diverted the main flow of vehicular traffic away from the old highway, lots along it became more suitable and

11. Information on changes of title was available for about seventy properties for the period 1959-1962. After checking the particulars of all the properties against each other, it was found that only three properties changed hands more than once during that period, and details of those three properties only appeared in the table.

TOWN OF CARBERRY

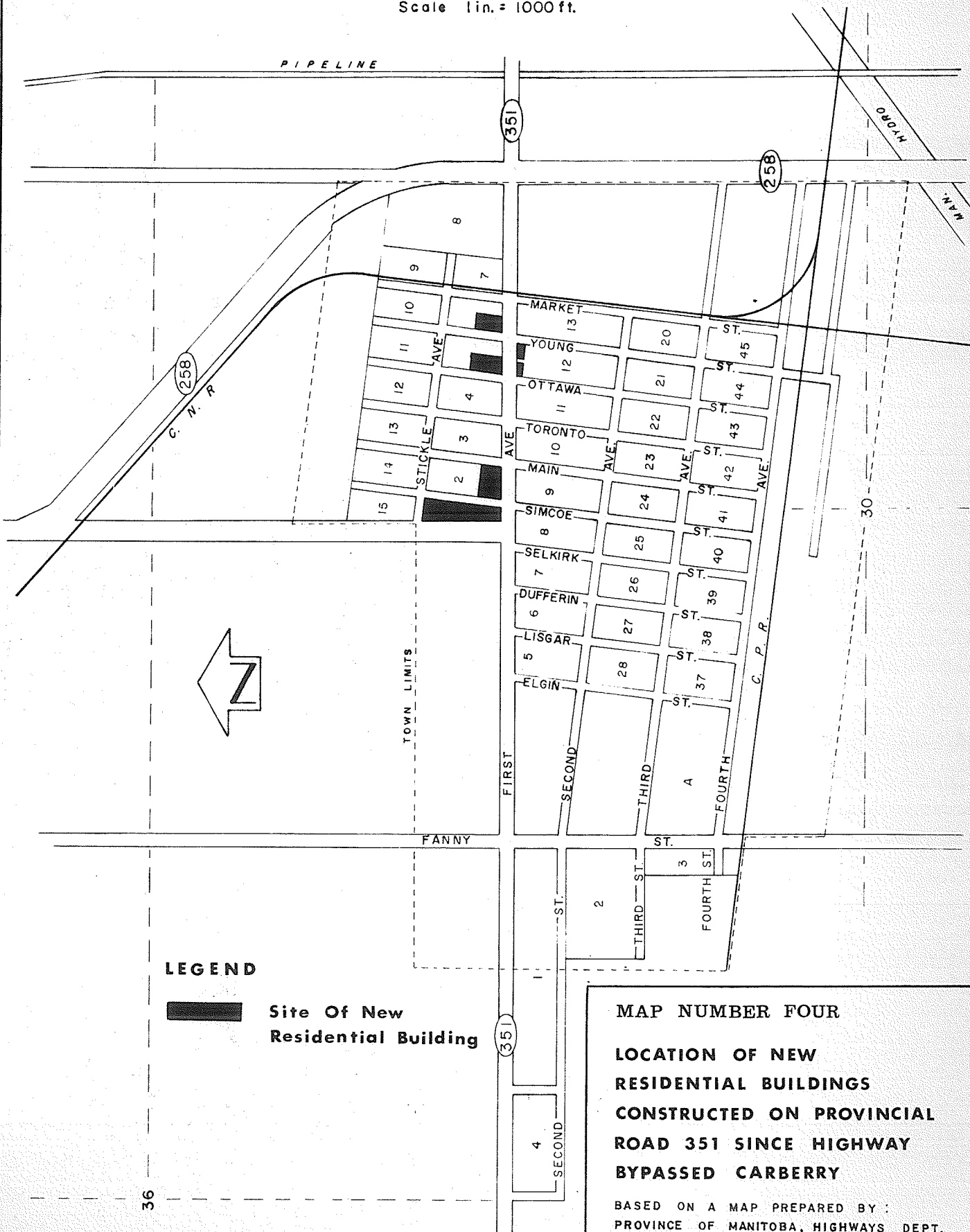
PART OF SEC'S 30 & 31 TP.10-14W.

AND

PART OF SEC'S 25 & 36 TP.10-15W.

MUN. OF NORTH CYPRESS

Scale 1 in. = 1000 ft.



LEGEND



Site Of New Residential Building

MAP NUMBER FOUR

LOCATION OF NEW RESIDENTIAL BUILDINGS CONSTRUCTED ON PROVINCIAL ROAD 351 SINCE HIGHWAY BYPASSED CARBERRY

BASED ON A MAP PREPARED BY : PROVINCE OF MANITOBA, HIGHWAYS DEPT. DESIGN OFFICE JAN. 1967

desirable for residential purposes, because a noisy stream of vehicles was no longer there, but good accessibility and other advantages were still present.

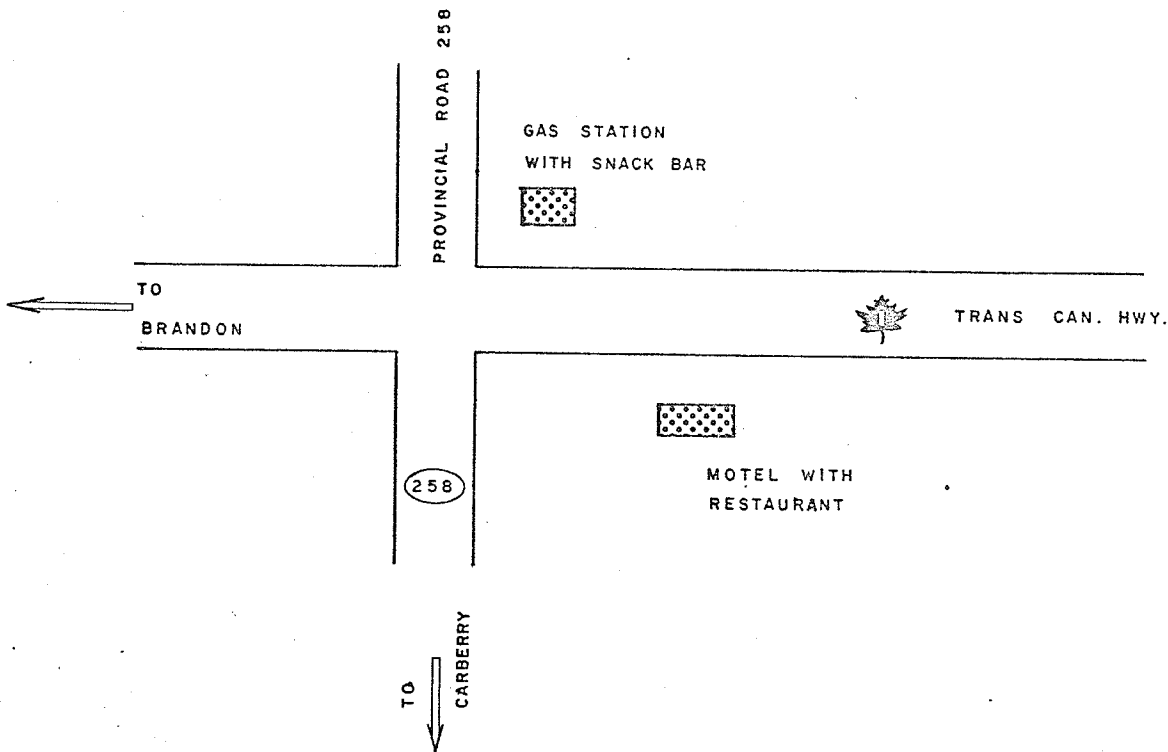


FIGURE 1

CHANGE IN LAND-USE CAUSED BY
TRANS CANADA HIGHWAY

The new highway also caused some changes in land-use at its junction with Provincial Road 258, besides influencing the land-use on Provincial Road 351. The change to commercial land-use at the junction of Trans Canada Highway and Provincial Road 258, as shown in Figure 1 above, took place with the construction of a gas station, a motel, and eating places in each of these. The extent of change in land-use, however, appeared to be quite small.

CHAPTER II

INFLUENCE OF HIGHWAYS
ON INDUSTRIAL LOCATION

It became apparent in the process of field investigations that no adverse effect due to the relocation of highway was noticeable, because new industries, and mainly the Carnation Foods Company Limited, had an offsetting beneficial effect on the town.

It seemed therefore worthwhile, as the second aspect of this thesis, to examine what was the role of highways in the location of the Carnation plant at Carberry, and what effect did the plant have on the economy of this town.

METHOD OF STUDY

In this part of the study, the prevalent theories and views on the location of industries with a special reference to the role of highways, were first considered. Then, other factors contributing to the industrial location resulting mainly from the influence of highways, were investigated. Finally, the case of Carberry was reviewed in the light of these to see if the industrial location here conformed to these theories and views, and to assess the role of highways on industrial location.

The economic effect of the Carnation plant was then examined on the basis of information available on the economic condition of Carberry before and after the establishment of the plant. For the purpose of examining the effect of industries on the economy of Carberry, only the Carnation plant was considered. Other minor industries, mentioned later in this chapter, were not taken into account since their influence on the economy of Carberry was considered negligible in view of their plant size, number of

employees and the general opinion of the people of Carberry.

THEORETICAL CONSIDERATIONS

In an attempt to discern the reasons for a particular locational choice of an industry three activities, which are involved in the production of goods, should be distinguished: procurement, processing, and distribution.¹² While assessing the suitability of a site an entrepreneur will consider the differences in cost of locating the industry at that site and at other sites with respect to each of these three activities. Assuming that (i) the sites considered for location of industry have adequate factors of production, and (ii) no significant difference in processing costs exist between the sites, the comparison of economic advantages of locations can be reduced to a comparison of transportation costs.

12. This distinction is developed by Edgar M. Hoover in The Location of Economic Activity, McGraw-Hill, New York, 1963. The discussion that follows is based on Hoover's analysis and John B. Lansing, Transportation and Economic Policy, Free Press, New York, 1966.

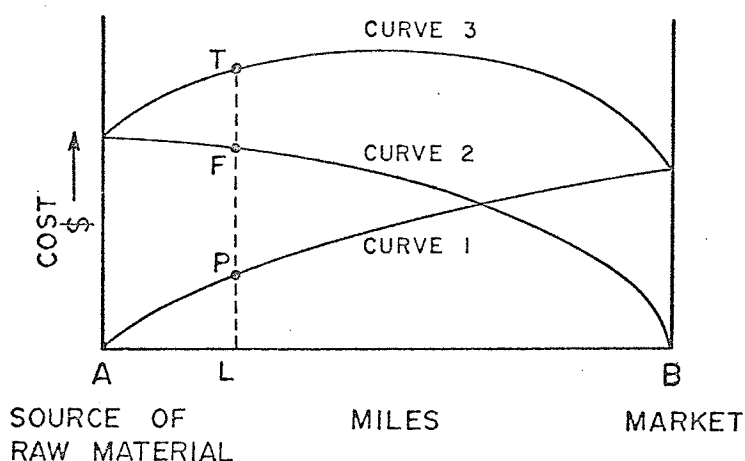


FIGURE 2

RELATIONSHIP BETWEEN PLANT LOCATION
AND TOTAL TRANSFER COST FOR AN INDUSTRY

Let us consider a situation with one producer, one source of raw materials, one market, and one single product. The diagram¹³ above shows on the horizontal axis two locations A and B, respectively the source of the single raw material and the single market, the distance between them being in miles. The vertical axis represents cost in dollars.

Curve 1 shows, for different locations, the cost of shipping to the plant the raw material needed to produce a given number of units of the product. Curve 2 shows, for different locations, the transfer cost of finished goods produced from the same volume of raw materials considered for curve 1. At any particular point between A and B, such as the point P, the procurement costs are indicated by the vertical distance LP and distribution costs by the distance LF. The total transfer cost at location L will

13. John B. Lansing, *op. cit.*

then be the sum of LP and LF and is equal to LT. Thus if a number of locations are considered, the total transfer costs may be found out for those locations, and these total transfer costs joined by a curve appear as curve 3. A study of this curve will be useful to the entrepreneur in determining the location where the total transfer cost will be minimum.

It is to be noted that it is the transfer costs associated with a site that the entrepreneur considers, and not the physical distance itself. These locations correspond to different orientations actually found in different industries. For example, some industries are material-oriented, some are market-oriented, while still others are oriented to intermediate locations.

In this respect it is necessary to consider the relative quantity of raw material in comparison to the quantity of finished product to be shipped. If there is a great loss of weight in processing a particular raw material, there will be reason to locate the processing near the source of the material. Again, the procurement cost of raw materials of perishable nature will be more than the distribution cost of the finished product, which is not perishable. In consideration of the total transfer costs, in this case also it will be reasonable to locate the processing near the source of the raw material.

A report¹⁴ prepared by the Department of Research and Transport

14. This is quoted in part by J. Gordon Blair in "Panel Discussion on the Influence of Highways on Industrial Location," Proceedings of the 1965 Convention, Canadian Good Roads Association, Saskatoon, September, 1965.

Economics, American Trucking Associations, Inc. in May 1963, and written by Jas.F. McCarthy provides further views on the effects of highway transportation on industrial location. This report is the result of a study sponsored by Rockwell-Standard Corporation of Pittsburgh as a project of the ATA Foundation. The report in part says:

"Increased research and development by private industry during the past 10 years are now producing new products and processes, requiring new production facilities and plant locations....."

"Because new plants broaden a community's economic base, providing jobs and essential tax revenue, more time, money and effort is being expended in this field than ever before...."

"As industry changes its location pattern on a vast scale, all of the transportation factors of plant location, involving all transportation modes, the transport of both raw materials and finished products, the movement of the employees of industry as well as the goods of industry, assume new importance.

"And in particular among the transportation factors of plant location, the truck and the highway are playing the singularly important role of opening for industrial development land on which such development would not have been feasible before.

"Also, as more plants seek improved access to markets, speedier delivery and a lowering of inventory costs, the modern truck is becoming, increasingly, a warehouse on wheels.

"All of these developments have combined to make truck service and modern highways critical factors in the plant location process.

"The study explored these developments but, more important, it sought to reach the man on the other side of the desk - the executive making plant location decisions - to learn where he was moving and why."

The major points of discussion by Blair in his address¹⁵ to the 1965 Convention of Canadian Good Roads Association also emphasize the importance of highways in the plant location process. The points are:

1. The presence of good highways is a major consideration in the selection of a site for new plant facilities. However, it is the ease of access to these roads which is the attraction, not merely adjacency to them. Design of highways and the connections between the two, must be improved if the interchanges are to assist in the elimination of congestion rather than to add to it as is the case in so many places today.
2. Except for industries which desire a frontal location on a highway because of its value in advertising, many companies prefer a location within easy access of the highway rather than to front on it.
3. Restrictive highway legislation or the application of regionally interpreted regulations regarding signs in some provinces are greatly reducing the value of highway frontage locations from an advertising standpoint.
4. Sites along or convenient to such routes as Highway 400, the MacDonal Cartier Freeway and the Queen Elizabeth Way in Ontario are considered choice locations at any points. In some areas, particularly those which directly serve our metropolitan areas, attractive industrial parks have been established. This applies particularly at areas convenient to access points.
5. Knowledge of proposed highway locations is vital in the process of plant site location. No company wishes to construct its new modern facilities in attractive surroundings at great cost only to find the site directly in the path of a new road or a redesigned interchange. This could result in the originally attractive, useful site being cut up into odd-shaped, hard-to-use sections. This knowledge is of special importance when considering the location of an industrial park. An arterial highway through an industrial park should be studiously avoided.
6. Locations close to interchanges are probably most advantageous because of ease of access to roads leading in several directions,

15. J. Gordon Blair, op. cit.

and access by employees from feeder roads in their own cars or by public transportation vehicles used by employees. However, some firms have determined that it is not desirable to locate too near to interchanges because of:

- a) the difficulty of entrance and exit because of heavy traffic concentration;
 - b) the highly complicated design of some interchanges and the resultant confusion;
 - c) locations too near these points may be too noisy.
7. Sites along highways outside the fringe areas of larger metropolitan areas are often overpriced. Because of the abundance and variety of locations available, industry has a different idea of value and price than is the case with the owner or speculator.
8. As arterial highways continue to create great uncrossable barriers in our rapidly expanding populated areas, some study must be made of the possible use of the median of the highways to carry within them trunk water and sewer lines. Present design is adding greatly to the cost of essential services in the built-up areas by requiring duplication of trunk service lines on both sides of the highways. It is completely unreasonable and uneconomic that the construction of provincial highways should cause the municipal property owner and taxpayer to assume heavy debt through the duplication of expensive but essential services.
9. Present design does not permit quick and easy access to high-speed roads of such emergency safety equipments as fire trucks, ambulances, etc.

The theoretical considerations and expert views having been examined, the next logical step was to find out from the management of the Carnation Foods Company Limited the reasons which led them to locate their plant at Carberry. It was believed that this information would make it easier to understand what part did highways play in the decision taken by the management for the location of the plant. This would also indicate whether there was a relation between the theoretical considerations discussed so far and the

management's decision.

In an attempt to obtain their views, enquiries were made both to the Research and Development Section, Food Division of the J. R. Simplot Company at Idaho, and to the plant at Carberry. But no information was available except for the letter¹⁶ from their office at Carberry which said in part:

"The reasons for establishment [of the plant] in Carberry I would imagine depended on the soil which is good for potato growing and also the availability of water."

Since no views relating to the role of highways were available from the management of the plant, the location of the plant at Carberry was to be reviewed in the light of other theoretical considerations only.

OTHER FACTORS CONTRIBUTING TO THE LOCATION OF INDUSTRY

1. The attractions of small towns to industry:

Several factors contribute to the attractions presented by small towns to new industries seeking a suitable location. A discussion of these might explain the reasons for locating new industries at Carberry, a small town.

According to Gustav E. Larson¹⁷ some of the reasons why industry favours small town location included:

-
16. Letter to the author from the Carnation Foods Company Limited, Carberry dated February 26, 1968.
 17. As quoted in the Manitoba Department of Industry and Commerce, Special Issue No. 1, 1968.

- i) the desire to avoid congestion;
- ii) opportunity to take advantage of untapped labour;
- iii) attractive wage rates;
- iv) availability of workers who can be easily trained;
- v) high productivity of labour;
- vi) desire to avoid large city competition for labour; and
- vii) availability of large plant sites at reasonable costs.

Larson also categorized the small towns that can be roughly classified by their industrial development possibilities as follows:

- a) Small towns in the pale of large population centres. These towns will grow whether they want to or not. They will be favored not only by new industry from outside the region, but also by industry leaving the central city.
- b) Administrative centres, university and tourist towns should do well in the future because government, education, and tourism are growth industries. These towns are also generally pleasant to live in.
- c) The last class, small towns in strictly rural area, faces a most difficult job of area development.

The reasons for the lack of growth of industries in small rural communities include isolation from larger population centres, nonavailability of

skills, and lack of services and facilities which larger industries need.

The real hope for the future for these communities lies mainly in the following three possibilities:

- i) small industries based on local resources and markets;
- ii) industries tapping local labour supply; and
- iii) providing recreation, repair and other services for nearby centres.

2. Potentialities for new industry:

In an attempt to find out what other potentialities Carberry had for development of industries, the published materials on the subject were consulted, and the following indication was available from the findings of The Economic Survey of Southwest Manitoba:¹⁸

"There is apparently, a substantial quantity of ground water in the Carberry district. This water seems to be an underground stream or lake, but only sketchy information is available. However, tests made on two wells some years ago, indicate that flows of upto 600 gallons per minute may be anticipated from sandpoint wells of less than 100 feet in depth. It is recommended that tests be carried out to determine the extent of these water resources and the quantity of water that can be withdrawn.

"The Southwest Region has been shown to have several areas ideally suited for vegetable growing, the most fertile being near Carberry. A plant located at Carberry would also have the advantage of easy access to road and rail transportation to east and west. Manitoba already has one plant processing frozen vegetables, but none in the Southwest Region. . . ."

18. Economic Research Corporation Limited, Economic Survey of Southwest Manitoba, Montreal, 1960.

With a knowledge of the importance of highways in the location of industries, the attractions of small towns to industries, and the resource potential of Carberry, it would be easier to review the situation in Carberry to find out if the establishment of industries there conformed with theories. The background information on the establishment, growth, and the nature of operation of the Carnation plant and some relevant statistics about it would be helpful for this review.

HISTORICAL AND OTHER INFORMATION ABOUT THE CARNATION PLANT¹⁹

The plant of the Carnation Foods Company Limited is located on the eastern side of Provincial Road 258, and just outside the town limits of Carberry. The present site of the plant originally was used as an R. A. F. training centre. This centre was established near Carberry for the training of air force personnel, as mentioned earlier. After World War II was over, the training centre was handed over to R. C. A. F. , who used it for some time, and later, abandoned its operation. It was then purchased by the Bristol Aircraft Company (now Bristol Aerospace) to be used for maintenance jobs.

Shortly thereafter, Bristol Aircraft Company wanted to dispose of the property. About the same time the North Cypress and Carberry Community Development Corporation Limited was formed at the initiative of

19. The following sources formed the basis for this:
i) the information available from the Carnation Foods Company Ltd.
ii) the Manitoba Department of Industry & Commerce, Special Issue No. 1
iii) interviews with the businessmen of Carberry.

the business people of Carberry. The charter date of this development corporation was March, 1960, and the initial capitalization was \$40,000. The corporation then bought the property from Bristol Aircraft Company, and added some new structures and services to it.

Finally, J. R. Simplot Company of Idaho bought this property, and in 1961 established a potato processing plant here. Soon it became a steadily growing industry, and sold a large part of its ownership to the Carnation Company of California. Though held under joint ownership, it was named Carnation Foods Company Limited.

The land surrounding Carberry, which is ideal for growing top quality potatoes, was sown at the beginning. In 1962 the area under cultivation was 460 acres. At present there are 8,000 acres under cultivation at Carberry, and 4,000 more at other points in south central Manitoba. The weekly consumption of the plant is 3,100,000 to 3,250,000 pounds of Manitoba-grown raw potatoes.

Most of the potatoes consumed by the plant are grown under contract, and the farmers are responsible for the supply of their product to the plant. Farmers who supply potato to the plant are located, beside Carberry, at McGregor, Plum Coulee, Portage la Prairie, and Winkler. The plant consumes these potatoes for various products - French Fry, Potato Gem, Dehydrated-Diced Potatoes, the Granule and the Crystal lines. The quick freeze tunnel at the plant has a capacity to freeze the full production of French Fries. The cold storage has a capacity to hold approximately 20% of the annual production of French Fries.

This plant turns out 250,000 pounds of finished products each day. They are marketed under the Simplot name for institutional use and the Carnation name for home sales. The product of this plant is sold throughout Canada, and is also exported to Europe, Australia, and the Caribbean.

The plant employs, during the peak of its season, approximately 350 persons including 160 female employees. During the summer, which is the slack time for the plant, approximately 100 male persons are employed. The annual payroll is over \$750,000. About one third of the total employees now have their homes in the town of Carberry, and the rest are commuters from nearby areas.

OTHER INDUSTRIES

Other than the Carnation plant, there are two other industries²⁰ at Carberry. One is Carberry Seed Plant, which cleans seeds, and employs 2 permanent and 3 seasonal employees. This plant was established in 1960. The other is Stramit Corporation Limited, which manufactures structural strawboards, and employs 3 permanent and 14 seasonal employees. This industry started operation sometime after 1960. Both of these industries are adjacent to the Carnation plant.

THE CASE OF CARBERRY REVIEWED

From the discussions on the importance of highways on industrial location, it would appear that in an industry involving a manufacturing pro-

20. Community Report on Town of Carberry, Department of Industry and Commerce, Winnipeg, August, 1967.

cess with a great loss of weight of the raw material, the industry would be material-oriented. Consequently, the industry would tend to locate near the source of the raw material. In the case of the Carnation plant we found that dehydration was the major process involved in the manufacture of the product. Theoretically, this loss of weight of the raw material, through dehydration, would require the industry to be material-oriented, and that was the case in the location of the plant.

Again referring back to the earlier discussions (pages 67 and 68), it appeared that the presence of highways was a major consideration in industrial location. It was also mentioned that the ease of access to the roads was more important than mere adjacency to them. This was the case of the Carnation plant which had been located near Provincial Road 258, and through it had a good access to Trans Canada Highway and a major highway system. The proximity of the plant to a major highway system thus conformed with the theories on the subject.

It was found that the establishment of the plant at Carberry had been influenced by the good highway system, and had exploited the advantages of the potential resources and those presented by a small town. Thus the Carnation plant, in its location, had followed the anticipated pattern as expected from the considerations discussed in this chapter. The reasons for this particular location, however, could not be checked against the considerations of the management for their site selection. But it may be presumed that their line of thinking was in keeping with the theoretical considerations. Hence the establishment of the plant at Carberry.

EFFECT OF THE CARNATION PLANT ON THE ECONOMY OF CARBERRY

Before closing the chapter it would be interesting to examine the effect of the industry on the economy of the town. Table 9, page 77, gives an abstract of the situation with respect to some of the economic aspects.

It would appear from Table 9, page 77, that the set of information were not given for the same year for all the different items. Information on the earlier period was mainly for 1956 and the rest for 1957, and that for the later period was mainly for 1966 and the rest for 1967. Since the Carnation plant started in 1961, it seemed proper to classify the information for 1956-57 and 1966-67 as representing respectively the periods before and after the establishment of the plant.

It might be noted from the table that the trading area population figures were given for 1957 and 1967, whereas gross incomes of trading area population were given for 1956 and 1966. The 1957 and 1967 population figures were considered for computing the per capita incomes of trading area population in 1956 and 1966.

A comparison between the figures, as shown in the table, for the periods before and after the establishment of the plant would indicate an increase in the economic activities of Carberry during these periods. The number of industrial plants, the manufacturing value, and the manufacturing payroll all reached their respective levels in the 1966-67 period from nothing in the 1956-57 period. The levels attained were considerable for a town of the size of Carberry.

It could, therefore, be inferred that new industries starting opera-

TABLE 9

SOME STATISTICS ON CARBERRY
FOR THE PERIODS BEFORE AND AFTER
THE ESTABLISHMENT OF THE CARNATION PLANT

	Before Carnation plant was established	After Carnation plant was established
* Population	1956 1, 065	1966 1, 265
Gross income of population - \$	1956 1, 350, 000	1966 2, 200, 000
** Per capita income of population - \$	1956 1, 267	1966 1, 739
Trading area population	1957 3, 000	1967 3, 500
Gross income of trading area population - \$	1956 3, 800, 000	1966 6, 150, 000
** Per capita income of trading area population-\$	1956 1, 266	1966 1, 757
Total construction - \$	1956 Nil	1966 158, 000
Retail trade volume -\$	1956 2, 870, 000	1966 4, 600, 000
Number of Industrial plants	1957 Nil	1967 4
Manufacturing value - \$	1956 Nil	1966 3, 900, 000
Manufacturing payroll - \$	1956 Nil	1966 1, 000, 000

Source: "Statistics on Cities and Towns in Manitoba," Trade and Commerce,
August, 1967.

* Figures for 1957 and 1967 in the original table replaced by 1956 and
1966 figures based on Census Report by Dominion Bureau of Statistics.

** Added to the original table by the author.

tion sometime during the years 1956 and 1967 were responsible for the economic growth of Carberry. Considering the relatively small size of other industries, the major source of this economic prosperity might be attributed to the Carnation plant. A substantial part of the manufacturing payroll of the plant, recirculated through the employees in the economy of Carberry, very likely contributed to the growth of the town. This would also explain the fact of more than offsetting the adverse effects of bypassing the highway, and the growth of some businesses as discussed earlier in the recorded interviews.

CONCLUSIONS

CONCLUSIONS

The investigation in this study indicated the impact construction of a new highway had had on Carberry. The examination of the two aspects chosen brought about some significant points, which helped to understand the situation faced by Carberry, and might be helpful in assessing the situation faced by other similar communities.

The completion of the section of Trans Canada Highway No. 1 had caused the bypassing of the town of Carberry by the major east-west traffic, but as anticipated, this did not result in the town being affected in an adverse way economically. Specific information on the condition of existing business after the construction of the highway was not available. Still it was evident, from the general information available, that Carberry did not suffer any serious setback resulting in the decline of the town. Moreover, the bypassing did not act as a deterrent to new industries seeking to locate at Carberry.

The second aspect of this study indicated that the construction of the highway had encouraged new industries to establish at Carberry. Though the new highway did not pass through Carberry, its proximity to the town and the connection it provided with a major highway system by linking the potential industries to the rest of the country had offered enough attraction for new industries to locate there. This attraction, however, was reinforced by other advantages such as availability of resources needed for a particular industry.

This study thus indicated that in a small town the construction of a new highway, even if it bypassed the town, would very likely not have any

adverse effect. Other conditions being favourable the new highway would also act as a catalyst to the growth of a community by providing a better transportation system, which is so vital for a country becoming rapidly urbanized such as Canada.

The growth process, revitalized through the establishment of new industries as a result of new highway construction, will in all likelihood contribute to the growth of Carberry steadily. The Carnation plant, the major industry of Carberry, sells its products throughout Canada and to various parts of the world as mentioned earlier. Since almost the entire production of the plant is for consumption outside the geographical limit of Carberry, the Carnation plant may be termed a city-forming (basic) industry.²¹ An industry may be considered to be a city-forming industry because it brings money to the city, which is used to pay for the imports of such goods and services in which the city is deficient. Since the number of employees in the Carnation plant is considerably higher compared to those in all other industries, the town may be considered to be dependent essentially on city-forming industry. This suggests that further growth of the town due to the plant can be expected as revealed through many studies made on the city-forming and city-serving or basic-nonbasic industries and their influence on the growth of a community.

21. "The main attention ... will ... be directed toward industries which produce for a market outside the geographic city limit. They are the agglomerative element... and might therefore be termed city-forming industries." (Gunnar Alexandersoon, "City-forming and City-serving Production," reprinted in Harold M. Mayer and Clyde F. Kohn, Readings in Urban Geography, the University of Chicago Press, Chicago, Ill., 1959.)

Another factor which is likely to contribute to Carberry's growth is the possible increase in the number of tourists from the U. S. A. to Canada. The completion in the near future of Provincial Road 258 will help bring in more tourists from south. These tourists on their way to Trans Canada Highway No. 1 through Spruce Woods Provincial Park are expected to make use of the shopping facilities at Carberry to a greater degree. Supported by the added tourist traffic, the business in Carberry is likely to earn more dollars, and to contribute more for the growth of the town.

It was felt during the investigation that information in many instances were lacking, and with a better set of information probably a more clear understanding of the situation would be possible. In order to provide better background knowledge in the field of planning further studies seemed necessary in the subject dealt with in the present study. It seems that Portage la Prairie, Manitoba might serve as a suitable subject for such further studies. In this town a new highway, being part of the Trans Canada Highway No. 1, is now under construction bypassing the town.

In case of Carberry much of the information relating to the situation immediately after the completion of the highway was not available since the present study was made long after the completion of the highway. The timely collection of various information relating to the situations before and after the construction of the highway will be possible at Portage la Prairie. Again, for collecting information on business sales at Portage la Prairie the record of sales tax may be referred to. This was not possible in the case of Carberry since no sales tax was existent in the province at the

time the new highway was constructed there. It is felt, therefore, that an investigation at Portage la Prairie will produce a better study in this field.

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APPENDIX

APPENDIX

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