

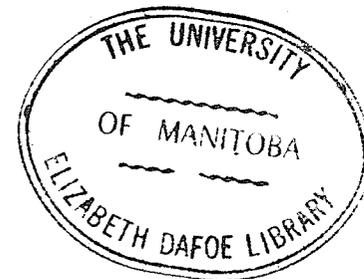
A DEVELOPMENT PLAN FOR CHURCHILL, MANITOBA

A Thesis
Presented to
The Faculty of Graduate Studies and Research
The University of Manitoba

In Partial Fulfillment
of the Requirements for the Degree
Master of City Planning

by
Frederick Brian Pritchard

April, 1970



"..... Canadians become generation by generation more and more a northern people, either because northern origins have fitted them for northern life, or because they have become adapted to it."

W. L. Morton

ACKNOWLEDGEMENTS

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The guidance and sincere encouragement received from Professor V. J. Kostka, the writer's advisor, are deeply appreciated.

PREFACE

The exploration of Hudson Bay, and the demonstration that it could be successfully navigated by the ships of the time, led to the development of the northern half of this Continent. Adventurers and business men saw that Hudson Bay offered a route into the heart of the rich fur bearing area of the north. The immediate, important consequence of this discovery was the founding of the Hudson's Bay Company, an organization that has since played a great role in the history of Canada. Another consequence of equal importance was the establishment of a settlement at Churchill as a base for land exploration and as a shipping centre for trade goods and furs. Still another result of ship traffic into the Bay, and river navigation from the hinterland to the Hudson's Bay Company posts, was the vision of a railway linking the prairies with Hudson Bay and providing a short land and water route for prairie wheat to the ports of Europe. The establishment of this route early in the 20th century was one of the landmarks of Canadian History, yet:

"Even more potent was the fact that American destiny drove Westward; rarely was it tempted to turn north. The fur trade, the timber trade, the wheat lands, these could not divert the Americans from the Mississippi Valley, the Pacific Coast and the trade of Asia. These things they wanted supremely; they did not by contrast think Canada worth the difficulty of taking. As a result, the United States realized a Western destiny and Canada was left to work out a northern one."¹

However, today, more than forty years after the completion of the Hudson Bay Railway, the future development of the Hudson Bay Region and of Churchill remains uncertain. The Canadian north should be an opening frontier; it contains a vast area, rich in undeveloped natural resources. The north should be the focus for Canada's future. Churchill, as part of the north, deserves attention. While there does not appear to be much hope of discovering rich mineral deposits in its immediate vicinity, Churchill does have a unique resource, its excellent locational advantage as a gateway to the North; it should become the urban centre of the Eastern Arctic. Churchill has not yet acquired this stature for several reasons. Aside from retarded economic development, it has suffered from the physical division of its communities. The main proposal contained in the development plan for Churchill suggests that by concentrating the now dispersed human resources into a single community, Churchill will be better prepared to lead in the development of the North.

The development plan will recommend methods by which the integration of the major communities of the Churchill area can be accomplished. Focusing on the Town of Churchill and Fort Churchill, the development plan will seek to demonstrate the necessity for integrating Fort Churchill with

the Town, and will endeavour to present a realistic proposal for closing Fort Churchill in combination with redeveloping the present Town of Churchill.

The objective of the Development Plan for Churchill, Manitoba, will therefore be the preparation of a comprehensive, workable plan for the Townsite of Churchill with emphasis on improving the environment and making possible the establishment of an economically and socially viable community.

FOOTNOTES:

1. W. L. Morton, The Canadian Identity (Toronto: The University of Toronto Press, 1967) p.31.

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INTRODUCTION

Churchill, in its present form, functions abnormally. It consists of six separate communities (see figure 1); each, on its own and aside from Fort Churchill, suffers from serious physical, social and economic problems.

The communities of the Churchill area are:

1. The Town of Churchill, with port and rail connections; a Local Government District under provincial authority;
2. Fort Churchill, with the airport; administered and financed by the Federal Government;
3. Akudlik, an Eskimo settlement and administration centre for the Department of Indian Affairs and Northern Development;
4. Dené Village, a recent residential settlement to house the Chipewyan Indian Band; administered by the Department of Indian Affairs and Northern Development;
5. Jockville;
6. The Flats.

The development of Churchill has resulted from its geographic location. Historically, its strategic position made possible the military control of the northern part of the continent, and gave ready access to the commercially

CHURCHILL

AREA

0 4000 ft.



2

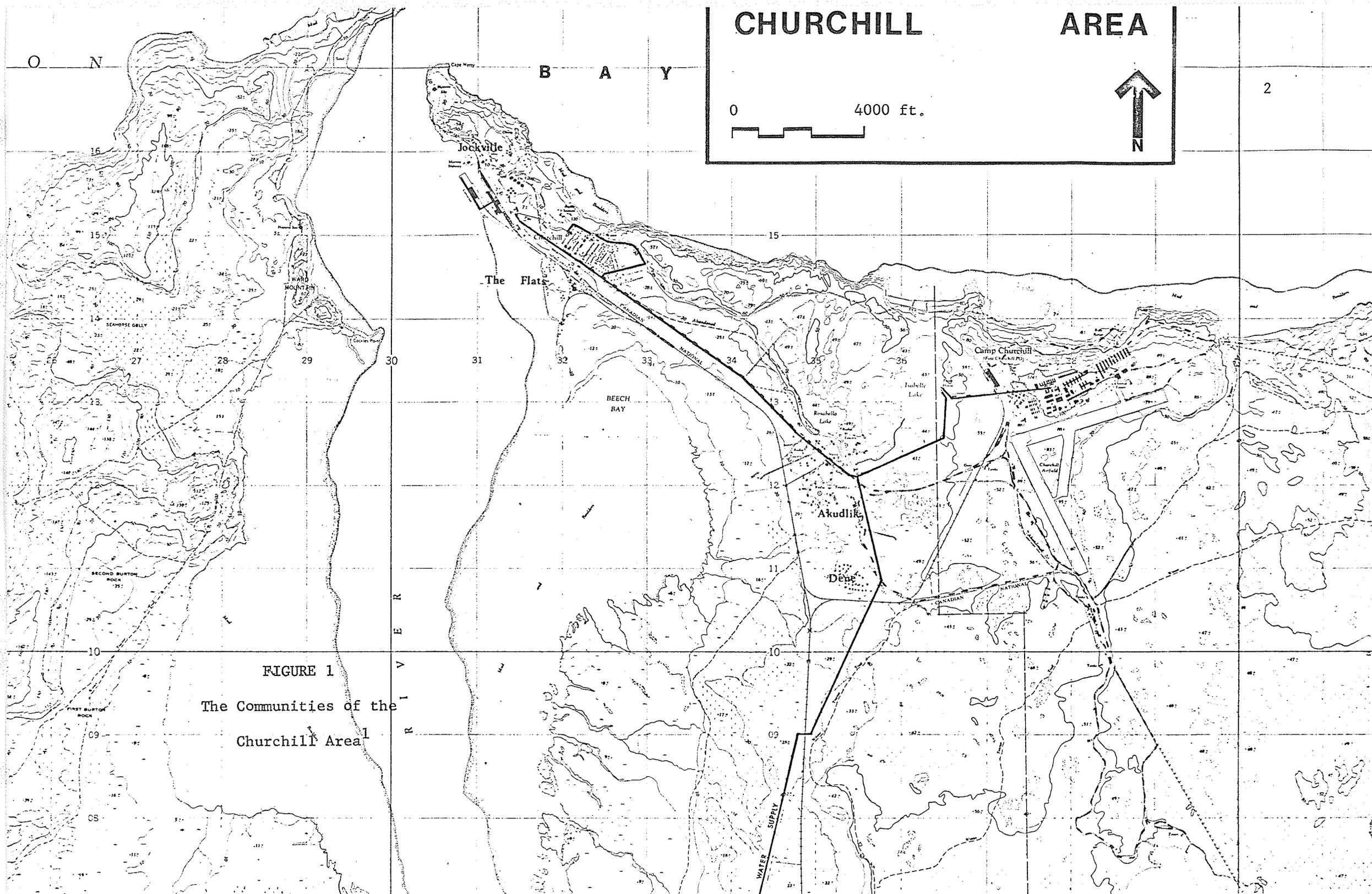


FIGURE 1
The Communities of the
Churchill Area¹

profitable fur trade. In more recent times, the construction of port facilities, rail connections and airport has made Churchill the dominant urban centre in the Hudson Bay and the Eastern Arctic.

Undoubtedly the single most important problem for Churchill is the proximity of Fort Churchill. Had Fort Churchill and its satellites been placed 100 miles away, there would have been two municipal problems instead of one, each capable of ready solution. As it is, the combination of the two has tended to act as a deterrent to a rational solution being found to either. From the standpoint of the Province, it is not difficult to understand its reluctance to assume responsibility for this municipal aberration.

From the Federal position, the continued administration of a municipality within a province is constitutionally undesirable and improper. When Fort Churchill was primarily a military camp, it had a reason to be separate and distinct from the original Town of Churchill. However, since the installation has been turned over to the Department of Public Works, Fort Churchill has become a pseudo-municipality, inextricably mixed up physically and financially with the existing town. Every decision the Department of Public Works takes to solve one of its local problems gets it

deeper into the municipal arena, in an essentially unequal competition with a Province and its non-viable local municipal creature. Provincial and Federal decisions which are made in isolation, even with the best of intentions, produce a rigid framework for the local municipality; the end results are too often both unforeseen and unacceptable.

Clearly, what is essential as a preliminary to each individual decision is a plan, a development plan acceptable to both the Province and Federal Government, that can be administered by a local government. This will allow the Federal Government to confine itself to its own interests and to withdraw questionable interests according to a prescribed plan.

The plan must provide for the extraordinary nature of this community and its geographical location. Churchill, as noted above, is composed of a permanent core revolving around the port facilities and the railway. Beyond this is a most extensive periphery (items 2, 3, 4) in which are located many diverse interests, all of them Federal. None can be considered more than short term in nature. Therefore the plan must provide flexibility so that peripheral interests can be terminated if necessary without serious financial repercussions for the core area. At the same time, it must provide for an essential rehabilitation of the core, the Town of Churchill, and a

satisfactory continuing responsibility for the periphery that will support the Federal needs as long as they exist.

Planning has been initiated for the Churchill area although planning to date remains in a preliminary state. The conclusions reached in these preliminary studies reveal that Churchill suffers from problems arising from three fundamental factors:²

1. A chronic and pernicious uncertainty about the future existence of this community.
2. The separation of the residents into six different communities and, particularly, the segregation of the Fort Churchill community.
3. The paternalistic effect of the perpetuation of a quasi-military administration of the Fort.

This plan will endeavour to guide the integration of Churchill's segregated communities, creating a viable settlement with its own tax base, industry and human resources.

Following a survey of the physical setting and review of the historical background, the plan will analyze the various elements of Churchill's present development with a review of the existing and possible future economy. The concluding chapters will discuss the integration of Fort Churchill into the

Townsite, and recommend methods for phasing out Fort Churchill and integrating the remaining elements into the Townsite.

FOOTNOTES:

1. Map by the Surveys and Mapping Branch, Department of Energy, Mines and Natural Resources, Ottawa.
2. Murray V. Jones, "Churchill Development Plan, Phase 1" (Toronto: Murray V. Jones and Associates Limited, 1968), p.4.

CHAPTER I

THE PHYSICAL SETTING

The Townsite of Churchill and adjacent Fort Churchill and Harbour installations are situated in the northeast corner of the Province of Manitoba on the western shore of Hudson Bay at the estuary of the Churchill River. Their location (figure 2) is Latitude $58^{\circ} 46'$, Longitude $94^{\circ} 10'$, a point approximately 600 miles northeast of Winnipeg. There are no other urban centers in the vicinity, the closest being the Town of Gillam, some 200 miles to the southwest.

PHYSICAL FEATURES

The townsite as shown in figure 3 is located on a narrow peninsula with Hudson Bay on its east side and the Churchill River on its west. A rock escarpment, reaching a maximum height of approximately 75 feet above sea level, follows the northerly coast of the peninsula. The land on which the townsite is situated has a gradual slope from the escarpment towards the harbour, which is also the east bank of the Churchill River. The area allocated for the townsite has an elevation varying from 45 feet to 58 feet adjacent to the rock escarpment, to 22 feet to 26 feet adjacent to the railway right-of-way.

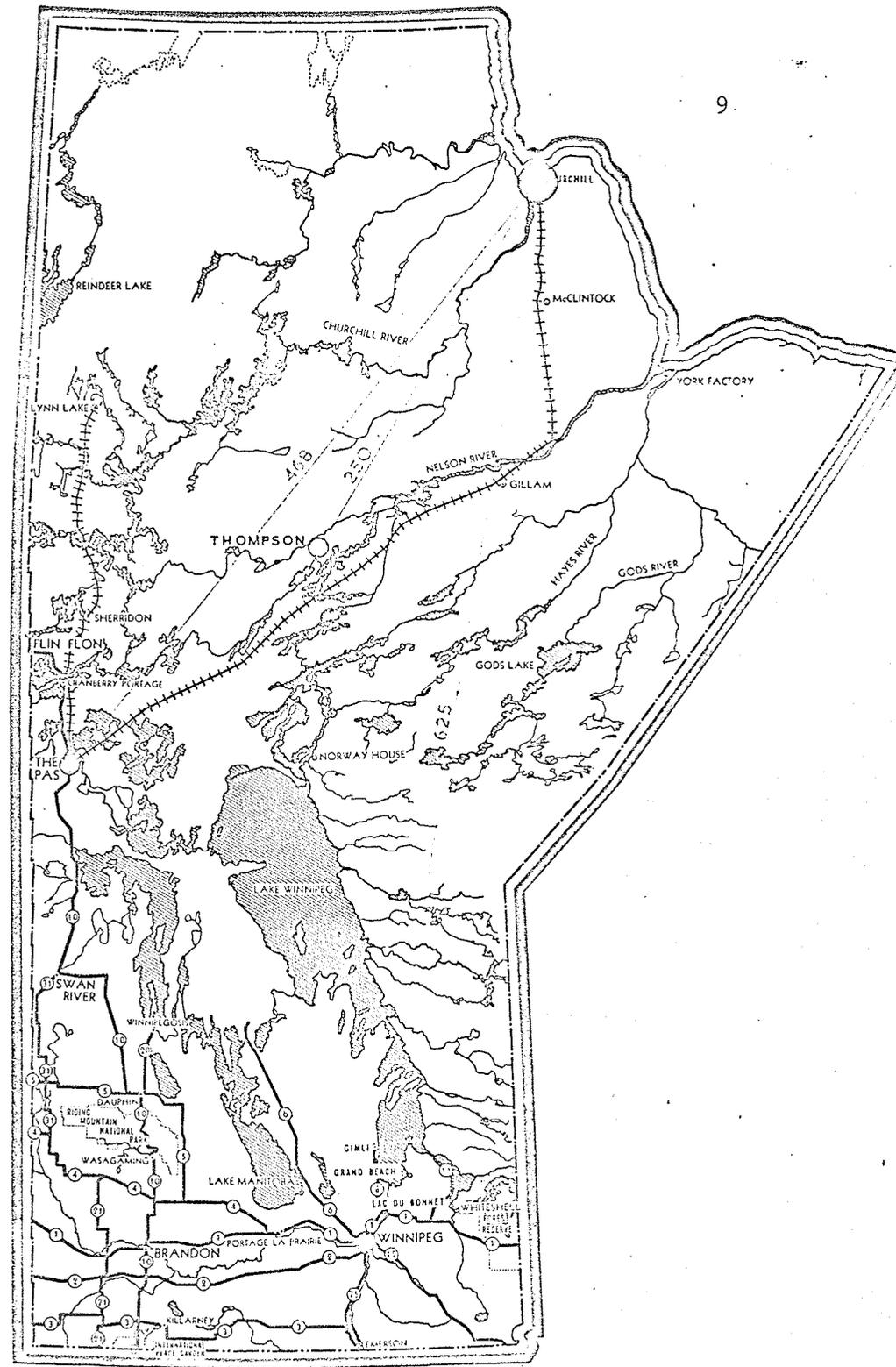


FIGURE 2
Location of Churchill¹

CHURCHILL

AREA

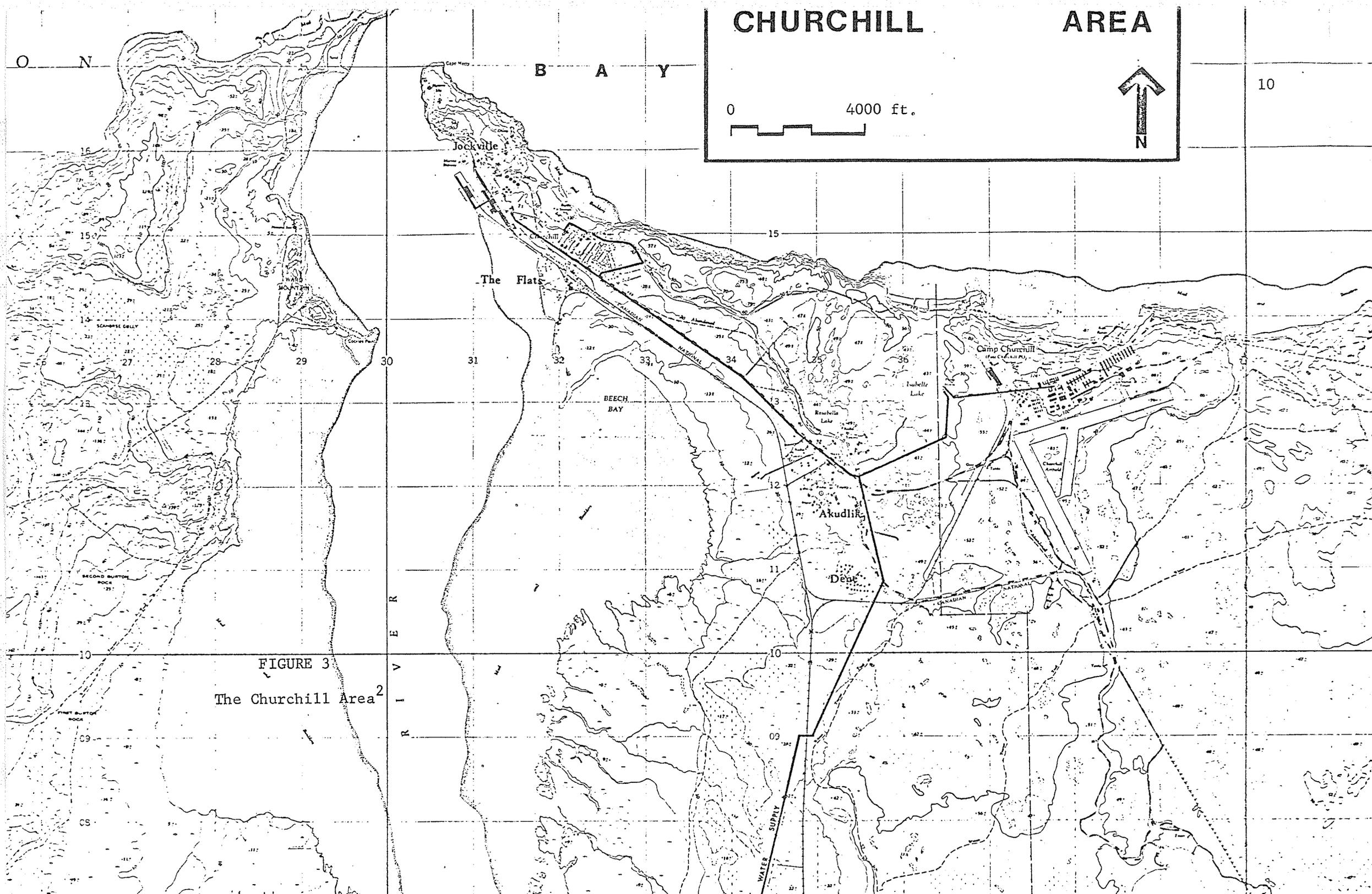


FIGURE 3
The Churchill Area²

R
I
V
E
R

B
A
Y

10

0 4000 ft.



The Canadian National Railway right-of-way follows the peninsula and intersects the natural drainage pattern from the townsite and surrounding area, approximately at right angles.

GEOLOGY OF THE REGION

In the Hudson Bay region, isolated as it is within a single country, it is the physical environment (figure 4) that is everywhere dominant. This environment comprises water area, bedrock, soil or glacial deposits, land forms, climate, permafrost, vegetation, and drainage. The varying and complex association of these elements with one another influence the character of the region as a whole as well as its subdivision into parts. The Churchill area has been described as lying within the geographical subdivision, West Coast lowland (figure 5), defined as flat, swampy and poorly drained plain. The plain consists mainly of compact till, the remnants of the sediments of the Tyrell Sea. The Tyrell Sea, an ancient inland saltwater sea, existed in the Hudson Bay basin during and following deglaciation. Silt and clay were deposited by the Tyrell Sea during both its advancing and receding phases, although large areas of the region are not covered by sediments but are bare bedrock. The area immediately around Churchill exhibits a combination of

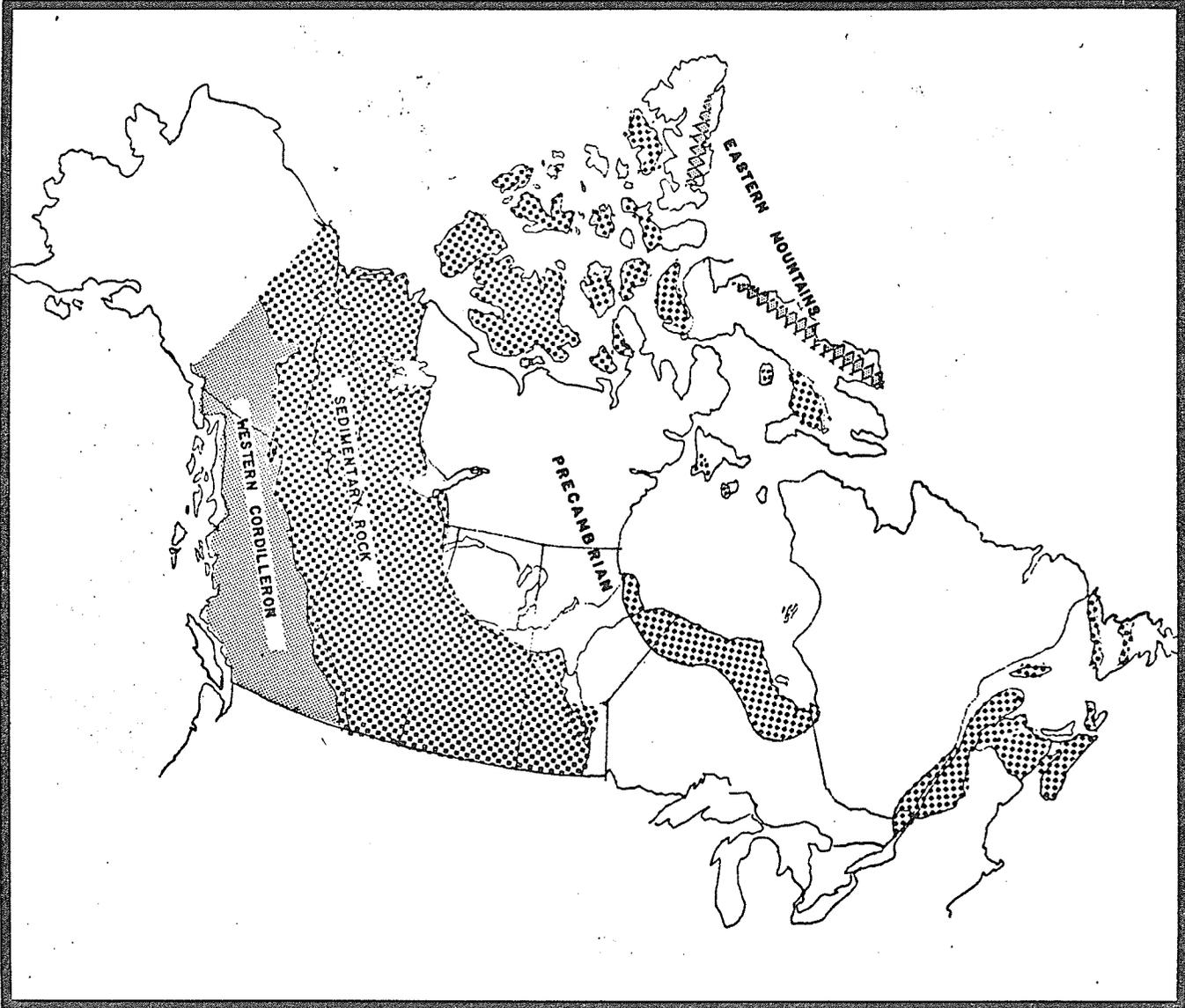


FIGURE 4
Geophysical Outline of Canada³

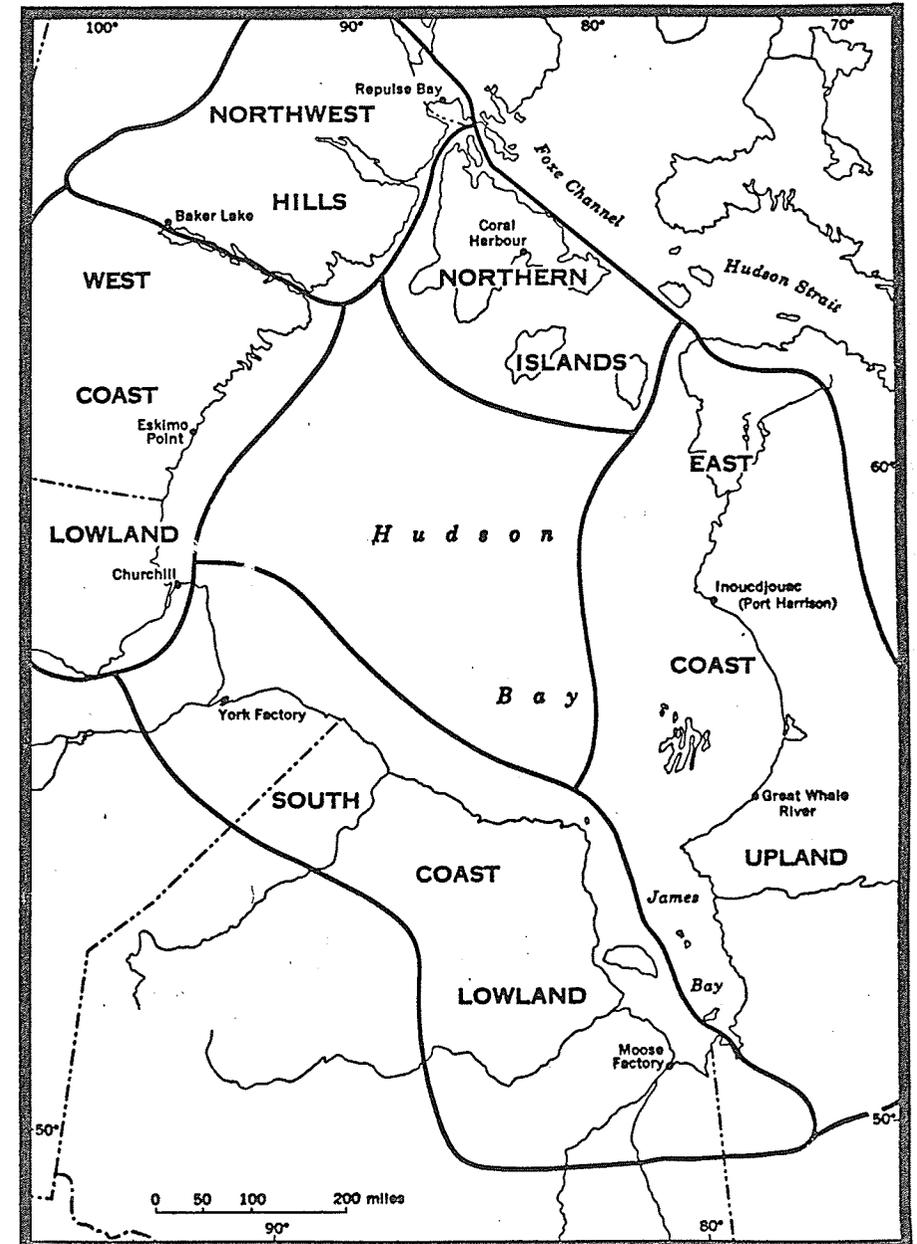


FIGURE 5

The Subregional Boundaries
of the Hudson Bay Area⁴

these characteristics including eskers, the distinctive drift ridges of sand and gravel formed during the period of ice recession.⁵

SOIL CONDITIONS

Foundation conditions in the Churchill area vary considerably and include all three of the dominant characteristics described above. Generally, the conditions within the existing townsite are poor, having a general characteristic of shallow moss cover over the compact till. In the townsite area, this till is basically a mixture of gravel and gravelly silty clay interspersed with boulders. The boulders protrude from the earth surface over most of the area and occur in various sizes up to several tons in weight. The compact till subsoil is permanently frozen and constitutes what is commonly known as permafrost. The approximate southern limits of both continuous and discontinuous permafrost are shown in figure 6. In the Churchill area, permafrost occurs at depths between five and ten feet⁶, and has been reported to depths of ninety feet and it is understood that frost was discovered under the bed of the Churchill River during harbour dredging in past years.⁷

Fort Churchill, in contrast to the poorly drained, permafrost conditions of the Town, was built on a relatively flat, rocky area which has

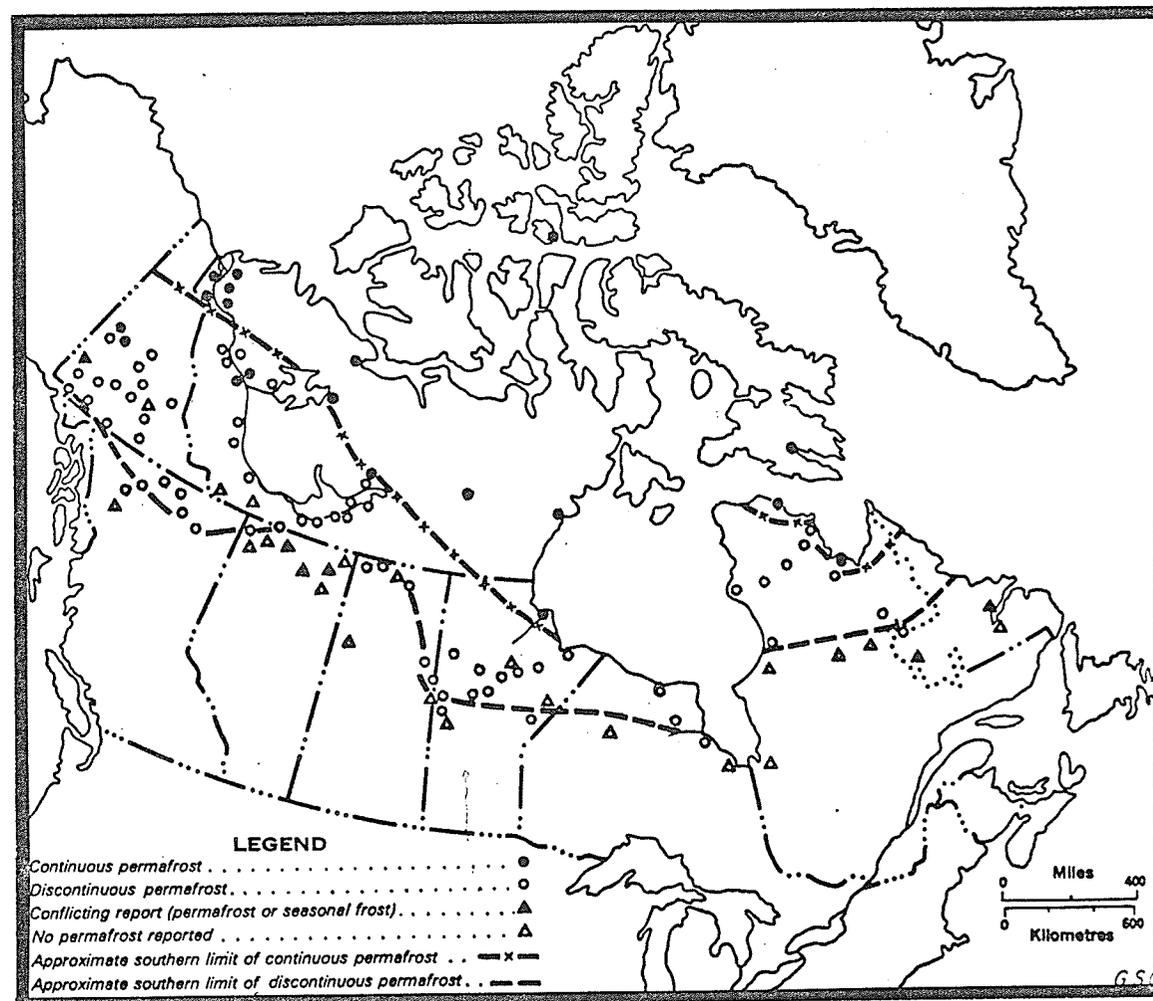


FIGURE 6

Distribution of Permafrost
In Canada⁸

been covered with gravel to a depth of approximately three feet. As a result Fort Churchill does not experience any of the drainage problems associated with the Town.

CLIMATE

The presence of permafrost, particularly in the low lying barren lands to the west of Churchill, has an adverse effect on the summer climate of the area, in that it is partially responsible for the undulating water-logged state of the terrain. Since water from melting winter snows or spring rains cannot penetrate the frozen sub-surface, it tends to collect in countless depressions and shallow meandering streams, thus presenting a wet swampy surface to the air masses which traverse the region. An example of such an area lies between the Churchill townsite and Fort Churchill. Evaporation from these moisture sources consumes heat energy which would otherwise be utilized to increase air temperatures. In combination with the immediate geographical features, the weather of the region is also affected by a relationship between large scale air movements and the physical geography of the area. The Rocky Mountains and to a lesser degree the mountain ranges on Baffin Island and northern Labrador, present barriers to the entry of moist air from either the Pacific or Atlantic oceans. Removed from the direct

influence of warmer, moisture-laden air masses and located in the barren Canadian Shield, Hudson Bay lies exposed to cold outbreaks from Arctic regions during all seasons. However, the main cause of the low temperatures along the shores of Hudson Bay is generally thought to be the cooling influence of this very large expanse of cold water.

"Ice congested as late as July, the waters of Hudson Bay warm very slowly; and by summer's end are barely above freezing in northern sections and only about 45°F in the south."⁹

Residents of the Churchill area are certainly aware of the influence of this great inland sea on their climate: the retarded spring warming, the chill onshore winds which bring fog to the coastlines in summer, and the frequent snowstorms that occur when winds blow off the bay in fall. As shown in figure 7, the extent and latitude of this nearly land-locked northern sea are shown in its relation to familiar land and water areas in northern Europe. The waters of Hudson Bay receive no ameliorating influences such as come to the waters of western Europe which helps to explain their divergent climates. Essentially then, Churchill and its environs have a typically Arctic climate, closely dependent during all seasons on changes in the state of the water surface.

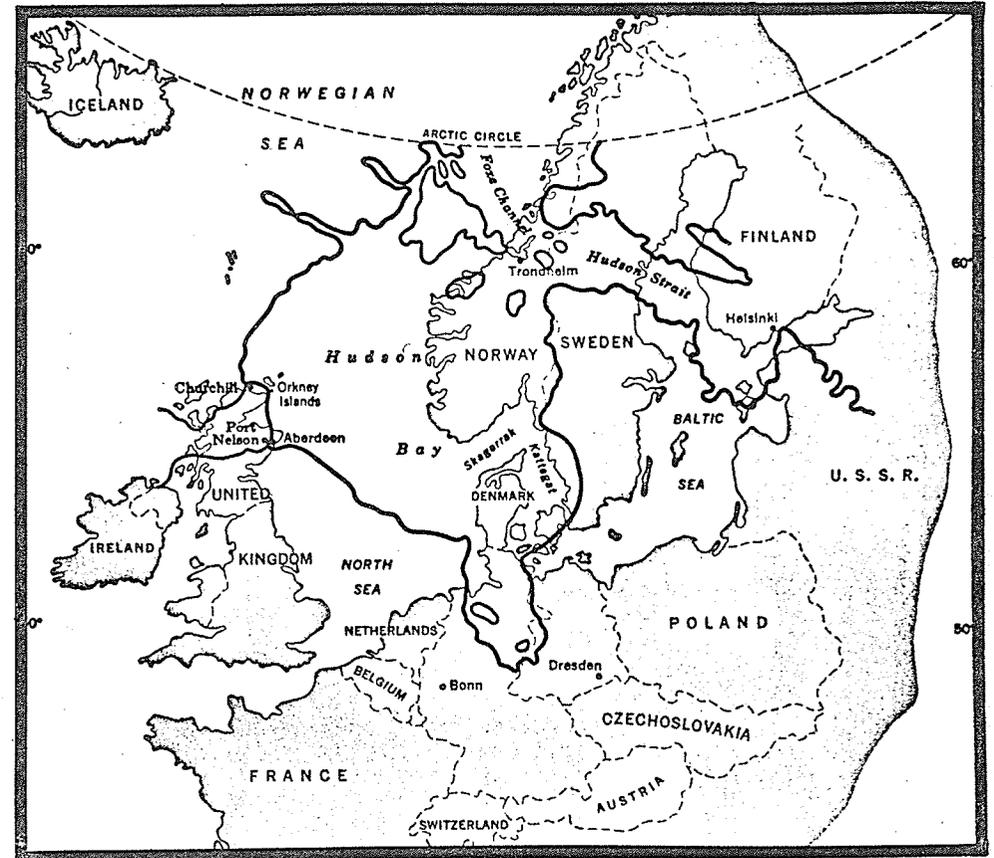


FIGURE 7

Comparison of Hudson Bay with European areas in similar latitudes¹⁰

These in the broadest terms, are the controls which combine to shape the climate of Hudson Bay and the lands bordering upon it. Seasonal patterns do not conform too well to the accepted four-season pattern of southern Canada; however, the seasons of winter, spring, summer and autumn provide a suitable framework for discussion.

i) WINTER

Winters are cold and long with the ground snow-covered from October to May or June. Although low temperatures are not as extreme as in many continental areas, the persistent winds combine with the cold to make this area (Hudson Bay and Churchill Area) the coldest part of Canada on the basis of wind chill. Figure 8 and Figure 9 show the average January temperatures for Northern Canada and Manitoba.

TABLE 1

AVERAGE WINDS (mph)¹¹

| | | | | | | | |
|-------------------|------|------|-------|-------|------|------|------|
| | Jan. | Feb. | March | April | May | June | |
| Churchill Airport | 14 | 14 | 14 | 14 | 13 | 12 | |
| | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
| Churchill Airport | 12 | 13 | 15 | 16 | 15 | 16 | 14 |

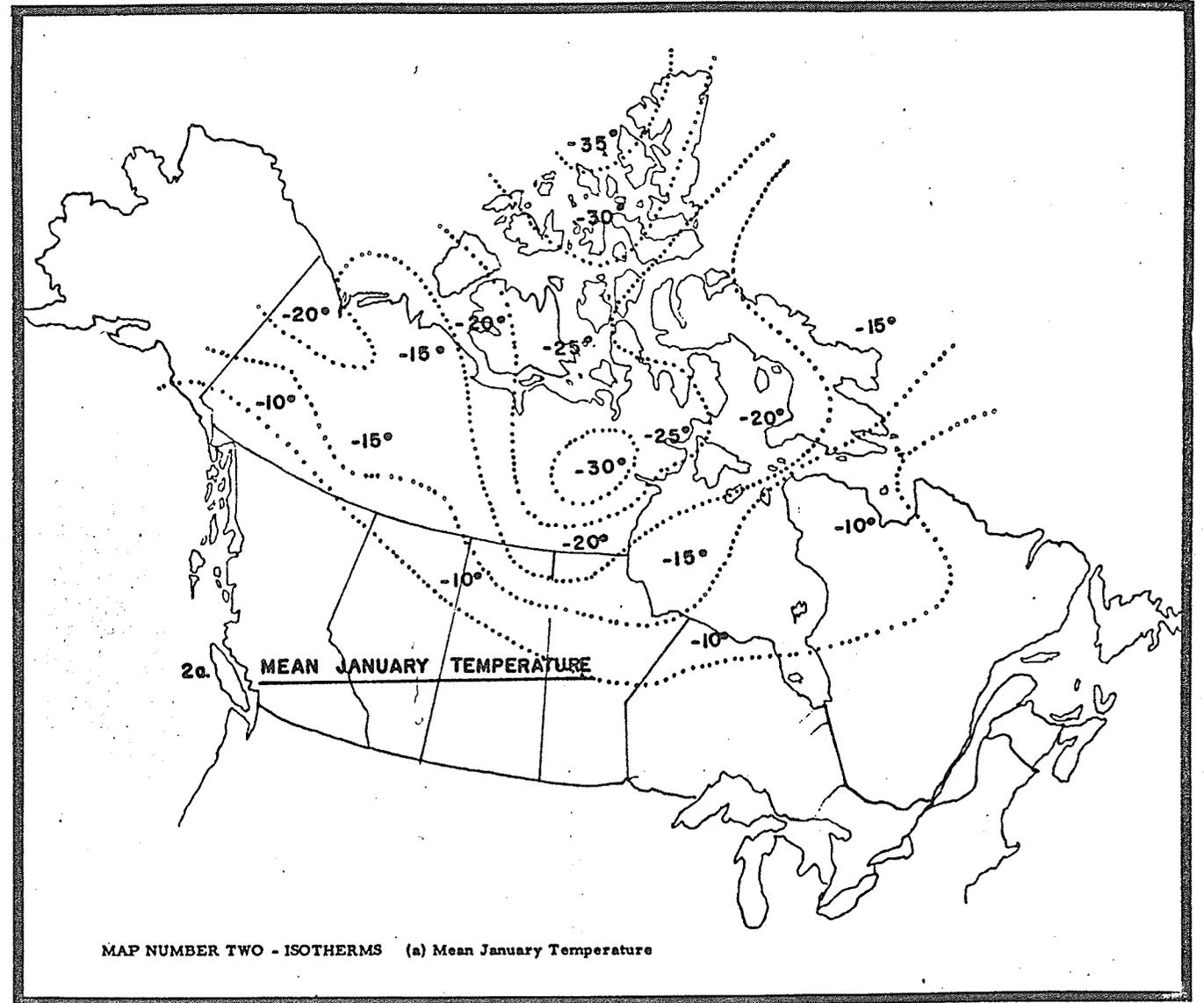
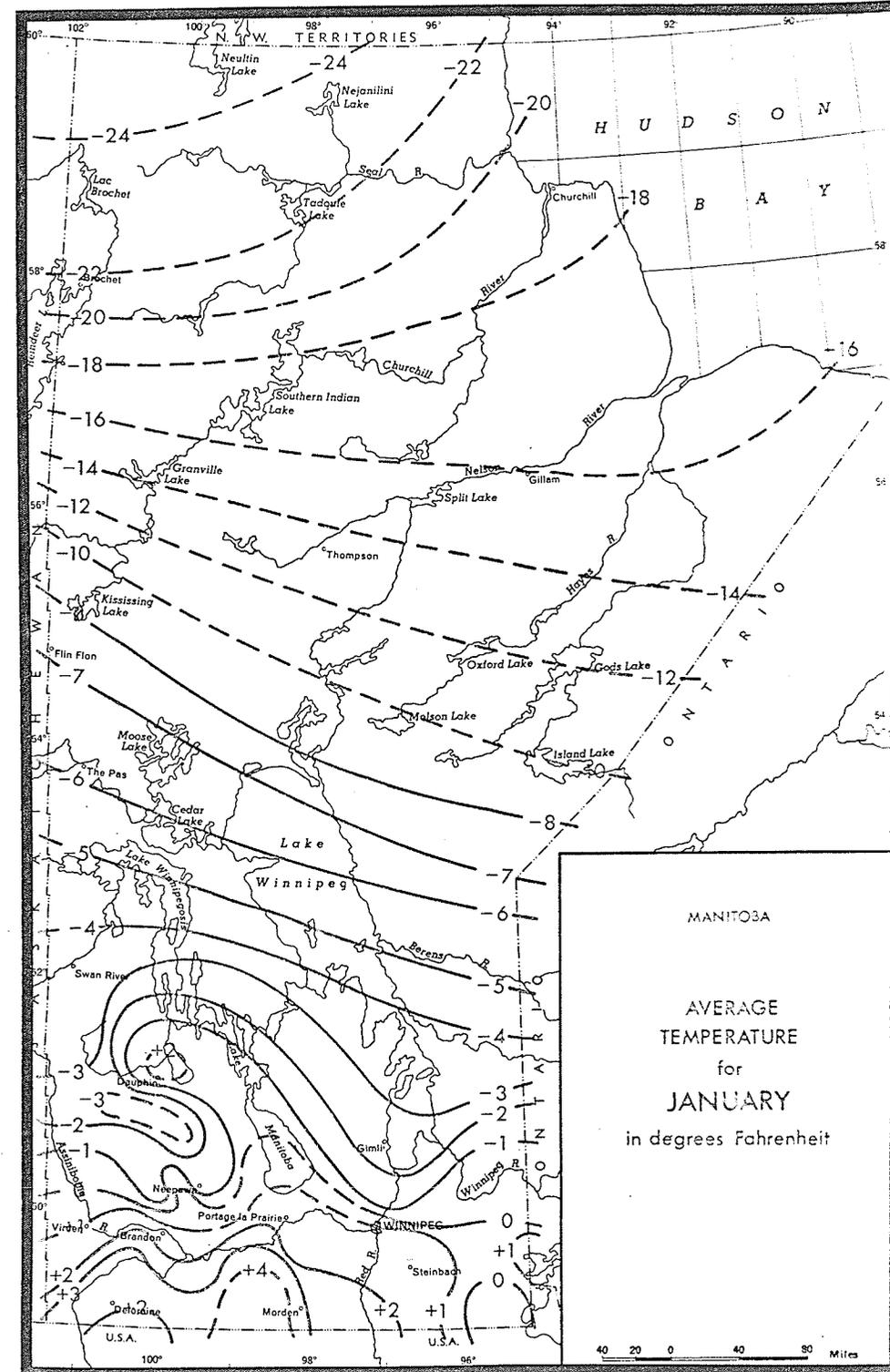


FIGURE 8
Northern Canada,
Mean January Temperature¹²

FIGURE 9
Manitoba Average Temperature
for January¹³



There is no doubt that Hudson Bay is one of the windiest areas of Canada in winter. Nor is there any question that the snow-covered lands around its shore are colder than most at the same latitudes. Together they are responsible for two of the best known features of Churchill climate - wind chill and blowing snow. Although very high wind chill values typify severe prairie blizzards, even greater rates of cooling must be endured in storms at Churchill, where temperatures are usually lower and winds stronger. Average winds of 14 - 16 miles per hour (Table 1) in winter, combined with average temperatures of -15°F in January, make Churchill an area of extreme wind chill. The cutting winds and relentless cold of these storms present a very great hazard to life in winter.

The area of maximum wind chill in Canada is also a region of most frequent blowing or drifting snow.

Winter snowfall at the latitudes near Churchill is powder fine and is readily picked up and blown about by the strong winds.

"Winds of 15 to 20 miles per hour are usually sufficient to cause drifting or blowing snow on the exposed snow-covered surfaces.... Since almost one-half of all winds over Hudson Bay are this strong, blowing snow is clearly an important feature of its climate."¹⁴

TABLE 2¹⁵AVERAGE NUMBER OF DAYS WITH BLOWING SNOW
(1955 - 60)

| | Sept. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | April | May | June | Year |
|-----------|-------|------|------|------|------|------|------|-------|-----|------|------|
| Churchill | 0 | 3 | 14 | 12 | 12 | 12 | 8 | 9 | 4 | 0 | 73 |

ii) SPRING

Spring is late in Churchill, delayed by the persistent influence of the sea ice, causing winter weather to linger well into May. Rising temperatures cause an increase in the frequency of low-lying cloud which retards further warming. As the ice disappears fog becomes a serious problem at Churchill, hampering visibility and causing severe icing for aircraft. These are months of transition; while the first rains and occasional thunderstorms of spring and summer occur in May, the snowstorms of winter are often still being recorded in June.

TABLE 3¹⁶

MONTHLY AND ANNUAL AVERAGES OF SNOWFALL AND TOTAL PRECIPITATION (INCHES)

| Churchill Airport Period 1943-60 | | Jan. | Feb. | March | April | May | June | |
|-------------------------------------|--|------|------|-------|-------|------|------|-------|
| Precipitation | | 0.50 | 0.55 | 0.65 | 1.04 | 1.20 | 1.63 | |
| No. of days | | 9 | 9 | 10 | 12 | 11 | 9 | |
| Snowfall | | 5.0 | 5.5 | 6.5 | 9.9 | 6.5 | 0.7 | |
| No. of days | | 9 | 9 | 10 | 11 | 10 | 1 | |
| | | | | | | | | |
| Churchill Airport Period 1943-60 | | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year |
| Precipitation | | 2.03 | 2.40 | 2.08 | 1.50 | 1.52 | 0.89 | 15.99 |
| No. of days | | 12 | 13 | 14 | 15 | 17 | 13 | 142 |
| Snowfall | | 0.0 | 0.0 | 1.4 | 9.7 | 15.0 | 8.9 | 69.1 |
| No. of days | | 0 | 0 | 2 | 11 | 17 | 13 | 93 |

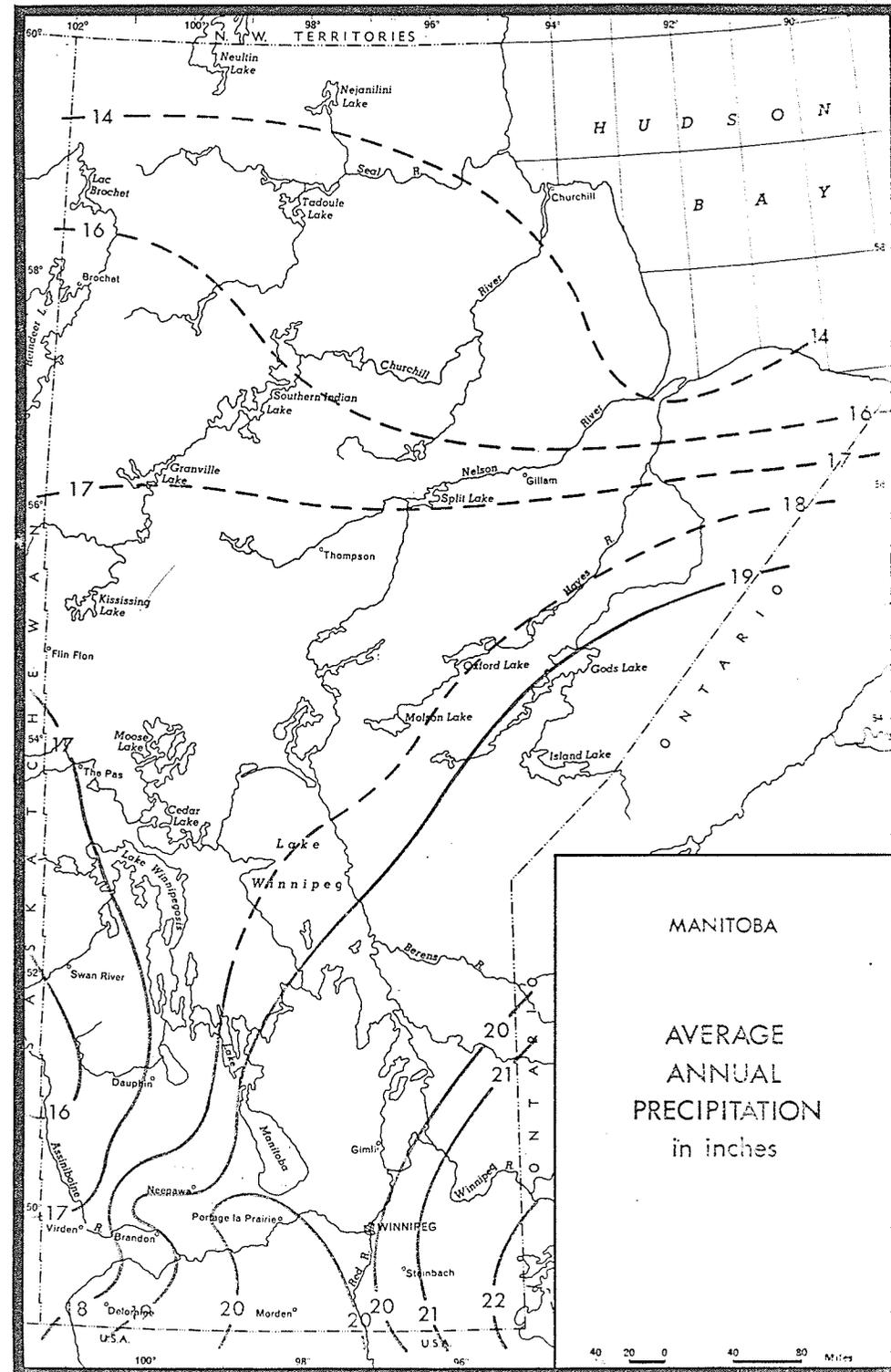
iii) SUMMER

The relative coldness of Hudson Bay, "with respect to the warmer air moving over it, causes a sharp temperature inversion in the lowest layer of the atmosphere... (Fog develops under this inversion and) as winds strengthen the fog lifts but only to form low-lying clouds. When winds are off the Bay, fog and low clouds are a constant threat to air transportation at Churchill."¹⁷

Summer precipitation is heavier than that of any other season and although amounts are fairly well distributed (figure 10) through the months May to November (Table 3), summer rainfall is quite variable from year to year. At Churchill, the average monthly rainfall for August is 2.40 inches. In August 1961, precipitation totalled 4.89 inches, while two years later in 1963 the figure was only 0.47 inches. The greatest recorded rainfall in any month occurred in July, 1934 when Churchill reported 7.32 inches, almost one-half of the average annual precipitation for the area.¹⁸ In contrast to the other seasons, surface winds in summer are quite variable in direction.

The prevailing winds at Churchill are from the north, north-west direction. The winter winds are more westerly and flow from the west or north west direction 62% of the time.

FIGURE 10
Manitoba Average Annual
Precipitation (inches)¹⁹



Average daily temperatures in the high forties and low fifties are usual summer patterns. Figure 11 shows the mean July temperatures for Northern Canada and Figure 12 shows average July temperatures for Manitoba. The peak temperature recorded for the area over a ten year period was 91°F which approaches that recorded elsewhere on the prairies.

"The highest mean daily maximum temperature in any one month period on record is 68.3°F. The mean July daily temperature is 58°F, some 15°F lower than that for Winnipeg."²⁰

Winds off the water will be chilly and uncomfortable even in July, while land breezes often give quite warm weather.

iv) AUTUMN

Autumn cloudiness and snowfall are a result of the prevailing wind patterns. Large quantities of heat and moisture added to the currents of Arctic air as they pass over the relatively warmer water result in cloudiness and snowfall. As a result November and December are the months of greatest snowfall, maximum cloudiness and strongest winds. Churchill, because of its exposure to open sea on one side and miles of treeless tundra on the other, is particularly vulnerable to strong winds, "caused by the large number of low pressure areas which frequent northeastern Canada at this season."²¹

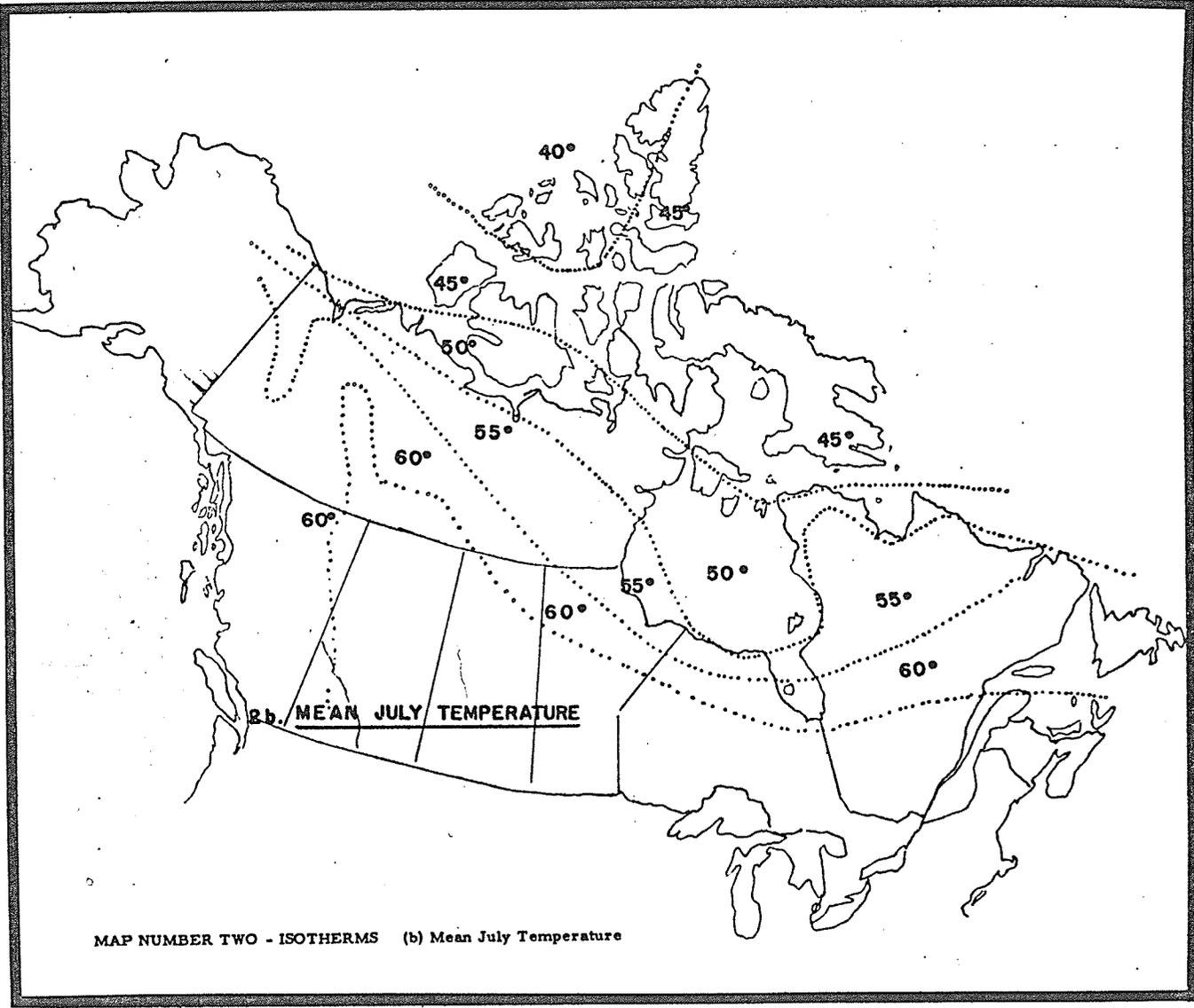
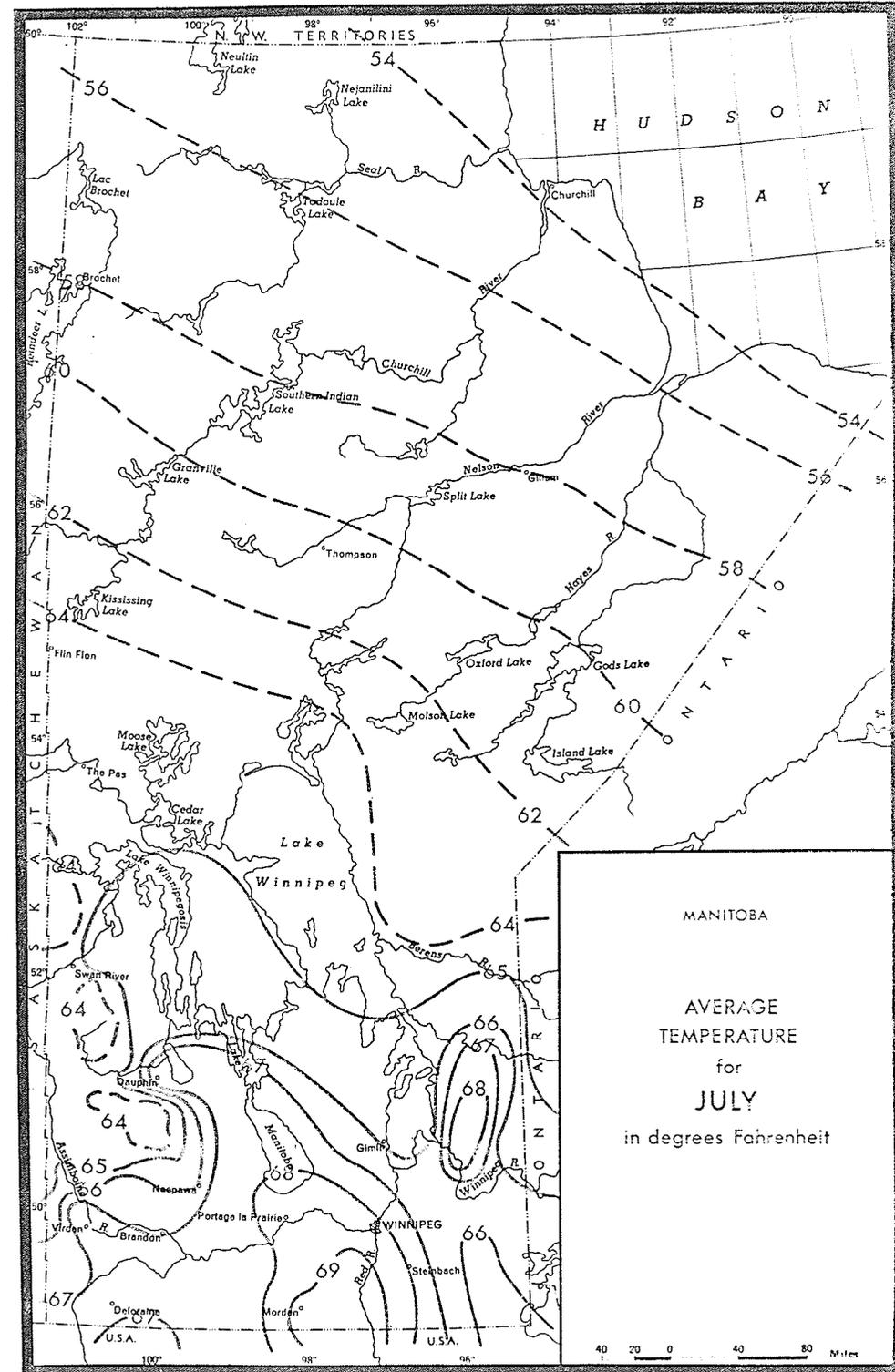


FIGURE 11
Northern Canada
Mean July Temperature²²

FIGURE 12
Manitoba Average
Temperature for July²³



Wind speeds are considerably stronger than November surface winds at most southern cities, with speeds of 45 to 55 miles per hour not uncommon. Extreme wind speeds up to 100 miles per hour have been reported at Churchill. The prevailing winds are northwesterly at this season.

FLORA AND FAUNA OF THE CHURCHILL AREA

i) THE TREELINE

The treeline is probably more important than the coastline among the geographic features which have a direct bearing upon the human occupancy (native) of the barrens, for in recent times at least, its position has approximated the diffuse boundary between Eskimo and Indian territory. It follows an irregular course from the northwest intersecting the coast in the vicinity of Churchill. The primary determinant of its position is assumed to be the mean July temperature (figure 13) which in the Hudson Bay region is controlled by the boundary between Arctic and Pacific air masses.²⁴

ii) FLORA AND FAUNA

Immediately adjacent to Churchill lies the transitional forest typical of the boreal forest (composed of black spruce, white spruce, birch and poplar), except that the trees are generally small, interspersed with openings

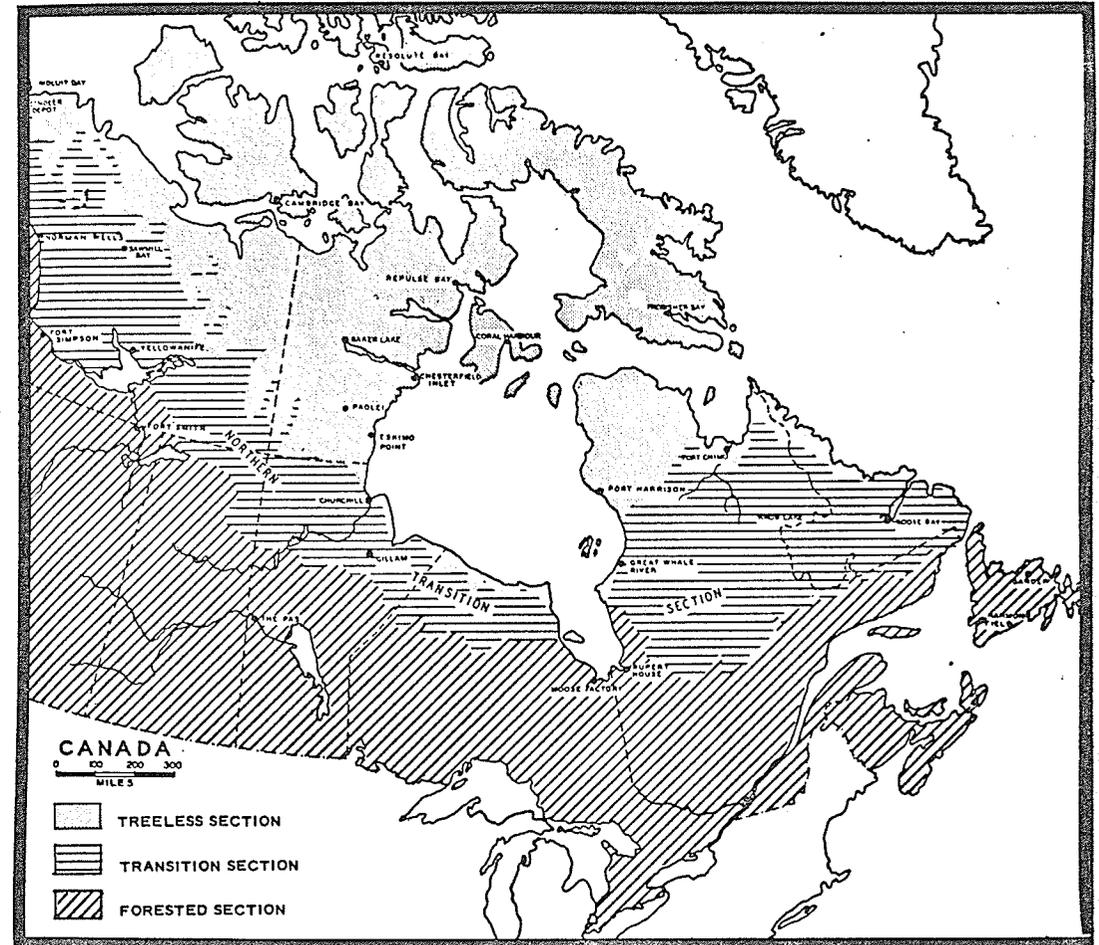


FIGURE 13

The Arctic Treeline In Canada
 showing the Southward Trend
 towards Hudson Bay²⁵

on dry ground as well as in low areas. These openings are often covered in a thick carpet of caribou lichens or "reindeer moss". Hudson Bay has a profound effect on the Flora in the Churchill area. As noted already, Churchill is located in a region of strong, prevailing west - northwest winds and that, "as Hudson Bay is approached from either east or west, the treeline angles sharply southward, until, at the coast, it is further south than in any continental region of the world."²⁶ This phenomenon is not restricted to trees but also to other vegetation zones. The contributing causes emphasize the important, and often malign, influence of Hudson Bay upon the climate, ecology and economy of a large part of Canada of which Churchill is a part. Depressed air temperatures, the lack of sunlight in spring time, and the rapidly shortening days and cool nights when the warming influences of the Bay are exerted, have caused the growth of most plants to stop. Thus plants that need a long warm growing season for the production of flowers and seed are prevented from pushing northward.

For trees and taller shrubs, "exposure to wind may be more serious than low temperature."²⁷ In the Churchill area, "the most serious type of wind damage is snow abrasion, an effect that is difficult for residents of the south to appreciate."²⁸ The early snow becomes compacted into a blanket

that protects herbs, small shrubs and the lowest branches of spruce trees. But examination of isolated spruce trees at Churchill reveal that aside from well developed branches a foot or so off the ground, a bare trunk with a few small dead or half dead branches are all that exist. In some trees an increasing number of normal branches appear at a greater height. The lowest branches are protected by the early snow. In the next few feet drifting and blowing of the hard winter snow is very severe causing growth to be killed or retarded. For trees that survive, normal growth above the hazardous zone is possible as less snow is carried by the wind.

iii) INSECTS

Most of the area immediately around Churchill lies north of the treeline and the zone of transition and is inhabited by insects that are characteristic of both the tundra and the zone of transition. Mosquitoes, blackflies and other biting flies occur in such great numbers, "that they are considered to be the typical insects of the Hudson Bay region."²⁹ The poorly drained land provides a vast area of ideal breeding sites. Biting flies occur in such abundance that they make life difficult for both man and beast, and could be considered a serious hindrance to the development of the area. "Probably fewer than 1000 species of insects live north of the treeline, while some 10,000 occur within a short distance of that boundary. The most offensive

insect pests encountered in the Churchill area are the biting flies, the most serious being the mosquitoes, followed by the blackflies, buffalo gnats, tabanids (deerflies, mooseflies, horseflies, bulldogs, klegs, etc.) and biting midges (punkies, no-see-ums, creepin fire)."³⁰ The number of biting flies is of real concern to those living around Churchill and Hudson Bay.

"West (1951) gives a conservative estimate of some 5,000,000 mosquitoes per acre. Docking (1952) observed that in the course of an intensive attack a man would receive 280 mosquito bites on the forearm from wrist to elbow, during a one minute exposure. He thus calculated that a totally unprotected man would thus receive up to 9,250 bites per minute."³¹

Various methods of protection against attacks by biting flies were employed by early travellers and residents: applying bacon grease or oil, wearing head nets, building smudge fires and building communities in exposed locations like that found at Churchill.

FOOTNOTES:

1. Manitoba Planning Service, "Memorandum on Existing Conditions and Problems: The Townsite of Churchill Manitoba" (unpublished report, Winnipeg, 1963), p.20 (mimeographed).
2. Map by the Surveys and Mapping Branch, Department of Energy, Mines and Natural Resources, Ottawa.
3. B. G. Sivertz, "The North As A Region", Resources For Tomorrow, (Ottawa: Queen's Printer, 1961), p.563.
4. J. Lewis Robinson, "Regional Geography", Science, History and Hudson Bay, eds. C. S. Beals and D. A. Shenstone, Vol. 1 (Ottawa: Queen's Printer, 1968), p.202.
5. Beals and Shenstone, op. cit., p.201 - 235.
6. Murray V. Jones, "Churchill Development Plan, Phase 1" (Toronto: Murray V. Jones and Associates Limited, 1968), p.88.
7. Information obtained from the files of The Department of Public Works of Canada, Manitoba District.
8. Hullbert A. Lee, "Quaternary Geology", Science, History and Hudson Bay, eds. C. S. Beals and D. A. Shenstone, Vol II (Ottawa: Queen's Printer, 1968), p.532.
9. H. A. Thompson, "The Climate of Hudson Bay", Science, History and Hudson Bay, eds. C. S. Beals and D. A. Shenstone, Vol. I (Ottawa: Queen's Printer, 1968), p.267.
10. Margaret Montgomery Larnder, "The Ice", Science, History and Hudson Bay, eds. C. S. Beals and D. A. Shenstone, Vol. I (Ottawa: Queen's Printer, 1968), p.319.
11. Thompson, op. cit., p.271.

12. Sivertz, op. cit., p.564.
13. Arthur V. Mauro, Province of Manitoba Royal Commission Inquiry Into Northern Transportation (Winnipeg: Queen's Printer for the Province of Manitoba, 1969), p.61.
14. Thompson, op. cit., p.274.
15. Ibid., p.275.
16. Ibid., p.270.
17. Ibid., p.281.
18. Information obtained from the files of the Department of Public Works of Canada, Manitoba District.
19. Mauro, op. cit., p.61.
20. G. J. Sladek, "Preliminary Analysis of Facilities For the Townsite of Churchill, Manitoba and Vicinity" (Unpublished Report, Saskatoon: Underwood McClelland & Associates Ltd., December, 1958), p.6.
21. Thompson, op. cit., p.271.
22. Sivertz, op. cit., p.565.
23. Mauro, op. cit., p.62.
24. W. N. Irving, "The Barren Grounds", Science, History and Hudson Bay, eds. C. S. Beals and D. A. Shenstone, Vol. I (Ottawa: Queen's Printer, 1968), p.28.
25. D.B.O. Savile, "Land Plants", Science, History and Hudson Bay, eds. C. S. Beals and D. A. Shenstone, Vol. I (Ottawa: Queen's Printer, 1968), p.401.
26. Ibid., p. 406.

27. Ibid.
28. Ibid., p.408.
29. D. R. Oliver, "Insects", Science, History and Hudson Bay, eds. C.S. Beals and D. A. Shenstone, Vol. I (Ottawa: Queen's Printer, 1968), p.416.
30. Ibid., p.422.
31. Ibid., p.423.

CHAPTER II

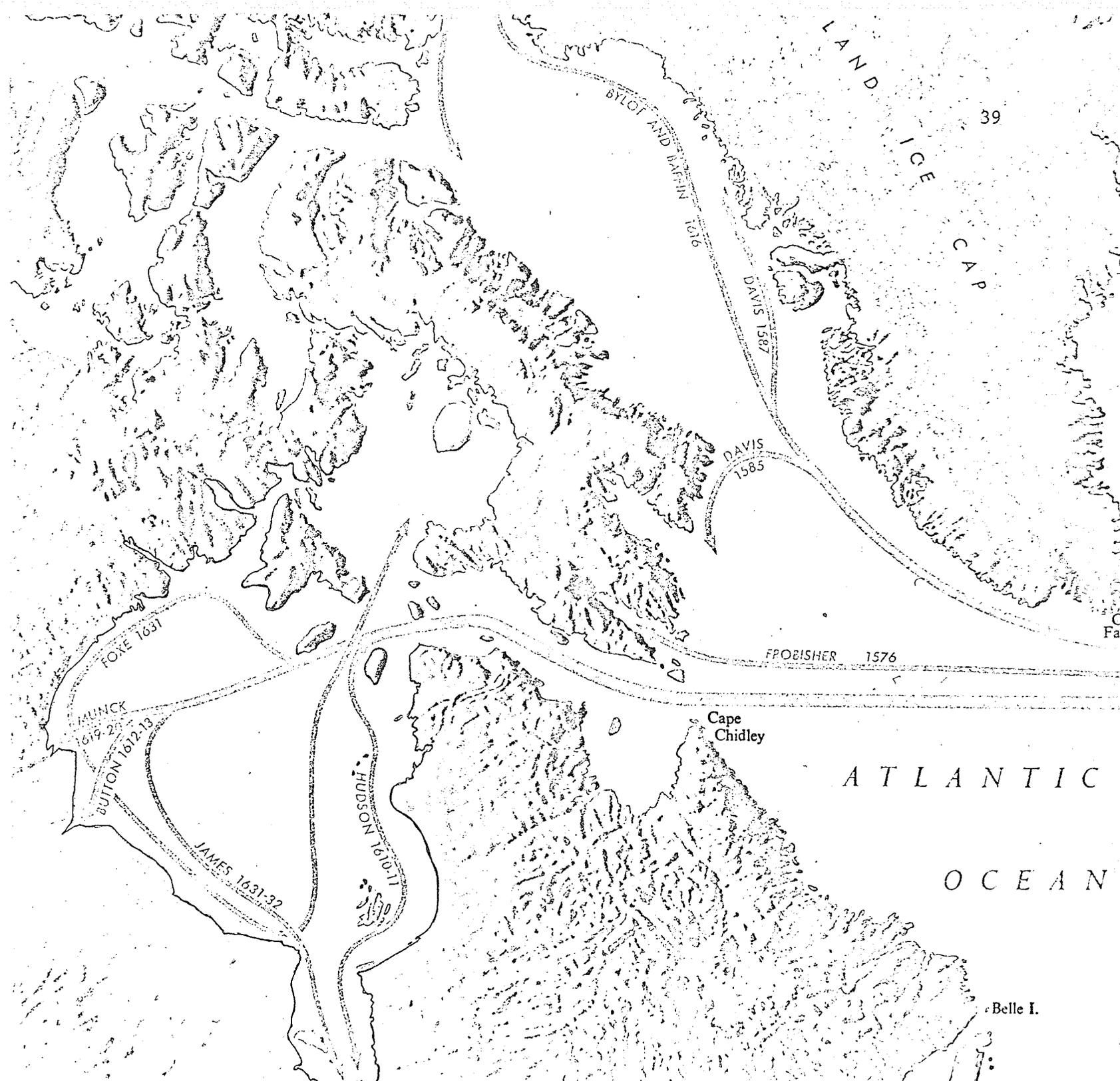
THE CHURCHILL AREA

ERA OF DISCOVERY¹

Churchill has the distinction of being the oldest settlement built in Manitoba; it predates Winnipeg or Chicago or any city in the Western plains. Its history dates as far back as 1619, when Jens Munck, a captain in the Danish navy, discovered the Churchill River, (figure 14). He was forced to spend the winter in the area. However, scurvy attacked his crews and all but three died. The survivors, their health restored, were able to sail the smaller of their two ships home. In later years, interest in the furs of the region caused rivalry between French and English traders for possession of the Bay, and peaceful competition led to open violence. Destruction of English posts in James Bay led to a reconnaissance of Munck's harbour in 1686 and an attempt to establish a post there failed. "It was burned down before completion, and the setback, with other troubles, prevented the occupation of the mouth of Munck's river now renamed the Churchill after Governor Sir John Churchill."²

The fire was thought to have been an act of sabotage caused by workers appalled at the remoteness and dreariness of the area.³ However, by 1717, ground was broken for Fort Churchill. Construction of the Fort was a very

FIGURE 14
Voyages of Early
Arctic Explorers⁴



difficult task due to the nature of the area. The lack of timber and shortage of food were made even more intolerable by the insects of the area, prompting a comparison to "such flies that was sent to ... (the) Egyptians."⁵

In 1731, under the direction of Richard Norton, construction was begun at Churchill of a large stone fortress. It took 40 years to complete Fort Prince of Wales, one the greatest fortification works in North America. In 1782, the French attacked the fort and destroyed it. Churchill was promptly re-established as a trading post and continued as such until the 20th century.

HUDSON BAY RAILWAY

Churchill's modern history dates back to the late 19th century when the Dominion Government undertook surveys to test the practicability of the navigation of Hudson Bay and the possibility of establishing a port to serve the prairies.

The Province of Manitoba Royal Commission emphasises that, "the transportation history of Manitoba has been dominated by the demand for an alternative to the politically compelled east-west flow by way of a competitive railway ... to the Bay."⁶ Several charters were granted, some dating back to 1880, to railway companies to construct a line to Hudson Bay, and in 1885,

40 miles of the railway was completed. It was 25 years before further action was taken, and in January, 1910, Railways Minister George P. Graham announced in the House of Commons that the long-anticipated Hudson Bay Railway was to be proceeded with at the earliest possible moment.⁷

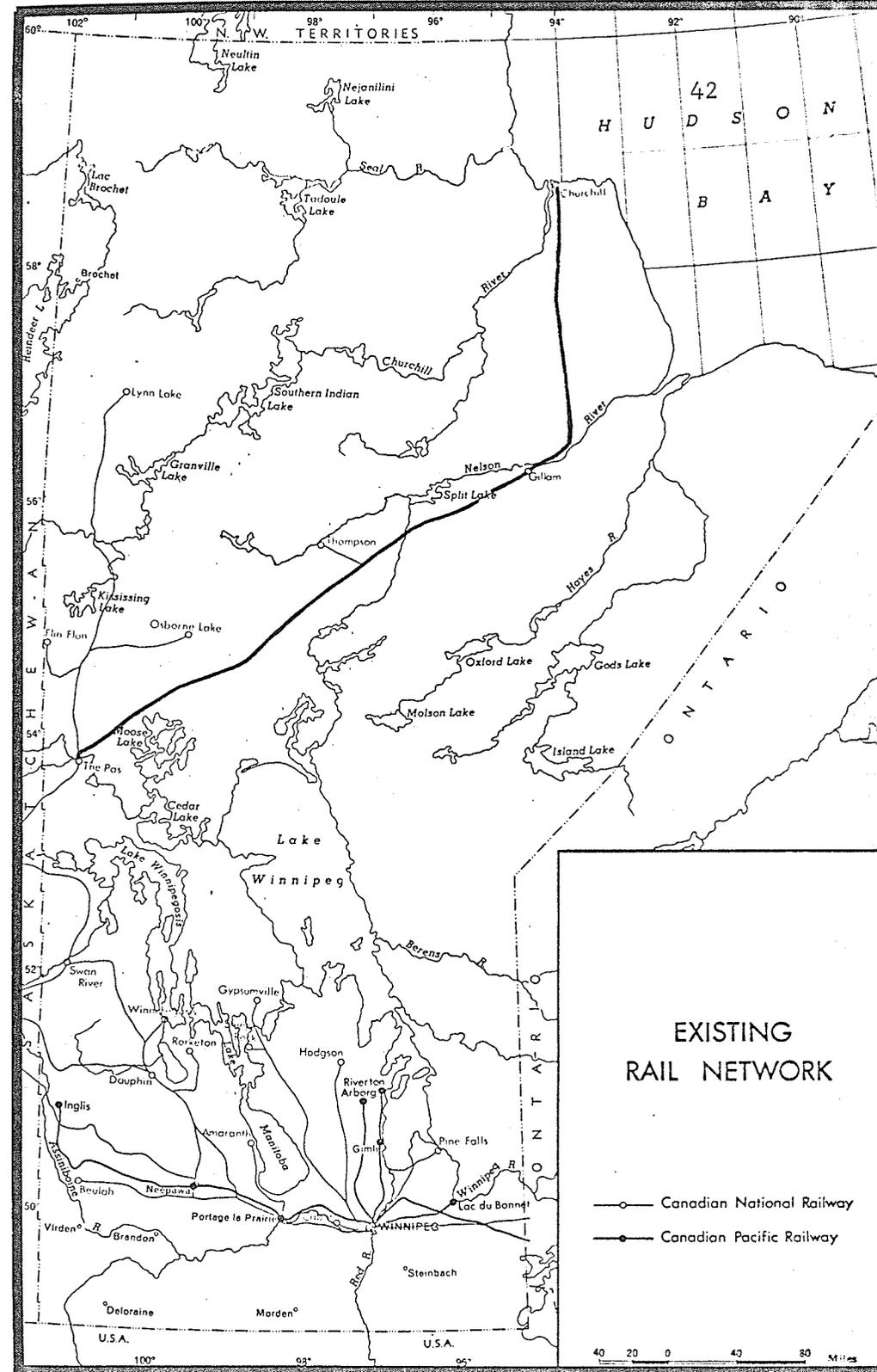
"It was probably the growing political power of the west and the impending formation of the provinces of Saskatchewan and Alberta which impelled both Liberal and Conservative parties to endorse the Bay route in the general election of 1904.In 1908, another election year, (the government) gave a definite commitment."⁸

Construction began in 1910 with plans to reach Port Nelson. Work was suspended during World War I and part of the track was torn up to provide rails for use elsewhere. Following the war continued agitation, "and a tendency ... to take an independent line in politics",⁹ compelled the government to take steps to complete the railway. In 1927, following an investigation of Churchill and Port Nelson by Frederick Palmer, Churchill was decided upon as the terminus of the railway (figure 15). Construction was recommenced in the same year and opened for traffic in 1929. Terminals for grain storage were erected and the first shipment left Churchill in 1931.¹⁰

The opening of Churchill as an international seaport coincided with the great depression of the 1930's, which on the prairies was aggravated by

FIGURE 15

Existing Rail Network Showing the
Hudson Bay Railroad Line¹¹
(dark line)



drought and crop failures, and the trade of Churchill, never very significant, was suspended during World War II.¹² Thus Churchill, as a port, never achieved its potential and continues to struggle as a result of its initial setbacks.

PLANNING FOR THE CHURCHILL AREA

The Town of Churchill owes its existence to the Port.

A townsite at Churchill had been surveyed in 1908 by the Federal government, and it was confidently expected by the West at the time that the port would soon be developed. However, it required several years of intense political pressure before realization of this hope. In 1912, Manitoba's boundaries were extended to their present delineation, including the eventual townsite of Churchill. In the same year, a Winnipeg architect, William Bruce, prepared a plan for Churchill (figure 16). Conceived of in the best 'City beautiful' tradition, it optimistically planned for a future population of over a half million people. Such planning reflected the optimism of the time generated by "the long succession of years each more prosperous than its predecessor".¹³ It is possible that the end of the western boom in wheat land development caused this project to be set aside, along with many others in

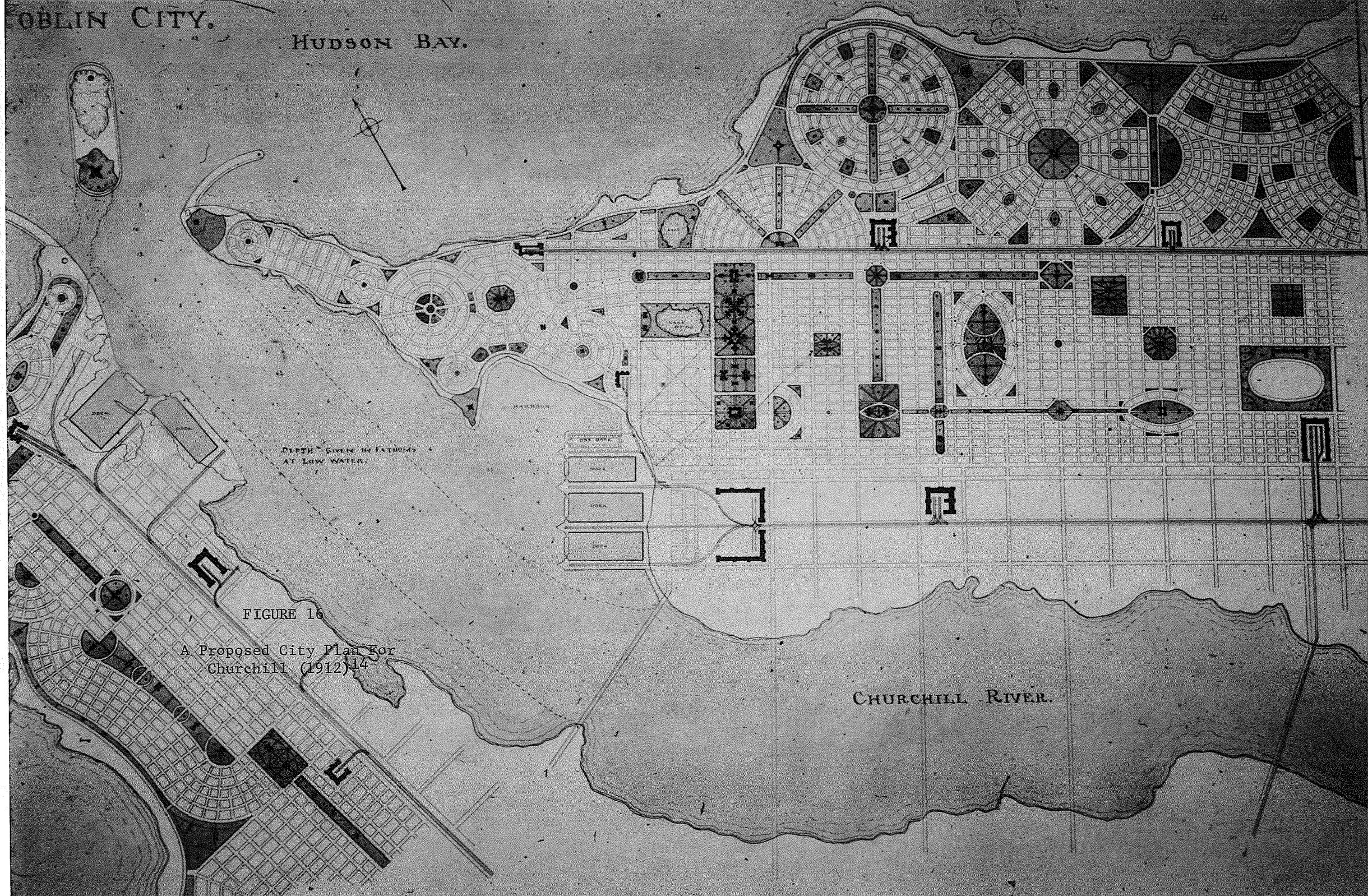


FIGURE 16
 A Proposed City Plan For
 Churchill (1912)¹⁴

southern parts of the province, including Winnipeg. In 1929, large parts of the East Peninsula were expropriated by the Federal government and placed under control of the Department of Railways and Canals. A small area of approximately 120 acres was set aside for the townsite (figure 17), and in 1932, two years after the completion of the rail line, the Surveys Branch of the Provincial Department of Mines and Natural Resources published the plan of a subdivision for approximately 3,000 people (figure 18). The planning for both proposals may have been optimistic, but it was by no means original. The town was layed out with street patterns transplanted from a more hospitable climate, entirely unsuited to Churchill's extreme climate. Instead of high density housing, serving as mutual protection from the elements and conserving warmth, the town was planned and built exposing the southern type single-family homes to the severe winds which are free to sweep along the grid-patterned streets. To the present, Churchill's inadequate resources and uncertain future have prevented the achievement of municipal status. In turn, the lack of adequate services has prevented the development of safe, sanitary conditions, and made the area ineligible for loans for construction. The tax base has recently been increased through revenues in the form of grants-in-lieu of taxes, but this source has only recently increased and has not been fully developed.¹⁵

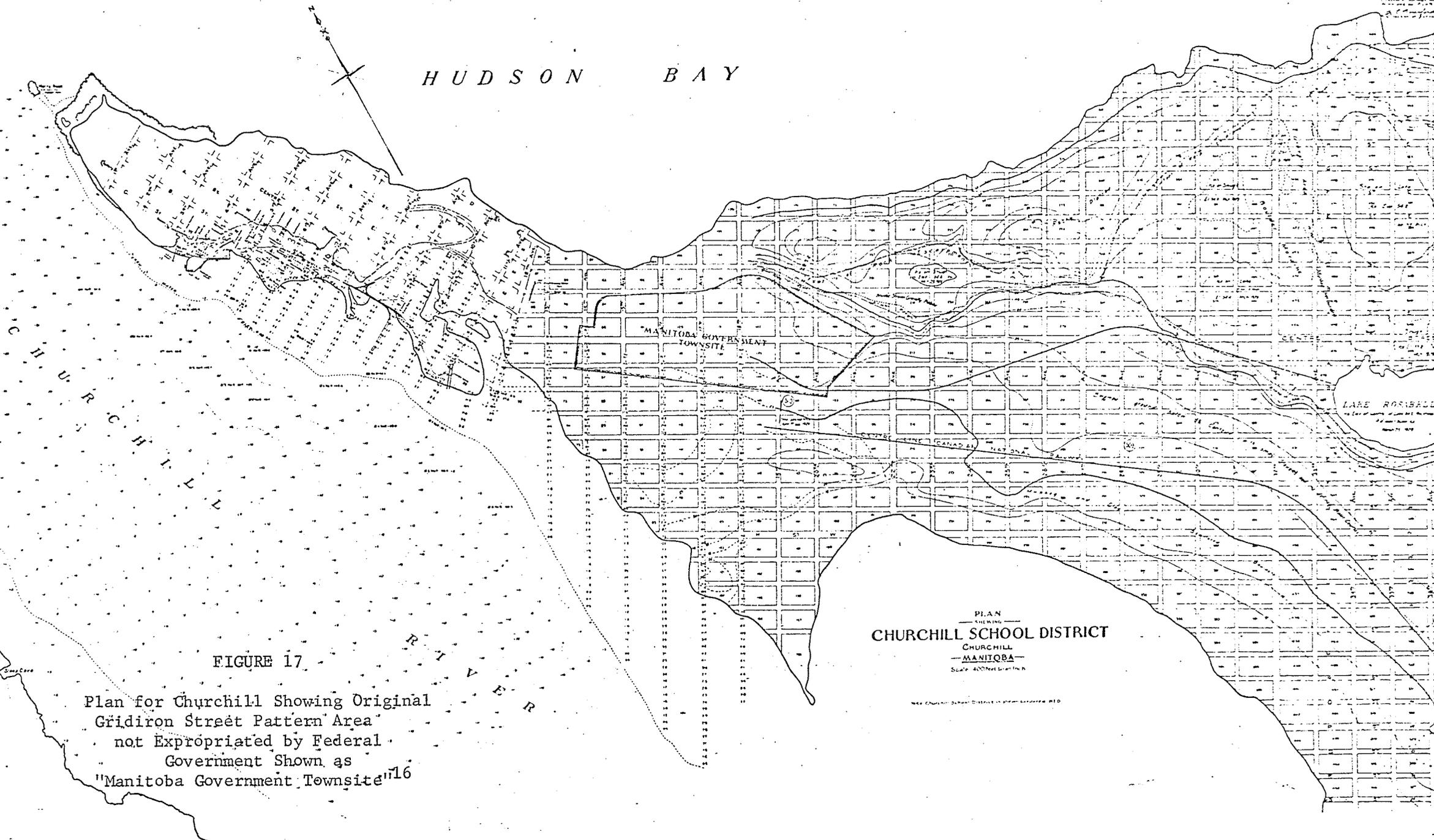


FIGURE 17

Plan for Churchill Showing Original
 Gridiron Street Pattern Area
 not Expropriated by Federal
 Government Shown as
 "Manitoba Government Townsite"¹⁶

HUDSON

BAY

47

CHURCHILL

RIVER

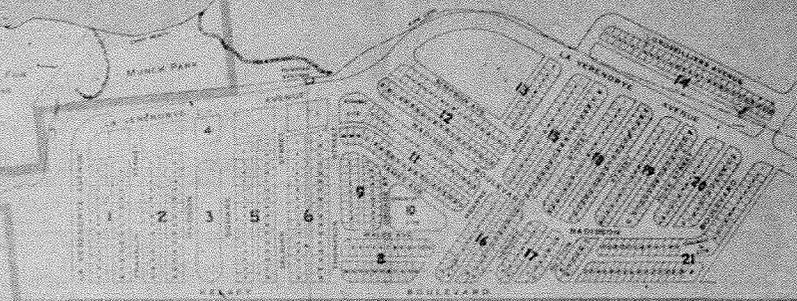
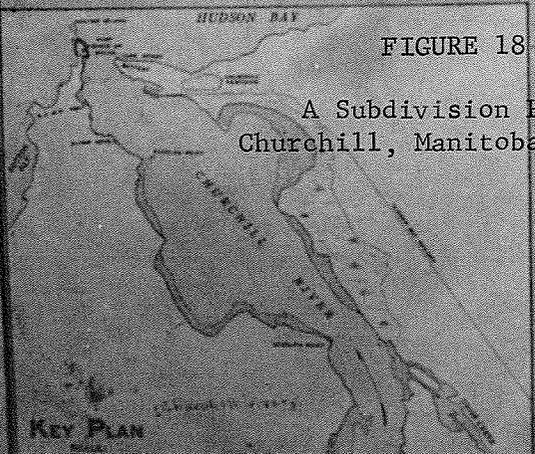


FIGURE 18

A Subdivision Plan For Churchill, Manitoba (1932) 17



Department of Mines and Natural Resources
 Manitoba
 HON. D. W. MCKENZIE, MINISTER C. H. AITWOOD, DEPUTY MINISTER
 Surveys Branch
 S. E. MCGILL, DRAWN
 1932
CHURCHILL
 SCALE: 400 FEET TO 1 INCH
 BOUNDARIES OF PROVINCIAL LANDS SHOWN NATIVES

In 1942, the United States Air Force built military installations, including an airfield. With this increased opportunity for employment came a larger population and a growth of private commercial ventures. After the war Churchill, with its rail communications and convenient situation on the rim of the Arctic, was made the base for Canadian - U.S. exercises in polar warfare and eventually a centre for studies of the earth's upper atmosphere.

Since the late 1950's, there has been a growing realization among Federal and Provincial authorities that Churchill should no longer be neglected. Several studies have explored a number of alternate methods for creating a more suitable social and physical environment. Among the proposals was the possibility of relocating Churchill a few miles south in a less exposed area. However, the proposal was rejected by the Town's population in a public referendum. Planning is presently being carried out jointly by the Federal and Provincial governments with the most recent evaluation of the Churchill area outlined in the Murray V. Jones and Associates, Churchill Development Plan: Phase 1 report. In fulfillment of one of the recommendations contained in the Phase 1 report, sewers and water were installed (figure 19) by the Federal government. The Provincial government and the future municipal government will henceforth be responsible for all maintenance and operating costs.

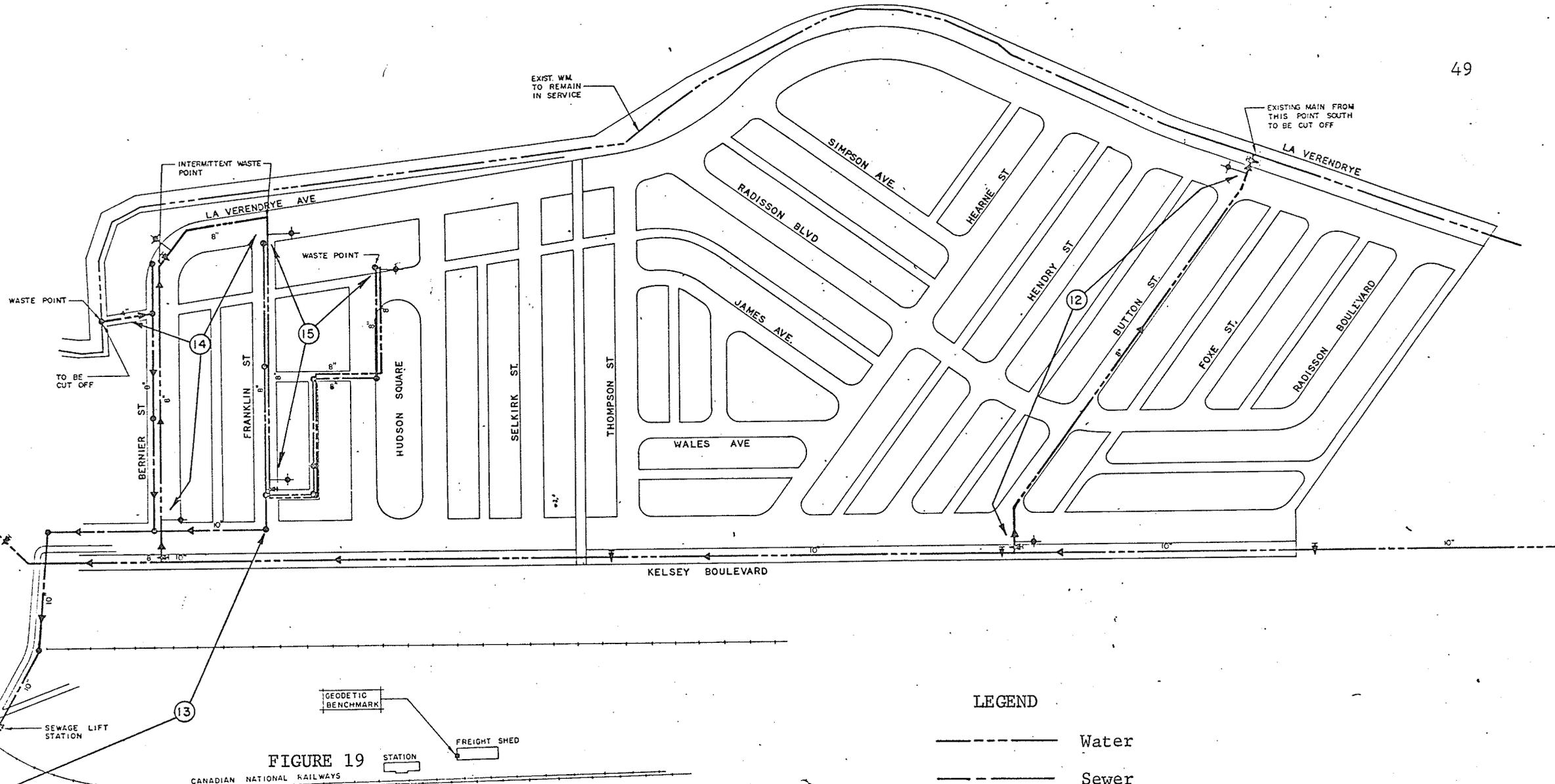


FIGURE 19
 Layout of the New Sewer and Water
 Installation, 1967-7018

LEGEND
 ——— Water
 - - - - Sewer

CHURCHILL RIVER

COMMUNITIES OF THE CHURCHILL AREA¹⁹

Churchill is the only town in the Hudson Bay area that houses a large, reasonably permanent white community, along with the usual mobile, transient population so characteristic of all northern centres. It is by no means similar to any other town in Canada. It would be best to characterize Churchill as a cluster or complex of communities, each quite distinctive in terms of its population, internal organization and history. The major components of the Churchill area are: The Town of Churchill, The Flats, Jockville, Akudlik, Dene Village and Fort Churchill. The present physical separation of each is shown in figure 20.

THE TOWN OF CHURCHILL

Both the general history and the history of its planning have been outlined. The Town of Churchill, the original community, developed with the construction of the railway and harbour installation and expanded with the development of Fort Churchill. A sizeable part of the population consists of National Harbours Board and Canadian National Railway employees and their families, together with staff of installations at Fort Churchill, for whom no Federally-owned accommodation is available.

Socially, the town differs markedly from the other communities in the area. Its population, although transient relative to the population of southern areas, has a stronger commitment to remaining in Churchill than does comparison to the population of Fort Churchill. Approximately 35% (Table 27) of the residents own their homes; because of the difficulty in securing financial loans, many have built their homes with their own resources. A marked disparity exists between the population of the Town and that of Fort Churchill, even though well over half of the Town's labour force are Federal employees. In general (except for the National Harbours Board and the C.N.R.) those Federal employees living in the Town tend to constitute an occupational group of lower rank than the Fort residents.

THE FLATS

JOCKVILLE

The Town of Churchill has two sub-communities of squatters who are mainly non-treaty Indians, Metis and a few whites. Both squatter communities have been assumed to be under provincial jurisdiction while residing on Federal land. (figure 21)

To the south, across the railway tracks, there are approximately 35 shacks in an area adjacent to Beech Bay, which at low tide is an exposed

tidal flat of mud and boulders. To the north-east, next to the port facilities, there is another group of shacks in an area called Jockville. Until recently, Jockville was also at the lip of the Town's garbage dump. It is estimated that approximately 250 people reside in the Flats and 150 in Jockville. The housing conditions of these two areas are very poor, with overcrowding, total absence of sewer and water, electricity and (with the exception of one or two houses) telephone services. Such conditions contributed to the conclusion reached by the Phase 1 report that, "The physical, social and economic plight of the Town of Churchill is perhaps unparalleled anywhere in Manitoba or even throughout the nation."²²

AKUDLIK

Approximately at mid point between the Town and Fort Churchill the Department of Indian Affairs and Northern Development constructed a village for Eskimos. This village was established in 1955; it serves as a place of transition, introducing the nomadic Eskimo to the amenities and hazards of an urban centre. The population of Akudlik is about 200: half Eskimo, the other half being the white staff of the Federal department and their families. The white staff is engaged partially in caring for Akudlik's Eskimo population, partly in administering the Eastern Arctic headquarters

of Northern Affairs, which is based in Akudlik, and partly as instructors at the Churchill Vocational School for Eskimos located in Fort Churchill. Akudlik has a water distribution network.

DENÉ VILLAGE

Immediately to the south of Akudlik, along the water supply, is a small village for the Treaty Indian Band (Chipewyan). The village is administered by the Indian Affairs Branch of the Department of Indian Affairs and Northern Development. It is basically a residential area, built by the Indians with material and technical assistance supplied by Indian Affairs. The Indians are not native to the Churchill area, but had originally lived in the sparsely-populated Duck Lake area. Following closure of the Hudson Bay post at Duck Lake in 1956, the Indians were moved to camp 10 in an area bordering Laverendrye Avenue in the Town. Unfortunately, canoes, nets and other customary means of self-support were left behind. The result was a people cast into a position of complete dependence on Indian Affairs paternalism. As a result, the Indians are reported to have suffered a severe cultural shock with serious psychological effects. Dené Village was created in 1966 in an attempt to remove the Indians from the urban environment of the Town to a more familiar existence. At the time Dené Village was planned,

the Provincial Planning Service (Municipal Planning Branch) intended to relocate the Townsite of Churchill adjacent to the present site of Dené Village. As noted earlier these plans were rejected. The rejection of the relocation proposal will probably benefit the Indians in the long run, allowing Dené Village to continue its role as a transition stage for the increasing numbers of Indians wanting to move to urban centres. Dené Village, with the neglect and desolation of its physical structures, presents a sharp contrast to the well-nurtured atmosphere of Akudlik. Cultural differences between Indian and White remain, and will probably be a part of Churchill for many years to come. Most white visitors consider Dené Village an expression of social and psychological desolation, and are appalled at the lack of sewer and water and many of the services (commercial, educational, recreational) which the town supplies. However, its conditions reflect the current standard of life of almost all the Indians and Metis in Manitoba. Conditions will probably not alter until attitudes to Indians change, and they are given the opportunity to pursue meaningful lives more closely associated with their natural heritage.

FORT CHURCHILL

A sharp contrast between the Town and the Fort extends over almost all areas of life, the most visible being in the quality of housing. Although most of the structures were constructed during or shortly after World War II, they appear superior to the housing in the Town. However, such a comparison can only be considered in relation to comparable buildings in Winnipeg. As such, the housing of the Fort would be below classification noted in Map 8. Only by costly and substantial yearly maintenance programs are buildings kept in reasonable condition.

The Fort has the full range of municipal services: sewer and water, telephone, electricity and central heat. It has good commercial facilities - a Hudson's Bay store, a groceteria, an Eaton's catalogue order store, excellent recreation facilities, schools and a laundry serving the entire area.

In the married quarters, the density is approximately 60 persons per acre, compared with 10 persons per acre in the Town. Corridors connect groups of housing units (figure 22) protecting both people and utilities from the environment. Rents in Fort Churchill are heavily subsidized and services extend from provision of furniture to basic kitchen utensils.

In the social sphere one finds the most deeply-rooted disparities between the Fort and the Town. The Fort's residents are mainly Federal employees, mostly the higher ranking - the managers, administrators, etc., and as such, have contributed in making Fort Churchill an enclave of Federal employees of higher social rank than that of their counterparts residing in the Town.

The Fort's social climate is unique in other ways as well: since almost all are Federal employees, many working for the same department, occupational and social ties tend to overlap to a large degree. The small size of the Fort's population, along with the isolation of the Churchill area and the overlapping social ties, tend to generate the often-heard complaint on the prevalence of gossip and the necessity to "get away" - even if it be to a small summer cottage several miles down the road. The close personal relationships, physical amenities and transient quality of the Fort population have also tended to cause the wide social gulf between Fort Churchill and the Town.

But it is for the single people that the Fort offers a way of life untypical of any place in Canada. Life in single quarters is almost communal: one lives with one's colleagues at work, eats at the "mess"

(cafeteria), and goes to the theatre just down the corridor with one's room-mates - colleagues.

Thus, although life in Fort Churchill may, in a way, be appealing, this appeal stems largely from Fort Churchill's military past. Had the Department of Public Works not been put in charge of barracks and mess-halls, it is possible the Fort's social climate would have been more similar to the social climate of any other small northern town in Canada. Nor would the roles of housing authority and a municipal authority become Federal responsibilities thereby creating a federal enclave in provincial territory. It is this disparity, social and physical, between the Town and the Fort, and the infringement of municipal responsibility, which have prompted the decision to close Fort Churchill.

RESOURCES OF THE CHURCHILL AREA

Although a detailed discussion of the economic resources of Churchill is beyond the scope of this thesis, an outline of the area's economic potential is necessary for placing all planning decisions in perspective. Economic planning for the Churchill area is largely the responsibility of the Provincial Department of Industry and Commerce; however, the numerous activities of the Federal Government and private interests contribute most toward economic activity in the area. The following outlines the existing resources and notes some possibilities for economic growth in the future.

THE PORT OF CHURCHILL

The development of port facilities (figure 23) was the beginning of Churchill's 20th century economic base. A brief history, including the development of the Hudson Bay rail line, is contained in an earlier section of this chapter. Although one recent study questions the future of the Port, a more optimistic view suggests that as long as the prairies keep on producing wheat and selling it to Europe, there will probably be a demand for a prairie port. Figure 24 indicates the routes used for shipping prairie wheat. However, the port facilities are currently open for an average of only 82

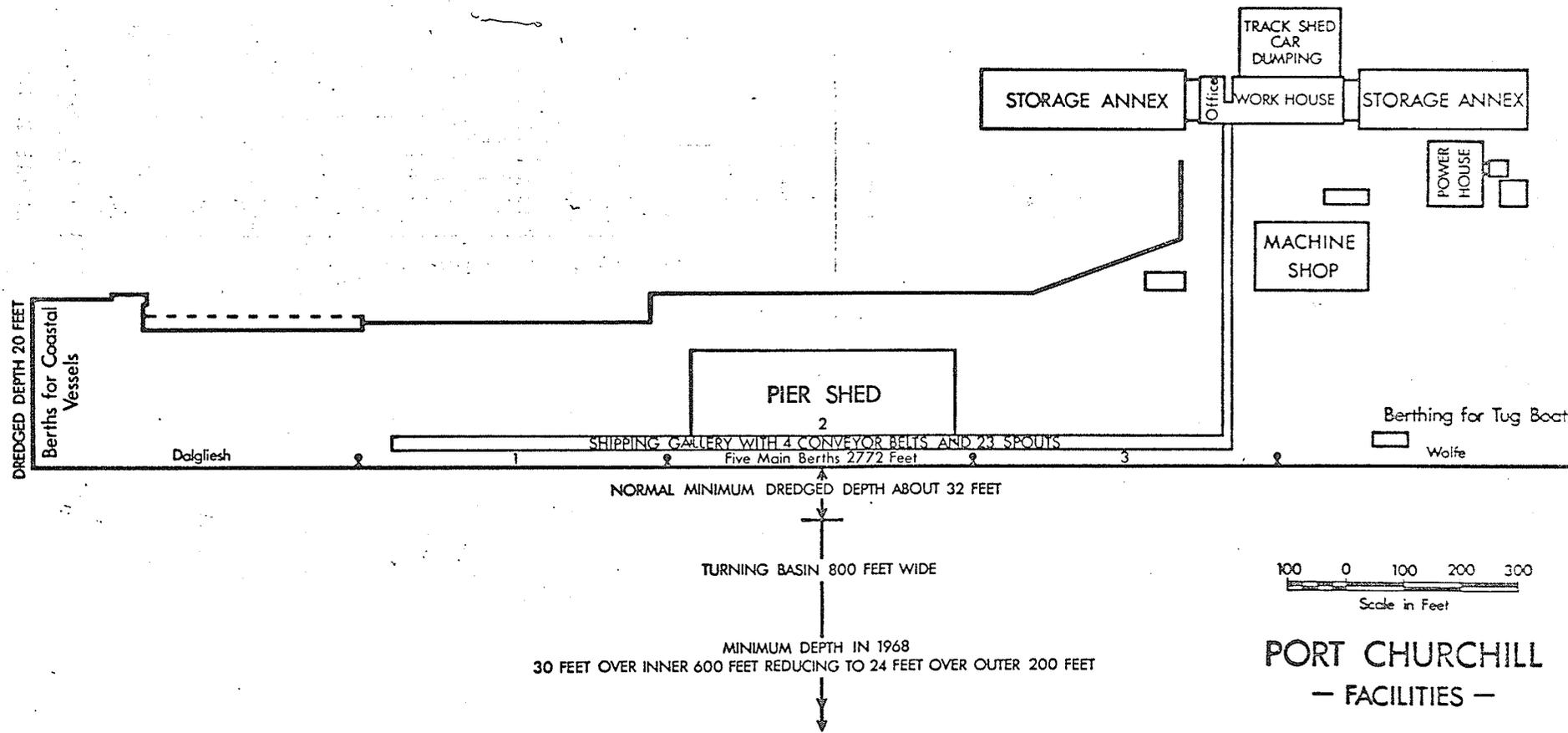
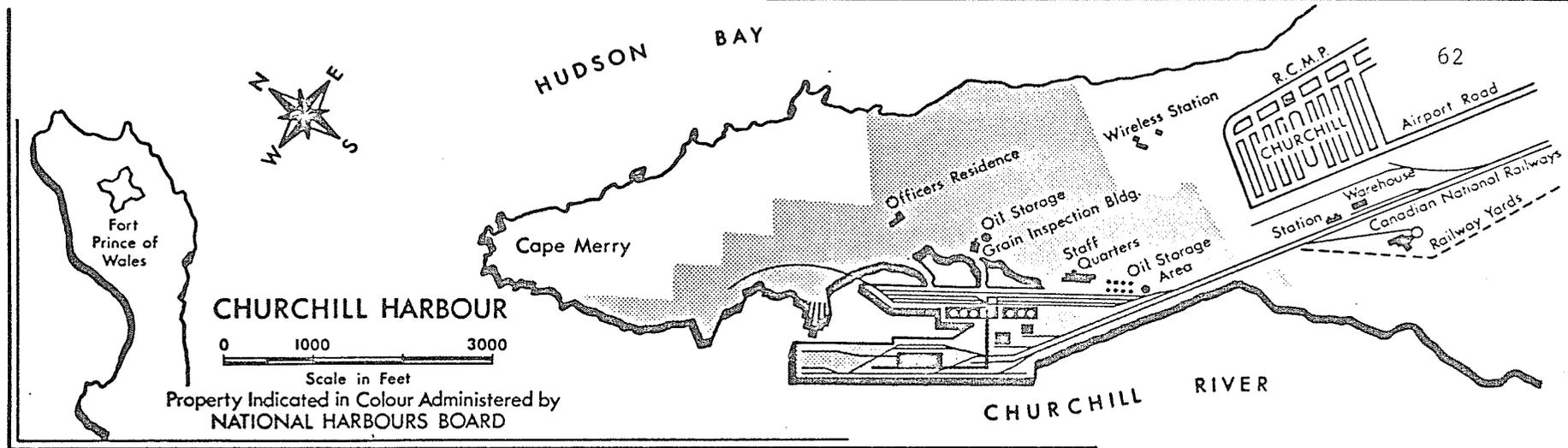


FIGURE 23
Port Churchill
Facilities²⁴

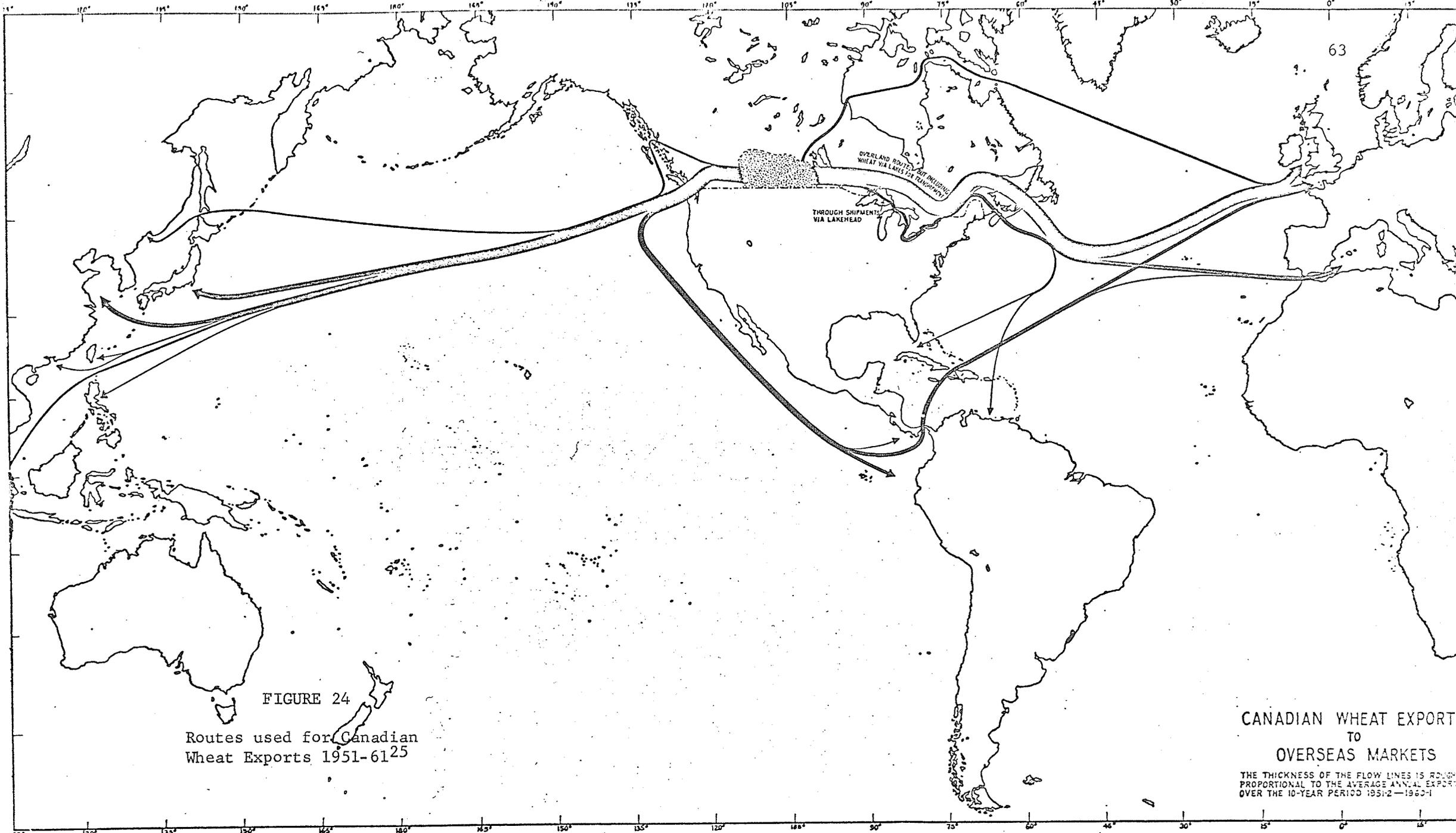


FIGURE 24
 Routes used for Canadian
 Wheat Exports 1951-61²⁵

CANADIAN WHEAT EXPORT
 TO
 OVERSEAS MARKETS
 THE THICKNESS OF THE FLOW LINES IS ROUGHLY
 PROPORTIONAL TO THE AVERAGE ANNUAL EXPORT
 OVER THE 10-YEAR PERIOD 1951:2-1960:1

days per year, normally from July 26 to October 15. Figure 25 shows the contrast between southern Manitoba and Churchill. Since it is a seasonal operation, it draws to Churchill only a limited number of year-round employees (National Harbours Board has 56 permanent employees). With such a limited period of operation the Port cannot develop nor can it reach its potential. As a result, there has been much discussion of the possibility of keeping the Port open for a longer season, or even year-round. Optimistically, the latest detailed study²⁶ foresees the possibility of extending the season for shipments to 105 days. However, it does not foresee any increase in shipments of commodities other than grain. The report concludes with several recommendations; a suggested first phase up to 1973 would involve promotional effort and minimum investment (Federal Government). Assessment of Port usage after 1973 would indicate action, if any, for a future phase. Thus the future of the Port will not change much from the present. Indeed, the report suggests that:²⁷

- there is little likelihood that any potash or petroleum will be exported through Churchill from 1970 to 1985.
- production of forest and mineral resources in Manitoba and Saskatchewan will not create substantial volumes of potential traffic through the Port.

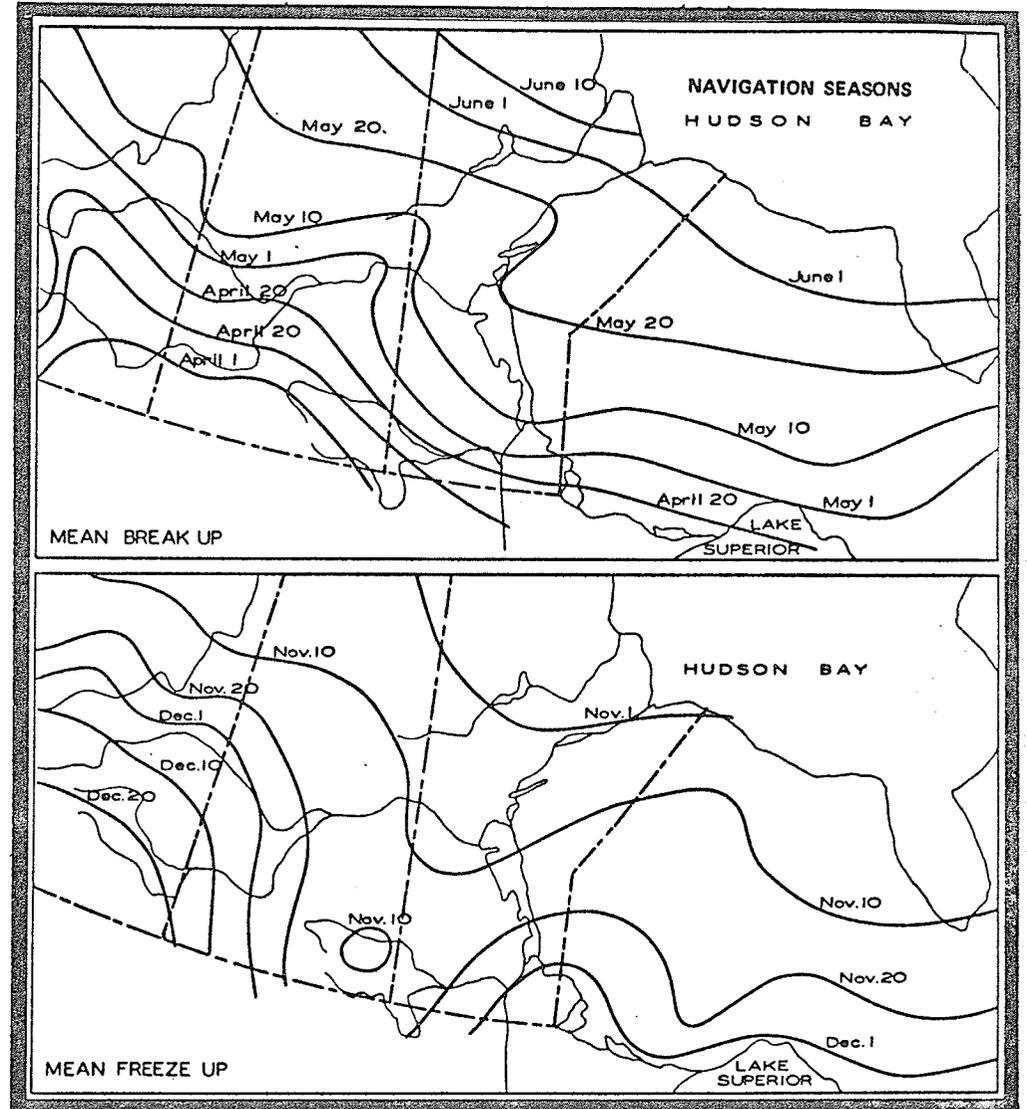


FIGURE 25
Navigation Seasons Related
to Climatic Factors²⁸

- prairie region imports are not expected to assume a major role.
- coastal shipping cannot be expected to contribute significantly to the total potential of the Port.

Therefore, the Port of Churchill will not contribute significantly to development of the Town during the major part of the study period.

RESEARCH

Churchill's location is ideal for carrying out research into upper atmospheric, meteorological, and auroral phenomena. As described earlier the Churchill Research Range was located at Churchill in order to take advantage of these conditions. However, the United States National Aeronautics Space Administration will soon phase out its yearly two million dollar expenditure. The N.A.S.A. spending will end June 30, 1970.²⁹ In addition, Federal cabinet directives ordering cutbacks by its departments and agencies as an anti-inflationary measure has caused Canada's National Research Council to reduce activities at the Churchill base. The reduction would limit the present firing of 150 rockets to about ten or twelve on a seasonal basis.³⁰ The effect of this reduction is discussed more fully in Chapter IV.

However, Churchill offers many other research possibilities associated with northern conditions. Currently, the University of Manitoba is

contemplating using the Fort Churchill General Hospital as a center for training doctors in northern medicine and the care of the indigenous population. Another proposal has been a suggested research laboratory with facilities available to federal and provincial agencies, universities and private industry.³¹ Churchill presents good opportunities for the testing of materials and equipment under northern conditions and for research into northern housing. If significant development were to occur in this or some other related direction, it may be found that Churchill will be compensated for the reduction in the Churchill Research Range activities. However, for the purpose of population projections in Chapter III, it has been assumed that research proposals will have a negligible effect and that the reduced activities of The Churchill Research Range will result in a reduced operating staff.

TOURISM AND RECREATION

It is possible that reduction in Federal Government activities may be offset, in part, by expansion of the tourist potential of the Churchill area. At present, tourists are attracted mainly during the short summer season. A measure of the tourist flow into Churchill is to be found in the lists of participants in the Churchill Tours organized by the C.N.R. As indicated in Table 4, in 1965 and 1966, 953 people participated in the tours.

TABLE 4³²

CHURCHILL MANITOBA: SELECTED TOURIST STATISTICS

| <u>Year</u> | <u>No. of Visitors to Eskimo Museum</u> | <u>C.N.R. Churchill Excursions No. of Passengers</u> |
|-------------|---|--|
| 1949 | 980 | |
| 1950 | 1630 | |
| 1951 | 2100 | |
| 1952 | 2230 | |
| 1953 | 2030 | |
| 1954 | 2580 | |
| 1955 | 2500 | |
| 1956 | 3300 | |
| 1957 | 2760 | |
| 1958 | 2650 | |
| 1959 | 2680 | |
| 1960 | 2800 | |
| 1961 | 2410 | 384 |
| 1962 | 2160 | 364 |
| 1963 | 2700 | 428 |
| 1964 | 3210 | 402 |
| 1965 | 2940 | 468 |
| 1966 | 3590 | 485 |

The tourist industry has a great potential in Northern Manitoba, but this will probably not be fully realized until highways are developed to make the northern centres, including Churchill, easier to reach by car. For example, in the areas of The Pas and Flin Flon, and particularly around Clearwater provincial park, the tourist industry is already flourishing. These areas can be reached by Highway 10, (figure 26) which is a paved all-weather road.³³ Development of tourism is especially suitable for the Churchill area as it is a rather labor intensive, low capital industry when compared to others. Therefore, it is likely that tourism will continue to increase, but at a slow rate and mainly during summer. No spectacular rise in tourism is anticipated until a highway connects Churchill with Southern Manitoba. Figure 27 shows the suggested route of a highway to Churchill.³⁴

OTHER RESOURCES

Oil exploration in Hudson Bay is currently under way and the acreage under lease indicates that the potential is considered to be favourable. As shown in figure 28, sizeable acreages of petroleum and natural gas permits are held by a number of different companies, with the exploration area relatively close to Churchill.

FIGURE 26

Existing Road and Highway Network³⁵

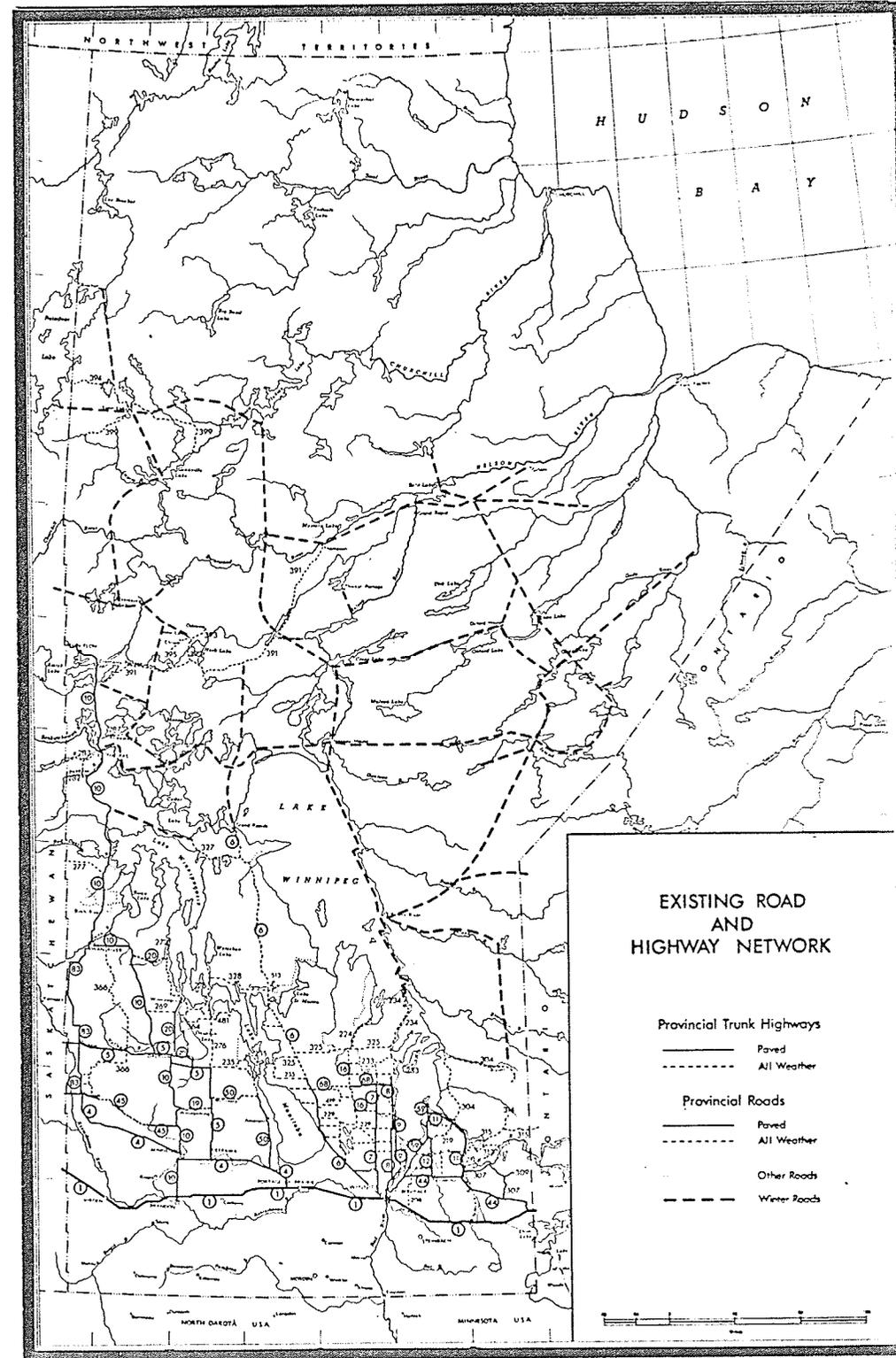
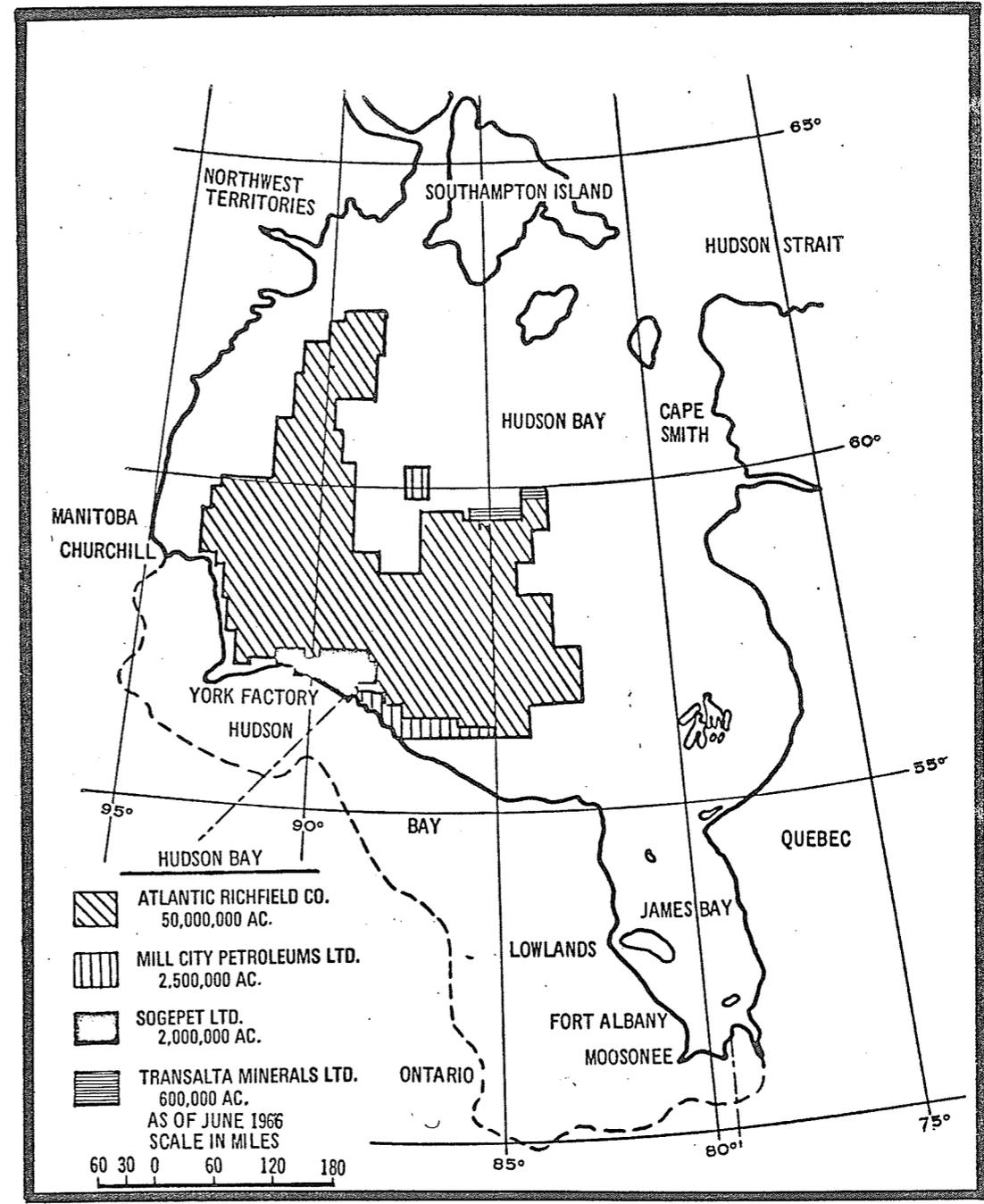


FIGURE 28
Petroleum and Natural Gas
Exploration - Acreage Under
Lease as of June, 1966³⁷



Churchill would benefit substantially if a discovery were made, and could become an onshore storage and transportation centre. In any event, if crude oil is shipped through the Port of Churchill, the increase in employment will be small as the petroleum industry is highly automated.

Churchill's most promising role is that of an urban center to the Eastern Arctic, supplying this region with all the services of an urban centre: transportation and communication, storage, financial center, tourist center and a center for acculturation of the native population. There is no reason to doubt that, as the pulse of northern development quickens, so will that of Churchill. For Churchill has more to offer than most regional centers: a port, a railroad, and a high capacity airport. During construction of the Distant Early Warning Line, Churchill was an important servicing center for Globemaster and other aircraft hauling supplies to the individual construction sites throughout the North, emphasizing the importance of Churchill as a supply centre. At present, building contractors moving construction materials to northern sites use Churchill as a staging and distribution center. These examples of recent construction activity stress the strategic location of Churchill. Thus, it may be concluded that Churchill will benefit from a developing North because of the increasing importance of its geographical

location. In the meantime, however, Churchill will experience not development, but a sharp reduction in economic activity as a result of the phasing out of Fort Churchill, the reduction of activities at the Churchill Research Range, and the move of educational and administrative functions of the D.I.A.N.D. from Churchill to the Northwest Territories.

Following a sharp decline in the economy resulting from decreased Federal Government activity, Churchill will experience a modest but increasing economic base reflected in the projected basic/non-basic employment for the study period 1970-1990.

FOOTNOTES:

1. The primary source of historical data used in this section was the Public Archives of Manitoba.
2. W. L. Morton, Manitoba, A History (Toronto: The University of Toronto Press, 1957), p.16.
3. L. H. Neatby, "History of Hudson Bay", Science, History and Hudson Bay, eds. C. S. Beals and D. A. Shenstone, Vol. I (Ottawa: Queen's Printer, 1968), p.97.
4. D. G. G. Kerr, A Historical Atlas of Canada (Toronto: Thomas Nelson & Sons (Canada) Limited, 1959), p.15.
5. Neatby, op. cit., p.97.
6. Arthur V. Mauro, Province of Manitoba Royal Commission Inquiry Into Northern Transportation (Winnipeg: Queen's Printer for the Province of Manitoba, 1969), p.176.
7. Winnipeg Free Press, January 27, 1969, p.15, col. 4.
8. Neatby, op. cit., p.119.
9. Ibid.
10. Mauro, op. cit., p.177.
11. Mauro, op. cit., p.201.
12. Neatby, op. cit., p.120.
13. Morton, op. cit., p.315.
14. Public Archives of Manitoba.
15. Murray V. Jones, "Churchill Development Plan, Phase 1" (Toronto: Murray V. Jones and Associates Limited, 1968), p.23.

16. Department of Public Works of Canada, Manitoba District.
17. Public Archives of Manitoba.
18. Department of Public Works of Canada, Manitoba District.
19. The data used for this section was obtained from the files of The Department of Public Works of Canada and from discussions with R. G. Harding, Manager of Construction and Engineering, Department of Public Works of Canada, Manitoba District, (former Superintendent of Fort Churchill), August, 1968 - January, 1970.
20. Map by the Surveys and Mapping Branch, Department of Energy, Mines and Resources, Ottawa.
21. Department of Public Works of Canada, Manitoba District.
22. Jones, op. cit., p.3.
23. Department of Public Works of Canada, Manitoba District.
24. Mauro, op. cit., p.357.
25. Sir Alexander Gibb and Partners, "Port Churchill Future Development" (Unpublished Report, London, 1962), p.68.
26. Hedlin Menzies report on the, "Port of Churchill - Potential for Development."
27. Winnipeg Free Press, January 15, 1970, p.1, col. 4.
28. Mauro, op. cit., p.520.
29. Winnipeg Free Press, October 29, 1969, p.14, col. 1.
30. Winnipeg Free Press, October 21, 1969, p.1, col. 6.
31. Winnipeg Free Press, October 27, 1969, p.3, col. 6.

32. Jones, op. cit., p.65.
33. Winnipeg Free Press, June 17, 1969, sec. B, pp.B1 - B12.
34. Mauro, op. cit., pp.483 - 485.
35. Ibid., p.202.
36. Ibid., p.278.
37. W. Keith Buck and Amil Dubnie, "Economic Possibilities", Science, History and Hudson Bay, eds. C. S. Beals and D. A. Shenstone, Vol. II (Ottawa: Queen's Printer, 1968), p.973.

CHAPTER III
POPULATION CHARACTERISTICS

POPULATION GROWTH AND DENSITY

There were 3,579 people living in the Churchill area in 1966*, as recorded in the 1966 census by the Dominion Bureau of Statistics. These people comprised 691 households (Fort Churchill 314; Town of Churchill 327) for an average of 4.23 persons per household (Fort Churchill 4.17; Town of Churchill 4.30).

Recent but incomplete surveys of the Town of Churchill indicate a population of 1200 for 317** dwelling units. Both figures indicate a substantial decline from the 1966 census showing a continued decrease in total population. However, since records are incomplete, I will utilize the figures compiled for the 1966 census, but will make some attempt to consider the current status of the population. In addition, since the closing or phasing out of Fort Churchill is an integral part of the development plan, this Chapter will emphasize the recognition of population characteristics which exist in the Town of Churchill. In this way, it is hoped that proposed planning of the development plan will reflect the needs of the Town's people with their particular characteristics.

* exclusive of those people resident in the hospital
** not including trailers.

The Town of Churchill contains about 120 acres. This means that the gross density of the residential population is about ten persons per acre. However, if one considers only the land used for residential purposes (excluding 63.49 acres for streets and squares), then a net residential density of about 21 persons per acre is indicated. The recent survey conducted by the Municipal Planning Branch of Manitoba indicates that the population has declined in the Town of Churchill since 1966.¹ Table 5 shows the population estimated in the census years 1951, 1956, 1961 and 1966. Although each of these years is a census (or inter-censal) year, the data gathered by the Dominion Bureau of Statistics represents the enumeration areas in Electoral District No. 602. The data compiled for this Electoral District is dependent on the accuracy of R.C.M.P. records of a transitory native population.

TABLE 5²

| POPULATION DATA: CHURCHILL AREA* | | | | |
|----------------------------------|------|------|------|-------|
| year | 1951 | 1956 | 1961 | 1966 |
| Population | 2168 | 3039 | 4110 | 3579 |
| 5 year increase/decrease | -- | 971 | 1071 | -531 |
| % rate of increase/decrease | -- | 40.2 | 35.1 | -12.9 |

* probably excluding Akudlik

Prior to 1951, the population base was stimulated by the military activity which began in 1942, at which time "the population, including Indian and Metis families who lived on the river flats, numbered approximately 150 souls".³ It can be seen that there was a very marked increase in population between 1942 and 1951. The increase in population between 1951 and 1961 is probably due to the increasing activity in attempts to observe and understand the upper atmosphere prior to and during the advent of the International Geophysical Year of 1956-58. "This policy led to an increased tempo of scientific activity in the Canadian north, particularly in the Hudson Bay region."⁴ This was a direct result of a proposal made at the International Geophysical Year Committee meeting in Rome in 1954, at which time the United States undertook a program of upper-atmosphere research with high altitude rockets with Churchill selected as the firing site.⁵ During the period prior to 1961, the United States constructed launching facilities and research instrumentation centers. The slower rate of growth between 1956 and 1961 could be attributed to the closing of the range for a short period of time in 1959. However, growth received a further stimulus following the reopening of the Rocket Research facility in August 1959,⁶ "with a joint five-year

program by research agencies of Canada and the United States".⁷ The 9.4% decrease between 1961 and 1966 can be attributed in part to the withdrawal of the Canadian Army in March, 1964⁸ and the United States Air Force in 1966.

There is no doubt that Churchill will continue to experience a loss of major proportions, with the major population loss anticipated to occur among families rather than single persons. The exodus of families with children can only add to the instability of the area as a residential neighbourhood, and hasten its decline into a condition of widespread blight and neglect, leading ultimately to its being occupied largely by transients living in cheap hotels and shacks.

Table 6 shows a detailed analysis of the 1966 population by size of household.

TABLE 6
HOUSEHOLDS BY SIZE AND NUMBER*
(1966 census)

| <u>No. of persons in household</u> | <u>No. of households</u> | | <u>% of all households</u> | |
|---|--------------------------|-----------------------|----------------------------|-----------------------|
| | <u>Town</u> | <u>Fort Churchill</u> | <u>Town</u> | <u>Fort Churchill</u> |
| 1 person | 35 | 4 | 9.3 | 1.3 |
| 2 persons | 74 | 56 | 19.6 | 17.9 |
| 3 persons | 60 | 49 | 15.9 | 15.6 |
| 4 persons | 66 | 81 | 17.5 | 25.8 |
| 5 persons | 58 | 54 | 15.4 | 17.2 |
| 6 - 9 persons | 66 | 67 | 17.5 | 21.3 |
| 10+ persons | 18 | 3 | 4.8 | 1.0 |
| | 377 | 314 | 100.0 | 100.0 |
| Average number of persons per hshld. | 4.17 | 4.30 | | |

* household tabulations do not include Fort Churchill transient quarters.

AGE AND SEX DISTRIBUTION

Examination of the data relating to the age and sex distribution of the population indicates that the population is relatively young and that there are more men in the older age groups. While males also outnumbered females in the Province and in the whole of Canada (figure 29), the

METROPOLITAN WINNIPEG MANITOBA AND CANADA

AGE-SEX PYRAMIDS AS A PERCENTAGE OF TOTAL MALES & FEMALES

1966

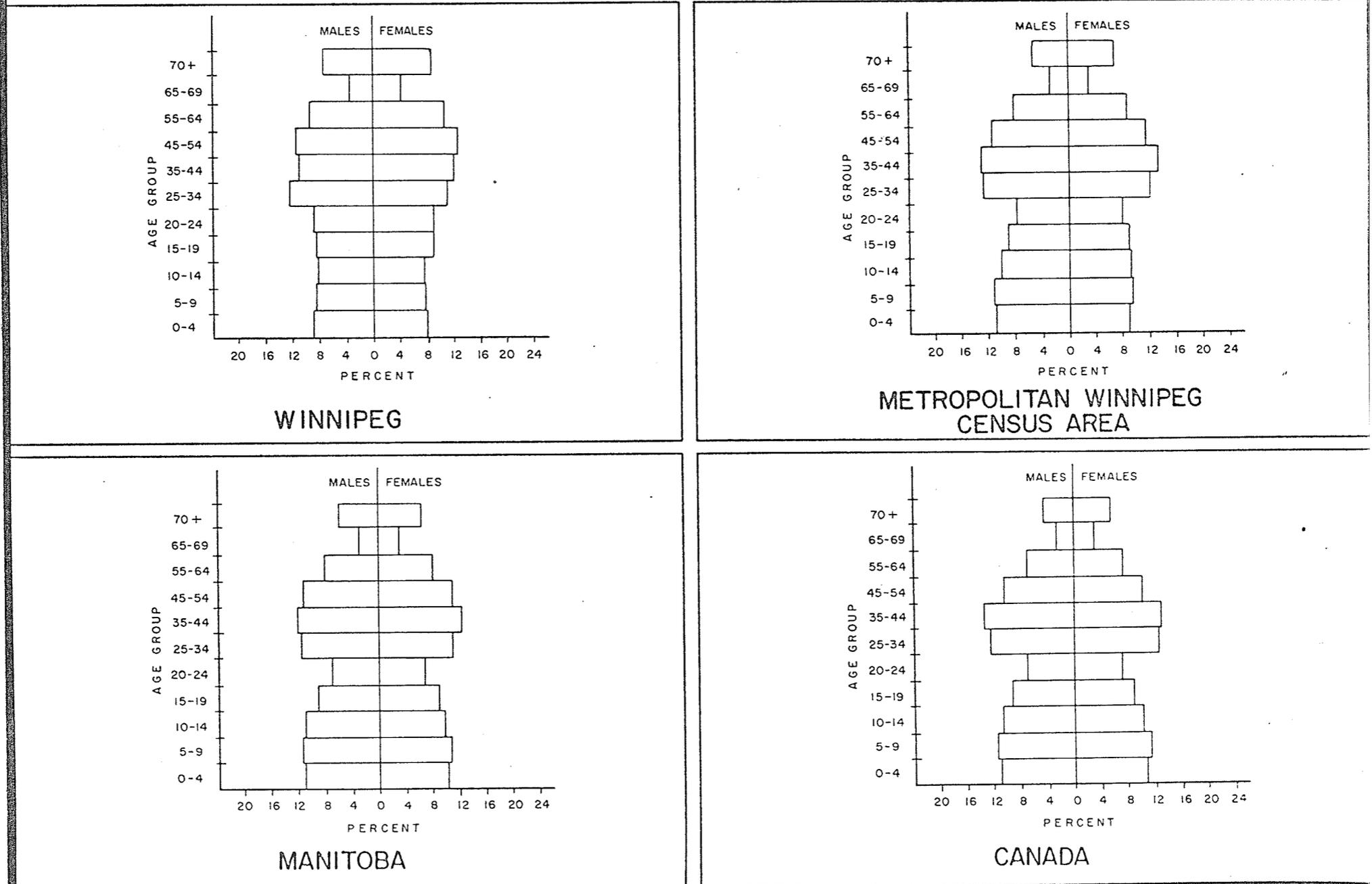


FIGURE 29

Age - Sex Pyramids
Winnipeg, Manitoba
and Canada⁹

increasingly large percentage of males would appear to reflect the hardships borne by women in this frontier-like community.

TABLE 7
AGE GROUP DISTRIBUTION - 1966
(1966 census)

| <u>Age</u> | No. of persons | | % of persons | |
|------------|----------------|-----------------------|--------------|-----------------------|
| | <u>Town</u> | <u>Fort Churchill</u> | <u>Town</u> | <u>Fort Churchill</u> |
| 0 - 4 | 316 | 216 | 18.7 | 14.9 |
| 5 - 9 | 210 | 234 | 12.4 | 16.2 |
| 10 - 14 | 144 | 150 | 8.5 | 18.7 |
| 15 - 19 | 160 | 127 | 9.6 | 9.1 |
| 20 - 24 | 158 | 115 | 9.3 | 7.4 |
| 25 - 34 | 296 | 214 | 17.5 | 14.7 |
| 35 - 44 | 186 | 217 | 11.0 | 14.5 |
| 45 - 54 | 122 | 122 | 7.2 | 8.3 |
| 55 - 64 | 63 | 52 | 3.8 | 3.4 |
| 65 - 69 | 18 | 7 | 1.6 | 0.5 |
| 70+ | 16 | 4 | .9 | 0.3 |
| | 1689 | 1558 | 100.0 | 100.0 |

TABLE 8

POPULATION DISTRIBUTION BY AGE GROUP AND SEX - 1966
(1966 census)

| <u>Age Group</u> | <u>No. of Males & Females</u> | | | | <u>Males as % of Total Population</u> | | <u>Females as % of Total Population</u> | |
|------------------|-----------------------------------|----------|-----------------------|----------|---------------------------------------|-----------------------|---|-----------------------|
| | <u>Town</u> | | <u>Fort Churchill</u> | | <u>Town</u> | <u>Fort Churchill</u> | <u>Town</u> | <u>Fort Churchill</u> |
| | <u>M</u> | <u>F</u> | <u>M</u> | <u>F</u> | | | | |
| 0 - 4 | 154 | 162 | 118 | 98 | 9.1 | 7.6 | 5.6 | 6.3 |
| 5 - 9 | 103 | 107 | 130 | 104 | 6.1 | 8.3 | 6.3 | 6.7 |
| 10 - 14 | 73 | 71 | 73 | 77 | 4.3 | 4.7 | 4.3 | 4.9 |
| 15 - 19 | 87 | 73 | 73 | 54 | 5.1 | 4.7 | 4.3 | 3.4 |
| 20 - 24 | 79 | 79 | 57 | 64 | 4.7 | 3.3 | 4.7 | 4.1 |
| 25 - 34 | 166 | 130 | 168 | 146 | 9.8 | 10.7 | 7.7 | 9.4 |
| 35 - 44 | 102 | 84 | 130 | 87 | 6.0 | 8.3 | 5.0 | 5.6 |
| 45 - 54 | 68 | 54 | 71 | 51 | 4.0 | 4.6 | 3.2 | 3.3 |
| 55 - 64 | 47 | 16 | 40 | 12 | 2.8 | 2.6 | 0.9 | 0.8 |
| 65 - 69 | 47 | 16 | 5 | 2 | 0.9 | 0.3 | 0.2 | 0.1 |
| 70+ | 10 | 6 | 0 | 4 | 0.6 | - | 0.4 | 0.3 |
| | 904 | 785 | 859 | 699 | 53.5 | 55.1 | 46.5 | 44.9 |

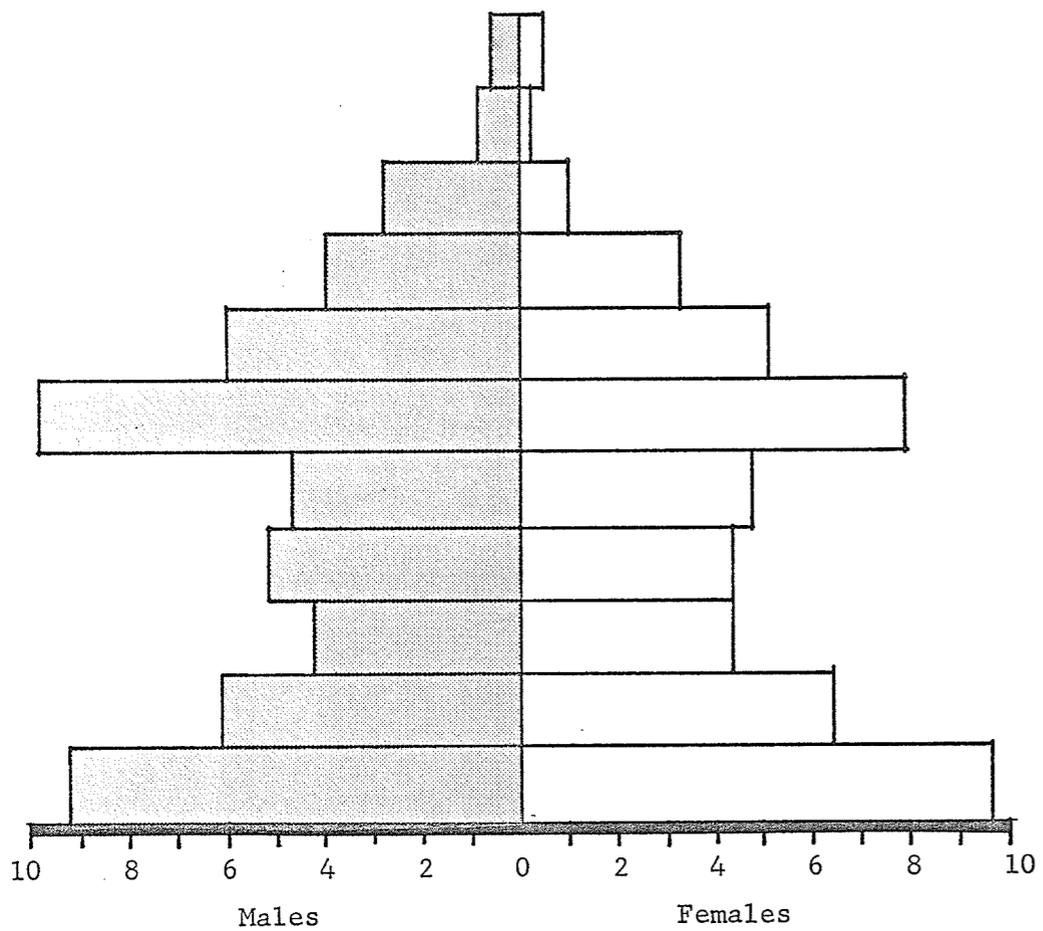
AGE

The dependency ratio of Fort Churchill (64.7) is approximately the same as that for Winnipeg (63.0) in 1966.¹⁰ The Town of Churchill had a dependency ratio of 71.5 in 1966 reflecting the relationship between the age composition of the population and economic activity. The very large dependency ratio for the Churchill area ($\frac{64.7 + 71.5}{2} = 68.1$)¹¹ indicates the increased financial burden the working group must bear. The Churchill area population is distinguished by its high birth rates and high death rate in the youngest age group, notably the female group.

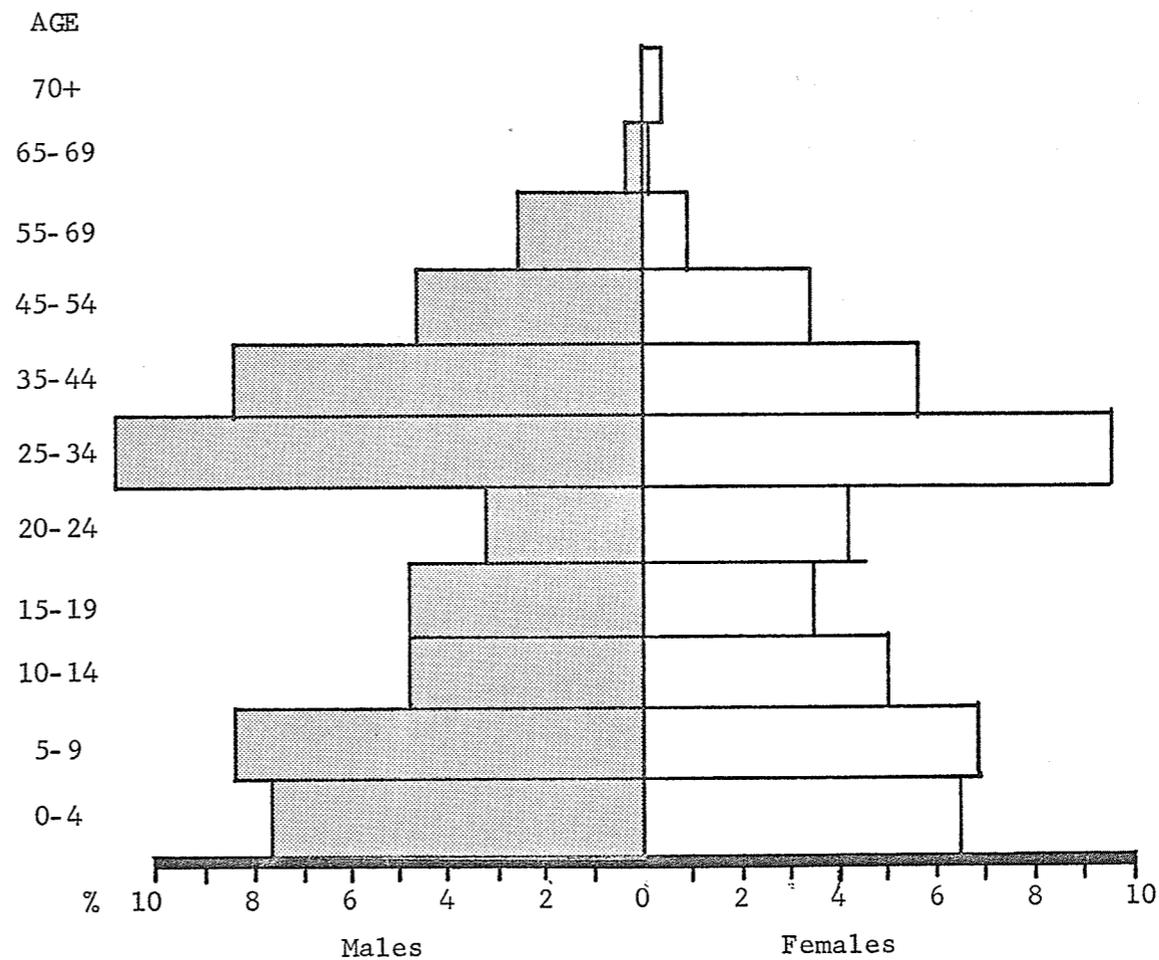
AGE-SEX PYRAMID

The age-sex pyramids shown in figure 30 for the Town of Churchill and Fort Churchill indicate the population distribution by age groups. In each case the 20 - 24 age group and the 65 and over age group are quite small. This suggests, that in the early forties the rate of natural increase and immigration was very low and the harshness of the area did not attract older people. The older population either died at an earlier age or out-migrated. Both communities have a large economically active group and a good potential of young people for future growth should the economy of the area grow sufficiently to absorb them.

AGE - SEX PYRAMID



Town of Churchill



Fort Churchill

FIGURE 30
Churchill Area
Age - Sex Pyramids (1966)

COMPONENTS OF POPULATION CHANGE

Aside from influences of natural increase, the balance between births and deaths during a specified period, and net migration, the greatest single component of population change for the Churchill area will result from the phasing out of Fort Churchill. The results of this activity will be discussed later leading to a projected future population.

MARITAL STATUS

Analysis of the marital status of the population indicates that in 1966 there were 683 married men and 671 married women. The difference in the number is presumably due to the fact that some of the married men are living away from their wives. Table 9 shows the marital status of the population.

TABLE 9

POPULATION BY MARITAL STATUS AND SEX*
(1966 census)

| <u>Enumeration Area</u> | <u>Total</u> | <u>Single</u> | | <u>Single Under 15</u> | | | <u>Single Over 15</u> | | | <u>Married</u> | | | <u>Aggregate Total</u> | | |
|-------------------------|--------------|---------------|----------|------------------------|----------|----------|-----------------------|----------|----------|----------------|----------|----------|------------------------|----------|--------------|
| | | <u>M</u> | <u>F</u> | <u>Total</u> | <u>M</u> | <u>F</u> | <u>Total</u> | <u>M</u> | <u>F</u> | <u>Total</u> | <u>M</u> | <u>F</u> | <u>M</u> | <u>F</u> | <u>Total</u> |
| Town of Churchill | 969 | 541 | 428 | 670 | 330 | 340 | 299 | 211 | 88 | 720 | 363 | 357 | 904 | 785 | 1689 |
| Fort Churchill | 924 | 539 | 385 | 600 | 321 | 279 | 324 | 218 | 106 | 634 | 320 | 314 | 859 | 699 | 1558 |

* Married includes divorced and widowed

TABLE 10

POPULATION BY MARITAL STATUS AND SEX PERCENTAGE DISTRIBUTION
(1966 census)

| <u>Enumeration Area</u> | <u>Total</u> | <u>Single</u> | | <u>Single Under 15</u> | | | <u>Single Over 15</u> | | | <u>Married</u> | | | <u>Aggregate Total</u> | | |
|-------------------------|--------------|---------------|----------|------------------------|----------|----------|-----------------------|----------|----------|----------------|----------|----------|------------------------|----------|--------------|
| | | <u>M</u> | <u>F</u> | <u>Total</u> | <u>M</u> | <u>F</u> | <u>Total</u> | <u>M</u> | <u>F</u> | <u>Total</u> | <u>M</u> | <u>F</u> | <u>M</u> | <u>F</u> | <u>Total</u> |
| Town of Churchill | 100 | 55.8 | 44.2 | 100 | 49.3 | 50.7 | 100 | 70.6 | 29.4 | 100 | 50.4 | 49.6 | | | |
| As % of Aggregate | 57.4 | 59.8 | 54.5 | 39.7 | | | 17.7 | | | 42.6 | 40.2 | 45.5 | 100 | 100 | 100 |
| Fort Churchill | 100 | 58.3 | 41.7 | 100 | 53.5 | 46.5 | 100 | 67.3 | 32.7 | 100 | 50.4 | 49.6 | | | |
| As % of Aggregate | 59.3 | 62.8 | 55.1 | 38.5 | | | 20.8 | | | 40.7 | 37.2 | 44.9 | 100 | 100 | 100 |

ETHNIC ORIGINS

The population of the Churchill area is of mixed ethnic origins. The largest single group has its origins in the United Kingdom. Native people (Indian/Eskimo) form the second largest group, followed by those with French and Scandinavian background. Table 11 shows the ethnic composition of the Churchill area for 1961.

TABLE 11

POPULATION BY ETHNIC GROUP
(1961 census)

| <u>Ethnic Group</u> | <u>No. of Persons</u> | <u>% of Total Population</u> |
|------------------------|-----------------------|------------------------------|
| British | 1958 | 49.8 |
| French | 484 | 12.3 |
| German | 167 | 4.2 |
| Italian | 17 | 0.4 |
| Jewish | 3 | 0.1 |
| Netherlands | 69 | 1.8 |
| Polish | 62 | 1.6 |
| Russian | 18 | 0.5 |
| Scandinavian | 193 | 4.9 |
| Ukranian | 160 | 4.1 |
| Other European | 92 | 2.3 |
| Asiatic | 8 | 0.2 |
| Native (Indian/Eskimo) | 589 | 15.0 |
| Other Not Stated | 112 | 2.8 |
| | 4,110 | 100.0 |

POPULATION PROJECTION¹²

Under normal conditions, the population projection would be obtained by utilizing one of many techniques common for population studies, such as the cohort survival method. However, due to the many unpredictable factors such as transiency, it was decided to base the population projection on anticipated variations in the basic/non-basic sectors of the labor force. Figure 31 shows the sectors of the labor force as they existed in 1961. Substantial variations are contemplated as a result of phasing out Fort Churchill.

For this approach - the basic/non-basic approach - the available data related to employment provided a relatively accurate means for determining the future of a population consisting of a high proportion of residents who are in Churchill on a term basis.

BASIC/NON-BASIC EMPLOYMENT RATIO¹³

The total employment of the Churchill area has been represented under two separate tables. This was necessary not only to emphasize the effect of phasing out Fort Churchill but also to describe the projected employment for the remaining employment centre, the Town of Churchill. The combined totals of table 12 and table 13 show a total labor force of 1257 for the Churchill

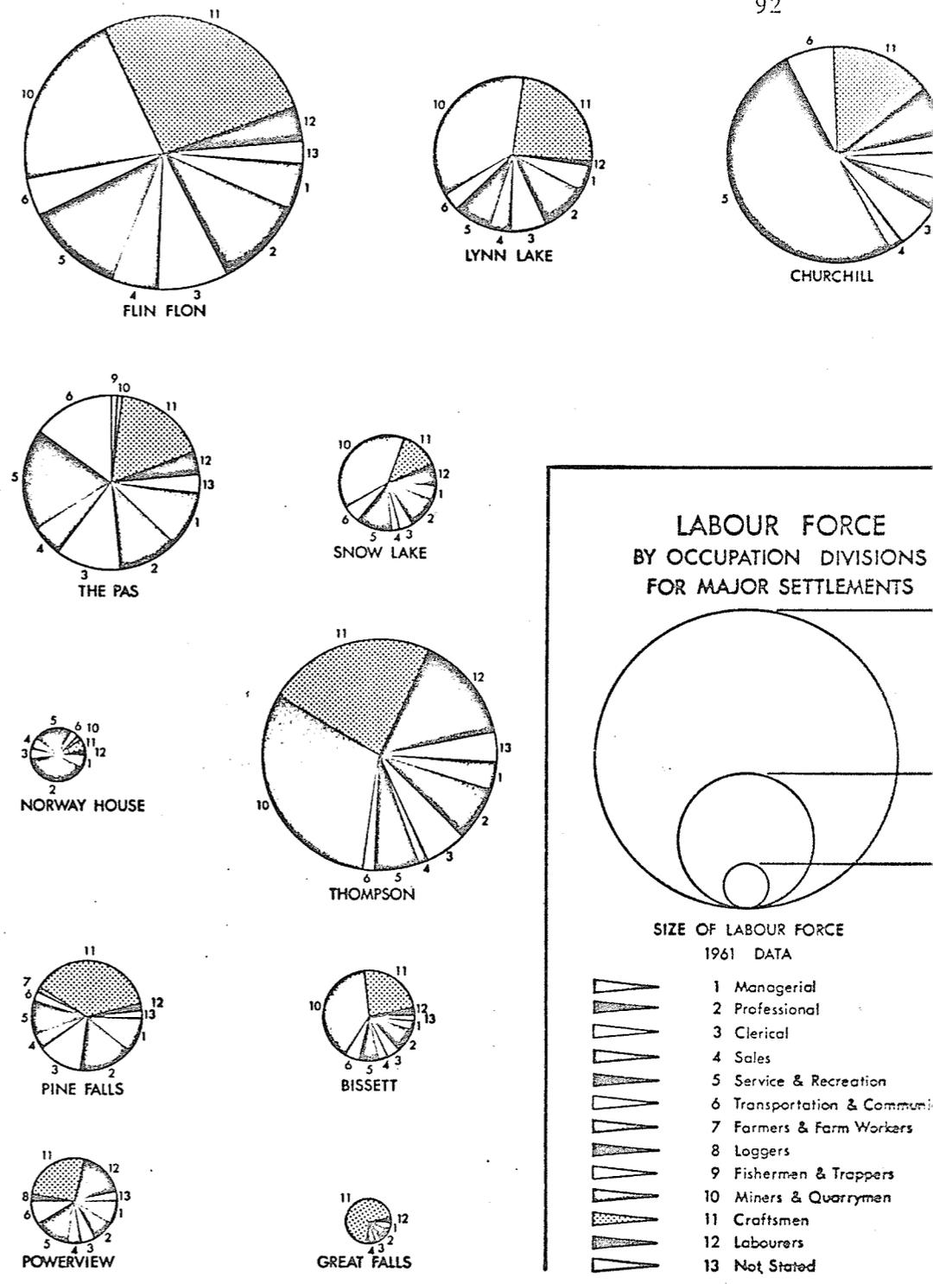


FIGURE 31
Labour Force by Occupation Divisions for Northern Manitoba Settlements¹⁴

area in 1970. For 1975 the combined total is 725, a 57.5% decrease, resulting from the phasing out of Fort Churchill, the reduction in the Research Range activities¹⁵ and the move of the Northern Affairs Branch (vocational school, administration) to the Northwest Territories.¹⁶ Table 12 shows that the phasing out program will eliminate employment in Fort Churchill by 1975.

TABLE 12

FORT CHURCHILL: PROJECTED EMPLOYMENT*

| | 1970 | 1975 | 1980 | 1985 | 1990 |
|-------------------------------------|-------|------|------|------|------|
| Basic employment | 365 | -- | -- | -- | -- |
| Basic/non-basic employment ratio | 1:1.3 | -- | -- | -- | -- |
| Non-basic employment | 467 | -- | -- | -- | -- |
| Total employment | 732 | -- | -- | -- | -- |

* including 159 from the Town.

Of the 732 positions noted for 1970 in Table 12, only 97 "basic" employees will remain following the closing of Fort Churchill. The projected employment for Churchill is shown in Table 13.

TABLE 13

TOWN OF CHURCHILL: PROJECTED EMPLOYMENT*

| | 1970 | 1975 | 1980 | 1985 | 1990 |
|----------------------------|-------|--------|------|-------|-------|
| Basic employment | 292 | 389 | 427 | 469 | 516 |
| Basic/non-basic employment | 1:0.8 | 1:0.87 | 1:1 | 1:1.2 | 1:1.3 |
| Non-basic employment | 234 | 336 | 427 | 562 | 672 |
| Total employment | 525 | 725 | 854 | 1031 | 1188 |

* these employment projections do not include seasonal workers.

In Table 13 the basic/non-basic ratio in 1975 results from the effect of incoming "basic" employment of 97 plus a median figure ($\frac{126 + 78}{2}$) for "non-basic" employment. Employment is expected to increase due to increasing activity in the north by government, resource exploitation and development of tourist potential. In line with current trends to increased proportions of the work force in the service sector, the ratio of basic to non-basic is expected to increase steadily.

Fort Churchill exhibits the unusual characteristic of having 100% employment. Of the total population approximately 46% are employed. A much lower percentage exists for the population of the Town due to the large number of unemployed. It has been assumed that the large unemployed group

in combination with a high dependency ratio would result in about 25% of the Town's population being employed. When a more detailed population survey is carried out this figure may be shown to have been too optimistic.

PROJECTED POPULATION

I have assumed that since 46% of the 1970 Fort Churchill population and 25% of the Town population was employed, a possible proportion of future employment would be approximately 36%. The low figure is due in part to the large unemployed native population and the high dependency ratio noted in an earlier section. This percentage is expected to be maintained for the duration of the study period due to the social conditions of the area and is the basis for the projected population shown in table 14.

TABLE 14

TOWN OF CHURCHILL: PROJECTED POPULATION¹⁷

| <u>Year</u> | <u>Estimated Population*</u> |
|-------------|------------------------------|
| 1975 | 2000 |
| 1980 | 2372 |
| 1985 | 2880 |
| 1990 | 3300 |

* including: Dene' Village, The Flats, Jockville

This population projection does not consider in-and-out-migration, changes in the composition of the population, birth rate, sex distribution or increased participation in the labor force by native people.

FOOTNOTES:

1. Statement by R. Stromberg, personal interview, November 4, 1969.
2. Dominion Bureau of Statistics, Census Division and the files of the Department of Public Works of Canada, Manitoba District were the major source for the population data contained in the tables 5 - 14 of this Chapter.
3. Margaret A. Carroll, "Defence Forces Operations In Hudson Bay", Science, History and Hudson Bay, eds. C. S. Beals and D. A. Shenstone, Vol. II (Ottawa: Queen's Printer, 1968), p.903.
4. J. H. Meek, "Aurora and Ionosphere", Science, History and Hudson Bay, eds. C. S. Beals and D. A. Shenstone, Vol. II (Ottawa: Queen's Printer, 1968), p.735.
5. Carroll, op. cit., p.930.
6. Ibid., p.931.
7. Ibid.
8. Ibid., p.910.
9. The Metropolitan Corporation of Greater Winnipeg, "Metropolitan Winnipeg Population Report" (Winnipeg: Metropolitan Corporation of Greater Winnipeg, Planning Division, December, 1968), p.31.
10. Ibid., pp.27 - 29.
11. The dependency ratio for Churchill was obtained by using the method described by the "Metropolitan Winnipeg Population Report", p.29. The dependency ratio for the Churchill area was derived by the following formula:

$$\text{dependency ratio} = \frac{(\text{pop. aged } 0 - 14) + (\text{pop. } 65+)}{(\text{pop. aged } 15-64)} \times 100$$

12. The method used to obtain the population projection was also used by the Murray V. Jones study pp.66 - 67. Although the results obtained in this thesis differ from the Jones report, the application of similar methods provides a basis for comparison between 1967 and 1970.
13. The basic/non-basic method for obtaining an employment projection for the Churchill Area was used by the Murray V. Jones Report pp.61 - 67.
14. Arthur V. Mauro, Province of Manitoba Royal Commission Inquiry Into Northern Transportation (Winnipeg: Queen's Printer for the Province of Manitoba, 1969), p.89.
15. Winnipeg Free Press, October 23, 1969, p.24, col. 1.
16. Winnipeg Free Press, February 14, 1969, p.1, col. 1.
17. The method used to obtain the projected population is similar to that used by the Murray V. Jones Report, p.67.

CHAPTER IV

FORT CHURCHILL: PHASING OUT

The Churchill area has a history which has reinforced and justified the climate of uncertainty, resulting in the shabbiness of the Town. First, the Port has never recovered from the initial setback of the 1930's, the United States Air Force moved out (1963); then the Canadian Army left the area (1964); next the Royal Canadian Navy (1968). Now the Research Range operations will cease or will be sharply reduced, and the Northern Affairs Branch of the Department of Indian Affairs and Northern Development (D.I.A.N.D.), will relocate both administration and educational activities in the Northwest Territories, in both cases, the dates are indefinite. The continued decline in Federal activity in the Churchill area has resulted in a substantial decrease in population since 1966 (table 5).

Closure of the Range will have a drastic effect on the population. One report suggested that the result would be a reduction by one half in projected population.¹ As no significant industrial or commercial development or resource is foreseen, and since the level of port activity is not expected to rise materially, planning must be based solely on the continuing programs of the National Harbours Board, base and servicing operations related to

Indian Affairs and Northern Development and the support services of Post Office, R.C.M.P., Health and Welfare, etc. The Federal government has virtually created a single-industry town as a result of its activities in the area. Because of this situation the Federal government has a responsibility to Churchill. To fulfill this responsibility, it must assist in creating a viable community, capable of self-support following decline in Federal activity.

Proposed withdrawals of Federal departments and agencies will be accompanied by an associated decline in the demand for housing, services and supporting staff in Fort Churchill, heading ultimately to the closing of Fort Churchill. The responsibility of the Federal government to Churchill must be recognized through a planned phase-out with the integration of remaining facilities of Fort Churchill with the town, forming a single community. This chapter will outline a method of closing Fort Churchill on the basis of data to be presented. The suggested proposal will be a guide to phasing out Fort Churchill and will indicate appropriate planning action necessary in the Townsite.

EXISTING LAND USE PATTERN

Fort Churchill is the result of Army planning and construction. It is representative of similar military establishments elsewhere in Canada,

with the exception of the connecting corridors. The Fort Churchill area contains about 10,456 acres; however, the buildings are confined to an area of approximately 110 acres. There are 152 buildings in this area, with an extremely wide variety of land uses, ranging from multiple family dwellings to institutional, commercial, recreational and industrial uses. Table 15 shows an analysis of the various types of land use. Map 1 shows the distribution of land use.

TABLE 15²

EXISTING LAND USE: FORT CHURCHILL

| Land Use | Square Feet* | Acreage | % |
|---|--------------|---------|-------|
| multiple residential (married quarters) | 481,794 | 11.0 | 31.0 |
| single residential (single quarters) | 147,910 | 3.4 | 9.5 |
| intensive residential (transient quarters) | 61,486 | 1.4 | 3.8 |
| institutional | 127,033 | 3.0 | 8.4 |
| commercial/recreational | 140,322 | 3.2 | 9.0 |
| public uses | 188,892 | 4.4 | 12.3 |
| industrial | 404,648 | 9.3 | 26.0 |
| total | 1,552,085 | 35.7 | 100.0 |

* gross area of actual ground coverage

From the data of Table 15, it becomes evident that commercial and recreational facilities are provided proportionately in excess of normal for residential use. The same applies for public, institutional and office uses. Recreation facilities are used by the residents of the entire Churchill area, while at the same time Fort residents use facilities in Town. In general, however, Fort facilities are much superior. A joint recreational association of Fort Churchill and the Town - The Churchill Community Recreation Association - is in existence. This organization is in charge of directing the use of all structures in the Fort and the Town devoted to recreation, and organizes various activities. The existence of this organization constitutes one step toward the goal - amalgamation of the two communities.

BUILDING CONDITION

The map of Building Condition shows the classification of all Fort Churchill structures in three categories: "good", "fair", and "poor".

When detailed decisions about the phasing-out stages will have to be made, the condition of structures will constitute a further criterion for determining these stages. Buildings in poor and fair condition will - if other considerations do not conflict - be phased out first, equivalent structures being constructed, if required, in the townsite.

It should be noted that the condition of the hospital is classified as "fair". In view of its function, this classification is all the more serious, suggesting immediate replacement.

Many of the married quarters, the quadruplexes - notably all those in the J and A areas - are in good condition. The E and G row housing is in "poor" condition. A-26 and A-27 are noted as being in fair condition.

FEASIBILITY OF PHASING OUT EXISTING UTILITIES

An important consideration, for determining the exact stages in which phasing-out is to proceed, is the feasibility of supplying services to buildings that remain behind after others have been shut down. Detailed analysis of the services and the costs involved in cutting services to certain parts of the Fort is beyond the scope of this study, although a preliminary and general indication of engineering feasibility will be given, providing a basis for a realistic phasing out programme related to services.

At present, Fort Churchill is supplied with sewer, water and central heat, all running in utilidors, with the piped steam heat being used to keep the water and sewer pipes from freezing. Wherever possible the utilidor runs along corridors connecting buildings, thus being further protected from the cold.

It should be noted that the L-5 warehouse, the Laundry and the A area housing have their heat supplied from an independent heating unit located at the L-5 warehouse. The Steam Heating Plant (D-15) has, at present, eight boilers. Hence, it should be possible to cut the amount of heat generated gradually, one boiler at a time, reducing it finally to one eighth the present production.

The water loops and sewer services are so layed out that any major area of the Fort could be cut off, with only minor adjustments being necessary in order to avoid jeopardizing service in remaining areas. The above holds for sewer services as well. The Fort is supplied with two outfalls now pouring raw sewage into Hudson Bay: the major outfall northeast of the Fort and a smaller outfall servicing the L-5 - A area complex alone. Thus it can be seen that, in terms of sewer services as well as heating and water services, the L-5 - A area complex can be serviced independently.

The water supply for the Churchill area is, at present, drawn from the Goose Creek intake approximately eight miles up the Churchill River. It is suggested that this facility, including all other municipal-type services, be transferred to provincial authorities, and that the Local Government District boundaries be extended to include the water intake and any remaining facilities

at Fort Churchill. Although beyond the scope of this study, an integral part of the phasing out programme will be the immediate start of negotiations about grants-in-lieu of taxes. Associated negotiations related to the turning over of municipal functions to provincial authorities will be that of personnel arrangements. The transfer of the Electrical Generating Plant from Public Works to Manitoba Hydro two years ago should serve as an example.

PLANNING OUTLINE FOR INTEGRATION OF THE CHURCHILL AREA

If the goal of integrating the two communities - the Town of Churchill and Fort Churchill - is to be realized, not only must Fort Churchill be phased out successfully, but the Fort's former population must be successfully integrated into the townsite - i.e. the needs of both the incoming Fort population and the resident Town population must be met. This section will focus on the existing populations of both the Fort and the Town, and will indicate the impact which the phasing out of Fort Churchill and the associated reduction of some federal operations may have on the population (the employment, housing and schooling situation). On the basis of this information, the following chapters will then proceed to consider the optimum methods by which the incoming population of federal employees may be housed in the Town.

Detailed architectural and engineering specifications are beyond this study; however, the designation of areas for the construction of housing, recreational facilities, schools, the hospital, etc., will be touched upon in the concluding chapter.

NEED FOR SOCIOLOGICAL ANALYSIS

The data presently available on the populations of Fort Churchill and the Town of Churchill is grossly inadequate for proper planning. As planning for the integration of the two communities reaches more advanced stages, following implementation of action recommended in this thesis, it will be necessary to conduct a sociological study to determine the criteria necessary to create a satisfying, attractive and socially healthy community environment. The scope and importance of this particular aspect will require a separate study with assistance by a sociologist to conduct the field work, to prepare a social planning program and to function as a social critic of the housing and community plan. Planning is for the people and in this instance it is planning for the people residing in Churchill. They must be involved in the planning process. A proper sociological study and analysis of the problems of the area requires an investigation beyond the scope of this thesis. Therefore, proposals for specific kinds of community facilities proposed in

the following sections are to be viewed only as possibilities to be confirmed, rejected or altered by the sociological analysis.

BASIS FOR PLANNING

As noted above, data presently available on the Churchill area population is inadequate. For this thesis, data on the Fort Churchill population and employment was obtained from the 1966 census and updated by a "file census" carried out in July, 1969. Information on housing was obtained from monthly Public Works reports. Inaccuracy is possible due to the transient characteristic of the Fort population and from the fact that the "file census" was taken during summer, the period of most moving in and out, and the season of annual holidays. Tax rolls and voters' lists were also used to obtain data. However, the fact that approximately half the housing units in the Town are rented and many are owned by absentee landlords, the fact that the voting list includes only employees of voting age, and the frequent uncertainty whether the available data includes employees living in the Flats, Dene Village, Akudlik - all combined to emphasize the need for further studies on population and income characteristics. The information obtained from the "file census" and other sources is deemed adequate for ascertaining the consequences of closing Fort Churchill and for proposing specific courses of action at this stage of the planning process.

IMPACT OF PHASING-OUT ON THE POPULATION

Table 16 is based on the assumption that the operation of the Churchill Research Range will not close completely but will be reduced to a seasonal operation, Northern Affairs Branch of D.I.A.N.D. will move to the Northwest Territories, resulting in a reduction of service staff by Public Works and the Canadian National Institute for the Blind.

TABLE 16

FORT CHURCHILL RESIDENTIAL POPULATION³

| | Number of Persons | | | | | |
|--|------------------------|------|-----------------------|------|-------|-------|
| | in Married Quarters | % | in Single Quarters | % | Total | % |
| Federal (likely to leave Churchill) | 714 | 84.4 | 132 | 15.6 | 846 | 66.6 |
| Federal (likely to remain in Churchill) | 275 | 92.0 | 24 | 8.0 | 299 | 23.6 |
| Provincial to remain | 92 | 75.4 | 30 | 24.6 | 122 | 9.5 |
| | 1,081 | 85.3 | 186 | 14.7 | 1,267 | 100.0 |

Table 16 indicates that, at present, approximately 85% of the population lives in married quarters and will likely prefer similar accommodations when relocated. High density accommodation is also more appropriate for the short term Federal employee unwilling to invest in buying a home.

TRANSIENT CHARACTERISTIC OF THE FORT CHURCHILL POPULATION

The majority of the population currently in Fort Churchill has been there one or two years. A survey⁴ indicated the distribution by length of stay of approximately a 10% sample of the current population. Table 17 indicates the results of that survey.

TABLE 17

LENGTH OF STAY

| <u>Period</u> | <u>%</u> |
|------------------|-----------|
| 6 months or less | 18 |
| 1 - 2 years | 43 |
| 3 - 4 years | 25 |
| 5 years and over | <u>14</u> |
| | 100 |

Due to the constant changes in the Fort's population, more up-to-date information will be required (as part of the population study). The present data, however, should be indicative of the situation that may be expected. In Fort Churchill this transient characteristic is reflected in the vacancy rate of the residential quarters. Residential quarters in Fort Churchill presently constitute:⁵

| | |
|-----------------------|------------------|
| 348 married quarters | (vacancy 11-15%) |
| 235 single quarters | (vacancy 0-26%) |
| 77 transient quarters | (vacancy 0-50%) |

IMPACT OF PHASING OUT: EMPLOYMENT AND HOUSING

The figures presented in this section are intended to serve as a basis for anticipating the numbers of people expected to move and the number of housing units they will require in the Town of Churchill. For this purpose, the ratio between basic and non-basic employment in Fort Churchill will be studied: basic meaning employment in the primary sector, while non-basic includes the agencies present in a service capacity to the primary functions. Table 18 gives figures of occupancy and employment.⁶

TABLE 18⁷

FORT CHURCHILL: EMPLOYMENT - HOUSING

| | No. of Permanent Employees | % | <u>Housing Units</u> | | |
|---------------------|----------------------------------|-------|----------------------|--------|-------|
| | | | Married | Single | Total |
| Basic Agencies | 248 | 34.4 | 152 | 84 | 236 |
| Semi-Basic Agencies | 133 | 18.2 | 52 | 36 | 88 |
| Non-Basic Agencies | 351 | 47.8 | 93 | 63 | 156 |
| Total | 732 | 100.0 | 297 | 183 | 480 |

The above data reveals that, if we include the Federal employees working in the Fort but living in the Town, and by counting half of the semi-basic agencies in the basic and the other half in the non-basic sector, there are 1.3 employees in the service sector for each basic employee.

| | |
|------------------------------------|-----------|
| Basic employment | 248 |
| <u>Half of partially non-basic</u> | <u>66</u> |
| Total basic | 314 |

| | |
|------------------------------------|-----------|
| Non-basic employment | 192 |
| <u>Half of partially non-basic</u> | <u>67</u> |
| Total non-basic | 259 |

| | | |
|------------------------|---|------|
| <u>Total non-basic</u> | = | 0.8* |
|------------------------|---|------|

Total basic

| | | |
|------------------------|---|--------------------|
| <u>Total non-basic</u> | = | <u>418 = 1.3**</u> |
| Total basic | | 314 |

* excluding 159 federal employees residing in the town

** including 159 federal employees residing in the town.

These calculations, although using a different approach, coincide with the basic/non-basic employment ratio determined by the Murray V. Jones

Phase 1 report.⁸ A similar investigation in the Town, at the present time, would result in only 0.8 non-basic employment found for each employee in the basic sector. Consequently, it is likely that following a transfer of services and people from the Fort into the Town, present employment in the non-basic sector will decrease more rapidly than in linear proportion to any possible reduction in the basic sector. This is due to the previously established fact that Fort Churchill is overserviced.

The impact on the Town of Churchill, as a result of the phasing out of Fort Churchill and the reduction of Federal employees, will be a depletion of population. As shown in Table 19, reduction in population will reduce the number of housing units required.

TABLE 19

FEDERAL EMPLOYEES IN THE TOWN OF CHURCHILL*

| <u>Agency</u> | <u>Churchill Area Total Employees</u> | <u>Employees in Town of Churchill</u> | <u>Housing Units Occupied</u> |
|----------------------------|---|---|-----------------------------------|
| Federal (likely to leave) | 658 | 143 | 122 |
| Federal (likely to remain) | 193 | 78 | 67 |
| Provincial | <u>85</u> | <u>15</u> | <u>8</u> |
| Total | 936 | 236 | 197 |

* Appendix F.

Table 19 indicates that the impact could leave 122 housing units vacant in the Town. Some of these families may find employment in the new demand for non-basic services in the Town, estimated to provide about 77 employment opportunities (0.8 ratio). This would still leave a minimum of 40 residential units becoming vacant following the transfer. A check on agencies to remain indicates that approximately 120 employees from the basic sector could arrive at the Town from the Fort.

TABLE 20⁹

ADDITION TO TOWN'S BASIC SECTOR FOLLOWING INTEGRATION

| <u>Department or Agency</u> | <u>No. of Employees</u> |
|--|-------------------------|
| C.R.R. | 10 |
| D.O.T. | 54 |
| N.H.B. | 3 |
| R.C.N. | 6 |
| D.R.T.E. | 1 |
| C.N.T. | 3 |
| Plus: | |
| Half of "partially non-basic" excluding D.I.A.N.D.* | 43 |
| | <hr/> 100 |

* D.I.A.N.D. assumed to leave the Churchill area.

Since 23 Pan American Airline employees presently living in the Town are scheduled to leave (with closure of the Range), the net increase to the Town's basic sector of employment is 97. By application of the 0.8 (present low) non-basic ratio, the total estimated increase in employment opportunities would be 78; application of the 1.3 factor would indicate 126 opportunities. The possible housing requirements are studied in Table 21.¹⁰

TABLE 21

TOWN OF CHURCHILL: ESTIMATED GOVERNMENT HOUSING REQUIREMENTS

| | <u>Married Quarters</u> | <u>Single</u> | <u>Total No. of Units</u> |
|---------------------|-------------------------|---------------|---------------------------|
| Federal (uncertain) | 14 | 8 | 22 |
| Federal (certain) | 66 | 19 | 85 |
| Total (Federal) | 80 | 27 | 107 |
| Provincial | 34 | 32 | 66 |
| Total | 114 | 59 | 173 |

An analysis of Table 21 indicates a total of 173 dwelling units will be required following the final stages of phasing out Fort Churchill. Of the 173 units, Federal employees will require 107 and provincial employees will require 66.

Based on present data and assuming 2/3 of the positions available are filled by the Town's residents - $\frac{2}{3} \times 78 = 52$
 $\frac{2}{3} \times 126 = 84$

70 units may be vacated (122 - 52) - low estimate

38 units may be vacated (122 - 84) - high estimate

Both figures constitute a significant number of the 271 housing units in the Town. Table 21 estimates a total requirement of 173 housing units (114 married, 59 single), will be necessary in the Town. However, due to the substandard quality of the housing in the Town, existing housing could not be considered suitable for relocated Fort residents. Therefore, renewal of a substantial segment of the Town will be necessary.

FORT CHURCHILL POPULATION AND FAMILY SIZE¹¹

The distribution of families by number of persons will become valuable information for determining the number of residential units of various sizes that must be available in the Town to accommodate that portion of the Fort's population that is likely to move to the Town. Prior to the implementation of the individual stages of development, reference to updated population studies will be necessary. For the present, planning will be based on information noted in Table 22 and is used for determining housing types.

TABLE 22

FORT CHURCHILL: FAMILIES BY SIZE

| | Persons in the Family | | | | Total | Average | Total No. of People |
|------------------------------|-----------------------|------|------|--------|-------|---------|------------------------|
| | 2-3 | 4-5 | 6-7 | over 7 | | | |
| Federal, likely to leave | 92 | 72 | 20 | 5 | 189 | 3.73 | 707 |
| % | 48.6 | 38.0 | 10.6 | 2.8 | | | |
| Federal, likely to remain | 37 | 25 | 11 | -- | 73 | 3.72 | 272 |
| % | 50.4 | 34.2 | 15.4 | -- | | | |
| Provincial | 3 | 10 | 2 | 1 | 16 | 4.49 | 72 |
| % | 18.7 | 62.6 | 12.5 | 6.2 | | | |
| Private | 6 | 1 | -- | -- | 7 | 2.72 | 19 |
| % | 85.5 | 14.5 | | | | | |
| Total | 138 | 108 | 33 | 6 | 285 | 3.75 | 1070 |
| % | 48.4 | 38.0 | 11.6 | 2.0 | | | |

In Table 22 the distribution of families residing in Fort Churchill by their size is shown. It will be noted that the average family size is currently 3.75, the majority of families having only two members; the next most frequent size is four persons. It may be concluded from the above data that the

average family size requiring new accommodation in the Town is 3.75. Since these families are used to high densities in the Fort, it is presumed they will still prefer such accommodation. This is suggested for the Town for economic reasons as well.

SCHOOL POPULATION OF THE CHURCHILL AREA

To assist in the planning for future school requirements, Table 23 represents the results of a survey conducted in the Churchill area studying school-age population of Federal employees.

TABLE 23¹²

CHURCHILL AREA: FEDERAL SCHOOL POPULATION

| Department or Agency | 0-4 | 5-9 | 10-14 | 14-18 | 19-20 | Specified Total | Unspecified |
|--------------------------|------|------|-------|------------|----------|--------------------|-------------|
| Likely to leave | 118 | 91 | 71 | 35 | 9 | 324 | - |
| Likely to remain | 60 | 57 | 26 | 13 | 4 | 160 | 7 |
| Total | 178 | 148 | 97 | 48 | 13 | 484 | 7 |
| % | 36.8 | 30.5 | 20.0 | 10.0 | 2.7 | 100 | |
| Male/Female Distribution | | | | 233 48% | - 52% | 251 | |

Of the approximately 600 children in grades Kindergarten to XII in the Fort Churchill schools¹³, approximately 300 are Fort Churchill children of ages 5 to 18 (50%). It is estimated that 100 of these children will remain. Adding one-third of the "leave" category children (66 pupils) and assuming some of the children from the Town (30 - 60 pupils) would also leave following a reduction in Federal activities, the total school population will be approximately 350 pupils following completion of integration of the Churchill area. This would require only 15 teachers.

RECOMMENDATIONS

On the basis of building condition, priority for phasing out should be given to structures in "poor" and "fair" condition. Many of the structures listed as in "good" condition may be left to the last:

- i) The Edinburgh School may be used as a high school for the next several years, even after the major part of the phasing-out programme, since the children attending it are older and may be transported to school. Thus, although it will be necessary in the future to build a high school in the Town, the construction of facilities for elementary and junior high students should have a higher priority.

- ii) The offices may also remain in use to the last since they are in good condition and since (in the case of D.P.W. and N.R.C.) no substantial future requirement for offices is anticipated, no new facilities need be constructed. Public Works will require a small office; however, the existing Federal Building in the townsite can probably accommodate this requirement. National Research Council office functions will be located in one of the Range structures.
- iii) The hospital's useful life is close to its end. Hence, the hospital should be one of the first structures to be closed down with new facilities provided in the Town.
- iv) In determining the phasing out stages for housing, building condition should be a major consideration. Map 6 indicates the proposed staging for the phasing-out of all structures in Fort Churchill. In the married quarters, the two older units (A 26 and A 27) will be phased out first, with the next being the E and G Rows.
- v) In view of the goal to eliminate the disparity between the Town and the Fort, and to achieve the full integration of the two communities, it will be desirable to shift the point of attraction in the Churchill area from the Fort to the Town. Currently it is the amenities of the

Fort in the spheres of recreation, commercial and community facilities, which make living in Fort Churchill so much more attractive than living in the Town. Hence, one basic policy of this plan will be the calling for the phasing out of recreational and community facilities before, or at least concomitantly with, housing. The amenities of Fort Churchill must be shifted to the town as soon as possible. Only thus with the Fort's population become oriented to the Town, a prerequisite for integration. And only thus will the Town become attractive enough for Federal employees to secure their willingness to make it their home.

The housing function should be phased out as follows:

- vi) Preferably, if alternate accommodations in the Town become available, single housing and the transient (hotel) function should be terminated first. The restaurant facilities could be shut down at the same time (providing facilities are available in the Town). Thus, another one of Fort Churchill's amenities would be transferred to the Town.
- vii) The next to follow will be housing for married employees. The employees of these agencies which are not expected to remain in Churchill (C.R.R., D.I.A.N.D., and that portion of the D.P.W. and

C.N.I.B. staff not transferred to Provincial, Municipal or private agencies), should be among the last to leave Fort Churchill.

- viii) The last to close down may be offices, garages and other industrial functions (including the fire department) required for functional safety reasons. Employees will then be commuting, for a limited period of time, between the Town and the Fort, as residents of the Town who now work at the Fort are presently doing in reverse.
- ix) Negotiations with the Provincial, Municipal and private authorities are already underway for the takeover of the various functions as outlined above.¹⁴ It is hoped the recommendations noted here could act as a basis for rational action.
- x) A detailed engineering study must be carried out to determine condition of services, the feasibility of phasing-out in stages, the costs involved, and - on the basis of these, the feasibility of implementing the outlined staging of the various recommendations.
- xi) The phasing-out of Fort Churchill should be planned to be concluded within five years.

IMPLEMENTATION OF PHASING OUT FORT CHURCHILL

In order to assess the proper methods for phasing-out Fort Churchill, a more detailed review will be required, indicating the various departments, agencies and private operations carried on in Fort Churchill. However, for the present, I shall indicate a proposed method for phasing-out Fort Churchill based on the data available. Appendix E shows a brief outline of the various organizations, indicating their function and place of operation. Based on this data, I propose the following outline of the stages.

Because of the nature of the Fort Churchill utilities, with its central heating system in a utilidor with water and sewage lines, it would be impractical to phase-out housing without phasing-out the remainder of the buildings and services, except for those few operations which can carry on independently. The Manitoba Hydro Power Plant and the Manitoba Telephone System will remain in Fort Churchill until the final stage and then move to new facilities in the Town of Churchill. All other activities can be phased-out and those which move to the Town, such as the Post Office and Royal Canadian Mounted Police, will be relocated according to the plan of development for the Town.

PHASE ONE 1970 - 1971

Map 6 shows the various stages of the proposed program for phasing-out Fort Churchill.

Included in the first stage will be all recreational, commercial and community facilities. Some such facilities may remain until later stages, but only if this is necessary to maintain the service lines with the least amount of disruption.

The facilities will be turned over to Crown Assets Disposal Corporation for sale and ultimate demolition or removal. The facilities to be phased out in the first phase include the following:

| <u>Industrial</u> | <u>Commercial/ Recreation</u> | <u>Educational</u> | <u>Medical/Public</u> | <u>Housing</u> |
|-------------------|-----------------------------------|--------------------|-----------------------|----------------|
| D20, 40 | K31, 32 | K29, 30, 35 | C1 - 12 | A27, 26 |
| D18, 28 | H2, 13 | | C15 | J15 to J52 |
| K22, 23 | F8, 13 | | G13 | |
| K20, 21 | C14, D22 | | F31 | |
| K7, K6 | F30 | | | |
| K36, K9 | B17, F31 | | | |
| K13, 14 | | | | |
| B17, G19, 21 | | | | |

Phase one will eliminate 152 dwelling units in the J area and eight dwelling units in A26, A27 for a total of 160 dwelling units, accounting for approximately 592 people (average 3.73 persons/family).

PHASE TWO 1971 - 1972

| <u>Industrial</u> | <u>Commercial/ Recreational</u> | <u>Educational</u> | <u>Public</u> | <u>Housing</u> |
|-------------------|-------------------------------------|--------------------|---------------|----------------|
| H18, 19, 20 | -- | -- | -- | G1 to G12 |
| H8, 9 | -- | -- | -- | E1 to E11 |
| H15, 25 | -- | -- | -- | F32, 33 |

Phase two will eliminate 48 dwelling units in the G area, 44 dwelling units in the E area, and will eliminate approximately fifty percent of Fort Churchill Transient Quarter capacity. All commercial and recreational facilities will have been phased-out.

PHASE THREE 1972 - 1973

| <u>Industrial</u> | <u>Educational</u> | <u>Public</u> | <u>Housing</u> |
|-------------------|--------------------|---------------|----------------|
| D10, 13 | -- | D4, 6 | -- |
| H7, 10, 23 | -- | D2, 3 | -- |
| | | F16 | |

It is anticipated that road maintenance and snow clearing for Fort Churchill will be carried out by equipment based at the Churchill airport, allowing vehicle storage and maintenance facilities to close. No additional housing will be phased out during this period, as housing will be required for Public Works staff and for the staff of other agencies required to maintain Fort Churchill until the final phase.

PHASE FOUR 1973 - 1974

No additional facilities will be closed during this phase. It is anticipated that this period will be required to allow a time contingency for Crown Assets Disposal Corporation to fulfill their obligation to have the phased-out facilities either removed or demolished. This period will also be required to allow the proposed "housing bank" to be developed in the Town.

PHASE FIVE 1974 - 1975

| <u>Industrial</u> | <u>Educational</u> | <u>Public</u> | <u>Housing</u> |
|-------------------|--------------------|---------------|----------------|
| D16, 19 | F4, 5 | E18 | J1 to J14 |
| D14, 15 | F12, 13 | -- | A29 to A33 |
| D1, L9 | D11 | -- | F1 to F14 |

During this final period, all remaining functions will be terminated. The only building which could remain, although under private ownership, would be the railroad siding and warehouse facilities at the L5 complex. The L5 complex has its own heating plant, is connected to water and has direct access to a sewer outfall. Thus this facility is the only one which could possibly remain, following removal of all other buildings and services. During this period, any remaining concrete foundations would be removed and the gravel base would be smoothed out, creating a large area which could be landscaped, using rocks and gravel, for use as a park and recreation area.

FOOTNOTES:

1. Murray V. Jones, "Churchill Development Plan, Phase 1" (Toronto: Murray V. Jones and Associates Limited, 1967), pp.60 - 67.
2. Department of Public Works of Canada, Manitoba District.
3. See also Appendix C for identification of Federal Departments likely to remain and for those likely to leave Churchill.
4. Information for table 17 was obtained from the files and records of D.P.W., Manitoba District.
5. D.P.W., Manitoba District.
6. See also Appendix D for basic and non-basic classification of Federal Provincial departments and agencies.
7. All data was obtained from the files and records of D.P.W., Manitoba district.
8. Jones, op. cit., p.66.
9. D.P.W., Manitoba District.
10. Data was obtained from the files and records of D.P.W., Manitoba District.
11. Data used in this section was obtained from the files and records of D.P.W., Manitoba District.
12. D.P.W., Manitoba District.
13. Statement by R. B. Angus, Manager of Operations, Department of Public Works, Edmonton, Alberta, interview, May 4, 1969.
14. The Manitoba Hydro assumed total responsibility for power August, 1968.

CHAPTER V
THE DEVELOPMENT PLAN

NATURE OF THE DEVELOPMENT PLAN FOR CHURCHILL

The foregoing chapters have described the Town of Churchill as it exists today. The reasons for its deterioration can be found in the historical origins and the development of the area. Unless appropriate measures are taken, Churchill will continue to lose both population and industry and ultimately decline into a condition of general physical and social deterioration. The question may be raised as to why special measures should be taken rather than simply allow Churchill to evolve towards its own social and economic destiny.

The answer to this question lies in the welfare of the individuals working in the area as well as with the interests of Manitoba as a whole. Aside from the fact noted in the introductory statement, that Canadians are a northern people destined to even greater ties with their northern regions, Churchill occupies an important position geographically, socially and economically. The future of Manitoba is intimately bound up with the future of Churchill. The future of Churchill is dependent on acceptance and implementation of a plan of development and renewal. A program of renewal for Churchill should be a deliberate attempt to rebuild the physical structure

in order to raise Churchill from what it was in the early 1930's and remains today:

"a decrepit and lacklustre village that survives largely through government bounty and through a few small scale opportunist activities carried on by a few hardy individuals."¹

Comparable northern ports in the U.S.S.R. have become thriving cities while Churchill barely staggers on towards its hazy future.

Clearly, a program of renewal as the major part of the development plan for Churchill should be a first step in a conscious and deliberate effort to alter thinking about northern development and our approach to economic methods.

The elements of such a renewal program for Churchill may be discerned in its existing condition and the desire to improve the quality of life in Churchill. Most of the existing land uses, industrial, commercial, residential, are housed in substandard structures served by a street system inappropriate to the climatic setting: it is these which must be changed. It follows that an important objective must be the reconstruction of the physical environment to provide modern and appropriate accommodation for the activities which may be attracted into the area in the future. But physical reconstruction alone cannot create all the necessary conditions conducive to the improvement of the quality of life. To realize those conditions fully, it will also be

necessary to rebuild the existing social conditions. The rebuilding of these two sets of conditions must proceed as complementary and parallel activities in a program of integrated reconstruction. As such, the comprehensive nature of the renewal program will touch upon many elements. Elements included in such a comprehensive scheme are housing, including not only the improvement of the housing conditions but the creation of higher housing densities; the removal of business and industry from their present locations where they are incompatible with surrounding uses; and the traffic and street system, including the opening of new streets and the closing of existing streets where necessary. Among the social conditions that must be dealt with are such items as education and training programs, employment opportunity, rehabilitation, counselling and support programs related to northern problems in the area of social welfare.

HOUSING AS AN ELEMENT OF THE DEVELOPMENT PLAN

At present there are 271 residential structures in Churchill, containing a total of 317 dwelling units (Table 25)². Some of these are in combination with other uses such as 2nd floor dwellings over ground floor retail stores; some of them are multiple family buildings converted from what were formerly large single family dwellings. There is extensive residential blight

throughout the entire area, and in general terms, it is at its worst in those areas not serviced with sewer and water, and in the two squatter communities. The nature and role of housing as a component of the development plan is of great importance, not only because it will affect the basic social structure of the area, but also because it can have a profound influence in attracting industry and population, thus increasing the economic base.

RENEWAL AS AN ELEMENT OF THE DEVELOPMENT PLAN

Early planning studies for Churchill recommended relocation of the Town because of its exposed location and the need to create a more suitable urban community way of life.³ Later studies recommended maintaining the present location but emphasized the necessity of implementing renewal of a significant part of the Town. As noted earlier, the Federal government has initiated action by assuming full financial responsibility for the cost of installation of a sewer and water system for part of the Town (figure 19). This major commitment combined with the expressed desires of the population to maintain the present townsite location, forms the basis for this thesis and the following proposal to renew the Town of Churchill at its present location. The proposed plan for renewal will explore existing conditions, describe the elements necessary in a renewal scheme and conclude with the

proposed plan of development combining renewal and new development.

Previous chapters have touched upon some of the factors contributing to the substandard conditions existing in the Town of Churchill. As well, many planning studies of the Churchill area have provided a detailed evaluation which has served as the basis for specific recommendations made in this thesis. Therefore, I shall present only a brief description of the existing conditions in the Town, prior to outlining the plan of renewal and development.

EXISTING LAND USE

The Town of Churchill comprises 22 blocks containing approximately 120 acres. At present, there are 340 buildings, not including the squatter communities, with 317 dwelling units (not including 18 trailers). This total represents a decrease of 8% from 1966, and is also approximately proportionate to the estimated percentage decrease in population (1966-1970). Table 24 shows an analysis of the various types of existing land use and Map 7 shows the distribution of such uses.

TABLE 24⁴

EXISTING LAND USE

| | |
|---|-------------|
| Area of present surveyed townsite | - 120 acres |
| Area of present surveyed townsite not developed | - 20 acres |
| Built-up area | - 100 acres |
| Total number of lots in present surveyed townsite (av. size 50 x 100) | - 382 |

As noted earlier, the climate does not appear to have been a contributing factor in the layout of the Town, or the relation between houses, commercial services or community institutions.

Most of the Townsite lies on the north side of Kelsey Boulevard with Bernier Street and La Verendrye Avenue forming a loop road around most of its periphery.

The form of the town is linear, apparently a result of its being located on a narrow peninsula. The commercial area is not centrally located but rather forms the western end of the linear form, and is scattered around Hudson Square, a large windswept, open space. Many of the Town's principal institutions are found here: the new school; the Federal Building; the R.C.M.P.; the Legion Hall; a new church: and at the south-west corner of Hudson Square and Kelsey Boulevard, there is the Hudson Bay and S and M

stores. The Town's two hotels are on Kelsey Boulevard between Franklin and Bernier Streets. The rest of the commercial establishments - lumber yards, general store, automobile and personal services - are scattered along either side of Kelsey Boulevard.⁵

Churchill's characteristic dwelling is a single-family detached house, completely inadequate in terms of design with respect to the climate. Table 25 shows an analysis of the various types of residential uses, of which the single-family detached house comprises approximately 85 per cent.

TABLE 25⁶

TOWN OF CHURCHILL: RESIDENTIAL BUILDINGS*

| | <u>No.</u> | <u>%</u> |
|-----------------------------|------------|----------|
| Total residential buildings | 271 | 100.0 |
| Single-family buildings | 231 | 85.0 |
| Two family buildings | 33 | 12.0 |
| Multiple family buildings | 7 | 3.0 |
| - three family | 4 | |
| - over three family | 3 | |

* excluding 18 trailers occupying 14 sites.

Table 25 indicates a significant decline in the number of residential buildings as compared with the 1966 census data shown in Table 26.

TABLE 26⁷

TOWN OF CHURCHILL: RESIDENTIAL BUILDINGS - 1966

(1966 census)

| | <u>No.</u> | <u>%</u> |
|-----------------------------|------------|----------|
| Total residential buildings | 377 | 64.2 |
| Single family | 73 | 19.4 |
| Two family | 63 | 16.7 |
| - other | 10 | 2.7 |
| Multiple family buildings | 53 | 14.0 |
| - three family | 7 | 1.0 |
| - over three family | 46 | 12.2 |
| Mobile | 9 | 2.4 |

The number of mobile homes (trailers) has increased by 100% (from 9 to 18). Although not significant in terms of numbers, the increase does underline the tendency towards accommodation which requires no significant financial input of a permanent nature.

TABLE 27⁸

FORT CHURCHILL: TENURE*

| | <u>No.</u> | <u>%</u> |
|---|------------|----------|
| Single family buildings owner occupied | 96 | 35.3 |
| Single family buildings rented | 118 | 43.5 |
| Two family buildings rented | 33 | 12.3 |
| Multiple family buildings rented | 7 | 2.4 |
| Single family buildings vacant | 11 | 4.4 |
| Two family buildings vacant | 6 | 2.1 |
| Total | 271 | 100.0 |

* excluding trailers.

There are a total of 317 dwelling units, excluding the 18 trailers, of which 213 dwelling units (67%) are rented. Of the total number of dwelling units 23 are vacant. The relatively high vacancy rate does not seem to be a merely temporary condition. Indications are that it is not only a chronic condition, but that vacant space is likely to increase with the phasing out of Fort Churchill and the departure of the present occupiers.

BUILDING CONDITION

Perhaps the most important characteristic of the Town is that despite the fact that nearly 70% of the dwelling units have been constructed in the last 20 - 30 years, 70% of the buildings are rated as poor or fair with only 30% rated as good. An analysis of building condition is shown in Table 28. Map 8 shows the areal distribution of condition.

TABLE 28

TOWN OF CHURCHILL: BUILDING CONDITION

| <u>All Types</u> | <u>%</u> |
|-------------------------|----------|
| poor | 20 |
| fair | 50 |
| good | 30 |
| <u>Residential Only</u> | |
| poor | 20 |
| fair | 55 |
| good | 25 |

When the condition of buildings and the vacancy rate are considered together, it becomes apparent that a massive effort is required to improve the physical environment. Prospects for rehabilitation are not promising since only 31%

of the residents are owners, and 69% are tenants.⁹ The present owners have not maintained the houses in the past as indicated by the percentage of poor houses, and with little prospect of rising land values, they will certainly not invest in upkeep in the near future. These are strong arguments in favour of renewal by means of incentive or other forms of action by government.

SERVICES AND UTILITIES

Nearly all buildings do not have proper services and must have water that is delivered by truck and stored in cisterns. However, some of the commercial and institutional buildings, and a few residences, have piped water from the old water main that supplies the Harbour Board facilities. Except for government property, this is an informal arrangement; however, the installation of the new sewer and water system (figure 19) has utilized a segment of the old water line thereby maintaining water service to the informal users.

Health problems in Churchill stem largely from the manner of waste disposal. The main method of waste disposal is by pits and a few septic tanks (figure 32). The combination of permafrost and the long period of freezing temperatures eliminate absorption of the liquid wastes deposited

BAY

MUNCK PARK

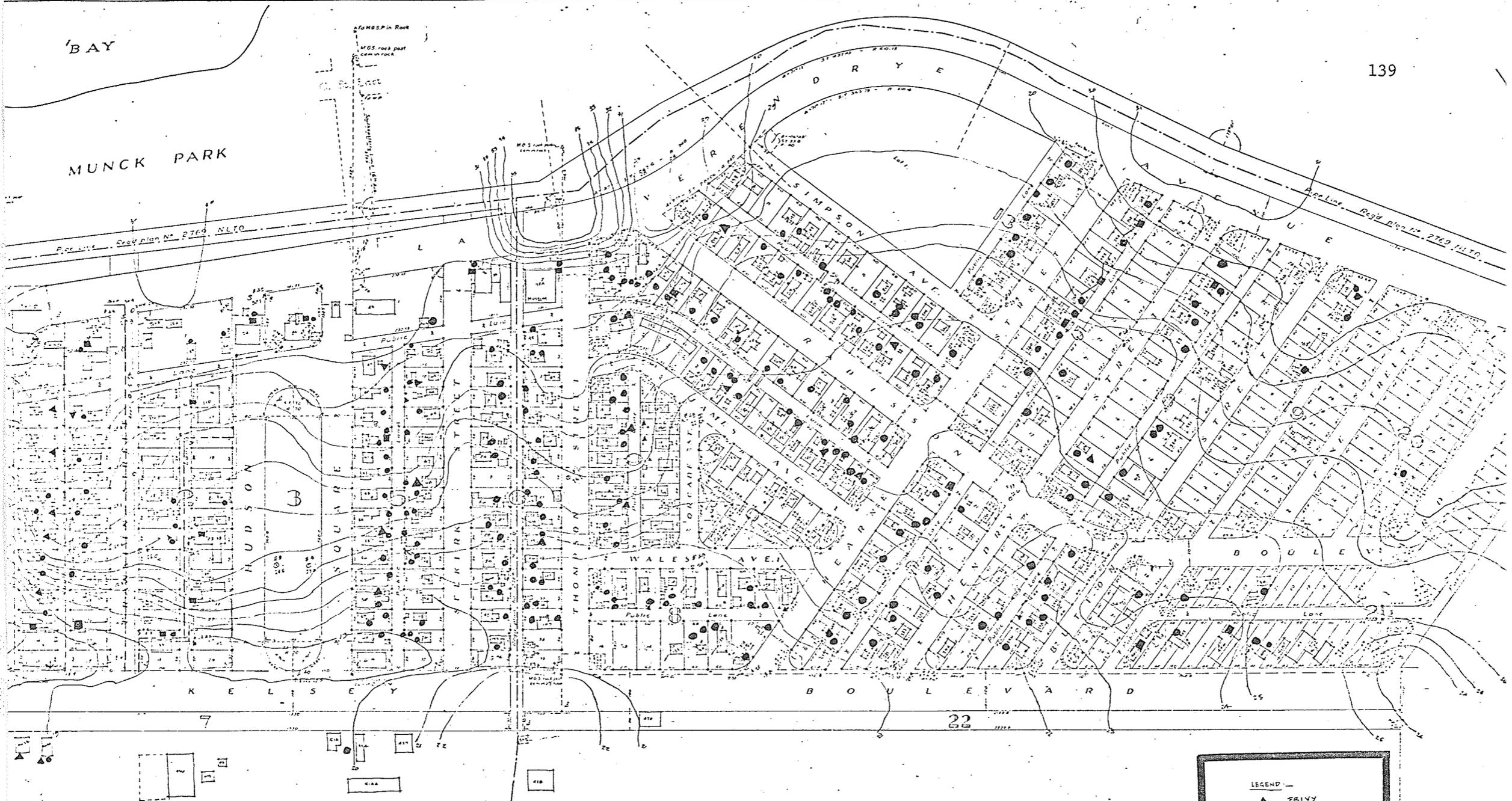


FIGURE 32

Existing Methods of Waste Disposal

LEGEND -

- ▲ PRIVY
- CESS PIT
- SURFACE DRAIN
- SEPTIC TANK

in the pits and septic tanks. The most serious problems occur when warmer temperatures cause the frost to retreat two or three feet below the surface of the ground. Because wastes are removed at infrequent intervals, there is always a quantity of waste which combines with ground water produced by the warmer weather, and causes pollution of much of the town.

The area is reasonably well drained by open ditches, but these are most unsightly and do contribute to the general pollution of the area. A high density development would be necessary to make underground drainage economical. Similarly, sewer and water services would be too expensive except for high density development. Even if the Federal Government assumed the total cost of the installation, individual home owners would find costs prohibitive for connecting into the system and for sharing subsequent maintenance and operating costs. It is reasonable to assume that the same would apply to the capital and maintenance costs for streets and sidewalks, snow removal, garbage collection and certain other municipal services. It has been suggested that for sewer and water alone, the relative per capita costs (\$594 versus \$1233) indicate a significant difference between a high and low density type of development.¹¹ Similarly, operating costs would also indicate a significant difference.

ROADS

The Churchill area is not connected to the Provincial highway. All traffic originates locally and with the exception of travel to and from Fort Churchill by Federal employees, traffic is negligible. The roads are all gravel, except for asphalt on Kelsey Boulevard and the main road between the Town and Fort Churchill. All roads are built in such a way that they are higher than adjacent lots.

HOUSING DENSITY

Housing density conveys a very clear idea of the kind of accommodation in the project, because each type of dwelling - single family, horizontal multiples such as row houses and high rise apartments - has its own characteristic densities. Single family dwellings typically can accommodate about 15 persons per acre; row houses about 60 persons per acre; and high rise apartments up to several hundred persons per acre. The relationship between numbers of people and area of land is complicated by the fact that in addition to dwellings, the residents require schools for their children, an area for recreation, churches, clubs, shopping facilities and service industries.

It is anticipated that 80% of the total 120 acres will be available for housing. However, for the projected study period it is estimated that only 55 acres will be required for a high density residential development. At the present time the population of the Town of Churchill, according to the survey carried out in August 1969,¹² and verified by the 1966 census, is approximately 1200 people. The population projection shown in Chapter III indicates a future population more than double that at present. However, the population will be less than that as shown for the whole area at the present time. At the assumed density (20 dwellings per acre) there can only be a few single family dwellings aside from those provided for the Indians, Eskimos and Metis. All housing for Federal employees and the majority of Provincial employees within the Town will be provided in multiple dwelling form with about half of the units in apartments, and the balance in row houses and semi-detached family units. It is assumed that many people presently renting substandard accommodation will accept high density housing although many are extremely critical of such a form of housing. It is also assumed that a small percentage of home owners in the Town will rehabilitate their dwellings once they see positive action taken in the form of additional sewer and water servicing and the construction of new housing.

PUBLIC HOUSING

Perhaps the most urgent component in the housing proposed for the development plan is subsidized housing for low income families. The families living in substandard housing in the Town and squatter communities cannot afford normal housing and if no publicly assisted housing is provided, they must continue to live in the worst accommodation available in the housing stock. In any southern community about one-third of the families fall into this category.¹³ For Churchill the ratio is much closer to one half.¹⁴ This ratio can serve as a guide in deciding what proportion of the dwellings contemplated in the Town should be low rental housing. Indications are that a total of 782 dwelling units should be the housing objective over a 20-year period. If one half are to be dwellings for low income families, then 391 such dwellings will be required. If the construction of these is phased over 20 years in four five year stages, then each stage would see the construction of 98 dwellings or on the average 19 - 20 dwellings per year. It may be found necessary or desirable to accelerate the program in the early years, but the figure of 391 dwelling units represents a feasible twenty year target.

PRIVATE AND GOVERNMENT HOUSING

The question may well be asked whether it is realistic to expect private developers to build dwellings in this area; or for individuals (federal employees) to invest in housing when approximately 80% or more of the population is highly transient with no desire to invest heavily in housing. Therefore, a number of devices may be considered. One method would be for the Province of Manitoba to acquire the necessary property and make the cleared land available to a developer on a long term lease. In Churchill, the developer would probably be the Federal government, or its agent, building on a lease-back arrangement. Under this arrangement or others there will be a requirement of 107 dwelling units for Federal employees by 1975. However, the total requirement will include not only people being relocated, but also residents of the Town. For the total development, therefore, other devices must be analyzed to allow for flexibility in cost sharing by government and by private sources. Another device, that of mixed uses, is a technique which could assist in development. This principle embraces not only the combination of public and private enterprise on the same site, but also the combination of different types of uses, such as residential and commercial in the same structure. For example, an apartment or other type of residential project may be designed providing space for

ground floor commercial activity and upper floor residential space.

A number of people view Churchill as their home and many presently own their own homes. This group, if they now live in substandard accommodation, will conceivably desire to remain as home owners, yet not be able to afford sewer and water or to rehabilitate their homes. For these people the principle of condominium ownership is a device which could satisfy both the personal desires for individual ownership and the requirements of a mixed use project. Condominium ownership refers to the principle under which a number of persons each own a part of a property. Under such an arrangement, each person owns his own suite in an apartment or owns his own unit in a group of low housing units.

Although the housing types noted above may be acceptable to many, some individuals will continue to desire ownership of a single-family detached dwelling unit. Therefore, provision should be made to allow for some units of this type.

DESIGN AND TYPE OF HOUSING

In view of Churchill's harsh climate, and in view of the costs of northern construction, it is recommended that only housing suited to the northern conditions and only housing economic to service with sewer, water

heating, etc. - be constructed in Churchill. The only type of housing which could meet these specifications is properly designed high-density housing. The economies of high density housing have been amply demonstrated in the Jones Report, and in other literature. Properly designed, high-density housing will also serve as protection from the elements. The type of design best suited to serve all these needs would be inward-facing town-housing combined with apartments, with enclosed and sheltered winter entrances and play areas.

Despite the desirability of this form of housing, it should not be constructed if strong feelings against it emerge from the population study recommended earlier. However, when faced with the cost of a fully serviced detached house, most residents will presumably opt for town housing. Town housing - of all high-density housing - most closely resembles the single family home, incorporating the privacy of single family housing, with the economies of high density housing. Hence, any resistance to high density housing will probably be lower for town housing.

For the Indians and Eskimos it is possible that sufficient numbers will move to Churchill from isolated areas to justify the continued maintenance of separate villages where they may adjust to urban ways of life. Therefore, it is recommended that the Federal Government¹⁵ maintain Dené Village and

Akudlik, providing individual homes for the Indians and Eskimos.

PHASING THE HOUSING PROGRAM

The matter of phasing a housing program is most important. Under provisions of the National Housing Act, it is necessary to ensure that alternative housing is available for those persons who are displaced from their dwellings. This means that before any substandard dwellings can be demolished, their occupants must have other dwellings into which they can move. Therefore, a "bank" of new dwellings will be necessary for Fort residents and for the families vacating substandard homes. As a result, the proposed program of public housing must be developed in such a way as to allow integration with "government housing". In fact, I propose that the only distinction between public housing and other types should be in the amount of the subsidy allowed to the family. In effect, rents for similar units will vary and will reflect ability to pay. This will eliminate the creation of separate areas of housing such as Federal housing or public housing. Thus it is hoped social disparities will tend to become less pronounced.

However, the provision of a "bank" of housing raises the problem of sites for the initial new housing. The most logical area adjacent to the sewer and water lines is virtually completely built-up. There is, however,

an exception in the presence of Hudson Square and the property contained in block 4.

Other potential sources for the initial phases of the housing program are those non-residential structures which are obsolete, substandard or only partially occupied. Finally, the area north and west of the built up part of the town offers suitable building sites, particularly the area adjacent to Munck Park.

SCHOOLS

Provision of schools must be considered an integral part of this development plan. At present the elementary school in Churchill provides 12 academic classrooms.¹⁶ All secondary and high school children in the Town go to Fort Churchill. Therefore, since it will be necessary to provide extensive new facilities, it is proposed that the school site remain at its present location. In a central location, facilities such as playing fields, auditoriums and industrial arts shops could also be used for recreation purposes by the residents of the Town. If it is not feasible to house the anticipated school population in the existing school facilities, then additions should be made to the elementary school converting it to use by all students. In 1966 the school population represented 34.6% of the total population of the Churchill area (38.6% of Fort Churchill population;

31% of the Town population).

The ratio determined by the "file census" (Table 23) indicated that approximately 350 students (17.5% of the total population) will remain in the Churchill area following the closing of Fort Churchill. If this ratio were to continue and were to be applicable over the period of the development plan, then in the contemplated future population of 3300, there would be 578 children of school age. Of these 57% would be elementary school children, 26% would be junior high school students, and 13% would be senior high school students; these ratios are anticipated to prevail in the Churchill area following the phasing out of Fort Churchill. Accordingly the contemplated population in the Churchill area (1990) would contain 328 elementary school students, 150 junior high school students, and 100 senior high school students. Assuming a ratio of approximately 30 students per classroom for each level, there will be a total requirement of 19 - 20 classrooms, with eleven elementary, five junior high school and four senior high school classrooms. Therefore there will be a need to expand the existing school by approximately 6 - 8 academic classrooms, including the necessary proportion of ancillary facilities.

THE CONCEPT

The various observations contained in the previous sections provide the basis for a community design. Essentially, the concept of the development plan for Churchill provides for the following:

- The eventual accommodation of persons now living in the Churchill area including the families of Federal government employees, the Metis, the Treaty Indian and Eskimo population, the squatters in Jockville and The Flats and the residents of the present Townsite.
- The provision of adequate municipal services such as sewage disposal, water supply, hydro and street lighting, storm drainage and fire protection.
- The provision of housing designed to meet demands of the climate, the needs and the resources of the people who will reside in the community.
- The provision of one school which will accommodate all school children and function as the centre of community activities.
- Protection of pedestrian traffic from the severe climatic conditions.
- Reduction of vehicular traffic within the community centre.

GENERAL DESCRIPTION

Maps 13 and 14 represent Churchill as it might be at the end of twenty years of the Development Plan. It is expected that the twenty year plan will be carried out on the basis of four five year stages, with each stage carefully planned and related to others so that the whole will be carried forward systematically to the successful realization of the whole plan.

The plan as shown on Maps 13 and 14 arises out of a survey of existing conditions and the analysis of the elements of the development plan discussed in the earlier sections of this thesis, and embodies the general ideas and principles evolved in those discussions. The plan visualizes the retention of the basic street pattern (with the removal of such obviously inappropriate elements as Hudson Square).

Along the southern boundary of the development area, between the Hudson Bay Railway tracks and Kelsey Boulevard, is the proposed Industrial Park and Trailer Park. Kelsey Boulevard itself is shown as 120 feet wide and developed with a landscaped median and verges. The North side of Kelsey Boulevard is shown lined with multiple and single family units. Within this area, between Franklin Street and Hudson Street, a commercial core is shown with structures for retail and other commercial uses. This core will become the community centre.

North of the school from Selkirk Street to Bernier Street the plan proposes the redevelopment of the existing area to serve as a high density residential area with groups of inward oriented row houses interconnected by an enclosed and heated corridor leading to the community centre.

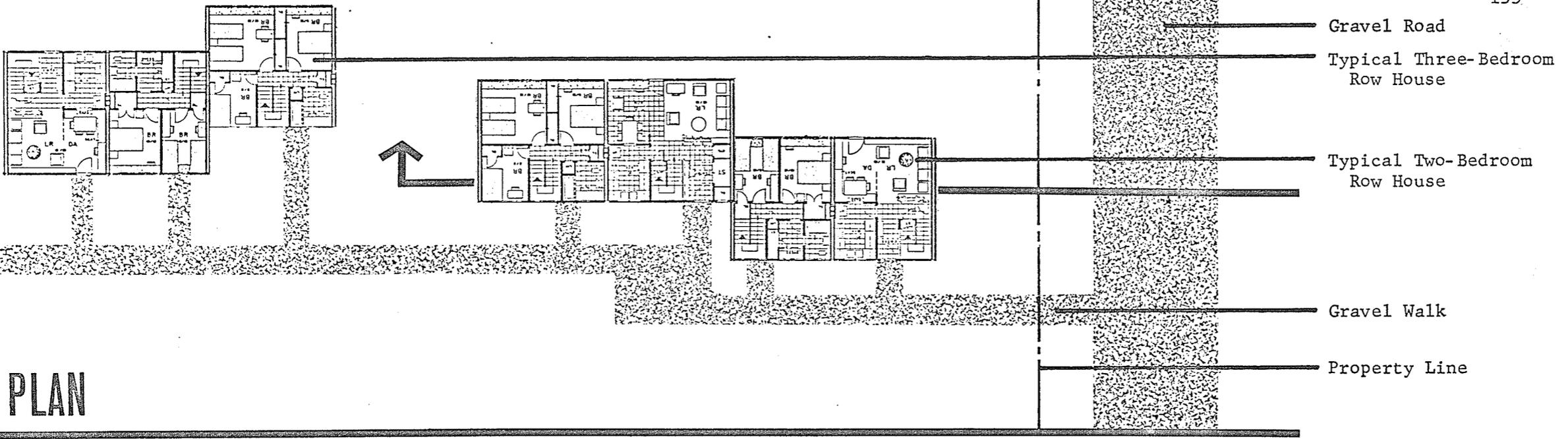
Approximately 40 acres of the present Townsite will be designated for future development, as many existing dwellings will be rehabilitated and relocated on new centrally located building sites serviced with sewer and water. Other substandard dwelling units will be destroyed, thus removing all structures except those as shown in Map 13. No problem is foreseen in moving the residential units as foundations are not of a permanent nature due to the permafrost conditions existing in the town. Figure 33 shows the proposed method of landscaping and construction.

A new 30 bed hospital is expected to occupy the area north of La Verendrye Avenue, and the plan shows an integrated building complex with a future enclosed access connecting the hospital to the Senior Citizens Housing and the community centre.¹⁷

In detail, the development plan proposes the following:

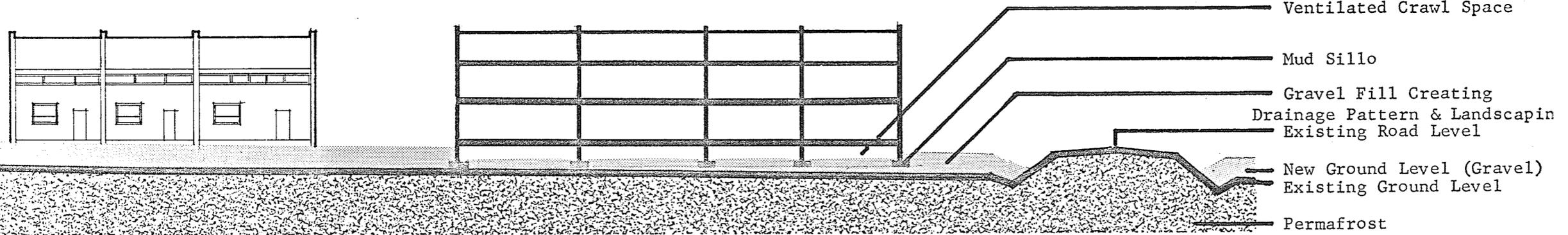
General Land Use:

Map 14 illustrates the manner in which it is suggested that the various land use requirements be related in an overall plan.



PLAN

- Gravel Road
- Typical Three-Bedroom Row House
- Typical Two-Bedroom Row House
- Gravel Walk
- Property Line



- Ventilated Crawl Space
- Mud Sill
- Gravel Fill Creating Drainage Pattern & Landscapin
- Existing Road Level
- New Ground Level (Gravel)
- Existing Ground Level
- Permafrost

SECTION

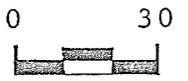


FIGURE 33
Proposed Method of
Landscaping & Construction

Basically, this drawing suggests a fairly compact community centre with the focal point being a shopping centre, government and municipal offices, the school, apartments and the major recreation and cultural facilities of the community. An attempt has been made to locate light industry and public utilities in close proximity to available rail services and the major access road, Kelsey Boulevard.

i) The Industrial Area

The main site for industrial development lies along the southern boundary of the Townsite between the Hudson Bay Railway tracks and Kelsey Boulevard, reaching from Button Street west to Hudson Street. The continuity of industrial land west of Hudson Street is broken by the proposed trailer park. Industrial land, however, continues west of the Townsite boundary incorporating the existing harbour facilities. The area for industrial uses within the Townsite is approximately 12 acres.

ii) Housing

On the basis of information contained in previous sections, it is possible to estimate the short term housing needs of Churchill. In addition, a reasonable estimate of long range requirements can be made with the understanding that the expansion or reduction of economic activity in the

area will obviously affect the ultimate extent of development.

Therefore, the estimated dwelling unit requirements shown in Table 29 are based on the assumed economic growth of Churchill.

TABLE 29*

DEVELOPMENT PLAN: REQUIRED DWELLING UNITS (1990)

| <u>Classification</u> | <u>Multiple family units</u> | | | <u>Total</u> | <u>Single family units</u> | | |
|------------------------------|------------------------------|---------------|---------------------|--------------|----------------------------|---------------------|--------------|
| | <u>1 bdrm</u> | <u>2 bdrm</u> | <u>3&4 bdrm</u> | | <u>1&2 bdrm</u> | <u>3&4 bdrm</u> | <u>Total</u> |
| Federal/provincial employees | 70 | 62 | 41 | 173 | -- | -- | -- |
| Existing town population | 10 | 8 | 5 | 23 | 22 | 28 | 50 |
| Indians/Metis/Eskimo | -- | -- | -- | -- | 54 | 66 | 120 |
| Squatters & low income | 30 | 27 | 18 | 75 | 9 | 11 | 20 |
| Future Expansion (1975-1990) | 114 | 103 | 69 | 286 | 10 | 15 | 25 |
| Sub Total | 223 | 200 | 134 | 557 | 95 | 120 | 215 |
| Approx. % | 40 | 36 | 24 | 100 | 45 | 55 | 100 |

* Table 29 indicates the housing requirements for the projected population of 3300 people with an average number of persons per household being 4.23 (average between "file census" and 1966 census).

Table 29 anticipates that over the 20-year period of the plan, Churchill will have 782 dwelling units, instead of the 317 dwelling units it contains at the present time. This represents a 40% increase over the existing housing stock. The area occupied by this enlarged housing stock is about 55 acres, and the density is therefore 14.1 dwellings per acre. If the average family size is 4.23, this housing would accommodate 3300 people at a density of 60 persons per acre. The residential densities indicated in the design are within the ranges contemplated in the discussion of the elements of the development plan, earlier in this thesis.

The proposed housing stock is made up of row houses, 6-storey apartments, trailers and single family detached houses. This composition provides a fairly low silhouette. The tallest structures - the 6-storey apartments - are placed next to the compact urban centre, thus emphasizing the location of the community center. The Housing shown on Map 13 does not include housing for Treaty Indians or Eskimos. It is recommended that a special analysis of the problems of the two native communities must take place prior to planning for the native communities. Therefore, although Dene' Village and Akudlik will remain in their present locations for at least the first five years, an adequate number of building lots will be available

in the Townsite should relocation be desirable, following the recommended analysis.

iii) Traffic

The proposed traffic system may be thought of as consisting of two components, one of which is the major access of Kelsey Boulevard, and the other being the local streets branching off Kelsey Boulevard.

As for the street pattern, it can be seen that the existing gridiron pattern has been respected by the plan, even though it is proposed that some of the streets be closed, and others be decreased in size. Expensive and complex services and utilities must be placed beneath the ground, normally along the street rights-of-way. By creating areas of row housing with fewer streets, the extent of services and utilities will be reduced, thereby reducing costs. In addition, many of the existing residential streets are excessively wide, but by reducing the width of rights-of-way, higher densities can be achieved while retaining single family residential lots.

THE FIRST FIVE YEARS

Because of the magnitude of the scheme, it is formulated as a twenty-year program, made up of four five year stages. Each of these stages must necessarily be cast in terms of the economic and social conditions prevailing

at that time. But since these conditions can vary widely over such a long period, detailed proposals for longer than a five year period can serve no useful purpose. On the other hand, it is necessary at the present stage of the development plan to describe in detail, the projects and proposals which it is intended will be carried out during the first five years of the twenty year program.

The importance of Hudson Square and the land adjoining Munck Park has already been indicated elsewhere in this thesis. This central location is the best place to start, because of the relatively few buildings and low coverage. Map 15 represents the first five year proposals in graphic form. The initial development will provide sites for federal and provincial employee housing, public housing, the hospital and for initial community centre development.

It has been indicated that an average of 19 - 20 public housing units should be constructed every year for the twenty year period. For the first five years then, 100 public housing units would be provided. These are to be constructed as an integral part of the housing for federal and provincial employees. Therefore, the requirements for new housing in the first five years will total 273 dwelling units. It is possible that some interest may be shown by the private sector in constructing a portion of the proposed new

housing. Their participation should be encouraged, with consideration being given to conveyance of land on a leasehold basis with freehold title remaining in the public domain.

The worst of the blighted residential structures are located in the squatter communities and are also scattered throughout the Town. As substandard residences of the Town are cleared away and land of appropriate size becomes available, that land should be made the subject of proposals for development by private enterprise for the following five-year stage. Failure to attract the interest of private enterprise would require that the federal and provincial governments continue to make substantial contributions towards the implementation of future stages.

A start must also be made as soon as possible, certainly during first five years, on a social services program, as part of the development plan. This program would be directed at resolving the outstanding problems of Dené Village and the squatter communities. The importance of developing the physical and social components of the plan in close relationship with each other has already been emphasized. During the first five years, therefore, a sociological analysis must be initiated specifically to study the problems of Dené Village.

At the same time, the park and playground forming part of the

school-community centre complex should also be developed. Additional school construction may be deferred during the first stage, but the playground and park of the complex should be completed as part of the first five year development to provide the open space and outdoor recreation facilities serving the community centre.

Finally, as part of the first five-year stage, a start should be made on the development of the industrial park and the trailer park south of Kelsey Boulevard.

It is not possible nor even appropriate at this stage to try to estimate the cost of the first five-year proposals; however, it is possible to suggest the financial participation required by the various levels of government.

FINANCIAL PARTICIPATION

Loans should be made available through Central Mortgage and Housing Corporation for the rehabilitation of existing housing, including the installation of facilities required to connect dwellings to the sewer and water lines, and for private builders who may wish to erect housing. However, it is assumed that for the first five-year stage of the development plan, interest by private developers and individuals will be negligible.

Therefore redevelopment costs must be assumed to be borne fully by the provincial and federal governments.

Normally, urban redevelopment under the National Housing Act would distribute the costs such that Manitoba would contribute 25%, Canada 50% and the local municipal government would contribute the remaining 25%. However, the province considers that the Churchill area falls into a category similar to that of other northern townsites (Thompson, Flin Flon). In these towns, financial assistance is provided by developing corporations, enabling these towns to operate as ordinary municipal corporations. This financial assistance is provided since these towns were created solely to meet the needs of a local development. In Churchill, the local development could be considered "employment by the Federal government", because the current situation has been created solely by Federal government developments. Therefore, it can be assumed that a substantial proportion of any costs must be borne by the Federal government before the Province will accept further development responsibilities.

As noted earlier, a first step by the Federal government has been the installation of sewer and water for part of the Town (figure 19). Extensions to the original installation are planned and it is anticipated that the Federal government will again assume full financial responsibility. Although any cost sharing will be subject to discussion as more detailed stages of

the development plan are put forward, the Federal government will presumably contribute the 25% share normally borne by local municipal governments. Therefore, in addition to providing the full cost of sewer and water installations and the cost of 107 new dwelling units, the Federal Government will share 75% of the cost for any necessary land acquisition, rehabilitation, and for other residential, commercial and industrial construction proposed by the development plan.

The costs of education and school facilities will be borne by the local residents and by the usual provincial school grants and such grants in aid as may be made by the Federal Government. The cost of normal municipal services will be borne by local taxation and by grants-in-lieu of taxes by Federal agencies and departments.

In making this cost sharing proposal, I am not unmindful of the magnitude of the required federal contribution or the fact that the proposal will set a precedent. However, in the cost sharing proposal, the province has been committed to contribute considerably more than it normally provides to any other local development.

In the first instance, the main benefits of the development plan will be enjoyed by the Federal Government, but when the anticipated industrial development of the area comes about, there will be a general

benefit to Manitoba as a whole. When that time comes, of course, the local residents will be able to bear an expanding proportion of local government costs and the need for federal grants will be on a diminishing scale. At the time the local residents are able to bear expanded local government costs, an assessment will be necessary to determine the appropriate form of local government for Churchill.

One possible alternative to the present "immature form of local government"¹⁸ could be the establishment of a Municipal District. First suggested in a planning report in 1962, incorporation of the area as a Municipal District would result in the District assuming responsibility for a greater share of operating costs and would permit the imposition of tax levies in excess of the existing mill rate.¹⁹ However, any revision to alter the form of government must be based on a thorough study of political development from the inception of Churchill to the present time. Such a study is beyond the scope of this thesis, because it would require the resources and expertise of a specialist in the field of government. Therefore, it is recommended that expansion of the boundaries of the Local Government District be the only revision to the present local government during the first five years, pending the recommendations of the proposed study of local government

for Churchill. It is assumed that expansion of the boundaries will increase local government revenues in excess of increased expenditures for the first five years, and help to create a viable community.

In summary then, the following projects should comprise the first five year stage of the development plan for Churchill.

- 1) Acquisition of necessary property.
- 2) Construction of 100 dwellings for low income families and 173 dwellings for federal and provincial employees.
- 3) Demolition of the substandard or blighted dwellings replaced by new housing units.
- 4) Construction of part of the community centre on the Hudson Square site.
- 5) Development of Munck Park as the open space and recreation facilities related to the community centre-school complex.
- 6) Initial development of the trailer park and industrial park.
- 7) Expansion of the Local Government District Boundaries to include remaining facilities of Fort Churchill, the water distribution system and the airport.

The foregoing represents the priorities at this point in time, just as the overall proposals for the whole twenty-year development plan represent the solution for the area which seems most appropriate in the light of present circumstances. However, sufficient flexibility should be maintained to permit variations or even departures from the proposals if circumstances are altered so radically as to justify major changes. Indeed, the purpose of phasing the twenty-year program in four stages is to permit a re-evaluation of the proposals in the light of current circumstances.

The magnitude of the undertaking is great, but the rewards which could flow from it would be more than merely worthwhile: they could change the face and the destiny of Churchill.

FOOTNOTES:

1. Farley Mowat, Canada North (Toronto: McClelland and Stewart Limited, 1967), p.79.
2. Municipal Planning Branch of the Department of Municipal Affairs, Province of Manitoba, "Churchill Preliminary Planning Report" (Unpublished planning report, Winnipeg, 1969), p.8.
3. Sladek, G. J. "Preliminary Analysis of Facilities For the Townsite of Churchill, Manitoba and Vicinity" (Saskatoon: Underwood McClelland & Associates Ltd., December, 1958), p.21.
4. Municipal Planning Branch, op. cit., p.5.
5. Murray V. Jones, "Churchill Development Plan, Phase 1" (Toronto: Murray V. Jones and Associates Limited, 1967), pp.15 - 17.
6. Municipal Planning Branch, op. cit., p.6.
7. Dominion Bureau of Statistics, Census Division, Ottawa.
8. Municipal Planning Branch, op. cit., p.7.
9. Municipal Planning Branch, op. cit., p.7.
10. Manitoba Department of Health, "Sanitary Survey of Churchill, Manitoba" (Winnipeg: Public Health Engineering, July, 1963), pp.3 - 21. (mimeographed).
11. Jones, op. cit., p.75.
12. Municipal Planning Branch, op. cit., p.3.
13. H. Wentworth Eldredge (ed.), Taming Megalopolis (Vol. 1, Garden City, New York: Doubleday & Company, Inc., 1967), pp.460 - 462.

14. Department of Public Works, Manitoba District.
15. It is proposed that housing for Dene Village and Akudlik will continue to be the responsibility of the Department of Indian Affairs and Northern Development.
16. Statement by Don Pentland, personal interview, January 15, 1970.
17. A thirty bed hospital is currently being considered by the Manitoba Hospital Commission.
18. Jones, op. cit., p.20.
19. Henderson, D. G., "A Suggested Programme For the Development of a New Townsite at Churchill, Manitoba" (Unpublished Report, Winnipeg, August, 1962), pp.1 - 3.

BIBLIOGRAPHY

BIBLIOGRAPHY

1. Books

- Bacon, Edmund N. Design of Cities. New York: The Viking Press, 1967.
- Barzun, Jacques, and Henry R. Graff. The Modern Researcher. New York: Harcourt, Brace and World, Inc., 1962.
- Beals, C.S., and D. A. Shenstone (eds.). Science, History and Hudson Bay. 2 vols. Ottawa: Queen's Printer, 1968.
- Brewis, T. N. (ed.). Growth and The Canadian Economy. Toronto: McClelland and Stewart Limited, 1968.
- Cullen, Gordon. Townscape. London: The Architectural Press, 1961.
- De Chiara, Joseph and Lee Koppelman. Planning Design Criteria. Toronto: D. Van Nostrand Company (Canada) Ltd., 1969.
- Eldredge, Wentworth H. Taming Megalopolis. Vol. 1 New York: Doubleday & Company, Inc., 1967.
- Feldman, Lionel D., and Michael D. Goldrick (eds.). Politics and Government of Urban Canada: Selected Readings. Toronto: Methuen Publications, 1969.
- Gertler, L.O. Planning The Canadian Environment. Montreal: Harvest House, 1968.
- Johnson-Marshall, Percy. Rebuilding Cities. Chicago: Aldine Publishing Company, 1966.
- Kerr, D. G. G. A Historical Atlas of Canada. Toronto: Thomas Nelson & Sons (Canada) Limited, 1959.
- Lithwick, N. H., and Gilles Pacquet (eds.). Urban Studies: A Canadian Perspective. Toronto: Methuen Publications, 1968.

Morton, W. L. Manitoba, A History. Toronto: The University of Toronto Press, 1957.

_____. The Canadian Identity. Toronto: The University of Toronto Press, 1967.

Mowat, Farley. Canada North. Toronto: McClelland and Stewart Limited, 1967.

Nelson, Lowry, Ph.D., and others. Community Structure and Change. New York: The Macmillan Company, 1960.

Rea, K. J. The Political Economy of the Canadian North. Toronto: The University of Toronto Press, 1968.

Sivertz, B. G. "The North As A Region", Resources For Tomorrow, One of the Background Papers prepared for the "Resources For Tomorrow" Conference, held in Montreal, October 23 - 28, 1961. Ottawa: Queen's Printer, 1961.

Smith, Norman I. The Unbelievable Land. Ottawa: Queen's Printer, 1964.

2. Reports and Periodicals

Meadows, C. A. "Investigation and Report on Utility Services for Churchill Peninsula Area, Manitoba - May 1957". Winnipeg: C. A. Meadows and Associates, 1957.

Dick, T. M. "Feasibility of Extending Navigation Season At Churchill Harbour". Ottawa: National Research Council, 1966.

Dickens, H. B., and D. M. Gray. "Experience With A Pier-Supported Building Over Permafrost". Proceedings of The American Society of Civil Engineers, 86, No. SM5. (October, 1960), 1 - 14.

- Henderson, D. G. "A suggested programme for the development of a new townsite at Churchill, Manitoba". Unpublished Report, Winnipeg, August, 1962.
- Jones, Murray V. "Churchill Development Plan, Phase 1". Toronto: Murray V. Jones and Associates Limited, 1968.
- Kennedy, Smith, Associates. "Housing Study: Isolated Communities and Indian Reserves, Prairie Provinces, First Stage Report." Winnipeg: Kennedy, Smith, Associates, 1967.
- Mauro, Arthur V. Province of Manitoba Royal Commission Inquiry Into Northern Transportation. Winnipeg: Queen's Printer For the Province of Manitoba, 1969.
- Manitoba Department of Health. "Sanitary Survey of Churchill, Manitoba". Winnipeg: Public Health Engineering, July, 1963. (mimeographed)
- Manitoba Planning Service. "Memorandum on Existing Conditions and Problems: The Townsite of Churchill, Manitoba". Unpublished Report, Winnipeg, 1963 (mimeographed).
- Sladek, G. J. "Preliminary Analysis of Facilities For the Townsite of Churchill, Manitoba and Vicinity". Saskatoon: Underwood McLellan & Associates Ltd., December, 1958.
- Municipal Planning Branch of the Department of Municipal Affairs, Province of Manitoba, "Churchill Preliminary Planning Report". Unpublished Planning Report, Winnipeg, 1969.
- Sir Alexander Gibb and Partners. "Port Churchill Future Development". Unpublished Report, London, September, 1962.
- The Metropolitan Corporation of Greater Winnipeg. "Metropolitan Winnipeg Population Report". Winnipeg: Metropolitan Corporation of Greater Winnipeg, Planning Division, December, 1968.

W. L. Wardrop & Associates Ltd. "Water System Improvements Churchill, Manitoba". Winnipeg: W. L. Wardrop & Associates Ltd., 1967.

3. Newspapers

Editorial. Winnipeg Free Press, October 6, 1969.

Financial Post (Toronto), October 18, 1969.

Financial Post (Toronto), November 29, 1969.

Winnipeg Free Press, January 27, 1969.

Winnipeg Free Press, January 15, 1970.

Winnipeg Free Press, October 21, 1969.

Winnipeg Free Press, October 29, 1969.

Winnipeg Free Press, October 27, 1969.

Winnipeg Free Press, June 17, 1969.

Winnipeg Free Press, October 23, 1969.

Winnipeg Free Press, October 22, 1969.

Winnipeg Free Press, February 14, 1969.

APPENDIX A

APPENDIX A

LIST OF ABBREVIATIONS

| | | |
|------------|---|---|
| C.A.D.C. | - | Crown Assets Disposal Corporation |
| C.B.C. | - | Canadian Broadcasting Corporation |
| C.C.R.A. | - | Churchill Community Recreation Association |
| C.N.I.B. | - | Canadian National Institute for the Blind |
| C.N.T. | - | Canadian National Telecommunications |
| D.I.A.N.D. | - | Department of Indian Affairs and Northern Development |
| D.O.T. | - | Department of Transport |
| D.P.W. | - | Department of Public Works |
| D.R.T.E. | - | Defence Research Telecommunications Establishment |
| F.C.G.H. | - | Fort Churchill General Hospital |
| M.T.S. | - | Manitoba Telephone System |
| N.H.B. | - | National Harbours Board |
| N.H. & W. | - | National Health and Welfare |
| N.R.C. | - | National Research Council |
| P.A.A. | - | Pan American Airways |
| P.O. | - | Post Office |
| P.M.Q. | - | Personnel Married Quarters |
| R.C.M.P. | - | Royal Canadian Mounted Police |
| R.C.N. | - | Royal Canadian Navy |

APPENDIX B

APPENDIX B

FORT CHURCHILL BUILDING REFERENCE

The buildings of Fort Churchill were allocated an alphabetical reference by the military. This method of reference has carried over into the civilian administration of Fort Churchill. The alphabetical reference is as follows:

MARRIED QUARTERS

1 bedroom - E area (5), F-26 (20)
2 bedroom - E area (10), A area (8)
3 bedroom - A, E, G, J areas $\frac{(305)}{348}$

SINGLE QUARTERS (Intensive Residential)

F-26

TRANSIENT QUARTERS

F-1

F-15

F-32

F-33

INSTITUTIONAL

This category includes the Hostel (F-4, 5, 12) and mess hall of the Vocational School (F-16) and the chapel (H-1).

COMMERCIAL RECREATIONAL

- A-18 - indoor rifle range
- B-17 - hobby shop
- C-14 - arena and curling rink
- D-22 - slot car racing
- F-30 - theatre, youth club
- K-31 - knight hall, gymnasium, bowling alleys

- F-8 - Aurora Club lounge and bar
- F-23 - Borealis Club cafeteria and lounge
- F-30 - snack bar

F-8, 23, 30 are considered recreational, although food service is an integral part of their function.

COMMERCIAL

- F-31 - barber, laundry outlet
- H-32 - Hudson's Bay Store, Groceteria, Royal Bank

PUBLIC BUILDINGS

- D-4 - National Research Council laboratories and engineering offices
- D-6 - Department of Public Works, N.R.C. headquarters
- D-5 - Canadian Broadcasting Corporation, Manitoba Telephone System

PUBLIC BUILDINGS cont'd

- C-15 - Royal Canadian Mounted Police - office and cells
- C-1 - C-11 - Hospital
- E-18 - Fire Hall
- D-11 - Vocational School
- K-30,29,35 - Hearne Hall Junior High School
- F-30 - Library

INDUSTRIAL USES

- L-5 - warehouse
- D-20 - lumber storage
- D-19 - general storage
- D-19 - carpenter, plumber (workshop)
- D-18 - heavy equipment garage
- D-10 - garage workshops
- D-13 - motor pool
- G-19 - motor pool
- L-9 - laundry plant

- D-1 - water tower
- D-9 - pumphouse

INDUSTRIAL USES cont'd

D-15 - steam plant

D-16 - power plant

L-1 - water treatment plant

APPENDIX C

APPENDIX C

Federal Departments and Agencies likely to leave are the following:

Pan American Airways
Department of Indian Affairs and Northern Development
Department of Public Works
Canadian National Institute for the Blind

Federal Departments and Agencies likely to remain are the following:

Department of Transport
National Research Council
Department of National Health and Welfare
Post Office Department
Royal Canadian Mounted Police
National Harbours Board
Royal Canadian Navy
Defense Research Telecommunications Establishment
Canadian National Telecommunications
Canadian Broadcasting Corporation

Provincial Departments and Agencies to remain are the following:

Fort Churchill General Hospital

Manitoba Hydro

Manitoba Telephone System

APPENDIX D

APPENDIX D

BASIC DEPARTMENTS AND AGENCIES

| | TYPE |
|----------|---------|
| C.R.R. | Federal |
| D.O.T. | Federal |
| N.H.B. | Federal |
| R.C.N. | Federal |
| D.R.T.E. | Federal |
| C.N.T. | Federal |

PARTIALLY NON-BASIC DEPARTMENTS AND AGENCIES

| | TYPE |
|------------------|------------|
| D.I.A.N.D. | Federal |
| N.H. & W. | Federal |
| R.C.M.P. | Federal |
| C.B.C. | Federal |
| P.O. | Federal |
| Hospital/Dentist | Provincial |
| Manitoba Hydro | Provincial |

NON-BASIC DEPARTMENTS AND AGENCIES

| | TYPE |
|----------------------|---------|
| D.P.W. | Federal |
| C.N.I.B. | Federal |
| Royal Bank | Private |
| Hudson's Bay | Private |
| Chapel | Private |
| R.A.N.D. Enterprises | Private |

APPENDIX E

APPENDIX E

COMMERCIAL FACILITIES

1. Empress Seaport Builders Supply Co.
2. Hudson Hotel
3. Manitoba Government Liquor Commission
4. Churchill Hotel
5. B. & P. Photography
6. Taxi Stand
7. The Bay: Department Store and Rupertsland Trading
8. S & M. Supermarket
9. Lundy's Hardware
10. Arctic Alleys - Bowling Alley
11. Igloo Theatre - Movie Theatre
12. Sno-Cap Bakery and Coffee Bar
13. Esso Service Station
14. North Star Service Station - includes North Star Bus Lines
15. G. Paul Service Station
16. J. Leclerc Heavy Equipment Storage
17. Steelgas Utilities - storage
18. Bay Motors Esso Station

COMMERCIAL FACILITIES cont'd

19. Edme's Fine Foods
20. Anderson Moving and Storage
21. Motel
22. Barber Shop
23. Confectionary
24. Steelgas Warehouses
25. Crafts Shop
26. Mall
27. Clothing Store
28. Building Supply Warehouse
29. Offices - hairdresser, store, insurance, steelgas office
30. Sigmar Wholesale Warehouse
31. U-Drive

INSTITUTIONAL

32. Firehall
33. Anglican Church and Church Hall
34. School and School Residence
35. Church - Christian and Missionary Alliance

INSTITUTIONAL cont'd

36. Fort Prince of Wales Masonic Lodge
37. Old Legion Hall, New Legion Hall
38. Federal Building - R.C.M.P. and Post Office
39. Catholic Warehouse
40. Catholic Priests' residence, Catholic Church and Eskimo Museum
41. Public Library
42. Game and Fish Office
43. Manitoba Telephone System office and exchange
44. Community Hall
45. Arena.

APPENDIX F

APPENDIX F

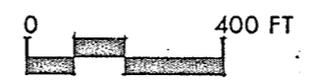
| <u>Provincial or Private Enterprise</u> | <u>Strength</u> | <u>Employees Living in Fort Churchill</u> | | <u>Employees Living in the Town of Churchill</u> |
|---|-----------------|---|--------------------|--|
| | | <u>P.M.Q.'s</u> | <u>Single Qts.</u> | |
| C.N.I.B. | 61 | 4 | 15 | 42 |
| Royal Bank | 9 | 2 | 2 | 5 |
| H.B.C. | 11 | 3 | 4 | 4 |
| Chapels | 2 | 1 | | 1 |
| M.T.S. | 6 | 1 | | 5 |
| Manitoba Hydro | 9 | 9 | 1 | - |
| Dentists | 1 | 1 | | - |
| Hairdresser/barber | | | | - |
| Hospital/Dr. Clinic | 74 | 11 | 16 | 47 |
| <u>Federal Department or Agency</u> | | | | |
| C.R.R. | 209 | 112 | 46 | 51 |
| D.O.T. | 43 | 42 | 12 | - |
| N.H. & W. | 8 | 5 | 1 | 2 |
| D.I.A.N.D. | 63 | 36 | 17 | 10 |
| R.C.M.P. | 11 | 7 | | 4 |
| D.N.D. | 4 | 2 | 1 | 1 |

| <u>Federal Department or Agency</u> | <u>Strength</u> | <u>Employees Living in Fort Churchill</u> | | <u>Employees Living in the Town of Churchill</u> |
|---|-----------------|---|--------------------|--|
| | | <u>P.M.Q.'s</u> | <u>Single Qts.</u> | |
| Post Office | 6 | 1 | | 5 |
| C.B.C. | 9 | 4 | 1 | 4 |
| N.H.B. | 120* | 2 | | |
| D.R.T.E. | 1 | 1 | | |
| D.P.W. | 285 | 107 | 41 | 147 |
| Rand Enterprises | | | 1 | |
| Met. Security | | | 3 | |
| Sub Total | | 351 | 161 | 328 |
| Total | | | 840 | |

* Large number of seasonal workers will increase by another 100.

Based on an average family size of 4.17 there are 950 people
(228 x 4.17) or 79.3% of the present town population dependent on Federal
activities in the Churchill area.

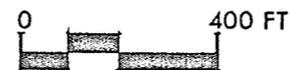
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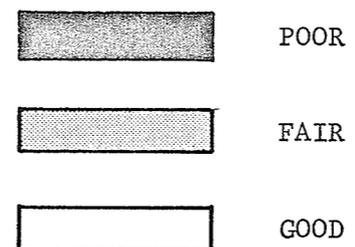
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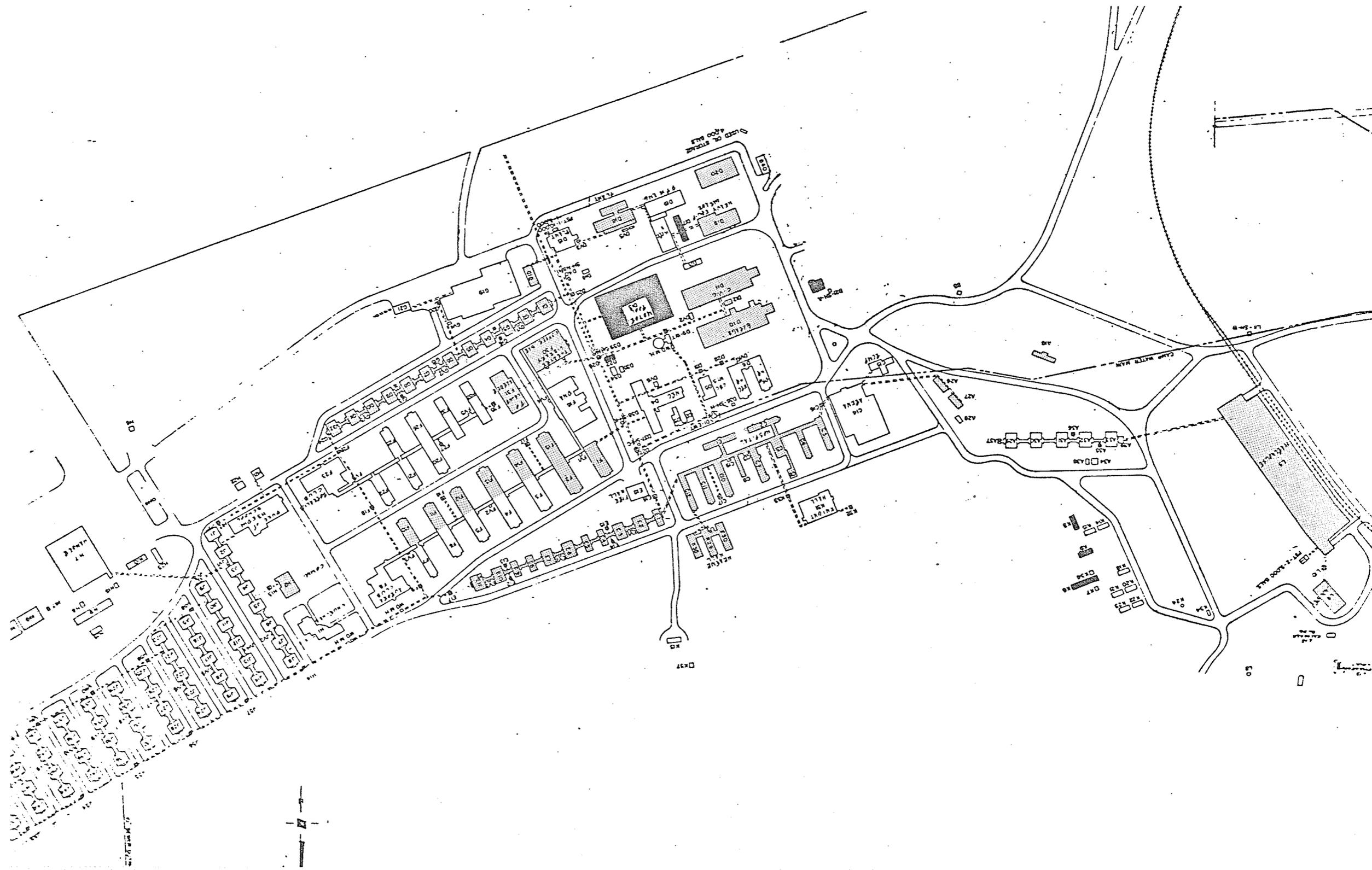
-  INDUSTRIAL
-  COMMERCIAL
-  RESIDENTIAL
-  TRANSIENT RESIDENTIAL
-  INSTITUTIONAL/RECREATIONAL

MAP 2 FORT CHURCHILL



BUILDING CONDITION

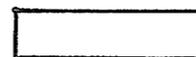




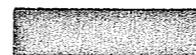
MAP 3 FORT CHURCHILL



BUILDING OWNERSHIP



DEPARTMENT OF PUBLIC WORKS



NATIONAL RESEARCH COUNCIL/CHURCHILL
ROCKET RANGE



DEPARTMENT OF TRANSPORT

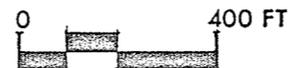


ROYAL CANADIAN MOUNTED POLICE

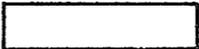
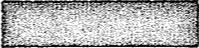


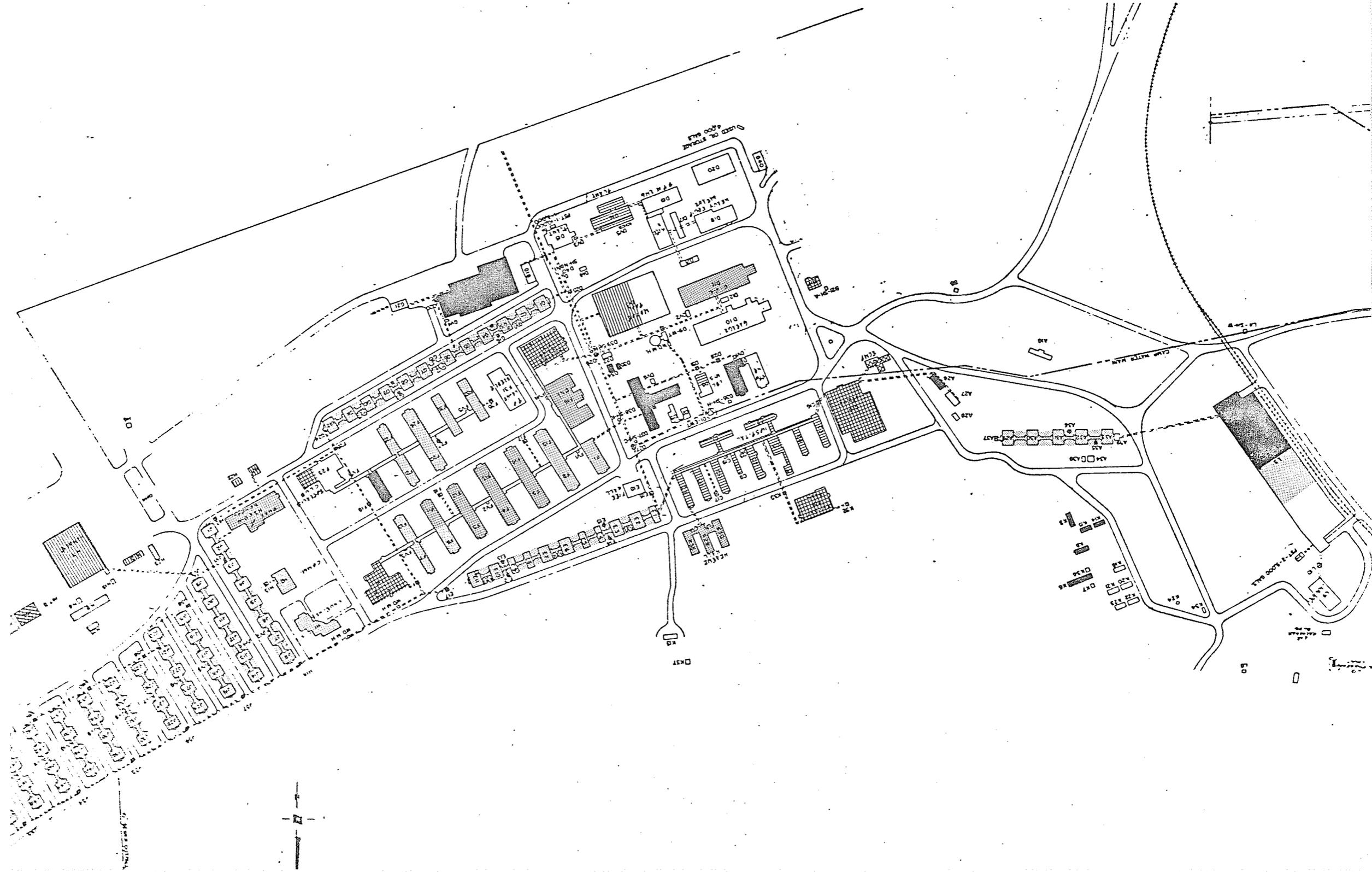
MANITOBA GOVERNMENT

MAP 4 FORT CHURCHILL

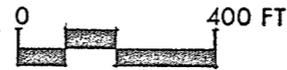


BUILDING OCCUPANCY

- | | |
|---|---|
|  | DEPARTMENT OF PUBLIC WORKS |
|  | NATIONAL RESEARCH COUNCIL/PAN AMERICAN AIRWAYS |
|  | DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT |
|  | DEPARTMENT OF TRANSPORT |
|  | ROYAL CANADIAN MOUNTED POLICE |
|  | MANITOBA GOVERNMENT AGENCIES |
|  | CHURCHILL COMMUNITY RECREATION ASSOCIATION |
|  | OTHER |

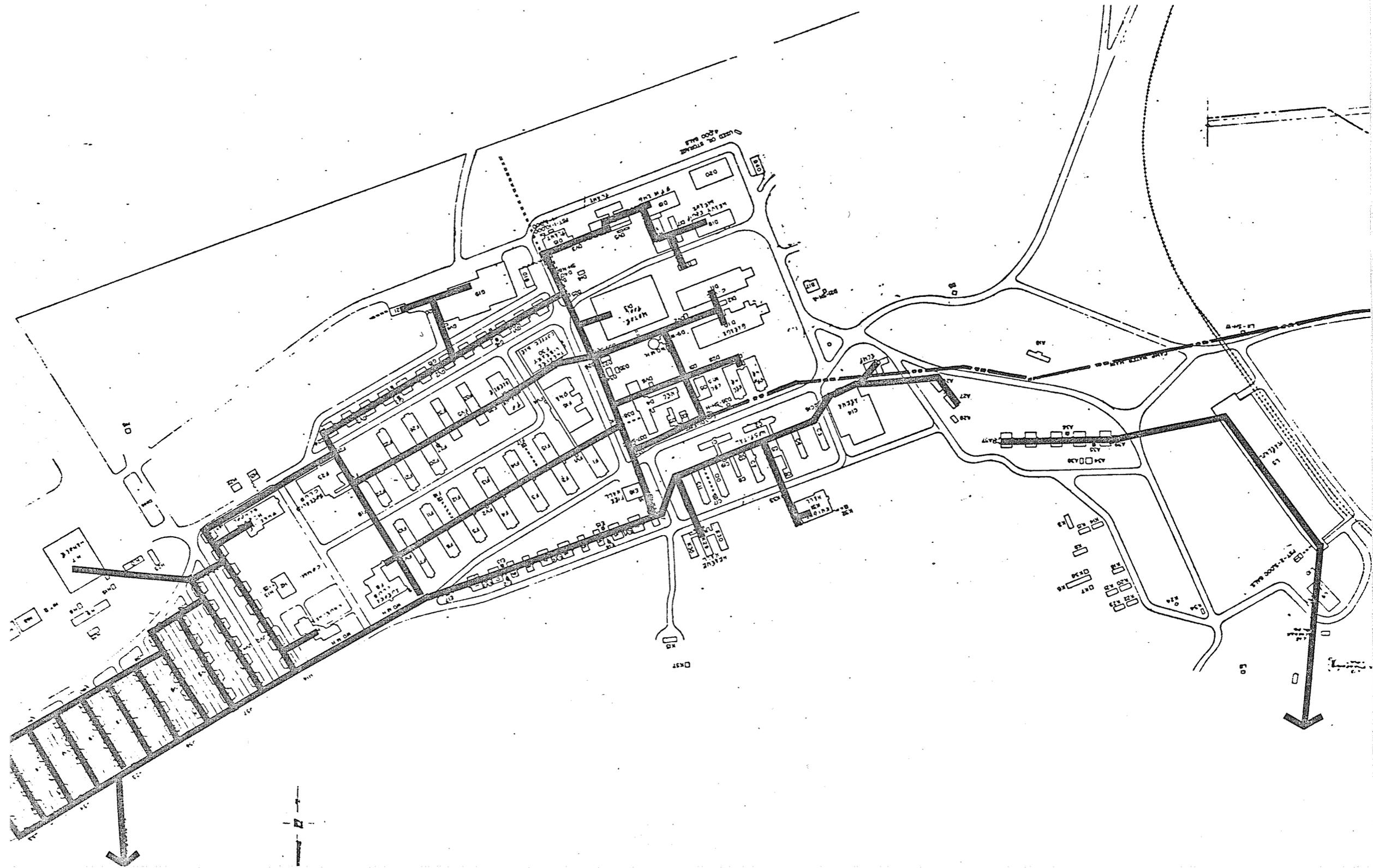


MAP 5 FORT CHURCHILL

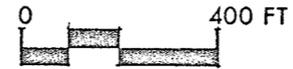


EXISTING SERVICES

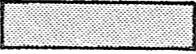
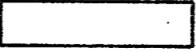
-  SEWER, WATER, STEAM HEAT UTILIDOR LINES
-  WATER LINE

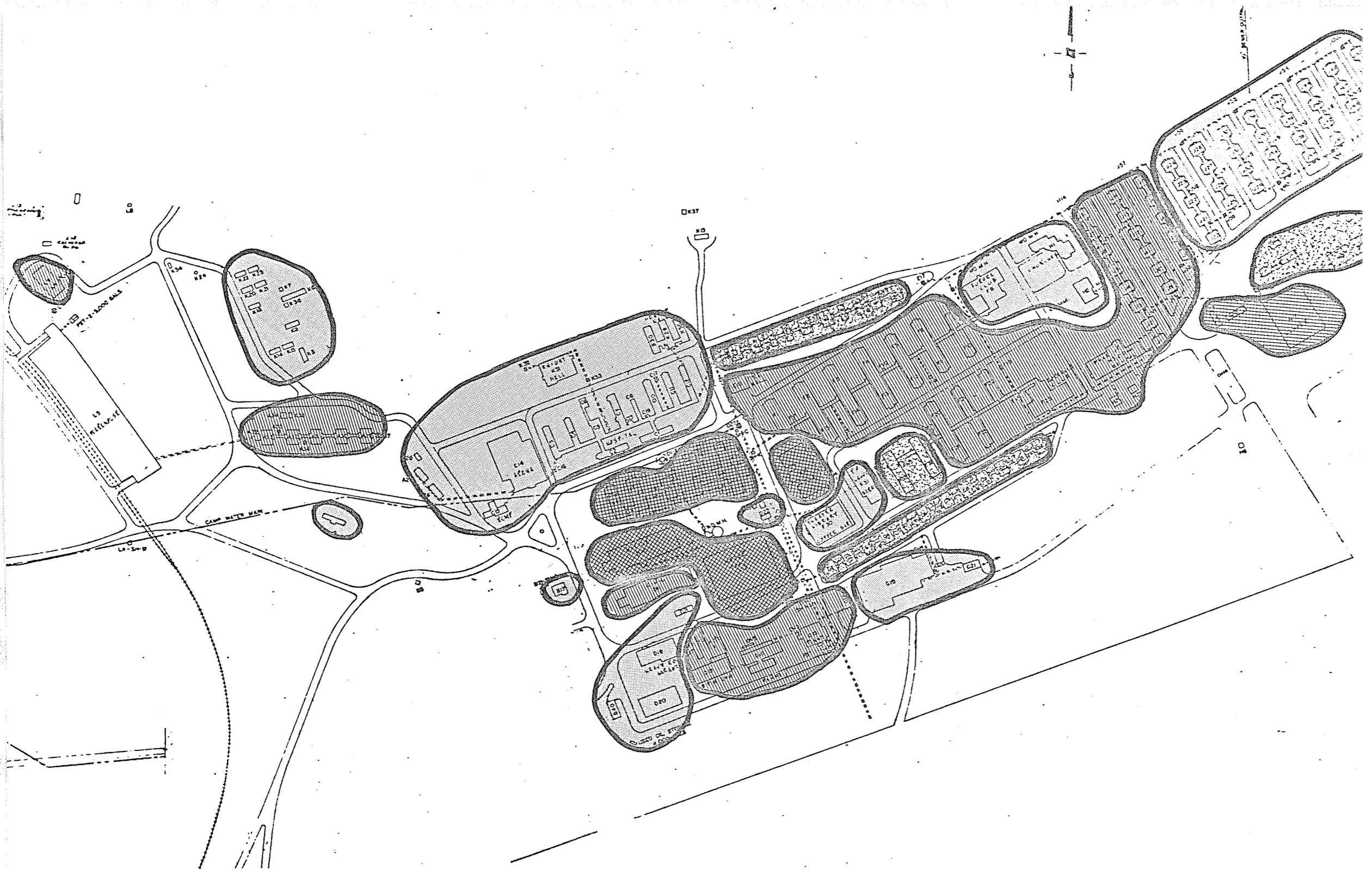


MAP 6 FORT CHURCHILL

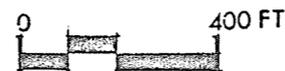


STAGES FOR PHASING OUT: 1970 - 1975

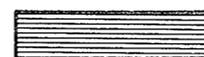
| | | |
|---|-------------|--------------|
|  | PHASE ONE | 1970 - 1971. |
|  | PHASE TWO | 1971 - 1972 |
|  | PHASE THREE | 1972 - 1973 |
|  | PHASE FOUR | 1973 - 1974 |
|  | PHASE FIVE | 1974 - 1975 |



MAP 7 TOWN OF CHURCHILL



EXISTING LAND USE



INDUSTRIAL



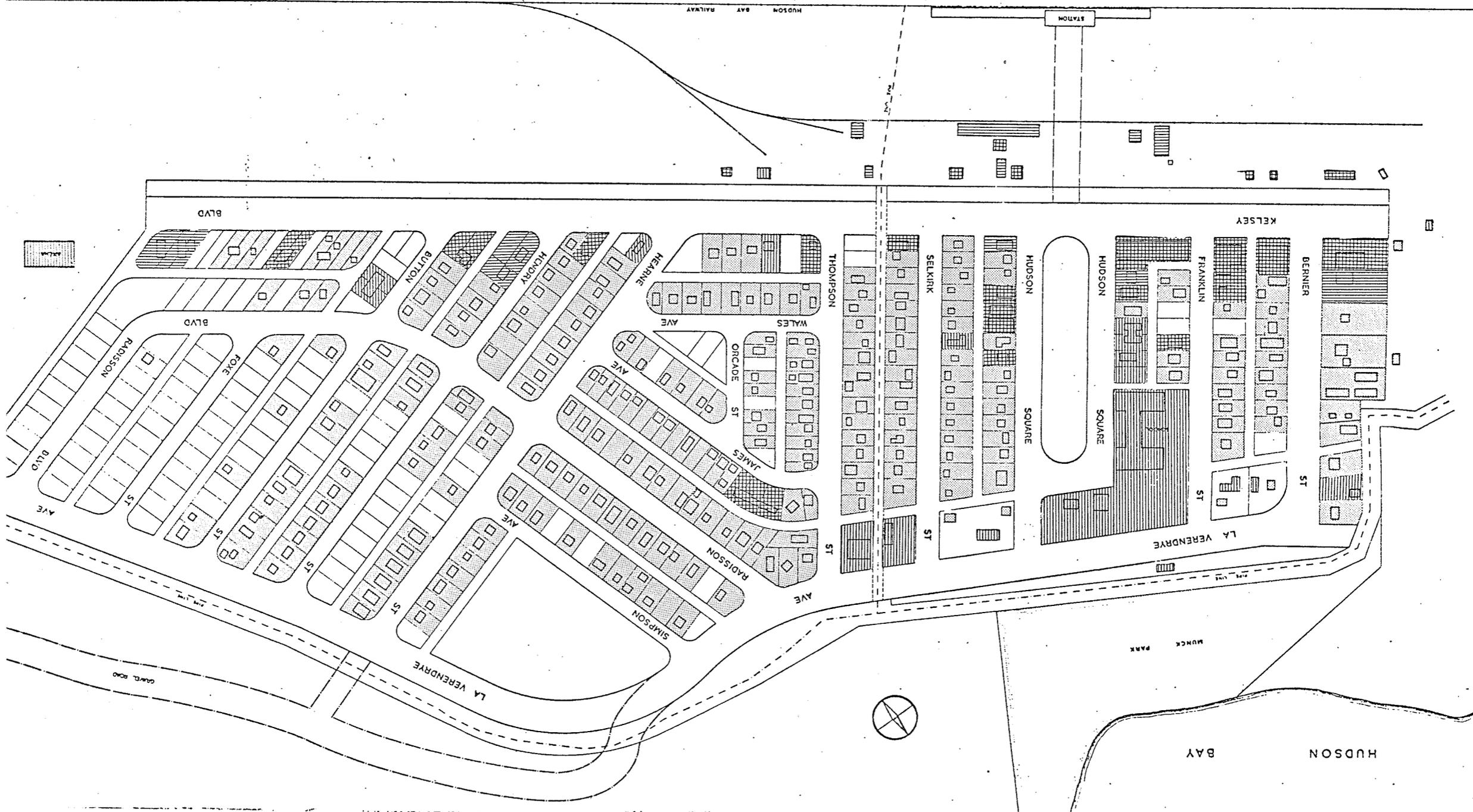
COMMERCIAL



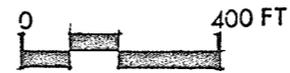
RESIDENTIAL



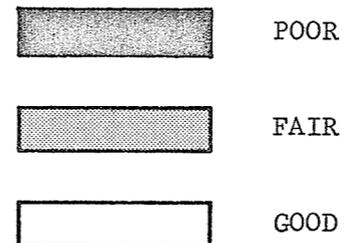
INSTITUTIONAL

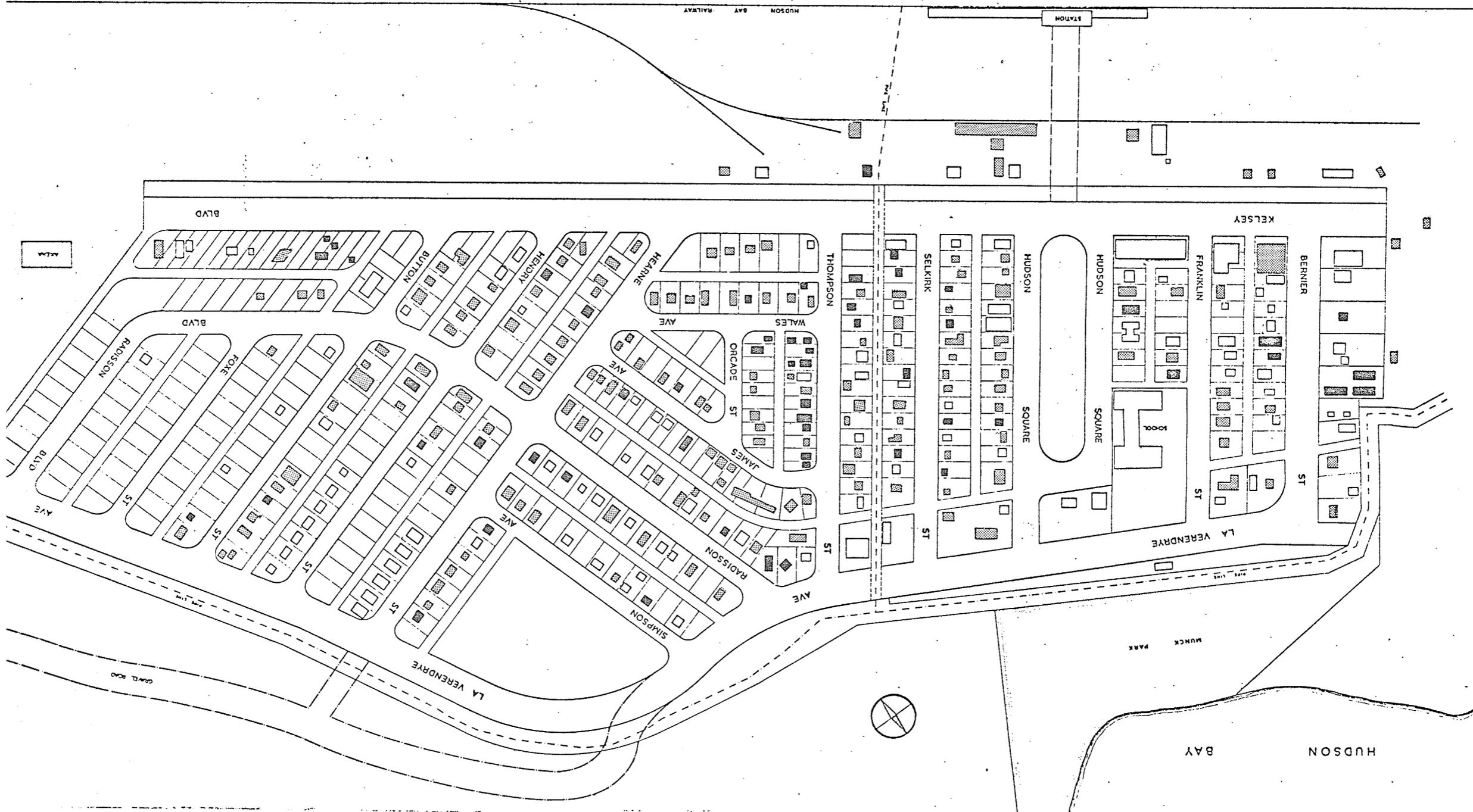


MAP 8 TOWN OF CHURCHILL



BUILDING CONDITION





HUDSON BAY RAILWAY

STATION

BLVD

KELSEY

ALMA

BERNIER

BLVD

FRANKLIN

RAOUSSON

HUDSON

BUTON

HENRY

HEANNE

THOMPSON

WALESS

SELKIRK

HUDSON

BERNIER

FOKE

ORCADE ST

HUDSON

FRANKLIN

RAOUSSON

HUDSON

BERNIER

AVE

ORCADE ST

HUDSON

FRANKLIN

RAOUSSON

HUDSON

BERNIER

MUNCK PARK

BAY

HUDSON



LA VERENDRYE

LA VERENDRYE

LA VERENDRYE

AVE

RAOUSSON

FOKE

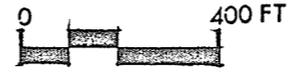
AVE

AVE

AVE

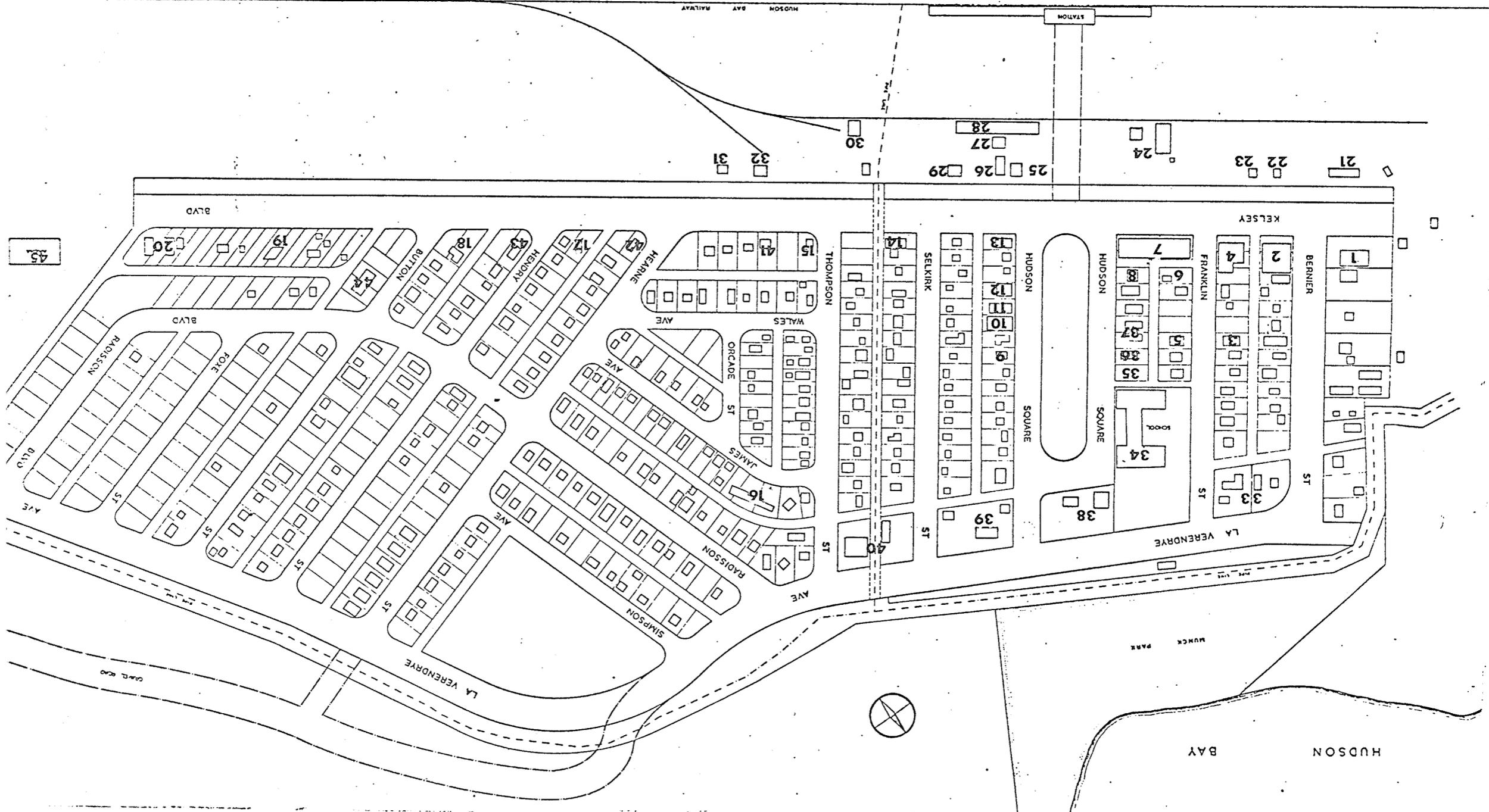
AVE

MAP 9 TOWN OF CHURCHILL



COMMERCIAL AND INSTITUTIONAL LOCATION

SEE APPENDIX E FOR DESCRIPTION OF COMMERCIAL
AND INSTITUTIONAL FACILITIES SHOWN ON MAP 9



45

HUDSON BAY

MUNCK PARK

STATION

21 22 23

25 26 29

27 28

30 31 32

BERNIER ST

FRANKLIN ST

HUDSON SQUARE

HUDSON SQUARE

SELKIRK ST

THOMPSON ST

WALEY AVE

ORCADE ST

HEARNE AVE

JAMES AVE

WALEY AVE

RADISSON AVE

SIMPSON AVE

LA VERENDRYE AVE

KELSEY BLVD

BLVD

BLVD

RADISSON ST

FOYE ST

SQUARE

SQUARE

ST

ST

AVE

LA VERENDRYE

2

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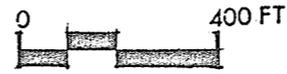
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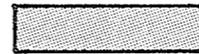
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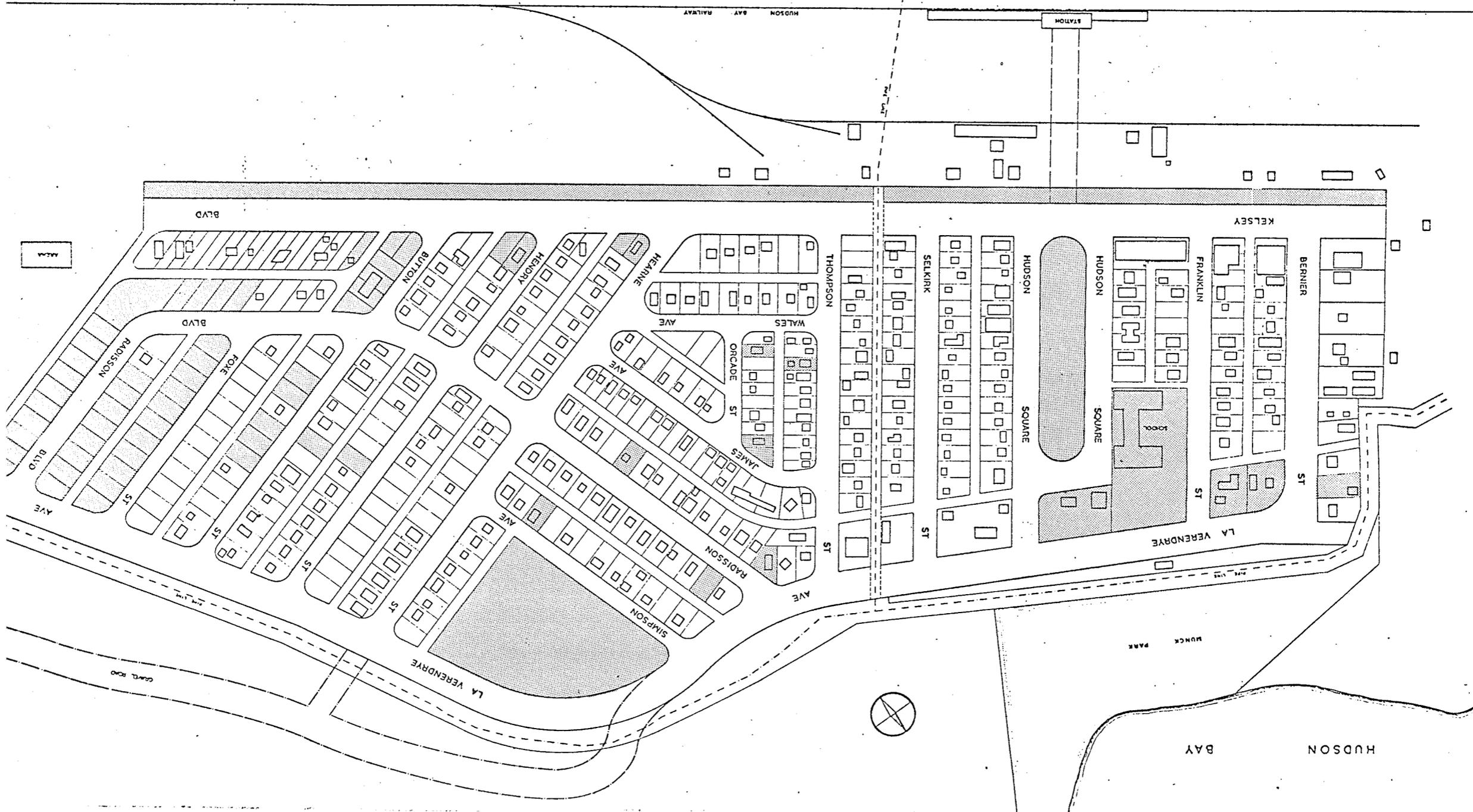
MAP 10 TOWN OF CHURCHILL



CROWN LAND



CROWN LAND



MAP

STATION

HUDSON BAY RAILWAY

KELSEY BLVD

BERNIER ST

FRANKLIN ST

HUDSON SQUARE

HUDSON SQUARE

SELKIRK ST

THOMPSON ST

WALEY AVE

ORCADE ST

HEALINE AVE

HEATON ST

HENRY ST

BOLTON ST

RAOUSSON ST

FOKE ST

BLVD

BLVD

AVE

ST

LA VERENDRYE

AVE

RAOUSSON ST

SIMPSON AVE

LA VERENDRYE

MUNCK PARK

BAY

HUDSON



MAP 11 TOWN OF CHURCHILL



EXISTING ZONING

- O OPEN SPACE
- A LIMITED DEVELOPMENT DISTRICT
- R1 ONE FAMILY DWELLING DISTRICT
- R2 TWO FAMILY DWELLING DISTRICT
- C1 NEIGHBORHOOD COMMERCIAL
- C2 CENTRAL COMMERCIAL
- C3 HIGHWAY COMMERCIAL
- M1 LIGHT INDUSTRIAL
- M2 HEAVY INDUSTRIAL

HUDSON

BAY



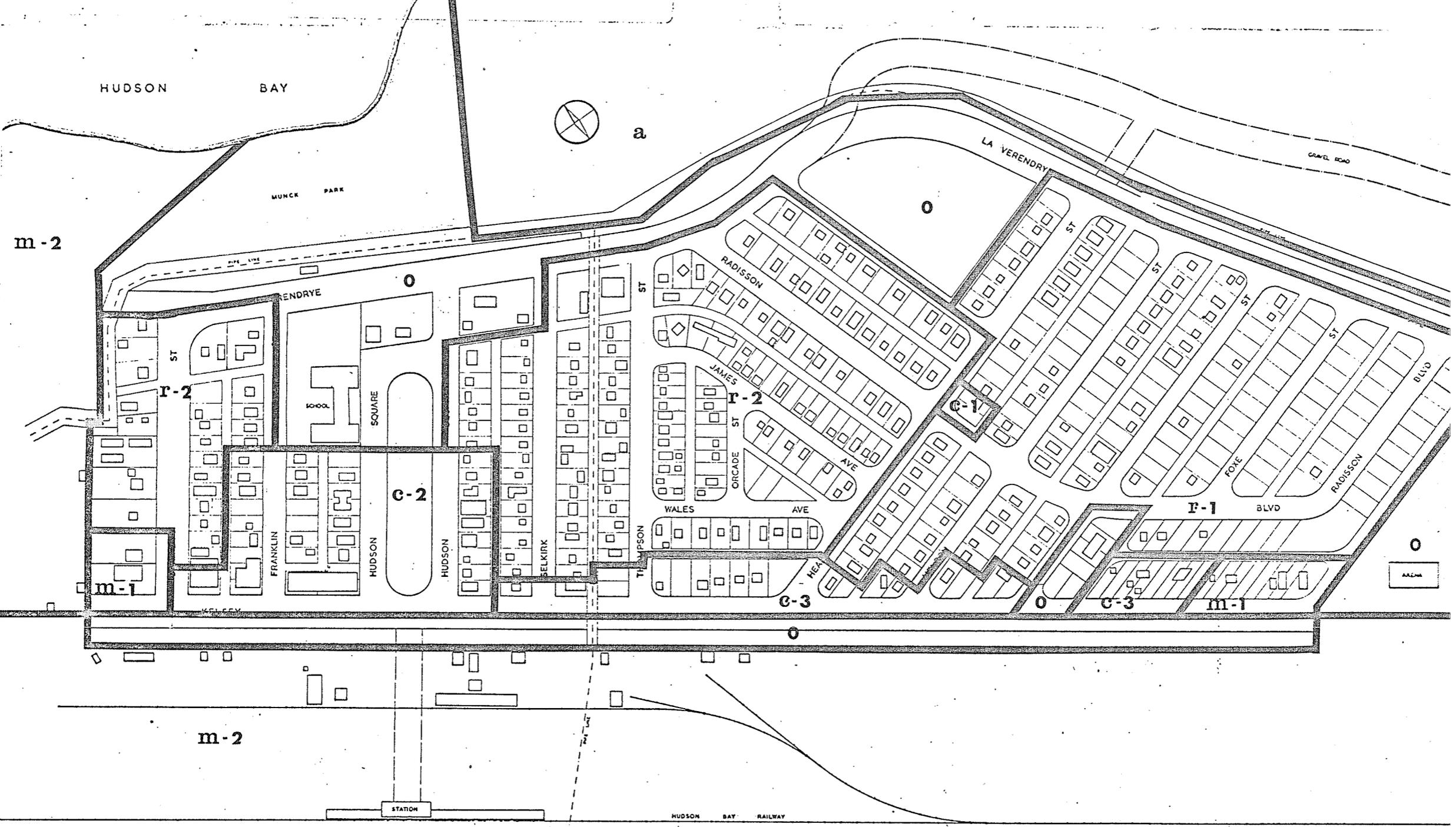
a

MUNCK PARK

LA VERENDRYE

GRAVEL ROAD

m-2



r-2

FRANKLIN

HUDSON

HUDSON

SELKIRK

TIMPSON

WALEY

ORCADE

JAMES

c-1

f-1

BLVD

ST

ST

ST

ST

BLVD

m-1

c-2

r-2

c-3

c-3

m-1

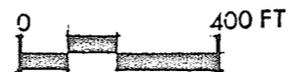
m-2

STATION

HUDSON BAY RAILWAY

AREA

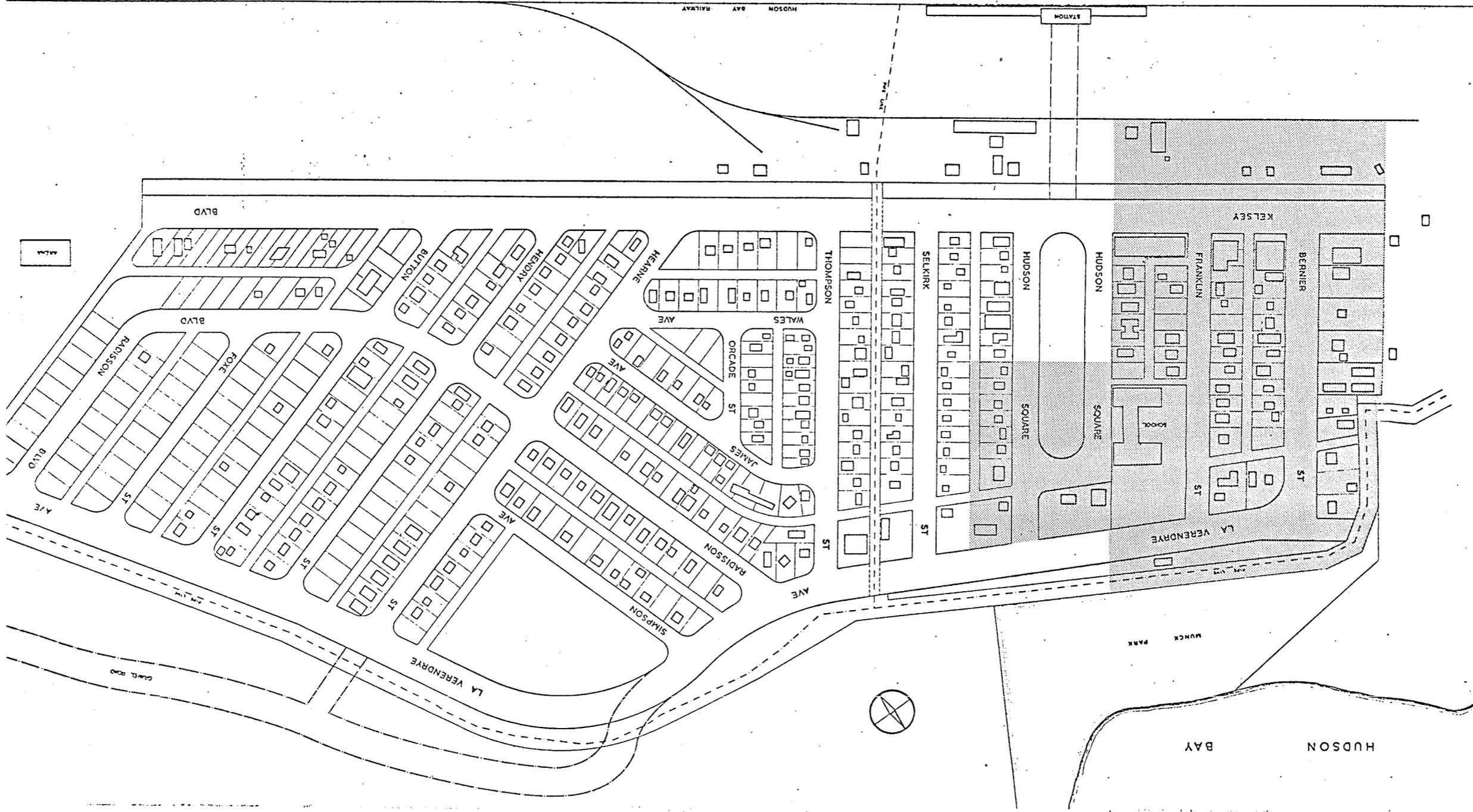
MAP 12 TOWN OF CHURCHILL



AREA SERVICED WITH SEWER AND WATER



SERVICED AREA (January 1970)



HUDSON BAY RAILWAY

STATION

BLVD

ALMA

KELSOY

BERNIER

FRANKLYN

HUDSON

HUDSON

SELKIRK

THOMPSON

WALEY

AVE

HEARNE

HENON

BUTON

BLVD

RAOUSSON

FOYE

ST

ST

ST

ST

ST

ST

ST

ST

ST

JAMES

ST

ORCADE

ST

AVE

ST

JAMES

ST

BLVD

AVE

LA VERENDRYE

SAND BAR

HUDSON BAY

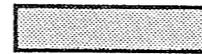
MUNCK PARK



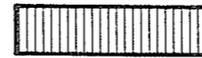
MAP 13 TOWN OF CHURCHILL



THE DEVELOPMENT PLAN

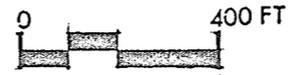


AREA OF DEVELOPMENT: 1990



UNDEVELOPED AREA. FOR POSSIBLE EXPANSION

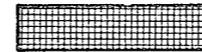
MAP 14 TOWN OF CHURCHILL



PROPOSED LAND USE



INDUSTRIAL



COMMERCIAL



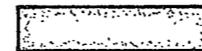
HIGH DENSITY RESIDENTIAL



LOW DENSITY RESIDENTIAL



INSTITUTIONAL



RECREATION AND OPEN SPACE



UNDEVELOPED

HUDSON BAY

MUNCE PARK

50' 0" 100' 0" 150' 0"

LA VERENDRYE

GRAC 300

AVE

BLVD

LOIS

BLVD

BLVD

BLVD

BLVD

BERNICE

STANLEY

HUDSON

SEKIRK

THOMPSON

HELDRE

SECURITY

BUSBY

WELLEY

TRAILER

PARK

INDUSTRIAL

PAPER

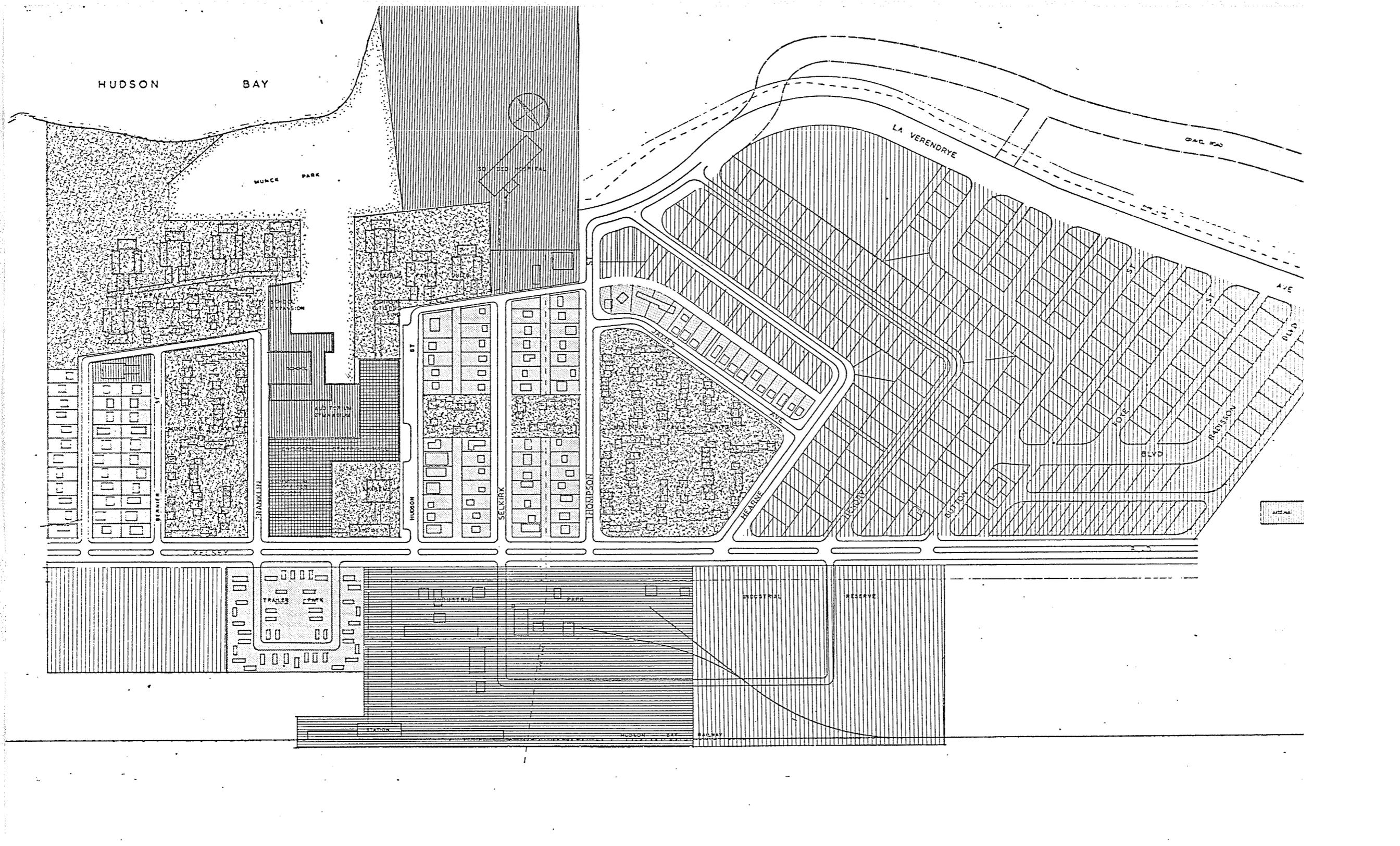
INDUSTRIAL

RESERVE

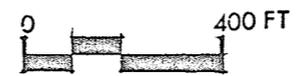
STATION

HUDSON BAY

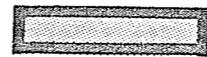
RAILWAY



MAP 15 TOWN OF CHURCHILL



STAGE 1 FIRST FIVE YEARS



PROPOSED FIRST STAGE DEVELOPMENT

