

THE UNIVERSITY OF MANITOBA

TRANSPORTATION-COMMUNITY INTERFACE PLANNING  
WITH PARTICULAR REFERENCE  
TO SMALL NORTHERN MANITOBA COMMUNITIES

BY

LORNE TANGJERD

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES  
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF  
MASTER OF CITY PLANNING

DEPARTMENT OF CITY PLANNING

WINNIPEG, MANITOBA

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## ACKNOWLEDGEMENTS

I would like to express my gratitude to Professor Ralph Harris of the Department of Economics for his guidance, encouragement and support in the preparation of this thesis. I would also like to thank Professor Kent Gerecke and Professor Basil Rotoff of the Department of City Planning for their valuable assistance.

Further I am grateful to the many other people who answered my questions and discussed this thesis with me. The residents of Norway House provided me with numerous insights. Officials from the Band and community council were particularly helpful. As well, I would like to thank the numerous officials in the provincial and federal governments, consultants and transportation company representatives who provided me with information.

I would like to indicate my appreciation for the Fellowship I received from the Transportation Development Agency. Also, I am grateful for the research grant obtained from the Centre for Transportation Studies.

## ABSTRACT

This thesis develops the concept of transportation-community interface planning and applies it to a small northern community. The interface is defined as the abutment and effects of the transportation system on the physical, social and economic development of a community. The evolution of a community is in part determined by successive changes in the transportation system. The introduction of new types of technology may result in the restructuring and reorganization of a community. Transportation-community interface planning would appraise the effects of internal and external transportation changes and apprise the community of implications. The process would contribute to transportation planning which is sensitive to impacts on small communities and would contribute to active adaptation by the community.

The approach involves identification of the stages in the evolution of the interface for the case study community of Norway House, Manitoba. The community was chosen as it is representative of a number of small native communities in northern Manitoba and has faced considerable changes in its transportation system. The study traces the historical development of the water, air and land based modes in northern Manitoba and evaluates recent frameworks for transportation decision making. The focus is on the effects of an access road being extended to Norway House in 1977.

The study also identifies four key interface stages in the history of Norway House and cites significant consequences of each change for the physical, social and economic structure of the community, as well as

evaluating the implications for community decision making and planning. It is determined that each stage in the interface significantly altered the community structure. The introduction of new modes in the south completely usurped the early role of Norway House as transportation hub of the west. Recent transportation changes have led to an internal pattern characterized by clusters as well as linear water oriented development. These changes have also facilitated access to other centres. The economy of the community remains depressed as the infrastructure projects alone could not generate any significant new industries.

The study concludes that a mechanism for transportation-community interface planning which increases local input, involves private carriers and involves senior governments is necessary. The interface planning agency is vital to ensure the transportation system responds to local needs and to facilitate adaptation of the community in an informed, active way.

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## CHAPTER I

### INTRODUCTION

This thesis examines the dynamic interface between a transportation system and a community. In particular, the transportation-community interface of Norway House in northern Manitoba is evaluated. The thesis seeks to determine the relationship of the physical, social and economic structure of the community to each successive change in transportation technology. These relationships are examined to determine ways in which the most effective interface planning decisions can be made.

The interface is defined as the abutment and effect of the transportation system on the human and design characteristics of a community. The effect of the community on the transportation system is also an interface element. The interface has both an internal and an external component. The internal interface is the juxtaposition and effect of the internal circulation system on land use and other aspects of the community. Externally the interface includes relationships between transportation infrastructure, operations and movements and the physical, social and economic development of a community. The flows and linkages to other settlements have a strong influence on the role of a community. The thesis examines the interface of the internal and external transportation systems with the internal structure and external relationships of a community.

The concept of the interface is evolutionary dealing with the meshing of transportation and community through time. The concept goes beyond addressing transportation-community interrelationships at one point in time. Rather the most significant aspect of the interface is the manner in which transportation changes restructure and reorganize a community and the response of the community to these restructuring forces.

Transportation infrastructure components such as airports, roads and docks are important land uses in a community. The transportation system provides access to communities and parcels of land making them useful for activities such as industrial, commercial or residential development. The most evident aspects of the interface are the relationships between transportation and land use and the relationships between external transportation links and the regional settlement pattern. The concept of the interface goes beyond examining the abutment of transportation and community to include the effects of the transportation system on the community.

Therefore, interface planning then guides the abutment and effects of transportation systems on a community. This type of planning involves issues related to the juxtaposition of transportation and land use. As well it examines community viability in relation to regional linkages. Interface planning would also apprise transportation planning agencies, community planning agencies, private transportation companies, other agencies and the public of the short and long term effects of interface shifts and their implications for the community.

The concept of transportation-community interface planning as developed in this thesis refers to both the current decision making and planning related to this interface and to specific structures or mechanisms to deal with transportation-community interface issues.

Changes in transportation technology or in community structure can alter the interface. It is the contention of this thesis that the interface as it changes presents many constraints and opportunities for a community and that interface planning is required to guide the interface in ways consistent with community needs and desires. Components of interface planning include recommendations for specific interface planning initiatives, recommendations for transportation planning which is community sensitive and recommendations for community planning which actively adapts to transportation changes. The rationale for interface planning lies in the failure of both community planning and transportation planning to adequately address interface issues.

The thesis contends that transportation changes are significant in northern communities especially in recent years when modern modes such as the automobile are being introduced. As well past transportation-community interface stages are examined as some of the old modes remain and community structure and ways are still influenced by the past. Implications of transportation for the physical, social and economic structure of the community are considered at each stage. The degree to which externally made interface decisions reflect local needs is addressed.

For small northern communities interface planning should address the implications of the infrastructure and operations of all air, land and water based modes for community development. Recommendations of interface planning would address the transportation system, community land use and development and social and economic development on a local and regional level. The common basis for the interface planning policies and proposals would be the identification of processes whereby transportation restructures and reorganizes a community and the response of the community to these restructuring forces. By understanding these basic interrelationships the planner will be able to offer guidance in managing community development.

At present in northern Manitoba there is no structure or institutionalized process for transportation-community interface planning. There are separate agencies responsible for the planning and decision making for the transportation and community aspects of development. While there are some limited efforts at comprehensive planning, i.e., Northern Strategy, Northlands Agreement and the formation of the Department of Northern Affairs there has been no particular interface planning efforts.

#### Methodological Approach

In developing an appropriate methodological structure for interface planning there are two key elements to be addressed. The first is the substantive developmental issues while the second includes the mechanisms and approaches whereby planning and decision making takes place. These two aspects need to be addressed in relation to each other.

For transportation-community interface planning the main substantive parts are the transportation system, the community and the interrelationships between the two. An understanding of each individual component is vital in order to address the way in which they interface. As well, the broader historical and developmental context must be examined to understand the relevance of the transportation-community interface.

The key areas to be examined regarding planning and decision making mechanisms are transportation planning, community planning and specifically interface planning. The broader northern, provincial and federal planning and decision making provides the context for this examination. As previously mentioned, there is no interface planning unit as such but the interface decision making which does take place by various agencies and companies needs to be addressed.

To deal with these various developmental and planning considerations the methodology stresses the dynamic evolution of the interface by stages. The stages can be viewed as layers, similar to those in an archeological dig. Previous modes are often maintained even as new ones are introduced. Each layer should be examined as they all contribute to the present day reality. Identification of the stages provides a planning framework in which appropriate decisions can be made.

Major transportation changes can result in an improvement, a deterioration or a redirection of a community. These major changes are generally externally determined. Thus to a considerable extent the type of planning needed in these communities is adaptive. It

must be recognized that local planning decisions are often dependent on the actions of others outside the community.

This adaptive community planning need not be merely reactive but rather can actively pursue opportunities presented by changes and mitigate negative effects. Thus, planning attempts to mesh the transportation and community systems; recognizing external determinants but attempting to achieve local goals.

### Northern Communities

For interface planning to be effective it is important that the local milieu be understood. As Stephen Rodd has stated, "it's not an empty canvas out there" (Hodge, 1975, p. 87). The people of small northern communities are facing a number of social and economic problems. Individuals must struggle with divisions in their community, lifestyle and language.

To facilitate a detailed analysis a case study approach was chosen. Rather than attempt to examine all small native communities in northern Manitoba it was decided to address in depth the interface of one community. Norway House, at the northern end of Lake Winnipeg, was chosen as the case study area for a number of reasons. First of all it shares many characteristics with other northern native communities. It is part reserve, part non-reserve, is developed on the shores of a river and is served by air, land and water modes and is relatively underdeveloped in a physical, social and economic sense. While Norway House and several other native communities such as Nelson House, Bissett, Split Lake and South Indian Lake have received road access in recent

years they still remain relatively isolated--geographically, socially and economically. However, the all-weather roads mean these communities are more tied into the provincial transportation network than those communities with only winter road and air service.

To understand the implications of improved access this thesis examines the effects of the all-weather road built to Norway House. While not examined in detail in this study indications are that Nelson House, Bissett and other communities had experiences similar to Norway House when a road was constructed. Little economic stimulus for the communities was reported but exacerbation of some social problems such as alcoholism and drug abuse were reported.

The study also examines the interface of Norway House at various stages prior to road access. Communities without roads can be expected to have characteristics similar to Norway House prior to the new link being built. Some of these communities can expect to receive road access in the future and they may be able to benefit from knowledge of the experience of Norway House.

The fact that Norway House is a regional centre means that it is not possible to study the transportation system serving the settlement without examining the entire regional transportation system. Thus, while focusing on one community the study examines the overall region of northern Manitoba (see figure 1).

#### Sources of Data

To gather material for this thesis it was necessary to employ several techniques: (1) an extensive literature review, (2) field



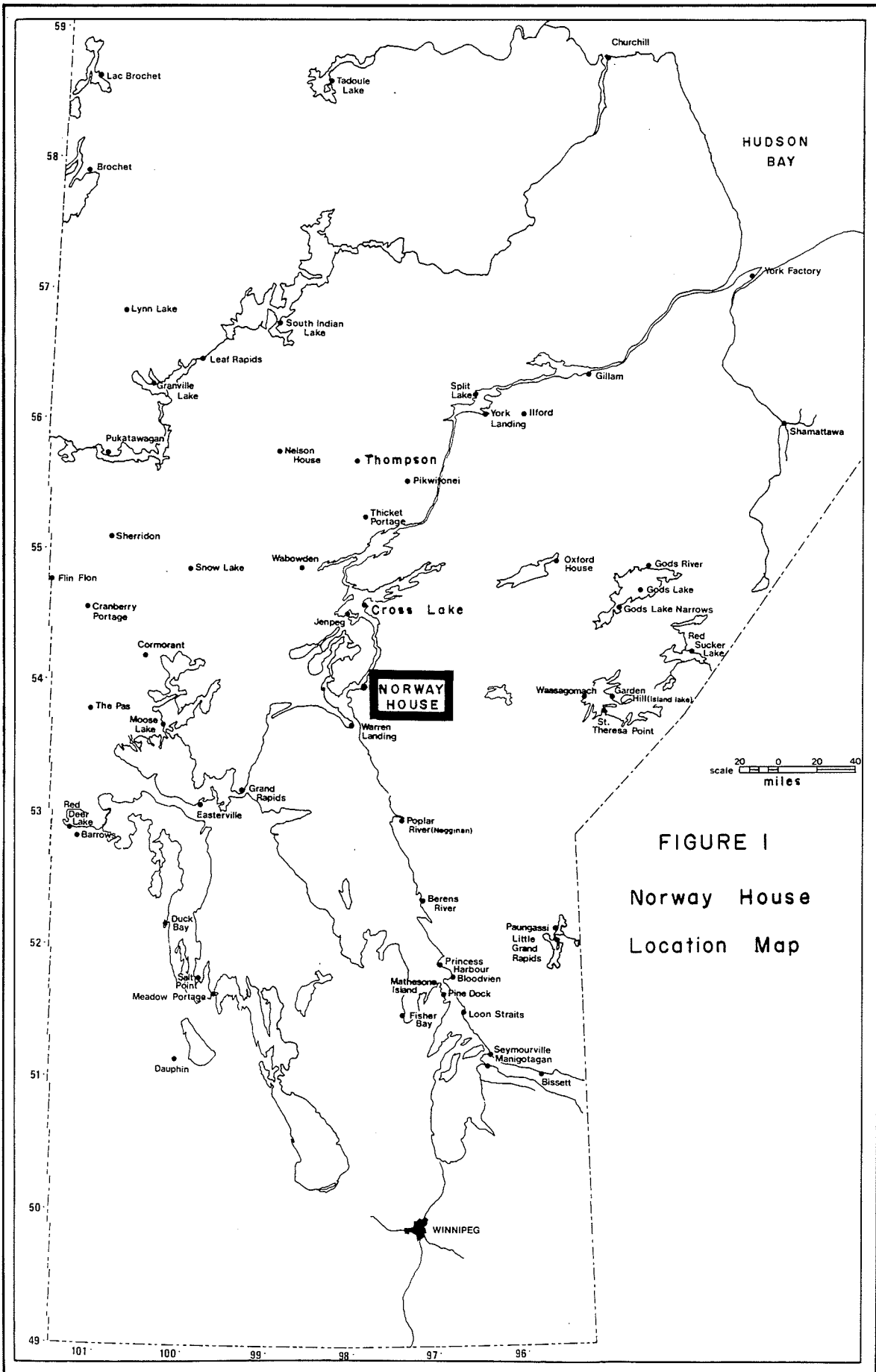


FIGURE I  
Norway House  
Location Map

research in the case study community, and (3) interviews with planners, researchers and other officials.

The literature review extends across broad boundaries into transportation, community planning and northern development. Literature on theoretical aspects of the transportation-community interface was reviewed with particular emphasis placed on reviewing information on the evolution of transportation and communities in northern Manitoba.

The field research consisted of interviews in the case study community. The interviews were conducted with members of the Band Council, the mayor, local businessmen, the local representative of the Manitoba Metis Federation, the airport manager, a trucking company representative, as well as numerous other residents and officials. In these interviews pertinent information about the past and present transportation-community interface was obtained and the needs and desires of community residents were cited.

Interviews with transportation company representatives, planners, professors and others working on northern transportation and community matters provided considerable information. Each of the barging, trucking, airline and bus companies serving Norway House was contacted for data on transport movements, operating costs, revenues, infrastructure, equipment and future plans. In particular relationships with other modes and with the community were addressed.

The planning consultants hired by the Band and community council were interviewed as well as the community planners from the federal Department of Indian Affairs and Northern Development and from the provincial Department of Northern Affairs.

Federal and provincial branches responsible for transportation services including roads, ferries and air service were contacted and officials dealing with the Canada-Manitoba Northlands Agreement were interviewed.

By integrating information from transportation and community planning studies, past northern studies, community residents, local officials, planners, researchers and other officials a comprehensive understanding of the interface may be obtained.

#### Procedure

The type of methodological approach outlined herein resulted in an interface planning study structured as follows. The introductory chapter defines what is meant by the interface and sets out the parameters of the thesis.

To provide the context for the case study of Norway House the second chapter outlines the history of northern Manitoba and the evolution of water, air and land based modes of transportation. This material demonstrates the dynamic relationships which characterize the interface as developmental changes occur. Decisions with interface implications, some of which completely alter the role of the community are examined.

The latter part of chapter two examines transportation planning as it took place in the 1970s in northern Manitoba. The purpose of this section is to identify how transportation-community interface planning was handled in the recent past. Although there were no interface planning agencies or studies as such a number of planning efforts did influence the evolution of the interface. In this section

the developmental programs such as the Northlands Agreement are outlined. By evaluating planning efforts such as Guidelines for the Seventies, the Manitoba Northlands Transportation Study, the Northlands Agreement, the Northern Strategy and the ongoing efforts of various government departments an assessment of current planning for the transportation-community interface is made.

The third chapter focuses on the case study community of Norway House examining the nature of the community and community planning. Matters relevant to internal transportation-community interface planning are discussed including settlement pattern, population growth and economic base of the community. These three factors in particular must be considered when meshing a transportation system with a community. The chapter also assesses the local planning initiatives on their own merits and on their ability to incorporate community concerns into decision making on interface questions.

Chapter four while examining the key elements of the external and internal transportation system serving Norway House places particular emphasis on how the transportation system shapes the role of Norway House in the region. The focus of the chapter is on the multimodal nature of interface planning, illustrating the way in which construction of an access road to Norway House diverted freight and passengers from other modes. One of the most direct effects of the road to Norway House, reduced freight costs is assessed. Overall this chapter focuses on the transportation system which must be understood on its own as well as understood in relation to the effects on the community.

The fifth chapter reflects the broad scope of considerations which must be addressed to understand the implications of changes in the transportation-community interface. The purpose of the chapter is to examine the social, economic and cost of living effects of the access road to Norway House. Planning for the interface must consider all these significant implications. Chapter six draws together the key elements of transportation-community interface planning at various stages for Norway House. The implications of the internal and external components of the interface for the physical, social and economic structure of the community are analysed. Decision making and planning implications are indicated.

The conclusion addresses the need for interface planning in view of the significant consequences of interface changes. Recommendations are made respecting mechanisms for interface planning and implications for community planning and transportation planning are indicated.

## CHAPTER II

### HISTORY AND RECENT DEVELOPMENT OF TRANSPORTATION IN NORTHERN MANITOBA

Interface planning as examined in this thesis is a dynamic rather than static concept. It examines the meshing of the transportation system and the community through time. As such the focus is on the evolution of the transportation system and the effects of the water, air and land modes on small northern communities, in particular, Norway House.

The interface between transportation and community often varies with the degree of isolation. An interface changes considerably if a new mode makes a community less remote. The interface could also change if the interests and orientation of a community changed so it related to other centres and areas in a different way. When modal changes occur major infrastructure elements in a community may be abandoned as they are bypassed by new arrangements.

To understand the context in which the transportation-community interface evolved the chapter commences with a brief history of northern Manitoba. The next section traces the role of marine transportation, air transportation and land based modes such as dog sled, horse and sled, tractor trains, winter truck roads and all-weather roads in the development of small northern communities. The effects of transportation changes on the viability of these communities are noted. The

external control over both economic pursuits and transportation is discussed. Seasonal fluctuations in transportation service are also detailed.

The final section of the chapter examines transportation developments in the 1970s. The policies and programs which shaped much of the current interface are outlined. Initiatives in transportation and northern planning approaches are included.

The information presented in this chapter is essential for understanding the evolution of the interface. This information provides a foundation for the study particularly in identifying the specific stages. This chapter traces the interface since the fur trade and identifies recent transportation and developmental programs which have changed the interface.

#### Northern Manitoba History

Human habitation in Manitoba began about ten thousand years ago after the glacial ice which had covered the province began to recede. Initially the grasslands in the south were inhabited but eventually tribes moved into the boreal forest of northern Manitoba.

At the time of European contact in the sixteenth century there were two widely dispersed tribes known to reside in northern Manitoba--the Chipewyan and the Cree, along with a small number of Inuit by the Hudson Bay coast (Davidson, 1978, p. 84). Cree are now numerically dominant in the north but there are a number of Saulteaux (Ojibway) in the central part of the province. In

the Norway House area the population is predominantly Cree. During the pre-contact period the native population that inhabited north central Manitoba numbered less than one thousand (Hlady, 1970, p. 95). There were no permanent settlements occupied throughout the year (Davidson, 1978, p. 84). Rather the Indian bands moved with the seasons living primarily on fish and game. In the summer movement was on foot or in canoes and in winter either by snowshoe or by dog sled. The region around Norway House was an important area in pre-contact days as there was an adequate supply of fish and stands of birch which were utilized in making canoes.

The semi-nomadic lifestyle reflected the severe carrying capacity limitations imposed by the boreal forest environment. Subsistence patterns varied from one ecological niche to another, based on what was available in each area. Due to high mobility, accumulated material wealth was scanty and production and harvest were normally aimed at satisfying the immediate needs of the people directly involved (Davidson, 1978, p. 86).

The socio-political organization of these groups revolved around the family hunting band, generally led by the head of the family. Land was communally utilized although specific areas within a tribal territory might be held by each family hunting band (Davidson, 1978, p. 86).

The economic and social conditions of these generally nomadic people were drastically reorganized in the eighteenth and nineteenth centuries by the fur trade. The purpose of production shifted from the direct satisfaction of local needs to the satisfaction of external demands. As the voyageurs and trappers fanned the west, the communities came to depend on the fur trade companies for consumer goods. This dependency was



further reinforced by the physical stabilization of settlement around fur trade posts and the subsequent depletion of game. Imported technology, organization and political control replaced the formerly balanced systems. Skilled highly paid employment opportunities in the region were filled by immigrants. Income benefits increasingly accrued to overseas and southern investors and producers.

However, the fur trade was labour intensive relying heavily on native labour for trapping, transport and food procurement (Rothney and Watson, 1974, p. 58). Thus while the fur trade initiated the dependent position of native people it did provide gainful employment. Later with the decline of the fur trade native people changed to occupations in mining, forestry, cottage industry, farming, fishing, transportation, surveying and prospecting. However trapping continued as a major source of income into the twentieth century. Between 1913 and 1924 it is estimated that trapping accounted for between one-half and two-thirds of the income of native northerners while fishing accounted for between 8 percent and 12 percent. Currently revenue from fishing exceeds revenue generated from trapping.

In the twentieth century the economy of the north is focused on the modern resource extraction industries. The three major industries; mining, forestry and hydroelectricity are characterized as follows: (1) they export their product in raw form with little value added by processing or manufacturing, (2) capital goods, consumer goods and technology are imported, and (3) profits accrue to owners of capital outside of northern Manitoba.

The foregoing points are features of a divergent economy; one in which what is produced locally is consumed elsewhere and where external products are imported for consumption. In other words the economy lacks internal demand linkages.

The modern resource extraction industries have grown rapidly in northern Manitoba since the Second World War. Thousands of jobs have been created and average incomes in the cities in the north are comparable to those in southern Manitoba. In contrast rural areas of the north have average incomes which are less than one-third of those in the larger centres (Canada, Department of Regional Economic Expansion, 1975, p. 23).

The role of government in the northern economy has been primarily concerned with facilitating the extraction of resources and wealth from the north. The Hudson's Bay Company's early monopoly is one example of a state assisted private enterprise. More recently government built railways, roads, town sites and schools have provided an infrastructure base for the resource extraction industries.

In the last two decades the federal and provincial governments have significantly broadened their role in the north. As well as directly supporting private ventures the governments are now channeling funds and services to native northerners. Native people are provided with welfare, health and education services, training programs and special work projects. Both governments provide funding to improve transportation services for native communities. Also a number of native people are employed directly by government. Partially as a result of government inputs a welfare economy has been established.

Monies earned in traditional pursuits augment the government transfer payments.

### Northern Manitoba Transportation History

In order to evaluate the influence of transportation on northern communities it is essential to understand the historical context. This section will trace the history of various modes of transportation in northern Manitoba through to the 1970s.

#### Marine Transportation History

In order to tap the potential profit of the fur trade the Company of Adventurers Trading into Hudson's Bay was chartered in 1670 with a monopoly of the fur trade through Hudson Strait and exclusive possession of lands drained by waters emptying into the Hudson Bay. For over a century after its establishment the Hudson's Bay Company was content to remain on the shores of Hudson Bay awaiting each spring the arrival of the Indians with their fur-laden canoes (McCracken, 1975, p. 3). Only the threat posed by the rival North West Company in the eighteenth century, forced the Hudson's Bay Company to move inland and establish posts in the interior. A bitter struggle between the two companies was finally resolved in 1820 when they amalgamated. From that time forth the great fur brigades of the Nor'Westers that left Montreal each summer became a thing of the past. York Factory on Hudson Bay became the port of entry for the northwest. From there goods were shipped to interior posts by Indian-manned boat brigades (Godsell, 1941, p. 5).

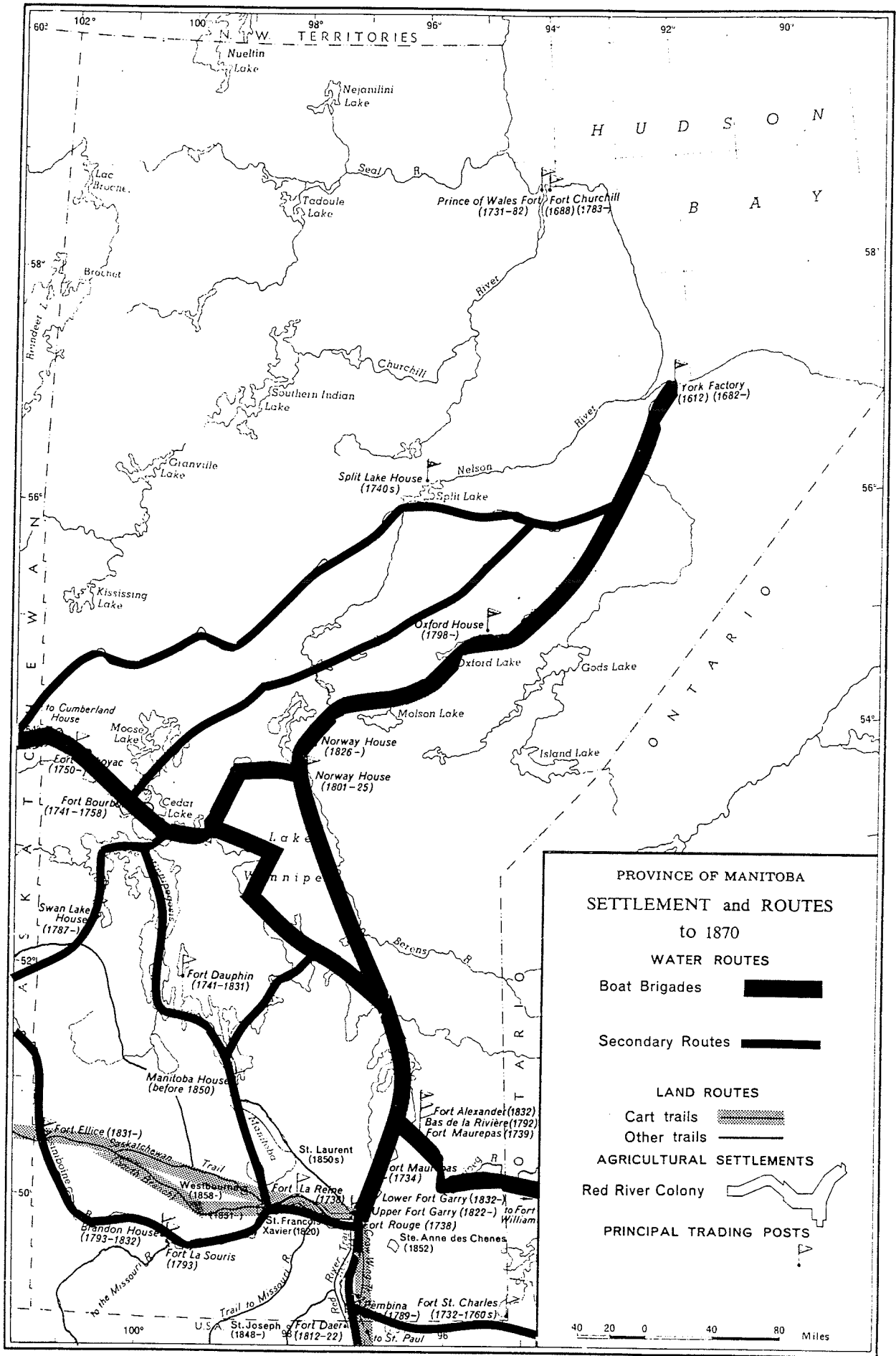
Norway House, initially built by a party of eight Norwegians in 1814, was at first intended only as a shelter on a planned winter road from York Factory to the growing Red River Settlement. However, with the increased utilization of Hudson Bay, Norway House became the hub in the river transportation system (see figure 2). Movements of supplies funnelled through Norway House to the inland posts and furs came out via Norway House.

When George Simpson became the governor of the Hudson's Bay Company he moved its headquarters to Norway House. Thus Norway House became the official centre of administration for most of the fur trade in North America. But despite its favorable location at a crossroads on the waterways the post was located in a poor fur trapping district.

By the 1840s Norway House began to lose its dominance as the main post at the crossroads of trade (Morton, 1957, pp. 82-84). The decline was due primarily to two factors; the increasing growth and development of the transportation system to the south and the introduction by the Hudson's Bay Company of steam vessels on the larger lakes and rivers. Supplies were then funnelled up the Red River from St. Paul to Winnipeg. Morton (1957, p. 82) notes that by 1858 even the Hudson's Bay Company began to bring in goods via St. Paul. Cart brigades and then the railway into the west gradually displaced river transportation.

The impact on Norway House of the changing transportation system is summarized in the following quotation, part of a letter from a Rossville resident, John Ruttan, to Alexander Morris, the Lieutenant Governor of Manitoba, dated 6 April 1875:

FIGURE 2



Source: Economic Atlas of Manitoba, Weir, T. R., Winnipeg, 1960.

thirty families or more are leaving Norway House to settle at Grassy Narrows for the purpose of beginning farming...the Hudson's Bay Company now bring their supplies for their inland trade by Winnipeg, instead of York Factory as formerly: then they have introduced steam navigation for carrying their goods, instead of open boats manned by Indians used heretofore.

The result of this change is that the immense transfer of goods from York Factory to Norway House, and of furs to York Factory is done away thereby throwing thirty or forty Indians out of employment....

Then a yearly brigade of several boats was sent up to what is called the Long Portage, on the border of the Mackenzie River district; this brigade gave employment to forty or fifty more of our people...This is also to be done away (Watson, 1930, p. 296).

The major route of the steam boats which plied Lake Winnipeg was up the Saskatchewan River via Grand Rapids. Norway House was no longer on the main trade route. By 1890 the use of steamboats was curtailed as the railways pressed westward.

Between the years 1890 to 1930 water transport was largely confined to the new and growing industries of the north; commercial fishing, lumbering and mining. On Lake Winnipeg passenger and freight service were provided by the Selkirk Navigation Company.

The Wolverine and Keenora carried passengers and all types of freight and supplies northward to the remote communities of Hecla Island, Berens River, Warren's Landing, Norway House and Grand Rapids. At Warren's Landing the port of call for Norway House, the steamers were forced to anchor; the supplies, mail and passengers were taken to Norway House by barge and motor launch. The larger boat could not navigate the rapids on the Nelson River between Playgreen Lake and Lake Winnipeg.

More recently all-weather transportation based on highways and airstrips has displaced the importance of marine transportation and eliminated many seasonal fluctuations.

#### Air Transportation History

After World War I air transportation emerged as a significant factor in the development of northern Manitoba. Many of the pilots returning from overseas purchased war surplus aircraft and began careers in flying. These bush pilots "flying small aircraft equipped with skis or pontoons and with little or no navigational assistance played a major role in the exploration and development of many mining areas inaccessible by land or water" (Manitoba, Royal Commission Inquiry into Northern Transportation Report, 1969, p. 179). The airplane was established as a vital form of transportation before the railways, winter roads and all-weather highways penetrated the north. Aircraft carried trappers, mining exploration parties and mail into inaccessible regions.

By the 1920s aircraft also played a role in forest fire prevention and aerial photography. A base for forest fire protection was established at Norway House in 1921 by the Manitoba Government Air Board. From 1923 to 1930 the air base at Norway House was operated by the R.C.A.F. and a well equipped based was established.

During the depression of the 1930s many small bush pilot operations were forced out of business. However Canadian Airways Limited headed by James Richardson of Winnipeg grew considerably as it amalgamated with several other carriers. In 1945 Canadian

Airways Limited in turn was purchased by Canadian Pacific Airlines. Canadian Pacific Airlines offered scheduled flights to various mining settlements. In 1947 Central Northern Airways, the forerunner of Transair, acquired the routes and equipment formerly operated by Canadian Pacific Airlines to Norway House, Lac du Bonnet, Ilford, God's Lake, Flin Flon, Sherridon and The Pas. Another airline Tom Lamb Airways, established in 1935 expanded greatly in the 1940s and 1950s to become a major carrier in the north.

In the 1960s both the federal and provincial governments moved to improve northern air service. In 1966 the Ministry of Transport acting on recommendations from K. W. Studnicki-Gizbert's Study (1966), revamped the duties and responsibilities of the Air Transport Board. Studnicki-Gizbert examined the functions and problems of the five regional carriers including Transair Ltd. The study itemized the duties of the carriers as follows: (1) to operate local air services on a regular basis in competition with surface transport modes, (2) to supply feeder services for Canadian Pacific Air and Air Canada, (3) to supply charter services to remote areas, and (4) to provide regular service in the north.

Problems of the regional carriers included a lack of revenue from developmental charters. Regular flights were characterized by high costs due to short hauls and light traffic density. In northern Manitoba, where surface transport was becoming more developed Transair lowered its rates on scheduled flights to remain competitive. On the developmental charter service Transair



could charge high rates but was vulnerable to the cyclical fluctuations of mining exploration. It was felt that "in the remote regions; where the long run economic development depends to a considerable degree on air transport services, high rates...would be against the public interest" (Studnicki-Gizbert, 1966, p. 17). Acting on the study's recommendations the Air Transport Board agreed to grant subsidies for essential but non-paying routes and for developmental contract charters. The Ministry of Transport recognized that air transport needed to be integrated with regional development but granted subsidies only to the main regional carriers.

In 1967 the provincial government commissioned a Royal Commission Inquiry into Northern Transportation. The study which came to be known as the Mauro Report recommended that certain minimum transportation standards should be met for all communities. The Mauro Report states:

The minimum standard of transportation which the state must be prepared to provide embraces availability of transport by some mode on an uninterrupted basis with reasonable frequency at reasonable cost. Social implications resulting from a failure to provide minimal essential services cannot be quantified. The situation must be remedied without regard to cost-benefit analysis. Beyond the problem of the individual resident there are direct economic and social penalties to the northern region resulting from inadequate transport service (Manitoba, Royal Commission Inquiry into Northern Transportation Report, 1969, p. 42).

Those points lacking the minimum standard of service were the Indian and Metis communities. Air service was not dependable in bad weather and service was often just once a week. Without airstrips on land most remote communities were completely isolated during freeze-up and break-up. The absence of a minimum standard

was reflected in the high cost of freight and passenger transportation to the more remote centres. Not only were rates high but there were additional problems resulting from increased inventory, irregular mail delivery, lack of fresh foodstuffs and availability of health and medical services.

The Mauro Report indicated that if native people were to participate in mining, forestry and other northern industries it was critical that there be year round accessibility between isolated communities and centres of economic activity. The remote location of most of the native settlements in the north meant that the provision of a network of airstrips for wheeled aircraft was the only way to provide reliable transportation at a reasonable cost.

The network of airstrips envisioned had two main airports, one at Norway House and one at Garden Hill. These two bases would have facilities for fuel storage and facilities to house goods for transshipment to smaller centres. Norway House was given priority due to its central location, its larger population and its accessibility to water transport during the shipping season.

In the winter of 1968 the province began work on the airstrip at Norway House and by 1969 had developed it to a point where it was marginally suitable for a DC-3 type of operation. It was issued a license in 1969 as a visual flight rules airport. Terminal facilities were constructed and bulk fuel tanks installed by the end of 1971. In 1973 the airstrip was extended in length. The airstrip at Norway House facilitated the use of Transair's relatively large YS-11 Turboprop planes.

The early history of air transport in northern Manitoba was closely tied to the mining industry. Native communities received only marginal air service. Only in the 1960s and 1970s have efforts been made by government to significantly improve access by air to native settlements. The small population of most of these settlements makes it financially difficult to provide long air-strips and other facilities except for main points such as Norway House.

#### Early Land Based Modes Dog Sled, Horse and Sled and Tractor Trains

George Simpson established a year round traffic route from York Factory via Norway House to Lower Fort Garry by means of water transportation in summer and by dog sled during the off season. Initially the cost of freighting by dog sled was competitive but later the cheaper rate of the American railroads induced Simpson to make more use of that route. By 1870 the York Factory-Norway House winter road was all but forgotten as a means of freighting during the winter season (McCracken, 1975, p. 5).

The idea of winter freighting of goods was revived during World War I with discoveries of copper and zinc in the North. Winter roads were built to Flin Flon and Cold Lake and later served Lynn Lake and Thompson until they were linked by railway.

The horse and sled and later tractor trains did not operate in isolation. Rather they operated mainly to transship goods from railway communities such as Gypsumville, Riverton, Sherridon, The Pas, Pine Falls and Wabowden. In the spring when water transported goods

ran low, private outfits would use as many as ten horses to take in loads of flour, lard, butter, salt, pork, beans, etc. (McIvor, Personal Communication, 21 July 1982). Goods destined for Norway House would take about two days by rail to Wabowden and then be transferred to Norway House. There was a considerable number of warehouses and bunkhouses in Wabowden to accommodate the work crews for these swings.

Thus, although the bulk of goods came by boat in the summer, in the winter activity centred on the railway transshipment points. The two systems complemented each other as the boats could not be used in winter and the horses and sleds or tractor trains needed ice to cross muskeg, swamp and water bodies. Seasonal transportation constraints and opportunities in many ways determined the way of life.

The seasonal way of life was also illustrated by mail delivery. In the early 1940s Frank McIvor (Personal Communication, 21 July 1982) would pick up the mail at Wabowden in the winter and make rounds to Nelson House, South Indian Lake, Cross Lake and Norway House using horse and sled. However, in the summer he would pick up the mail at Norway House and deliver it by canoe to Cross Lake and Wabowden.

By the 1940s private freighting companies became established servicing isolated mining towns, lumber camps and Indian reserves. Private operators such as Tom Lamb, Johnson Transport Ltd. and Sigfusson Transportation Company Ltd. operated under permits purchased at the cost of one dollar per mile from the Department of Mines and Natural Resources. Svein Sigfusson began winter freighting in 1942 (Sigfusson, Personal Communication, 6 March 1978). In 1945

he expanded into Ilford, seven years latter to Berens River and into Sandy Lake in 1955. As the largest company Sigfusson had an extensive winter road operation east of Lake Winnipeg and into northern Ontario hauling general merchandise, construction materials and fuel. Johnson Transport Company operated mainly out of Ilford servicing God'Lake-Island Lake districts and charging \$40 per ton for goods destined for the Hudson Bay Posts on the reserves.

Although known mainly for his bush airline company, Tom Lamb owned six freight swings in 1949, one working out of Sherridon, another two working into the Walker Lake fishing camps, two hauling fish from Nelson House and South Indian Lake and one working on a cordwood contract. In 1950, Lamb built a winter road from The Pas to Norway House House and Island Lake. Lydal and Mulholland operated tractor trains out of Wabowden (McIvor, Personal Communication, 21 July 1982).

Winter freighting had grown into a big business during the 1940s and keeping pace, new innovations were brought into use. The roads were now first plotted by aerial photography and then walked and blazed. A twelve foot swath was cut, plowed and packed down and to smooth the trail behind the swings, a metal drag was hauled behind the caboose. Linn tractors replaced the horses during the depression and these were replaced during the following two decades by the large caterpillar tractors. Each caterpillar tractor pulled five freight sleighs and an accommodation caboose on the end.

But, despite care in construction and maintenance of the roads, accidents where caterpillar tractors broke through the ice

were common. The largest company, Sigfusson, lost more than one hundred vehicles in its twenty-five years of operation. If a caterpillar tractor broke through, it was necessary to radio back to the home base to have a block and tackle hauled in; even divers were used on occasion. To ensure against this type of accident, holes were drilled and water was pumped from beneath the thin ice over the top to add thickness to the ice surface. However, soft spots, cracks and air holes were often obscured by the snow.

Much of the winter freighting operation was and still is a one-way operation, hauling mainly supplies into remote settlements. Fuel oil by the barrel to heat schools, hospitals, stores and homes, a year's supply of construction materials and dry goods were all taken in on the swings. When possible a season's catch of fish was hauled out on the settlements to the railway line (McCracken, 1975, p. 9).

The tractor train routes operated in 1969 are shown in figure 3. It should be noted that these routes varied from year to year depending on what companies served what community. The map is only representative of the last years of the tractor trains.

#### Winter Truck Roads

The Mauro Report criticized the fact that the winter roads were private and therefore closed to other traffic. Also as the freighters held a monopoly on traffic to a given community



high freight rates could be charged. The Mauro Report suggested that the provincial government take over the building of winter roads. The report recommended construction of winter roads for wheeled vehicles rather than tractor trains. It was estimated that the cost would drop from between \$.40 to \$1.00 per ton mile down to between \$.07 to \$.09 per ton mile if wheeled vehicles could be used. Upgrading the winter roads would result in a lower cost of living and more intercommunity contacts.

The report also indicated that all-weather roads were not economically justified as they would cost an estimated \$68,000 per mile compared with \$3,000 per mile for a winter truck road.

One of the report's recommendations was that a proposed winter truck road from Wabowden to Cross Lake be extended to Norway House. This route would reduce transport costs by allowing the use of trucks and would provide access to places of work at either the Lake Sipiwesk timber operation or at communities on the Hudson Bay railway line (Manitoba, Royal Commission Inquiry into Northern Transportation Report, 1969, p. 271).

The cost of the forty-five mile winter truck road extension from Cross Lake to Norway House was estimated at \$135,000 plus a maintenance cost of \$67,500 per year. It was estimated that freight costs by truck would be less than one-quarter of the previous tractor train rates. The freight savings alone justified the estimated costs of construction and maintenance.



Beginning in 1971 the provincial government became directly involved in funding and building winter truck roads. While the government spent a considerable amount on winter truck roads, freight rates did drop for a number of settlements. As indicated in table 1 the freight rates for Norway House were cut by more than 50 percent from the 1971-72 rates when tractor trains were used. Despite criticism of the government's role it did achieve its objective of reducing freight rates and personal travel by private vehicle was facilitated. Winter truck roads under the Department of Northern Affairs in 1974-75 are shown in figure 4.

#### All-Weather Roads History

With the advent of the automobile, pressure for new roads in Manitoba was felt as early as 1912. It was then that the first Good Roads Act was passed and the provincial government began assisting the municipalities by paying a percentage of road costs. In 1925 the provincial government assumed ownership and total responsibility for 1,700 miles of roads and classified these as Provincial Trunk Highways (McCracken, 1975, p. 3).

The establishment of a modern road network in conjunction with the railways gave a tremendous push to development in southern Manitoba. But in the north development of a modern transportation system lagged behind. By 1956 only one highway extended into northern Manitoba. This was Highway 10 from Swan River to The Pas and Flin Flon.

Reasons cited by the Mauro Report for the lack of road construction prior to 1956 included limited financial resources,

TABLE 1

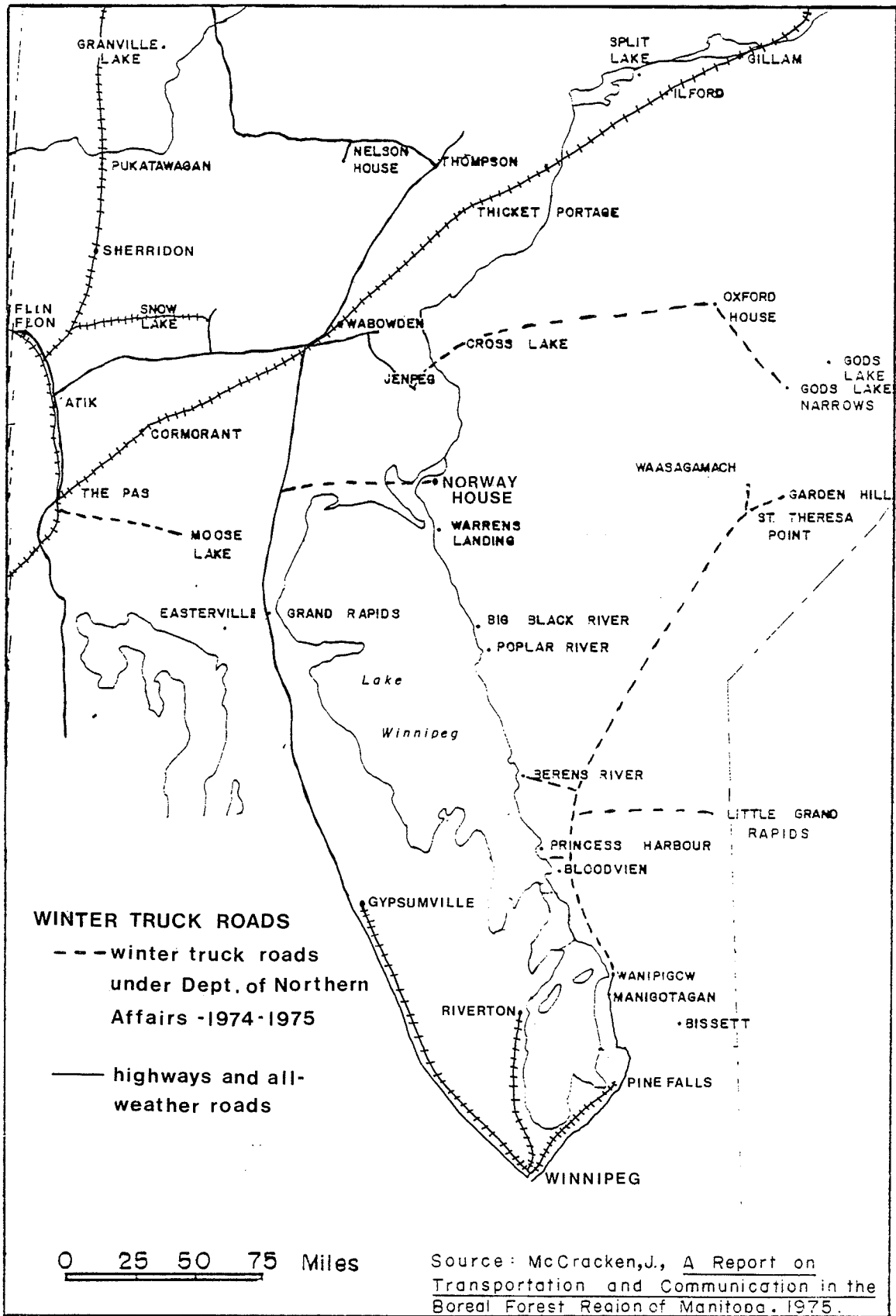
WINTER FREIGHT RATE COMPARISONS  
SURFACE MODE  
(General Merchandise in Dollars Per Ton)

Community	1971-72	1972-73	Shipped From
Berens River	\$ 50.00	\$ 87.00	Winnipeg
Bloodvein	40.00	50.00	Winnipeg
Brochet	80.00	70.00	Lynn Lake
Cross Lake	20.00	22.00	Wabowden
Garden Hill*	143.00	70.00	Winnipeg
God's Lake Narrows	133.60	120.00	Winnipeg
Little Grand Rapids	119.00	130.00	Winnipeg
Norway House*	115.00	47.00	Winnipeg
Oxford House	121.60	110.00	Winnipeg
Poplar River	70.00	127.00	Winnipeg
Southern Indian Lake	80.00	90.00	Lynn Lake
Split Lake	82.60	90.00	Winnipeg
St. Theresa Point*	143.00	70.00	Winnipeg
Waasagomach*	143.00	70.00	Winnipeg
York Landing	70.60	90.00	Winnipeg

SOURCE: Manitoba. Department of Mines, Resources and Environmental Management, Resource Planning Branch, Study of Freight Transportation to Remote Northern Manitoba Communities, 1973, p. 16.

\*Communities with new winter truck roads in 1972-1973, replacing the tractor train mode.

FIGURE 4



high cost of construction and sparse population (Manitoba, Royal Commission Inquiry into Northern Transportation Report, 1969, p. 178). With the introduction of the Roads to Resources program in 1958 increased emphasis was placed on northern highways. Under this program Highway 6 was built to Grand Rapids and Highway 391 was built to Thompson. By 1972, Highway 6 was extended to join Highway 391 at Ponton (see figure 5). The completion of Highway 6 shortened the distance from Winnipeg to Thompson by two hundred miles. This allowed truckers to compete more effectively with the railway and reduced freight rates on consumer goods.

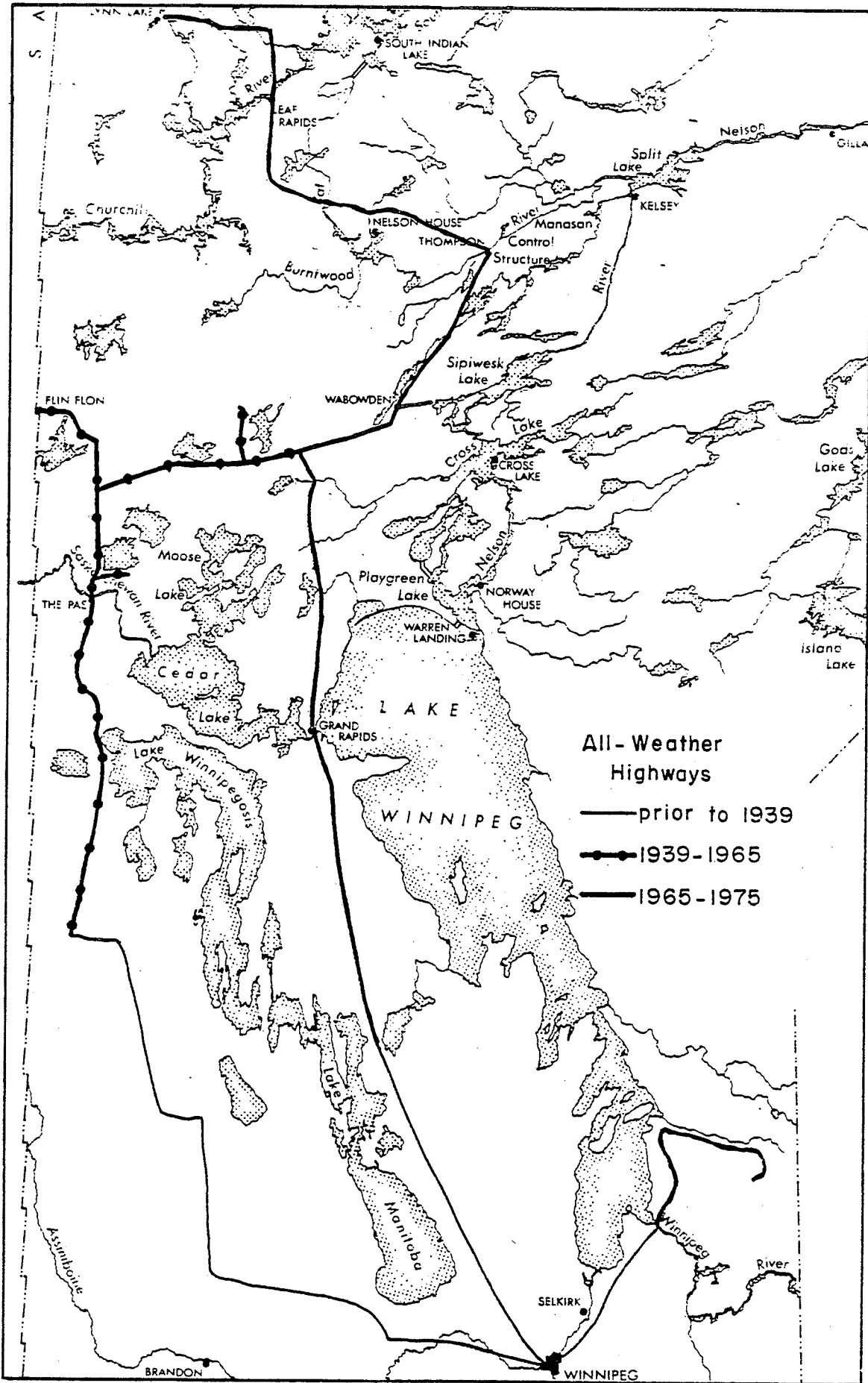
The Mauro Report stated that:

Perhaps no other single issue was raised more frequently during our public hearings than the need for highway transportation. Regardless of the existence of rail or air connections residents of the study area submitted that there was an obligation on the part of the government to provide accessibility by road. Throughout the hearings individuals stated that the feeling of isolation would be greatly reduced if they were readily able to travel from one locality to another by automobile. It was contended that the road network should provide access to the northern area of the province and establish ready communication between communities within the northern area. This network would enhance community of interest, social contact, utilization of leisure time and joint cultural and recreational activities. The view was expressed by organizations, enterprises and individuals that the availability of highway transport would have an additional direct benefit by way of lower transport costs for commodities essential to life and work in the north. A highway policy for the north must have as its goal elimination of isolation, the reduction of transport costs and the expansion of economic activity (Manitoba, Royal Commission Inquiry into Northern Transportation Report, 1969, p. 254).

The Mauro Report recommended:

a road network focused on Thompson which would then become the centre for intercommunity contact and involvement in cultural and recreational activity...The availability of improved transportation would provide Indians and Metis

FIGURE 5



Source: McCracken, J., A Report on Transportation and Communication in the Boreal Forest Region of Manitoba, 1975.

the opportunity to work in communities such as Thompson or Lynn Lake and return to their homes at reasonable cost (Manitoba, Royal Commission Inquiry into Northern Transportation Report, 1969, p. 271).

The report proposed completion of a road from Thompson via Nelson House to Lynn Lake. This road was completed by 1974. A road from Thompson had been completed to Split Lake by 1978. An all-weather road to Norway House was considered prohibitively costly. However, it was felt that if an all-weather road was eventually built to Norway House it would make possible an integrated water-highway operation utilizing containers. The report states that "this would make available the benefits of low cost marine transport via Norway House to such points as Cross Lake, Thompson, Oxford House, God's Lake and Island Lake" (Manitoba, Royal Commission Inquiry into Northern Transportation Report, 1969, p. 270). It was felt that goods brought in by boat in the summer could be stockpiled in Norway House for later furtherance by winter road to other communities.

#### Transportation Developments in Northern Manitoba in the 1970s

In the 1970s there were increased initiatives by both the provincial and federal governments concerning northern Manitoba's development. The provincial government created the Department of Northern Affairs and supported the development of local government for northern communities. The provincial government increased its budget for northern development, emphasizing airstrip and road construction. Throughout the 1960s government spending in the north amounted to about \$15 million annually. Former Premier,

Ed Schreyer, indicated in 1972 that "in 1970 we pushed expenditures in the north up to \$25 million and then up to \$36 million. This year it is at \$42 million and in the next twelve month period it will be around \$50 million" (The Winnipeg Tribune, 19 February 1972).

By 1973, Guidelines for the Seventies, a study by the Planning Secretariat of Cabinet, Government of Manitoba was completed. The Guidelines set forth the following four principles to guide Manitoba's development: (1) maximizing the general well being of Manitobans, (2) greater equality of the human condition, (3) the stay option, and (4) widening participation in government. The stay option emphasized the option of people to stay in rural areas, remote northern communities or the north in general rather than migrate. A significant part of facilitating the stay option was the provision of improved transportation to make goods and services more readily available in northern communities (Manitoba, Planning Secretariat of Cabinet, 1973, Vol. 3, p. 53).

Guidelines for the Seventies concurred with the Mauro Report in emphasizing the provision of airstrips and winter roads for remote communities. A secondary priority was the provision of all-weather roads and then rail development except where a discovery of a large mineral deposit might require early construction of a rail line (Manitoba, Planning Secretariat of Cabinet, 1973, Vol. 3, p. 63). The Guidelines noted that scattered point development of both major centres and traditional communities was a problem in the development of a transportation network. Climate, terrain and small population were also cited as problems. It was recommended

that the government assume an active role in the provision of transportation with priority on airstrips which might facilitate fly-in services.

The federal government's role in northern Manitoba was increased under the Canada-Manitoba Northlands Agreement. An Interim Northlands Agreement was entered into by the provincial and federal governments on 1 April 1974 so that immediate action could be taken in obvious areas of priority. Later a five year Canada-Manitoba Northlands Subsidiary Agreement was signed at Norway House on 15 September 1976. The agreement provided for total spending of \$138.7 million to be split between the federal and provincial governments on a 60 percent and 40 percent basis. Allocations for transportation were \$35.7 million with DREE allocating \$13.9 million, Transport Canada \$7.5 million and the province \$14.3 million.

Shortly after the Interim Northlands Agreement was reached the Manitoba Northlands Transportation Study was commissioned. By 1975 Hickling Johnston Limited had completed the study. The study identified two separate norths in Manitoba -- the industrial north and the Native north. The study recommends that economic factors should be used to evaluate transportation system requirements in the north. The study found that "some improvements to the system for the industrial north appear warranted. Similarly, improvements are possible in the Native north although transportation is not considered to be a major factor in economic and social development of the Native north" (Hickling Johnston Limited, 1975, p. 1).



The overall conclusion of the study was as follows:

In general we can conclude that transportation access by mode is not related to improved socioeconomic development. Specifically railways and highways have not significantly increased social and economic benefits; particularly not for the Indian and should not be favoured over other modes. Changes in transportation access ideally should coincide with other programs that can increase the ability of community members to respond to economic opportunities (Hickling Johnston Limited, 1975, General Appendix, p. 4).

The study indicated that given other requirements for social infrastructure improvement transportation should not come first. It was felt that cost-benefit criteria should be a primary determinant in planning. According to cost-benefit criteria it would be some time before roads could be justified for many areas of northern Manitoba.

The Hickling Johnston study has been criticized for its basic assumptions about the north and for its methodology which relies heavily on cost-benefit analysis. Its specific recommendations were largely ignored when the Canada-Manitoba Northlands Agreement was signed in 1976.

The Northlands Agreement had the following stated purpose concerning transportation and communications:

to finance projects designed to provide more reliable and reasonable access to most northern communities for the transportation of people, goods and services and to provide telecommunications infrastructure to increase the participation of people in community, provincial and national affairs (Canada, Department of Regional Economic Expansion, 1976, p. 28).

The emphasis is on the de-isolation of remote communities.

The Northlands Agreement states that:

The capability to move freely at short notice and reasonable cost will broaden the range of economic and socioeconomic participatory options available to remote northern residents. In addition it is anticipated that the provision of these facilities will result in the reduction of freight and passenger transportation costs (hence alleviating to some extent, the high cost of living in remote northern communities), as well as have a positive effect on potential community based economic development opportunities (Canada, Transport Canada and Department of Regional Economic Expansion, 24 June 1976, p. 28).

The two major transportation programs encompassed surface transportation and airstrips. Year round surface access was to be provided where routes could form a practical extension of the existing road network. Two of the projects considered economically unjustified by the Manitoba Northlands Transportation Study were financed under the 1976 Northlands Agreement. These were completion of a road from Thompson to Split Lake and a road from Jenpeg to Norway House and Cross Lake (see figures 6 and 7). The Easterville Road from Highway 10, recommended by the Manitoba Northlands Transportation Study was also undertaken. As well funding was provided for realigning the winter road from Cross Lake through Oxford House and God's Lake Narrows to Garden Hill (see table 2 for a cost breakdown for road projects).

Contrary to the findings of the Manitoba Northlands Transportation Study an Interdepartmental Highways Committee Submission found that the freight cost savings exceeded capital cost for a Norway House access road (see table 3). However for the other access roads considered, including the Split Lake road, capital costs exceeded freight cost savings (Canada, Transport Canada and Department of Regional Economic Expansion, 24 June 1976, p. 15).

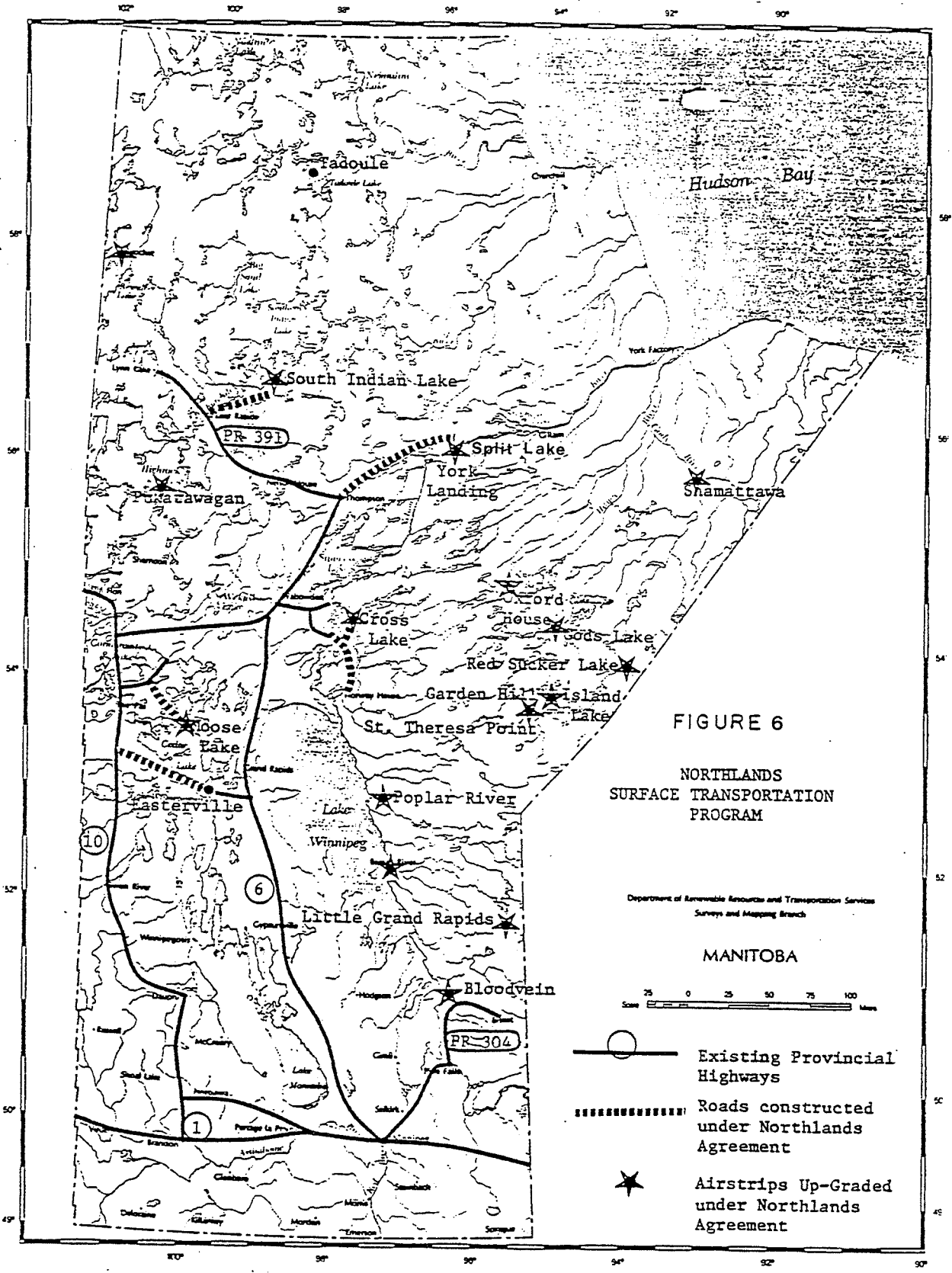


FIGURE 6

NORTHLANDS  
SURFACE TRANSPORTATION  
PROGRAM

Department of Renewable Resources and Transportation Services  
Surveys and Mapping Branch

MANITOBA






-  Existing Provincial Highways
-  Roads constructed under Northlands Agreement
-  Airstrips Up-graded under Northlands Agreement

FIGURE 7

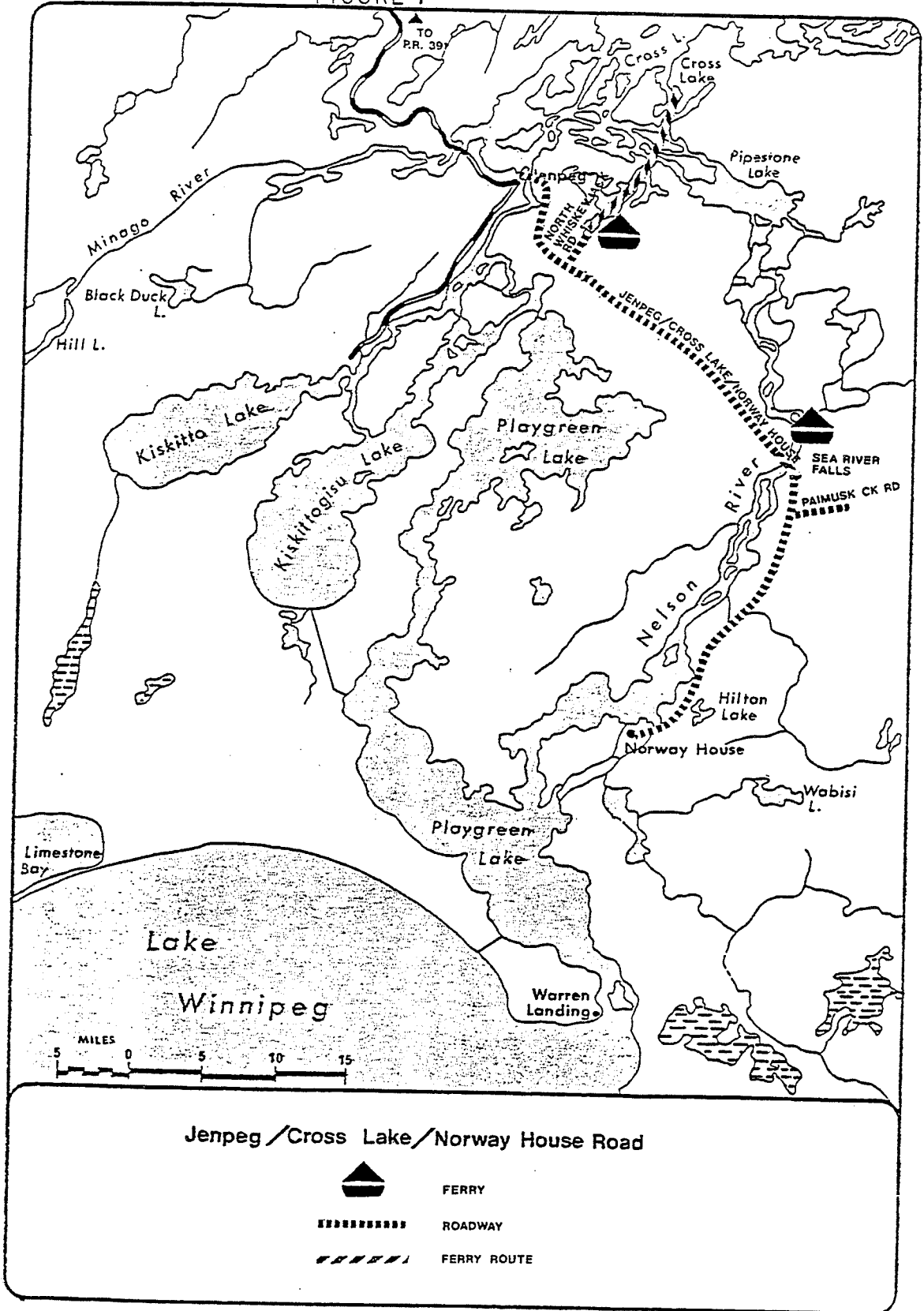


TABLE 2

SURFACE TRANSPORTATION PROGRAM COST SUMMARY\*  
(1974 Dollars)

Project	Government of Canada	Government of Manitoba	Project Total Cost
Split Lake-Thompson Access Road	\$ 2,520,000	\$1,680,000	\$ 4,200,000
Easterville Road	2,400,000	1,600,000	4,000,000
Norway House Access Road	3,780,000	2,520,000	6,300,000
Road Pre-Engineering and Design	1,800,000	1,200,000	3,000,000
 Total	 \$10,500,000	 \$7,000,000	 \$17,500,000

SOURCE: Canada. Transport Canada and Department of Regional Economic Expansion, Interdepartmental Highways Committee Submission, Manitoba Northlands Transportation Sector, Canada-Manitoba Northlands Subsidiary Agreement 1976-1981, 24 June, 1976, Appendix C.

\*Estimates.

TABLE 3

FREIGHT COST SAVINGS AND CAPITAL COSTS OF SURFACE TRANSPORTATION PROJECTS  
(Estimates)

Projects	Present Value of Annual Freight Cost Savings*	1976 Population	Per Capita Saving	Capital Cost	Capital Cost Per Capita
Split Lake-Thompson Access Road	\$2,059,319	950	\$2,167.70	\$ 4,200,000	\$4,421
Norway House Access Road	9,197,695	2,834	3,245.50	6,300,000	2,223
Berens River Access Road	1,335,404	1,514	882.00	10,000,000	6,605
Moose Lake Access Road	786,615	883	890.80	4,500,000	5,096
South Bay-South Indian Lake Access Road	113,947	743	153.40	2,300,000	3,095

SOURCE: Canada. Transport Canada and Department of Regional Economic Expansion, Interdepartmental Highways Committee Submission, Manitoba Northlands Transportation Sector, Canada-Manitoba Northlands Subsidiary Agreement 1976-1981, 24 June 1976, Appendix B.

\*Present value of annual freight cost savings over 15 years, discounted at 10 percent.

Aside from the cost-benefit analysis for the Norway House road other factors were considered. The study stated that:

given the social circumstances of Norway House, the completion of an all-weather road link from Jenpeg can be expected to result in significant social benefits through provision of public and other social services at an improved level both in terms of their quality and their frequency. The road will provide reliable and relatively cheap access to a full range of education, retail, legal and financial services in Thompson. In addition, it can be expected that a wider range of job and income options will be more readily available to Norway House residents thus increasing the potential for an improved standard of living for those who wish to take advantage of these opportunities (Canada, Transport Canada and Department of Regional Economic Expansion, 24 June 1976, p. 13).

Other benefits cited were direct employment on both the temporary construction phase and the on-going operations and maintenance phase of the road. As well it was felt that the road would enhance the emergence of a subregional economy encompassing the communities of Jenpeg, Norway House, Cross Lake and Wabowden.

Of the initial access road projects under the Northlands Agreement the Easterville road, the Split Lake road and the Norway House road are completed. Furthermore an access road to Moose Lake Indian Reserve is complete and a road extends to South Bay near South Indian Lake Reserve.

In addition to improving surface transportation the Northlands Agreement also had a Remote Airstrip Improvement Program. This program provided for the construction of year round reliable airstrips in remote northern Manitoba communities without alternative adequate transportation facilities. The program was allocated \$9,167,000 to be shared 60 percent by the federal government and 40 percent by the provincial government. The program

provided for the constructing or upgrading of airstrips to a Class D standard (see table 4). During 1976-1977 work was done in the following communities: Berens River, Bloodvein, Brochet, Cross Lake, Garden Hill, God's Lake Narrows, Little Grand Rapids, Moose Lake, Pukatawagan, Red Sucker Lake, Shamattawa, South Indian Lake, St. Theresa Point and York Landing.

The long term Canada-Manitoba Northlands Agreement of 1976 was not reached until the province had formulated a detailed comprehensive development strategy. It was hoped that such a strategy would alleviate the tendency to fund projects on an ad hoc basis. By examining interrelationships between projects being funded it was felt that an overall economic strategy could be formulated.

The Resource and Economic Development section of the Planning Secretariat of the provincial government was responsible for preparation of the strategy. The strategy would have a five year broad outline plan and a detailed first year plan. Eleven working groups were established to deal with areas such as community participation, industrial development and transportation.

The northern planning exercise sought to provide an alternative explanation of the causes of underdevelopment and to provide a strategy to promote the utilization of domestic resources for domestic demand. Priority was given to projects which provided the most extensive economic linkages. The location of projects was examined in light of scale economies, transport costs and the urgency of employment needs.



TABLE 4

AIRPORT CLASSIFICATIONS

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Class C - non-precision approach instrument runway, length 3,000 - 3,999 feet, graded area width 200 feet, runway surface width 100 feet.

Class D - length 2,000 - 2,999 feet, graded area width 200 feet, runway surface width 75 feet.

Emergency Airstrip - length 2,000 feet, graded area width 160 feet, runway surface width 50 feet.

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SOURCE: Canada. Ministry of Transport.

The Transportation Working Group of the northern planning exercise completed its study by March 1976. The study provided a detailed analysis of transportation in northern Manitoba, focusing on the provision of transportation infrastructure and services for remote northern communities (Manitoba, Planning Secretariat, 3 March 1976, p. 1).

The first section of the report deals with various inputs into planning policy and provides specific recommendations on various transportation projects. Concerning Norway House the study recommends:

(1) that further studies be undertaken to determine the feasibility of all-weather road connections to Cross Lake and Norway House (preliminary analysis shows a reasonable benefit to cost relationship), (2) that the proposed studies in other regions to determine whether air services need to be improved and/or rationalized, include both Cross Lake and Norway House, and (3) that the feasibility of reducing air freight costs to the northeast communities by establishing a regional air transport centre at Norway House be investigated (Manitoba, Planning Secretariat, 3 March 1976, p. 1).

The study also identified:

a number of issues and planning considerations which are fundamental to the development of practical community and modal specific transportation solutions. These include the identification of planning regions, the transportation needs of communities and regions, the modal and systems solutions (which are related to movement needs and unique regional requirements, and which reflect the economic and operational characteristics of the various modes), the appropriate standards for transportation infrastructure and service, and the phasing over time of transportation investment (Manitoba, Planning Secretariat, 3 March 1976, p. 1).

The first major issue dealt with in the study concerns the lack of data for the north and particularly the lack of data on the transportation needs of northern communities. The study states that

without knowing actual needs "a decision to upgrade an existing service or introduce a new one is more an exercise in speculation than planning" (Manitoba, Planning Secretariat, 3 March 1976, p. 2).

A second issue is the lack of data on the operation and economic aspects of northern transport modes. Data is inadequate concerning traffic volumes, actual shipment sizes, distances, network configurations and total transport costs for communities. The report states that "adjustments to the transportation system and the evaluation of benefits must therefore be based on a more specific understanding and matching of the interrelationships between modal performance (supply) and community needs (demand)" (Manitoba, Planning Secretariat, 3 March 1976, p. 3).

A third issue concerned the appropriate standards for transportation infrastructure. The working group believed that a commercial standard of airstrip should replace the emergency standard (see table 4). The fourth major issue cited was the phasing of transportation investments over time. Flexibility was cited as a key consideration when making investments. The need to consider the dynamics of future development when making decisions concerning the location and standards of transportation infrastructure was also stressed.

As criteria to judge the effectiveness of the transportation investment priorities the study used the basic principles enunciated in Guidelines for the Seventies: "to alleviate inequities in.... transportation services it was recommended that priority be placed on serving the more isolated communities" (Manitoba, Planning

Secretariat, 3 March 1976, p. 3). It was noted that the withdrawal of publicly financed winter roads from a number of communities has markedly reduced their level of access.

The report notes the difficulty in evaluating transportation projects when there is not comprehensive economic planning framework wherein the role of a project can be assessed. As well it is stated that transportation projects are often looked at in isolation from the overall transportation network. Despite these caveats and a lack of data it was felt that reasonable judgements on the economic viability of projects could be made. The final sections of the report evaluate specific transportation proposals, examine departmental priorities and identify transportation implications of developmental proposals.

The overall northern strategy proposed projects which would have a capital cost of between \$245 and \$370 million over five years. Due partially to the high costs involved many of the recommendations made in the strategy were not accepted by the provincial government and not included in the long term Northlands Agreement.

With the economic downturn at that time there was a reluctance to spend further money in the north, let alone obtain more revenue from the private sector in the north as proposed in the strategy. Just as serious was the failure to gain local support for the ideas in the strategy. The strategy did have a public participation sector but it did not prove to be adequate. There was little identification of the strategy as being owned by native people. This problem came to a head when the Manitoba Metis Federation

and the Manitoba Indian Federation complained about a lack of consultation and referred to the plan in a negative sense as "The Great Northern Plan". In any event there were few repercussions when the strategy was effectively shelved.

Obtaining interdepartmental cooperation on initiatives was difficult as line departments were hesitant to have their activities reviewed and coordinated by the Department of Northern Affairs. Federal-provincial coordination was lacking as the strategy differed from initiatives of the Department of Indian Affairs and Northern Development. While there did appear to be more scope for economic convergence, it is noted that the entire Canadian economy lacks convergence and that the north would continue to rely to a considerable extent on exports and imports.

Thus, planning for northern Manitoba continues to be without an overall strategy or focus. This makes it difficult to evaluate other planning and development initiatives as there are no measurable objectives or criteria to judge the success of a project. The northern strategy set forth a program to alleviate the underdevelopment and poverty of small northern communities but did not gain adequate public, political or administrative support. It did not become a guiding, coordinating force behind the Northlands Agreement. Another apparent weakness is the lack of coordination between local planning and the northern strategy.

While the Northlands Agreement does set forth certain objectives, it did not provide an overall strategy. There is no northern plan in place and there is no effective process for

ongoing comprehensive northern planning. Evaluation of planning for the transportation-community interface is difficult without an overall framework. If the role of transportation projects in meeting broad social, economic and physical development goals had been initially outlined an evaluation could be more precise. For example, if the road had been identified as a crucial component in setting up a fish packing plant which would generate employment then the success or failure could be assessed. However, if the road is to foster a subregional economy as stated in the Northlands Agreement without specific components of this economy being identified then there can be no effective monitoring to gauge the success of planning efforts.

As well, without organization of the planning at the broadest level there is no framework to guide community planning and transportation planning. A broad strategy would be expected to outline the elements of planning that could be mutually supportive and not act at cross purposes. At present community planners for the Department of Indian Affairs and Northern Development, provincial community planners responsible for northern settlements and consultants hired to draft plans do not have any specific framework of general goals for the north. More specifically major projects and programs which impact on the community cannot be adequately incorporated into local plans as decisions on major elements are made on an ad hoc basis and are not preplanned.

#### Conclusion

Initially the people who lived in the Norway House area were nomadic using the area only on a seasonal basis. They moved by

boat, foot or sled. With the coming of the fur trade residents in the Norway House area found employment on cargo brigades moving to and from York Factory, Fort Garry and the Mackenzie district. Providing food for the trading post employed some local residents and contributed to an evolving sedentary community. With the decline in importance of the York Factory-Winnipeg supply route employment opportunities at Norway House were reduced. The primary link to the outside continued to be by boat on Lake Manitoba.

Eventually air service brought more frequent contact with other communities. In this century dependence grew on outside inputs of goods and services to support the community. Life became more sedentary as the practices of camping out on traplines and following game decreased.

Rapid changes occurred as modern modes of transportation provided more mobility and to some extent de-isolation of Native communities. In the 1970s federal and provincial governments initiated the Northlands program. This program attempted to provide more access to northern communities in the context of a general development framework. Surface transportation improvements focusing on all-weather roads and airstrip improvements were undertaken.

To attempt to formulate a detailed comprehensive development strategy the provincial government prepared the northern planning exercise but it was not adopted by the government. The Transportation Working Group recommended a number of the projects which were subsequently completed under the Northlands Agreement.

The findings of this chapter have certain implications for transportation-community interface planning. First, in view of the underdevelopment of small northern communities any approach to interface planning should be especially sensitive to the social and economic development needs of the communities.

Secondly, the shift from an emphasis on seasonal use of water, air and land modes to a heavier reliance on all-weather modes such as trucks and automobiles illustrates the need for a dynamic multimodal approach to interface planning.

Interface planning should attempt to foresee what transportation infrastructure will be suitable for a community not just for the present but in the future. In the past considerable investment has gone into modes such as tractor trains only to have them replaced by winter truck roads. As well, transshipment facilities became obsolete as trips by truck directly from Winnipeg to the small northern communities become more common. Warehouses and other facilities for transshipment are left idle.

The final section of this chapter examined the increasing accessibility and modernization of the transportation system for small northern communities noting that this has been an integral part of broader development efforts in the north. However, the provision of roads such as the one to Norway House is not taking place in the context of a comprehensive planning framework. There is no economic strategy despite the fact that the Northlands Agreement does incorporate action by a number of government sectors. Without a framework to guide different planning activities the need for



transportation-community interface planning is even more pronounced. Local individuals and firms with investments in certain types of transportation technology can be adversely affected when abrupt changes are made. As well, the community may be kept off balance if a rapid succession of changes in the interface occurs.

## CHAPTER III

### THE COMMUNITY OF NORWAY HOUSE

This chapter discusses the community and community planning components of transportation-community interface planning. In order to understand how various components of the transportation system abut and effect the community it is necessary to identify the land use, population and economic characteristics which have evolved. Details are provided on the location of Norway House, on the predominantly linear, water oriented settlement pattern, on the population which has increased considerably and on the resource and service sectors which although significant do not provide sufficient employment. Local political structures and local planning efforts are examined by focusing on the ability of community planning to influence the interface.

#### Location, Landforms and Climate

Norway House is strategically located near the centre of Manitoba. The community is approximately 285 air miles north of Winnipeg, 130 air miles east of The Pas and 125 air miles south of Thompson (see table 5). The townsite is located along the east channel of the Nelson River just north of Lake Winnipeg.

Norway House lies within the Precambrian shield region of Manitoba. The region has a granitic base with little or no soil cover. Granitic outcroppings and irregularly shaped lakes are

TABLE 5

## DISTANCES IN AIR MILES FROM NORWAY HOUSE

Community	Miles From Norway House	Distance From Norway House-Rank
Berens River	116	5
Churchill	363	18
Cross Lake	45	1
Garden Hill	131	7
Gillam	206	15
God's Lake Narrows	143	9
Ilford	170	11
Red Sucker Lake	175	13
Shamattawa	264	16
Snow Lake	111	4
South Indian Lake	200	14
Split Lake	173	12
St. Theresa Point	123	6
The Pas	134	8
Thicket Portage	94	3
Thompson	127	7
Wabowden	74	2
Winnipeg	283	17
York Landing	165	10

SOURCE: Manitoba. Department of Northern Affairs, Community Profiles, Volume T-13: Norway House, 1975, p. A-1-b.

common. The Norway House area has also been modified by glacial Lake Agassiz, which once covered the area. The irregular Precambrian surface was levelled to a certain extent by glacial deposits of sand and clay. The Norway House area is relatively flat but there are small rocky hills. Much of the area is also marshy and the many lakes, channels and tributaries of the Nelson River system do not readily facilitate land transportation development. The map of terrain features (figure 8) indicates the extensiveness of rock and muskeg. In July average daily temperatures are 64°F (18°C) and in January -8°F (-22°C). Precipitation is 15.58 inches per year. Ice formation begins in early November and initial break-up occurs in late April or May (Manitoba, Department of Northern Affairs, 1975, p. A-1).

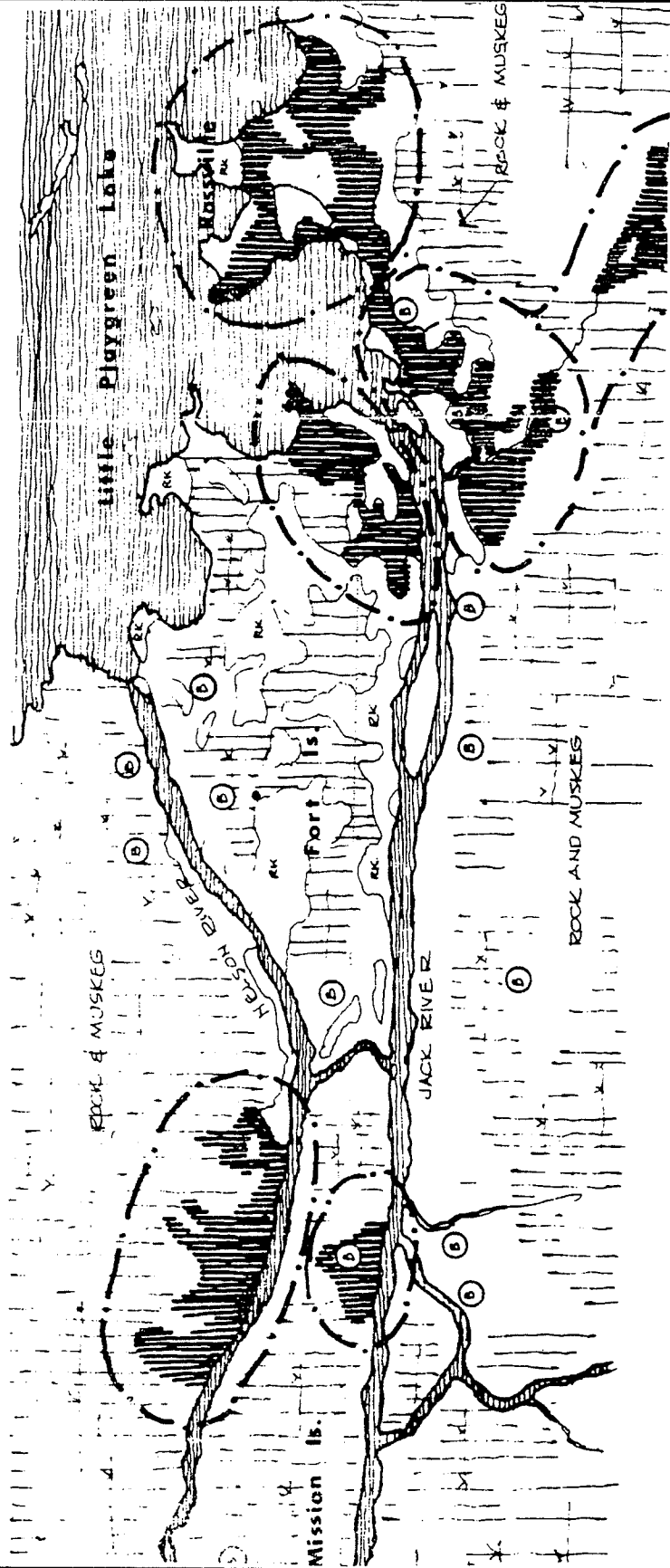
#### Land Use and Settlement Pattern

The capability of the land to support development is severely limited by the areas of black spruce muskeg, rock outcrop and saturated surface moisture conditions. The land most suitable for development is located along the shores of the Nelson and Jack Rivers. The present settlement pattern (see figure 9) reflects the desirability of sites adjacent to the river. These sites also afford access to the river as a source of water and as a transportation artery for power boats in summer and snowmobiles in winter.

Settlement is in an extended linear pattern except for two centres of activity. One of the centres of activity is the northwest corner of For Island which contains the hospital, the Bay Store, the electricity generators, the community council offices, a restaurant, the post office, an arena, a curling rink and the

FIGURE 8

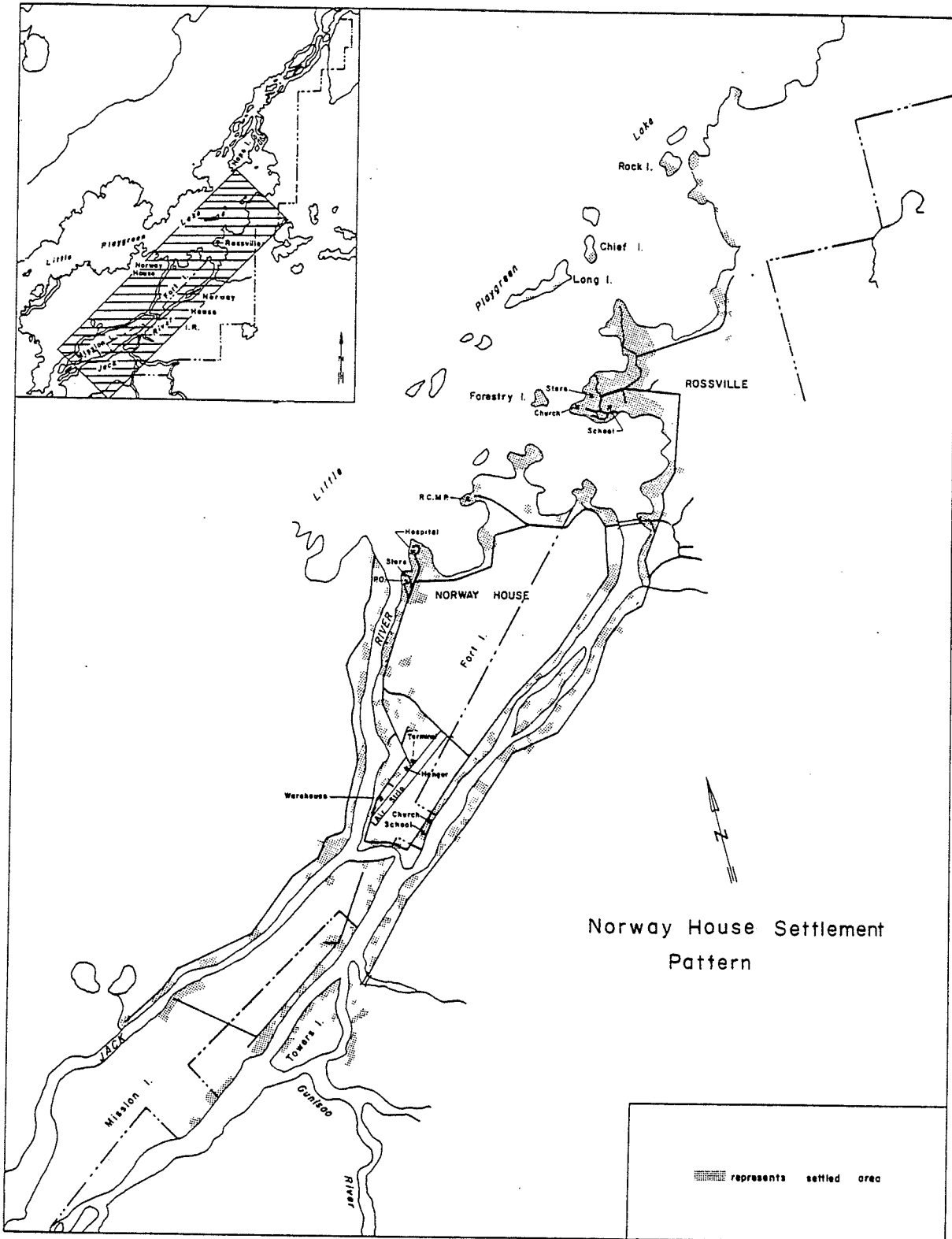
Terrain Features - Norway House



- Legend**
- RK ROCK RIDGES
  - (B) FILL BORROW PROSPECTS
  - MUSKEG OR SWAMP WITH ROCK
  - AREA WITH MORE FAVORABLE PHYSICAL FEATURES

Source: Architects Consortium, Norway House  
 Manitoba Community Planning Study, Phase I  
 Report, March 1969.

FIGURE 9



Source: Lake Manitoba, Churchill and Nelson Rivers Study Board, Social and Economic Studies, Volume I, Technical Report, Appendix 8.

Playgreen Inn (with the only pub). The airstrip, the Gulf Oil Bulk Station, the Northland Warehouse, Jack River School, Lowes Grocery Store, the float plane base and the R.C.M.P. detachment are also located on Fort Island. The other major centre of activity is Rossville, located on the Norway House Indian Reserve. Treaty housing, the Band office, the combined elementary and high school, the other Hudson's Bay Store, two churches and a band-operated restaurant are located in Rossville.

Most of the scattered development is residential. With the development being dispersed the risk of water pollution may be reduced. As well, the accumulation of garbage is not as pronounced. However, with dispersed development the cost of providing treated water and sewage facilities is high. In addition the provision of transportation facilities such as roads and bridges is difficult.

#### Population

Immigration and emigration occur on a continuous basis in the community of Norway House. Hence population statistics appear to be obsolete upon their compilation. Nevertheless, population figures are available but a number of different sources must be utilized (see table 6). The Norway House Indian Reserve had a population of 1,034 in 1951. This increased to 2,343 in 1977 averaging a 3.2 percent increase per annum. Of the 2,343 status Indians it is estimated that 2,108 live on the reserve.

TABLE 6  
POPULATION TRENDS AND FUTURE PROJECTIONS

	On Reserve Band Population	Total Band Population	Total Community Population
1951	...	1,034	...
1961	...	1,438	...
1971	1,888	2,033	2,762
1976	...	2,296	...
1977	2,108	2,343	3,365
1985 (Projected)*	2,712	3,014	4,329
1990 (Projected)*	3,175	3,528	5,068

SOURCES: Manitoba. Department of Northern Affairs. Manitoba. Manitoba Health Services Commission. Canada. Department of Indian Affairs and Northern Development.

\*Projected at a 3.2 percent rate of increase.



Including the non-reserve population of 1,257 the total community population is about 3,365. Based on past trends it is projected the community will reach a population of 5,068 by 1990. This 3.2 percent rate of population increase is significantly greater than that of Canada which was 1.4 percent for 1976-1977 and Manitoba which was .73 percent for 1976-1977.

While the long term growth rates averaged 3.2 percent it is difficult to determine if these rates will continue. Estimates by the Norway House Airport Study (Canada, Transport Canada, 1978, p. 25) indicated the fertility rate can be expected to drop from 841 in 1975 to 805 in 1980. This rate is estimated by finding the number of children 0 - 4 years of age per 1,000 females 15 - 44 years of age. While the rate will drop in the short run a rise to 853.7 by 1990 is expected. This expected rise is a result of the large number of women under fifteen at present entering child-bearing age in the very near future. At present 46.1 percent of the reserve population of Norway House is under fifteen (Hilderman et al, June 1978, p. 24).

Teillet (1977, p. 34) indicates that the population of Norway House can be expected to increase by 4 percent per annum in the 1980s. Even using a conservative estimate of growth of 3.2 percent the population of Norway House will rise to over 5,000 by 1990.

Related to the large population increases are the large family sizes which prevail in Norway House. As seen in table 7 36 percent of the population live in families of eight persons or

TABLE 7  
FAMILY SIZE

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Family Size	Percent of Families	Percent of Population
1	49	16
2	12	8
3	7	6
4	7	9
5	5	9
6	4	8
7	4	8
8+	12	36

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SOURCE: Manitoba Health Services Commission Records, 1971.

more. While there is a large number of single people, many of them live with families. Hilderman et al (1978, p. 24) estimates that the number of persons per household on the reserve is 6.8 and that 25 percent of all dwellings are overcrowded.

The expected increase in population will place strains not only on housing stock but on education services and social services as well. The high rate of unemployment will be exacerbated by the increased numbers entering the work force. The actual population of Norway House in the future may be determined to a large extent by the relative opportunities for employment, housing, education and social services on the reserve. Changes in emigration and immigration could influence population as much as the birth rate. In the past decade the exodus from reserves has increased in Canada with cities such as Winnipeg having increasing Native populations. While opportunities for Native people have been limited in the cities they have nevertheless been sufficient to attract many Native people. Unless opportunities are increased on the reserve emigration can be expected to continue. Teillet (1977, p. 34) found that of 387 Band members who live off the reserve, 220 reside in Winnipeg, 43 in Thompson, 19 in The Pas, 16 in Cross Lake and 89 are at various other locations.

A survey done in 1969 on the Norway House reserve found that large numbers of residents had attended both grade school and junior high school. However very few had continued past Grade 10. The survey which included only those not attending school but having some formal education found that age groups over thirty

had average levels of formal education of six years or less. For those aged sixteen to twenty-four the average number of years had risen to eight (Manitoba, Department of Northern Affairs, 1975, p. B-2).

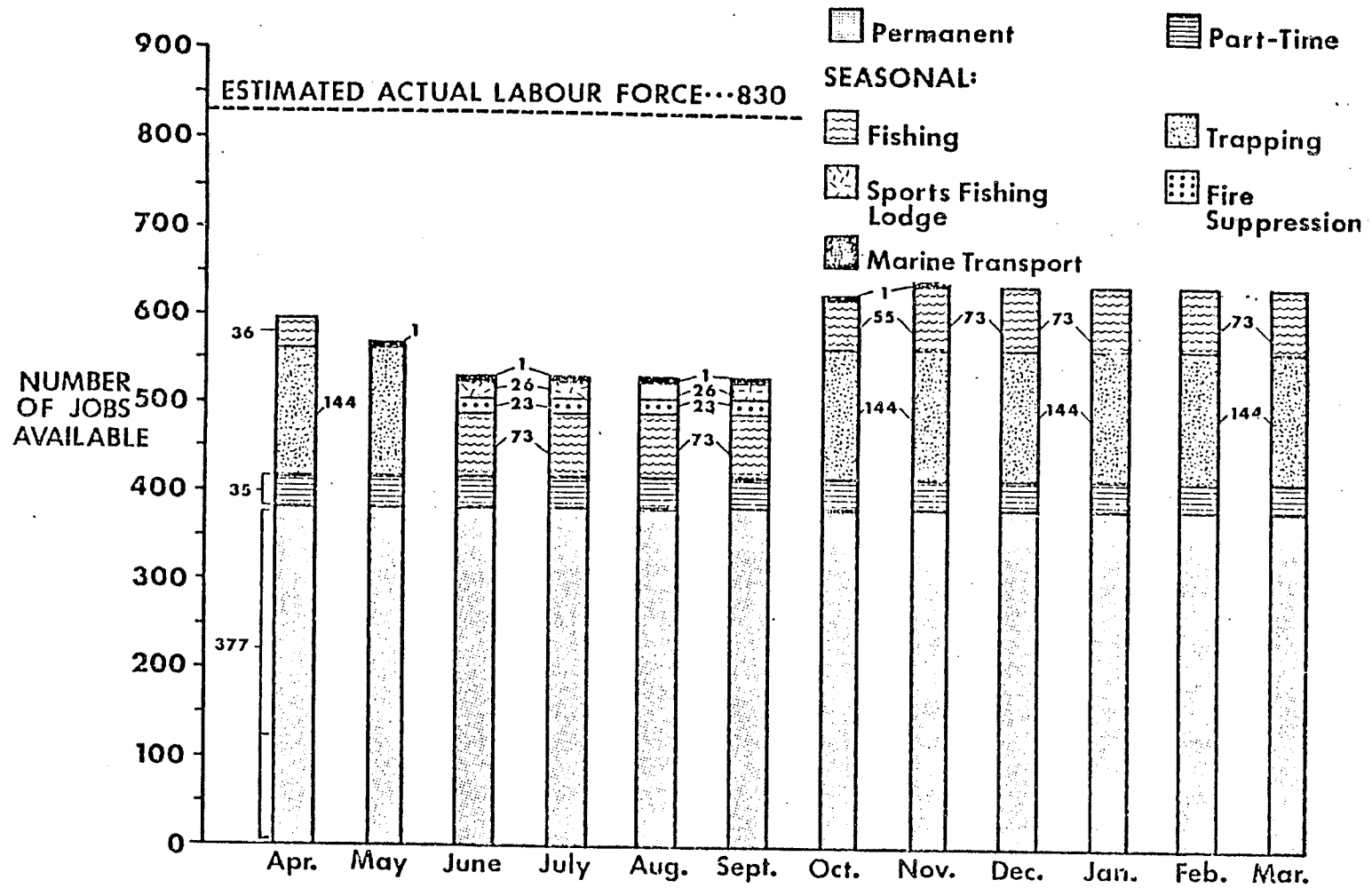
Most employment available in Norway House is in the service sector. About 70 percent of all jobs are of a permanent nature (Teillet, 1977, p. 37). Major employers include the hospital, the personal care home, the schools, the churches, the airport, the post office, the Hudson's Bay Company, the Norway House Band, the R.C.M.P., Shell Oil and the Norway House Fishermen's Co-operative. Figure 10 indicates there are 377 permanent and 35 part time jobs as well as seasonal jobs available in Norway House. The seasonal jobs, mainly fishing and trapping, would if used to their maximum potential provide the equivalent of 127 year round jobs. The actual labour force is estimated at 830 (Teillet, 1977, p. 37) leaving a shortfall in employment.

#### Resource Utilization

Teillet (1977, p. 38) stated that "primary resources in the Norway House area do not have significant potential for expanded use". Forestry is limited by transportation difficulties and by the fact that wood exists in small scattered stands. However, residents of Norway House do fish commercially on Playgreen Lake, Molson Lake, Lawford Lake and Gunisao Lake. The fishing provides seasonal employment for fifty men and has an average value of about \$125,000 (Teillet, 1977, p. 15).

FIGURE 10

EMPLOYMENT, NORWAY HOUSE 1977



The fishermen are organized as the Norway House Fishermen's Co-operative and maintain packing sheds at Tait Island in Upper Playgreen Lake and at Sandy Island in Lower Playgreen Lake. Fish are shipped via Northland Boats to Norway House and on to Winnipeg by truck.

The Norway House Trapline Section covers an area of 8,560 square miles. The fur industry is supported by the Wild Fur Program, ARDA and Manitoba Hydro pays compensation for flooded lands (Teillet, 1977, p. 24). Fur production could be expanded but the cyclical nature of many animal populations means a sustained high yield is seldom possible.

There is no mining activity in the area surrounding Norway House. However, there is potential in the area. There are gravel pits on the Paimusk Creek Road. Access to these pits is via the new all-weather road.

Sports fishing is centered on Molson Lake; the lodge providing summer employment for some seventeen persons annually. Moose and caribou hunting is expected to increase as the new road provides access. The east channel of the Nelson River has excellent potential for camping. With the completion of the all-weather road from Jenpeg to Norway House, the crossing at Sea River Falls has been noted as having potential for campgrounds or a motel/hotel facility. The West Channel area by Jenpeg Dam has potential to become a visitor attraction. The potential of Norway House itself to attract tourists is based partially on its historical significance and is enhanced by it being a destination point at the end of the all-weather road.

However, Teillet (1977, p. 38) stated that, "should all the renewable resources in the area be utilized, the number of jobs created would be but a handful when hundreds are needed".

#### Local Government

The non-reserve portion of Norway House has been governed since November 1970 by an elected mayor and council under Manitoba's Northern Affairs Act (Manitoba, Department of Northern Affairs, 1975, p. C-1). Under this Act the province supplements the weak tax base of small northern communities in order to establish viable local governments. The operating costs of the Norway House council for 1975-1976 provides some insight into its financial expenditures (see table 8).

The Norway House Indian Band is governed by a chief and councillors elected every two years. The Norway House Band Council submits a yearly budget to the Department of Indian Affairs and Northern Development (DIAND) and funds for the approved budget are then forwarded to the Band. Band functions include planning, programming, budgeting and management of projects. DIAND provides technical services for the Band.

#### Community Planning

In 1968 Architects Consortium was commissioned by DIAND and the Province of Manitoba to undertake a planning study of Norway House. It was felt that joint sponsorship recognized the

TABLE 8

NORWAY HOUSE COUNCIL OPERATING  
COSTS 1975-1976

Item	Estimated Expenditure
Administration	\$39,445.61
Protective Services	2,200.00
Public Works	1,150.00
Health Services	1,600.00
Recreation	11,000.00
Community Planning	...
Council Business	2,100.00
	<hr/>
Total Estimated Expenditure	<u>\$57,495.61</u>

SOURCE: Manitoba. Department of Northern Affairs.



need for the treaty and non-treaty populations of Norway House to be considered a single community with shared problems.

Some of the recommendations of that study concerning the road network have since been implemented. The report strongly urged relocation of housing to compact subdivisions. A broad range of social, economic and physical development proposals were also included.

In 1977 another community plan was commissioned. While a joint plan was initially envisaged efforts to form a Norway House Joint Authority (a triumvirate including the Band, the local of the Manitoba Metis Federation and the community council) failed after several meetings. Thus Hilderman, Feir, Witty and Associates, the consultants hired to make the plan, prepared separate plans for the community and the Band. The planning process included community participation with public meetings, a community newsletter and frequent contact with the Band and community councils. The plan for the Band is a general policy and development strategy and program. For the non-treaty community the plan is somewhat more specific to land uses.

The development strategy for the reserve attempts to upgrade living standards and basic community infrastructure, to reduce the export of dollars to non-reserve areas, to produce more locally finished products for on-reserve consumption, to utilize local human and natural resources and to provide employment and a sound economic base. The plan calls for an improved internal circulation network with both improved roads and additional river crossings.

Ongoing planning for the reserve is done by the Department of Indian Affairs and Northern Development and for the non-reserve community by the Department of Northern Affairs.

#### Conclusion

In order for interface planning to effectively mesh the internal and external transportation components with the community it is necessary to understand the detailed specific elements of the community. The physically dispersed settlement and the increase in population are important elements to examine in interface planning. As well, it is necessary to consider the effect of the transportation system on the utilization of local resources.

The degree of involvement of the community residents in shaping their community appears to be limited. The Band Council and the community council have limited scopes of activity. As indicated involvement of community members in preparation of the community plan was encouraged. However, efforts to coordinate the reserve and non-reserve parts of the community were not effective. Colin Gillespie (Personal Communication, 21 April 1978) felt there was not enough grassroots organizing to bring together the different sectors of the community. Despite utilizing a newsletter, community meetings, community survey, community contact person and frequent visits to the community, the community planning process failed to integrally address both sections of the community and did not establish the ongoing coordinating structure needed for joint community action. Perhaps this lack of coordination is most critical for transportation-

community interface planning, where many changes affect the entire community and require adaptation by all those in the community. Fragmented or divisive responses can mitigate against the ability of the community to adapt in an active way to opportunities and constraints presented by changes in transportation systems and technology.

## CHAPTER IV

### THE TRANSPORTATION SYSTEM SERVING NORWAY HOUSE

The purpose of this chapter is to identify the infrastructure and operation of the various external and internal modes which interface with the community of Norway House. The chapter illustrates some of the direct implications for the community. Different modes imply different community patterns. The introduction of new technology and system improvements have implications for interface planning.

External transportation elements examined include the access road, the barge system and the airlines. Internally the road, boats and snowmobiles all play an important role in the evolution of the community. The focus is on the construction of the all-weather access road and its intermodal implications. The effects of the road on freight shipping costs is examined as an underlying reason for modal shifts. The relationships of the community with other areas are formed by linkages to resupply the community, to ship out local resources, to transship freight and to move in freight for major new community infrastructure projects. The implications for interface planning are noted later in the study.

This chapter examines the abutment and direct effects of the transportation system on the community through identifying modal changes, freight flows, freight cost savings and changes in passenger traffic.

## External Transportation

### Access Road

The introduction of a road may restructure the internal aspects of a community as well as alter the external relations of a community. In southern Canadian settlements the increased use of automobiles and trucks has had a dramatic effect on community structure. In Norway House some cars and trucks have been used on the internal road system since the late 1960s and vehicles have arrived on the winter truck road since 1973. However, it is the all-weather road which may result in the truck and automobile displacing other modes on a year round basis and lead to fundamental community impacts.

The access road linking Norway House to the provincial road system was completed in the fall of 1977. A road to Jenpeg which had been constructed by Manitoba Hydro was extended to Norway House. Part of the new road system is a cable ferry at Sea River Falls on the Nelson River. The ferry operates from May through October. In the winter vehicles cross the ice on the river. During break-up and freeze-up the road is closed for three or four weeks.

The road provides improved access for the community to centres in both southern and northern Manitoba. Norway House is linked with Highway 391 which leads north to Thompson (178 miles by road). Highway 391 also links with Highway 6 to provide access to Winnipeg in the south (489 miles by road). West of Norway House it is about 280 miles to Flin Flon and about the same distance to The Pas.

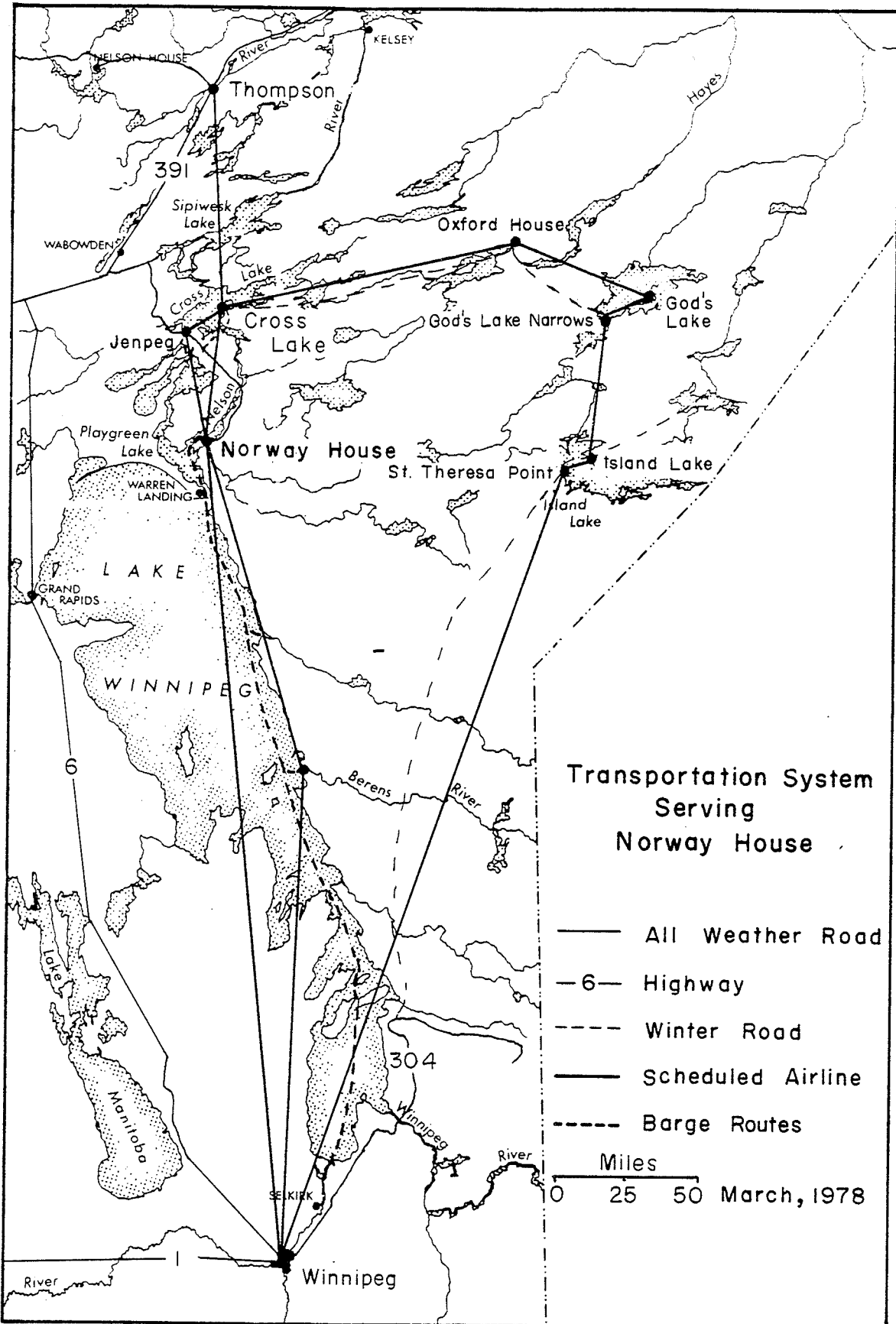
Including some distance by ferry, Cross Lake is 63 miles from Norway House.

The road system to Norway House cost about \$5,000,000 to construct. This included 52 miles from Jenpeg to Norway House, 10 miles to Molson Lake and 5 miles to North and South Whiskey Jack Landings. Excluding the other small roads, the Norway House road from Jenpeg cost about \$4.5 million. Costs were shared under the Canada-Manitoba Northlands Agreement with Transport Canada and DREE providing over one-half of the funds.

The new road replaces the old winter road and is diverting freight from the barge system and from the air system. Personal travel is increasing as more residents buy cars and small trucks.

Norway House is no longer served by a winter road from Highway 6. The present winter road network in eastern Manitoba is shown in figure 11 which depicts the current transportation system. Winter roads connect Cross Lake to Oxford House and God's Lake. The Island Lake area is connected to southern Manitoba by a winter road which parallels the east side of Lake Winnipeg. The orientation of the roads and winter roads result in Norway House being at the end of a single all-weather road. Earlier winter road orientations (see figure 3) had made Norway House a major cross-roads and resupply centre for remote northern communities. Now most of the goods which once moved north through Norway House can bypass it via the highway and winter road system. This shift in the interface has implications for the role of Norway House as a transshipment centre.

FIGURE 11



### Trucking

Since the new road was opened most of the freight going to Norway House has been carried by trucks. Northland Freight and Forwarding brings in a large percentage of the freight with The Bay and the hospital being major customers. Swan River-The Pas Transfer and Gardewine and Sons Limited are the other two general freight carriers. Paul's Hauling Limited has obtained contracts to haul oil in by truck for Shell Oil. Various firms obtain contracts for hauling gravel.

Northland has two or three trucks per week going to Norway House from Winnipeg. They carry in the perishables for the stores and the hospital. On trips out the refrigerated trucks take fresh fish to Winnipeg. An advantage of this for the community is that less fish spoil than was the case with shipment by barge. Northland also carries most of the general freight for the stores, the hospital, the schools and for any other consignees. Building materials are shipped in for the federal and provincial governments as well as the stores, schools and others.

### Barging

At present Waterways Enterprises is the only firm running barges on a regular basis to Norway House. Since the road opened Waterways general barge cargoes have declined to negligible amounts. Their main contract is to haul bulk fuel for Shell Oil's bulk fuel outlet in Norway House. Waterways estimated that they hauled one million gallons of oil into Norway House in 1977 and about another one-half million gallons went in by road. Waterways operates one



boat, a double bottom self-propelled tanker, which depending on the weather will make one trip a week to the communities on Lake Winnipeg.

Up until 1977 Northland Freight and Forwarding also operated a regular barge service to Norway House. However, with the new road they now truck in the summer months as well as the winter. They continue to serve other communities on Lake Winnipeg by barge. As well they haul fish from Tait Island and Sandy Island by boat to Norway House and from there by truck to Winnipeg for the Norway House Fishermen's Co-operative. Marine Transport also operates on Lake Winnipeg but carries only bulk loads of pulpwood and sand on the south end of the lake.

As previously indicated the only significant barge shipments are to Shell's bulk fuel outlet in Norway House. Shell's operation was established to service the community needs, to facilitate transshipment of oil by air to inland settlements and to supply aviation fuel for the airport. The capacity of the plant is 720,000 gallons and its annual sales range to over 1,000,000 gallons depending on activities such as construction and fire-fighting with airplanes. With high interest rates the viability of storing large quantities of oil is being questioned. If more shipping was done by road seasonal imbalances could be lessened.

With the decline of barge traffic the infrastructure put in place including the docks at all major activity centres such as the hospital, stores, etc. are going largely unused. As well, the warehouse adjacent to the Northland dock is now used mainly for local building

materials rather than to store transshipment freight. This means that major infrastructure elements are either abandoned or their use is changed. As well, the equipment such as barges must be diverted to other service as volume declines. The private carriers must adjust operations as they lose business. An implication for the community of not having goods delivered to sites by water is that certain sites without bridges now are at a severe disadvantage.

### Airlines

Air service to Norway House is comprised of two scheduled airlines and two air charter services. The primary carrier until 1979 was Transair-Midwest which had weekday flights from Winnipeg. The Aircraft used was the YS-11 Turbo Prop which carried 46 passengers. From Norway House Transair's only flights were to and from Winnipeg (route shown in figure 11). Lambair connects Norway House with Thompson via Jenpeg and Cross Lake with daily flights. Lambair also serves Kelsey, York Landing, Gillam, Shamattawa, Oxford House and God's Lake Narrows. Transair dropped its service in 1979 and Perimeter Airlines is now the major carrier. Perimeter airlines provides scheduled daily service linking Winnipeg, Berens River, Norway House, Cross Lake, Oxford House, God's River, God's Lake Narrows, Red Sucker Lake, Garden Hill and St. Theresa Point.

The air charter services based in Norway House are Aero Trades Limited and Gary Long's Fly-a-Long service. Aero Trades operates an Aztec twin engine plane and a float plane at the

float plane base. Their flights include the occasional evacuation of sick people to Winnipeg or Thompson.

The Department of Northern Affairs operates the provincially and federally funded airport at Norway House. Activity data is shown in table 9. Only the airport at Island Lake which acts as a feeder airport for smaller centres handles more passengers and freight than the Norway House airport in northern Manitoba. A historical breakdown of aircraft movements, overnight parking, passengers and cargo for Norway House airport is given in tables 10 and 11.

The transshipment of oil to Island Lake by air from the bulk station at Norway House has kept total air cargoes up. However, air freight to Winnipeg and Thompson on scheduled flights declined substantially after completion of the road (Personal Interview with Wayne Greer, Manager, Transair, Norway House, 13 March 1978). Freight from Winnipeg on scheduled flights went down from 4,000 pounds per day to about 1,000 pounds per day in early 1978. Only with the oil and other movements on non-scheduled flights have overall freight levels been maintained.

It was as a result of declining cargo and passenger movements that Transair dropped its Norway House run (Personal Interview with Bruce McWhirter, Transair, Winnipeg, 26 July 1978). Mr. McWhirter stated that Transair traffic declined to 25 percent of its previous level. Perimeter Airlines which took over Transair's share of the air traffic to Norway House uses smaller planes which are more

TABLE 9

NORTHERN AIRPORT PASSENGERS AND FREIGHT TOTALS  
1 JANUARY 1977 to 31 AUGUST 1977

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Location	Passengers	Freight (in tons)
Berens River	3,645	118.0
Bloodvein River	902	21.5
Cross Lake	6,113	393.8
God's Lake Narrows	4,986	332.9
Island Lake	15,417	1,059.7
Moose Lake	1,922	2.3
Norway House	13,955	763.3
Oxford House	4,177	370.4
Poplar River	1,617	...
Pukatawagan	442	366.1
Red Sucker Lake	1,478	220.8
South Indian Lake	833	77.5
Split Lake	897	185.2
York Landing	1,359	67.4

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SOURCE: Manitoba. Department of Northern Affairs, Airport Operations and Maintenance, 1977.

TABLE 10  
 NORWAY HOUSE AIRPORT ACTIVITIES  
 1974-1978

	Aircraft Movements	Overnight Parking	Passengers	Cargo (lbs.)
1974	10,544	675	34,443	3,605,159
1975	10,021	1,124	31,201	2,494,995
1976	9,828	1,448	29,041	3,695,799
1977	9,221	1,278	30,282	3,217,856
1978*	5,935	...	16,351	2,806,060

SOURCE: Manitoba. Department of Northern Affairs, Airport Operations and Maintenance, 1974-1978.

\*Figures for April 1, 1978 to March 31, 1979.

TABLE 11

## DETAILS ON ACTIVITY AT NORWAY HOUSE AIRPORT

	1977 Total	Jan.	1978 Feb.	March	April
Scheduled Flights	2,400	192	184	198	192
Other Commercial Flights	5,000	292	249	299	369
Private Flights	300	10	8	8	22
Government Flights (Including Military and Firefighting)	1,100	60	70	68	100
Passengers	30,282	1,469	1,271	1,485	1,648
Movements	9,221	554	511	573	648
Overnighting	1,278	62	57	66	...
Cargo (in tons)	1,608.9	122.3	131.3	146.8	59

SOURCE: Manitoba. Department of Northern Affairs, Airport Operations and Maintenance, 1978.

affected by crosswinds and are not able to provide as dependable service.

The airport located on Fort Island has a gravel runway which is 1,219 m. (4,000 ft.) long and 30 m. (100 ft.) wide. Also on Fort Island is a sea plane base which handles about one-third of the flights into Norway House.

The airport is for day use only and has a visual flight rules license. Despite its length the land airstrip does not meet the licensing standard for a Class C runway because of rock outcrops encroaching on the runway strip (see table 4). The runway satisfies the Transport Canada requirement that (where practicable) for not less than 98 percent of the time there is at least one runway for which the crosswind components do not exceed fifteen knots. However, many smaller aircraft cannot be safely operated when the crosswind component exceeds ten knots. The runway provides ten knot crosswind coverage only 94 percent of the time during day visual flight rule conditions.

A gravel apron, a passenger terminal building and support facilities are located near the midpoint of the runway and a cargo warehouse and fuel depot are located near one end. The role of the airport is as follows: (1) service scheduled flights mainly from Winnipeg, (2) serve as a transfer point for passengers and air cargo moving between scheduled flights and non-scheduled flights serving outlying communities, (3) base for charter operations, (4) summer base for large aircraft engaged in fire suppression activities, (5) embarkation point for medical evacuation cases which

cannot be handled at the nearby Norway House Hospital, and (6) potential base of operations for companies engaged in resource exploration in the surrounding area.

The Norway House Airport Study prepared jointly by Transport Canada, Civil Aviation Planning, Central Region and the Province of Manitoba, Department of Northern Affairs, Engineering and Construction Division was completed in February 1978. It recommends the airport remain at its present location, although alternative sites were evaluated. To improve the Norway House Airport to a D Class runway rock must be blasted from near the northeast end of the runway. As well, the apron and facilities must be moved. A crosswind airstrip was being considered to facilitate light aircraft if the cost was not prohibitive. However, in view of the diverted traffic to the road this probably will not be built. This means that the interface of Norway House with communities by air is adversely affected.

#### Internal Transportation

The internal road network is fragmented and poorly designed (Hilderman et al, March 1977, p. 19). Each island is served by its own gravel road but there are no bridges to link together Mission, Tower and Fort Islands. Only recently was a bridge built to serve West Island. The other bridge in the settlement joins Fort Island and the Rossville road which is located on the reserve. There are approximately 28 miles of road in the community, with about 13 miles on the reserve. In many places the roads are a hazard when vehicles pass in either direction. Deep water filled ditches, steep side slopes and narrow surfaces contribute to hazardous road conditions.



With the completion of the all-weather road from Jenpeg the number of local vehicles is increasing and traffic from outside the community is also rising. Additional pressure will be placed on the already over-taxed internal road system as traffic increases. It does not appear that there was adequate coordination of internal and external transportation planning.

Local roads are generally dusty in dry periods and muddy when wet. It appears that little prior planning or consultation had been done before bulldozers were sent in to clear roads. This lack of pre-planning emphasizes the need for the transportation community interface planning to address the relationship of internal land uses and internal circulation. Desirable land, especially lake front area is often consumed by the roads. The local roads are dangerous to walk on and local path networks have been disrupted by roads and road construction.

The scattered settlement pattern makes it difficult to provide access to all areas. Some outlying points have inadequate access by road. Continued building in areas without good access is an important consideration for interface planning. If roads and land use were planned in conjunction decisions could be made based on an interface plan.

Northern Affairs equipment is used for road maintenance. Funding for road maintenance is contributed by both the federal and provincial governments.

In winter it is possible to drive to and from Million Island across the ice but in summer and during break-up and freeze-up it

is not possible. This means that all vehicles including school buses and any road maintenance equipment do not have access to Mission Island for eight months of the year. The new bridge to West Island facilitates school bus service, road maintenance and provision of other services for that area. As well access to the all-weather road and access to the goods and services of Fort Island and Rossville is facilitated. The bridge to West Island directly impacted the evolution of the community by opening up much needed areas for development.

The rivers still play a significant role as major internal transportation corridors. In winter snowmobiles are as heavily used as are automobiles. In summer motorboats are more common than are private automobiles. This is in spite of a rapid increase in the number of private automobiles since the completion of the new road. Interface planning could address the conflicts between snowmobiles and automobiles on the roads and between boats and float planes on the river.

Walking remains an important means of internal movement but is declining as more motorized vehicles are utilized. Sea River Falls bus lines provides only limited internal bus service. Taxis operate irregularly but many local people provide taxi service on an ad hoc basis. At present, there is no scheduled bus service to Norway House. An important implication of increased automobile dependence is the plight of those who do not own cars or have old unreliable cars.

Interface planning could identify areas close to services suitable for residences or alternatively provide improved transportation services such as bus for those without cars.

### Freight Movements and Costs

Freight movements and costs are a significant consideration when addressing the interface of transportation and community. A mode must be competitive or it will not be used by the community. Also if rates are reduced more opportunities for economic development could be presented.

For transportation-community interface planning the costs of a road relative to community benefits is an important consideration. The feasibility of roads to other small northern communities may be considered partially in light of freight cost savings as experienced in Norway House.

The freight movement and cost changes associated with new technology may directly influence the shifts in modes and thereby the community linkages. As well by eclipsing old modes infrastructure in the community may have to be abandoned or adapted. New facilities oriented to motor vehicles may be required.

Types of freight shipments examined in this section include resupply freight which is the largest component, resource shipments which include fish, fur and timber, transshipment freight and freight shipments for major new capital infrastructure. Shipments moved by land, water and air modes are examined.

This section compares the cost of shipment of goods both before and after the all-weather access road was built to Norway House. The changes in costs result mainly because of shifts away from the air and barge modes. A figure is arrived at for the annual freight cost savings. Savings for both perishables and general freight are indicated.

Any analysis of freight movements and freight costs for a community such as Norway House is fraught with difficulties. Shippers are under no obligation to release data on shipments and rates. Even data collected by government agencies on airport passengers and cargo and on ferry movements can be suspect as definitions are often obscure and data collection procedures not uniform.

Despite the above this study has gleaned considerable information on freight movements and costs for Norway House. This data is summarized in this section. Resupply freight is examined in detail.

### Resupply Freight

Resupply freight includes goods which are used by the immediate community with the exception of capital goods associated with new expenditures. Also excluded are shipments associated with primary or secondary industrial activity and any goods for trans-shipment to other centres.

Table 12 shows estimates of resupply freight for Norway House for 1978 based on actual figures to June and projections for the remaining six months. There is approximately 175,000 hundredweight (cwt.) of goods shipped to Norway House per year to

TABLE 12

RESUPPLY FREIGHT INTO NORWAY HOUSE  
(1978 Estimates-From Winnipeg)

	Truck	Barge	Air	Total
<u>Quantities (in cwt.)</u>				
Petroleum	30,000	50,000	...	80,000
Perishables	25,000	...	5,000	30,000
General Freight	60,000	...	5,000	65,000
Total	115,000	50,000	10,000	175,000
<u>Rates (per cwt.)</u>				
Petroleum	\$1.50	\$1.28	...	
Perishables	2.50	3.30	\$23.00	
General Freight	2.25	3.00	23.00	
<u>Total Cost</u>				
Petroleum	\$ 45,000	\$64,000	\$ ...	\$109,000
Perishables	62,500	...	115,000	177,500
General Freight	135,000	...	115,000	250,000
Total	\$242,500	\$64,000	\$230,000	\$536,500

SOURCES: Paul's Hauling, Shell Oil (Norway House), Northland Freight and Forwarding, Gardewine and Son Ltd., Swan River-The Pas Transfer, Waterways Limited, Transair and Norway House Airport Manager.

resupply the community. This is comprised of 80,000 cwt. of petroleum, 65,000 cwt. general freight and 30,000 cwt. perishables. About 65 percent of the resupply freight now goes in by truck on the new access road. About 30 percent of the freight goes in by barge and only 5 percent by air. While trucks carry all kinds of freight, barges carry only a negligible amount of goods other than petroleum. By air there is virtually no petroleum coming into the community but there are still shipments of perishables and general freight. A high percentage of the goods destined for Norway House are shipped from Winnipeg. An occasional truck will go in from Thompson or another northern centre.

The freight rates shown in table 12 indicate that barging is the least expensive way to ship oil. Trucking is the least expensive for general freight and perishables provided large loads are carried. General freight rates set by the Manitoba Motor Transport Board allow high charges for small shipments (see table 13). However air freight rates are far higher than truck rates even for small shipments.

Total costs for shipping as indicated in table 12 were \$536,500 in 1978. Due to low freight rates petroleum had the lowest total shipping costs despite being the largest volume commodity. Perishables were costly to move because of refrigeration costs and high air freight costs. The bill for shipping general freight was \$250,000 or approximately one-half of the total freight costs. Total air freight costs were \$230,000 despite the low volumes involved. Total trucking costs were approximately equal to air costs despite

TABLE 13

GENERAL FREIGHT TRUCKING RATES  
WINNIPEG TO NORWAY HOUSE  
6 JULY 1978

1	-	50 lbs.	\$ 9.45 per shipment
51	-	100 lbs.	11.90 per shipment
101	-	150 lbs.	14.35 per shipment
151	-	200 lbs.	16.80 per shipment
201	-	250 lbs.	19.25 per shipment
251	-	300 lbs.	21.65 per shipment
301	-	350 lbs.	24.05 per shipment
351	-	400 lbs.	26.45 per shipment
401	-	450 lbs.	28.85 per shipment
451	-	500 lbs.	31.20 per shipment
500	-	999 lbs.	6.24 per hundredweight
1,000	-	1,999 lbs.	5.42 per hundredweight
2,000	-	4,999 lbs.	4.85 per hundredweight
5,000	-	9,999 lbs.	4.07 per hundredweight
10,000	-	19,999 lbs.	3.33 per hundredweight
20,000	-	29,999 lbs.	2.48 per hundredweight
30,000	-	39,999 lbs.	1.99 per hundredweight
40,000	-	44,999 lbs.	1.67 per hundredweight
45,000+			1.55 per hundredweight

SOURCE: Manitoba Motor Transport Board.

the fact that the quantities moved by truck are ten times greater than those moved by air.

#### Changes in Costs for Resupply Freight

Estimates of resupply freight quantities for 1975 were done by the Manitoba Northlands Transportation Study (see table 14). They were based on data gathered from various shippers. Their estimates of the quantities for different types of commodities are close to the totals for 1978.

However, the modal shifts since the road was completed have been dramatic. Virtually all perishables were flown in and total air freight was 40,000 cwt. Upon completion of the road resupply air freight dropped to one-quarter of its former level.

Freight moved by barge fell to one-half of its previous total. The amount of general freight moved by barge fell from 42,000 cwt. to negligible amounts. Petroleum movements by barge were maintained.

By truck the volume rose from a level of 40,000 cwt. of freight before the road to 115,000 cwt. The amount of perishables moved by truck rose from a negligible amount to 25,000 cwt. General freight increased from 16,000 cwt. prior to completion of the access road to 60,000 cwt.

By using the 1975 modal split figures on quantities of commodities it is possible to estimate resupply freight costs without an all-weather access road. Comparison of before and after costs is facilitated by the relatively constant amounts of each commodity



TABLE 14

RESUPPLY FREIGHT INTO NORWAY HOUSE  
(1975 Estimates-From Winnipeg)

	Truck	Barge	Air	Total
<u>Quantities (in cwt.)</u>				
Petroleum	24,000	58,000	...	82,000
Perishables	...	...	28,000	28,000
General Freight	16,000	42,000	12,000	70,000
<b>Total</b>	<b>40,000</b>	<b>100,000</b>	<b>40,000</b>	<b>180,000</b>
<u>Rates (per cwt.)</u> <u>[1978 Estimates]</u>				
Petroleum	\$1.50	\$1.28	...	
Perishables	...	...	\$23.00	
General Freight	2.25	3.00	23.00	
<u>Total Cost</u>				
Petroleum	\$36,000	\$ 74,240	\$ ...	\$ 110,240
Perishables	...	...	644,000	644,000
General Freight	36,000	126,000	276,000	438,000
<b>Total</b>	<b>\$72,000</b>	<b>\$200,240</b>	<b>\$920,000</b>	<b>\$1,192,240</b>

SOURCES: (Quantities) Hickling Johnston, Manitoba Northlands Transportation Study, General Appendix, 1975, Exhibit 28(xii).

(Rates) Paul's Hauling, Shell Oil (Norway House), Northland Freight and Forwarding, Gardewine and Son Ltd., Swan River-The Pas Transfer, Waterways Limited, Transair and Norway House Airport Manager.

moving to Norway House. To obtain comparable cost figures 1978 freight rates have been used as shown in table 14.

Total freight costs for resupply freight with no access road would be approximately \$1,192,240. This is in contrast to \$536,500 with the road. To obtain a more accurate cost comparison another 5,000 cwt. of freight should be added to the 1978 total so that the freight movements are both 180,000 cwt. This equalization adds \$15,329 to the cost of movement with an access road. Total annual freight cost savings are then actually \$640,411. Freight costs with the road are reduced to approximately one-half of the total costs without the road.

The major cost saving is the reduced cost of shipping perishables. Prior to the completion of the access road it cost \$644,000 to ship in perishables by air. With most perishables coming in by truck it cost only \$177,500 to resupply perishables. The cost of moving in general freight dropped from \$438,000 to \$250,000. The total cost of moving in freight by air dropped from \$920,000 to \$230,000. As a result of these changes resupply air revenue dropped and service was reduced. Total barge revenue fell from \$200,240 to \$64,000. Trucking costs have increased from \$72,000 to \$242,500 but the amount of goods hauled by truck is almost three times greater than before the access road opened.

Overall it appears that the new access road will result in an annual freight cost saving of \$640,411 for Norway House. This saving results primarily because of a shift from air freight to truck for resupplying perishables and general freight.

While the external transportation-community interface is still oriented to Winnipeg different modes now move the freight. More linkages to Thompson may occur but the role of Norway House as a transshipment point is being seriously eroded and this affects activities such as warehousing and charter flights which are based in the community.

#### Resource Shipments

The amount of fish shipped from Norway House has averaged 5,040 cwt. per year from 1969 to 1976 (see table 15) (Teillet, 1977, p. 20). Until 1978 these fish were shipped out by barge but in 1978 Northland Freight and Forwarding began trucking the fish to the fish plant in Winnipeg.

In 1976 there were 14,000 fur pelts taken in the Norway House area. These furs predominantly beaver, muskrat, otter and fox were shipped by air to Winnipeg. Although no exact data is available the furs produced each year would probably weigh less than 140 cwt.

Pulpwood shipments from the Norway House area have been substantial in recent years. In 1977 there were 2,610 cords shipped to Pine Falls by Marine Transport. Due to low water levels a further 1,022 cords cut in 1977 had to be barged out in the spring of 1978. These shipments in 1977-1978 would amount to an estimated 180,000 cwt. In 1978 Marine Transport moved its pulpwood cutting operation to another area on Lake Winnipeg. Thus the only cutting now is local operations and these supply only the local area.

TABLE 15

SHIPMENTS OF FISH AND FUR 1978  
(ORIGIN NORWAY HOUSE AREA--DESTINATION WINNIPEG)

	Amount (in cwt.)	Rates (per cwt.)	Total Cost
Fish (shipped via truck)	5,040	\$ 2.50	\$12,600
Fur (shipped via air)	140	23.00	3,220
Total			\$15,820

SOURCES: Transair and Northland Freight and Forwarding.

To sum up the resources shipped from the Norway House area include 5,040 cwt. of fish and 140 cwt. of furs. Pulpwood shipped was 180,000 cwt. in 1977-1978 but this operation has since left the area. As indicated in table 15 the total of resource shipments per year of fish and fur is 5,180 cwt. at a total freight cost of \$15,820. Clearly the cost of shipping out resource products is quite small in relation to resupply freight costs. However, if a pulpwood cutting operation was resumed freight costs for resource products could be highly significant.

Transportation-community interface planning must take into account the one way nature of most freight movements. Ways to increase the exports from the community should be explored. As well, improving links to local resource areas such as timber should be undertaken.

#### Transshipment Freight

Transshipment freight from Norway House is primarily petroleum. This is airlifted to small inland centres such as Island Lake. An estimated 80,000 to 160,000 gallons of petroleum are transshipped from Shell Oil's bulk fuel plant in Norway House each year. It costs about \$.55 per gallon to move this oil inland by air in a DC-3 or similar charter aircraft. This is in contrast to a cost of only about \$.10 per gallon to barge the oil to Norway House and about \$.12 per gallon to truck it to Norway House. There is also a limited amount of general freight transshipped from Norway House to smaller

inland centres by air. There appears to be little or no transshipment by truck or barge from Norway House to other centres. If all-weather roads are built to the small inland centres the feasibility of connecting them to the road to Norway House should be explored.

#### Freight Shipments for Major New Capital Infrastructure

Shipments for new capital infrastructure have not been included with the general resupply freight. Shipments such as construction materials for schools, hospitals and public buildings could greatly increase annual freight movements to a community. Major shipments of building materials would probably be carried primarily by truck on the new access road.

The construction of the access road will eliminate the seasonal constraints on construction activity in Norway House. The road linkages provide year round access to materials. Many activities are now facilitated on a year round basis as supplies are available.

#### Passenger Traffic

In past years the main mode of passenger travel from Norway House to other centres was by scheduled and chartered air flights. The number of air passenger trips handled at the Norway House airport averaged over 30,000 from 1974-1977 (see table 10). Of this passenger total a large number would be simply transferring at the airport for flights to Jenpeg, Cross Lake and other centres. This passenger total excludes the number of passengers on flights from the sea plane base.

The traffic on scheduled flights in 1978 is indicated in table 16. Transair dominated the Winnipeg-Norway House run with over 5,000 passengers. Perimeter Airlines estimated the number of passengers with an origin or destination of Norway House at 3,000 in 1978. Thus the total number of passengers on scheduled flights between Winnipeg and Norway House was 8,000 in 1978.

As indicated in table 16 traffic to Norway House was at considerably higher levels up to 1976. Combined traffic on Transair and Perimeter for 1978 does not match 1976 levels handled by Transair alone. Factors contributing to declining traffic include completion of the access road and possibly more competition from charter flights.

The Manitoba Northlands Transportation Study supplied origin-destination data for 1974 (see table 17). About 65 percent of the passengers on scheduled flights flew between Winnipeg and Norway House. A further 15 percent had their origin or destination as Thompson. The Pas accounted for about 5 percent of the scheduled flights, Cross Lake accounted for 5 percent and small remote communities accounted for 9 percent. The proportion of flights to small inland centres is small and charters may be used for these runs rather than scheduled flights.

Passenger travel by car or small truck increased substantially following completion of the access road. There was an estimated 17,640 people going to or from Norway House in 1978. This estimate is based on data from the Marine Services, Department of Highways

TABLE 16

AIRLINE PASSENGER TRAFFIC  
NORWAY HOUSE - WINNIPEG

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	Southbound	Northbound	Total
<u>Transair</u>			
1974	5,741	4,993	10,734
1975	5,638	4,930	10,568
1976	5,133	5,077	10,210
1977	3,416	3,833	7,249
1978 (Estimate)	2,600	2,500	5,100
<u>Perimeter Airlines</u>			
1978 (Estimate)	1,500	1,500	3,000

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SOURCES: Transair and Perimeter Airlines.



TABLE 17  
PASSENGER ORIGIN-DESTINATION STATISTICS 1974  
(Scheduled Flights Only)

Community	Origin Norway House	Destination Norway House	Total
Berens River	100	100	200
Cross Lake	400	400	800
Garden Hill	150	150	300
God's Lake Narrows	150	150	300
Oxford House	200	200	400
Red Sucker	50	50	100
St. Theresa Point	50	50	100
The Pas	440	440	880
Thompson	1,150	1,150	2,300
Winnipeg	5,740	4,990	10,730
Total	8,430	7,680	16,110

SOURCE: Hickling Johnston, Manitoba Northlands Transportation Study, General Appendix, 1975, Exhibit 27-1.

and Transportation which indicate 1,764 people per month crossing the ferry for an average of six months per year. It is assumed a further 1,764 people cross the ice on the river for each of four months. For approximately one month during break-up and one month during freeze-up there is no access by car or truck.

While origin-destination figures are not available on road trips from Norway House it is likely that there is a considerable shift from the pre-access road era when 65 percent of trips by air were to Winnipeg. A greater orientation to the north will probably result as road utilization increases.

#### Conclusion

This chapter has illustrated the need to plan each component of the transportation system in conjunction with the total system. The failure to upgrade internal roads when the access road was built is a case in point. The external transportation planning agencies should be coordinating their efforts with local transportation services. The need to involve the private operators is vital so they may provide better services and adjust their equipment and infrastructure expenditures. For transportation planners the fact that the road provides benefits such as reduced freight rates and improved access should be considered when planning for other communities.

Transportation-community interface planning should examine the effects on the community as it is increasingly orientated to motor vehicles. Internally priority is being placed on development of areas such as West Island with good road access on a year round basis.

The pattern of the interface has evolved with internal development becoming more road oriented and the external relationships of the community also becoming road oriented.

## CHAPTER V

### THE EFFECTS OF TRANSPORTATION CHANGE

#### ON NORWAY HOUSE

The purpose of this chapter is to examine the effects of the new access road on Norway House. Some of the direct effects such as reduced freight costs and increased car passenger travel have been examined in the previous chapter. This chapter deals with indirect effects of the access road examining the cost of living, social conditions and economic conditions. These indirect effects can be an important aspect of the interface effects.

Current planning for transportation systems often neglects to gather information on transportation-community interface aspects. Often the data is concerned primarily with the operation of the transport system itself. And yet as Thomas and Schofer (1970, p.23) state "the transportation planning unit is increasingly being called on to examine the consequences that occur at the interface between the transportation system and its environment". At present there may be data on traffic counts and origin destination studies. But there is little information on the consequences for communities of transport system operation and changes. Some project impact studies are carried out but these are the exception rather than the rule. Community or

regional planning agencies may gather information on consequences but transmission to transport planners is infrequent and informal (Thomas and Schofer, 1980 p. 23). It is extremely important to identify the broad array of effects that may result from the provision of new transportation technology.

"To operate the transport system as an efficient adaptive system, it will be necessary to collect much broader information as a standard transportation system function on a regular basis. This may call for the increased use of before-and-after studies related to specific instances of the provision or modification of transportation services". The focus should be on exposing the nature of the interface between the system and communities in its environment (1970, p. 24). It is also vital to understand these effects for community planning.

#### Cost of Living

A relative reduction in the cost of living is one of the most tangible benefits of the new access road to Norway House. Residents of Norway House noticed both actual reductions in prices in stores and relative reductions as the rate of price increases appears to decline. These perceived reductions in the cost of living are verified by statistics, at least for the cost of food.

Prior to completion of the access road food prices in Norway House were 32 percent higher than in Winnipeg. After the road was completed food prices were only 18 percent to 21 percent higher than in Winnipeg (see table 18).

TABLE 18

NORWAY HOUSE FOOD PRICE INDEX BY COMMODITY GROUP  
(Winnipeg=100)

Type of Food	Dec. 1975	Dec. 1976	Dec. 1977	Dec. 1978
Dairy Products	153.8	150.7	122.5	126.0
Cereal & Bakery Products	144.1	137.0	111.5	111.9
Fats & Oils	117.3	119.4	100.4	96.4
Meat, Poultry & Fish	...	117.1	113.2	120.5
Eggs	143.4	149.3	123.6	127.6
Fruits & Vegetables	...	157.8	139.1	131.6
Frozen Foods	126.5	134.3	...	...
Dishes & Snacks	108.7	112.1	111.4	117.1
Other Foods	116.0	123.7	108.9	112.0
Beverages	115.2	118.2	118.9	122.2
Total Food for Home Consumption	135.8	132.2	118.4	121.0

SOURCE: Manitoba Bureau of Statistics, Manitoba Price Statistics, 1975-1978.

As indicated in table 18 eggs, dairy products, cereal products, bakery products and fruits and vegetables have declined considerably in price since 1976. Prior to completion of the access road these products had generally been shipped in by air freight. Trucking produce is far cheaper and the reduced freight costs appear to result in a decline in prices.

Table 19 which shows actual commodity prices in Winnipeg and in Norway House in 1970 and 1978 also indicates that the prices of produce such as fruits and vegetables have undergone the largest relative price declines in Norway House. It is possible that not all freight cost savings are being passed on to the consumer. The food stores and the shippers may be realizing part of the freight savings as added profits. However, there is some degree of competition in both the food and transport sectors which serve Norway House.

Almost all communities in Manitoba have food prices higher than those in Winnipeg. As indicated in table 20 even communities in the south such as Carman and Beausejour have food prices slightly higher than in Winnipeg. In the north in remote communities with winter road and air access food costs are over 40 percent higher than in Winnipeg. In northern mining communities with highway, rail and air access food costs are 5 percent to 9 percent higher than in Winnipeg.

Food prices in Norway House were about 46 percent higher than Winnipeg in June 1974 but only 36 percent higher in December 1974. The lower costs in the winter were a result of shipping at least some perishables over the winter truck road. Thus the time of year could influence the cost of food.

TABLE 19  
FOOD PRICES BY COMMODITY

Commodity	Winnipeg Jan. 1970	Norway House Jan. 1970	Winnipeg March 1978	Norway House March 1978
Butter (lb.)	\$ .73	\$ .88	\$ 1.35	\$ 1.48
Flour (25 lbs.)	1.89	2.91	4.09	5.42
Sugar (5 lbs.)	.60	.78	1.26	1.47
Bacon (lb.)	1.06	1.00	1.79	2.20
Lard (lb.)	.24	.29	.69	.64
Oranges (lb.)	.26	.80	.45	.48
Tomatoes (lb.)	.36	.72	.49	.66
Potatoes (lb.)	.07	.09	.09	.15
Bread (lb.)	.26	.40	.46	.48
Eggs (doz.)	.57	.89	.81	.98
Tea (lb.)	1.47	1.28	4.25	3.96
Coffee (lb.)	.99	1.04	3.79	4.05
Total	\$8.50	\$11.08	\$19.52	\$21.97
Index	1.00	1.30	1.00	1.13

SOURCES: (1970 Prices) J. Seldon, A Note on the Cost of Living in the North: Food Prices in Small Northern Manitoba Settlements, (Winnipeg, Centre for Settlement Studies, 1972), p. 19.

(1978 Prices) Author Survey.



TABLE 20

CONSUMER GOOD PRICES BY TYPE OF ACCESS TO COMMUNITY  
(Indexed, Winnipeg=100)

Type of Access	Community	June 1974	Dec. 1974	Dec. 1975	Dec. 1976	Dec. 1977	June 1978	Dec. 1978
Winter Road, Barge, Air (By Dec. 1977 All-Weather Road, Barge and Air)	Norway House	146	136	136	132	118	...	121
	Cross Lake	132	139	134	...	...	116	...
Winter Road and Air	Oxford House	144	144	132	...	...	...	149
	God's Lake Narrows	152	144	140	...	144	129	147
Highway, Rail and Air	Thompson	108	107	...	106	105	105	105
	The Pas	112	110	107	108	107	105	109
Southern Communities Highway and Rail	Dauphin	...	...	102	102	102	101	104
	Carman	...	...	102	104	...	...	...
	Beausejour	...	...	...	...	101	101	103

SOURCE: Manitoba Bureau of Statistics, Manitoba Price Statistics, 1974-1978.

By December 1977 the new road to Norway House gave access for approximately ten months of the year. But this gravel road and Sea River Falls ferry route is not comparable to the paved highways to centres such as Thompson. During freeze-up and break-up some perishables still have to be flown into Norway House at high cost. Thus it can be expected that year round average food prices will remain higher in Norway House than in Thompson and other northern communities served by highway. Despite the fact that food prices relative to Winnipeg fell by about 11 percent the cost of food was still 21 percent higher in Norway House than in Winnipeg and 16 percent higher than in Thompson (as of December 1978).

The cost of goods other than food can also be expected to decline relative to Winnipeg prices. Inventory costs are greatly reduced as supplies are readily available from Winnipeg by truck except during break-up and freeze-up. The price of some goods such as gasoline may be affected very little if most fuel continues to come in by barge. The benefits for the community are considerable. Lower income groups who generally spend a large percentage of their money on food will benefit from reduced food costs.

#### Impact on Social Conditions

The social impact of the road cannot be easily assessed. Prior to the completion of the road to Norway House there were various social problems in the community. These problems included drug addiction and alcoholism which are at times associated with fights, drownings, deaths by freezing and car accidents.

The community has high levels of welfare, unemployment and underemployment. Education levels are low and health conditions are generally poor.

Problems associated with the road began when the idea of the road was first put forth to the community. There was some dissension as certain members of the community opposed construction of the road. Further problems arose during the construction phase as the Band felt they had the right to build the section of the road on reserve lands but were not given the opportunity to do so. This problem increased the stress between various sectors in Norway House. Effective interface planning could have examined the community needs within an organized framework. The ad hoc arrangements for incorporating community concerns were not effective.

Prior to the road being built there had been difficulties obtaining liquor in the community in the summer. The only way to get liquor other than beer in the pub was to share the cost of a charter plane for a liquor flight. With high prices and shortages in the summer, alcoholism rates were lower at that time of the year. After completion of the all-weather road, the R.C.M.P. indicated that alcoholism became a year round problem. Except for a few weeks during freeze-up and break-up liquor is more readily available.

A further problem that arose upon completion of the road has been the increase in the number of visitors. Residents say that the road has facilitated a relatively large weekend influx of young men from Thompson and other centres.

Native women have in some cases been vulnerable to exploitation by unattached and irresponsible outsiders. This creates dissension among the young courting groups. The young Norway House men resent the outsiders (G. Gransberg, Personal Interview, 1978).

It appears that few if any special efforts were taken to alleviate the negative social impacts of the road. Special programs might have been designed to alleviate increased alcohol and drug usage. No amount of forward planning, however, in the given social and political context would completely ameliorate the social problems created or exacerbated by the road.

Positive effects of the road include improved access to the relatively wide range of education, retail, legal and financial services in Thompson. As well, it appears that feelings of isolation have been reduced. Discretionary travel is facilitated by the road which is a more reliable and less expensive method of transportation than the airplane.

In addition, the road facilitates the development of cultural and recreational activities involving other communities. Social contacts are increased as there is the capability to move freely at short notice. Other benefits include better access to hospital and medical services.

To sum up, although there are negative social effects there is potential for the road to provide considerable social benefits. A detailed analysis would be required to pinpoint the effects of the road on each major section in Norway House--the Indian, the Metis and on the non-Native residents.

Transportation-community interface planning considers the long range social impact of changing transportation technology and informs the community of anticipated changes.

Impact on Economic Conditions

The importance of transportation infrastructure in relation to other sectors for the process of economic development is not at all clear among authors and planners (Hofmeier, 1973, p. 16). There is a deep controversy over whether an extensive transportation infrastructure base should be provided prior to all other development or whether sufficient infrastructure will be formed as a result of market forces in a growing economy. Some economists regard economic integration and development of transportation infrastructure as results of market processes. But such a process often leads to a dualistic development of developed and comparatively backward regions within a country (Hofmeier, 1973, p. 17). In contrast adherents of a more centrally planned economy regard infrastructure as the very basis and the initial ignition for the start of the economic development process.

Those favouring a centrally planned economy argue that a main task of transportation infrastructure is to achieve as high a degree of integration as possible.

Any counterbalancing of the disintegrating tendencies of this dualistic development, from an overall welfare-economic point of view, can only be achieved by systematic promotion of integration through various transportation and other infrastructural measures. This must necessarily be done by the public sector. Infrastructure cannot be left to market forces otherwise economic, social and political contrasts within a country will increase (Hofmeier, 1973, p. 17).

In underdeveloped areas there is generally a great deficiency of infrastructural facilities. However, it does not necessarily follow that the public sector should place highest priority on infrastructure. The need for expansion of directly productive

activities is often greater and if the private sector is not active then the public sector must invest in the area (Hofmeier, 1973, p. 17).

In largely underdeveloped areas a certain amount of social overhead capital is necessary for economic growth. However, the priority to be placed on infrastructure development is difficult to determine as evaluation criteria for transportation infrastructure development is lacking and opportunity costs of foregone investment in other sectors are generally unknown.

It is generally accepted that a certain minimum amount of transportation infrastructure is essential to facilitate economic development. But there is no general agreement on a necessary size of the transport sector or on the ability of transportation infrastructure to induce or influence economic growth and development.

Wilson distinguishes three different possible effects of improvements of a transport system:

1. Positive stimulation of economic development through improvement of the quality of the transportation system. This is accomplished by a reduction in the amount of resources that have to be spent for the distribution of a given amount of goods and people.
2. A slowing down of otherwise possible economic growth because of an unduly large use of scarce resources in the transport sector instead of on other more economic alternatives. This concerns the problem of the comparison of the overall productivity of all theoretically feasible investment possibilities. It is often argued that misallocation of funds is particularly relevant in cases of transport projects. It is said in this connection that because of the indivisibility, long life and external effects of transport projects, conventional criteria of productivity lead to less exact results and that transport investments can be regarded as safe politically; therefore, there do not exist any strong sanctions in case of obvious malfunctions.
3. An absolute reduction in income in a region or country in which a transport investment has been carried out. This is based on the possibility that products from more advanced

areas are flooding the market that had hitherto been protected by high transport costs and are consequently destroying the existing structure. This situation results in a preponderance of negative polarization effects against positive trickling-down effects (Wilson et al, 1966, p. 6).

Depending upon regional context, stage of development and specific historical conditions the influencing forces of the transportation system can result in distinct development, indifference or evacuation zones. Development processes initiated by the transport system show a very distinct dynamism of their own that influences various areas quite differently. Therefore each case must be examined on its own merits.

Prior to the introduction of the access road to Norway House the settlement was characterized by a relative lack of transportation infrastructure and an underdeveloped economy. As discussed above some authors and planners feel that investment in the transport sector is a fundamental prerequisite for economic advancement of an underdeveloped area. In this instance it appears that with government intervention transportation infrastructure was provided prior to substantial development in other sectors of the economy at Norway House.

However, due partially to the severity of the economic problems it was not expected that the access road would usher in a new economic era. Indeed there is no major economic development foreseen for Norway House at the present time, even with the new road. The road was not built with the prime purpose of creating jobs and it appears that in the short run it will create little employment. Unlike some northern roads this road was not built expressly to develop natural resources. The lack of resources in the Norway House area hampers any development initiatives.

The road is referred to by some as a social road as it was built primarily to achieve social rather than economic goals.

Despite the fact that the road by itself will not quickly transform the economy it is facilitating certain significant developments. In the short run (the first few years) the following economic development trends have become apparent:

1. Due to the long distances involved and other reasons it appears that few Norway House residents are commuting to jobs in other centres such as Cross Lake, Thompson, etc. However, special programs or incentives could facilitate commuting on a daily or weekly basis.

2. The road opened up new areas for forestry development and the Band has moved its small cutting operation to an area adjacent to the road. The road does not open up any large areas of marketable timber.

3. The fishing industry is able to use trucks to ship its catch to the packing plant in Winnipeg. However, the fishermen lost a transport subsidy on fish because they are no longer an isolated community.

4. Some temporary jobs were created in construction of the road and road maintenance jobs were created.

5. The road provides access to new trap line areas.

6. There is enhanced potential for tourism development with sport fishing access, hunting access, park site access and potential for campground development.

7. There is access for prospectors to examine geological phenomena.

8. The road could benefit businesses by reducing the amount of stock needed in stores.

9. There is some potential for Norway House as a regional distribution centre. Goods trucked to Norway House could be flown to Island Lake and other centres to the east.

None of the above developments appear to have potential for significantly changing the economic situation. Improved access for forestry, fishing, trapping, tourism and mineral extraction is important but as a recent study has indicated the natural resources of the area are limited. Dan Teillet (Manitoba, Department of Renewable Resources and Transportation Services, 1977) concluded that based on natural resource potential



not enough jobs could be created to employ the numbers of unemployed people in Norway House.

No final conclusion can be reached regarding the effects of the access road on other sectors of the local economy at Norway House.

A more detailed economic analysis might provide some further insights but any analysis is fraught by the following problems:

1. Quantification of influences on other sectors presents innumerable problems.

2. The pure effects of transportation investments can only rarely be isolated due to the complex nature of development programs which are normally carried out in conjunction with other activities.

3. Production increases can be expected if transportation is the only real bottleneck. However, in many cases other barriers exist for increased production.

4. Any road project must be examined within the context of the regional and national economy. When the road was introduced it coincided with a downturn in many of the northern sectors of the economy. With layoffs at Inco in Thompson, cutbacks on Hydro projects and reduced government employment, opportunities for commuting to jobs from Norway House was restricted. With further cutbacks in expenditures at the provincial and federal levels opportunities for northern economic development may be jeopardized. However, if further Hydro projects are undertaken this could boost the economy of northern Manitoba. Weekly commuting by air is an alternative to consider.

Transportation-community interface planning must weigh priorities for commuting to outside jobs, access to local resources, access to markets and consider the overall strategic location of Norway House when addressing effects on economic activity.

#### Conclusion

The access road to Norway House has decreased the isolation of the community. Freight costs have dropped and subsequently the cost of food has been reduced. There are increased opportunities for personal travel leading to some social benefits but also to

certain problems. The road has facilitated very little economic development but the potential for development in some sectors may be increased.

The community appears to be restructured and initial responses do not appear to be effective. Increased mobility and ready access to goods is welcomed by residents but there appears to be a dearth of positive action regarding the social and economic constraints and opportunities facing the community. Interface planning would involve local residents in order that the community could better understand and positively adapt to changes. As well awareness of social and economic opportunities could be facilitated by interface planning.

## CHAPTER VI

### TRANSPORTATION-COMMUNITY INTERFACE

#### PLANNING STAGES

The purpose of this chapter is to discuss the evolution of the community of Norway House with each successive change in transportation technology. Also, the planning decisions and processes required to gain the greatest advantage from new technology are examined.

For each stage the major technological changes are identified, the impacts are cited and implications for community structure are noted. Current transportation and community structure continues to be influenced by decisions made in earlier stages.

The stages in the development of the transportation-community interface for Norway House are as follows: (1) Transport Hub of the West (1826-1840), (2) Regional Centre (1841-1918), (3) Airplanes and Tractor Trains (1919-1968), and (4) Airstrip and Roads (1969-1980). The characteristics of each interface stage relate to modes of transportation, degree of interaction with other centres, physical interface aspects such as transportation infrastructure and community land use and the overall effects on the physical, social and economic structure of Norway House. The community response and planning implications are addressed.

This section attempts to relate much of the detailed information on the community and transportation system presented in previous

chapters. The analysis brings forth the salient points concerning the transportation-community interface.

Transport Hub of the West (1826-1840)  
Technological Change: York Boats  
Move Furs and Goods

The Hudson's Bay Company established the post at Norway House and movements of furs and goods were funnelled by York Boat through Norway House to and from York Factory, the Red River Settlement and the northwest. Norway House also played a key role in movement between the west and Montreal. The post was initially located at what is now called Warren's Landing on Lake Winnipeg. However after a fire at that location the post was moved in 1826 to its current location on the Nelson River. Due to differences in water levels there are rapids between the two locations so in later years boats plying Lake Winnipeg had to transfer their goods to smaller boats at Warren's Landing.

York boats, some of them made in Norway House, were the major means of cargo transport. Dog teams moved goods in the winter. The settlement on the river at Norway House grew and the headquarters of the Hudson's Bay Company was moved to Norway House. Local residents were employed manning the fur brigades and supply boats.

Philip Godsell (1941, p. 5) described the role of Norway House as follows:

Commanding the river routes from Hudson Bay to the Athabasca and south to Lake Superior, Norway House became the hub of this vast river transport system. Here in summer, York boat brigades converged from the farthest reaches of the Great Lone Land, exchanging the baled wealth of the forests for casks and bales of goods from far-off London. From the ramparts of the MacKenzie, from the palisaded forts of the Saskatchewan and the buffalo country, from Lac la Pluie and Red River came these tawny crews trundling their long, eighteen-foot oars in the rowlocks of red-painted galleys like Viking crews of old...

And here, in the heavy-timbered Council House, surrounded by the grey-bearded lords of lake and tundra, were decided the destinies of half a continent; the movements of next year's fur brigade, the price of beaver pelts and buffalo, the amount of water to be added to the redskins' "rum", the opening of new forts amongst unknown tribes. All the intricate matters dealing with the ruling of two million square miles of trackless wilderness...

George Simpson, Governor of the Hudson's Bay Company, writing in 1831 described the advantages of Norway House in these terms:

This Establishment, being situated at the junction of the two principal roads or lines of communication between the Factory and the Interior, is a place of much resort and bustle during the summer and is used as an entrepot for the Athabasca and MacKenzie River Districts, where their returns are received and their outfits delivered...A great proportion of the Red River outfits and returns, the latter consisting chiefly of provisions, are likewise deposited here until opportunities offer of forwarding them to their destinations. It is moreover a convenient place for boat building, and having a good fishery close at hand, supernumeraries are frequently seen here...(Watson, 1930, pp. 299-300).

Norway House was an important warehouse centre, administrative centre and transshipment point. Timber in the area was readily available for construction.

Local furs were not plentiful and supported only a small number of residents. Canoeing, walking and snowshoeing were important. Fishing, hunting and gardening provided food for the residents.

During this early period docks were built along the river for the use of York boats. Most development took place in a linear pattern along the river, which facilitated having canoes and boats close to the houses. Almost all dwellings and buildings faced the river. Even the cluster of buildings including the Hudson's Bay warehouse were near the river. There was an extensive trail network on land linking the different parts of the community.

### Physical Structure

The major impact on the physical community was the shift from nomadic temporary settlements to a permanent community. The orientation of the community to the river set the settlement pattern which still exists. The actual location of the community was a response to decisions by the Hudson's Bay Company. People to man the brigades and supply the fort came to live next to the post. As in more recent times the residents were adapting to externally made decisions.

### Social Structure

The major impact for the community in social terms was the large degree of social interaction with Europeans and other native people. The way of life was altered as contact with the European lifestyle increased. The community was subject to stress as old institutions and ways were challenged.

### Economic Structure

The shift to employment by the Hudson's Bay Company and other companies began a trend to external economic control which continues today. The local people had expertise in survival in the north on long journeys. This was useful to the Europeans who employed the Indian and Metis for freighting goods and furs.

### Implications for Community Decision Making and Planning

As the Hudson's Bay Company controlled most facets of life the decision making by the chief and elders or council became more

adaptive in nature. The people survived by fundamentally changing their way of life.

Decisions by companies in the early days reflected the transportation priority of moving furs. Consideration was not given to implications for the local people. Transportation-community interface planning would attempt to identify external implications of transportation changes to assist the adjustment of the community.

A major implication for current planning is the water-oriented linear community which was set forth at that time and still remains. The community planner and transportation planner must reconcile conflicting desires for modern modes and modern community services with a desire to remain on the river. The linear pattern is expensive to service as it involves many miles of roads and long distances. Clusters oriented to the water is one alternative to give residents lots near the water but still enable them to have roads and other modern services.

It is also important to note that unless native community aspirations are understood it is unlikely that transportation systems can be designed to serve their needs.

Regional Centre (1841-1918)  
Technological Change: Steamboats, Cart Brigades and  
Railways Displace York Boats as Major Modes

With the introduction of steam boats and the use of cart brigades from St. Paul the role of Norway House as a transportation hub declined. The headquarters of the Hudson's Bay Company were moved to Fort Garry. Soon Norway House like other centres was resupplied

from the south. Boats on Lake Winnipeg operated by the Selkirk Navigation Company docked at Warren's Landing and launches took the goods and people through shallows and rapids to Norway House. With the declining importance of Norway House many people moved elsewhere to find employment. Those who stayed were largely dependent on the local resource base for a living. During this period movement was out to resource areas for furs, game and fish. Trappers would move throughout the area from Island Lake to Oxford House. Traders and freighters moved goods and furs in and out of the region and Norway House remained important within the region. Movements within the community were by canoe, boat and walking.

#### Physical Structure

Many of the residents formerly employed had to leave Norway House with the demise of the York boat routes. This led to a decline in population in the community and the posts provision depot, clerk boarding house, powder magazine, council house, hall and jail were then either abandoned or underutilized. Facilities were constructed at Warren's Landing to facilitate the transshipment of goods past the rapids to Norway House.

#### Social Structure

The unemployment caused by the reduced fur trade movements forced about thirty families to move. The community's social structure was characterized by less interaction with other areas. The post still had a number of employees in 1906 (Godsell, 1941, p. 4) including



the chief factor, accountant, storekeeper, clerks, choreboys, woodcutters, interpreters and about fifteen runners who traded in the area in the winter.

#### Economic Structure

During this stage the community's economy was forced to rely more on the immediate resource area. Goods shipped to other northern points were funnelled through Norway House until the railway was extended to The Pas, Wabowden and other centres. The centres on the railway served the new commercial fishing, timber and mineral companies which were being established. The focus of economic activity had shifted away from Norway House.

#### Implications for Community Decision Making and Planning

The decisions of the Hudson's Bay Company to rely on steam, cart and railway modes farther south led to their subsequent decision to move their headquarters from Norway House. Residents had to adapt through migration, or by finding employment in new activities such as on the steam boats.

The vulnerability of native communities to technological shifts is illustrated by these early changes. Without direct intervention the interface may destabilize communities. While many technological changes will come in time the shock may be buffered if the community can plan for technological change, the physical and human resources may be redirected.

As well, long range transportation-community interface planning should consider the orientation of the overall transportation network. By making The Pas an early railway location the focus shifted from native communities such as Norway House. More recent decisions to focus the network on Thompson may also have negative effects on small northern communities.

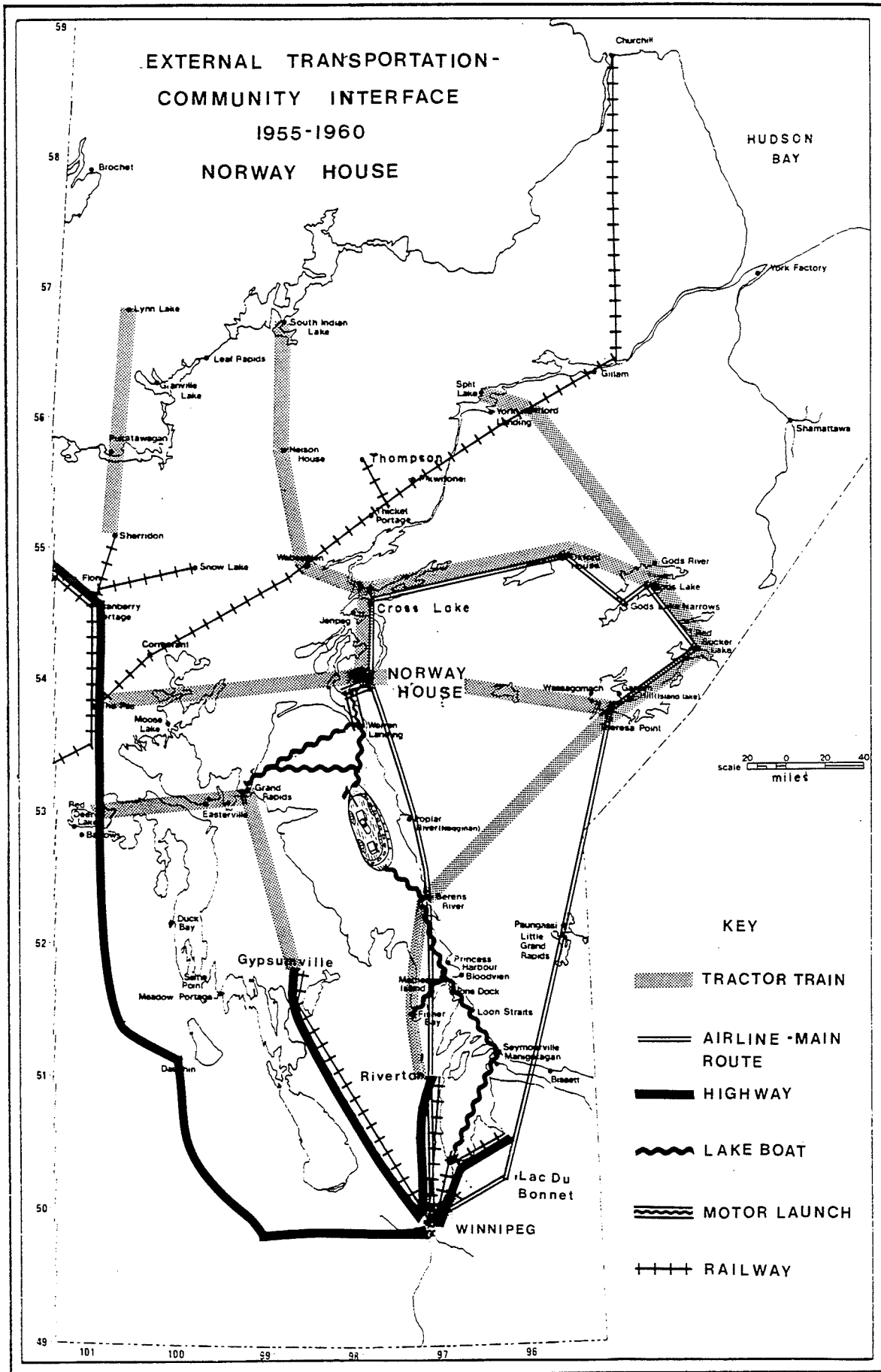
Airplanes and Tractor Trains (1919-1968)  
Technological Change: Airplane  
and Tractor Train Introduced

During this period external transportation was changed by the introduction of airplanes and tractor trains. The continued extension of the highway and rail system also had an influence. Internally the motor boat, bombardier and eventually snowmobiles became major modes.

In 1921 an air base was set up at Norway House. Aircraft would land on water or ice bringing in trappers, mining exploration parties and mail. By the 1940s commercial carriers connected Norway House with Winnipeg, Lac du Bonnet, Ilford, God's Lake Narrows, Flin Flon, Sherridon and The Pas. As indicated in figure 12 in 1960 Norway House was a major air base for the north. Goods were brought as far as Norway House by barge and then flown to other northern communities. Planes brought in medical and other supplies and flew out furs and fresh fish. Planes were also used to evacuate patients who could not be treated locally.

During this period trappers, hunters, fishermen, traders and freighter operators continued to move by foot, boat, horse and

FIGURE 12



dog and sled throughout the area east of Lake Winnipeg. Eventually, however, there was less movement in these areas. With registered trapping lines introduced about 1950, only the area near each reserve could be trapped by residents of that reserve. Eventually only certain lakes could be fished by each reserve.

Increasingly year round residences were established in the settlements such as Norway House and hunting, trapping and even fishing declined in importance. Movements were more restricted to adjacent reserves except for movements by boat on Lake Winnipeg and by air to Winnipeg and inland centres such as Island Lake.

After World War I the resupply of settlements by winter freighting of goods became more common. Private companies initially used horses and sleds starting the first or second week in December and running until about March (McIvor, Personal Communication, 21 July 1982). With one horse and a sled a two thousand pound load could be taken twenty-five miles a day. People would walk along with the experienced freighters to move between settlements. When the weather reached  $-40^{\circ}\text{F}$  the horses required special attention. Hay from marsh lands had to be cut in the summertime for the horses. The survival skills of the northerners were a must for this type of transport.

For the entire winter communities would do without fresh food as the sleds only hauled in frozen goods. Reindeer milk which could be frozen was used.

Frank McIvor estimated that about one-half the goods for the north would have gone through Norway House (Personal Communication,

21 July 1982). However, in the spring when supplies began to run short, goods would be brought by rail to Wabowden and freighters using as many as ten horses would move the goods from there to Cross Lake, Norway House and other centres. In Wabowden there were a number of sheds for storage and bunkhouses for freight train crews and other residents. Shipments also came from Riverton to Norway House and on northward. As well goods were transshipped from Gypsumville, Sherridon and The Pas which like Riverton were on the railway. The structure of the transportation system was such that Winnipeg was the supply base, the modern railway mode provided the southern transportation link, the railroad centres were transshipment points and the land based freighting operations moved goods to the northern communities in the winter.

The routes of the horses and sleds were always in flux depending on the demand for goods, the opening of new mines or other industries, the start up of new transportation companies and depending on the facilities provided in railway communities.

By the 1940s horses were replaced by caterpillars. Each caterpillar pulled five freight sleds and an accommodation caboose on the end. Crews would work in shifts keeping the tractor trains going twenty-four hours per day. Most of the shipments were one way, moving in freight. Some fish and furs were shipped out. Tractor train routes used in the 1955 to 1960 period are shown in figure 12.

Sigfusson Transportation Company was the largest company working an extensive area extending into northern Ontario. Johnson

Transport Company was based in Ilford and Tom Lamb had a number of freight swings. Lydal and Mulholland operated tractor trains out of Wabowden (McIvor, Personal Communication, 21 July 1982). As with the earlier horse and sled operations the tractor train routes shifted over time. The routes in use by tractor trains in 1968 are shown in figure 13.

Internally the transportation system of Norway House relied mainly on boats. On land travel by foot, by dog sled and by horse was predominant in this period. Only in the latter part of this period were bombardiers, snowmobiles and motorboats in use. To serve the linear extended community, halls, churches and a total of six schools were built in various locations. The two focal points of Fort Island and Rossville had the Hudson's Bay stores, the hospital and the R.C.M.P. detachment (see figure 14).

#### Physical Structure

The transportation system dictated the type of physical development required. Transshipment points on the railway (Wabowden) or on the lake (Norway House) required storage facilities, camps for transient workers, barns for livestock and diesel fuel facilities for tractor trains. Each community had to have considerable storage capacity as the boats in the summer brought supplies to last most of the winter.

Communities continued to be oriented towards the water with little taking place away from the rivers and lakes.

FIGURE 13

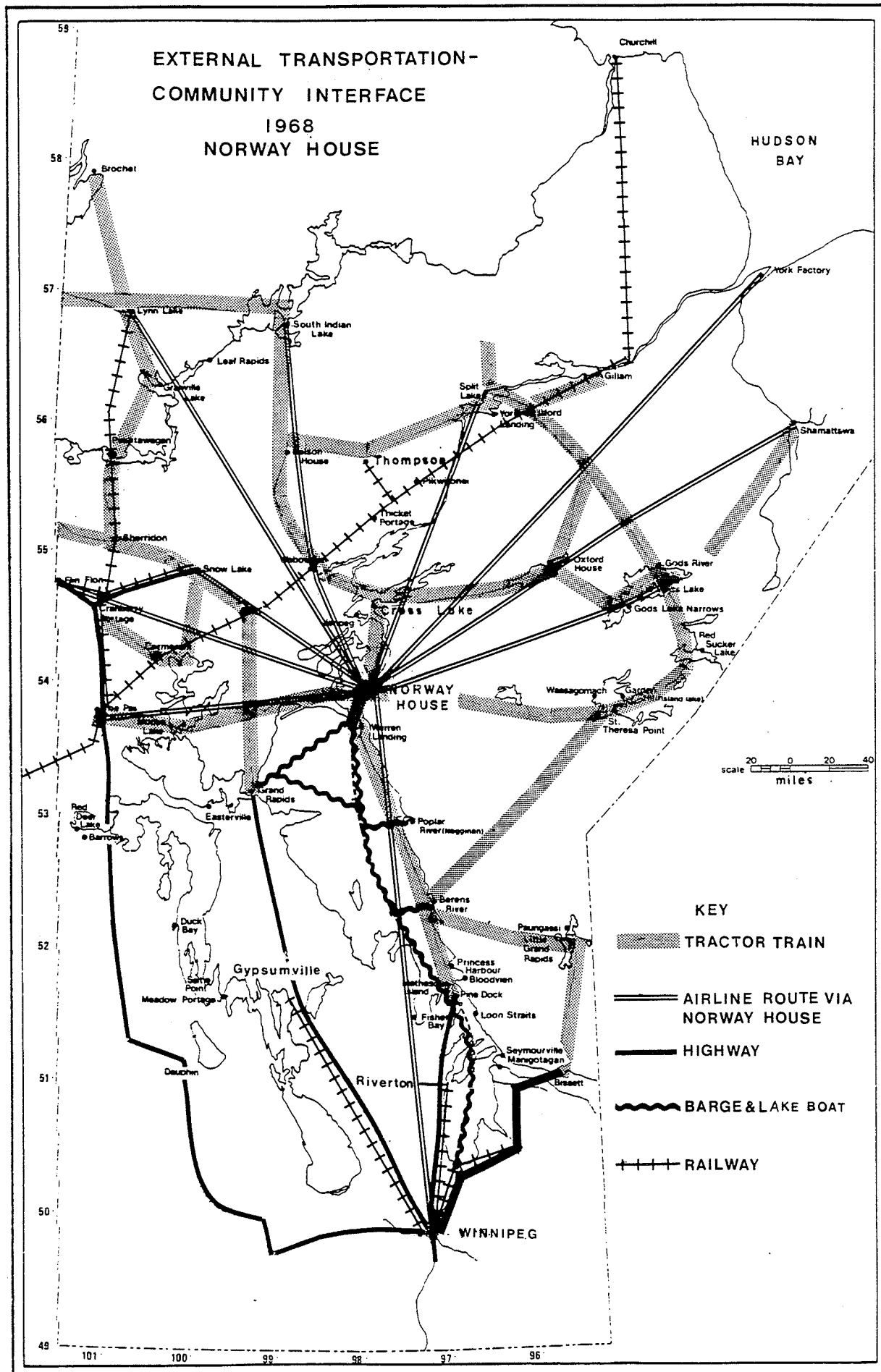
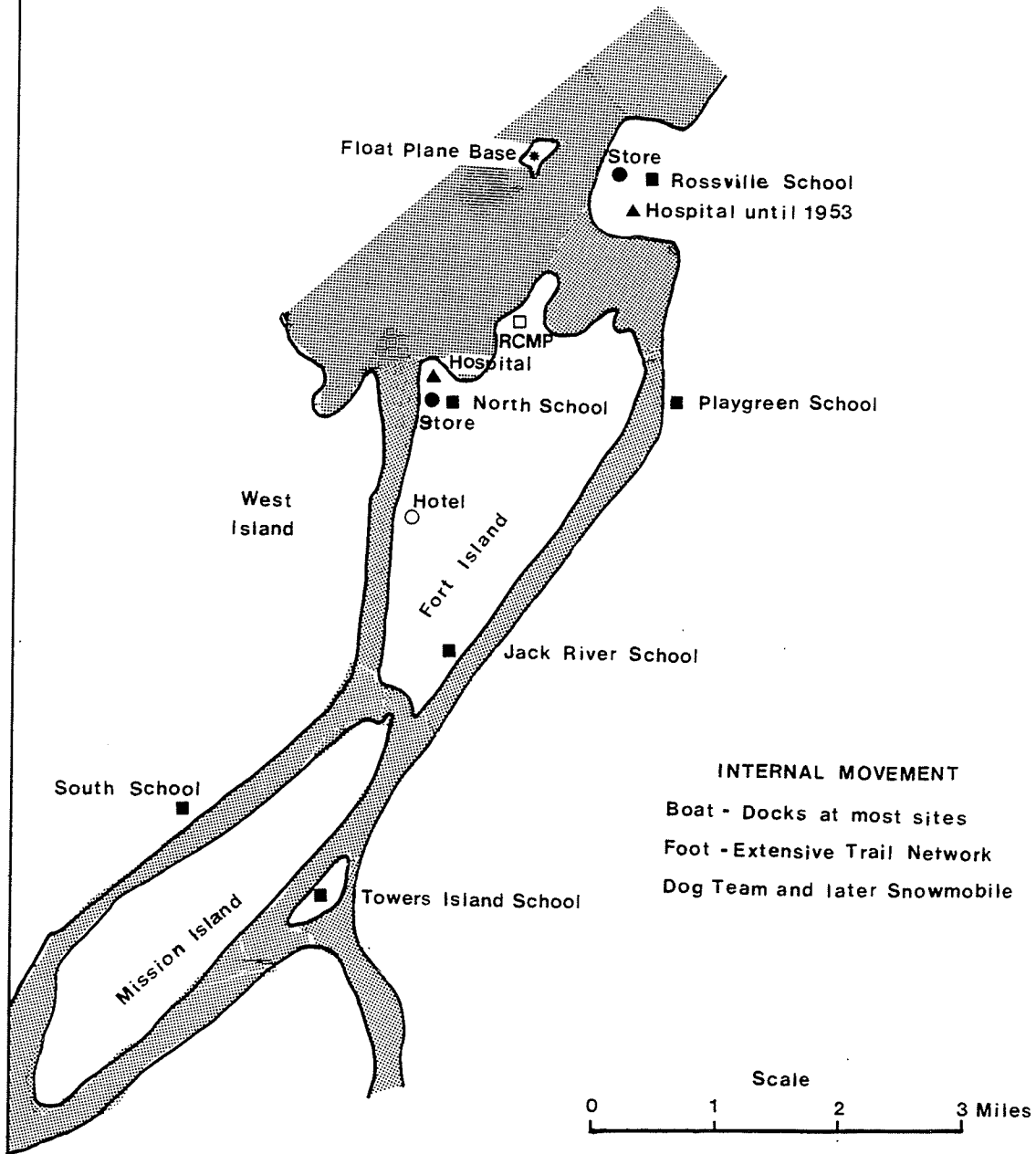


FIGURE 14

INTERNAL TRANSPORTATION - COMMUNITY INTERFACE (1919-1968)



Source: Gaucher, Eveline, Sister. Historical Notes on Norway House, Norway House, Manitoba, 1970, p.8.



### Social Structure

The way of life at the beginning of this period was closely tied to seasonal variations in the transportation system. People and goods moved on land only as the seasons allowed. To survive it was necessary to follow game, fish and trap but with a year round supply of goods available the need to live on the trapline decreased and the community became more sedentary.

Tom Boulanger in his book An Indian Remembers, noted as follows regarding the early 1950s: "Looks like the young fellows are not moving around much. They have not got exercise much. When you go around to some places you will never see a snow shoe track or even a team of dogs trail" (Boulanger, 1971, p. 23).

Socially interaction with southern Canada increased as both steam boats and airplanes moved passengers to and from Norway House. The number of white people in northern native settlements increased as access by airplane encouraged more teachers, missionaries and others to stay in the north.

### Economic Structure

The shift from dog team or horse to tractor train had considerable implications. With the relatively lower cost of horses and dogs northerners had been more directly involved in the transportation industry in the north. With the relatively higher cost of bombardiers and tractor trains externally based companies became the major freighters. However, the tractor trains were labour intensive

so community residents could find some work. Economic activity was generated at the transshipment points such as Norway House and Wabowden. The one-way nature of much of the freight highlighted the economic problems of the northern native communities. During this period the major resource industries were developed in the north but Norway House and many other communities were some distance from the main activity. Fishing, trapping and working on freighting crews were important occupations during this period. The structure of the distribution system for the north was such that Norway House derived benefits relative to some other small native communities but increasingly the rail and the highways outflanked Norway House reducing its role. Higher welfare and other transfer payments were needed to support the community as economic activity declined.

#### Implications for Community Decision Making and Planning

During most of this period local decisions were made by the Hudson's Bay Company, the federal government, missions, schools or transportation companies. The non-reserve community had no formal council and the reserve had little control over major expenditures.

Tom Boulanger noted the following in 1967 regarding externally generated changes:

The money can do anything...They're just starting to build the new school. They finished the airfield too. They finished the government dock, and I think it's going to be quite a change after a while. The old grass is going down and the new grass is coming up (Boulanger, 1971, p. 27).

A key consideration in Boulanger's comments are that "they" are doing it. The community had little control.

Another important implication for planning is the fact that transportation technology may change the seasonal pattern of activities, change employment patterns and affect the viability of local operators. As well, with new technology there is the need to have the skill and money to make use of it. With tractor trains knowledge of diesel engines was required. With later modes such as snowmobiles and motorboat the cost of operation becomes a major factor for low income residents.

The people of northern communities are required to adapt to new equipment, new facilities and to new jobs. The communities have survived but face severe constraints and limited opportunities.

Physical planning would attempt to provide community facilities which would take into account anticipated changes in transportation technology. By looking at other communities new modes may be anticipated and planning done accordingly. Human resource planning could also take into account technological change and its impact on the types of jobs available. The entire transportation system could be planned to focus on native communities, rather than on resource communities. The pattern which has emerged focused on Norway House to a considerable extent from the 1930s to the 1950s. However, the growth of northern cities and the orientation of the rail and highway routes began to reduce the role of Norway House by the latter part of this period. Transportation planners should consider the loss of economic opportunities associated with the new technology and the new pattern.

With most major decisions being taken outside of Norway House there is little opportunity for local people to plan. Interface planning would attempt to lay out anticipated interface changes and their probable effects so the community could proceed with planning. Interface planning is required to adequately address the impacts of changes in the regional network and to ensure the network evolves in a satisfactory manner for both native and non-native communities. As well, interface planning is needed to ensure that transportation infrastructure and community infrastructure are utilized effectively. Although uncertainty would remain both public and private investment would be less subject to misallocation if there was interface planning involving the community, public agencies and the transportation companies. It appears that most interface decisions have been devoid of community involvement, lack interdepartmental coordination and only superficially have input from private companies.

Airstrip and Road Network (1969-1980)  
Technological Change: Airstrip, Winter Truck Road,  
Access Road, Internal Road Constructed

During this period technological change in transportation was relatively rapid. An airstrip, internal roads, winter truck roads and an all-weather road were constructed. The federal and provincial governments spent millions of dollars to improve external links and internal access. The relative strength of the federal and provincial economies allowed these sizeable expenditures.

With the widespread use of the snowmobile during this period the number of dogs needed for dog sleds had declined. This has been

beneficial as previously the dogs would get loose and injure or kill children in the community. This was particularly true in the summer when the dogs were tied up and not being used on the traplines. As well, the snowmobiles eliminate long walks to school or work. However, snowmobiles are involved in some accidents and are more costly than the dog teams.

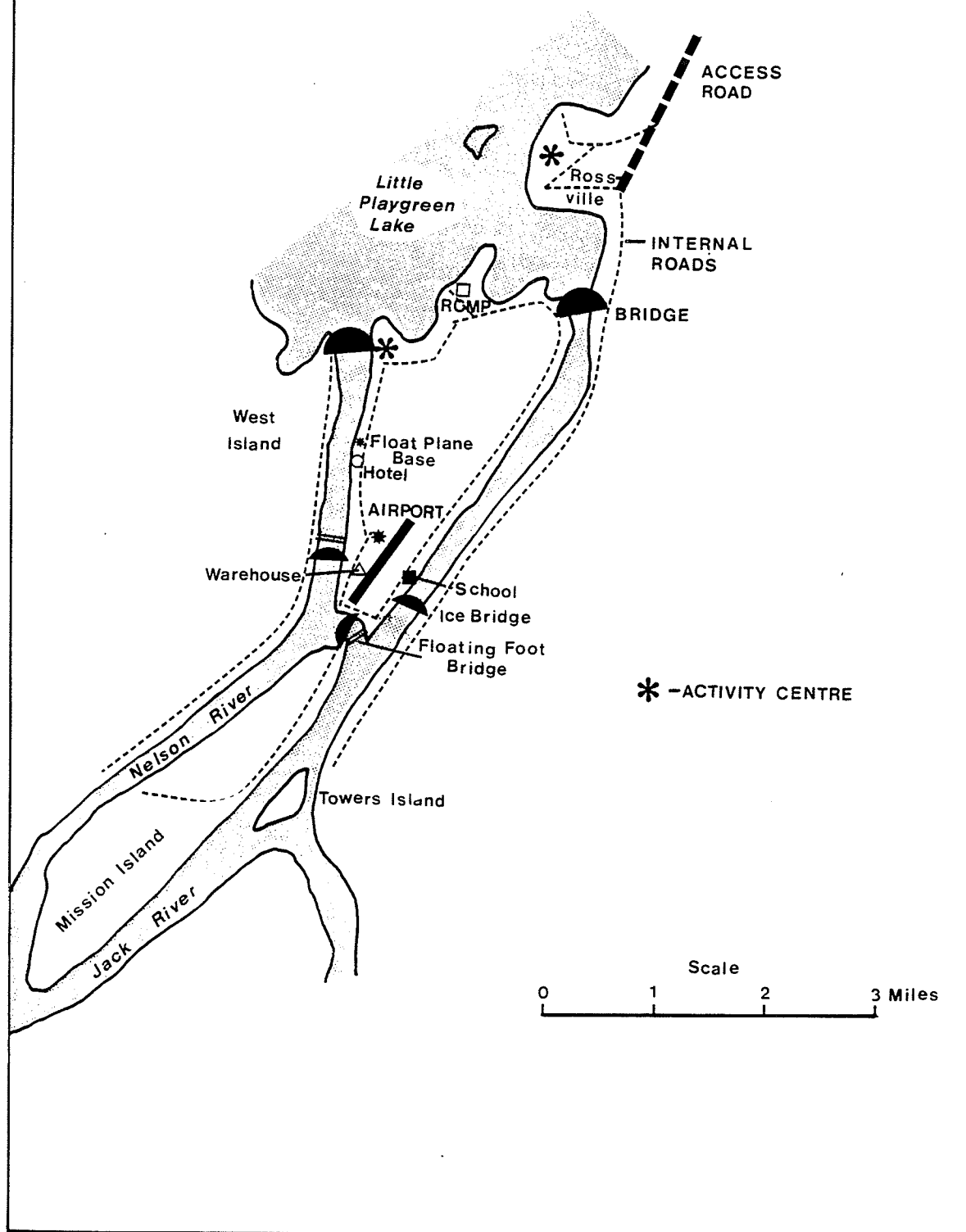
The change from tractor train to winter truck road also brought significant change. Trucking companies based in Winnipeg could then make direct runs reducing the need for transshipments. The faster moving trucks eliminated many of the jobs of northerners but did reduce freight rates. The winter truck roads meant that cars could drive in and out for a few months of the year. In 1970 there were reportedly thirty-six cars and trucks in Norway House in contrast to motorboats which just about every family owned, twenty-nine bombardiers and approximately one hundred snowmobiles (Gaucher, 1970, p. 38).

The internal road system reoriented the community away from the water to the land and facilitated school bus service. Over twenty miles of roads were built to serve the community (see figure 15). While the improved access brings many benefits in terms of convenience problems have arisen due to costs of automobile operation, accidents and a lack of automobile services in the community.

The number of cars has increased considerably but those without cars are relatively transportation disadvantaged. Intermittent taxi service is available. The poor planning for the internal roads continues to present problems. The community structure is entirely

FIGURE 15

INTERNAL TRANSPORTATION - COMMUNITY INTERFACE (1969-1980)



changed as new development areas are those with the best road access. Building is discouraged in areas with no road access in the summer.

The opening of the airstrip in 1969 improved air service and brought with it the development of fuel oil storage facilities and a warehouse which would enable goods to be stored for transshipment. During the early part of this period Norway House was an important supply point for communities to the east. However, this role has declined with the exception of oil being airlifted to the east. The airstrip brought more dependable air service but the cost of travel remained expensive and few discretionary trips were taken.

The access road (see figure 16) will perhaps have the greatest impact of all the recent modal changes. It has diverted passengers and cargo from the airlines and decreased barge traffic. By resupplying the community by truck residents save a considerable amount. The access road has increased discretionary external travel fostering links with Cross Lake and Thompson.

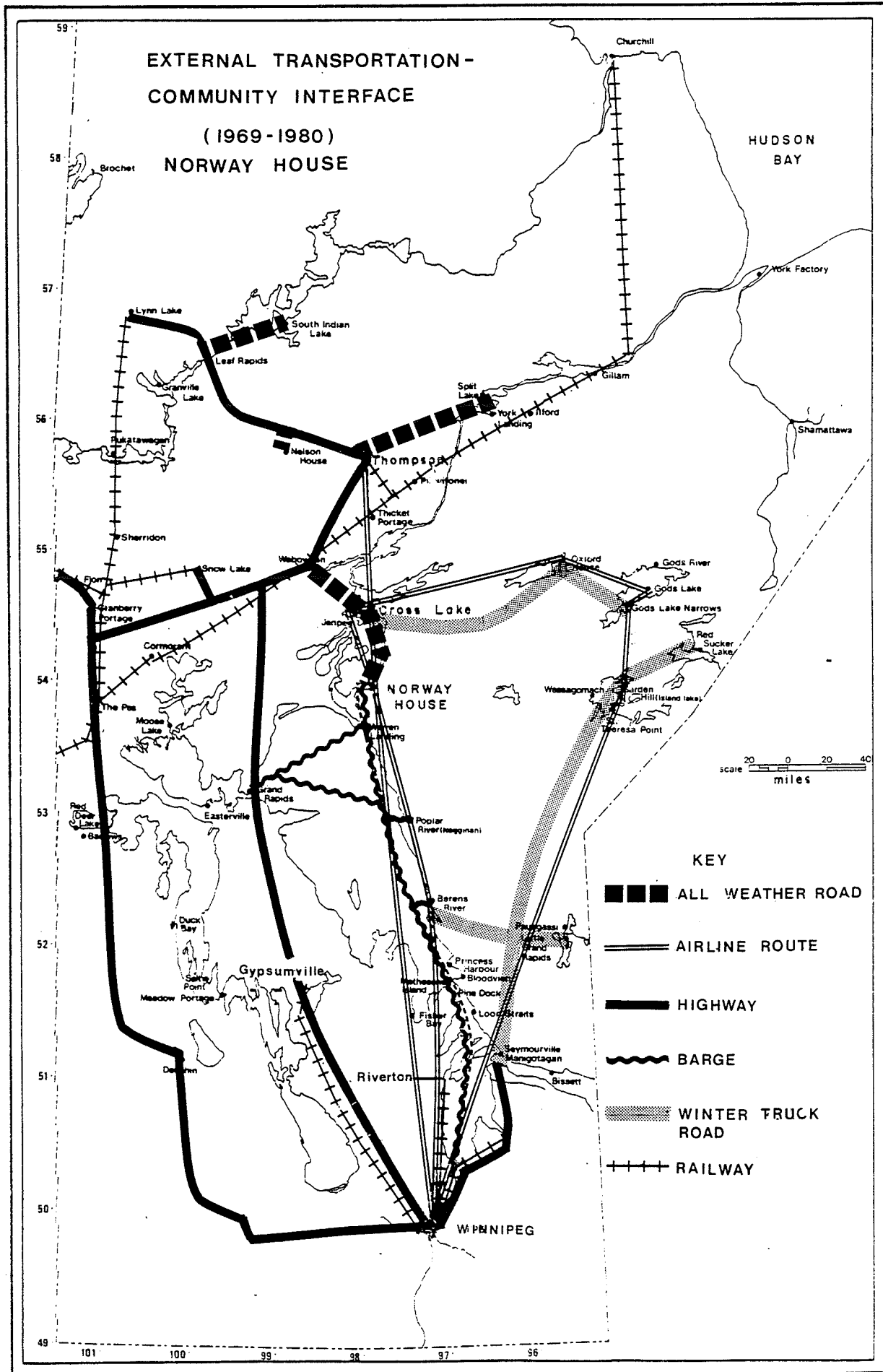
#### Physical Structure

The entire physical planning process is changed as access to the road network became the most important consideration. The recent bridge to West Island opened up a new area for development of housing. Infrastructure such as docks and the warehouse are now underutilized due to less barge traffic.

#### Social Structure

The access road has been socially disruptive by increasing the access to alcohol and increasing the influx of outsiders.

FIGURE 16





The concept of a dry reserve and ready access to alcohol are difficult to reconcile. Social conditions remain generally poor despite considerable transfers of funds to the community. There are high levels of welfare, unemployment and underemployment. Alcoholism and related problems remain severe.

The degree of social interaction with outside areas has increased and this may result in new opportunities as more activities are available. However as Gene Folster (Personal Communication, 15 March 1978), manager of the reserve restaurant noted:

The old ways are abandoned when there is access to new activities. The old people don't like it because it is changing their way of life. It is not a remote community anymore.

As people travel to Cross Lake, Wabowden, Thompson and Winnipeg more frequently they tend to lose interest in local social functions and traditional activities. Access to the broad range of services in Thompson is a benefit but it can decrease the need for local services.

#### Economic Structure

The transportation system changes have not generated much spin-off development. It costs less to resupply the community but in terms of additional economic activity the benefits of the millions of dollars spent are negligible. Some residents may find employment outside the community but distances are considerable.

The fishing, trapping, hunting, transportation sector and service sector employment cannot provide enough jobs. Most of the transportation changes have been to facilitate better resupply and

to facilitate the provision of better services such as schools for the residents of the community. More native residents are becoming involved in servicing the people of the community. However, there are many people on welfare or unemployment insurance. The transportation services do not ignite economic development as there are few opportunities available.

#### Implications for Community Decision Making and Planning

Transportation-community interface projects often involve expenditures of millions of dollars. Input is sought to a certain extent from the band and community council but the final decisions are made in Winnipeg or Ottawa, often as part of a program giving the same service to many communities.

There has been little foresight used in interfacing small northern communities and their transportation systems. Changes are made which result in: (1) a community with a number of modes but without having the system effectively designed to meet specific movement needs, and (2) a community-transportation pattern evolving with no consideration of implications for the future of the community.

To some extent the transportation technology has facilitated the weakening of the economic base of Norway House since the railroads, steamboats and later highways usurped its initial role. The transportation-community interface planner must address concerns such as the relationship between infrastructure projects and continued chronic underdevelopment.

The contradiction of a community of four thousand people living in an area where the fishery is the only sizeable component of the economic base must be taken into account. Better access to the fisheries could be provided. Decisions on options to pursue should be made by residents but interface planning would provide a mechanism for local involvement. Transportation technology can have devastating consequences when it interferes with community viability. Under community control the physical, social and economic structure can be reoriented in a positive way.

The people of Norway House should not merely be spectators as the interface evolves and their way of life is changed. To attempt to orchestrate an effective system of transportation and community infrastructure without involving the local people is extremely difficult. Moreover external decision making can result in a greater dependency and passivity within the community. Thus the way the interface is currently handled actually mitigates against the establishment of meaningful internal structures for planning the transportation-community interface.

### Conclusion

This thesis has found that there have been significant ways in which the people and community of Norway House have changed with successive stages of transportation technology. The first stage in the development of Norway House from 1826-1840 saw Norway House as the transportation and administrative hub of the west. There was a major post with numerous buildings. The way of life included

working at the post, freighting, fishing or trapping. Levels of social and economic interaction were quite high.

The second stage in the development of Norway House was ushered in by the advent of the steamboats, cart brigades and railways in the south. These effectively eliminated the significance of the trade route through Norway House to York Factory. Many Indians in Norway House were thereby thrown out of work and had to leave to find employment. The Hudson's Bay Company moved its headquarters to Fort Garry. During this period the importance of Norway House was more in the immediate region of northern Manitoba. The residents depended on boats and dog sleds working mainly on trapping and fishing and some freighting.

The third stage of airplanes and tractor trains extended from the 1920s through to the 1960s. During this period Winnipeg based airlines and later tractor trains served small isolated communities. They brought increased supplies of freight facilitating a lifestyle which was not tied to the trap line or fishing lakes.

Early in this period the use of dogs and sleds and then horses and sleds for freighting had meant many native people were directly involved in operations moving freight. Later many northerners would find employment on the tractor trains or on the Keenora or Wolverine steam boats. Towards the end of this period the role of the tractor train began to decline and the significance of fishing and trapping were eroded. With the shift from the tractor train often large warehousing and transshipment facilities would be abandoned. With less activity the role of welfare became an important

factor. Economic activity started to focus on the new resource communities of the north.

The fourth stage from 1969 to 1980 brought first increased snowmobile use, improved air service, then a winter truck road, internal roads and an all-weather access road. Major projects were funded almost exclusively by the federal and provincial governments. The cost of bringing in freight was reduced. At least some residents were able to enjoy the use of private automobiles. However, socially the road was disruptive and economically the area continues to stagnate. Government transportation projects do bring specific benefits but the lack of an adequate economic base means publicly provided transportation infrastructure is not a panacea. Indeed the external imposition of these projects may contribute to the passive response of the community. Ironically the new road draws Norway House away from being a crossroads to being an individual settlement at the end of the road.

Thus, through the stages this thesis has found that Norway House moved from being a centre of interaction for the entire west to being a centre with a limited role in distribution. In the 1970s while travel to resource areas became relatively less important, trips to Cross Lake, Thompson and Winnipeg were facilitated by the road.

Internally the interface has been reoriented from the river to the road. The evolving transportation network has been closely tied to community evolution. Of critical importance is the last

round of technological change which has not resulted in significant economic opportunities for the community. This is a serious consideration as traditionally Norway House has enjoyed strategic importance in the north. In conclusion the people and structure of Norway House have been strongly influenced by changes in transportation technology.

The community while being strongly impacted lacks input into externally made decisions and does not effectively adapt once changes take place. There is a need for a mechanism to involve the local community in the evolution of the interface. To gain the greatest advantage from the new transportation technologies it will be necessary to establish an effective process of transportation-community interface planning which would attempt to mesh community and transportation planning. The past changes indicate a need for an approach which considers the continuing influence of past eras, makes decisions which are not solely based on company or government priorities, takes into account native decision making structures, considers the vulnerability of native communities in the face of technological change, promotes increased community self determination, considers the effects of the overall orientation of the transportation network, seeks transportation company input, examines specific community details and considers the community's future.

To summarize the main findings are as follows:

1. Transportation has been a significant determinant of the community.
2. These impacts influence the physical, social and economic elements of the community.
3. The impacts occur in each stage. There is no indication that the impacts are less in each successive stage and indeed the pace of change appears to be increasing.

4. The planning and commercial institutions behind these changes do not provide the kind of coherence that is optimal from the point of view of the community.
5. There appears to be a need for an institution of planning designed to span the components of this problem so that communities can be better prepared for changes that occur and may have their due impact on changes that are to be implemented.

## CHAPTER VII

### CONCLUSION

The impact of transportation changes is particularly acute in small northern communities. This constant dynamic determinant of community needs better conditioning and control from a community point of view. This is evident at each stage in the development of Norway House. During the first phase of the development of Norway House the community became a major transshipment centre. Nomadic temporary settlements were replaced by permanent communities and native people found employment on the fur brigades. The Hudson's Bay Company made the decisions regarding physical, social and economic development. There was little input from native people and they were forced to adapt to transportation changes in a passive way. There was a need for an institutional device to give coherence to the process for the community so that the most beneficial results could occur. Without such an institutional device only the narrower considerations relating to the movement of furs were taken into account. In the second phase the development of the railway, cart brigades and steamboats to the south usurped the role of Norway House as transportation hub of the west. Residents were forced to migrate, facilities abandoned and the post then served only the immediate area. When the transportation changes occurred there were not adequate efforts at community adjustment particularly in terms of facilitating employment. The third phase



saw Norway House gain a role as a distribution centre for northern Manitoba. The way of life changed dramatically with shifts from horse and sled to tractor train. Changes often resulted in warehouses and other infrastructure being abandoned. Constant shifts in the regional transportation network would destabilize communities as their physical, social and economic structure would not always be appropriate. The fourth phase brought a rapid succession of modes with the snowmobile, internal road, winter truck road, airstrip and access road being constructed. A lack of preplanning on a bridge to West Island interfered with effective internal community planning. The access road was not effectively handled as local employment on construction of the road was not facilitated. A mechanism for transportation-community interface planning would ensure that both internal and external transportation network decisions were taken with a view to facilitating community benefits.

The transportation changes which have taken place in Norway House have generated significant positive impacts and negative impacts. Interface planning would attempt to have transportation projects generate positive impacts but would also inform the community of possible adverse effects so the community could adapt accordingly. Whether the future pattern of physical development, economic development or social development is being planned it is vital to understand the transportation impacts. By taking into account these impacts it is ensured that the transportation system is supportive of other initiatives and that the overall development program of the community reflects the transportation constraints and

opportunities. Transportation agencies whether changing the road, air or barge network should be aware of the potential impacts particularly if the prime objective of the project is to provide community benefits. The community, transportation firms, the Department of Northern Affairs and the Department of Indian Affairs and Northern Development should be aware of these impacts so they are able to make transportation and community plans and decisions accordingly.

In the past decisions regarding the interface have been made externally and have not adequately reflected native community needs. The transportation technology is applied without adequate foresight or planning and as this thesis has illustrated the consequences for a community may or may not be beneficial. The considerable importance of the interface suggests that it should not be left in the hands of external agencies; but rather that some mechanism should be sought to facilitate local input into these decisions. Due to the significance of interface changes it is desirable that the interface be planned. Without interface planning the community is kept reeling from one unanticipated change to the next and cannot plan for the future.

Based on the findings of this thesis the following elements are identified as essential for effective interface planning:

1. A dynamic evolutionary approach is required which focuses on change in the past, present and future. The consequences of changing transportation technology is considered.
2. Community participation and involvement is necessary for effective interface decision making.
3. The appropriateness, staging and specific application of new transportation technology must be in accordance with community conditions and needs.

4. The community response to interface changes is active rather than passive, adapting to the constraints and opportunities presented by transportation change.

Other key elements of interface planning are as follows: considers both internal and external modes; provides multimodal, interagency approach; involves transportation companies; promotes coordination of transportation planning and community planning; informs communities and transportation system operators of changes, implications and recommended alternatives; improves data base for interface; and attempts to alleviate transportation or community infrastructure expenditures for physical plant which will be outmoded in the near future.

The Department of Northern Affairs, in conjunction with the Department of Indian Affairs and Northern Development should be responsible for initiating and implementing transportation-community interface planning. They should ensure a mechanism is established to address the impacts of transportation changes on communities. These two agencies are already involved in many of the decisions which shape the interface.

The following parts of this conclusion recommend a mechanism for interface planning and identify implications for transportation planning and for community planning.

#### Mechanism for Interface Planning

To facilitate the interfacing of transportation planning with community planning a certain degree of institutionalization will be required. At present there is nothing in theory to stop interface issues from being considered on an integrated basis by the various actors.

However, in practice due to factors such as political fragmentation, long distances, a lack of money and a lack of understanding there is no effective transportation-community interface planning taking place in northern Manitoba. There is a void left between the pursuits of those interested in transportation planning and those interested in community planning.

To be effective an organization for interface planning would have to facilitate input by the key actors involved. There are numerous agencies responsible for different transportation modes and there is little coordination among them. There is also a diversity of agencies responsible for reserve and non-reserve planning. A list of parties with a major interest in transportation-community interface planning includes: the Band, the community council, the Department of Northern Affairs, the Department of Indian Affairs and Northern Development, air transportation companies, trucking companies and barge operators. Also having a significant role to play are the local of the Manitoba Metis Federation, the provincial Department of Highways and Transport Canada. As stressed by Harry Lash (1976, p. 11) planners and administrators from various agencies only form one component of a successful planning operation. A close working arrangement including local and provincial politicians and the public would also be vital.

The scope of the interface planning program would be determined by precisely defining the interface planning issues to be addressed. A relatively comprehensive interface approach would plan for the interface of the entire community, for all internal and external modes of transport and examine not only movement and land use questions but also the social

and economic development with a view to apprising the community of options available in relation to the evolving interface. While this may sound exceedingly complex the small size of the community does help to simplify the organizational question. The past insensitivity and lack of progress on developmental issues means new approaches and mechanisms are required.

Key issues addressed by the interface planning agency would include preparing policies and plans for examining interface issues. The agency would take a lead role in proposing integrated community-transportation projects. At present it appears that transportation developments are not accompanied by other local developments which effectively complement the initial project. For a planner based in Winnipeg or Ottawa it is far easier to propose a road to a community than to actually address what specific developmental opportunities might accompany the road. As Jane Jacobs points out in the Death and Life of Great American Cities (1961, p. 339) planners often face a blank when they try to think of what to do to renew or develop an area. Then while a transport project may be an insufficient or inappropriate approach it is done because there is confusion over what else to try. Jacobs recognizes the importance of transportation but decries what she calls the "sheer disrespect for other...needs, uses, and functions". In the case of Norway House the loss of the historical strategic importance of the community has left it with an inadequate economic base. The access road was heralded as a means of generating economic development. However, it appears that only minor efforts were made to actually facilitate economic activity. Perhaps it was believed that the road alone would almost automatically bring activity.

The proposal of projects for communities, based on an analysis of the interface, would attempt to integrate residential, industrial, commercial and other developments with the transportation system. As such there might be specific proposals for a fish packing plant, for a tree cutting operation, for housing and for delivery of community services such as education, water supply, etc. There may be proposals to relate the form of the community to the anticipated transportation infrastructure and services. For Norway House the implications of certain areas lacking bridges could be addressed. On a regional basis the means and feasibility of commuting to jobs in other centres could be evaluated and a specific approach recommended.

The regional network would be examined to determine if the strategic location of the community could be enhanced through changes in the regional network. For example, a road east from the Norway House area to the Island Lake area could alter the distribution or industrial role of Norway House.

The transportation-community interface planning agency would have to be flexible in order to address the key interface issues of concern to the residents. Specifying and prioritizing the issues to be addressed might be one of the initial steps of an interface agency.

A strategy would be identified to provide a focus for the research, planning and implementation stages of the activity. Monitoring the effects of transportation projects on the community would be an ongoing process.

While the interface planning agency would ideally focus on only one community it may be more feasible to have a group of communities in a region collectively deal with their interface issues. Provision of money for specific interface projects such as multimodal transfer facilities and warehouses or providing access to new developmental projects should also be considered. Mechanisms to ensure certain financial commitments from other agencies would also be required.

The interface planning agency could have a technical planning committee to provide expertise and input from the various public and private agencies with an interest. Local politicians and provincial and federal officials would be represented on the interface planning agency.

The amount of staff actually assigned to an interface planning organization would be dependent on the number of communities involved, the magnitude of the particular issue being addressed and the degree of difficulty encountered in achieving cooperation and coordination when implementing initiatives. Although ideally an interface planning organization would have resources to have its own staff it could also function by being assigned staff resources from existing agencies. Interface planning could also be implemented as one component of a more general regional or northern planning approach.

Every effort would have to be made to bring the interface planning to the people of the small northern communities. The

expense involved in bringing together even a small group of community representatives, community planners, transportation planners, transportation company representatives and interface agency staff if any, would have to be budgeted for. Although seemingly expensive such meetings if well organized could be cost effective in relation to the millions of dollars spent on transportation in Norway House alone. The interface planning agency would have to strive to improve local input by measures such as conducting meetings in the small northern communities. Moreover the community representatives would have to be given a certain degree of voting or other power so they are not drowned out by the outsiders.

Also, the federal and provincial interests would have to be respected but in the past this external planning has overwhelmingly dominated. Interface planning would attempt to redress this imbalance by having local officials represented on the planning agency (along with some external members) and by facilitating community participation. Adequate funds would have to be set aside to operate a meaningful participation program. Only by working in conjunction with the people of the area can a vision of a desired future emerge.

With various concerned agencies including transportation companies represented it might be possible to find a relatively inexpensive way to augment the seriously inadequate information



currently available for communities, for the internal and external transportation systems and for the interface in particular.

The main focus of the transportation-community interface planning agency would be to appraise the evolution of the interface and advise senior governments, transportation companies and local governments of ways to effectively mesh transportation and community on an ongoing basis.

Key elements for introducing effective interface planning would be (1) specifying the proposed application of the concept, (2) explaining its importance and the potential benefits, (3) gaining political, administrative and public support for such a program, and (4) carving out a role for interface planning between community planning and transportation planning.

Irrespective of whether an interface planning approach is formally taken there are implications for transportation planning and community planning:

#### Implications for Transportation Planning

Transportation planning has traditionally concentrated on transport infrastructure and operating characteristics of systems. There have been origin-destination studies to identify where the existing systems may have a bottleneck. In northern Manitoba even this most basic element of transportation planning has not been dealt with effectively. The basic information on the operations of the

various modes is not available on an ongoing basis. Information on links between Norway House and other centres is fragmented and often not routinely collected. Moreover, there is no one central agency with information on a number of different modes available. Separate branches and separate companies must be contacted for information. To consider all modes of transportation in relation to each other does not appear to be the current practice. As such there does not appear to be a good broad understanding of the transportation-community interface even by agencies involved in one or more aspect of the transportation system. Jane Jacobs in referring to the segmented views which result states that "naturally problems that everyone wants to solve and which are capable of solution, are out of everyones comprehension and control" (1961, p. 412).

There is even less information available to explain why existing movements take place and to identify community needs which are not being met. This is partially due to the fact that most of the decision making agencies are located in Winnipeg or Ottawa which are geographically, socially and culturally isolated from Norway House. It can be an expensive, time consuming process to understand the specific movement needs of northern communities, each of which has only a few thousand people or less. Moreover even when needs can be identified it may not be feasible for the private company or public transportation agency to meet those needs.

Much of what transportation planners need to know about a settlement can only be learned from "the people of the place, because nobody else knows enough about it . . . They must understand and

understand thoroughly, specific places. . .Detail is needed for guiding constructive actions and for avoiding unwitting, gratuitous destructive actions" (Jacobs, 1961, pp. 409-410).

Jacobs further states that planners do not adequately consult local people as they view them as "well meaning people but, in the nature of things, untrained in these problems, concerned with parochial interests, unable to see the big picture" (Jacobs, 1961, p. 358). However, as she states what citizens say is worth listening to and the very earthiness and directness of their reasoning about concrete and specific local effects is the key to their contributions.

The transportation planner must understand not only the transportation system itself and specific needs for movement but he must understand the overall effect of transportation on the community in an historical, dynamic sense. One transportation project may make sense on its own and solve the specific problem it was designed to address. However, a succession of these seemingly logical moves, which are practical responses to practical problems, may have many negative consequences for the community. What is needed is not a master transportation plan for the next twenty years but rather a gradual approach aimed in the right direction.

Past decisions on transportation have been taken without looking at the long term perspective. This does not make sense when considering the long life of transportation infrastructure and operational projects. The transportation planner must be able to assess the overall implications for a community, not in simplistic terms but in terms of general historical development.

In the case of Norway House the transportation planner should recognize that movements by canoe and on foot seasonally to follow game remain important to a certain extent today. The fur trade left its imprint by bringing into being sedentary communities such as Norway House and a lifestyle geared and more controlled by external relationships. Unemployment which came with the reorientation of fur trade routes persists to this day. Similarly the role of Norway House as a transshipment centre and resupply base still is retained to a certain degree. The role of transportation as an employer continues although shifting from private companies to public enterprises such as the airport and road maintenance. Much of the infrastructure built for resupply of the north by tractor train now goes unused. Warehouse, docking and work camps have been abandoned with the shift to winter truck roads and then to all weather roads. Direct truck hauling from Winnipeg bypasses these often multimodal transshipment points. Most goods are now stocked in Winnipeg and Winnipeg based companies haul the goods. Thus many of the changes in transportation technology have resulted in simplifying the entire transportation and distribution network often eliminating small scale northern based transportation operations. This improved access results in lower priced goods but the cost is the elimination of northern employment related to people and goods movements. This is particularly significant for Norway House where one of its major roles has been acting as a supply and transshipment centre. The people of Norway House have adapted by shifting into jobs such as those at the airport and road maintenance but these are not adequate to employ many people.

Lifestyles which involved travelling from community to community with goods, mail and passengers have been lost. Increasingly the people have jobs with regular hours right in Norway House or they are without employment. While old technology is continually becoming outmoded there is a need in the future to ensure more local employment on the new modes. Trucking to Norway House and provision of an external bus route are two areas which could provide more local employment. Not utilizing local companies to haul gravel for the community has been a point of concern in the past. A recent example of northerners doing their own hauling is the recent shift to taking furs to market by the trappers own association. Contracts let to external companies should require hiring and training of native northerners. Attempts should be made to phase construction of capital projects so there could be more continuous employment.

Only by understanding the broad roles and potentials of Norway House can transportation changes take place with a view to obtaining community benefits. Community must be understood in its broadest dynamic sense.

#### Implications for Community Planning

Another major consideration is that when doing community planning it is necessary to take into account the transport parameters. Here it must be recognized that to a considerable extent the community is shaped in a physical, social and economic sense by forces outside the community. Among these forces transportation is exceedingly important as demonstrated in this thesis. The community must attempt

to have input into the decisions which influence its future but it must be recognized that northern native communities are too small to obtain direct control over major developmental decisions. The community needs to respond and adapt in a positive way to the broad range of changes generated by projects such as an access road. Reorientation should be planned as the physical, social and economic development in the community may have to respond to the evolving transportation network.

Community planning for Norway House must attempt to facilitate viable economic activity which is consistent with community needs and desires. Land use planning, transportation planning and transportation-community interface planning must strive towards a socially and economically desirable future for Norway House. Three basic approaches could be adopted in an attempt to plan for a viable community future. The first would be to focus on local resource based industries. The second would be to develop secondary and service industries, including transportation and distribution. The third would be to facilitate commuting to industries located elsewhere in the north. These basic approaches are not mutually exclusive and in any event planners could not wait for a unanimous decision before proceeding. However, there must be some sense of purpose or sense of direction felt by the community if the future is to hold more than unemployment, welfare and outmigration.

Depending on the basic approach chosen interface planning could concentrate on linkages of the community with local resource areas, ensure the strategic role of Norway House in the region is

enhanced to foster secondary and tertiary industries and could promote commuting programs to major employment centres in the north. Interface planning would also ensure the internal interface was consistent with these overall goals. For each of the broad developmental approaches it appears that the private sector would need considerable encouragement and direction and that public initiatives would be required as well. Merely stating laudable goals is not, however, adequate. Initiatives must be forthcoming from the community or be internalized by the community and adequate structures must be in place to facilitate the realization of community objectives.

Community plans and planning must do what the name implies, plan the community's future. Anything less is not really planning but merely regulations, controls and ill defined and unimplemented goals, objectives and policies. Locally based planning is required to make planning a meaningful ongoing process which deals with day-to-day issues with the long term future in mind. Fostering community involvement and awareness is a vital component for improved community planning. The importance of community involvement is illustrated by the following Chinese proverb referred to by Ron Clark (1979, p. 89): "if you want to plan for one year, plant rice, and if you want to plan for ten years, plant trees; if you want to plan for a hundred years, talk to the people". This phrase is perhaps particularly apt for small northern communities. It does not imply that short term planning is not important but it does mean that to actually plan and direct the future it is vital to have community awareness, involvement and support. This also implies a movement away from an overreliance on external government and private decision making.

Transportation-community interface planning would not incorporate all of community planning just as it would not incorporate all of transportation planning. To be most effective interface planning would operate in tandem with improved community and transportation planning. While community needs should be considered in the development of the transportation system it is also important that the community adapt in a positive manner when a transportation project has a restructuring effect. Communities generally keep going despite changes in transportation logistics; they carry on by adjusting and adapting. Communities are flexible but as demonstrated by the Norway House road, implications can be both positive and negative. Constraints and opportunities change considerably when the transportation system is reoriented and planning for the community's future must respond accordingly. An old role for the community may no longer be feasible but new ones can be pursued. For example, some of the role of Norway House as a transshipment point has been eroded but it is possible new opportunities to exploit local resources will arise now that there is an all-weather access road.

It is important that interface planning apprise the community of these changes and that community planning guide the community's adaptation in a positive manner. A new direction or new plan may be required after a major interface change.

While involvement and support of community residents is a vital consideration the planner must play an active role in seeking new solutions. Fred Schwilgin (1980, p. 5) has referred to a false social conscience which dictates that native people must be left to



find their own solutions. This rationalization is used to avoid a more comprehensive approach to northern development and to justify continuing handouts in various support programs (including transportation projects). This false social consciousness should not be used as a rationalization for avoiding comprehensive community planning and for avoiding transportation-community interface planning. The planner must play an active role in guiding the community and its interface.

### Conclusion

To sum up key elements required for transportation-community interface planning in northern Manitoba are: (1) a better understanding of the interface, (2) a structure for interface planning, (3) incorporation of community interests into transportation planning, and (4) incorporation of transportation elements into community planning.

The fundamental reason interface planning is needed is that transportation has so many effects on the structure, settlement pattern and people of these areas. Decisions in the past have often had as many adverse effects on communities as benefits. Through planning and an improved decision making process the transportation system can be designed to meet more community needs and in a dynamic reciprocating way the community can take into account transportation as a key factor to consider in its planning. The interface is then understood as a dynamic concept with physical, social and economic aspects which evolve through time. External forces

such as technological change, changing political and organizational contexts and changing social and economic conditions all influence the interplay of the community and the transportation system. Locally forces on the interface include community development trends, community decisions and locations of specific elements of the transportation system. In the past there has been an imbalance as external forces have melded the interface overshadowing local forces and interests. In planning and in communities there should not be actors and spectators rather the community should be an agent acting on its own needs.

For effective transportation-community interface planning to take place, it will require a balancing of external and internal forces. The interface can then evolve to meet local needs as well as external interests. By its very nature this is a delicate balancing act for the power of provincial and federal governments and of private companies will tend to prevail. However the concepts of local autonomy and self determination are recognized as vital in most planning situations involving community issues. For native communities it is particularly important that there be involvement in interface decisions.

The transportation-community interface planning arrangements can be a means to bridge the gap between transportation planning and community planning. Without a mechanism in place even the professionals involved in planning (either transportation or community) will lack understanding of the interface and will continue to plan (make partially informed guesses) in a vacuum. For communities satisfied with

the status quo this may be a tolerable situation but for small northern communities undergoing rapid changes in accessibility, in interaction and in lifestyles, this is not acceptable. These communities are vulnerable and need to be accorded respect in their own right. Interface planning is not a panacea for all the developmental problems of these communities but in recent decades many of the major changes have occurred in transportation and these have tended to destabilize the community. It may be many years in the future before the community can fully adapt in a physical, social and economic sense to the introduction of the automobile. As well, historical changes in other modes such as the canoe, tractor train and airplane continue to have ripple effects on the community. Only by understanding the community implications and planning accordingly can the community actively respond in an appropriate manner.

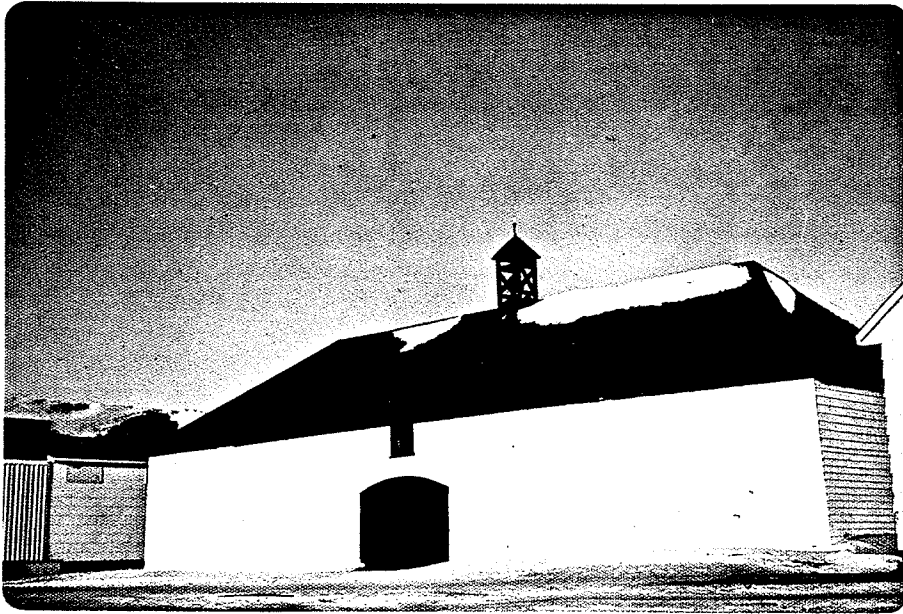
For the community of Norway House and other small northern communities the stakes are high. The vitality, viability and survival of the community is involved. By itself interface planning cannot solve all the problems. But if the community can adapt to the evolving interface it may be able to begin to influence its own future. Externally made interface decisions in the past have sent the community reeling.

The community should understand the implications of the changes and respond to the changes in an active rather than a passive way. Although external control will remain over major projects there is a vital need for the community to have input on major interface projects.

There must be confidence that the new technologies can be guided and utilized in ways which are consistent with northern community's aspirations.

APPENDIX

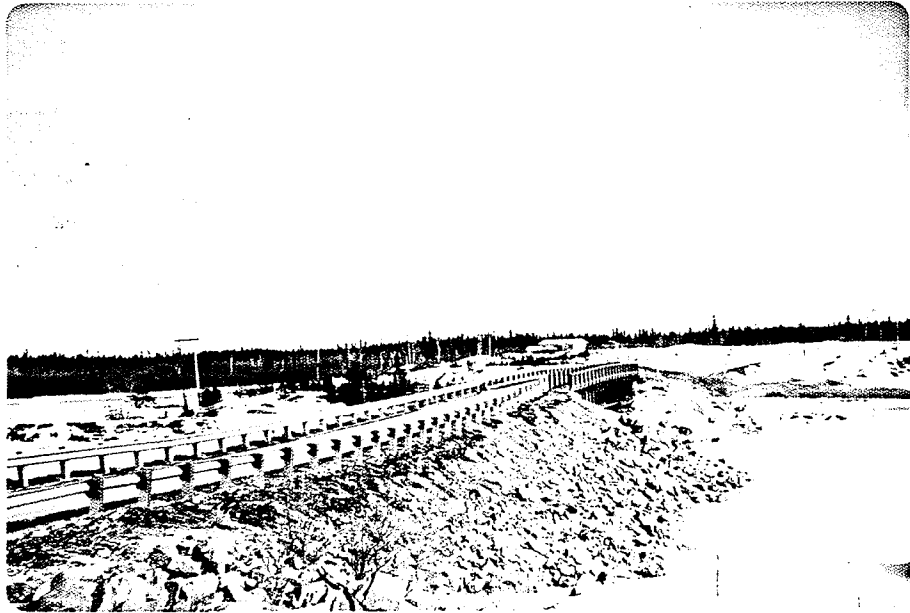
Photos of Norway House and its Transportation System



Historic Bay Warehouse -- Still in Use



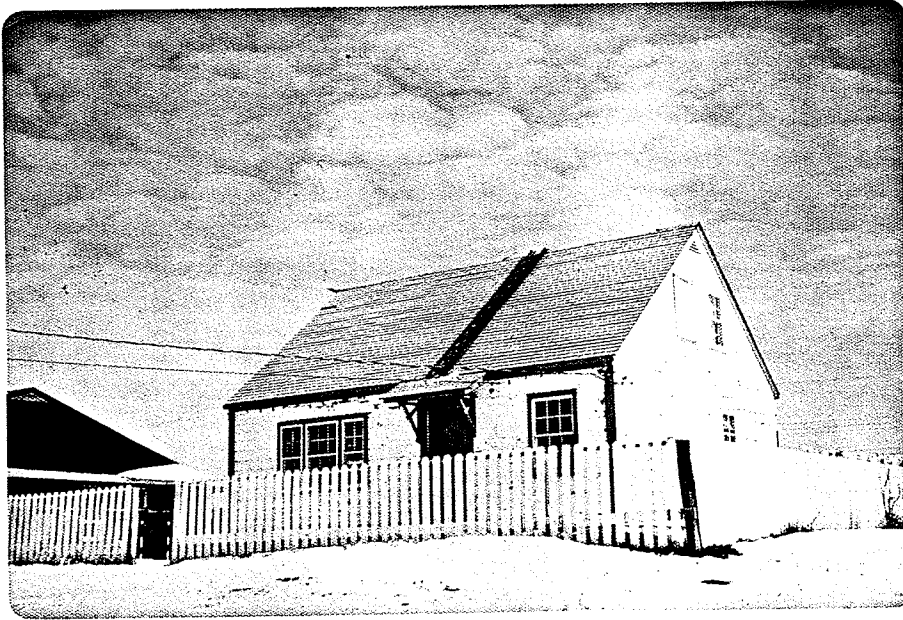
Shipment of Goods to the Bay before Spring Break-Up  
Temporarily Closes the Road



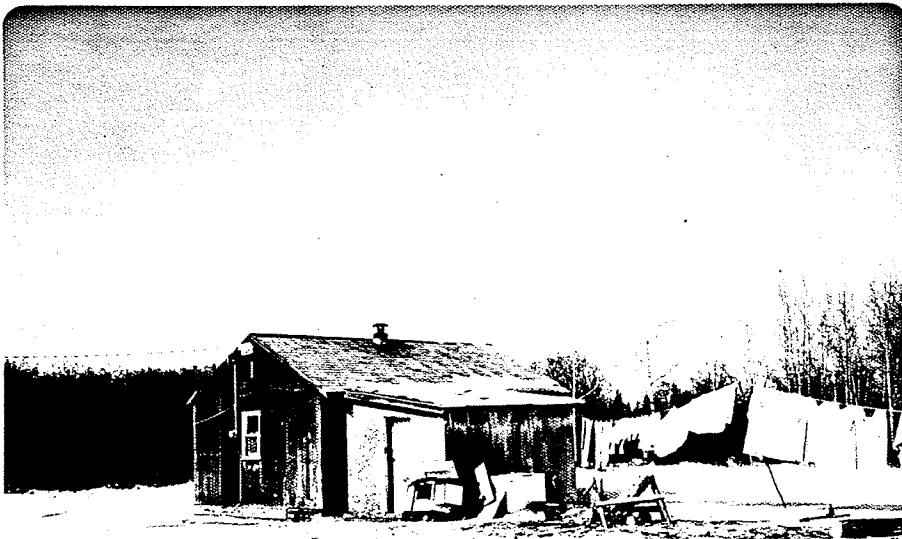
Narrow Bridge between Fort Island and Rossville



Jenpeg-Norway House Access Road



House in Rossville



House along Jack River on the Reserve



Housing in the New Subdivision on West Island



Older House along Jack River

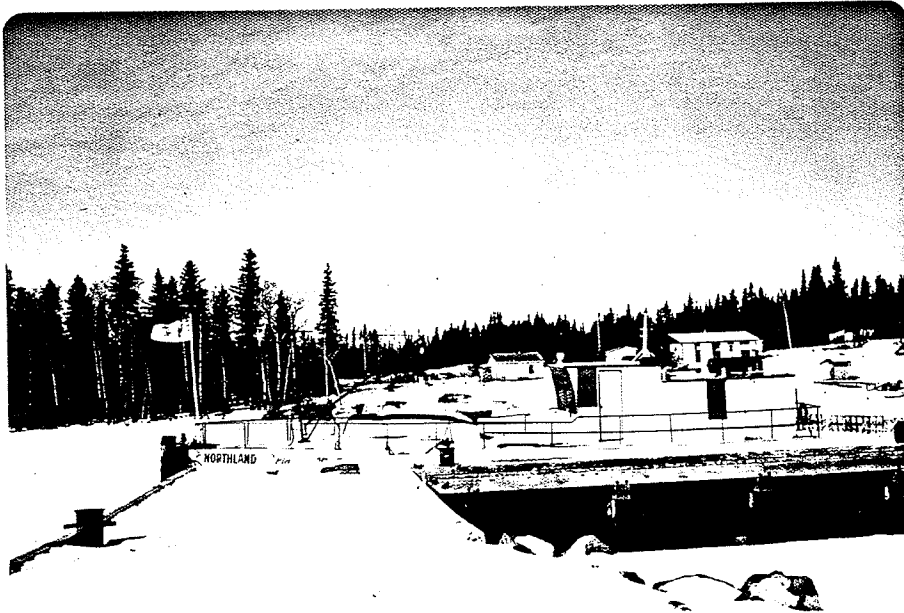




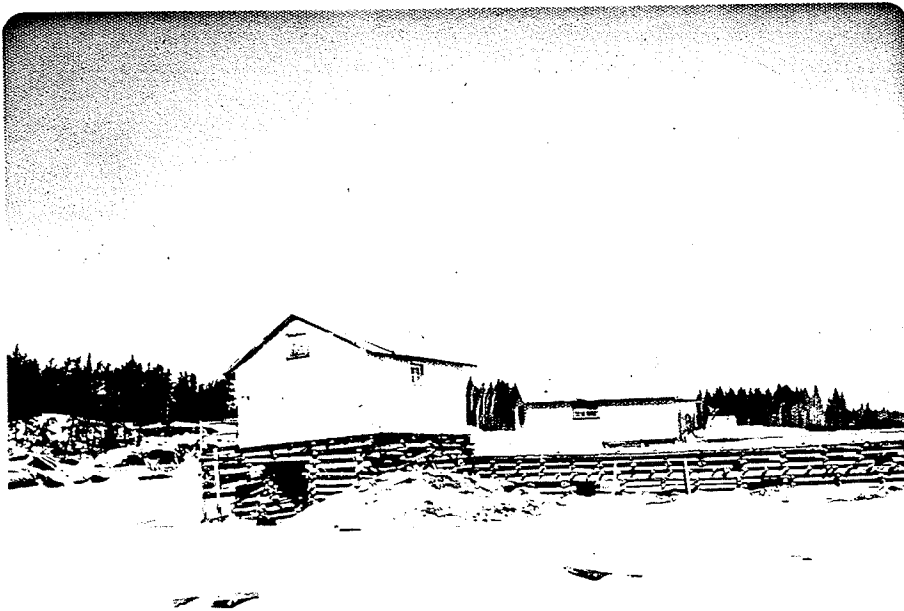
Transair YS 11



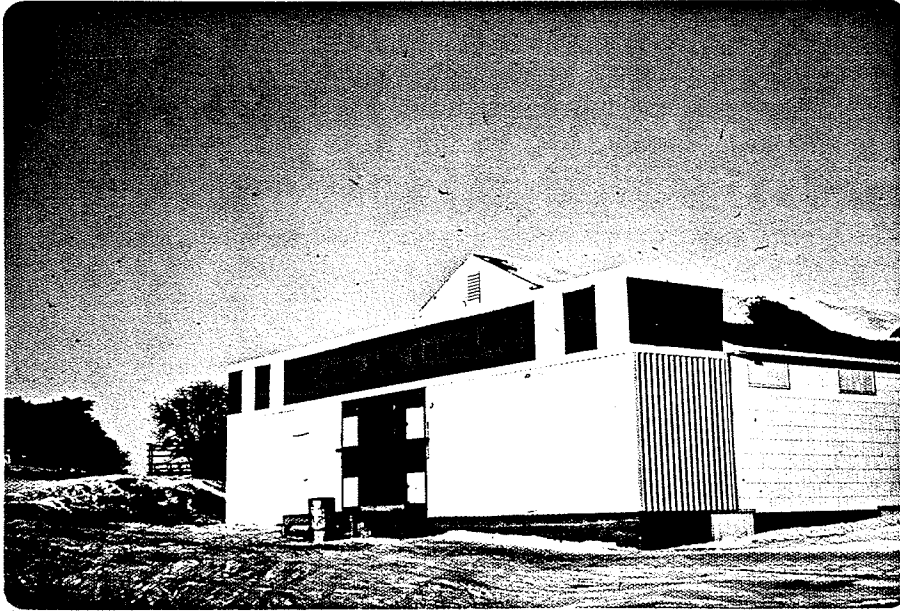
Aerotrades Charter Plane



Northland Dock and Boat



Dock with Storage Shed at Playgreen Inn



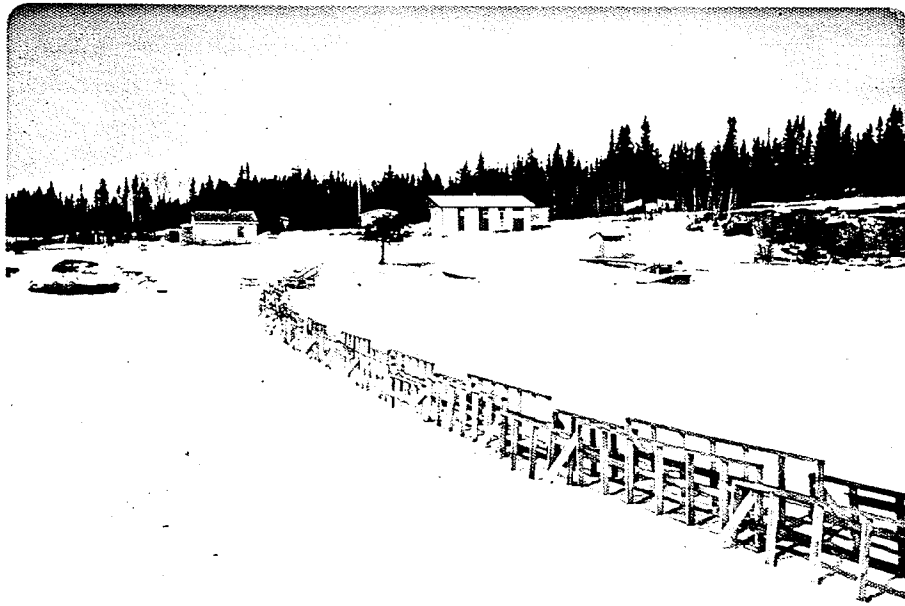
The Fort Hudson's Bay Store



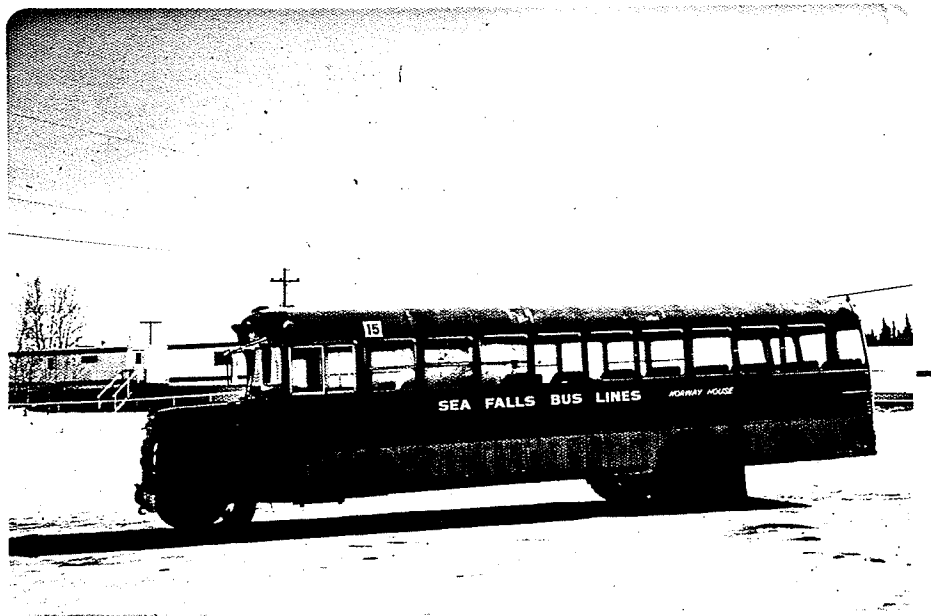
Post Office on Fort Island



East Channel of Nelson River Is Used as an Ice Road  
for Cars and Snowmobiles



Floating Bridge -- North of the Airstrip



Local Bus Service



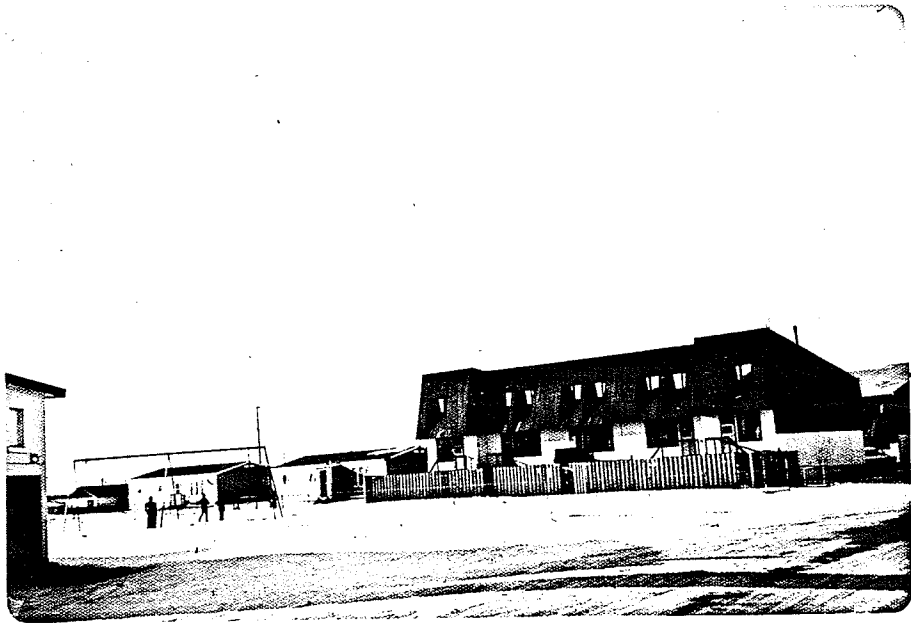
Snowmobile with Trailer Parked at The Bay Store, Fort Island, Historic Markers in Background



Conservation Officer's Bombardier



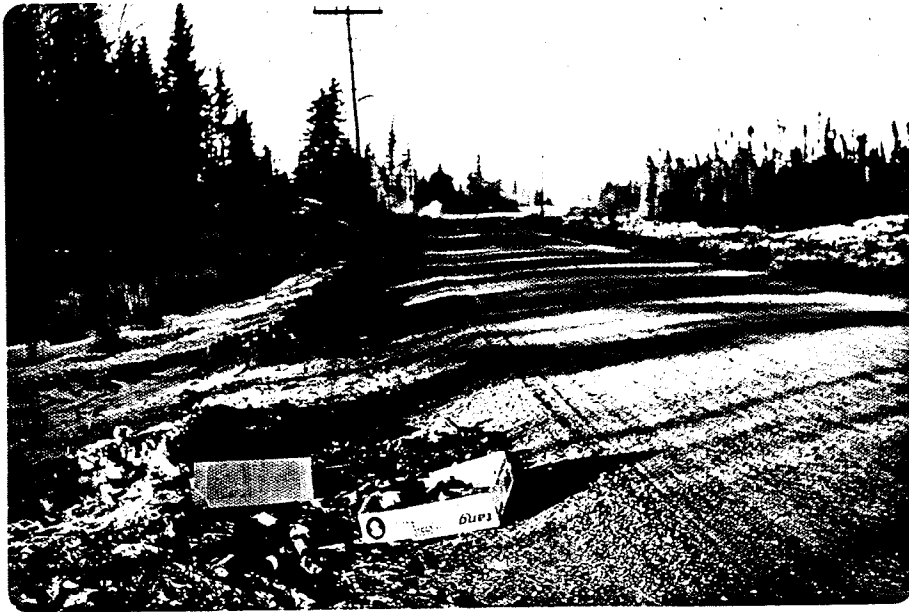
Taking the Groceries Home with a Snowmobile



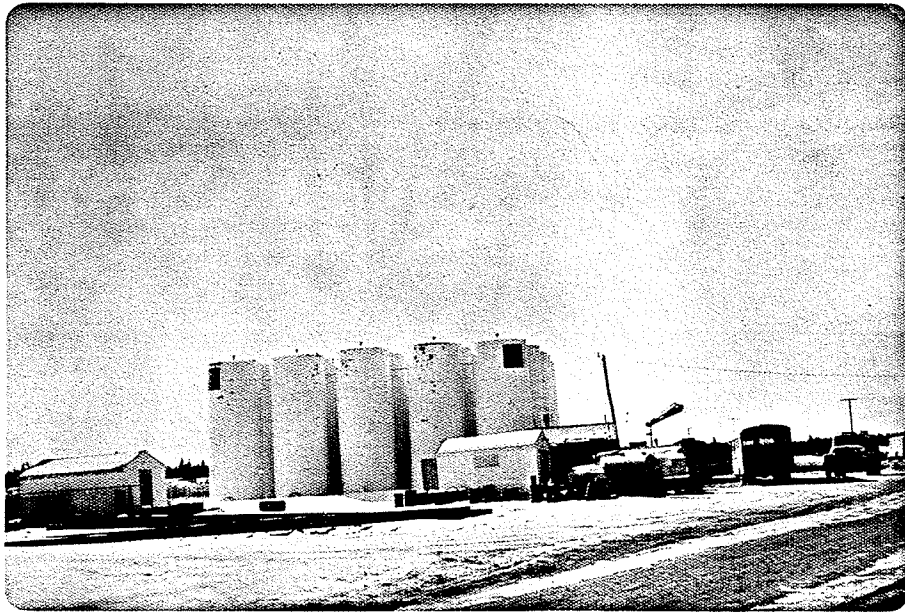
Rossville Teachers' Housing -- Attached Units



Jack River School Teachers' Housing



Road between the Airport and the Bay Store  
on Fort Island

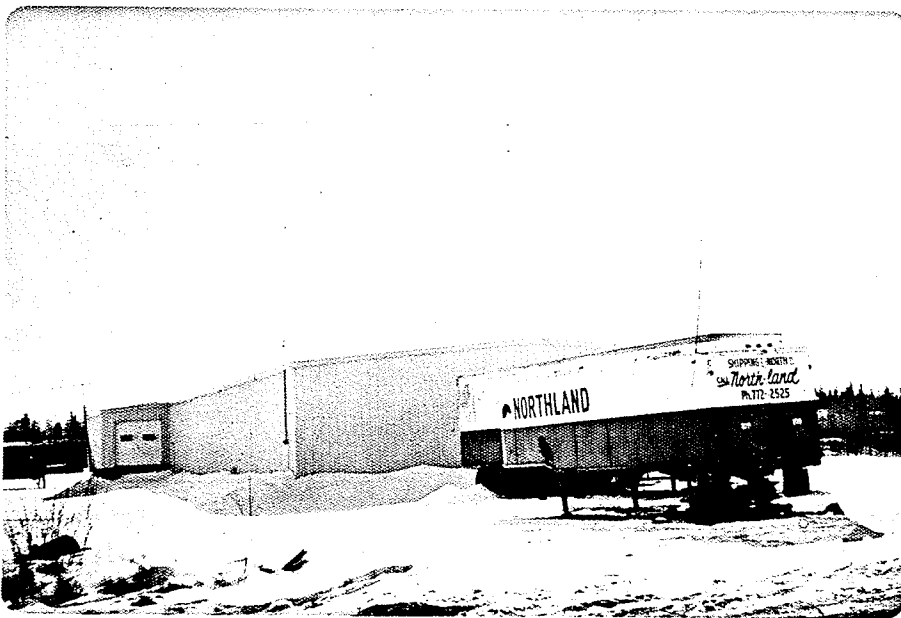


Bulk Fuel Storage -- Capacity 720,000 Gallons





Norway House Airport



Northland Warehouse Adjacent to Airstrip

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