

Exurban Housing Development in the Winnipeg-Selkirk Corridor

**by Josh Barber and Salah Hathout
1977**

The Institute of Urban Studies





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IN THE WINNIPEG-SELKIRK CORRIDOR

JOSH BARBER
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INSTITUTE OF URBAN STUDIES
UNIVERSITY OF WINNIPEG
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INTRODUCTION

A phenomenon common to metropolitan areas throughout North America in the past decade or so has been the great increase in the number of exurban dwellers. These are people who live outside of the built up area of the city and its suburbs in rural or semi-rural areas but whose links with the metropolitan area remain strong for they work, shop, and often play in the metropolis. Essentially these people are commuters who try to gain the benefits of both rural and urban worlds; gaining the natural surroundings and peacefulness of the country without foregoing the economic and entertainment attractions of the city. To some extent this lifestyle has been practised around major cities since the mid-to-late nineteenth century when the railway allowed people to commute easily into the city. However, until recently these people have tended to come from only the most affluent sectors of society and thus have been relatively small in number. This has changed dramatically in the past ten to fifteen years until significant proportions of city populations now live in "exurbia". Indeed in the United States many of the largest metropolitan cities have experienced absolute losses in population while the surrounding rural areas have gained greatly. What is happening, for better or for worse, is a reshaping of the concept of the metropolitan city. To the traditional elements of inner city and suburbs must be added exurbia - the neither urban nor rural fringe area which may extend for thirty to sixty miles from the centre of the city.

The development of exurbia brings with it many problems. The most obvious is the conflict between the demand for land for these new rural residences and the traditional agricultural uses. To retain a rural atmosphere exurbanites naturally want to live at low densities on large lots, thus consuming large amounts of agricultural land out of proportion to their numbers. Since metropolitan areas frequently develop amidst rich agricultural areas the land being consumed so voraciously for rural residences is often the very best agricultural land. In addition there are more subtle pressures on agriculture from these developments. When housing is built along roads in strip developments, access to the agricultural land remaining behind the housing is often severely restricted. Legitimate agricultural practices, especially those involving livestock, often prove annoying to newly installed neighbouring residents who can bring the pressure of their numbers to bear to curtail the farmer's operations. As well, there is the economic pressure on land which can literally be worth a fortune if taken out of agricultural production and sold for housing development.

Planning problems also arise. Since exurban houses tend to be largely independent of many hard services, relying as they do on septic tanks and private wells for their sewer and water services there are often few limitations on their location. Thus housing is frequently randomly scattered throughout the whole commuter zone and areas of new housing often spring up in no logical pattern. A few houses will be scattered along a road with infilling of the vacant land between them occurring at a later date. This sort of pattern naturally makes planning for orderly land development difficult, if not impossible, while services such as police, fire, education, and transportation must be provided to a scattered population spread out over great distances so that costs are increased greatly.

Although Winnipeg often lags behind most other major cities in development trends it has not escaped the exurban movement. A drive out into the countryside almost anywhere around Winnipeg, but especially northwards, will reveal large numbers of new houses built out on the open prairie - the homes of exurbanites. Improved rural roads and increased automobile ownership coupled with rising housing and land prices, and taxes in the city have made rural living both more attractive and more accessible to many Winnipeg residents. The result is an increasing rate of exurban development. In the Winnipeg Region the rural non-farm population - the exurbanites - increased by 5% a year between 1961 and 1971, which is several times the rate of growth rate experienced by Winnipeg.¹ It seems likely that this high growth rate has increased to even higher levels in the period since 1971. In response to these developments the Provincial Department of Municipal Affairs commissioned a Winnipeg Region Study Group to investigate the consequences of this phenomenon and to identify areas where housing can be developed with a minimum of problems and costs. The Winnipeg Region delineated by this group encompasses an area extending for some 30 miles from downtown Winnipeg. This corresponds to a 45 minute travel time contour which was taken to be the practical limit for commuting purposes.² Within the region the greatest development pressures appear to be concentrated north of Winnipeg along the Red River since this is an area with some scenic amenity and with good highway connections to Winnipeg.

This area, defined as the Winnipeg-Selkirk Corridor, has been chosen by the Institute of Urban Studies as an area for study of the nature of exurban development around Winnipeg. Because the corridor is the focus of so much development the problems and consequences arising from this growth may be seen more clearly here than elsewhere in the Region. In addition, the corridor

1. Winnipeg Region Study Group, Winnipeg Region Planning Study Demand Analysis (Winnipeg: Municipal Planning Branch, 1974), p.6.

2. Ibid., p. 1.

forms an easily defined area for the purposes of analysis since it corresponds to the area of river lot survey extending back four miles on each side of the Red River between Winnipeg and Selkirk.

The purpose of the study is twofold. One is to accurately measure the dimensions of development in the corridor as it now stands and as it has occurred since 1950. In measuring the extent of growth, the number of houses built in the corridor, the resulting population and density, and the impact of development on land use will all be studied, both for the present and for selected years since 1950. An examination will also be made of the planning and servicing policies established for the corridor. Having determined the nature and extent of exurbia we will then attempt to list the options available for the future of this area - and the policies needed to achieve these options.

The study will consist of three principal parts. The first will describe the corridor as it is at present. This will include descriptions of present land uses, the land market, planning for the corridor, the nature of municipal services, and some estimates of future growth. Part II will present the results of a detailed study of air photography of the area for selected years from 1950 to 1974. The objective of this section will be to investigate the total expansion of housing development in the area since 1950. Thus it will compare the patterns of development occurring on both sides of the river, the pattern of development as a function of distance from the two centres of Winnipeg and Selkirk, and the changing nature of housing development in terms of high and low to moderate-income householders. As well, population and density figures will be estimated for each period on the basis of the number of dwelling units. The third and final section will examine the merits of alternative forms of development for the area and will attempt to outline some suitable policies for these alternatives.

PART I THE CORRIDOR AT PRESENT

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I. THE CORRIDOR AT PRESENT

For the purposes of this study the corridor extends some sixteen miles from Winnipeg to Selkirk and four miles back on both sides of the Red River. The southern boundary lies just inside the north Perimeter Highway and corresponds to the southern municipal boundaries of West St. Paul and East St. Paul rural municipalities. The northern boundary on the west side of the river is the Selkirk town limits while on the east side it has been arbitrarily designated to lie just north of the community of East Selkirk. It was decided not to extend the study area further north because the area north of Selkirk has experienced relatively little housing development pressure up to the present time. Most of the building that has occurred there has been summer cottages which represent a different phenomenon than the exurban movement. The corridor area includes parts or all of four municipalities: adjacent to Winnipeg are the two St. Pauls with most of West St. Paul and all of East St. Paul being contained in the study area; further north, parts of St. Andrews municipality on the west side and St. Clements municipality on the east also lie within the corridor.

1.1 The Land Market in the Corridor

The corridor contains nearly 80,000 acres which were originally surveyed into nearly 1100 river lots. Since the time of survey a considerable amount of fragmentation has taken place and each river lot has been subdivided, on average, into almost six smaller parcels. This subdivision activity has been greatest nearer Winnipeg in the two

St. Pauls, where lots have been subdivided into about nine smaller parcels, The average parcel is now about 13 acres in size (TABLE 1)

TABLE 1 Summary of Land Division in the Winnipeg-Selkirk Corridor (1976)

Municipality	Total Acreage	# Original Lots	#Parcels	Average Parcel Size
St. Clements	30,281	545	1897	15.96
St. Andrews	22,324	312	1951	11.41
East St. Paul	14,086	119	1101	12.79
West St. Paul	11,591	118	1061	10.92
Total	78,282	1094	6010	13.02

Again, parcels tend to be smaller closer to Winnipeg and closer to the Red River. In all cases the greatest amount of land fragmentation has occurred in the inner two miles of the river lots while the outer two miles (west of McPhillips St. and Highway 230, and east of the Floodway) has been largely unaffected by development pressures; in fact, much of the land there has been consolidated into larger parcels for improved agricultural operations.

A similar fragmentation of ownership has occurred along with this process of land division. Information gained from 1976 assessment rolls revealed that there are some 4500 different land owners in the corridor, which means that most are owners of quite small properties. The overwhelming majority of the property owners (over 95%) are individuals who control, in total, about 80% of the corridor area. While there are relatively few corporate landowners in the area they do tend to own fairly large parcels so that altogether they own some 15% of the land in the corridor (TABLE II). Most of the corporations are corporate farms or industrial concerns such as the C.I.L. explosive plant and the brick and tile plant, both of which are located in St. Clements. A number of different government agencies own

the rest of land in parcels throughout the study area. The principal government holdings are St. Andrews Airport, the Winnipeg Floodway, Manitoba Hydro rights-of-way, and numerous small parcels owned by the Department of Veterans' Affairs and leased back to veterans. This latter agency also controls most of the Rivercrest subdivision in West St. Paul.

This fragmentation of both land and ownership can make agricultural operations at an economic scale difficult for the individual and can encourage the sale of land for building purposes. It must be tempting for the owner of a field of fifteen or so acres to sell it for housing development when the land can fetch up to \$15,000 an acre when divided into 1½ acre building lots. Of course, the figures for the size of parcels and the number of owners are greatly affected by the large number of rural non-farm residents whose properties of one to five acres will reduce the average parcel size considerably. Properties still in agricultural operation tend to be larger than this average, although still small by the standards of the

TABLE 11 Land Ownership in the Corridor Area (1976)

Municipality	# Owners	Type of Owner		% Owned By		
		Individual	Corporate	Indiv.	Corp.	Govt.
St. Andrews	1438	1345	61	80%	12%	8%
St. Clements	1454	1420	26	74%	14%	12%
East St. Paul	810	787	17	82%	14%	4%
West St. Paul	850	805	38	N/A	27%	N/A
Total	4552	4357	142	-	-	-

rest of rural Manitoba. Some of the corporate farms are, however, very large; Parkdale Dairy Farms Ltd. owns properties totalling more than 3000 acres in St. Andrews and West St. Paul.

Only in West St. Paul does there appear to be a significant amount of corporate land speculation. Here land owned by companies with an interest in land speculation and development (i.e. investment, holding, and building companies), totals 2750 acres or 14% of the whole municipality. Oddly enough, West St. Paul has been the site of the least exurban development pressures of the whole corridor.

Despite great land fragmentation and the increasing amount of house building, by area the corridor remains largely agricultural in use. Almost all of the corridor is rated as Class 1 to Class 3 for cultivation purposes by the Canada Land Inventory. The dominant agricultural uses in the area are now grain growing and cattle raising; the market gardening uses once common in much of the area are greatly reduced as a result of high land prices and other pressures stemming from exurban development. Almost the whole of the outer two miles and most of West St. Paul remain agricultural. Rural residents are probably the dominant land use now in St. Andrews between the CPR railway line and the Red River - certainly they visually dominate the landscape. Agricultural acreage declined by 38.7% between 1961 and 1971 in East St. Paul to 52% of the total municipal area.³ With continuing housing development since then it is almost certain that less than half of the municipality now remains in agricultural use - so that East St. Paul has truly become the neither rural nor urban landscape of exurbia. St. Clements is still largely agricultural but an almost continuous strip of houses line both sides of Henderson Highway all the way to East Selkirk.

3. City of Winnipeg, East St. Paul District Plan (Proposal) (Winnipeg: City of Winnipeg Environmental Planning Department, 1975), p. 4.

As noted above, there are some major industrial land uses in the corridor which tend to be very land consumptive. The City of Winnipeg sludge drying beds and a refuse disposal site consume about 350 acres in West St. Paul and act as a major deterrent to housing development in much of the surrounding area. St. Andrews Airport occupies 1495 acres but only about half of this is used for the airport itself with the remainder being leased back for agriculture. In St. Clements the C.I.L. explosives plant is sited on an 1100 acre parcel while the neighbouring Manitoba Hydro generating station occupies another 462 acres. Between them they act as a buffer to the expansion of exurban dwelling in a limited part of the corridor south of East Selkirk. Similarly the buffer effect of the Imperial Oil Refinery in East St. Paul has resulted in the preservation of one of the last major areas of woodland in the municipality from the encroachment of housing development.

The large number of individual land owners in the corridor implies that there is a reasonably competitive land market in the area; from casual observation of "For Sale" signs along the highway it would also seem that the market is quite active. Driving along Highway 9 through St. Andrews to Selkirk creates the impression that all the land along both sides of the highway has either been recently subdivided and developed for housing or it is for sale.

It is not surprising, then, that land prices have risen substantially in the past decade. The Winnipeg Region Study Group investigated land values in the corridor for the period 1968 - 1973 and, with the exception of St. Clements, all values increased dramatically in this timespan. (TABLE 111) Land in East St. Paul remained the most expensive, possibly because it can be developed at higher densities, but the greatest increases occurred in St.

Andrews and West St. Paul despite little development in the latter municipality. Prices apparently doubled there to \$3000 per acre in 1974⁴, which is perhaps an indication of land speculation, for housing starts remained at about the same level as they had been in the previous five years.⁵ The reasons for the decline in values in St. Clements are unclear, but it has been suggested that this was due to problems of riverbank erosion and unsuitable locations of roads for subdivision purposes.⁶ Since house construction has increased in St. Clements rather substantially since 1973 it is probable that land prices have also risen greatly. It is also possible that demand for properties in St. Clements will increase as prices elsewhere put land out of reach for many people.

In 1974 the Lombard North Group investigated land prices in the St. Andrews part of the corridor and found that 1½ acre lots in subdivisions sold for \$7,600, or \$5500 per acre. Larger properties between the Red River and the CPR line sold for an average price of \$1600 per acre while agricultural land in the outer two miles east between \$500 and \$1000 per acre.⁷ River front properties naturally sold for considerably more, often being twice the price of land away from the river.⁸

Using information in the Business and Law Journal Digest and classified advertisements from the Winnipeg Free Press it has been possible to determine the average price of lots in subdivisions in St. Andrews for the past four years (TABLE IV).

4. Ibid., p. 20.

5. Based on building permit data. See below.

6. Winnipeg Region Study, Demand Analysis, p. 21.

7. Lombard North Group, St. Andrews Environmental Impact Assessment (Winnipeg: Department of Municipal Affairs, 1975), p. 81.

8. Winnipeg Region Study, Demand Analysis, p. 21.

TABLE 111 Land Prices in the Corridor 1968-1973

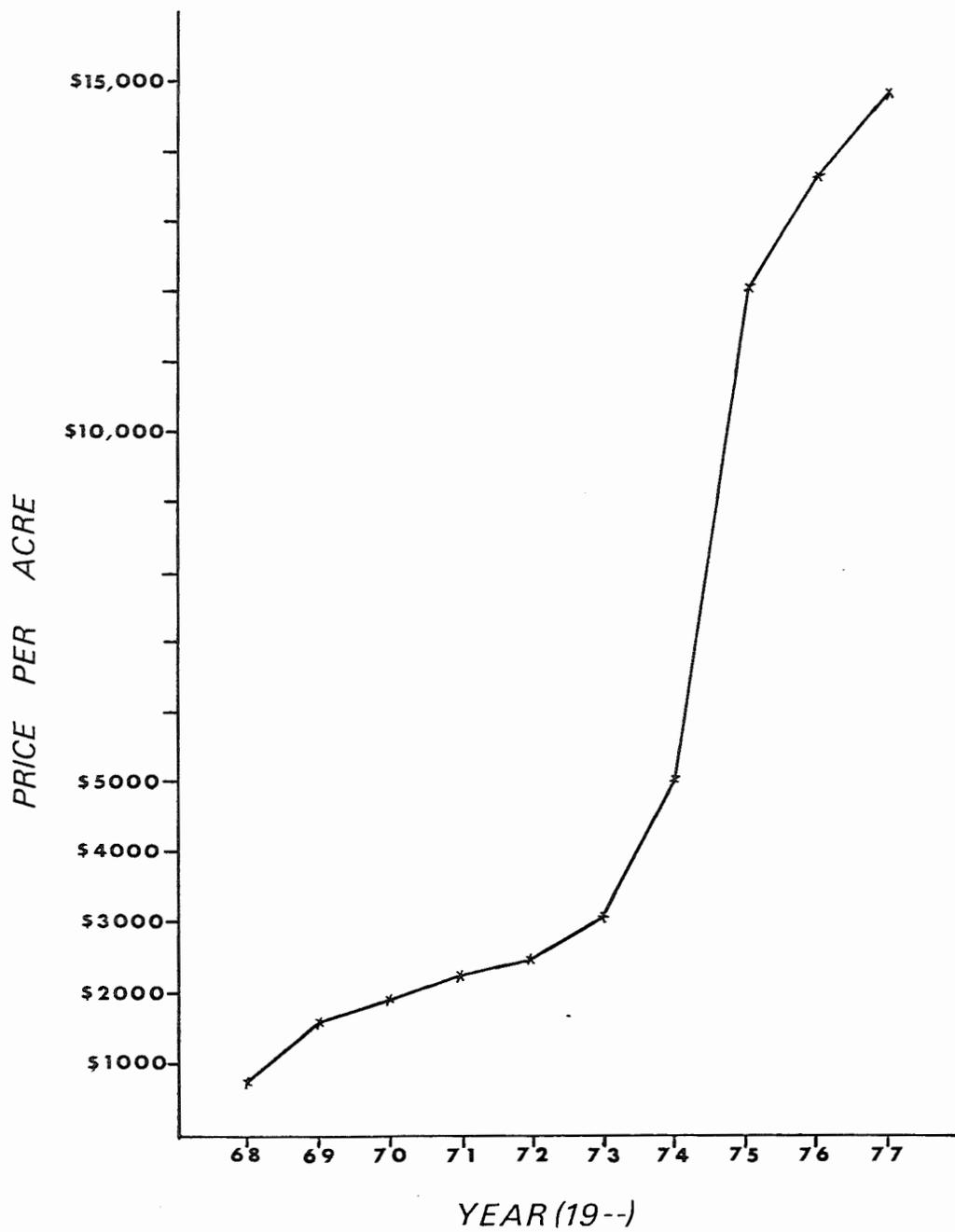
Year	St. Andrews \$ per acre	St. Clements \$ per acre	East St. Paul \$ per acre	West St. Paul \$ per acre
1968	725	2813	3158	378
1969	1576	1298	3096	1352
1970	1898	1474	2799	689
1971	2227	1276	2476	932
1972	2475	847	5606	1469
1973	3098	512	5208	no sales
% Change 68-73	327%	- 82%	64%	288%

Source: Winnipeg Region Study Group. Winnipeg Region Planning Study Demand Analysis, p. 22.

TABLE 1V The Price of Subdivision Lots, St. Andrews Municipality 1974-77

Year	1½ Acre Lot Price	Per Acre Price
1974	\$7,600	\$5,066
1975	\$18,100	\$12,066
1976	\$20,500	\$13,670
1977	\$22,275	\$14,850

FIG. I. LAND PRICES ST. ANDREWS R. M.
1968 - 1977



It can be seen that lot prices are now well over \$20,000 per lot. This price is for sites that are not on the river front, but in subdivisions which look like very low density suburbs but without most suburban services and located ten or more miles from the edge of the city.

When these land prices are graphed for the decade between 1968 and 1977 a truly startling picture emerges (Fig. 1) The price per acre of land appears to have increased no less than fifteen times in the past ten years. In the five years between 1968 and 1973 prices tripled. In the next five year period prices skyrocketed, increasing no less than five times with especially large gains between 1973 and 1975. This rapid increase may be partly attributed to a high rate of inflation, especially after 1973. But inflation alone cannot explain increases of this magnitude since prices in general have not risen by anything close to fifteen times in the past decade.

A study of the urban fringe market around Toronto revealed a somewhat similar pattern of land price increases.⁹ In that case the authors suggest that the dramatic price rises were the result of the involvement of small time speculators who were generally ignorant of land markets and pricing mechanisms. It is not certain that the same conditions apply in St. Andrews where most new purchasers seem to be buying land directly for the purpose of house building rather than for speculative purposes. Interestingly, in the Toronto case land values fell dramatically following the announcement of the Toronto Centred Region concept which greatly restricted development possibilities. Prices rose even more rapidly, however, after the announcement of Pickering Airport which set off a new scramble for land among private investors. The effects of public policy on

9. L.R.G. Martin & D.L. Mathews, "Recent Land Market Activity on the Toronto Rural-Urban Fringe", Urban Forum, June-July 1977, pp. 18-25.

land prices are obviously quite startling so it is possible that the imposition of a restrictive development plan on the corridor would have a considerable dampening effect on land values in the area. It seems improbable that prices can continue to increase at rates experienced in the past few years and there are indications that prices have been levelling off somewhat recently.

The classified advertisements in the newspaper provide a very interesting reflection on the nature of the demand for exurban housing in the corridor. Lots are sold as "suitable for larger homes", "luxury home site," and "close to expensive homes" thus obviously appealing to higher income buyers. Of fifteen advertisements for rural lots in the Winnipeg Free Press on August 3rd, 1977 nine were for lots located in the corridor area and half of these were for sites in St. Andrews. The corridor, and St. Andrews in particular, evidently remains the focus for much of the exurban movement out of Winnipeg.

1.2 Growth in the Corridor

The most telling measure of the growth of exurbia is the number of new houses built annually, for this reveals the extent of demand in easily quantifiable terms. As a measure of the number of new houses built each year, residential building permits issued by each of the four municipalities in the corridor were counted for as many years as records were kept. This last led to some problems of standardisation since each municipality has different record keeping systems but it proved possible to determine the annual number of residential building permits for the whole corridor back to 1971 and for all but St. Clements, back to 1962. It may be argued that the issue of a building permit does not guarantee that a house will be built since delays and financial problems may occur after the issue of the permit, but this is only likely to happen in a small number of cases so that it can be ignored for practical purposes. In any event, building permits form an easily measured and directly comparable means of determining the increase in house building in the corridor area.

As indicated in Figure 2 and Table V there was steady rate of building each year in the sixties of about 20 houses a year per municipality. While building in West St. Paul has remained at about that level, development began to increase rapidly in 1971 in the rest of the corridor, when house building almost doubled between 1970 and 1971. A second jump occurred in 1973-74 when building almost doubled again. Some two-thirds of all houses built since 1962 have been built in the past six and a half years.

St. Andrews municipality has been the site of the most building with more than 40% of all houses built in the corridor since 1971. From about twenty houses a year throughout the sixties, building doubled to more

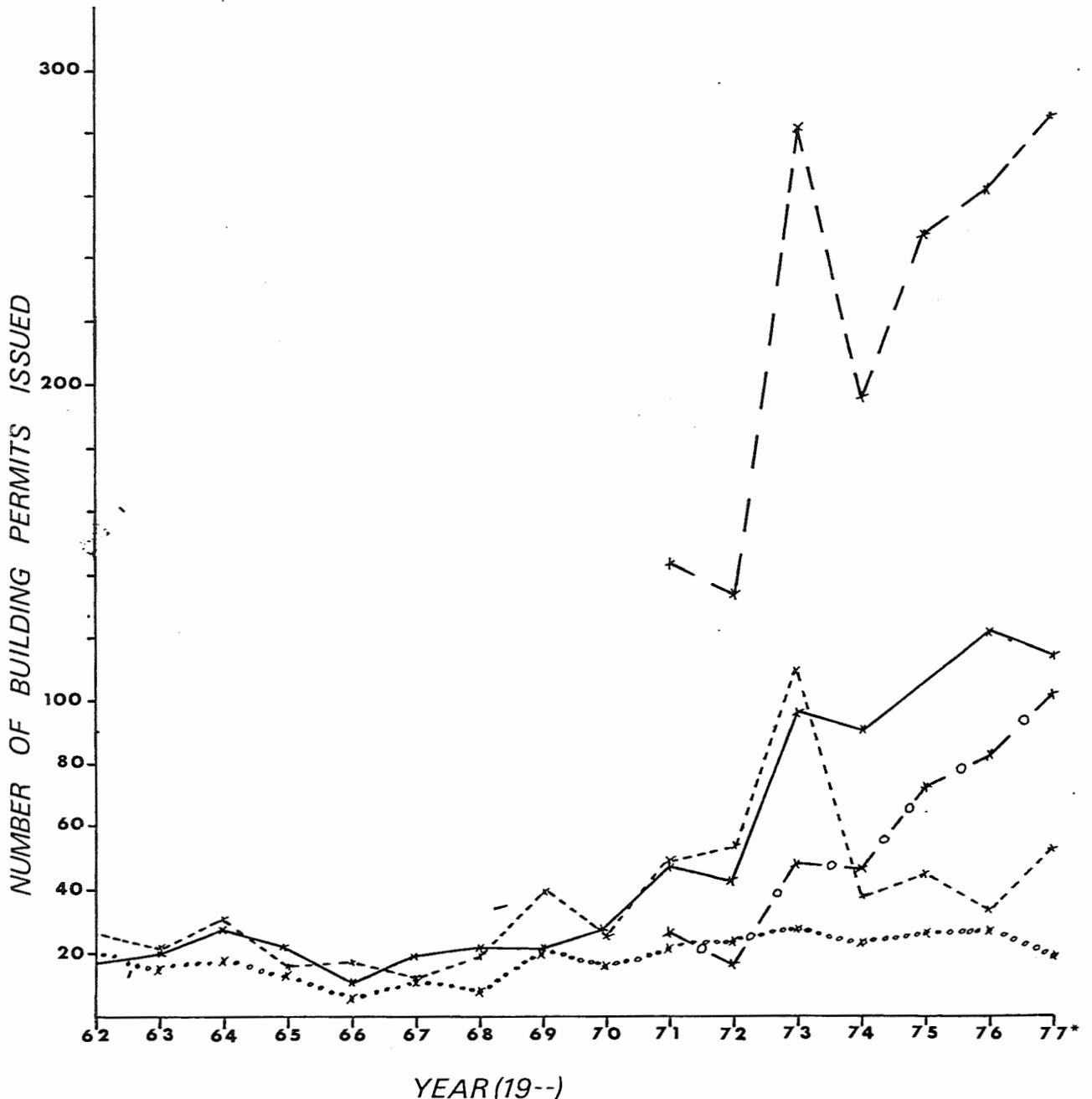
TABLE V Residential Building Permits Issued in the Winnipeg-Selkirk Corridor 1962 - 1977*

Year	Number of Permits Issued				
	St. Andrews	St. Clements	E. St. Paul	W. St. Paul	Corridor
1962	17	N/A	27	20	-
1963	20	N/A	21	16	-
1964	27	N/A	30	18	-
1965	21	N/A	17	13	-
1966	10	N/A	18	6	-
1967	19	N/A	12	12	-
1968 ¹	21	N/A	19	8	-
1969	21	N/A	39	21	-
1970	27	N/A	25	16	-
1971	47	26	49	21	143
1972	42	16	53	23	134
1973	96	48	110	27	281
1974	90	46	37	23	196
1975	105	72	45	26	248
1976	121	81	33	27	262
mid - 1977	57	51	26	9	143
Total - 1971-77	558	340	353	106	1357
Total - 1962-77	741	-	561	236	-

* Information for St. Andrews municipality for the years 1962-1974 from Lombard North Group, St. Andrews Environmental Impact Statement, p, 85. The figure for 1975 is an estimate based on averaging the figures for 1974 and 1976, since this information was not available. All other data is from municipal files.

FIG. 2. RESIDENTIAL BUILDING PERMITS ISSUED ANNUALLY IN WINNIPEG-SELKIRK CORRIDOR

- TOTAL FOR CORRIDOR
- ST. ANDREWS R. M.
- ST. CLEMENTS R. M.
- - - - E. ST. PAUL
- W. ST. PAUL



*1977 FIGURES EXTRAPOLATED FOR WHOLE YEAR

than forty houses annually in the early seventies and then more than doubled again in 1973 until more than 100 houses are now being built each year. These increases roughly coincide with increased land prices, although the price of land has increased at a considerably greater rate than house building. Extrapolation of building permits issued so far this year (end of June 1977) would indicate that there has been a slight decrease in building from last year but the municipal official responsible for permits felt that actually these were running ahead of 1976 since many applications come in at the end of the year to allow construction to start in the early spring.

East St. Paul has experienced almost as much building activity as St. Andrews but this is largely accounted for by one exceptional year (1973) when 110 permits were issued. Most of these were for a development on Foxgrove and Glenway Avenues which, although in East St. Paul, is really an extension of North Kildonan and was built at an urban level and thus cannot really be considered as exurban growth. With this year excepted building permits have been issued at a fairly steady rate of about 40 to 50 annually.

Although information prior to 1971 is not available for St. Clements it seems probable that building was at a rate of less than twenty a year until the early seventies, since this area has traditionally been less popular than other parts of the corridor. However, since 1972 house building has increased rapidly and is now at five times the level of 1972 with an estimated 100 permits being issued this year. Figure 2 would indicate that St. Clements will soon catch and possibly surpass St. Andrews in the number of houses built annually. This seems all the more probable given that the very high land prices in St. Andrews will undoubtedly make St. Clements more attractive to potential exurbanites.

Building has stayed at the same level of about 20 houses a year in West St. Paul for two basic reasons. The sludge drying beds and refuse disposal area west of McPhillips St. have made a large part of the municipality unattractive for housing, while the municipal council has been dominated by persons interested in preserving agriculture in the area so that new housing is not especially welcomed. It seems unlikely that this situation will hold for much longer since political power appears to be changing to the rural non-farm dwellers who may have a different attitude to development, and because of the municipality's proximity to Winnipeg.¹⁰

The impact of all this house building can be best seen when it is considered how much land is being consumed for these houses. Assuming that every house was built on the minimum size lot permitted by each municipality, then the 262 residential building permits issued in 1976 translate into 481 acres of land consumed for new house construction in the corridor area. It is probable that more land was actually used since many lots were probably larger than the minimum required size. If 100 houses are built in St. Clements this year, as seem possible, this will mean that 500 acres of land will be taken in this one part of the corridor alone. The amount of land now being developed in the corridor compares with the amount being used in Winnipeg itself where new suburban development is estimated to consume about 500 to 600 acres annually. Considering that the corridor area is only a small part of a region surrounding Winnipeg that is experiencing exurban development pressures, the amount of land that is being converted to housing each year and lost to agriculture forever in the Winnipeg Region must be enormous.

10. Based on conversations with David Palubeski, Additional Zone Planner, City of Winnipeg Environmental Planning Department.

This degree of development not only has an impact on land but also on the services that must be provided in the municipalities since each new house means added population. In the period 1961-1971 the exurban population grew several times as fast as the population of Winnipeg. Since 1971 we have seen that house building has increased greatly in the corridor, so it is probable that the population has grown very rapidly in the past six years.

Using information in the 1971 Census it has been possible to determine the corridor populations for 1966, 1971, and 1977. The 1977 population figures were estimated by multiplying the number of houses built between 1971 and 1976 by the average number of occupants per dwelling for this area and adding this product to the 1971 population.¹¹ This procedure may result in some exaggeration of population since it does not take into account possible decreases in the occupant per dwelling ratio nor any possible outmigration from farms in the area. Nonetheless it is probably a reasonably close estimate of the present population.

Between 1966 and 1971 the population grew at a modest rate of about $1\frac{1}{2}$ % a year which was slightly faster than that for Winnipeg, which increased by 6.2% in this period.¹² This moderate growth rate masks the growth of the rural non-farm sector, however, because there was a significant decline in the rural (i.e. agricultural) population in the Winnipeg Region in this period.¹³ In the next period of six years the corridor population exploded and increased by no less than 44.5%, which represents an annual increase of nearly $7\frac{1}{2}$ % (TABLE VI).

11. From the 1971 Census; the population per dwelling was found to be 4.3 for West St. Paul and 3.79 for East St. Paul. A figure of 4.0 (the average of these two figures) was used for the other two municipalities.

12. Winnipeg Region Study, Demand Analysis, p. 5.

13. Ibid.

TABLE VI Population Change in the Winnipeg-Selkirk Corridor 1966-1977

Municipality	Population			% Change		
	1966	1971	1977	1966-71	1971-77	1966-77
St. Andrews	3176	3437	5441	8.2%	58.3%	71.3%
St. Clements	2207	2350	3506	6.5%	49.1%	58.9%
E. St. Paul	2299	2616	3855	13.8%	47.4%	67.7%
W. St. Paul	2284	2429	2846	6.3%	17.2%	24.6%
Total	9,966	10,832	15,648	8.7%	44.5%	57%

Source: 1966 - 1971: 1971 Census of Canada 1977 Estimated. See text for explanation.

St. Andrews grew the fastest with its population increasing by almost three-quarters in the last eleven years. In the past six years the population has grown nearly 60%. East St. Paul increased almost twice as fast as the other municipalities in the five years between 1966 and 1977 at nearly 3% a year. In the next period its growth increased to nearly 8% a year but even so, this is a lower growth rate than that experienced by both St. Clements and St. Andrews municipalities in the same period. West St. Paul had a considerably slower rate of growth than the other municipalities but even here there has been a growing rate of population increase in the past six years. With growth rates like these it is not hard to envisage the whole corridor developing into an area of continuous 1½ acre housing tracts in the not too distant future.

The Winnipeg Region Study attempted some population projections for the whole Winnipeg Region based on the growth of the rural non-farm sector in the period 1961-1971. Using these figures this sector is expected to increase at about 5% annually while the farm sector stays constant.

The projections for the corridor area are contained in Table VII. A comparison with Table VI reveals that, except for West St. Paul, the 1981 estimated population has already been exceeded by quite a wide margin. This is not surprising when one remembers the average growth rate since 1971 has been in the order of 7½% rather than the 5% predicted by the Winnipeg Region Study.

Population predictions are always fraught with hazard especially when dealing with high growth areas. Nonetheless, if the population continues to increase at the rate it has done in the past six years, by the next census in 1981 the corridor population could be about 20,000 with St. Andrews having a population of over 7,500. By 1996 the population of the corridor would be between 35,000 and 40,000. Housing to accommodate this population at 1½ acres per house would occupy some 15,000 to 20,000 acres or about one quarter of the entire corridor. It is unlikely that population growth rates can continue to remain this high for the next twenty years but it is possible that absolute increases in population similar to those since 1971 could occur which would lead to corridor populations of 19,000 by 1981 and 31,000 by 1996. Both of these figures are considerably higher than the Winnipeg Region Study estimates even though they do imply a moderation in the rate of population increase. In the light of these figures exurban pressures should be treated with more concern and urgency than the Winnipeg Region Study assessments might indicate.

TABLE VII Winnipeg Region Study Population Projections for the Winnipeg - Selkirk Corridor

Municipality	Projected Population	
	1981	1996
St. Andrews	4040	7000
St. Clements	2700	5040
E. St. Paul	3240	6360
W. St. Paul	3480	6560
Total	13,460	24,960

Source: Winnipeg Region Study, Demand Analysis Maps 8,9.

1.3 Planning in the Corridor

Since the corridor is comprised of four different municipalities, a number of different agencies are responsible for planning in the area. In addition, some more senior levels of government have an interest in planning parts of the corridor. The two municipalities closest to Winnipeg, East and West St. Paul, lie wholly within the city's Additional Zone, therefore their planning is the responsibility of the city of Winnipeg's Environmental Planning Department. St. Andrews and St. Clements are both independent for planning purposes, assistance being provided by the provincial Municipal Planning Branch but from different regional offices since they are considered to lie in two different regions. In the near future these two municipalities and the town of Selkirk will be combined for planning purposes into a planning district under the terms of the new provincial planning act. The Federal government has local planning authority around St. Andrews Airport and Lower Fort Garry National Historic Park and is to combine with provincial authorities in

planning a joint recreation and conservation corridor along the banks of the Red River. For the purposes of this section each of the four municipalities will be treated under separate headings where the evolution of planning and present planning activities in each area will be discussed.

1.3.1. West St. Paul Municipality

West St. Paul has generally been the site of the least development pressures in the whole corridor despite being adjacent to Winnipeg and astride two principal routes into the city Main St. (Highway 9) and McPhillips St. (Highway 8). The municipality is still largely agricultural with development basically being concentrated along Main St. and a few side roads between Main St. and McPhillips St. Planning for the Municipality is conducted by the city of Winnipeg since it lies wholly within the Additional Zone.

At the present time planning controls are based on a 1959 zoning bylaw which identified areas for housing development and for agricultural uses. (See Map 1) Residential areas (R1) are zoned to provide near urban densities with lot sizes being 12,000 sq. ft. (about $\frac{1}{4}$ acre), or less if municipal sewers are provided. Suburban areas (RA) are at a lower density ($\frac{1}{2}$ acre lots) and are not provided with sewer services. The extent of these two zones is quite limited with both areas being almost entirely restricted to small pockets east of the CPR line on either side of Main St. The largest part of the municipality is zoned as "A1" Agricultural. This zone actually permits residential development on 5 acre lots but, the intent is to provide for agricultural uses.

In general housing development in West St. Paul has been restricted to the small zones identified for residential uses. However, some strip development has occurred along the sideroads between Main St. and McPhillips St. in areas zoned for agriculture. It is possible that there will be pressures to rezone the areas adjacent to these roads to allow higher densities of development but opposition may come from present residents who may be loath to give up large lots and from agricultural interests who up to the present have wished to keep the area agricultural.

No development plan exists for West St. Paul at the moment, but one is being prepared with initial proposals being made public sometime this autumn. The whole municipality is designated as an area of limited urban expansion under the city's Development Plan - which translates into an area for exurban-type development. There is a feeling that political power is changing in the municipality so that there will be a greater receptivity to exurban development in the future. How these factors will affect the ultimate development plan is unknown but it would seem that they are in contradiction to the stated desire of the Planning Department to concentrate future development next to existing subdivisions and communities in an attempt to prevent sprawl and the unnecessary consumption of agricultural land.¹⁴

There are demands at the present time to allow infilling along Main St. and in strips along the all weather roads between Main and McPhillips. At the moment there are also a number of proposals for subdivisions in this area, including one 900 lot proposal, but none of these have been approved yet and approval will probably be based on the district plan for the area whenever it is adopted. The sewage sludge beds

14. Based on conversation with D. Palubeski, Additional Zone Planner, City of Winnipeg.

west of McPhillips effectively prevent housing development in the western half of the municipality so this area is likely to remain agricultural. The new pressures in the area mean that unless strong controls are exerted, West St. Paul is likely to experience the same patterns of development that have occurred in the rest of the corridor.

1.3.2. East St. Paul Municipality

Unlike its sister municipality across the river, East St. Paul has experienced a considerable amount of exurban development and can no longer be considered as a predominantly agricultural area. A district plan for the area was proposed in 1975 but this was not adopted since the municipality found it unacceptably restrictive. As a result, planning controls are based on an earlier zoning bylaw. (See Map 1)

The proposed plan called for urban densities and services south of the Perimeter Highway while areas for future residential development at lower densities were identified extending from Birds Hill to Henderson Highway and between the Perimeter Highway and Pritchard Farm Road. An area in the northeast was zoned for 5 acre exurban type development since it abutted similar zoning and development in neighbouring Springfield Municipality. The rest of the municipality was zoned for agriculture with the intent of leaving this in agricultural use by establishing a minimum lot size of 20 acres. Restrictions against the establishment of livestock operations were included to reduce conflicts between farm and residential uses. This proposed plan would have changed the zoning for the area to concentrate residential development in the southern half of the municipality while leaving the northern half for agriculture. Such a plan would have resulted in a rather more compact and less sprawling form of housing development than the present zoning bylaw allows while

reinforcing the position of agriculture in the remaining farming areas.

The proposed changes to this plan do not alter its intent to any great degree but do make some alterations in details. Densities in the residential zone extending north of the Perimeter to Pritchard Farm Road have been reduced to 1 unit per acre while an area north of Birds Hill has been changed from 5 acre lots to 1½ acre lots. Whether or not these changes will make the proposals acceptable to the municipality remains to be seen.

The intent of the plan has been to allow for the continuing demand for rural or semi-rural housing but to introduce some order into this development and to try and concentrate further building around existing developed areas. Such tasks are naturally made more difficult by the existing pattern of strip development but an attempt has been made to reduce further sprawl. It is possible that the restrictions on lot size in agricultural areas may not serve to preserve this land in the face of development immediately across the municipal boundary in St. Clements and the fact that even 40 acre minimum lot sizes have not prevented continuing exurban building in Springfield municipality east of Winnipeg.¹⁵ However, East St. Paul is within the Additional Zone where the city of Winnipeg can, and generally does, exert stricter controls over development than do neighbouring rural municipalities.

15. D. Johnson, "Housing Development in Springfield Municipality" (an unpublished essay, University of Winnipeg, 1977).

1.3.3. St. Clements Municipality

Since this municipality is outside of the Additional Zone planning remains a municipal responsibility with planning assistance being provided (on request) by the Beausejour Office of the planning branch of the Department of Municipal Affairs. Although the corridor area is only a small part of a large municipality which extends all the way to Grand Beach, most of the relatively limited planning activity in the municipality has concentrated on the river lot area, which corresponds to the corridor area.

In 1971 the first planning scheme for St. Clements was introduced. Essentially a zoning by-law, this zoned the whole river lot area for five acre lots. This crude use of zoning would allow for some 6000 dwellings in the 30,000 acres of river lots evenly spread out over the whole area. Some control was exerted over this area by the Municipal Board which assessed all applications for subdivision on their technical merits. Alarmed by the increasing demand for subdivisions in the area in 1973 the board effectively imposed a freeze on new subdivisions until a development plan was created for the area.

In 1975 the Municipal Planning Branch proposed a plan in which the small area between Henderson Highway and the Red River would be zoned for housing development while the rest of the river lots would be left for agricultural use. In effect, this would severely limit future housing development since most of the land between Henderson Highway and the river is already built upon. If development pressures were sufficient the planning branch was willing to permit housing in the extreme south of

the municipality between the Floodway and Henderson Highway.¹⁶

This proposed plan was rejected by the municipality for being too restrictive. The municipality proposed an alternative plan which would have placed some restrictions on areas of development, but not many, since most of the river lots south of East Selkirk were to be zoned for small lots of between one and five acres. This plan has not been adopted and seems to have been shelved for the moment. Therefore, the present zoning for the corridor remains the five acre lot but without the control of the Municipal Board since subdivision approval is now the responsibility of the minister of Municipal Affairs. Since this change in responsibility in 1976 subdivision applications appear to be routinely approved without reference to any development plan or subdivision policies. Thus development is being approved in St. Clements with little apparent control over where or how it occurs.

Commencing this autumn a planning district will be formed comprising St. Clements, St. Andrews, and the town of Selkirk. This should bring some unity in handling development problems which are similar on both sides of the river. The planning district will be managed by a district board comprised of 2 members from each council. Their responsibilities will be to develop policies for development in the district which will lead to a development plan. In the interim, planning support will be provided by the Municipal Planning Branch but eventually the district is expected to develop its own planning capabilities. Subdivision approval powers will also become a district responsibility and it is possible that this will occur.

16. Based on conversation with C. Miller, Municipal Planning Branch, Eastern Region, Beausejour, July 7, 1977:

before a development plan and land use policies are prepared. If this proves to be the case, planning controls in this vital part of the corridor effectively will be reduced to what they were before even the present zoning by-laws were brought into effect.

1.3.4. St. Andrews Municipality

St. Andrews has been the focus of the greatest development pressures in the whole corridor and has also had a number of different planning schemes developed in response to this challenge since 1960.

Between 1960 and 1969 a variety of planning schemes (zoning by-laws) were enacted in which most of the corridor area was designated as a rural district in which the minimum site area was $\frac{1}{2}$ an acre or a "RA" suburban district with a minimum site area of 15,000 sq. ft.

The steady housing development throughout the sixties made it apparent that a new planning scheme was necessary if a rural atmosphere were to be retained and to avoid servicing problems which "the municipality was neither capable nor willing to handle."¹⁷ A new scheme was implemented in 1969 in which site areas were increased to $\frac{1}{2}$ acre in the "RA" suburban zone and 5 acres in the "A" rural districts. In 1972 a scheme was enacted for the corridor area between the CPR line and the Red River. This rezoned "RA" areas to "RR" rural residential areas and included policies for development in the area. If houses were built in

17. Lombard North Group, St. Andrews Environmental Impact Assessment, p. 7.

planned subdivisions, lot sizes could be reduced to $1\frac{1}{2}$ acres. The "RR" area was designed to provide for development which would retain the rural atmosphere of the area. The municipality would not provide sewer and water services to developments but subdivision developers had to present an engineer's report to ensure an adequate water supply and septic field design which would prevent water pollution problems.

This scheme was altered in 1975 when an area for "RR" development was identified west of the CPR line extending to the western limit of the river lot survey area and occupying approximately the middle third of the area between West St. Paul and Selkirk. The remaining areas of the corridor were zoned for Rural and Agricultural use only, but this extension of the residential development area may result in added pressure on the neighbouring rural zones. The aim of the agricultural zones is to protect and preserve the best agricultural land. This is to be achieved by zoning minimum lot sizes of 80 acres and restricting new house construction to housing for farmers and their immediate families only. Rural non-farm dwellings are permitted only if they are in existing habitable farm dwellings, in other words, no new exurban type dwellings can be built in rural and agricultural zones.

As mentioned above, St. Andrews is soon to become part of the planning district comprising St. Clements and Selkirk.

St. Andrews has affirmed the need to retain the rural atmosphere of the municipality and to preserve agricultural land perhaps more clearly than any of the other authorities in the corridor. It has also enacted more stringent policies to protect agricultural land from the encroachment of rural non-farm dwellings than elsewhere. Yet it seems from visual inspection that St. Andrews has been the least successful in meeting

these objectives. This may be due to overzoning. Although the corridor area and the even smaller area zoned for rural residential development form only a small part of the municipality of St. Andrews they represent a large proportion of the corridor area. Development may be limited in the agricultural zones but in the "RR" zone it is rampant and the area is fast losing any semblance of rural ambience. The 1½ acre lots in subdivisions may be better from a planning sense than scattered housing but they result in a landscape that looks like an endless low density suburbia - without the services and amenities of the latter. Zoning the whole area east of the CPR line for rural residential use has given carte blanche to landowners to develop their land so that now the land on either side of Highway 9 between West St. Paul and Salkirk seems to be nothing but "For Sale" signs and new subdivisions. Although the intent behind the planning schemes for St. Andrews was good the tools used seem to be inadequate in the face of an apparently relentless demand for exurban housing.

1.3.5. Other Planning Agencies

There are two federal and two provincial agencies with a direct interest in planning in parts of the corridor, particularly certain parts of St. Andrews municipality.

Recent changes in the Aeronautics Act have permitted the Department of Transport to prohibit housing development within a certain noise shadow area around airports. While most of the noise shadow area for St. Andrews Airport falls within the area zoned for rural use only, part extends east of the CPR line into the rural residential zone. If this area were to be developed this would probably create a conflict between residences and aeroplanes especially as the airport is expected

to increase in size and usage in the future. Even if the Department of Transport does exercise its powers to prohibit development in this noise exposure area the net effect on the pattern of housing development in the area will be small as the affected area forms only a small part of the total rural residential zone.

Parks Canada is the other federal agency with an interest in planning in the area. The 1975 planning scheme for St. Andrews municipality states that one of its aims is to preserve the historical character of Lower Fort Garry National Historic Park. As a result, all applications for development within one mile of the park must be referred to the park superintendent for his approval. As with controls around St. Andrews airport, this only has an effect on a small part of the corridor.

Control extending over a larger area may be effected if and when an agreement is signed between the federal government represented by Parks Canada and the provincial department of Tourism, Recreation and Cultural Affairs concerning a recreation and conservation corridor along the Red River north from Winnipeg. While full details of plans and the division of planning responsibilities have not been released yet the general intent is to preserve riverbank areas and historic sites and develop a scenic parkway along the river. Naturally new housing developments along the river are likely to conflict with the intent of such a corridor so it is probable that the government agencies involved will exercise controls over new housing developments in the immediate river bank area.

A similar sort of control can be exercised by the provincial Highway Traffic and Motor Transport Board over a limited control zone alongside provincial highways. The intent is to preserve the through traffic function of highways, which in the corridor area refers to Highways 8,9, and 59. The Board's aim is to prevent scattered ribbon development and limit access

to highways. However, these powers are obviously not retroactive and cannot reverse the existing strip development along Highway 9 but may prevent this getting much worse. Its power to limit access onto highways may be used to affect new subdivisions which depend on highway access for their existence. It may be possibly that co-ordination between this board and municipal planners could be used to shape future development in the corridor by creating more compact communities rather than having a continuous string of subdivisions branching off from the main highways in the area.

Although not a planning agency as such, C.M.H.C. could play a role in shaping development in the area. At the present time CMHC will lend or insure mortgage money from some new houses in the area even if they use septic tanks. While funding will be provided for houses with septic tanks, preference is given to houses which will be connected eventually to municipal sewer systems. Until development plans are drawn up for the corridor C.M.H.C. could act to limit development pressures by refusing to lend on new housing construction in the area. Once plans are in effect CMHC could restrict its mortgages to those areas of highest densities where sewage systems could be provided relatively economically.

In sum, there is no planning agency which treats the corridor as a whole, largely because four different municipalities are involved. To some extent, development in the two St. Pauls is under the same control although this may not be readily apparent considering the different patterns of development which have occurred in the two municipalities. St. Andrews and St. Clements are to be combined for planning purposes but the effect of this is unlikely to be seen for a number of years yet. No development plan exists for any part of the corridor, although two have been rejected by the municipalities involved who considered them to be restrictive concerning

new housing development. Although St. Andrews probably possesses the best tools for preserving agricultural land, by overzoning the area designated for rural residential development it may suffer more from the problems of exurban development than any other part of the corridor. Overzoning also exists in St. Clements but as yet the effects have been minimal due to the relatively low demand for exurban housing in the area, but this appears to be changing now. In general, what is most needed in the corridor is a development plan, preferably for the whole area, or even for each municipality, which will develop policies to create a rational and compact pattern of development.

1.4 Services in the Corridor

Most of the houses built in the corridor are independent of the traditional municipal services of sewer and water and use individual wells and septic tanks instead. Although the municipalities tend to be rather reluctant to provide services to areas of exurban development a number of services are still provided even if they are at a rather low level. The most important of these are the so called soft services such as fire and police protection and schools.

Although the ground water in most parts of the area tends to be excessively hard it remains potable and in sufficient amounts to supply thousands of households.¹⁸ Thus water supplies are not a problem in the area although there are the costs to the householder of drilling and maintaining a well. In areas where housing is densely developed there may be local problems of excessive drawdowns of the aquifer level but this is unlikely to happen in most areas due to the large minimum lot sizes.

Sewage disposal can, however, create problems as the impermeable clay soils, poor surface drainage conditions and relatively cold climate of the area are not at all conducive to septic means of sewage disposal. Many authorities in North America will not permit on site sewage disposal on soils with percolation rates as low as those found in the corridor area. Although provincial regulations concerning septic tanks have been tightened and St. Andrews municipality, at least, demands an engineer's report on the suitability of sewage disposal plans before approving subdivision applications, the

18. Ibid, pp. 26-28.

possibility of pollution remains strong. Given poor drainage and soil percolation conditions the greatest part of the disposal action must occur by evapotranspiration. In periods of heavy rain or rapid snowmelt, oversaturation and flooding can occur, especially in areas where a number of septic fields are located close together, resulting in surface water pollution and severe health hazards.¹⁹ These problems indicate that other means of sewage disposal are needed for the area but the current pattern of 1½ acre lots or larger renders most other methods extremely costly.

Continued housing development in the area will create problems and costs for other services. In common with most rural municipalities fire service throughout the area is based on voluntary municipal fire departments and most areas are not served by fire hydrants. These services may be inadequate for areas where there is a large population but spread out at a low density in the pattern typical of much of the corridor. In St. Andrews, for example, the fire fighting equipment is based in Clandeboye, which is some 15 to 20 miles from the main concentration of population in the corridor in the Lockport-Parkdale area. Some 5000 people live in this area with a very low level of fire protection. The problem is perhaps not so critical in other parts of the corridor since the fire stations tend to be located closer to the main population concentrations, but service remains at levels below those found in the city of Winnipeg. It seems that little planning has been done to account for the rapid increases in population and the corresponding increase in demand for this and other services. Populations are now approaching a level, in St. Andrews and East St. Paul at any rate, which demands a permanent fire fighting staff and added equipment plus perhaps a fire hydrant system. These services will prove costly to provide.

19. Ibid., pp. 40-50.

Police protection is provided by the R.C.M.P. in St. Andrews and St. Clements and by an amalgamated force in East St. Paul and West St. Paul. St. Andrews also has a part-time policeman who is part of their municipal staff. With a growing population police forces will have to be increased.

Three school divisions are responsible for education in the area. West St. Paul and East St. Paul are each part of larger urban school divisions, Seven Oaks and River East School Divisions respectively. St. Andrews and St. Clements are part of Lord Selkirk school division. Elementary and Junior High schooling is provided in the local area while high school students attend schools in Winnipeg or Selkirk depending on their school division. In response to recent population growth most schools have undergone considerable expansion in the past five years. West St. Paul School was enlarged to accommodate a Junior High section, in St. Andrews the old elementary school next to St. Andrews Church has been expanded and a new Junior High constructed; Happy Thought School in East Selkirk which serves the St. Clements part of the corridor has also been expanded. The proposed 1975 plan for East St. Paul suggested that the population could double in this area representing a need for some 22 new classrooms. The addition of 6 new classrooms for the Junior High School is underway.²⁰

Considering the rate of population increase in the corridor and considering that most of the newcomers are families with children the demand for even more new school facilities can be expected to continue. The provision of these facilities will be more costly than equivalent facilities in the city due to the low density of housing development which requires that most children be bussed to school. Even the elementary

20. City of Winnipeg, East St. Paul District Plan (proposed) pp. 10-11

schools, although located in fairly close proximity to the main population concentrations, are beyond walking distance from most dwellings. If the population continues to expand in St. Andrews in particular there may be need for a new high school in the area in addition to new elementary schools. The costs of schooling new residents is one factor which must be taken into account by the municipalities (and the school boards) if they are to allow almost unlimited expansion to continue.

Hydro and telephone services must be provided to consumers on demand so the present pattern of fairly scattered development must add to their costs. If some controls could be exerted to influence development to take a compact form, these costs to public corporations could be reduced somewhat. Gas lines are provided to subdivisions if the Greater Winnipeg Gas Company feels this can be done profitably and if sufficient gas supplies are available. In such cases the higher costs of extending this service to new locations is borne directly by the consumers affected, which means the householders in the subdivision. At least some new subdivisions in St. Andrews are being advertised as having gas lines to each lot so it seems the Gas Company is still expanding its service.

It is apparent that in most cases the low density of development adds to the cost of services in the area, in some cases to the municipality or school board at large, and in others directly to the affected consumer. Commercial services are also affected by the low density of development and the commuter nature of the population therefore there are very few stores within the corridor even though it has a population of some 15,000.

1.5 Summary of Current Development in the Corridor

The real rise in the demand for exurban living in the corridor began about 1970. Following a steady rate of growth throughout the 1960's house building and populations began to increase rapidly in about 1970, then a second major increase occurred in about 1973/74 and this trend appears to be continuing today. In the past six years the population of the corridor has increased by about 50%. This has been accompanied by a dramatic rise in land prices to a point where housing lots in St. Andrews now cost over \$20,000. Land is being consumed at a rate of about 500 acres a year for new housing so that agriculture is losing ground in the area in the face of the double pressures of land consumption and high land prices.

Development has been occurring in a scattered pattern throughout the corridor, although it has been relatively restricted in West St. Paul. The main focus of development has been between Main St./Highway 9 on the west side of the Red River and Henderson Highway on the east side. This area is likely to remain the centre of development due to favourable zoning regulations but high land prices and the general shortage of suitable building sites may act to direct development outwards into other areas of suitable zoning in the corridor and into other areas of the Winnipeg region where land is less costly.

There appears to have been little planning effected in response to these growth pressures. No development plans exist for the area, although two have been prepared and not adopted, while others are in varying stages of preparation. Zoning has been the standard tool to control and direct development. However, due to large scale overzoning, in most cases this has not been very effective in directing development, except at a very "macro" level.

Most of the housing built in the area is independent of hard services and receives only a low level of service in other areas such as fire protection - especially in relation to service levels provided in Winnipeg. The area is unsuitable for the use of "on-site" septic-type sewage disposal system on almost all counts yet these remain standard in the area. The risk of water contamination, and consequently dangers to public health, remains high as a result.²¹ The low density of development makes the provision of services more expensive and forces a greater reliance on the use of the automobile for personal transportation in an era of increasing energy shortage. Continued population growth is going to result in demands for an increased level of service and additions to existing services which will impose high costs on the local municipalities in the corridor.

It seems that these municipalities and other authorities have attempted to avoid these facts for as long as possible but they cannot be evaded for ever - especially as the exurban sector comes to dominate the local political structure. This would seem to be an inevitability since the exurban population has been increasing rapidly and would appear to continue to do so in the future while the traditional agricultural and small town populations of the area have been on the decline for several years.

In sum, there seems to have been little assessment of the long-term costs or benefits which will result from allowing large portions of the corridor area to be converted from agricultural use into rural residences. Obviously this should be a major element in the preparation of any development plans made for the corridor. What is needed is a listing of the benefits, if any, to be derived from permitting residential development and a parallel listing of the costs and problems such development will create.

21. See Appendix A.

PART II. AIR PHOTO INTERPRETATION OF
EXPANDING HOUSING DEVELOPMENT IN THE
WINNIPEG-SELKIRK CORRIDOR 1950-1974

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AIR PHOTO INTERPRETATION OF EXPANDING HOUSING DEVELOPMENT IN THE
WINNIPEG-SELKIRK CORRIDOR 1950-1974

Housing expansion is the result of growth in population and economic development. One area of expansion is the housing development occurring outside the main built up area of the city, which can be detected from air photographic coverage over a period of time.

The attributes of black and white photographs which give the recorded objects their characteristic image are the degree of greyness or tone and the frequency of tone change or texture. Colour photography is advantageous compared to black and white photography by identifying objects not only by shape and form, but also by colour. According to Evans, the human eye can separate more than 100 times more colour combinations than grey scale values.¹ Therefore colour prints of 1972 coverage were used in this study. False colour prints (used for 1974 coverage) have advantages over colour prints since they reveal better contrasts between building and the surrounding environment.

The advantage of using air photography in the present study is that aerial photographs have an obvious advantage in overcoming the problem of inaccessibility, particularly during the winter. This also means that much less time is spent on field work and that the overall time taken for a mapping project is considerably reduced. A third advantage is the increased visibility obtained from an aerial view, particularly regarding housing patterns and the sites of services since what may go undetected in the field will be clearly discernible on

1. Evans, Ralph M. An Introduction to Colour. John Wiley, Inc., New York, 1948. 340 p.

photographs. In cases where more than one series of photographs are available, taken in different years, it is also possible to monitor the dynamic change such as urban expansion. Related to this, is the use of photographs in updating previous survey work, rather than having an extensive field program carried out at frequent intervals. In addition to their interpretative uses, aerial photographs are extremely valuable in the detection of higher and lower income owners of houses and in the estimation of population.

In this study surveys of housing development recorded on air photographs taken in 1950, 1968, 1972, 1973 and 1974 were made. The objectives of this study are:

1. to investigate the total expansion in the above mentioned years.
2. to investigate the total expansion of the two major urban areas, Winnipeg and Selkirk.
3. to investigate the nature of this expansion in terms of the incomes of the house owners.
4. to investigate the expansion on either side of the Red River.
5. to investigate the possibility of estimating the total population from the number of dwelling units.
6. to investigate the expansion of the city in relation to the capability of land for agriculture.

2.1 Method of Analysis

Black and white, colour, and infrared imagery taken in 1950, 1968, 1972, 1973 and 1974 covering the corridor from Netley Marsh to the city of Winnipeg along the Red River were used for the present study. The airphotographs were ordered from Survey and Mapping Branch; Canada Map Office, National Airphoto Library. (For details of year, scale,

type of image, and print series number of airphotographs - see note at the end of this section).

The photographs for each study year were arranged into mosaics. A plani metric map was made for each year. (Map 1,2,3,4, and 5) The information from each set of photographs - representing one year - was transferred onto a 1:36,000 standard scale map. The following information was plotted on the maps for each year.

1. main roads
2. minor roads
3. railways
4. minor ditches
5. Houses - a. low income
 b. higher income
6. bridges
7. schools
8. churches
9. hospitals
10. golf courses

By using a mirror stereoscope and aerosketch - master, the exact location of the above features was plotted on the final map. An additional map was made for survey purposes in which the corridor was divided on both sides of the river lots into 4 x 4 km areas. (see map 6) From the aerial photograph mosaic, high and low income houses were counted. The population of the corridor part of each of the four municipalities (St. Andrews, St. Clements and East and West St. Paul) was estimated from the number of dwelling units in each zone.

2.2 Photointerpretation

2.2.1. Total Expansion

The expansion of housing and new residential areas is obvious in the period 1950 - 1974. While it can be observed from the ground along the road from Winnipeg to Selkirk, this expansion can also be seen from aerial photographs covering the corridor over the 5 different years 1950, 1968, 1972, 1973 and 1974. From these various black and white, colour, and false colour infrared photographs, the number and location of houses can be determined. This information is contained in Tables 1 and 2.

The data in these tables shows an obvious total expansion from 1950 to 1974. The number of dwelling units has doubled between 1950 and 1974, from 1096 units in 1950 to 2072 units in 1974. Also it can be noticed that the number of dwelling built in the period of 6 years from 1968 to 1974 is nearly equivalent to the number of dwelling units built in the preceding 16 years from 1950 to 1968.

Over the entire study period between 1950 to 1974, the number of new dwellings built on the west banks of the Red River was considerably higher than the number built on the east bank. This phenomenon may possibly be attributed to the better access and transportation facilities available on the west bank. It was found that new dwelling units on the east bank increased significantly as soon as transportation facilities improved (1968-1974). The increase in dwelling units along the Winnipeg-Selkirk Corridor was interpreted by the author to be the result of a number of factors:

Table (1) Number of dwelling units in the river lot area North of Winnipeg

Year Zone*		1950			1968			1972			1973			1974		
		East	West	Total												
Winnipeg Perimeter Hwy	1	62	83	145	93	117	210	129	125	254	145	129	274	145	136	281
	2	88	99	187	119	167	286	148	181	329	149	185	334	149	188	337
	3	40	14	54	60	17	77	70	28	98	74	31	105	76	33	109
	4	57	41	99	73	84	157	93	103	196	90	108	198	92	165	257
	5	54	45	99	55	86	141	69	123	192	74	126	200	77	138	215
	6	46	96	142	51	136	187	62	152	214	69	156	225	69	181	250
	7	59	27	86	45	38	83	50	42	92	53	44	97	55	63	118
	8	31	31	62	38	73	111	41	89	130	43	97	140	48	126	174
Selkirk	9	1	15	16	2	19	21	3	18	21	3	18	21	3	18	21
	10	101	17	118	134	15	149	153	16	169	151	16	167	154	16	170
	11	14	16	30	20	23	43	22	25	47	23	25	48	25	25	50
	12	8	15	23	10	22	32	11	28	39	11	29	40	11	29	40
	13	7	5	12	11	5	16	13	5	18	13	5	18	13	5	18
Netley Marsh	14	3	20	23	3	27	30	3	29	32	3	29	32	3	29	32

* Zones refer to areas of 4 x 4 km. on both sides of the river extending north from the Perimeter Highway

TABLE 2 Number of Dwelling Units Built Between 1950 - 1974.

Period	Location		
	East Corridor	West Corridor	Both Sides of the River
1950-1968	143	304	447
1968-1974	206	323	529
Total	349	627	976

1. higher standard of living
2. increased dwelling density in cities
3. improved road facilities (transportation)
4. increased pollution (noise, air, water) in the city
5. increasing preference for exurban living

2.2.2 Ratio of Low to High Income Residents

From the information that can be gathered from air photographs it is difficult to know in detail people's income. But according to Davies et al, (1973)² it is possible to classify people into 2 major categories from the appearance of their houses, i.e. low and high income. The following criteria were used in a comparison of housing areas in Austin, Texas based on selected environmental aspects amenable to identification on remote sensing imagery by Davis et al, (1973)³

1. House size (sq.ft)
2. Placement of house and lot (distance from street in feet)
3. Potential land holding per housing unit (sq. ft)
4. Building density %

2. Davies, S. Tuyahov, A. and Holz, R.K. (1973). Use of remote sensing to determine urban poverty neighbourhoods and landscapes, pp. 72-81.

3. Ibid.

5. Average lot size and frontage (sq. ft.)
6. Image, pattern and texture
7. Houses with driveway(%)
8. Unpaved road(%)
9. Quality of Vegetation

In the present survey most of the above criteria were used to differentiate between high and low income owners with more emphasis placed on the size of houses and the presence and length of driveways. The results of this analysis are illustrated in the following tables. (Tables 3 and 4)

It is found that the number of new dwelling units during the entire period under study 1950-1974 has increased for both low and high income dwellers. When comparison was made between low and high income occupants, it was noticed that the annual rate of building of the lower income people was higher than the annual rate of building of the higher income people over the entire study period. Analysing the figures for the last 6 year period we find that the annual rate of building of the higher income owners has increased greatly in the short period between 1972 and 1974. This higher percentage of higher income people moving out of the city during this last period may be due to the sharply increased prices of land which the lower income people can no longer afford. While the annual rate of building has increased among the higher income people for the period of 1972 to 1974, it has decreased somewhat for the lower income owner.

Years/location	1950		1968		1972		1973		1974	
	low	high								
East										
1 Wpg - Perimeter Highway	54	8	84	9	120	9	134	11	134	11
2	72	16	101	18	128	20	128	21	128	21
3	25	15	44	16	53	17	55	19	57	19
4	53	4	62	11	75	11	79	11	80	12
5	50	4	49	6	61	8	62	12	64	13
6	41	5	45	6	56	6	63	6	63	6
7	44	15	32	13	35	15	38	15	39	16
8	19	12	26	12	29	12	31	12	36	12
9 Selkirk	0	1	1	1	1	2	1	2	1	2
10	92	9	122	12	141	12	138	13	141	13
11	8	6	14	6	15	7	16	7	18	7
12	3	5	6	7	4	6	5	6	5	2
13	2	5	6	5	7	6	7	6	7	6
14 1. Winnipeg	0	3	0	3	0	3	0	3	0	3
Total	463	108	592	122	708	132	758	143	774	146
West										
1 Wpg - Perimeter Highway	74	9	108	9	116	9	120	9	126	10
2	93	6	160	7	174	7	177	8	180	8
3	7	7	11	6	22	6	23	8	25	8
4	20	22	62	22	81	22	85	23	133	32
5	22	23	62	24	95	28	98	28	105	33
6	88	8	123	13	139	13	143	13	159	22
7	14	13	25	13	29	13	31	13	49	14
8	22	9	64	9	80	9	88	9	115	11
9	11	4	16	3	15	3	15	3	15	3
10	15	2	15	0	16	0	16	0	16	0
11	14	2	22	1	24	1	24	1	24	1
12	8	7	9	13	15	13	16	13	16	13
13	4	1	4	1	4	1	4	1	4	1
14 L. Winnipeg	19	1	26	1	28	1	28	1	28	1
Total	411	114	707	122	838	126	868	130	995	157
Grand Total	874	222	1299	244	1546	258	1626	273	1769	303
Total Combined	1,096		1,543		1,804		1,898		2,072	

TABLE 4 Number of Dwelling Units Built by High and Low Income People
1950 to 1974

High and Low Income

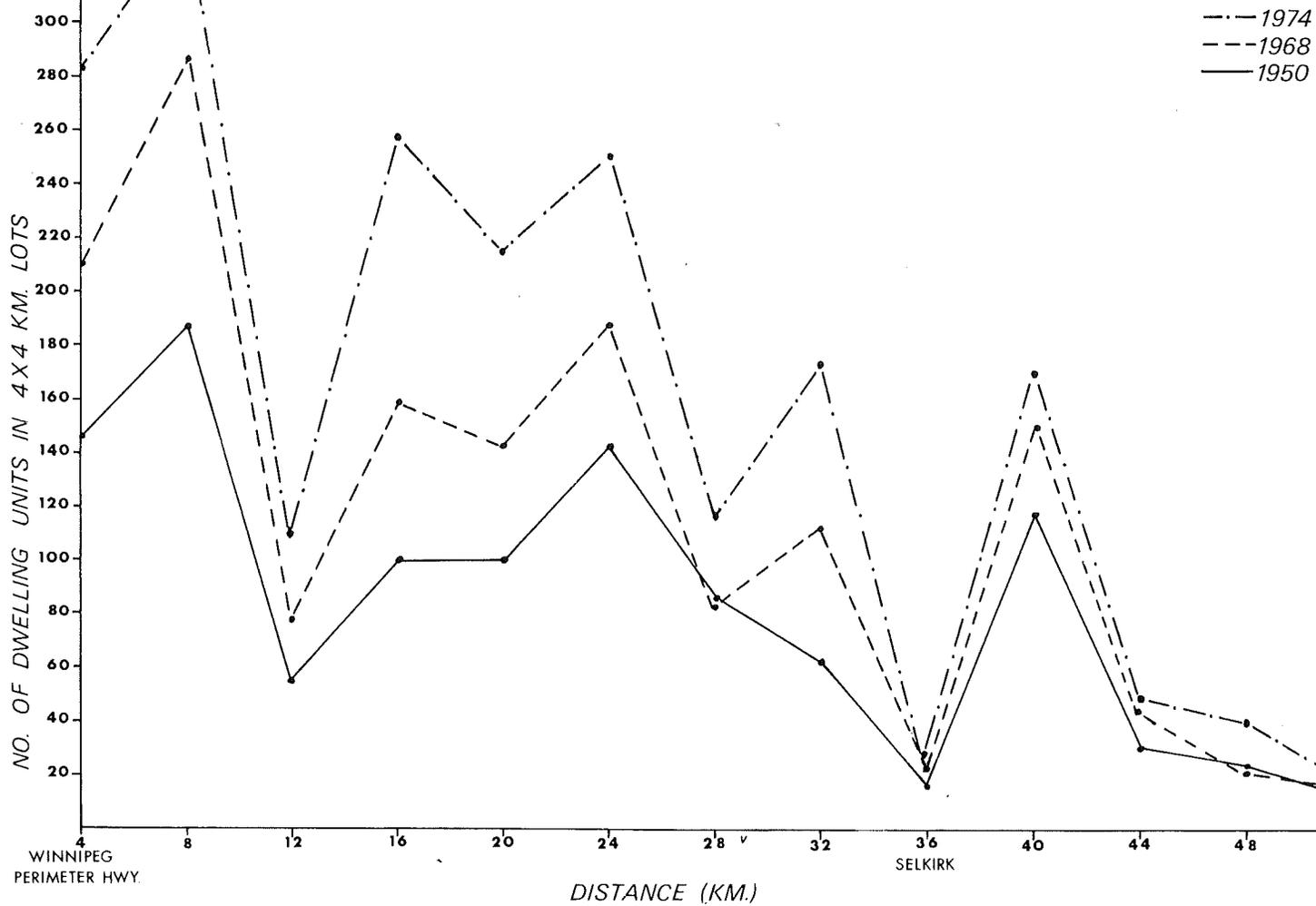
Periods	High Income	Annual rate of Building	Low Income	Annual rate of Building
1950-1968	22	1.2	425	23.6
1968-1974	59	9.8	470	156.6
1972-1974	45	22.5	213	106.5
Total	81		1105	

2.2.3 The Nature of Expansion

In order to investigate the nature of urban expansion the location and the density of dwelling units was counted in zones of 4 x 4 km north of the perimeter highway on both sides of the river lot to lake Winnipeg. A comparison was carried out for the three years 1950, 1968, and 1974 (fig.2.1) This shows a generally consistent pattern of expanding urban areas.

A gradual expansion north of the perimeter reaches its peak at a distance of 8 km from the perimeter. This concentration of expansion may be due in part to the City of Winnipeg's restrictions on housing development in this zone. Over the next 20 km, there is a significant increase in the number of new developments due to less restrictions on building in this zone. Those scattered zones of housing development will make planning for future services centres rather difficult. Two zones of housing development may be noticed north and south of Selkirk suggesting an expansion of the town of selkirk. Thus planning for future should take into account this trend of outward expansion from Selkirk. One area that

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appears favourable for future housing development is the area 8 km north of Selkirk town and extending another 12 km northward toward Netley Marsh. At the present, there is a minimal amount of housing development in this zone. Only cottages were observed, but the presence of these cottages together with the fact that this land is of poor quality for agricultural use, may justify the use of this area as a possible future residential zone. However, it does suffer from the fact of excessive distance from Winnipeg thus making it less desirable for communities.

2.2.4. Population Growth

In this section the estimated total population will be compared with the ground surveyed population of the four municipalities included in the corridor. Unfortunately ground surveyed population data (Census) was only available for 1971. In table no. 5 the number of dwelling units built during the period 1950 to 1974 is indicated while Table No. 6 gives an estimate of the population in the four different municipal zones for the same period. The total population was calculated by multiplying the number of dwelling units by 4, which is the average number of persons per household in the four different municipal areas.

TABLE 5 Number of Dwelling Units Built in the Period 1950 - 1974 in the Four Municipal Zones

Zones	Period			
	1950-68	1968-72	1972-73	1973-74
E. St. Paul	76	65	17	-
W. St. Paul	102	25	9	10
St. Andrews	198	111	25	246
St. Clements	67	79	14	19

TABLE 6 Estimated Population of the Four Municipal Zone
1950 - 1974*

Zones	Years					
	1950	1968	1971 ^{**}	1972	1973	1974
E. St. Paul	680	984	2616	1244	1312	1312
W. St. Paul	740	1148	2429	1248	1284	1324
St. Andrews	1300	2092	2437	2536	2636	3220
St. Clements	1600	1868	2350	2184	2240	2356

* This data refers to the area north of the perimeter highway and is limited to the zone of river lot extending 4 km on both sides.

** Canadian Census Figure, 1971

When data on the estimated population was compared with the actual population, it was found in most cases that St. Andrews has the highest population while St. Clement has the lowest. These results correspond to the actual ground survey data (see Table 6). Because the main object of this study is to investigate the expansion along the river, the present results of increasing housing developments and population are a definite indication of urban growth along the Winnipeg-Selkirk corridor.

2.2.5. Housing Development and Land Capability

Following the study of housing developments from airphotographs, we compared where development has taken place with regards to the land capability for agriculture. As a result of this comparison, further expansion of housing developments on land with high capability for agriculture might thus be limited and development on land with low capability for agriculture stimulated.

The following soil types are found in the Winnipeg-Selkirk Corridor.

1. Lakeland fine sandy loam - shallow soils on sandy lacustrine deposits are found in a very small part of St. Andrews Parish.
2. Riverdale silty clay - alluvial soils are found in a very narrow strip along the Red River up to Netley Marsh.
3. St. Norbert clay-wooded associates black earth soils are found in one quarter of East St. Paul.
4. Red River clay, well-to-intermediately drained soils are found in one third of East and West St. Paul and in large parts of St. Andrews and St. Clements.
5. Clay loam to clay - grey black soils are found in one third of St. Andrews and St. Clements.
6. Osborne clay - poorly drained soils are found in a large part of West St. Paul and a small part of St. Clements.
7. Garson complex - sandy loam to clay, loam soils developed over stoney calcaneous material are found in small parts of St. Clements and East St. Paul.
8. Peguis clay - fine textured shallow lacustrine deposits on till soils are found in one third of St. Clements.

According to the following limiting factors for agriculture for each soil type, the author was able to classify these soils into 5 different capability classes for agriculture:

1. Water holding capacity
2. Undesirable soil structure
3. Past damage erosion
4. Low natural fertility

5. Periodic inundation
6. Deficient soil moisture
7. Salinity
8. Stoniness
9. Shallowness to bed rock
10. Excessive soil moisture.

The following are the five suggested classes of soil capability for agriculture.

- class 1: soil very suitable for supporting crop without major reclamation process (soil types # 3 & 4)
- class 2: soil suitable for agriculture with minor conservation process (soil types # 5 & 6)
- class 3: soil moderately suitable for agriculture but suitable for grazing with major conservation process (soil type # 2)
- class 4: soil marginly suitable for grazing with costly conservation process (soil type # 7)
- class 5: soil unsuitable for neither agriculture nor grazing (soil type # 1)

When soil capability for agriculture of the Winnipeg-Selkirk corridor was related to the locations of housing developments existing in the corridor determined from air photos it was found that most of the best land for agriculture, which is located close to Winnipeg north of the perimeter and around Selkirk, is occupied by buildings, while areas of lower capability for agriculture close to lake Winnipeg and midway between Selkirk and Winnipeg have only been used to a limited extent for housing development. These findings will hopefully be taken into account

in future decision-making regarding the allocation of new sites for residential development.

2.3 Conclusion

By using aerial photographic coverage of the corridor of the years 1950, 1968, 1972, 1973 and 1974, the following conclusions can be reached:

1. There has been an increase in housing development along the corridor from 1950 till 1974 but this increase is not uniform, being mainly concentrated close to the city of Winnipeg and to Selkirk.
2. In the early period of investigation, low income owners tended to move from Winnipeg to the corridor area and only in more recent years have higher income people followed the trend to exurban living.
3. Air photographs can be an important tool in estimating the total population of a residential area.
4. The best land for agriculture is already used for exurban housing development while rather less suitable land tends not to be developed and remains in agriculture.

It should be noted again that this study and these conclusions pertain to the study period of 1950 to 1974. As described in the previous section there has been a dramatic increase in the rate of house building in the area since then with the result that the pattern and nature of housing development will have changed considerably.

This study has revealed the usefulness of airphotographs for detecting and plotting the patterns of housing expansion over time and its use for estimating population in a rapidly developing area.

NOTE: A Source of Airphotographs Used in This Study

1. 1950, scale, 1: 15,840, Black and White airphotograph print series number and flight lines
 - A 12453 (324-362)
 - A 12453 (370-382)
2. 1968, scale 1: 60,000, Black and White airphotograph print series number and flight lines
 - A 20662 (25-30)
 - A 20663 (6-13)
 - A 20663 (72-76)
 - A 20663 (150-195)
3. 1972, scale 1: 90,000, Black and White airphotograph print series number and flight lines
 - A 22665 (204-206)
 - A 22665 (196-198)
 - A 22665 (134-193)
 - A 22665 (121-127)
4. 1973, scale 1: 36,000, colour airphotograph print series number and flight lines
 - R5A 30641 (1-17) false colour
5. 1974, scale, 1:120,000, Infrared airphotograph print series number and flight lines
 - A 371291R (6099-61100)
 - A 371291R (6081-6083)

PART III. ALTERNATIVES FOR THE CORRIDOR

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III. ALTERNATIVES FOR THE CORRIDOR

Although housing development is occurring on a large scale in much of the corridor it has not yet reached the stage where there are no alternative patterns of development and land use left available for the area. If action is taken soon, any of a number of alternative schemes could be adopted. The municipalities and planners responsible for the corridor need to conduct an analysis of the long term costs and benefits stemming from each possible pattern and determine what sort of development they want for their area. Then, the appropriate plans and policies can be established to assist in achieving this goal.

This process should be conducted at the level of the whole corridor since, in many ways, the corridor is a functional whole linked together by a number of highways extending out from Winnipeg so that decisions and developments in one area will have an effect on other parts of the corridor as well. Reference should also be made to the whole of the Winnipeg Region since the exurban phenomenon is occurring throughout the Region - at this level it may be a provincial responsibility to determine which part or parts of the Region may be best suited to accommodate the demand for exurban development. Co-ordination at the planning level in the corridor should be easier to achieve when the St. Andrews/St. Clements/Selkirk planning district is formed since then there will only be two major planning bodies involved in the area. However, it appears that there needs to be a greater co-ordination between the planners and the Municipal Councils since the planners have been notably unsuccessful, so far, in having their plans accepted by the municipalities. There also needs to be co-ordination between the municipalities, especially between adjacent ones such as East St. Paul and St. Clements. Plans and policies adopted for one municipality can be rendered almost useless if the adjacent municipality has established contradictory policies.

This part of the study will attempt to present some of the possible alternatives for development in the corridor. While it will not be possible to present a formal economic analysis of the gains and costs to be expected from each pattern of development it will be possible to give an indication of some of the results which can be expected from each pattern. Some of the policies needed to achieve these patterns will also be presented. The intent of this section is not to usurp the municipalities' role of selecting the form of land use and development desirable and suitable for the area and the methods of achieving these goals. Rather, this will be an attempt to assist them in their task by showing what may occur in the corridor if different patterns of development are selected. A number of alternative patterns will be introduced and the probable results of each will be discussed in separate subsections.

3.1 Continuation of Present Policies

The most probable course of development for the corridor is a continuation of the present pattern of development. Eventually this would lead to an almost continuous housing in a long strip between Winnipeg and Selkirk between the CPR track on the west and Henderson Highway or even the Red River Floodway on the east. Branching off the main corridor of development would be strips of housing extending along numerous side roads, especially in St. Clements where the opportunity is ripe for this form of development given the present zoning and the number of sideroads which have not been built along so far.

Houses would be built on large lots of 5 acres or more or in "planned" subdivisions of 1½ acre lots. Given the largely flat, open nature of the landscape in the corridor there would appear to be no

countryside left but housing wherever one turned - even if relatively large areas were left undeveloped between subdivisions. With agriculture driven out from even the remaining undeveloped areas by the pressures of economic, incompatibility with neighbouring residents and difficulties of access to the land, the area would lose its rural character.

It is quite possible that no agriculture will be left in the inner two miles on both sides of the river within twenty years. If current growth rates are maintained there could be a population of 40,000 in the corridor by the end of the century. At present zoning standards this would mean that at the least 15,000 to 20,000 areas would be used for housing. Any vacant land left between housing areas would probably be too small or too costly to farm productively. The land lost forever would rank among the best farmland in Manitoba. Almost the whole area is rated as Class III or higher for agricultural use, yet it could be squandered on unorganized large-lot housing development.

While groundwater supplies are probably sufficient to maintain a population this large, sewage cannot be disposed of so easily. Almost all of the area is unsuited to the use of septic systems for sewage disposal, especially if these are relatively concentrated in any area, yet this remains the only method of sewage disposal for rural housing in the area. Zoning standards for the area are supposed to ensure that no pollution will be caused by the overloading of septic fields but the effects of almost continuous housing and septic fields over most of the area remain unclear. At present it is completely uneconomic to use piped sewage systems to service low density housing scattered over a large area. Unless new systems of sewage disposal are invented, the septic system is likely to remain in use in the area if the present development pattern continues and with it the

chances of water contamination and dangers to health will grow with every new house.

Naturally it will be especially costly to provide services to houses if they continue to be built at low densities. The continued rapid growth of a population with urban values is likely to result in a demand not only for the extension of existing services, but for the addition of new services as well. It might be possible to shape the direction of development by limiting services, but unless on-site sewage and water systems are replaced the effects of such a service strategy will be limited by the relative independence of the typical exurban house. Hydro and telephone services cannot be limited in any event since they must be provided on demand. Gas service to houses may be limited at the discretion of the Greater Winnipeg Gas Company, but this would be of only limited effect since alternative sources of home heating are available. Limiting soft services such as fire protection or schools would not be politically practical; in any event, present service levels are rather low so this would hardly act as a deterrent to new house building.

The only effective means of using a servicing strategy to shape development in the area is to place limits on construction of, and access to, all-weather roads. This has been used to some extent in West St. Paul when the municipality balked at servicing a subdivided area of land located several miles from the nearest road. In places, especially St. Clements, however, many roads are already in place and have not been built along to any extent so that a considerable expansion of housing in strip form is still possible. If municipalities wished to create more compact development they might consider approving a network of roads in a small area to service new housing development and forbid, or limit access

from houses to existing sideroads. Regardless of the pattern of development that takes place it is unlikely that exurban residents will continue to tolerate gravel roads so that pressures for paving these sideroads are bound to be felt. Naturally the costs of paving will be greatly increased if development continues to occur in scattered linear form along sideroads.

A second, complementary, strategy could involve selective mortgage lending to shape the pattern of development. While it may not be possible to affect the private lending market, the public side in the form of CMHC may be amenable to limiting mortgage lending and insurance to certain areas of the corridor. Ideally, lending would be restricted to areas of higher density where municipal sewage disposal systems could be provided. It is not clear how effective such a strategy would be, since private mortgage lending is probably dominant in the corridor given the high values of new houses being constructed in the area. Still, even limits on CMHC lending activity would probably serve to put some restrictions on the rampant development pressures being felt at the moment.

The present scattered pattern of development is extremely energy inefficient and such considerations are bound to become of increasing importance as energy costs rise. Scattered low density housing implies the use of automobiles for all personal travel. Distances to schools and stores are normally too great to walk or cycle, even in the best of weather. Population densities are too low to support much in the way of a mass transit system. The nature of exurban dwellers means that they are commuters and must travel into the city to work or shop and, without a viable transit system, this means they must travel considerable distances by car - thus adding to energy consumption.

The commuter lifestyle also puts added pressures on main roads. An ever increasing population of commuters means increasing traffic flows on the highways to Winnipeg. Already Main St./Highway 9 is reaching its capacity and additional traffic, expensive improvements to this route will be needed and, as the area of development expands, improvements will be needed to Highway 8 and possibly even Highway 59. While these improvements would be provincial responsibilities, the municipalities in the area will surely be responsible for improvements to internal circulation which will be needed as the population grows and the present pattern of parallel roads connected only by major highways proves to be inadequate to accommodate local traffic. Thus new roads are going to be needed in the corridor.

So far, only the costs of continuing the present pattern of development have been discussed. There are of course benefits to be experienced from allowing growth to continue, but whether these benefits outweigh the many costs remain to be seen. An added population of homeowners naturally adds to the tax base of the municipality and increases in land values stemming from housing demand increase the municipal assessment rolls. A larger population can also support a wider and better range of services for all residents of the municipality although this factor is reduced if the population remains fairly dispersed.

The continued growth of the exurban population will dramatically change the political structure and values of the local municipalities. This is particularly true in the municipalities of St. Andrews and St. Clements where the exurban zone (or the corridor) is only a small part of much larger municipalities. In 1971 about half the population of the two municipalities lived in the corridor area.¹ With a stagnant or declining population in

1. Census of Canada, 1971.

3.3 Other Alternatives

While a series of compact communities seems the most practical form of development available for the corridor there are a number of other alternatives which might be applied to the area. One that has often been proposed is a satellite new town. The provincial government has acquired land south of East Selkirk apparently with the intent of developing a new town there. While there is probably sufficient population demand in the corridor to create a major new town with a complete range of services it seems unlikely that this alone would solve the problems of exurban growth. In the first place a new town would probably be something of an architectural show piece with large numbers of multi-family houses developed at medium and high densities, thus it would be unlikely to appeal to most of the people who are currently seeking an exurban residence. Secondly the new town would have little effect unless planning controls against development were enforced in the whole corridor. Finally it is questionable whether the public interest would be any better served by such a development standing independently in St. Clements municipality rather than as an extension of the built up area of Winnipeg in the form of a new suburban subdivision.

Another possibility would be to concentrate future development along major transportation corridors. The land in between these 'fingers' of development would be left in agricultural use and protected by appropriate

the rest of the municipality the corridor probably now contains two thirds of the total municipal populations. This proportion is bound to increase still further. If political representation is based on population, a small area with a large population will come to dominate the much larger remaining parts of the municipalities. It is to be expected that the interests of the exurban population who will come to dominate local politics will differ considerably from those of the largely agricultural population living in the rest of the municipality. Undoubtedly tensions will arise between these two groups, especially as the new exurban group takes control away from the traditional agricultural group. It is conceivable that this could lead to changed municipal boundaries and even separation of the corridor area from the rest of St. Andrews and St. Clements municipalities.

Given the popularity of the corridor area among present and potential exurbanites, the municipalities in the corridor need do little if they want the present pattern of development to continue to its logical extreme. Current zoning laws provide enough area for housing expansion on $1\frac{1}{2}$ acre and 5 acre sites to continue for decades to come. St. Clements, for example, has zoned enough land to accommodate 50 to 60 years of building at current rates. Of course, continued growth will require that the municipalities plan the expansion of current services to meet the needs of a growing population. The biggest decision facing municipalities in this area, in particular St. Andrews, will be what to do about sewage disposal. Can the present methods of on-site disposal continue to be tolerated in the face of a potential environmental disaster? Or will the costs of providing alternative disposal systems prove too high and make the environmental risk one worth taking? Decisions will also have to be made about building new roads, paving existing other services.

The option of continuing on as in the past remains open, but it means that the municipalities which are involved will be able to exert little control over the course of developments that will effect irreversible changes on the area.

3.2 Compact Communities

The option still exists in most of the corridor to concentrate future development in relatively compact communities. Naturally lot sizes would be smaller and the areas where development would be permitted would be considerably reduced. However, such a development pattern would permit a higher level of services to be provided more cost effectively and would help to preserve more of the valuable agricultural land which would otherwise disappear if present development patterns continue. It might also prove to be more visually attractive since areas of countryside would be clearly defined and would contrast with clearly defined residential areas. The proposed 1975 East St. Paul district plan was an attempt to create a reasonably compact community in response to the exurban development pressures occurring in the municipality. Similarly, Lombard North's St. Andrews Environmental Impact Assessment suggested a pattern of compact hamlets as an alternative to present patterns.² Thus the idea of compact communities is not a new one for the corridor.

Perhaps only in St. Andrews municipality has development reached the stage where an effective compact community could not be developed. There, in the area east of the CPR line there seems to be little land that has not been or is in the process of being, laid out into subdivisions of 1½ acre lots. Since these subdivisions extent northwards along Highway 9 from Parkdale past Lockport there is little point in trying to define a "compact" community in this area, although something of a community is perhaps developing around St. Andrews Church where schools are located and a recreation centre is being constructed. Elsewhere in the corridor the

2. Lombard North Group, St. Andrews Environmental Impact Assessment, p.

prospect is more hopeful as existing development has not reached the stage where it would be impossible to define an area for compact development.

In West St. Paul it may be desirable to lift some of the restrictions on residential development in some parts in exchange for tighter controls elsewhere in the municipality. It might be possible to rezone the area between Rivercrest and Middlechurch east of the CPR line for compact development. This would eventually create a defined community in part of the municipality while leaving the remainder in agriculture, except where strip development has occurred. Such a plan might accommodate some additional housing demand while restricting any future strip developments along the side roads between Highways 8 and 9. This plan would not be without its costs, however, as an internal circulation system away from Main St. would need to be built and municipal sewage systems would be needed if houses are to be built on smaller lots; as well, a major greenhousing operation would be affected by such a proposal. The overall area is not large so that the extent of future development would be limited. Nonetheless, the alternative is sprawl throughout much of the municipality and this plan does have the advantage of concentrating future housing around present communities and reasonably close to Winnipeg so that some services may be shared to reduce their costs.

A proposed compact community has already been suggested for East St. Paul. This would take into account the present strip forms of development and allow for continued house building while attempting to retain as much agricultural land as possible. It is probable that the new proposals for East St. Paul will not differ greatly in intent from the 1975 plan and will suggest a concentration of development in the southern end of the municipality between Birds Hill and Henderson Highway.

Again this will try and prevent unnecessary sprawl away from Winnipeg and allow for the possible sharing of services.

With the exception of East Selkirk, St. Clements has no concentrated area of development that would really form the basis for a future compact community. Even East Selkirk is not really clearly defined as a community as it seems to lack any real focus. It does, however, possess some services missing in the rest of the corridor part of St. Clements, namely municipal offices and a school. Therefore this might form the basis of one community in St. Clements. The rest of development here is strung out along the length of Henderson Highway so there is little to choose in selecting other sites for compact development. One possible area might be south of Highway 44 at Lockport extending east to the CNR Line, or even the Floodway. It is conceivable that a number of compact communities could be accommodated in St. Clements since this is a large area that remains mostly undeveloped. With restrictions elsewhere in the corridor, development pressures would be greater in St. Clements thus demanding a number of sites for housing development. As the population grows, improved connections with Highway 59 might be needed as this highway is much more suitable for commuter traffic into Winnipeg than is Henderson Highway.

The development of compact communities really calls for a revision to current zoning bylaws and demands that they be used more sensitively, especially in St. Clements where gross overzoning has occurred. Areas for development as compact communities can be defined by zoning bylaws but more rigorous means will be needed to protect the surrounding agricultural lands. A bylaw similar to that in effect in St. Andrews which only permits residences for farmers in agricultural areas would be needed since large acreage zoning alone is not usually sufficient to preserve agricultural land.

By encouraging development at higher densities it will be necessary to improve sewage disposal systems since the present on-site methods used in the area would become completely unsuitable at higher densities. Communities in East and West St. Paul could be connected to the Winnipeg system thus reducing costs for these municipalities, but further out this probably would not be possible due to the distance factor. Here sewage lagoon systems similar to those in use in small towns throughout Manitoba would probably be the most effective. Although servicing costs would be reduced by concentrating the population into communities, the municipalities affected would still have to plan for improvements needed by a larger population. Some commercial services would probably develop these communities while it would be the public responsibility to concentrate services such as schools there. Improved bus services might also be practical if the population were concentrated around a few stops rather than continuously along the highway.

One source of funding for the services needed in these compact communities may be the National Housing Act New Community Program. This source of funding has not been used in Manitoba and has traditionally been thought of as a funding source for major new towns yet there is no reason to suppose why it could not be adapted to provide for several smaller communities instead. Either the Act could be altered to accommodate this situation, or the Province could negotiate for a new interpretation to provide funding for new compact communities. This funding could assist in providing appropriate sewage systems, community centres, and could help establish a suitable public transit system that would lessen the present dependency on the automobile.

Developing several smaller communities would conform more to the Manitoba rural tradition than establishing one big new town and would also probably prove more attractive to those who now seek an exurban lifestyle. A series of communities could develop into a regional network in which some services are shared between communities to reduce costs, so that a higher level of services could be made available to corridor residents than the present scattered low density pattern allows. This pattern of development could become a suitable means of accommodating exurban pressures throughout the Winnipeg Region and would be much more appropriate to the area than one or two large new towns. The use of the New Communities program as a source of funding for such development should be investigated by the area municipalities and the provincial government.

Opting for this form of development will not reverse those development patterns which have already occurred and therefore will not eliminate the existing costly strip developments. It should, however, prevent this from continuing to occur. A restrictive development scheme will naturally affect the land market and protests can be expected from landowners who find that their land cannot be developed and thus remains at agricultural values. Much of this protest would be justified since many farmers view their land holdings as a form of life insurance which can provide them with an annuity following their retirement so that a sudden loss in the value of their land would have a major impact on their lives. It is partly for this reason that municipalities in the area have rejected restrictive development plans in the past. Some form of compensation for affected landowners will be needed if the restrictive plans required for compact communities are to be politically acceptable.

One suggested scheme for compensation is the transferable development right, or TDR system. This system works as follows:

(Suppose) it is in the public interest that a particular area be kept in agricultural production, while the market considers the land ripe for residential development at a density for so many dwelling units per acre. When the land is zoned for agricultural use, owners of land are issued TDRs based on such a density. Although they are prevented from developing their own land, they may sell the TDRs to owners in another zone where higher density development is appropriate. In the "transfer zone" owners need TDRs in order to increase the permitted density.³

This obviously has a potential use in the corridor if the compact community concept were to be adopted. However, this system is not without its problems since it is administratively complex and would be made especially so by the extremely fragmented land ownership pattern found in the corridor. This may negate any benefits of the TDR system, but it is certainly a policy worthy of further examination.

It may be that those people who are currently moving into the area wish to live on large lots and thus will not be attracted by compact communities. Consequently, such a plan may reduce the demand for development in the corridor or divert it to other parts of the Winnipeg Region. On the other hand, allowing development on smaller lots in restricted areas may permit people who presently cannot afford the high price of large lots to move into the area so that a greater mix of income groups will live in the corridor. The compact community will not solve all of the problems of the continued growth of the commuter element in the corridor, but it faces up to the challenge and it permits a better use of the land than do the present schemes of semi-control over development.

3. M. McCandless, "Land Use Planning: The Financial Implication" (Presented to the Urban Land Symposium sponsored by the CCSD Housing Committee, Nov. 1976), pp. 16-17

planning controls. The fingers could be developed at higher densities than at present along the main highways or even along the railway lines that run the length of the corridor; it is conceivable that some form of transit service could be developed to run along these lines - after all, it was the railway which originally created the commuter lifestyle by connecting the country with metropolitan areas. Development has largely taken place along the main highways in the corridor so this concept would really be nothing more than an extension of the present pattern. Strip development is not really in favour at the moment due to the costs of servicing linear patterns and because it cuts access to farmland. Still, a case could be made for relatively narrow corridors of development, if development were to be prohibited along the sideroads branching off these corridors and in the intervening spaces of agricultural land. At least this would be a rather more rational use of land than having housing spread throughout the corridor as it will be if present patterns continue.

A third alternative, and the most drastic, would be a halt to development in the corridor. Some house building could be allowed on subdivisions which have already been partially developed but any new developments would be forbidden. This would certainly prevent any growth in exurban problems in the corridor, but whether this a feasible solution over the long term is doubtful. It seems unlikely that such draconian powers would be invoked by the municipalities of the area considering their rejection of previous plans which attempted to place some limits on development on the grounds that they were too restrictive. Moreover, restrictions in the corridor would mean that exurban development pressures would just increase elsewhere in the Winnipeg Region unless

similar restrictions were imposed throughout the Region. It is probable that the corridor can accommodate some exurban expansion if it is properly planned and located, so a blanket freeze in the long term might be viewed as an overreaction which unnecessarily limits people's freedom to live where they choose.

Exurban living is a fact of life which must be accepted and accommodated to some extent. It cannot be avoided entirely, so it is up to the municipalities of the corridor to determine how they want to accommodate it and how they want their areas to be in ten or twenty years time. Based on such goals rational policies for the use of land, the preservation of valuable agricultural resources, and the prevention of soil and water pollution need to be formulated and enforced. A freeze can be a tool to be used until such policies are brought into effect but it is not a useful long term tool since it does not replace the need for proper development policies.

3.4 Recommendations

The first priority of the municipalities responsible for the corridor area should be to determine how they want their areas to develop in the future. This will suggest the policies and plans needed to achieve these goals. At the moment this process is under way for most of the corridor, and development plans are in varying stages of preparation. However, this is a time consuming process and it is fair to assume that development plans will not be ready for St. Andrews and St. Clements for at least two to three years yet. In the meantime development is proceeding with few or no controls to direct it. No policies really exist to determine whether the construction of new houses in the corridor should be encouraged or discouraged.

A pressing need is for someone to conduct a cost-benefit analysis of rural non-farm development to assist policy makers in determining development policies for the corridor.

Until such policies are determined for the area it seems almost insane to allow housing to continue to be built with little control over how and where it is located. While building individual houses in itself may not be harmful, when taken in aggregate the construction of several hundred new houses a year can have a major and irreversible effect on the area. A freeze imposed on new construction and subdivision would allow a useful analysis of the effects of rural non-farm development to be made and would allow plans to be formulated and implemented that might have some chance of taking effect. If development continues apace any plans that are introduced will be outdated and ineffective before then can come into effect. The freeze need not be total - houses could be built on any sites remaining in developed subdivisions, but all other new house building would be prevented. For St. Andrews and St. Clements municipalities the freeze need only apply to the corridor area where pressures are most intense, elsewhere in these municipalities development is at a low level and is not a great problem.

The effects of continued development along the present lines in the corridor have been discussed and generally seen to be harmful. Plans for the corridor should attempt to concentrate future development into compact communities since this seems the best way of providing services while protecting agricultural land and maintaining something of a rural atmosphere in the area. This pattern may not prove practical in St. Andrews where housing is in the process of becoming continuous from the southern municipal boundary to Selkirk, but elsewhere this seems to be a reasonable course for future development. Even in St. Andrews some

compaction can occur if the residential zone west of the CPR is rescinded, otherwise this will just serve to spread development pressures westward to the outer limits of the rive lot area. Although the compact community plan seems best for the area an examination should be made of a finger development concept since this has some merits, especially in regards to the practicability of a commuter transit system.

Several tools are available which could be used in addition to zoning to encourage the development of compact communities. The New Communities program under the National Housing Act could become a source of capital funding for the services needed by these compact communities, if the municipalities and the province were willing to negotiate for modifications to the program. A Transferable Development Rights scheme could be adopted to make restrictions on land development financially palatable to affected landowners. In addition CMHC, and possible private lenders as well, could restrict their mortgage lending practices to those areas designated for compact communities and could thus be used as a force to shape the pattern of development.

Whatever form of development is chosen as best for the corridor, plans will have to be made for servicing the area. Fire protection in particular may be at a dangerously low level while there is no question that continued reliance on septic systems of sewage disposal to service an increased number of such subdivisions and houses in an area totally unsuited for such services will lead to severe pollution problems affecting the health of residents of the area. New roads are going to have to be built, for the highways in the area are not designed to accommodate local traffic patterns and may not even be able to handle increases in commuter flows. Population growth is extremely high in the corridor and

demands for services cannot be evaded for ever. Concentrating these services in selected areas for economic reasons can give a focus to a community and thus add to the desirability and feasibility of a compact nodal pattern of development. The situation is not yet hopeless in the corridor, but it will be out of hand if decisive action is not taken immediately.

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APPENDIX I

GROUNDWATER CONTAMINATION IN EAST SELKIRK

As if to confirm this study's warnings of groundwater pollution arising from the concentrated use of septic tanks in the corridor, the following was reported in the Winnipeg Free Press, Saturday August 20, 1977, p. 2. It is feared that such reports will become more common in the future if septic tanks remain the standard method of sewage disposal in the corridor area.

Homes alerted to water bug

Residents in about 100 homes in East Selkirk have been advised to chlorinate or boil their drinking water because of contamination of wells in the area.

The department of environmental management delivered notices to residents Friday after finding high concentrations of fecal coliform bacteria in 37 of 132 wells it tested earlier this week.

Carl Orcutt, chief of the department's environmental control program, said Friday he's giving the matter high priority and has asked the provincial water resources branch to do hydrogeological tests in the area.

"We don't know for sure what causes the contamination," Orcutt said.

He added the contamination could have been caused by a leaking septic tank, a number of cattle feedlots in the area or improperly sealed abandoned wells.

Orcutt said he doesn't expect to know the cause until the end of next week.

The contaminated wells lie in the core of East Selkirk.

The notices distributed Friday say well survey results in a portion of East Selkirk indicate many contain higher than allowable bacteria levels.

"By means of this letter we are advising you the wells serving your dwelling is within the affected areas," the leaflet says.

It recommends residents either boil their water before use or chlorinate it. "One gallon of water can be disinfected in 15 minutes by addition of two drops of liquid bleaching compound such as Javex or Javel water."

The contaminated wells lie in the area bounded by Colville Road, Cooks Creek, Church Street and Highway 59, Orcutt said.