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# ECONOMIC REPORT

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Economic Report on Alberta's Peace River  
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## Alberta's PEACE RIVER COUNTRY

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**REPORT**

**on**

**CERTAIN INDUSTRIAL AND OTHER FACTORS  
RELATED TO THE ECONOMY**

**of the**

**CENTRAL PEACE RIVER DISTRICT  
IN ALBERTA**

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Issued by

**THE NORTHERN ALBERTA DEVELOPMENT COUNCIL**

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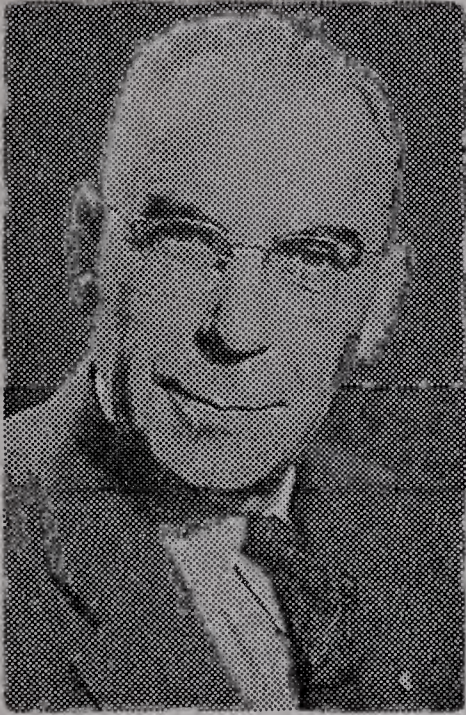
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JANUARY, 1965





# NORTHERN ALBERTA DEVELOPMENT COUNCIL



The Northern Alberta Development Council has the responsibility of fostering increasing economic and social development in those areas of the province north of the 55th parallel.

In their continuing examination of this northern area, the Northern Alberta Development Council was pleased to commission Mr. R. N. Harvey, Business Consultant of the city of Edmonton, Alberta, to conduct a survey of certain industrial and other economic factors related to the more populous region of the Peace River country.

We trust this report will indicate the rapid growth and diversification of northern Alberta's economy and will lead to further examination of the many opportunities in the northern portion of the Province.

Honourable IRA McLAUGHLIN  
Chairman

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## **ACKNOWLEDGMENTS**

I am greatly indebted to the many people who have provided information and otherwise aided in the preparation of this report.

First I wish to acknowledge the great help received from the Alberta Bureau of Statistics, and in particular, Mr. A. T. Collier, who assisted in obtaining much of the basic data used throughout the report. The co-operation and assistance of Mr. Keith Easson, Executive Officer of the Northern Alberta Development Council, has also been most valuable.

In addition, the following individuals, firms, government departments and services, municipalities and associations have furnished, from their specialized knowledge, much useful advice and data.

The Chairman of the Alberta Power Commission; The Government of Alberta; Department of Agriculture, the Directors of the Agricultural Extension Branch, Agricultural and Vocational Colleges Branch, the staff at Fairview College, Peace River District Agriculturists, Dairy Branch, Farm Economics Branch, Field Crops Branch, Apiculture and Horticulture Services, Fur Farms Branch, Livestock Branch, Poultry Branch and Water Resources Branch; Department of Highways, particularly the Mapping Division; Department of Industry and Development, Industrial Development Branch; Department of Lands and Forests, Forest Management Division, Forest Surveys and Planning Division, Provincial Parks Branch, and Maps Branch; Department of Mines and Minerals, Minerals Division, Mines Division and Pipelines Division; Department of Municipal Affairs, Director of the Provincial Planning Office and the Peace River Regional Director; Provincial Secretary's Department, Public Relations Branch, Alberta Freight Bureau; Alberta Government Travel Bureau; Alberta Government Telephones; Research

Council of Alberta; Farm Credit Corporation, The Government of Canada; Department of Agriculture, the Superintendent and staff of the Beaverlodge Experimental Farm, Research Branch; Department of Labour, National Employment Service; Post Office Department, Edmonton Postal District; The Secretary-Treasurers of many municipalities throughout the Central Peace River District; Alberta and Northwest Chamber of Mines; Bank of Montreal, Oil and Gas Department; Mr. W. G. Campbell, Canadian Coachways Limited; Canadian National Railways, Canada Packers Limited, Canadian Utilities Limited, Mr. Bruce Cowan, Edmonton Chamber of Commerce, Mr. William Friesen, Dr. W. A. Gainer, Grimshaw Trucking Company Limited, Mr. Horst Heise, Imperial Pipelines Limited, Johnson and Mathew Limited, Lesser Slave Lake, Peace River District Tourist Association, Mr. Danny Makale, Mr. Gordon Moon, Northern Alberta Railways, Northern Plywoods Limited, Northland Utilities Limited, Northwest Pulp and Power Limited, Pacific Great Eastern Railway, Pacific Western Airlines Limited, Mr. Charles Paradis, Mr. H. S. Parker, Peace River Chamber of Commerce, Peace River Mining and Smelting Company Limited, Potato Growers Association, Mr. Les Rowland, Swanson Lumber Company Limited, Valleyview Chamber of Commerce, Mr. David Zaychuk, and all others who contributed so materially to this text.

Commendation is also due to Mr. C. R. Graham, B.Sc., M.A., Mr. Cecil Jackman, Mr. Louis Roy, and others who assisted in the preparation of various parts of the report.

My sincere thanks to each one who so kindly co-operated in subscribing to the substance of the report.

—ROBERT N. HARVEY



## ***FOREWORD***

To the extent that most of the undeveloped natural resources of Alberta are located north of the 55th parallel, the future of the province lies in Northern Alberta.

In dealing with the survey of the area on which this report is based, the main problem arose from the fact that although this part of the Peace River District has subscribed in quite a major way to the total economy of the region as a whole, it does not, in itself, include a number of the important factors which now affect its economy, and these will continue to have an increasingly major influence in the future.

The main petroleum and natural gas discoveries, alternative power sources, a number of potential mineral developments, and the Great Slave Lake Railway are examples of such influential economic factors. The economy of the British Columbia Peace River Block and the influence of the development policy of the province and its influence on the Alberta side of the Central Peace River district affect, not only the area covered by this report, but all of Northern Alberta.

Even the industry which is the main subscriber to the economic welfare of this area, agriculture, as well as much of the general commerce of the area is to a large extent integrally tied in with the economy of the B.C. Peace River Block and with the region to the north now served by the Great Slave Lake

Railway. The economy of the Grande Prairie area and to some extent that of Valleyview is dependent on large forest areas and mineral resources south of the 55th parallel, which lie outside the survey area as well as outside the jurisdiction of the Northern Alberta Development Council.

The area covered by this report, that is the Central Peace River District in Alberta is part of Dominion Census Division No. 15. It also forms part of Crop Reporting Area No. 7, and parts of three forestry divisions are in the area, Peace River, Grande Prairie and Slave Lake. As available statistics are usually for the whole of any of these divisions, it has been necessary in many cases to estimate figures for the smaller area dealt with in this survey.

The problem, therefore, has been to determine how far to go in connection with all these matters in attempting to deal with the economy of the Central Peace River District. In some cases resources outside the area have been considered, while in others, we have stayed within the boundaries of the area specified in the contract.

It is felt that a really complete picture of the present economy and much more so the possibilities of the future can only be properly developed by consideration of Northern Alberta as a whole, and the present report should be reviewed on that basis.

# INTRODUCTION

The area under consideration in this survey may be referred to as the Central Peace River District in Alberta. This Introduction deals briefly with its boundaries and size, climate, geology, topography, and general land classifications as well as its location with reference to certain significant points in Canada, United States of America and overseas.

The area to be dealt with has been defined in the contract terms of reference as extending from the British Columbia boundary on the west to the 116 meridian west longitude on the east and from the northern boundary of Improvement Districts 139 and 131, i.e., Clear Hills, Little Cadotte River, Otter Lake, south to the 55th parallel of latitude which is the southern boundary of the Northern Alberta as dealt with by the Northern Alberta Development Council. The area includes Improvement Districts 125, 126, 131, 132, 134 and 139; Municipal Districts 130, 133, 135 and 136; and County No. 1.

The southern portion of Improvement District 138 has also been considered in its relationship with the Town of Peace River. However, it should be noted that Manning and the remainder of the area to the north (the economy of which has been and will continue to be greatly affected by the advent of the Great Slave Lake Railway), is not included in the present survey.

The total area under consideration comprises approximately 18,200 square miles.

The average mean temperature on a yearly basis is about 34.5°F, varying from a low winter average of about 9°F to a mean summer temperature of 58.5°F with six months, (three in the spring and three in the fall) with temperatures averaging from 36° to 38°F. Frost free days have varied from 54 to 140 with an average of about 96. The average annual precipitation varies from 14.6 inches in the centre of this area to nearly 18 inches in the northern and southern portions. Approximately two-thirds of this precipitation is in the form of rain, chiefly in the warm four months of May through August when about half the total precipitation occurs.—(See Note (a)).

The geology of the area belongs to the Cretaceous period and the Lower Smoky River formation except for the Grande Prairie-Beaverlodge area which is in the Edmonton formation and the town of Peace River which is in the St. John and Peace River formation. The underlay at Peace River is gray shales with iron-stone bands, while across the centre from High Prairie-McLennan to Spirit River there are black marine shales which are notably lacking in good water

horizons. The underlay in the Grande Prairie-Beaverlodge area and as well in the Fairview-Grimshaw area is sandy shales and sandstone.

In general the altitude varies from 1,900 to 2,400 feet above sea level except for the deep valleys of the Little Smoky, the Smoky and the Peace Rivers. At Peace River town, in the river valley the altitude is 1,092. The highest portion is in the Clear Hills on the northwest where the altitude is about 3,300 feet.

The countryside generally, therefore, presents a uniform flat to slightly rolling perspective of farming, woodland and forests with some low hills in the central part, interspersed with scenes of great scenic beauty in the river valleys. Some 18,000 square miles of land which, at the present time is classified with approximate acreages, are shown on Table I.

This very productive portion of the Peace River District is located (from its centre) about 270 road miles northwest of Edmonton, and about 1,600 miles from the head of the Great Lakes at Port Arthur. It is about 870 road miles from the Pacific coast ports at either Vancouver or Prince Rupert, B.C. and about 2,250 miles from either Toronto, Ontario or Los Angeles, California. To the north, Hay River, N.W.T. is about 430 miles, Whitehorse, Y.T. about 1,050 miles to the northwest and Fairbanks, Alaska some 600 miles further in the same direction. Dawson Creek, B.C. is about 140 miles from the centre of the area covered by this survey, Fort St. John is nearly 190 miles and Prince George nearly 400 miles. There are good highway connections, and also railroad connections through the Northern Alberta Railway to the Great Slave Lake Railway, the Canadian National and Canadian Pacific Railways and the Pacific Great Eastern Railway.

This area which is referred to throughout this report as the Central Peace River District in Alberta, is shown on Map No. 1, page 3, which gives a general outline of its legal location with major centres, rivers and lakes, main roads and railways.

These are indicated in greater detail on Map No. 2, page 5 which, in addition, shows all populated centres, and the areas now subdivided into sections generally representing the land in use.

The location of the Central Peace River District in relation to Western Canada, the North West, and Alberta in particular, is shown on Map No.'s 3 and 4 on pages 7 and 9. These represent to a large extent the immediate market areas and, also, show the distance of the district from west coast seaports at Prince Rupert and Vancouver.

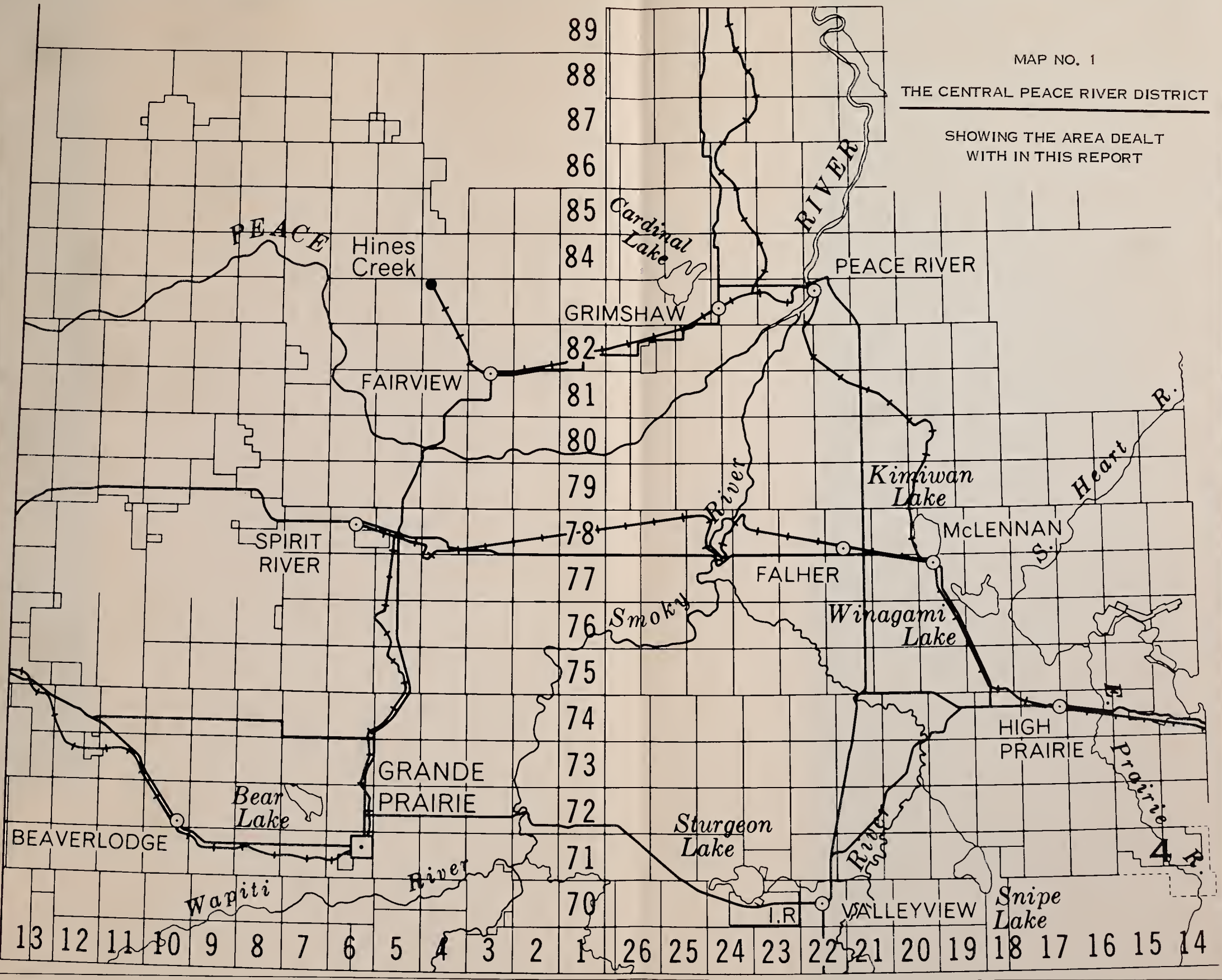
Note (a)—The average quoted are for periods of from 20 to 60 years.



MAP NO. 1

THE CENTRAL PEACE RIVER DISTRICT

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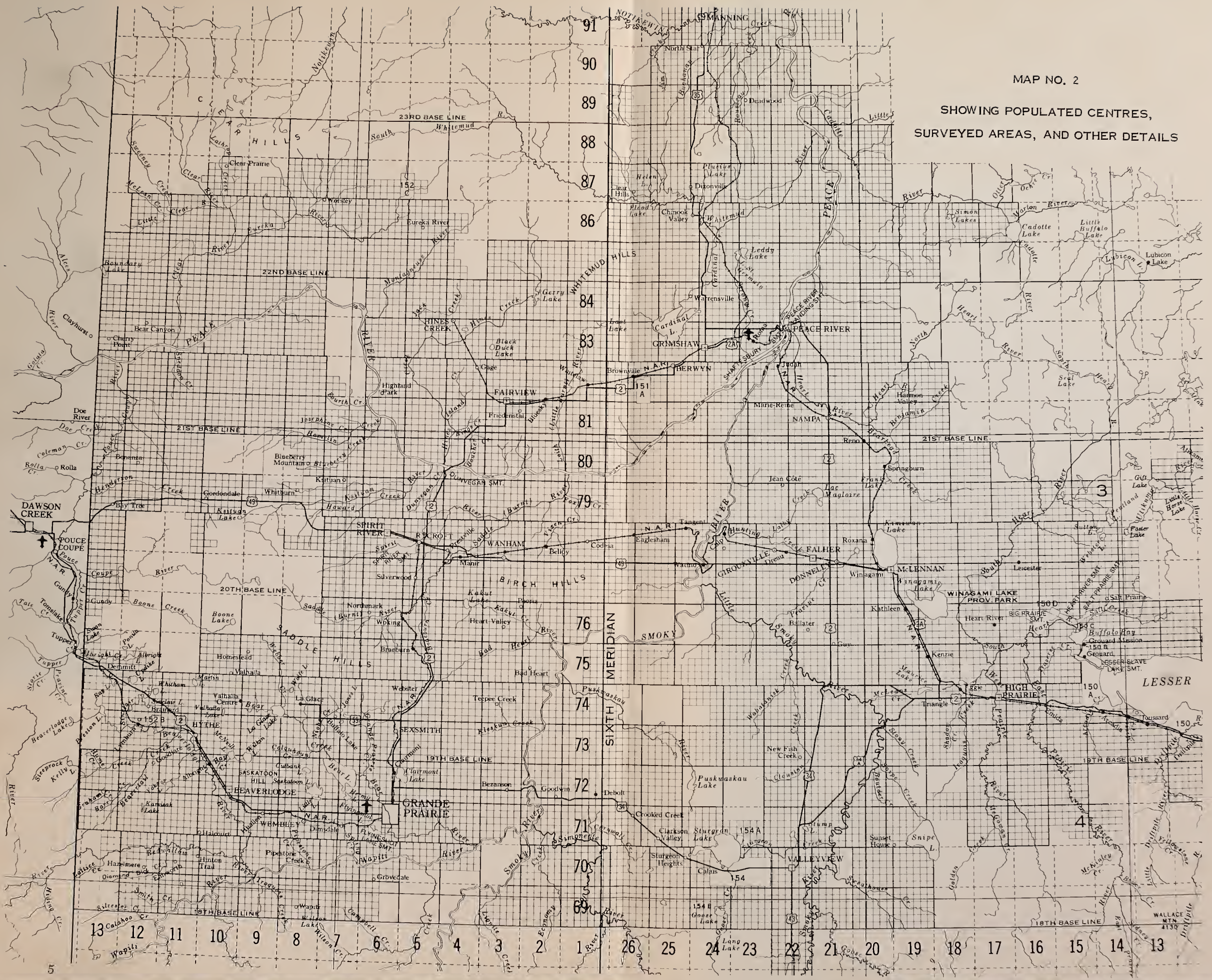
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MAP NO. 2

SHOWING POPULATED CENTRES,  
SURVEYED AREAS, AND OTHER DETAILS





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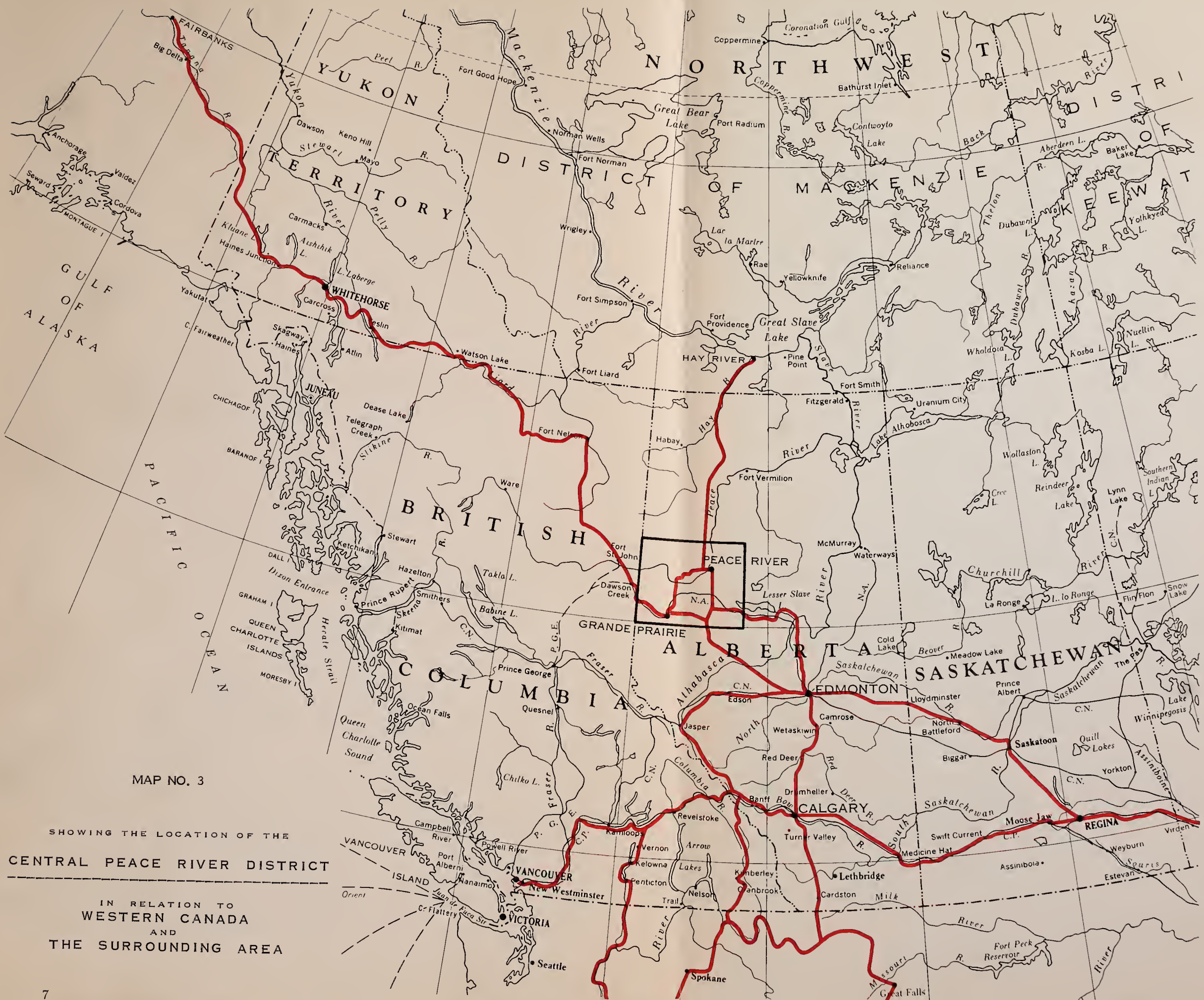
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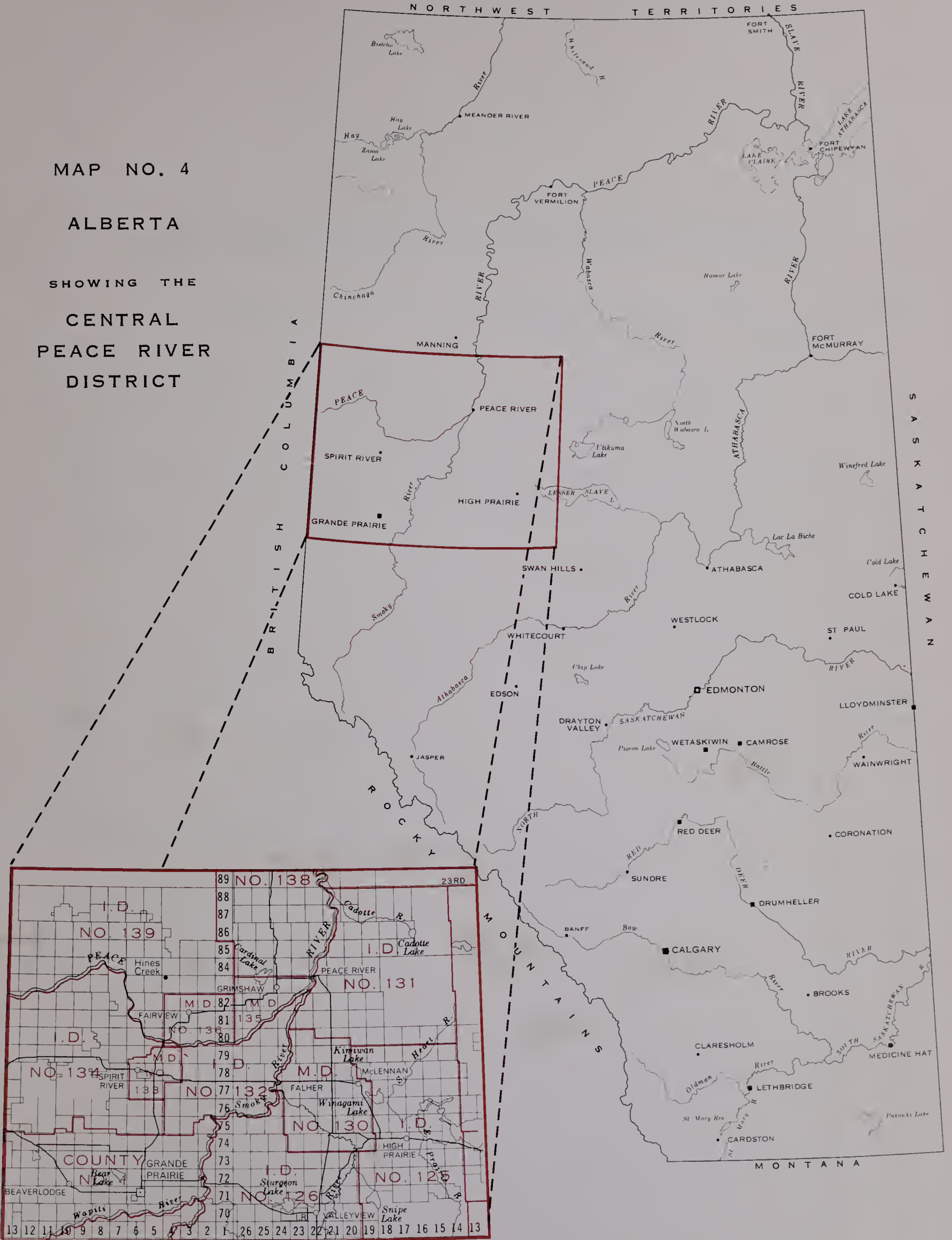
SHOWING THE LOCATION OF THE  
CENTRAL PEACE RIVER DISTRICT

IN RELATION TO  
WESTERN CANADA  
AND  
THE SURROUNDING AREA





MAP NO. 4  
 ALBERTA  
 SHOWING THE  
 CENTRAL  
 PEACE RIVER  
 DISTRICT







## LAND CLASSIFICATION AND APPROXIMATE ACREAGE

TABLE I

LAND CLASSIFICATION	ACRES		
-FARM LAND (Ref. 80-A) .....	3,910,000	III-FOREST LAND (Ref. 80-C) .....	3,970,000
Improved (Under Cultivation, Pasture, etc.)	2,500,000	(a) Actual Forested	2,650,000
Woodland	350,000	In Management	
Unimproved	1,060,000	Units	1,470,000
		Outside Management	
		Units	1,180,000
		(b) Brushland	
II -OPEN FOR SETTLEMENT	2,350,000	In Management Units	1,320,000
(Ref. 80-B) (Public Lands)		IV-NON-PRODUCTIVE LAND .....	1,060,000
Arable	650,000	(Ref. 80-C)	
Other	1,700,000	(Alpine, barren scrub, swamps and water)	
		V -RESERVES AND COLONIES	360,000
		(Estimated)	
		<b>TOTAL</b> .....	<u>11,650,000</u>
		(Approximately 18,200 Sq. Mi.)	<u><u>11,650,000</u></u>

References

- 80-A "Conditions of Farm Land—Census Division 15—Acreage DBS 5.3-3 "Agriculture, Alberta, 1961" p. 28-6, (with adjustments estimated to 1964).
- 80-B "Public Lands Open For Settlement in the Peace River District Alberta" (Wm. Odynsky, C. D. Sawyer, and V. A. Wood), Fifth Edition. Revised 1964. Page 29, Plates 1 to 7 inclusive.
- 80-C Alberta Forest Service, Forest Surveys and Planning Branch. Area Summary—Forest Lands. (John Hogan, 1964).

## POPULATION AND LABOUR FORCE

The total population of the area under consideration in this report was, in 1961, about 59,000 people of which about 35,500 were classed as rural and 23,500 urban. This represented an increase from a total of about 48,700 in 1951 of which 37,400 were rural and 11,300 urban. The estimated population in 1964 had risen to about 64,500 including 35,600 rural and 28,900 urban. These changes in population reflect the prevalent general movement of rural population to the urban centres, small and large, which have the facilities and amenities that have become requirements in this day and age. It will be noted that from 1951 to 1964 the rural population declined slightly in number but as a percentage of the total it dropped from 76% in 1951 to about 55% in 1964 with a commensurate increase in the urban population from 24% in 1951 to 45% in 1964.

A further analysis of the changes in population indicate that although the total increase from 1951 to 1961 represented only 10,200 people, the increase in the five largest places averaged over 119% and in the second five largest places the increase was 73%. Substantial increases also took place in some of the smaller population centres. These increases total over 12,000 people whereas the rural areas declined to the extent of about 2,000. The 1964 population estimates are looked upon as realistic and it should be noted that a substantial increase of 5,500 took place, all in the urban areas in the three years from 1961 compared with 12,000 in the ten year period from 1951 to 1961, or an average increase in the last three years of about 1,850 per year as compared with an average of 1,200 per year in the previous ten years.

In 1951 there were four places over 1,000 population in the area, namely—

High Prairie .....	1,140
McLennan .....	1,075
Peace River .....	1,670
Grande Prairie .....	2,660

According to 1964 estimates there are now nine places over 1,000 in population—

High Prairie .....	1,800	Peace River .....	3,320
Valleyview .....	2,140	Fairview .....	1,775
McLennan .....	1,080	Grande Prairie .....	10,365
Spirit River .....	1,015	Beaverlodge .....	1,070
Grimshaw .....	1,515		

These changes are indicative of the great trend of the population towards urban centres and to a large degree shows the disposition of the increase in population of 17,500 from 1951 to 1964. Most places throughout the area under survey which in 1951 had a population of 500 or more had about doubled in size by 1964.

In dealing with the prospects for the economy of the Central Peace River District in the years to come, it has been necessary to estimate population increases and to a certain extent where these increases will occur.

It is felt that the overall population will continue to grow over the next twenty years, probably at a slightly accelerated pace in certain localities, in keeping with improvements in transportation and communication facilities, and the expansion of trade. The greatest increases will be in the established centres, which will have continually better living conditions, including provision for all types of health, welfare, and recreational services, but particularly in places which develop better commercial and industrial facilities for handling the requirements of the predominately agricultural products and by-products, and to a lesser extent forest product industries, and tourist trade.

The estimates made of future population indicate a total in this area of between 90,000 and 100,000 people by 1981, depending on the advent and size of specific major industrial developments, such as iron ore processing, pulp, etc.

The net increase in population from 1961 to 1981 is therefore estimated at about 35,000 including a further decrease of 3,000 to 4,000 in the rural population so that the total indicated increase in centres of population is from 34,000 to 45,000.

The greatest increases will occur in the largest centres, a normal trend, so that 65% to 70% of the gross increase will occur in the vicinity of Grande Prairie, and of the town of Peace River for which areas the estimated 1981 populations are in the neighbourhood of 23,500 and 12,500 respectively. Other places which appear to have some growth potential are Valleyview and Fairview. Population has also increased substantially in the last five to ten years in Spirit River, the Rycroft area, and High Prairie. In these and other centres in which the population totalled about 12,500 in 1961, the population may continue to increase in the next twenty years having in mind the expansion of wholesale distribution, tourist traffic and local small industries related to agriculture. However, sufficient time has not elapsed since this trend started to know whether the increase is due to a passing phase connected with oil and gas exploration, railway construction, etc., or whether there is a more permanent nature to the rate of increase.

### LABOUR FORCE

The occupations of the population in the Central Peace River District can be indicated by using the latest published figures for Census Division No. 15 which appear in Tables P-1 and P-2 immediately following on pages 13 and 14 respectively.

The first Table (P-1) shows that of the 1961 population in all of Census Division No. 15, the "labour" force accounted for about 33% or 25,055 persons (male and female). This represented about 5% of the labour force of the province which in turn represented 37.5% of the provincial population.

73% (or 18,200) workers in Census Division No. 15 were in rural areas. 10,275 were classed as farmers



TABLE P-1

## LABOUR FORCE—CENSUS DIVISION No. 15—1961

(15 years of age and over)

## Rural and Urban—by Occupation and Sex and Comparison with Alberta as a Whole

OCCUPATION	CENSUS DIVISION 15						ALBERTA			
	RURAL			URBAN (1)			Total	%		
	Male	Female	Male	Female	Male	Female			Total	%
Managerial .....	694	123	794	63	1,674	63	1,674	6.68	41,691	8.52
Professional and Technical .....	358	596	334	348	1,636	348	1,636	6.53	46,579	9.52
Clerical .....	167	220	247	466	1,100	466	1,100	4.39	55,317	11.30
Sales .....	235	201	374	214	1,024	214	1,024	4.09	31,629	6.46
Service and Recreation .....	303	696	311	593	1,903	593	1,903	7.60	59,055	12.06
Transportation and Communication .....	570	59	461	77	1,167	77	1,167	4.66	28,261	5.77
Farmers and Farm Workers .....	9,151	971	149	4	10,275	4	10,275	41.01	104,162	21.28
Loggers, Fishermen, Trappers and Hunters .....	1,097	10	95	....	1,202	....	1,202	4.80	3,009	.61
Miners and Related Workers .....	267	....	88	....	355	....	355	1.42	5,291	1.08
Craftsmen, Production and Related Workers .....	1,829	15	1,234	51	3,129	51	3,129	12.49	83,449	17.05
Labourers .....	589	16	303	18	926	18	926	3.70	19,615	4.01
Not Stated .....	....	....	....	....	664	....	664	2.65	11,458	2.34
TOTAL .....	15,260	2,907	4,390	1,834	25,055	1,834	25,055	100	489,511	100

(1) In cities, towns and villages of 1,000 population and over.

Source: D. B. S. Publication—"Labour Force"—Census of Canada, 1961, Bulletin 3.1 - 8 Table 15 P. 15-33.

TABLE P-2

## LABOUR FORCE—CENSUS DIVISION No. 15—1961

(15 years of age and over)

## For Cities and Selected Towns 1,000 Population and Over—By Occupation and Sex.

OCCUPATION	NUMBER OF PERSONS									
	Fairview		Grimshaw		Peace River		Valleyview		Grande Prairie	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
All Occupations (2)	353	180	298	90	674	279	283	93	2,214	931
% of total population (approx.)	38.5		34.5		37.5		35.0		37.5	
<b>Occupational Division</b>										
Managerial	52	3	61	5	141	8	46	9	394	22
Professional and Technical	38	48	11	18	57	49	20	15	158	142
Clerical	15	30	16	20	39	93	8	13	141	264
Sales	31	26	28	11	62	27	9	7	215	114
Service and Recreation	32	61	13	30	65	78	13	37	131	286
Transportation and Communication	22	6	40	1	65	16	48	7	169	29
Farmers and Farm Workers	35	...	13	2	8	...	7	...	50	2
Loggers and Related Workers	...	...	...	...	4	...	12	...	63	...
Fishermen, Trappers and Hunters	...	...	...	...	...	...	...	...	...	...
Craftsmen and Production Workers	101	3	83	...	170	2	48	...	674	43
Miners and Related Workers	2	...	4	...	9	...	47	...	14	...
Labourers (3)	87	...	18	2	32	...	20	...	153	13

(1) Excludes a few persons seeking work who have never been employed. (2) Includes persons not reporting occupation. (3) Labourers—Includes workers in "unskilled" occupations, except those engaged in farming, mining, fishing and logging operations.



and farm workers, that is 41% of all workers in the census division, or about double the provincial average.

If the remainder of the working force is arbitrarily divided into "manual workers" and "others", there are in the former some 6,276 or 25% of the total, and in the managerial, professional, clerical, sales, etc., about 8,504 or 40% of all workers.

Industrial workers are not classified as such, and it will be noted from the tables that the inclusive nature of certain classifications, e.g. "loggers, fishermen, trappers and hunters", "labourers", etc., does not readily permit such a segregation. In dealing with certain specific industries later in this report, an attempt has been made to indicate the possible number of workers involved.

## MATERIAL RESOURCES

Material resources related to the land may be dealt with under two general categories—the dormant resources, chiefly minerals, found in and below the surface of the land, and the growing resources directly related to the fertility of the land. The vegetation and animal life included in the latter, whether of the forest or agricultural is largely dependent for the degree of its economic value on timely precipitation, or other watering. In particular, the people and their habitations are vitally dependent on an adequate supply of good water. The large rivers and the number of lakes in the Central Peace Area seem to assure sources from which to develop such supplies.

Proper water supply is also directly necessary for many industrial purposes and is as well an energy source in developing steam or electric power. Other energy producing material resources in the area under discussion are, of course, petroleum and natural gas and coal.

In addition to these minerals there are the well-known iron ore deposits, as well as a few industrial minerals including silica, and the by-products of natural gas extraction such as sulphur and the liquid hydrocarbons.

Of all the material resources named, the productive land is the most valuable asset of this area with primary relation to agricultural products and in a secondary manner to products of the forest.

Certainly there are several forms of energy from which power can be generated. Certainly the impact of a metallurgical industry derived from the iron ore deposits will have a definite favourable impact on the economy of the Central Peace River District in Alberta. Certainly the advent of a large forest industry, such as a pulp and paper mill, will likewise have considerable effect on the area in which it is located. However, it will be the products of agriculture and agricultural

The second table (P-2) shows the structure of the labour force in five selected centres, with the percentage of the total population of each centre represented by these workers, which is somewhat higher than the overall average of 33% for Census Division 15.

As the northern part of Census Division No. 15 is largely unsettled it may be estimated that the labour force in the Central Peace River District is close to the provincial average of 37.5% of the population. In 1961 this would have meant 22,130 persons, and using the same figure in 1964 would be about 24,200 persons. Using the same basis as an indication (but not an estimate) of the size of the general labour force in 1981 (excluding new major industries) we would then have from 34,000 to 38,000 workers in the Central Peace River area.

by-products which will continue to be the main source of money through greater production, specialization, and expanded markets. In this connection, secondary and service Industries will keep pace with the increase in agricultural products and output.

However, the economy of this section of the Peace River area is, (apart from agriculture) very dependent on resources lying on its periphery and outside the area presently under survey.

The material resources mentioned above and certain of their products are dealt with in separate sections of this report, in relation to the industries and services related to them, as follows:

- Agriculture and Agricultural Products and Services
- Forests and Forest Industries and Services
- Energy Resources and Power
- Construction and Structural Materials

Additional sections deal with two other important industries:

- Transportation and Communication
- Tourism.

The importance of other medium-sized wood and metal industries, machine shops, etc., to supply demands within the district for construction, special equipment, small materials, and repair services should not be lost sight of. Agricultural and farm equipment, logging equipment, oil and natural gas exploration and production operations, the construction industry, and all automotive equipment require constant maintenance and repairs, and supplies of parts. As agriculture and the other larger industries grow the requirements for local services of every kind will do likewise and many opportunities will arise for expanding present small industries, machine shops and other such activities.

NOTE (a)—When discussing agriculture in general terms it is felt permissible to use data related to the whole area comprising Census Division No. 15 or Agricultural Reporting Area No. 7 because over 90% of all the commercial farms are located in the Central Peace River District.



# AGRICULTURE AND AGRICULTURAL PRODUCTS AND SERVICES

As has been noted previously in this report, agriculture and agricultural by-products are and will continue to be, the greatest economic factor in the Central Peace River District in the foreseeable future.

The fundamental factors with reference to climate and general land use have been dealt with in the Introduction of this Report. There is no doubt that this area offers good opportunity for many types of farming with the aid of highly developed government assistance to a large extent located on the spot and in Edmonton, with plenty of arable land available but depending for success as always on individual effort and initiative.

Over half of the total land in the area under discussion in this Report, is presently classed as farm land, or is open for settlement, that is some 6,260,000 acres. Much of the 2,350,000 acres open for settlement is close to main roads and the railroad. All of it is relatively accessible due to the good general system of roads and highways in the area. About 30% of the land presently open for settlement is classed as arable with soils suitable for agricultural development so that in total, there is now some 4,500,000 acres of agricultural land of which about 1,000,000 acres is woodland, about 1,000,000 acres is unimproved, and the balance, 2,500,000 acres, or over 58% is classified as improved. Over 1,800,000 acres of the improved land was under crops in 1961, 560,000 acres was in summer fallow and the remaining 166,000 acres in pasture and so on.

Although the total number of farm operators in Census Division No. 15 (Note (a)) decreased from 9,563 in 1956 to 8,955 in 1961, the total area farmed had increased by nearly 350,000 acres in 1961, and the average farm size was 485 acres with 6,800 of the farms (over 75%) of a size from 240 acres to 1,120 acres. About 78% have electrical power, which is available to all farm operators.

The total improved land in this area represents about 10% of all improved land in the province of Alberta and the land under crops and summer fallow is almost exactly 10% of the Alberta total.

This extensive use of land for agricultural purposes indicates its predominant position in the economy of the area which for the purposes of this report is dealt with as the Commercial Farming Industry and in the following main categories—

## GRAIN AND SEED CROPS

including—

- Wheat, barley, oats and hay
- Oil seeds
- Grass and Legume seeds.

## VEGETABLE FARMS

including—

- Potatoes, turnips, carrots and onions
- Cabbage, tomatoes, corn and cucumbers.

## LIVESTOCK

including—

- Cattle, hogs and sheep
- Dairy farming
- Poultry and poultry products.

and such Specialties as—

- Honey
- Fur farming and
- Commercial fishing.

No attempt has been made to deal in detail with such topics as the use of power and other equipment for the land, the use of electricity in farming, new livestock methods, and the effect of technological changes on agricultural techniques. The Provincial and Dominion Departments of Agriculture in all their branches and field services are constantly carrying on research and investigation in these fields and the farmers themselves are generally well informed in these matters. Our government services are most progressive in developing new grains and other crops, new breeds of livestock and better productivity and farming methods, all of which greatly benefit the economy of the agricultural industry.

It is, therefore, appropriate that some features of the work of the Departments of Agriculture in the Central Peace River District should be mentioned here.

The Dominion Department of Agriculture provides many services and a great deal of information through its various branches.

However, the Canadian Agricultural Research and Experimental Farm located at Beaverlodge carries on work of a high calibre in a broad field. This work includes the development of earlier, hardier and more productive cereal, forage, oilseed and horticulture crops, including soil studies and the development of land for pasture and hay, the management of livestock and legume pollination. The many specific recommendations from this source have been of very great benefit to the farmers in the Central Peace River District.

\* \* \*

Our Alberta Government has, in its Department of Agriculture, one of the most capable and comprehensive organizations in Canada for direct services and attention to the local needs of farmers in each district.

There are five District Agriculturists in the Peace River area, with offices at Grande Prairie, Fairview, Berwyn, High Prairie and Spirit River. The offices at Grande Prairie and Berwyn also have a Home Economist on the staff and an Agricultural Engineer is stationed at Grande Prairie.

Each District Agriculturist Office is a miniature version of the whole Department of Agriculture and

NOTE: It is of course realized that fishing is not an agricultural activity and it is dealt with here because of its close relationship to fur farming. Both of these commercial activities are chiefly carried on outside the area under discussion but as the west end of Lesser Slave Lake is within the area, advantage of this has been taken to deal with furs and fishing.



keeps a supply of publications which are readily available to farm families.

The primary purpose of each district staff is to give information, advice, and guidance on any agricultural problem, particularly towards more economic farm operation in all aspects in farm land development and management, crop production, livestock methods, etc. In doing so, he and each farmer in the area can utilize the knowledge of specialists at the Department of Agriculture, the experimental farms, and the University, in land utilization, water resources, field crops, livestock, dairying, poultry, fur farms, veterinary services, and farm and home economics.

A Vocational and Agricultural College at Fairview, operating on a tri-semester basis has about 150 students per semester and provides one and two year courses for young men and women in farming and home making.

The Alberta Water Resources Branch is doing much work on flooding problems and is taking active steps to alleviate these. Likewise, the Groundwater Division of the Alberta Research Council is concerned with all aspects of sub-surface water. The Prairie Farm Rehabilitation Act Administration is also active in the area.

Agricultural Service Boards, with full time supervisors, deal with agricultural matters within the County or Municipal District, and carry on improvement programs, in which the cost is shared with the Department of Agriculture.

There are seven Agricultural Societies in the Peace River area which conduct agricultural fairs; seed shows; horticultural shows; 4-H Club activities and purebred livestock shows and sales.

#### GRAINS AND SEED CROPS

Cultivated land and value of crop production has risen and is estimated to continue to rise as follows:

Year	Under Cultivation	Gross Production Value
<b>Actual (a)</b>		
1956	1,515,450 acres	\$31,500,000
1961	1,780,000 acres	\$40,900,000
<b>Estimated</b>		
1971	2,400,000 acres	\$52,500,000
1981	3,200,000 acres	\$70,300,000

Between 1956 and 1961 land under crop in the Alberta Central Peace River area increased some 264,000 acres or 17% in 5 years, an average of 3.2% per year. Further increases for 1971 and 1981 have been calculated at the same rate.

Estimates of future increases in production are, of course, based on inducing increased productivity in the area presently under cultivation as well as bringing new land under cultivation. The latter may include unimproved land in the present settled area and the opening and settling of other arable areas which are available for this purpose. These increases could be affected by any substantial settlement of farm land outside the area, particularly along the Great Slave Lake Railway to the north.

The principal grain and seed crops produced in Census Division No. 15 and principally in the area

under survey are shown below, with details as to approximate production and farm values for the year 1961—

Grains	Total Production	Farm Value
Wheat	9,000,000 bus.	\$12,600,000
Oats	13,200,000 bus.	7,500,000
Barley	15,750,00 bus.	12,600,000
Flaxseed	930,000 bus.	2,600,000
	Sub-Total	\$35,300,000
Forage Seed Crops	Total Production	Farm Value
Rapeseed	124,215,000 lbs.	\$3,450,000
Creeping Red Fescue	13,427,000 lbs.	1,611,000
Alfalfa	1,529,000 lbs.	306,000
Sweet Clover	2,565,000 lbs.	200,000
Alsike Clover	3,817,000 lbs.	380,000
Red Clover	1,351,000 lbs.	160,000
Brome Grass	4,146,000 lbs.	250,000
	Sub-Total	\$ 6,357,000
<b>Total Field Crop Farm Value</b>		<b>\$41,657,000</b>

Wheat acreage has been increasing at the rate of 3.4% annually. Barley acreage has remained fairly constant. With increased livestock production, barley is expected to increase in production in future years. Production of oats and flaxseed has been declining at the rate of 6.5% annually on an acreage basis.

The production of grain has in general remained fairly constant, due in great part to heavy production, quota restrictions and a highly competitive market.

\* \* \*

In contrast, forage seed crop production has been increasing steadily. Production of rapeseed, which is a relatively new venture increased from approximately 3,860,000 lbs. in 1956 to 124,215,000 lbs. in 1961. (Approximately 64% per year average.) All other seed crops combined increased at an average of 13.6% per year. The present production represents over 50% of Alberta's total forage seed production.

The major grass seed crops grown in the area with percentages of Canadian production are as follows:

Variety	% of Canadian Production
Creeping Red Fescue	nearly 100%
Brome grass	35%

Timothy, bluegrass, Russian wild rye and crested wheatgrass are reliable seed producers in this area but so far have not been exploited to any extent by farmers.

The major legume seed crops grown in the area with percentages of Canadian production are as follows:

Variety	% of Canadian Production
Alfalfa	40
Sweet Clover	20
Red Clover	50
Alsike Clover	70

As indicated above, the Peace River District is therefore one of the major forage seed production areas in Canada.

With new and expanding European markets, the demand for grass seed is increasing steadily with prices remaining firm. The high quality seed produced

NOTE: (a) Based on Alberta Department of Agriculture—Farm Economics Branch data.



in the Peace River region has placed it high on the list. Since the area is obviously capable of supporting a larger forage seed industry, the development of new areas can increase both the quality and quantity of forage seeds, and it is evident that the future for this industry can be viewed with considerable optimism. In the most part, the land is a bush covered, heavy textured soil which not only requires forage crops for fertility and conservation, but is also capable of supporting very satisfactory forage stands under almost perfectly sheltered conditions.

At present, seed produced in the area is sold (generally on a contract basis) to seed houses in Saskatoon, Edmonton and other distant centres. It would appear that there may be room for the establishment of one or more seed houses in the area where products could be readily marketed. Local capital might well be encouraged to enter into such a venture.

Special mention should be made of the importance of honey bees for pollinating the legume seed crops. Research at the Forage Crops Research Station at Beaverlodge has clearly demonstrated the importance of having adequate pollination for legumes recommending one-half to one colony of bees per acre. In this connection, commercial beekeeping has expanded in proportion with the legume seed industry. There are at present over 25,000 colonies in the area and there is need for more to serve the clover and alfalfa seed crops. (A special section of this report deals with honey.)

## VEGETABLE FARMING

On the north bank of the Peace River, there is an area of flat land running west from Peace River town along the Shaftesbury Trail in the river valley to Dunvegan Bridge, which seems favourable for the production of substantial quantities of fresh market vegetables. There are a number of market gardens in this area at present, some of which are producing good qualities of vegetables for the local market. Corn, cucumbers, and tomatoes are grown in fair quantities in the area.

Potatoes have, of course, been grown in many parts of the whole Peace River district for many years and the potato acreage in the area is consistently between 1200 and 1300 acres or about 6.2% of the provincial total.

However such staple vegetables as carrots, turnips cabbage and onions could be produced in larger quantities to fill not only the needs of the Peace River area both in British Columbia and Alberta, and the North West Territories markets but also for larger market areas such as Edmonton and further afield where the concentration of consumption is high.

To indicate possible consumption trends and the acreage requirements and value of production to supply such markets, three tables have been prepared, as follows:

### REFERENCES

- (1) "Production and Potential Production Forage Crop Seeds in the Peace River Area"—C. R. Elliott—Research Station Beaverlodge, Oct. 1964.
- (2) "Research Highlights, 1963—Experimental Farm Beaverlodge, Cereal and Oilseed Production—Peace River Area—A. A. Guitard and D. G. Faris.

Table V-1 Vegetables—Estimated Total Annual Consumption for certain populations. Page 19.

Table V-2 Vegetables—Estimated Total Annual Value of Consumption for Certain Populations at Average Alberta 1962 Farm Prices. Page 20.

Table V-3 Vegetables—Estimated Acreage Requirement to Supply Certain Populations. Page 21.

It is not suggested that all of these potential requirements can immediately be supplied from the Peace River district. Moreover, vegetable growing is considered more risky than most other types of farming. A person growing vegetables should be prepared to spend a good portion of his time watching the development of the crop as it is not uncommon for a grower to lose all or part of a crop through insect or disease damage or because of insufficient care and attention to it.

It has been reported to us that experts in this field do not favour dry land farming of these intensive type crops. Following cost studies which were made in the State of Illinois it was found that irrigation was economically far superior to dry land vegetable farming. This, despite the fact that Illinois gets a yearly average of 47 inches of rain while in this part of the Peace River District the average is about 18 inches.

Temperatures and illumination appear favourable to vegetable production. In readings taken in this area, the average daytime temperature for two growing seasons was 4.4 degrees higher and the average night time temperature 1.0 degrees higher than those recorded in the general farming area 800 feet higher up and beyond the brim of the river bank. The long term daily mean temperature would, therefore, average nearly 63°F, (which is approximately the same as Lethbridge and Brooks although our area has about 6 to 15 less frost free days). However, another important factor in plant growth, the hours of illumination, is greater in the Peace River area than in the South.

The acreage requirements indicated in Table V-3 seem large enough to justify irrigation. Moreover, the advent of the new jail farm in the area may provide an economical basis for experiments in co-operation with the proper Provincial, University and Federal services to determine the best growing conditions for and economic feasibility of the different types of vegetables.

In order to give some idea of the difference in costs under dry land and irrigated land conditions Table V-4 on page 22 is included showing comparative figures for potatoes, on farms of 100 acres or less. The increase in yield with irrigation is very marked and with a consequent lower cost of \$3.76 per ton.

TABLE V-1

## VEGETABLES—ESTIMATED TOTAL ANNUAL CONSUMPTION FOR CERTAIN POPULATIONS

VEGETABLE	CANADIAN Per Capita Consumption 1962	PEACE RIVER DISTRICT AND SURROUNDING AREA		EDMONTON AREA MARKET at Populations of			
		100,000	175,000	300,000	400,000	600,000	1,000,000
		(thousands of pounds)		(thousands of pounds)			
Potatoes	143.4	14,310	25,043	42,930	57,240	85,860	143,100
Tomatoes	17.8	1,780	3,115	5,340	7,120	10,680	17,800
Carrots	17.7	1,770	3,098	5,310	7,080	10,620	17,700
Onions	12.2	1,220	2,135	3,660	4,880	7,320	12,200
Cabbage	9.1	910	1,593	2,730	3,640	5,460	9,100
Corn	3.0	300	683	1,170	1,560	2,340	3,900
Turnips	4.2(a)	420	735	1,260	1,680	2,520	4,200

## NOTES:

(a) Estimated average Alberta per capita consumption for 1955/60 inclusive.

(b) No allowance has been made for any future changes in per capita consumption of vegetables.



TABLE V-2

VEGETABLES—

ESTIMATED TOTAL ANNUAL VALUE OF CONSUMPTION FOR CERTAIN POPULATIONS AT AVERAGE ALBERTA 1962 FARM PRICES

VEGETABLE	Average Value per 1000 lbs.	PEACE RIVER DISTRICT AND SURROUNDING AREA			EDMONTON AREA MARKET		
		100,000	175,000	300,000	400,000	600,000	1,000,000
	\$	\$	\$	\$	\$	\$	\$
Potatoes .....	15	214,650	375,650	643,950	858,600	1,287,900	2,146,500
Tomatoes .....	150	267,000	467,250	801,000	1,068,000	1,602,000	2,670,000
Carrots .....	30	53,100	92,940	159,300	212,400	318,600	531,000
Onions .....	60	73,200	128,100	219,600	292,800	439,200	732,000
Cabbage .....	30	27,300	47,790	81,900	109,200	163,800	273,000
Corn .....	50	19,500	34,150	58,500	78,000	117,000	195,000
Turnips .....	20	8,400	14,700	25,200	33,600	50,400	84,000

TABLE V-3

VEGETABLES—ESTIMATED ACREAGE REQUIREMENT TO SUPPLY CERTAIN POPULATIONS

VEGETABLE	Approximate Yield per acre	PEACE RIVER DISTRICT AND SURROUNDING AREA to supply populations of			EDMONTON AREA MARKET to supply populations of		
		100,000	175,000	300,000	400,000	600,000	1,000,000
	(pounds)	(estimated acres)			(estimated acres)		
Potatoes .....	12,000	1,200	2,100	3,600	4,800	7,200	12,000
Tomatoes .....	19,000	95	170	285	380	570	950
Carrots .....	15,570	115	200	345	460	690	1,150
Onions .....	6,850	180	310	540	720	1,080	1,800
Cabbage .....	18,220	50	90	150	200	300	500
Corn .....	6,500	60	110	180	240	360	600
Turnips .....	22,000	20	35	60	80	120	200

**TABLE V-4**  
**ALBERTA**  
**COSTS OF PRODUCING POTATOES, PER TON**  
**On Farms of 0 to 100 Acres, 1962**

	5.32	8.24
	(dollars)	
Average yield per acre .....	5.32	8.24
<b>VARIABLE COSTS PER TON</b>		
		(tons)
Fuels and lubricants .....	1.10	1.06
Annual repairs, power equipment and machinery .....	2.16	1.50
License and insurance .....	0.34	0.14
Building repairs and insurance (potato buildings only) .....	0.22	0.44
Custom work hired .....	0.46	0.12
Labour hired .....	4.27	4.10
Seed .....	3.66	2.75
Fertilizer .....	0.87	0.82
Sprays (weed, insecticides, disinfectants, etc.) .....	0.38	0.23
Containers .....	1.48	2.41
Electric power and telephone .....	0.18	0.19
Other .....	0.07	0.17
Interests on working capital .....	0.53	0.49
Total variable costs .....	15.72	14.42
<b>FIXED COSTS PER TON</b>		
Interest on investment		
Equipment (potato share) .....	1.38	1.22
Buildings (used for potatoes) .....	0.52	0.25
Depreciation		
Equipment (potato share) .....	4.12	2.76
Buildings (used for potatoes) .....	0.73	0.43
Land taxes plus land rent .....	1.75	1.22
Water rate .....	.....	0.26
Total fixed costs .....	8.50	6.14
Total Variable costs .....	15.72	14.42
Total costs per ton of potato (excluding return to land, operator's labour and management) .....	24.22	20.56

**REFERENCE:**

The Economic Analyst, June 1963. Potato Industry in Alberta, 1962 (Part II Costs of Production at Different Scales of Operation—E. E. R. King.



The size of the indicated markets seems sufficient to warrant development of a larger vegetable growing industry in the district, particularly in the Shaftesbury Trail area mentioned above.

Obviously the present production cannot begin to meet the demand of the local market, However, with the full exploitation of vegetable production in the area equipped with proper storage facilities, local and other markets in the north could be kept in supply at least eight months and probably ten months of the year. Certain vegetables cannot be stored for a long period of time and must be sold immediately after harvest. These are, tomatoes, cucumbers, corn and others. Cabbage can be stored for approximately two months, carrots, three months, potatoes, turnips and onions, six to seven months.

At the present time vegetables, fresh and canned are being imported from southern Alberta and the United States. There is no reason why the area under survey should not become at least self supporting in staple vegetables.

There appears to be a great potential for the production of vegetables for the fresh market and for canning in the area under survey. The potential production has only been touched slightly, possibly because of the high initial capital costs facing a newcomer.

In our opinion, there exist good opportunities for the expansion of this industry and with the full exploitation of the area, production will certainly warrant the establishment of a cannery in future years.

This would provide the vegetable farmer the opportunity to raise beans, peas, beets, brussel sprouts, cauliflower and other vegetables in large quantities for processing.

During the initial stages a newcomer might be well advised to raise some livestock (cattle, hogs, chickens) to provide year round revenue. This would also enable him to feed excess vegetables which cannot be sold commercially to his livestock.

## LIVESTOCK

According to 1961 census figures the following livestock was being raised on farms in Census Division No. 15.

	No.	Value	No. Farms
Cattle .....	116,178	\$14,808,107	1,426
Pigs .....	114,497	2,749,057	3,104
Sheep .....	20,071	321,599	487
Goats .....	528	23,760	196
Chickens .....	522,592	394,604	4,752
Turkeys .....	18,127	83,966	1,039
Ducks .....	1,293	2,586	229
Geese .....	3,589	10,896	545
Horses .....	8,809	713,529	2,803
Total Value of Livestock		\$19,108,104	

There were 5,738 farmers engaged in raising cattle and/or pigs and/or sheep in 1961.

The following fluctuations in livestock population are recorded for the years 1961 and 1964.

	1961	1964	Average Annual Increase or Decrease
Cattle .....	116,178	127,600	+2.9%
Pigs .....	114,497	81,000	-9.7%
Sheep .....	20,071	17,500	-4.2%
Chickens .....	522,592	495,000	-1.7%
Horses .....	8,809	6,500	-8.7%

It will be noted that increases in population are recorded in cattle with decreases in all other livestock.

Hog population which increased from 87,026 in 1956 to 114,497 in 1961 (an average annual increase of 6.3%) has decreased in recent years as indicated below.

1961	1962	1963	1964	Average Annual Decrease
114,497	86,000	83,000	81,000	9.7%

The decrease, particularly in 1962 (24.8%) resulted from a poor crop year, with shortages of feed which compelled the farmers to market their hogs. The ensuing years also produced below average crops, causing a steady decline in hog population. It is fully expected that this trend will be reversed in the next few years.

Sheep production which marked sharp increases from 1956 to 1961 (16.2% per year) has been decreasing steadily since that time at a rate of 4% per year. Sheep are not raised on a large scale as they require constant care and, if left on the open range, are subject to heavy losses to predators. Sheep production, therefore, forms a very small part of the livestock production in the area. In general, it is operated as a sideline by farmers. The market, however, is very steady, as only 25% of consumption is produced in Canada, the balance being imported from the United States and other countries.

There are an estimated 25,000 to 30,000 cattle marketed from this area annually (480/500 per week) with values between \$4,700,000 and \$5,000,000 per year. Approximately 120,000 to 130,000 hogs are marketed annually (2,300 per week) with market values of \$4,000,000 to \$4,500,000 per year. In brief, present livestock production exceeds \$9,000,000 annually.

Although these figures might appear to indicate that the operation of a meat packing plant in the area could prove economically feasible, the present consumption in the area alone does not represent a profitable market, and it would be impossible for a packing plant with low production to compete with the large plants in Edmonton and other markets at the present time. However, such a venture may well be feasible in the future when the population of Northern Alberta, British Columbia and the Northwest Territories is large enough to fully support an integrated meat packing plant of at least minimum economic size.

The Federal Department of Agriculture in a recent forecast predicted that an additional 15,000,000 acres



of land will be needed by 1980 to feed and carry the necessary additional cattle to meet the demands of the Canadian consumer. This will mean increasing the present Canadian cattle population by some 6,500,000 head which indicates a bright future for cattle raising during the next twenty years. The area under survey has proven quite suitable for cattle raising which, with the ample land available for the purpose, could provide for a larger and profitable cattle production.

#### DAIRY FARMING

There are no large dairy farms in the area under survey and the supply of raw milk from present producers appears to be adequate to meet the needs of established dairies and to satisfy local consumption.

No doubt, as the population increases larger dairy farms will develop to provide the dairy plants with an assured supply of milk. This could make feasible the establishment of a cheese and butter factory to serve the needs of the local market and the Northwest Territories.

#### POULTRY

On farms in Census Division No. 15 the poultry population over the past eight years has varied as follows:

TYPE OF POULTRY	Actual		Estimated (June 1st)	
	1956	1961	1963	1964
Total Hens & Chickens	546,200	522,600	445,000 (a)	495,000 (a)
Hens & Pullets only (6 months & over)	179,980	163,630	165,000	170,000
Pullets (2 to 6 months)	(not available)		25,000	30,000

Although these figures show a decrease in total poultry from 1956 to 1963, recent trends in hens and pullets have been upwards and particular attention is called to the pullets aged from two to six months. There were also about 15,000 turkeys in the area in both 1963 and 1964. The great majority of all these fowl were in the Central Peace River District.

The bulk of present poultry production is devoted to the raising of layer hens for egg production and this production appears to exceed the demand as a good supply is shipped to the Northwest Territories, largely from the Fairview area.

The domestic per capita consumption of poultry in Canada averaged 22 lbs. in 1959 to 1961 in addition to which the consumption of turkey meat averaged seven lbs. per capita. The consumption in Alberta and the Peace River district may be somewhat less than this.

The present population of the Peace River district may consume about 1,200,000 lbs. of chicken meat and 350,000 lbs. of turkey annually.

The greatest demand on the Alberta market today is for fryers (two to four months old), the average weight of which is three to four lbs. live and three lbs. eviscerated. On the basis that local demand is in line with the provincial average, production of this type would have to be increased some 400% to meet local needs. In comparison the market for broilers and roasters is greatly reduced. (b)

Poultry farmers who would expand their efforts in the production of fryers without disturbing the number of laying hens and to raising additional turkeys should find a ready market for these products.

### HONEY

The Central Peace River District is one of the finest honey producing areas in Canada and probably in the world. Not only is the quality of Peace River honey of the highest order, but the yields per colony are the highest in Canada.

The combination of ideal weather conditions during the producing season and the predominant clover crops and other legumes, particularly in the vicinity of Falher and Girouxville and the area surrounding Beaverlodge, and to a lesser extent the Wanham-Spirit River and Fairview-Hines Creek areas—have resulted in a well organized industry of large-size commercial beekeeping units totalling about 25,000 colonies.

Peace River honey yields average 180 to 240 pounds per colony compared with a national average of 130 to 140 pounds and the product is so clear and white that some who have seen it have difficulty in believing it is not bleached. The net yearly return for an efficient beekeeping operation in this district is distinctly higher than elsewhere in the country. Naturally the number of colonies in the Peace River district is increasing each year and the production in

1963 was approximately 4,500,000 pounds valued at \$650,000.

Operating costs in Alberta average \$12 to \$14 per colony and overhead including depreciation may be from \$3 to \$5 per colony, so that good management and an experienced beekeeper can usually result in good profits.

However, to take full advantage of the finest quality and large yields a high grade specialty market might well be developed, in densely populated areas with comparatively large consumptions of higher priced delicacies.

Naturally, additional expense is involved for equipment, jars, or cans, packaging and transportation, as well as the question of where and how packaging should take place. In particular, a distinctive well-recognized package and labelling would be necessary.

Such specialty food markets exist in the larger centres in Canada, United States and overseas. There is a large consumption of honey, for instance, in the Los Angeles area where the higher priced white

(a)—Estimates of Alberta Department of Agriculture, Farm Economics Branch.

(b)—Based on information obtained from the Poultry Division, Alberta Department of Agriculture.



honey in jars and cans sells at the wholesale level at prices from 40c to 50c per pound. Costs in Alberta before packaging are said to average 10 cents per pound and the price of bulk honey at farmers' extracting plants averages 14 to 15 cents including containers. It is understood that special containers and packaging may cost 6 cents and advertising and selling costs would be high.

The published freight rate for honey in metal cans, boxed, from Grande Prairie to Edmonton in capacity truckloads is 50 cents per 100 pounds.

To Toronto which is about the same distance from Edmonton as Los Angeles the agreed charge on canned goods is \$2.34 per 100 lbs. or say three to four cents per pound of product.

An establishment with 1,000 colonies averaging 200 pounds each would produce 200,000 pounds of honey. As a very rough estimate of what might be involved in producing honey for the high priced package market, we have listed the following:

	Cents per lb.	Total Dollars Low	Total Dollars High
Operating Costs	10-12	\$20,000	\$24,000
Containers and Packaging	5-7	10,000	14,000
Freight	3-4	6,000	8,000
Contingencies	2-3	4,000	6,000
Total	20-26	40,000	52,000

Advertising and Selling (25%)	5-7	10,000	14,000
		\$50,000	\$66,000
Sales of 200,000 lbs. at wholesale			
Prices, 40c - 50c less 10%		72,000	90,000
Possible Margin		\$22,000	\$24,000

On this basis, sales of one quarter of the Peace River honey crop (say 1,250,000 lbs.) to such markets would gross \$500,000 and net approximately \$144,000 compared with a gross of \$162,500 for the same quantity in 1963 and an apparent maximum net of \$56,000.

Both Canada and United States have an average per capita consumption of two lbs. of honey with higher than average consumption in larger centres. With 18 million people in California, the total consumption of honey would be 36 million pounds and one quarter of the Peace River honey production represents less than 3½% of that market. There are also other high density market areas both in United States and Canada.

It would seem well worthwhile investigating thoroughly what appears to be a profitable venture. The quality of the product and the volume of production are already assured. High quality Peace River honey should be quite as saleable as B.C. apples.

## FUR FARMING

### MINK

While production of other types of furs in Canada which reached a high of approximately \$33,000,000 in 1946 have steadily declined to \$8,000,000 in sales in 1961, mink sales, which were at \$10,000,000 in 1946 rose steadily to \$20,000,000 in 1961 or nearly 70% of the Canadian total. The demand for mink has thus shown a steady and healthy increase over the years and it is expected that this trend will continue within the foreseeable future. The market for mink is world wide in scope and sales are made through competitive bidding by buyers at seven fur auction houses situated across Canada.

Mink to be pelted are raised in the months of May to November and auction sales are held in December. Canadian fur ranchers not only produce high quality mink but are generally ready to market them two weeks ahead of their United States competitors. This provides them with a decided advantage. The auction houses in Canada are able to hold the "first" auction sale of mink pelts each year and are thereby able to attract world buyers to this sale well ahead of their U.S. competitors.

In the 1961-62 season, 80,439 pelts were produced in the Lesser Slave Lake area. In the 1962-63 season production rose to about 92,000 pelts.

With this market outlook, further expansion of this industry in the area under survey seems practical. To establish one new basic economic unit (say 350 females plus breeding stock) would require capital of from \$12,000 to \$16,000 estimated as follows:

Basic Economic Producing Unit (400 animals)	\$ 6,000
Feed (average \$6.25 per animal per year)	2,500
Other operating expenses	1,000
Preliminary sheds or buildings, etc.	2,500
	\$12,000

On this basis, a mink rancher could not expect a profitable return for at least one year during which feed and operating would cost \$3,000 to \$4,000. However, one ranch may have any reasonable number of mink and costs will be reduced accordingly, and a rancher can also borrow \$5 to \$10 per "kit" (one baby mink) from certain fur auction houses, on the understanding that his pelts will be sold through that particular outlet.

The cost for producing mink (national average) is between \$10 and \$12 per pelt. Because of the high quality of Alberta mink, they have been commanding a higher price than the national average of \$17 a pelt.

\* \* \*

Any expansion in mink farming is primarily dependent on food supply. At present the only source of supply in the area is the very desirable Tullibee fish caught from the Lesser Slave Lake. It is reported that the lake is being exploited to its full capacity and the Tullibee catch which averages 3,075,000 lbs. per year is not sufficient to fully satisfy the needs of the local mink ranchers. As a result 7 to 8 million pounds of fish (of species less desirable for mink food), are imported from more distant points, mainly from Prince Rupert, B.C. However, with the completion of the



Great Slave Lake Railway and improvement of the MacKenzie Highway, the possibility of obtaining Tullibee from Great Slave Lake in the North West Territories should be explored. It is understood that fishermen at that lake do not bother to keep Tullibee and throw them back in the lake. This has the effect of reducing the yield of the primary catch, whitefish, and lake trout, and of overstocking the lake with Tullibee and other coarse fish.

In 1962 the total catch of whitefish and trout at Great Slave Lake was 5,992,000 lbs. Of this total 3,120,000 lbs. were taken from the waters adjacent to Hay River. It is impossible to know exactly how large the Tullibee catch would be as the fish netted and thrown back are not recorded. We understand that it is substantial.

It is estimated that Tullibee can be loaded at Hay River for a cost of 4½c per lb. and that freight from this point to Lesser Slave Lake would amount to approximately 1c per lb., with a total average cost of from 5c to 6c per lb. at Lesser Slave Lake.

The transportation of Tullibee and other coarse fish from Great Slave Lake would appear to have two

great advantages. It would provide the mink rancher with a cheap source of needed feed supplies, and eliminate the necessity of importing fish from far distances. It would also provide the fisherman at Great Slave Lake with a ready market for his coarse fish and thereby reduce the need to discard them and at the same time improve the whitefish and trout stocks in the Lake.

#### CHINCHILLA

The possibility of raising Chinchillas on a commercial basis in the area under survey merits investigation. There is a ready market for this luxury fur and production is increasing in Canada. The first recorded sale of Chinchillas took place in 1944 when five pelts brought a total of \$78. In 1960 there were 9,067 pelts sold, with a total value of \$118,416.

Chinchillas' main diet consists of grains and forage crops, therefore feed is not a major problem. We understand that they are easier to handle than mink, though major costs are about the same.

Commercial production of Chinchillas would appear well adapted in relation to the major seed and forage crop areas of the Peace River District.

### COMMERCIAL FISHING

Commercial fishing in the area is generally confined to the Lesser Slave Lake which has an area of 462 square miles. There are a few small lakes which have been partly exploited but production is negligible because of lack of proper transportation, cold storage facilities and other major factors. As these areas become more accessible the possibility of commercial fishing can be surveyed.

The annual production of fish in Northern Alberta is about 5,500,000 lbs. of which Lesser Slave Lake supplies 4,357,000 lbs. During the past ten years production reached a peak in 1961 of \$6,974,225 lbs. with a low of 2,354,289 lbs. in 1964. The largest catch is Tullibee which accounted for 3,075,000 lbs. annual average during the past ten years with a top catch of 4,694,815 lbs. in 1961. The balance of the average annual catch is in the following varieties:

Whitefish .....	788,660 lbs.
Pickrel .....	290,870 lbs.
Pike .....	81,620 lbs.
Perch .....	29,660 lbs.
Other Fish .....	91,950 lbs.

Sales have brought an average net income to the fishing industry in the area of \$235,000 to \$250,000 annually.

Tullibee is sold locally to mink ranchers in the area. The other varieties, particularly whitefish and pickerel, are exported to markets in the province and the United States. There are eight or nine fish packing plants in the area, chiefly packing whitefish. This industry at Lesser Slave Lake employs about 200 to 250 residents of the area for part of the year and most fishermen are engaged in other occupations such as farming, mink ranching, logging and other work.

It would appear that the potential of Lesser Slave Lake is being fully exploited to meet the demand of the mink ranchers in the area, who are somewhat dependent on the Tullibee catch from the lake for survival. There is some room for concern regarding this source of mink food as the production from the lake has fallen from an average of 5,000,000 lbs. annually for the years 1946 to 1955 to an average of 3,074,532 lbs. for the years 1955 to 1964. This matter has been dealt with in this report under Mink Farming.

### FOREST AND FOREST INDUSTRIES

There are a number of large and valuable forest producing areas in Alberta with good volumes of merchantable woods growing at a rate very favourable to modern logging methods. The forest regions of the province are divided into Divisions each composed of a number of Management Units in each of which the various species of wood have been classified and inventoried so that the volume of each type of merchantable wood is a matter of record.

A number of good forest areas are located in Northern Alberta which contains some 70 Forest Management Units in the Lac La Biche, Athabasca, Footner Lake, Slave Lake, Peace River and Grande Prairie Divisions plus three Metis Units. 64 of these are wholly located in Northern Alberta and six partially. All contain some 68,000,000 acres, two-thirds of which are classed as productive for forest purposes. The balance, consisting of swamps and water, scrub and muskeg land, is non-productive for forest purposes.



There are comparatively few Forest Management Units actually in the area being considered in the present survey, only six management units are wholly contained in the area plus a small part of two or three others, and part of two Metis colonies. However, the production from a number of additional forestry units to the south and east of this area subscribe substantially to the economy of it, and consideration has been given to this in the figures presented in this report. However, no consideration has been given to forest areas in Northern Alberta outside the boundaries of the district dealt with in this survey.

The forest land in the area under survey totals over 5,000,000 acres, of which 2,560,000 acres, both in and outside of managements are actually forested. Of the remainder, 1,320,000 acres are classified as brushland, and just over 1,000,000 acres are classified as non-productive. Some part of the latter, which includes swamps, may be useful for types of economic growth other than trees, such as peat moss, etc.

The volume of merchantable standing timber on these lands consists largely of white spruce, pine and poplar, with lesser quantities of black spruce and balsam fir, in quantities located as follows:

SAWLOGS (m.f.b.m.)	Peace River-Slave Lake-Colonies (within the area covered by this Report)		Metis Forest Division (complete)	Grande Prairie
	White Spruce 12" diam.	1,390,000	780,000	213,500
Pine 11" diam.	636,000	227,000	14,300	1,780,000
<b>TOTAL</b>	<b>2,026,000</b>	<b>1,007,000</b>	<b>227,800</b>	<b>4,542,000</b>

A grand total of 7,802,800 m.f.b.m. includes 5,145,500 m.f.b.m. of White Spruce and 2,657,300 m.f.b.m. of Pine.

#### PULPWOOD (cords)

White Spruce	4,920,000	2,024,000	567,000	9,485,000
Black Spruce	764,000	198,500	45,000	819,000
Balsam Fir	421,000	276,000	40,000	1,721,000
Pine	4,110,000	872,000	42,000	14,584,000
<b>TOTAL (Coniferous)</b>	<b>10,215,000</b>	<b>3,370,500</b>	<b>694,000</b>	<b>26,609,000</b>
Poplar	22,620,000	9,550,000	3,060,000	29,140,000

A grand total is 40,888,500 cords of coniferous pulpwood and 64,370,000 cords of poplar.

The annual cut allowed in Management Units is premised on maintaining an adequate reserve which with regrowth will maintain merchantable timber in perpetuity. There are, however, sizeable areas outside Management Units where the eventual use of the land is not wood production and the same regulation does not apply.

NOTE (a)—All of the Grande Prairie Forestry Division is included, the greater portion being south of the 55th parallel, also those parts of the Slave Lake Division which subscribe to the economy of the area and that part of the Peace River Division within the area covered by this report.

An estimate of the possible allowable annual cut in the area covered by this report follows. It is felt that these figures are on the low side but they will serve to illustrate our purpose.

	Sawlogs (m.f.b.m.)	Pulpwood (cords)	
		Coniferous	Deciduous
Peace River	38,000	250,000	660,000
Slave Lake	19,600	85,000	225,000
Metis Colonies	4,200	18,000	85,000
Grande Prairie	89,764	665,000	833,000
<b>TOTAL</b>	<b>151,564</b>	<b>1,018,000</b>	<b>1,803,000</b>
		(2,821,000 cords)	

The actual timber production in the area (see NOTE (a)) at 1961 values is summarized as follows:

LUMBER (m.f.b.m.)	PLYWOOD (m.f.b.m.)	PULPWOOD (cords)			
		1954/59 (average)	1961 (actual)		
PEACE RIVER (part)					
4,240	3,900	nil	nil	44	nil
SLAVE LAKE (part)					
4,970	4,700	563	nil	nil	nil
METIS COLONIES					
5,820	5,000	nil	nil	900	nil
GRANDE PRAIRIE					
49,180	50,000	3,096	C4,403 D 640	141	25
<b>TOTALS</b>					
64,210	63,600	3,659	C4,403 D640	1,085	25

#### UNIT VALUES (APPROX. 1961)

\$36.23	C\$39.00 per m.f.b.m.				
per m.f.b.m.	D\$25.00 per m.f.b.m.	\$17.50 per cord			
<b>TOTAL VALUE</b>					
\$ 2,326,330	\$ 2,304,230	\$ 143,000	\$ C171,720	\$ 18,990	\$ 437
			D 16,000		

C: Coniferous

D: Deciduous

These figures (after adding small quantities of round timber, poles and ties cut in the same areas) total about 2,600,000 for the average year. It is to be noted that the estimated total allowable annual cut of sawlogs alone in the area at the same unit value would amount to nearly \$5,600,000 without including any over-mature pulpwood, etc. The pulpwood sizes are, of course, held for use in pulp and paper products.

It is therefore obvious that the full potential of the forests is not presently utilized—chiefly due to distances from markets consuming any large volume of lumber products and the absence of pulp-using industries.

\* \* \*

#### THE FUTURE OF THE FOREST INDUSTRIES

Looking towards the future, one of the main potential markets for forest products will continue to



be construction which will expand insofar as the local area is concerned in line with population increases. Markets outside the area offer good possibilities for expansion but substantial increases in the supply of lumber for any market are only likely to occur in the short term for special projects or at sacrifices in competition with competing building materials. In the long run, even though the price of lumber increases it may lose a part of its markets.

An exception to the general trend may be plywood, the consumption of which is likely to increase in the domestic market over the next few years and there may be good opportunities in this type of product.

Major increases are to be expected in the productions and consumption of pulp and the paper and paperboard products, due not only to increases in population but also to increases in the per capita demand. Overseas requirements for certain pulp and paper products are likely to increase, particularly as the nations, which have had a small per capita consumption in the past, increase their living standards. Countries of this type bordering the Pacific Ocean appear to offer the best possibilities for such products from Alberta and Northern British Columbia, as they presently do for producers of these products on the west coast of both British Columbia and the United States. The major obstacle to the establishment of pulp and paper mills in Alberta is of course the question of transportation costs to the major markets on this continent and to seaboard for overseas shipments.

Nevertheless, the possibility of a wood pulp mill and a second plywood plant in the Central Peace River district within the next five years can be anticipated.

#### PLYWOOD

The demand for plywood has been such that a second plant based on suitable wood in the Clear Hills area may be quite feasible.

Such an industry could employ from 100 to 150 people depending on its size and diversity of products with an annual payroll of \$350,000 to \$500,000 and using materials to a value of some \$700,000. The gross value of production of such an industry may be estimated at one and a half million dollars annually.

The number of persons employed would represent approximately 70 to 105 families and therefore a total population of 300 to 450. The commensurate requirements for food, clothing, personal services, as well as municipal and government services would add substantial economical impetus to the community in which the plywood plant is located.

#### A PULP MILL

The pulp and paper industry in Canada is the largest in the manufacturing category, the annual production of some 130 mills now being approximately—Pulp—12 million tons valued at \$800 million. Paper—9 million tons valued at \$1,200 million.

Nearly 3 million tons of pulp is exported annually to a value of about \$350 million. Newsprint is the chief paper product and about 6½ million tons are exported valued at some \$800 million.

As with wheat, the pulp and paper industry is largely dependent on world markets and competition in this field is tough.

There are a number of types of pulp and a great many kinds of paper products. It seems most likely that a bleached sulphate pulp mill would be the type of plant which could use the species of pulpwood available in the Grande Prairie Forest Division to the best advantage. Not only can this wood be converted into high quality pulp but high grade bleached sulphate sells at a higher price than most other pulps.

The economic effect of such a major enterprise on the local community and the whole area is very great. However, not all of the requirements of such an establishment are available locally.

A bleached sulphate mill of economic size, fully equipped and ready to start operations, would today represent a capital outlay of between \$60 million and \$70 million, excluding any townsite requirements.

A bleached sulphate mill with a capacity of 600 tons per day would produce about 200,000 tons a year with a value on the U.S. market of \$32,000,000 at today's prices from which must be deducted some \$5,500,000 for freight from the mill to destination.

Such a mill would require each year the following materials:

400,000 cords of pulpwood delivered at the mill	—8,400,000
Chemicals for pulp treatment and bleaching	—\$3,500,000
Fuel for power and heat (gas) from	—\$750,000 to \$1,500,000
Special materials, spare parts, supplies and repair materials over	—\$1,000,000

A pulp mill of this type and size would employ some 150 to 200 men permanently in its logging operations with seasonal employment based on 10 months operations up to 600 more. The mill operation would likely account for about 500 men on a year round basis. The total yearly average for all operations might be 1,000 employees representing an annual payroll of approximately \$6,000,000.

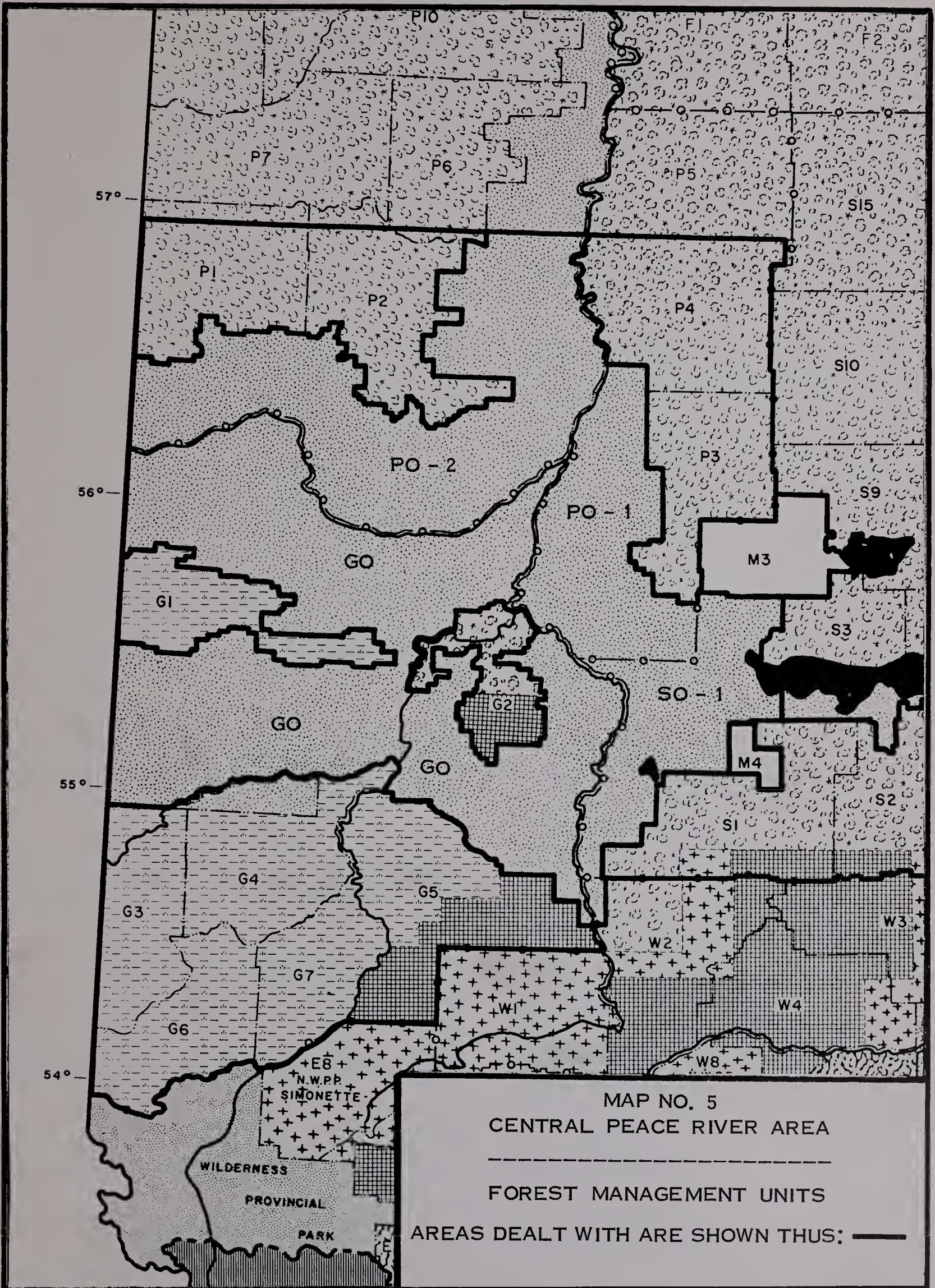
The advent of this industry in an area would involve a total of perhaps 3,500 additional people, including about 700 housewives and their children besides about 400 workers in the community retail merchandising, personal services and trades, finance and insurance, community and government services and so on. Another 500 to 600 workers could probably be added to industry and services elsewhere in the province and country.

It is estimated that annual retail sales alone would increase by over \$10 million in satisfying the needs of these additional workers and their families.

Nearly 1,000 new dwelling units would be required involving a whole new community of streets and services.

With these and other developments in view, greater utilization of the forest areas seems assured.









## CHRISTMAS TREES

The Christmas tree industry is very important in Canada. Total Canadian production has grown over 50% from 1949 to 1957 to over 16.5 million trees in 1963 and will continue to increase in line with growth of population. In 1963 approximately 282,000 trees were sold in Alberta; of this total an estimated 160,000 were imported from British Columbia. B.C. trees (Douglas Fir) are readily marketable as they have many desirable characteristics, are of high and consistent quality and reliable dealers are well organized to meet volume demands.

In contrast, the Alberta Christmas tree business is generally in poor shape. More often than not, poor quality trees harvested in a haphazard manner are supplied in erratic amounts to retailers with uncertain prospects. The low quality of Alberta's production is mainly because stands are mixed or thinned, rather than harvested for quality. An estimated 42% of Alberta consumption of trees come from private lands and 3% from Crown lands with 55% imported.

There exist fairly good stands of spruce and pine in the area under survey particularly south and west of Grande Prairie, which could be developed for commercial production of Christmas trees.

According to the Dominion Forestry Branch, the consumption of trees in Canada varies between 90/100% per household unit. Based on the 90% of household units conversion and the present estimated population of the area under survey (64,500—average household unit of 4), this provides a local market of 16,125 trees.

The Dominion Bureau of Statistics averages the roadside value of each tree at .57c with an arbitrary retail value of \$2.50 per tree (trees sell generally between \$1.00 to \$5.00 in Alberta depending on size and quality).

The markets open to Christmas tree growers in the Central Peace River District are the fastest growing in Canada. Based on the above figures immediate available markets to this district with estimated values of production are shown below:

	Popu- lation	No. Trees Required	Roadside Value	Retail Value
Area Under Survey	64,500	16,125	\$ 9,200	\$ 40,300
Balance of Peace				
River Region	35,500	8,875	5,000	22,100
Edmonton Area	400,000	100,000	57,000	250,000

It is not suggested that the whole of this market could be captured nor supplied by producers in the area under survey, however, with efficient systems of growing and harvesting quality trees, growers in the

area should have no difficulty in breaking into this potential market. The Alberta Department of Lands and Forests can provide much assistance to growers in the application of new techniques, managing for quality trees on a sustained basis and the establishment of plantations.

Sustained production of quality Lodgepole pine in Alberta is a proven accomplishment. This system can probably be applied to other local species such as the spruces, jack pine and balsam fir. Douglas fir is the most popular species on the Alberta market today, followed by the spruces, the pines and balsam fir.

An economical unit for full time work is considered to be 1,000 acres of natural or wild stands or 250 to 500 acres of plantation. Stocking on natural or wild stands should be about 1,000 trees per acre, with spacing of six to seven feet. Stocking on plantations can be heavier, possibly 4 to 6 foot spacing, resulting in 1,200 to 1,800 trees per acre. Sustained annual production on wild lands averages about 50 trees per acre but this figure can vary from 30 to 80 or more. A rotation of about 20 years is common.

In 1957 some 1,300 trees were cut from Crown lands in the Peace River Region. Of these, an estimated 11,000 came from the Grande Prairie district and 300 from the Lesser Slave Lake district. Estimates of numbers of trees obtained from private lands in this region are not available, however both Crown and private lands are subject to the onslaught of trespassers who will cut loads of trees, for sale, wherever they can find them.

Trees are shipped mainly by truck (short haul) and rail (long haul). A three ton truck will carry about 600 trees of average size, varying to some extent with species and baling practice. Baling allows loading of more trees and makes easier handling. Both flat car and box cars are used for rail haul, capacity varying between 1,000 to 5,000 trees per car.

Christmas tree growing might be entered into by vegetable farmers in the area to provide them with year round employment and income. It would not be necessary for a vegetable farmer to operate a full-time economical unit (1,000 acres): rather it could, initially, be operated on a smaller scale as a sideline. It is generally agreed that the further a grower takes his trees towards retailing (thereby eliminating the middle man), the greater will be his return. It is therefore recommended that a grower, inasmuch as it is possible, establish his own sales lot. These are commonly set up at service stations, or any vacant lot situated in a central location where trees can be attractively displayed from the street.

Sources: A Report on "The Christmas Tree Business", P. J. Murphy (January, 1959); Department of Resources and Development, Forestry Branch, Calgary, Alberta; Department of Northern Affairs and Natural Resources, Forestry Branch, Ottawa; British Columbia Forest Service, 1957, Christmas Tree Farming, Publication B16.



## MINERALS

The mineral wealth affecting the area is to a large degree located outside it, the significant exception being the iron ore in the Clear Hills area.

The energy producing minerals—coal, oil and gas—are considered in the section of this report dealing with "Energy Resources". In the classification of industrial minerals there are deposits of silica, bentonite and, of course, sand and gravel and peat moss.

### SILICA

The silica deposits near the town of Peace River are reported to contain upwards of one million tons in the upper 40 to 60 feet of the Peace River formation and in an easily accessible location. This deposit could be most useful in the manufacture of glass as the tests have indicated it has the proper grain size requirements but may require some beneficiation and treatment to reduce the iron content. There is a selection of areas where the overburden could be readily taken care of. Water for beneficiation and hydraulic working of the deposit (which is on the banks of the Peace River) can be obtained from that source. The location is seven miles below Peace River town where excellent highway and rail transportation is available if long distance hauling is required.

While this type of sand is primarily used for glass and glass-fibre manufacture there are many other uses for it such as for foundry molding, asphalt roofing products and high quality sandblasting as well as for the hydraulic fracturing of oil formations by oil field servicing companies.

At present the glass factories at Medicine Hat are the main users of silica sand which is imported from Illinois and Minnesota. Quantities ranging from 40,000 to 60,000 tons annually have been imported chiefly for this use and oil formation fracturing.

The specifications for silica for the glass industry are very meticulous and the requirements of other users are also closely defined.

Competitive sources in Alberta are at Bruderheim and potentially from the McMurray tar sands, and transportation costs, due to distance from markets are always a factor.

The feasibility of developing this deposit will require very low operating costs, a large market and low transportation costs but the possibility of glass jar requirements for honey and in the more distant future for pickles and other uses should not be overlooked.

### PEAT MOSS

Although peat moss has been produced in Canada and the United States for many years, the commercial demand of this product has increased greatly in the past ten years, and in Canada, production rose from about 75,000 tons in 1950 to 224,000 tons in 1961. The greatest production has been in Quebec and British Columbia with a large bog plant operating in Mani-

### BENTONITE

A deposit of bentonite exists in the upper Wapiti formation northeast of Grande Prairie in the Heart Valley area, but insufficient information as to its size or quality is available to deal with its merits for commercial development.

### SAND AND GRAVEL

Large commercial sand and gravel deposits exist in the main river valleys and in other accessible locations throughout the Central Peace River District. These have been dealt with in relation to the construction industry in that section of this report.

\* \* \*

### IRON ORE

The very large deposits of sedimentary iron ore in the Clear Hills area where reserves in excess of 200 million tons, grading 30 to 35 per cent iron have already been proved (with considerably more indicated) have resulted in intensive efforts to develop an economical extraction and reduction method.

It is understood that such a process is now in an advanced stage of development for the production of pure iron in powdered form. It is confidently expected that a present pilot plant operation will result in the design of a full scale processing plant in the powder metallurgical field within the next three to five years. There is a world wide market for this type of product which demands a higher price than the ordinary form.

Such a plant would have significant requirements of natural gas and water and power and could initially require a plant working force of about 300 of which about one-third would be highly skilled. Additional workers would be required for the many maintenance and auxiliary services, who with their families and those engaged in business and municipal services could give rise to a community of 2,500 to 3,000 people.

The exact economic benefit of such a large project, now in pilot plant stages could only be a matter of conjecture. However, due to the nature of the process involved in this initial iron ore works, it might possibly lead to the development of a physical metallurgical centre processing minerals from other locations such as northern British Columbia and the Northwest Territories. In the latter case in particular, the Great Slave Lake Railway provides for access and efficient transportation of such materials.

toba. There are now six or seven plants operating in Alberta, the smaller plants for the local market and two or three larger plants exporting their products to the United States.

United States constantly imports more peat moss from Canada each year which supplied 188,000 tons in 1961 or over 75% of total U.S. imports of 224,000



tons. There are large potential markets particularly in those states immediately south of Alberta as well as in California and Louisiana and it has been estimated that at least 85% of the peat moss produced in Alberta will be exported to United States.

The total Canadian domestic consumption of peat moss increased 148% from 1956 to 1961 when consumption was 36,000 tons. Moreover, in many areas of Canada, markets are quite undeveloped, particularly in the prairie market where peat moss will improve the soil by increasing the water holding capacity of light soil and prevent excessive compacting of the heavy soil. An active publicity campaign to make potential consumers aware of this should result in very substantial growth in this market.

In addition to horticultural use, which absorb 95% of Canadian production, there are market possibilities for higher priced specialties such as peat pots, fire logs and briquettes. Peat moss has also heat and sound insulation properties when used in making building bricks, and as it is also light and easy to handle in this form, an aggressive sales approach could develop a market in this field.

Recently, another new use has been reported for peat moss as a binder in iron pellets (as an alternative for bentonite) depending on the moss having a proper humic acid content (a minimum of 23%).

New developments in the peat industry are taking place across the country and good management and efficiency in production techniques and facilities are required to meet this increasing competition. However, it would appear that there is an increasing domestic market and room for further expansion of producing and procession operations.

This is particularly true in northern Alberta, which with over 20 million acres of bog has the potential to become the largest peat producing area in Canada. However, the presence of bog does not guarantee either the quantity or the proper quality of peat moss. Quality varies a great deal even within the same bog, and it is necessary to determine the potential of a bog area before committing any substantial investment.

Bog conditions are found in many parts of the Peace River district and it would appear that those in the McLennan area may be particularly suited for peat moss production and processing. Although peat moss is now being harvested in the Guy-McLennan area, it is being sold for processing elsewhere, and the development of this operation into a local industry with the addition of processing would appear both logical and economical. All the necessary water, gas and other utilities are available close by and there are good transportation services, both rail and truck

centralized in McLennan. This part of the area under survey is also closer than other points in the district to Edmonton, to other Alberta and prairie markets, as well as to the United States.

There are of course very specific requirements in developing a successful peat moss business. The provision of adequate working capital to provide sufficient funds to carry the business until it reaches a profitable position, a peat moss bog of adequate size, adoption of methods with adequate facilities to produce a high quality product, control of production and other costs so that profit can be made at competitive prices, careful selection of markets and careful selection of selling agents and co-operation with them.

Very complete information is available regarding the production, processing, standards, specifications and other pertinent economic considerations for peat moss operation in Alberta in a booklet entitled, "The Peat Moss Industry" (a) prepared by the Alberta Bureau of Statistics.

Some indication of the economics in a peat moss operation may be obtained from the following:

To be commercially attractive and full time basis minimum production in the order of 150,000 bales should be considered. To produce this quantity in a peat bog with a minimum depth of 5 feet ( 6 to 12 feet is most suitable) and assuming about 870 tons of air-dry peat per acre will require a minimum of 75 to 100 acres of open bog. A larger operation should reduce costs considerably.

No actual operating costs are available for Alberta operations but the following figures are the 1961 averages (a) for Canada and certain other provinces—

Canada .....	\$27.10 per ton
Ontario/Manitoba .....	22.60 per ton
British Columbia .....	30.00 per ton

It is felt that Alberta operating costs may presently be about 10% higher than the Ontario/Manitoba figures to which administration, selling expense, depreciation and interest must be added.

Currently (1964), the average laid down price per 85 lb. bale of dry moss in Los Angeles is \$2.85 or about \$68.40 per ton. In comparison, the f.o.b. Edmonton price for peat moss in truck load quantities is about \$1.50/\$1.52 per bale or \$36.00 to \$36.50 per ton. The railway freight cost to Los Angeles from Edmonton at standard rates is \$32.60 per ton and and the trucking rate on a backhaul basis may be from \$25 to \$30 per ton.

Under similar prices and conditions, a number of profitable peat moss operations are presently being carried on in Alberta.

## ENERGY RESOURCES

It is sometimes both necessary and desirable to create a relatively small survey area for purposes of certain special investigations, as was decided in the case of the present report. However, unless such an

area is completely and physically isolated it does not exist in a vacuum. Economic facts seldom recognize arbitrary geographic borders, and this is particularly true in the case of energy sources.

(a) "The Peat Moss Industry"—I. R. Huene, Alberta Bureau of Statistics, Department of Industry and Development, Edmonton, 1964.

(a) Including salaries and wages, fuel and electricity, process supplies and containers.



In the case of the Central Peace River District, it is important to distinguish between energy resources located within the area and those resources available to the area (though located outside its borders).

Two basic questions must then be asked—will use of energy resources within the region meet present and future energy demands at the most economical cost—or will “importing” energy from outside the area be more economic in the long run?

To the extent that energy resources within the area are both available and the most economic, their use will confer some net benefit to the area. Employment, investment and incomes will increase within the area, rather than somewhere outside it. But these benefits (except during brief periods when energy projects are under construction) are relatively very small. The cost of energy, on the other hand, is one of the most important factors in the long-range development of any region. If uneconomic energy facilities are constructed within it, for reasons of local pride or politics, they can place the area under a damaging long-run handicap.

Our purpose is, then, not only to describe the energy resources of the survey area but also to evaluate them. Any extensive survey of energy resources outside the survey area, cannot be undertaken in this report, but we shall endeavour to indicate these external resources which compete for development with those inside the Central Peace River District.

Energy sources are, of course, varied, and adapted to different uses. One industry needs heat, another steam, another electric power and each major source will be considered in turn, followed by a summary of these findings.

## COAL

There are four extensive coal fields in the Central Peace River District. The Halcourt field, which includes Grande Prairie and the country west to the British Columbia border and south to the 18th base line, contains coal in Group III, Bituminous, a non-coking coal, having quite good storage and shipping qualities but only fair calorific use, being valued chiefly as domestic coal. In the Halcourt area, considerable reserves are estimated (300 million tons) but as the coal is bedded only three feet in thickness, it represents a marginal mining operation.

Three other recognized coal areas are in the survey area, to the north and east of Halcourt area, or from the British Columbia border to east of High Prairie. These are the Valhalla, Sexsmith and High Prairie fields. Valhalla coal is Group IV, a coal of lower economic value than Group III coal; Sexsmith and High Prairie coals are Group V, of low calorific value and even less desirable qualities for industrial use, though it may be used domestically.

While these large coal deposits exist, they are at the present time, generally uneconomic. Evidence of this is contained in coal production figures for the area, which show that in 1955, the year of highest

production in recent times, a total of only 1,140 tons of coal was mined.

The Slave coal area, a small part of which is located inside the eastern boundary of the survey region, has small reserves of Group V coal. They have not been worked since 1950.

In contrast to the quality and quantity of coal reserves in the survey area are the considerably higher-quality reserves available immediately to the south. The Smoky River area (which occupies part of the lower, or south-west corner of Census Division 15 and also extends south of it), is estimated to have a reserve of 3 billion, 300 million tons of Group I coal, a preferred coal for steam generation. The coal is bedded in seams 50 feet thick.

More recent surveys and explorations have indicated that there are large reserves (up to 9 billion tons) of good-quality, low-volatile coking coal in the more southerly portion of the Smoky River coal area—the Sheep Creek—Wildhay River District. Development of this coal will require better access facilities, by road and rail and the Grande Prairie region will benefit greatly from such a mining operation. This coal appears to be thickly bedded, is of considerable potential economic value, and has recently been the subject of serious study for large scale development.

From the above observations it is concluded that if coal is required in the Central Peace River area for industrial steam—thermal power generation, or—industrial processes involving coke, it can be obtained locally and relatively economically from one or another of the Smoky River area deposits.

## NATURAL GAS

The discovery of natural gas at Pouce Coupe in 1923 encouraged a continuing exploration and drilling program in the Alberta Peace River country. In the forty following years, some 550 wells have been drilled in or around the area, with quite reasonable success. Twenty-six oil wells have been brought in and 127 gas wells have been proven, and natural gas is now an energy resource of considerable importance and value to our survey area.

A review of gas production in the area to the end of 1963 shows that the total produced from fields in the area to that date was about 187 billion cubic feet the approximate disposition or use of which was as follows:

outside Alberta, to Westcoast Transmission Co's pipelines, and to Dawson Creek and Pouce Coupe, B.C. ....	170 billion cu. ft.
local domestic, commercial consumers and electric general stations .....	17 billion cu. ft.

Local gas pipelines serve two major purposes. They conduct gas, as noted above, to thermal power generating plants which supply most of the local electrical power for all urban and rural purposes, and



they bring gas for domestic, commercial and industrial use to many places throughout the area. Most recently, a line has brought natural gas to consumers in Hythe and Beaverlodge.

Gas fields are now found throughout the area, from Worsley and Clear Hills in the northwest to Sturgeon Lake in the south, and the supply position as at December 31st, 1963, is shown on Table G-I.

If we rate a "major" gas field as one with at least 250 billion cubic feet of available gas reserve, it may be noted that no major field has yet been discovered in the survey area. However, it is very encouraging that, the latest important find in the Worsley field, first tapped in 1959, has come closest to this classification and has marketable gas estimated at 219 billion cubic feet. This estimate may be too low, as 1964 newspaper reports indicate new and important gas discoveries in the area. These reports can only be given due credence when official figures have been published.

In the meantime, the Worsley field enjoys additional distinction. It is the only important supplier of gas from the survey region to a major gas-collection system and is eventually connected by Westcoast Transmission pipeline to the Vancouver area and U.S. West Coast. It is also the source of gas for the electric power generating plant at Fairview, and the site of a gas-scrubbing plant which produces a considerable amount of the propane used in the Peace River area of Alberta.

No other major gas collection system has yet pushed up to this area, but the Alberta Gas Trunk Line ends near Fox Creek, some 40 miles below the southern boundary of the area, and (though this can be only speculation) significant changes may well occur before too long. Petroleum companies paid more than \$200,000 for drilling reservations in the vicinity of Grande Prairie at the Alberta mid-1964 sale. Any major gas find there would be of great importance to the Central Peace River District for two reasons. First, it would, as discussed below, greatly influence decisions regarding future electric power supply. Second, it could well result in extension of one of the two important gas pipeline systems—Alberta Gas Trunk or Westcoast Transmission—into the central part of our area. Such links with major energy networks could prove valuable in many other ways.

As well, gas discoveries of outstanding size and importance have been made in the neighbouring area of British Columbia, and considering the exploration which is likely to occur on the Alberta side it is difficult to predict the long-range natural gas potential of the survey area, particularly for industrial purposes.

In summary it may be concluded that—

Natural gas supplies in the region appear to be ample and quite well located and convenient, to serve present requirements in the survey area.

The current level of drilling and exploration justifies the expectation that gas discoveries should pro-

vide the gas needed for any general developments in the survey area, within the near future.

Any sizeable new gas discoveries in the central part of the area could result in the extension of the Westcoast Transmission Pipeline toward the east, or of the Alberta Gas Trunk Pipeline from the south-east into this central area, with the attendant benefits of a more flexible energy supply and some new employment and other expenditure.

The question of natural gas for large-scale electric power generation depends on complex economic considerations: including comparisons with other energy sources, but if the economics are right, the gas is most likely available.

Propane, and other liquefied petroleum gases, cannot be considered in detail here because of space limitations. These, are, of course, important energy resources for domestic and commercial use, though seldom for industrial purposes. In the survey area, there is a second gas scrubbing plant at Boundary Lake South; there are two further plants nearby in British Columbia. The use of these products for chemicals production in the area is most unlikely.

\* \* \*

## OIL AND OIL SANDS

It is appropriate to discuss crude oil, and oil sands, in the same context, for modern recovery and refining techniques are rapidly lessening the distinction between the two. Processes for the underground treatment of heavy crudes (asphaltic or Lloydminster types) to facilitate their recovery are also said applicable to underground treatment of certain tar sands, particularly those sands underlying a part of our survey region around Peace River town which are believed to be considerably lighter than the Fort McMurray sands.

Such secrecy cloaks current developments in this general area that few definite statements can be made, and few firm conclusions drawn. Shell Oil Company is said to have been devoting considerable research effort for some years to underground treatment and recovery of oil from sands of the McMurray type. Imperial Oil is said to be conducting research into processes that would treat both heavy crudes, and oil sands of the Peace River type. From time to time, other major oil companies are rumored to be conducting experiments in improved recovery methods for Lloydminster-type crudes.

Meantime, Great Canadian Oil Sands Ltd. proceeds with its plans for surface and strip mining of McMurray sands, and there is no reason to doubt that large amounts of oil will soon be available from this method. In the larger context of North American and world markets, it might be thought that this would delay indefinitely development of, and production from, the oil sands of the Peace River region and opinions have been voiced to this effect. The only counter-opinions must be based on speculations that underground treatment and recovery methods, necessary for economic use of Peace River sands, will be



successful and their development in the near future is dependent on such a technological breakthrough.

Crude oil has so far played a relatively small role in the survey area, though as in the case of natural gas, continuing exploration may reveal new resources not presently predictable. Oil lies at the boundaries of the area, in the Boundary Lake area in British Columbia, immediately to the west, and in the important Swan Hills field to the south-east.

Oil fields within the area are Sturgeon Lake, and part of the Sturgeon Lake South field. These two fields have recoverable reserves of over 100 million barrels (Sturgeon Lake South being by far the larger, with over 90 million barrels) and have been in production since the early 1950's.

Data available at this time does not permit adequate evaluation of the more recent Snipe Lake field. Smaller fields are located at Normandville and at Springburn.

Production from these fields is carried to the south and east through the Peace River Oil Pipeline as well as oil from the Red Earth and Utikuma Lake areas (through High Prairie) and thus to the major connecting systems.

The main importance of both petroleum and oil sands to the survey area is as "export" resources. While their production provides economic benefits in the form of employment, and goods and services sold to the producing operations, it must be placed in perspective. It appears unlikely for instance, that petroleum refining will be re-established in the area in the near future as the economics of large-scale production and cost of transportation combine to discourage this. For similar reasons, other industries based on petroleum—such as some chemical industries—cannot be confidently predicted for the region. Oil is a possible source of thermal electric power, but several factors now favour natural gas over oil, and for much larger developments hydro-electric power is likely to be more economical than thermal power.

Unless unforeseeable developments occur, it seems likely that oil will play a minor, though positive, role in the future of the Central Peace River district.

\* \* \*

## ELECTRIC POWER

When electric power was first generated in the Central Peace River area in the 1920's, it was produced by small thermal units, isolated in several population centres. Between those days and the present time, there have been continuous developments, making power more economic and more generally available. Beginning in the 1930's, transmission lines began to link generating sites. From 1950 to 1958, power requirements in our survey area increased from 3,000 KW to 14,000 KW and today are some 35,000 KW. The increase in demand for power has resulted in the installation of larger and more efficient generating units, of which the most important stations in the area are the gas turbine thermal plants at Valleyview (18,500 KW) and at Fairview (11,400 KW).

During 1964, a 138,000 volt transmission line was built from the vicinity of the large Wabamum plant (50 miles west of Edmonton) to Valleyview, which provides an additional power supply to the area. In January, 1965, a utility company serving the area announced plans for construction of a 138,000 volt transmission line from their Sturgeon generating plant, near Valleyview, to the Mercer Hill substation north of Grande Prairie. These developments are significant as they now include the Peace River district in the interconnected provincial system extending to the U.S. border. Thus medium sized thermal plants, operated mostly on natural gas and transmission from larger thermal plants, operated mostly on natural gas and transmission from larger thermal plants outside the area, are the basic source of electric power in the area today.

\* \* \*

Concisely, the present (1964) power picture in the Peace River area compared with 1954, for the Central Stations and Interconnected System is as follows:

	Internal Combustion Plant		Total Miles of Line		Total	Rural Electrification	
	KW Rating	KWH Gen. (thousands)	Transmission	Distribution	Number of Customers	Miles of Line	Farms Served
CUL	23,600	85,151	799	422	10,367	2,245	2,960
NUL	11,700	54,311	722	201	8,575	2,013	2,637
TOTAL							
1964	35,300	139,462	1,501	623	18,942	4,258	5,597
1954	8,630	17,659	443	158	8,053	968	1,026
10 year Increase							
	26,670	121,803	1,058	465	10,889	3,290	4,571
% Increase in 10 years							
	308	690	216	294	135	340	446
CUL—Canadian Utilities Ltd.							
NUL—Northland Utilities Ltd.							

These figures indicate that while in 1954 electric power customers represented about 15% of the population, by 1964 the percentage had risen to over 29% and on a per capita basis the use of electricity generated has increased from 2,190 KWH in 1954 to 7,360 KWH in 1964.

With a conservative advance in the per capita consumption of power and the indicated increase in population the power requirements in the area by 1981 could be about 300 million KWH, excluding the advent of any major power using industry.

Industrial power consumption depends on the nature and size of each individual enterprise and estimates of future requirements are impractical. Some indication may be obtained in the case of certain industries by the following average consumption and demand figures.

	Annual K.W.H.	Average Monthly Demand
Seed Cleaning Plants .....	95,000	45/50 K.W.
Lumber Industries .....	365,000	250/275 K.W.
Plywood Industries .....	2,500,000	650/700 K.W.
Super Markets .....	410,000	75/100 K.W.



In dealing with the cost of power for industry, load factors and other conditions of service are of the greatest importance. Industries which operate continuously at or near full load can obtain a supply of comparatively low cost power if they are located at the source of electric energy. An industry may also be in a position to take advantage of off peak and interruptible types of service. In the Peace River district there is no doubt that power will be available to industrial users at comparatively favourable prices and power rates can be looked upon as stable within the foreseeable future and in certain areas may decline as demand increases. The actual cost to particular industries for power is, of course, dependant on negotiations with the utility company which generates the power. Very large industries may, of course, wish to investigate the cost of generating their own power. In any case, ample energy resources for power generation is available.

\* \* \*

Electric power potential in the Central Peace River district is not necessarily confined to thermal plants, although these are of first importance. In addition, the rivers in the area have certain hydro-electric possibilities.

According to Mr. J. G. MacGregor, Chairman of the Alberta Power Commission, "there are several power sites on the Smoky River and one or two on the Alberta portion of the Peace River where hydro-electric plants could be developed. Some preliminary studies have been made on the Smoky River and it appears that 250,000 to 500,000 HP are available on it." According to the president of a leading utility company, the smallest economic hydro development possible on the Smoky River, about 37,000 HP would cost between 30 and 35 million dollars, so that the larger quantities mentioned when fully developed would cost many times that figure. Recently preliminary studies have been made by the Alberta Power Commission and the Water Resources Branch, who state that the Peace River also presents some interesting possibilities. "The most interesting section of the river is that from the British Columbia border to the Dunvegan Bridge, in which the river falls 110 feet. The lower valley banks in this stretch appear to be in a geological formation which would support a dam."

However, the presence of large hydro plants on the Peace or Smoky Rivers would not necessarily have much effect on the cost of power delivered in the Central Peace River district, because power cost is governed more by the size of the load being served and the transmission requirements of a widely dispersed population rather than by the actual cost of generation. In delivering power to a consumer's meter, generating costs account for possibly 15% of the total cost.

To the west on the Peace River in British Columbia the major hydro development now in progress at

Hudson Hope is slated for completion in 1968. On completion, this plant will generate some 2,300,000 kilowatts, and could be an additional source of power for the whole Peace River district, provided the delivered cost of the relatively small load compares favourably with that for other power.

There are also a number of other potential hydro-electric power sites outside the survey area, on the Athabasca River, some 150 miles east of the McLennan - High Prairie area. Eight sites on this river have an installed capacity of from 100,000 to 450,000 HP each, and an overall total capacity of about 2,000,000 HP.

As to the future, one cannot do better than to quote the Chairman of the Alberta Power Commission (Mr. J. G. MacGregor) who states. "The building of dams and the creation of reservoirs of the magnitude needed to develop the Smoky and the Peace Rivers—must await the need for large blocks of power, blocks which are much greater than can be forecast for several years to come. When that time comes, it will be possible to generate a tremendous amount of power which could be sold very cheaply providing there was a market for it, but generally speaking if such dams were attempted today, when there is a market for only a limited amount of power, the cost per KWH would be exorbitant. In the event of a large industry such as the processing of the iron ore at Worsley, it might be possible to build the first hydro plant on the Smoky River, but even then it is likely that to make it economical much of the surplus power would have to be transmitted south to the rest of the province."

Another possible outside source for major power requirements is as a by-product of the Fort McMurray bituminous sands development through generation from liquid coke.

However, it is difficult to predict how rapidly industry, and thus population, and therefore electric load, will grow in the area. At whatever rate it grows, supplying power will not present any particular problem.

The new discoveries of natural gas, such as that in the vicinity of Worsley, and in addition, oil in the area and eventually the reserves of coal, can fill the fuel requirements for additional thermal power plants. Natural gas and thermal power seem likely to prove the most useful and most economic power sources for the Central Peace River district within the foreseeable future, unless unexpected and extraordinary requirements arise.

These thermal plants, developed locally, combined with power imported from existing and potential sources outside the survey area should meet the power requirements of the Central Peace River area for many years to come.

TABLE G-1

REMAINING MARKETABLE NATURAL GAS

(in Million cubic feet at 1,000 BTU's per cu. ft.)

as at December 31st, 1963

Field	Quantity MMCF.	PRESENTLY USED FOR			Connected to B.C. Lines and Westcoast Trans- mission system
		Local Gas	Electric Power	Not Connected	
Bellay .....	83,000			83,000	
Boundary Lake South .....	17,000	17,000			
Braeburn .....	71,000			71,000	
Burnt River .....	10,000			10,000	
Dixonville .....	27,000			27,000	
Eaglesham .....	105,000			105,000	
Gordondale .....	60,000				60,000
Hamelin Creek .....	20,000	15,000		5,000	
Heart River .....	4,000	2,000		2,000	
Little Smoky .....	14,000			14,000	
Normandville .....	40,000	25,000		15,000	
Pouce Coupe .....	64,000				64,000
Pouce Coupe South .....	81,000				81,000
Rycroft .....	10,000	10,000			
Saddle Hills .....	60,000			60,000	
Sturgeon Lake .....	141,000		141,000		
Sturgeon Lake South .....	100,000			100,000	
Tangent .....	179,000			179,000	
Whitelaw .....	48,000	21,000	(a)	27,000	
Worsley .....	219,000(b)		(b)		219,000
	1,353,000				

(a) Some of the Whitelaw gas is used by the Fairview power plant.

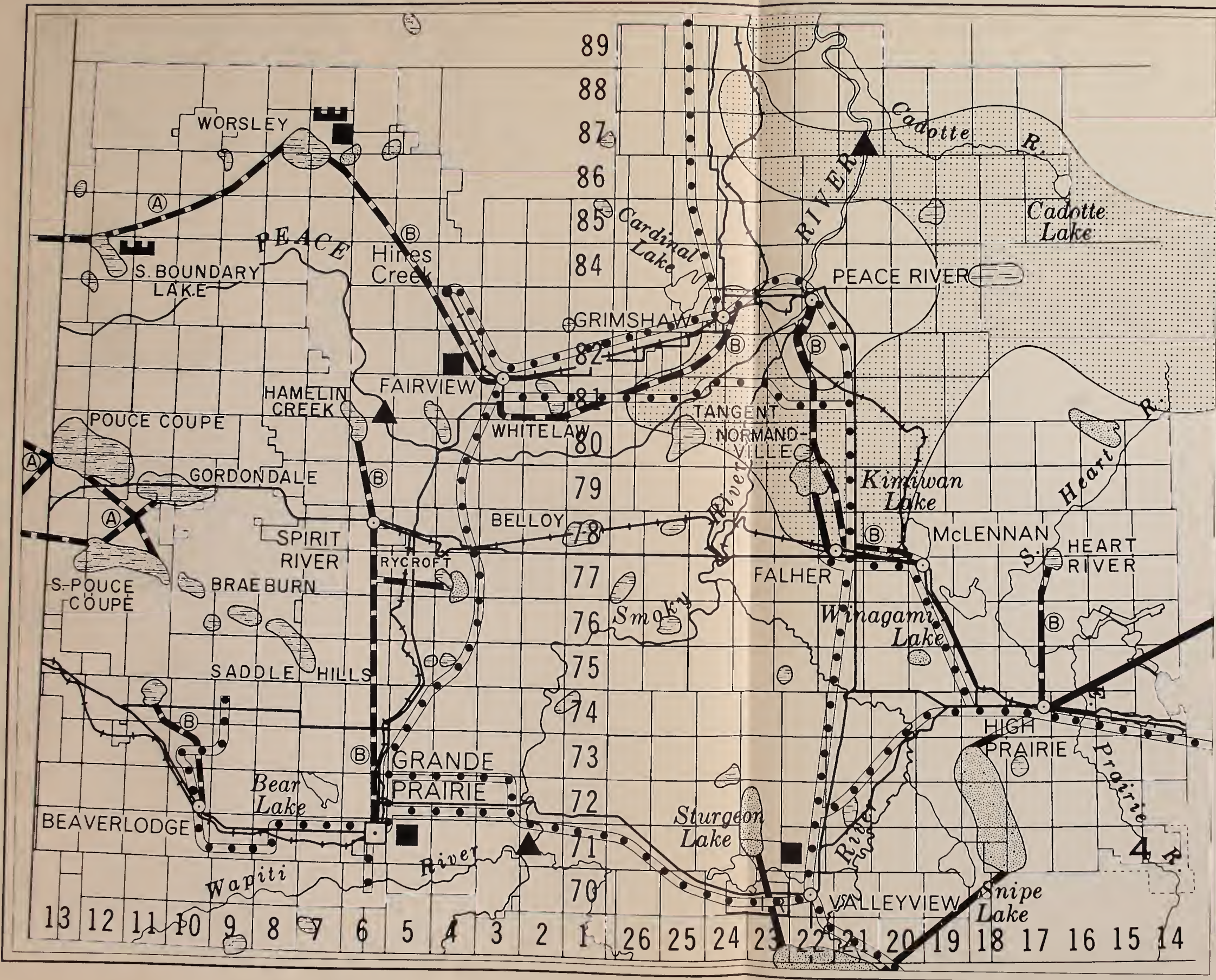
(b) Worsley field is connected to Westcoast Transmission Co.'s pipeline.



MAP No. 6  
 SHOWING ENERGY RESOURCES  
 PIPELINES, POWER PLANTS, ETC.

LEGEND

- OIL FIELD
- GAS FIELD
- TAR SANDS
- OIL PIPELINE   
 PEACE RIVER OIL PIPELINE CO. LTD.
- GAS PIPELINE   
 WEST COAST TRANSMISSION CO. LTD. (A)  
 NORTHLAND UTILITIES LTD. (B)
- POWER TRANSMISSION LINES
- THERMAL POWER PLANTS
- GAS PROCESSING PLANTS
- POSSIBLE HYDRO SITES









## CONSTRUCTION

The total value of building construction performed in Alberta in 1951 amounted to approximately \$204 million. By 1963 the value had risen to \$443 million, more than double. This is well in line with the increase in population of the province as a whole.

During the same period, the total annual value of construction of both residential and non-residential buildings in CD No. 15 increased greatly and representative centres followed suit as evidenced by the figures shown below:

Year	Value of Construction Permits			
	C.D. No. 15	Peace River	Fairview	Grande Prairie
1951	\$1,414,522	.....	.....	\$ 580,680
1956	3,965,779	.....	.....	2,101,609
1961	5,282,245	.....	.....	2,723,718
1962	8,666,080	\$1,130,800	\$350,700	4,382,215
1963	8,763,000	1,529,300	347,950	3,871,000
1964	9,300,000	2,090,000	657,660	2,878,270

The construction and improvement of the MacKenzie Highway followed by the construction of the Great Slave Lake Railway has created an upsurge of development and construction in the Town of Peace River and other centres located generally north of the River. Recently there have been many developments in and around Grande Prairie, Valleyview, High Prairie, and many other centres which will result in increased building activity. This is expected to continue for many years to come and many new industries are expected to appear on the scene. The establishment of an industry has the result of increasing the population of the region in proportion to the size of the industry, and therefore the residential and commercial buildings in the area.

Taking into consideration general development, (but not large specialized industries) and the ordinary population increase in the area, the construction of new housing units required may be estimated as follows:

Year	Estimated Population		Estimated Requirement of New Housing Units
	In Area Under Survey	Increase	
1964	64,500		
1971	76,000	11,500	3,300
1981	96,000	20,000	5,700
New dwellings required by 1981			9,000

The opening of new areas and industrial development will mean additional dwellings so that the total requirement may easily be 10,000 housing units by 1981.

In addition to building construction, the building of highways, bridges, power lines and general engineering projects has increased considerably since 1951. Although no statistics are published for the Peace River area, the increase is well illustrated by the following values of engineering construction in Alberta:

1951	\$175,266,000
1956	380,194,000
1961	486,489,000
1963	411,450,000
1964 (Estimate)	406,000,000

The construction industry has contributed more to Alberta's net value of production annually since 1954, than any other segment of the provincial economy. This is expected to continue particularly as the development of the north takes place. The area under survey is most favourably located to service this expansion with construction playing a leading role.

Local contractors and the business community generally should take advantage of this promising future to develop the full structural material resources of the district.

There are good commercial concentrations of sand and gravel in the area, particularly in the main river valleys. Accessibility to these concentrations or deposits will greatly facilitate the construction of major highways and large industrial projects and otherwise contribute much to the general building economy of the area. The establishment of additional cement block, concrete and pre-fabrication plants should also be encouraged.

The existing stands of forest products, together with the large commercial deposits of sand and gravel located in the Central Peace River district provide the necessary basic materials for construction projects. These are readily accessible and available in the immediate area. Planning mills, plywood plants and utilization plants for production of pulp, hardboards, and other products made from wood fibre, chips, sawdust and shavings could well be established.

Such developments should result in considerable savings to the construction industry in the area, as it would limit imports of certain basic materials from distant centres.

It is evident that the Peace River region can benefit greatly from sharing in the increasing construction activity which will continue to grow in and around this area, for a long time to come.

Sources: Department of Industry and Development—"Alberta Industry and Resources 1964"; 1964 Summary of General Statistics—Alberta Bureau of Statistics; General Plan, City of Grande Prairie, 1963.



## TOURISM

The tourist industry in Canada now occupies second place in the economy of the country. It is estimated that foreign visitors alone spend about \$500 million in Canada each year.

Provincially, tourism is also a big industry and according to the Alberta Government Travel Bureau is the third largest industry in this province. It is estimated that some three million people visited Alberta in 1962 and that the figure has been continually increasing. Nearly 80%, perhaps two and a half million, come by car and can tour and explore at will through the length and breadth of the countryside.

The central Peace River District has the potential of becoming one of the finest tourist and recreation districts in Alberta and is quite accessible. The fine rolling country, the beautiful river valleys, particularly the magnificence of the valley of the "Mighty Peace" must be seen to be appreciated. The parks, the recreational facilities, such as swimming and golf, the hunting of ducks and geese and other game, in season, and just plain restful touring are unequalled anywhere in the province. At the same time it is a new tourist area and relatively undeveloped so that the building of modern up-to-date facilities can be combined with its attractions.

At present the main access routes to the area from the south and east are from Edmonton over Highway No. 2 north through Athabasca and south of Lesser Slave Lake, entering the Central Peace River district at Grouard and High Prairie and, the main highway (No. 43) from Edmonton going north west through Whitecourt to Valleyview. From the west, tourists from British Columbia enter the Alberta Peace River district from Dawson Creek into the Grande Prairie area.

However, it is not the purpose of this report to describe in detail the roads, the scenery, historic sites, recreational activities and other tourist attractions that are to be found throughout this whole area. That is the proper function of tourist promotion campaigns, and publicity folders with maps and illustrations.

While there are no comprehensive statistics for tourist trade within this particular part of the Peace River district, certain information relating to the tourist trade in Alberta as a whole, may be applied almost equally well to the Peace River district. Such, are the reasons tourists give for making a trip to the area. Nearly 30% of the touring visitors come because of advertising and travel literature which they have seen, about 14% come on the advice of friends and relatives, 27% simply want to visit this part of Canada, and the balance are either repeat visitors or en route to other destinations. A great many of these tourists remarked on the high standard of highways in Alberta.

Over 60% of the tourists come to see the scenery and points of interest and while undoubtedly many come to see the mountains through Banff and Jasper, nevertheless the Peace River district is rich in its own good scenery and points of historical interest.

The large percentage of tourists attracted by

travel literature and advertising has been noted above. An American expert on tourist trade has advised that great results can be obtained if the local business community were to spend on tourist promotion each year, some 15% of the total amount it spends annually on advertising. We have made a rough estimate that from \$600,000 to \$750,000 per year is spent by local business in the Central Peace River district on commercial advertising in the local newspapers, television, radio stations, and other media. On this basis, the business people of the district should be spending about \$100,000 a year to attract tourists to the area.

\* \* \*

The Lesser Slave Lake—Peace River District Tourist Association has been active in publicizing the attractions of the district. This group held its first convention in the fall of 1960 and has been meeting annually with representatives of the local and Provincial Chambers of Commerce, members of the Legislative Assembly, Provincial Government officials and members of other Associations or groups. These discussions regarding publicity and co-operation in the tourist industry, between the Peace River area and other areas of the Province, have resulted in the Association developing a tour, now known as "The Scenic Route", through the Peace River district. This tour is being well advertised with the co-operation of many tourist agencies throughout the Province and the Association has prepared and circulated a pamphlet which describes the routes which may be followed by tourists and visitors, within the area. This brochure provides excellent detail on points of interest, recreational facilities and many other attractions. This is the type of worthwhile work, and publicity which should involve the support of the entire Peace River community.

\* \* \*

Having created the desire by tourists to come to the area, the next necessity is a good system of highways not only for access but within the area itself. The Central Peace River District has now an excellent system of up-to-date wide paved highways in the area, and a first class access highway from Edmonton to Valleyview and another from Grande Prairie to Dawson Creek, B.C. From the standpoint of tourist trade, the projected road from Hinton to Grande Prairie is also of great importance, as it gives access to tourists from the Jasper and Banff National Parks. However, one of the most interesting and effective tourist routes which remains to be developed is Highway No. 2 along the south shore of Lesser Slave Lake to Grouard, High Prairie, Lake Winagami Park, through McLennan and Donnelly to the main internal highway running north from Valleyview to Peace River. The paving of this highway should be of great economic benefit to the Central Peace River District with particular reference to the tourist trade.

\* \* \*

It should be thoughtfully noted that about 29% of Alberta tourists were favourably impressed by the courtesy shown to them at various places, 22% liked the camp and trailer facilities, but (except in special cases), other accommodation did not gain such favour-



able comment. This leads to the consideration that the Americans (who account for about 65% of the total tourist trade), may not consider some of the traveller tourist accommodation and service in Alberta, as being of the same high standard which they find at home, (and which Canadian travellers find when they go to the United States).

Once a traveller arrives in a district every person he meets, the service station attendant, the hotel clerk, the waitress, and the store clerk, as well as the quality of the service, and the food, the cleanliness of the room and the comfort of the bed can make him feel more at home and like the place better, or, one surly remark, one dirty glass or fork, one poor meal or one unclean messy room can make him dislike the whole area and give it a bad reputation with everyone he meets. The length of a tourist's stay and the money he spends in the Peace River district are primarily dependent on the consideration he receives from everyone in courtesy, hospitality, comfortable accommodation and adequate service.

In the last analysis it is the dollar value of the tourist trade to the Central Peace River District we are looking at.

The average length of visit for each tourist in Alberta is about seven days and he spends an average of about \$6.50 per day. Although the majority of tourists travel in couples without children, the average group represents 3.5 persons, and each group spends nearly \$160 during their stay. Nearly half of this money is spent on food and retail purchases, about 20% is spent on accommodation. Gasoline, oil, and other service station and transportation items account for another 20% and the remainder of the spending is for entertainment, refreshments, and souvenirs. Naturally these percentages vary in different locations and this particularly refers to accommodation. A great majority of the visitors to Alberta use motel accommodation or trailers and campsites, with the remainder using hotels or staying with relatives or friends.

The Alberta Government Travel Bureau has estimated the average number of tourists entering Alberta

over the past three years at about three million per year, both transients and visitors for a longer period. Of this number, between 6 and 7 per cent visited northwestern Alberta, perhaps half of whom may have been transients en route to other destinations. Thus the number coming into the Peace River district as visitors there, may be from 90,000 to 100,000 per year.

At the average length of visit and rate of spending, already stated, this represents four to four and one half million dollars worth of tourist business per year. It is a matter of simple arithmetic to calculate that if the number of tourists coming into northwestern Alberta is say 15% instead of 6 to 7% and the number attracted to stay and visit in the Peace River district is doubled this would mean 450,000 tourists per year and in the neighbourhood of \$20 million of total annual revenue in the district from the tourist trade.

When one considers that the attendance at the six Provincial Parks in this area doubled from 1962 in 1963, (and even though the majority of the visitors to the parks were local residents), it is quite possible that the tourists visiting these parks, and the thirty campsites in the area, also doubled. This may be some indication of the trend in tourist trade so far as the Central Peace River district as a whole is concerned, and an indication well worth investigating and promoting.

There are excellent opportunities for fine, well-appointed, and profitable hotels and motels as well as hunting lodges and recreation facilities which will be attractive to tourists and at the same time provide plenty of useful employment for well-trained personnel. First class facilities will not only enhance the reputation of the District as a whole but more particularly a high standard of service and accommodation are necessary to make money.

Results in developing this important industry in the Peace River District will be obtained primarily by concerned efforts made locally, by community associations, local business groups and every resident of the district in promoting and supporting tourist development and thus deriving profit from it.

## **TRANSPORTATION AND COMMUNICATION**

One of the most vital factors in the development of any area is the provision of adequate transportation facilities.

The Central Peace River district is now well equipped with rail, highway, and air services and the most modern means of communication, the extent and benefits of which may be reviewed as follows:

### **AIRWAYS**

The Central Peace River district is serviced by air with well-equipped airports at Grande Prairie and Peace River. The Grande Prairie Airport has two paved landing strips 200 feet wide. They are 6,500 feet and 6,200 feet long. The Peace River Airport also has two landing strips, a paved strip 5,000 feet long and a turf strip 1,900 feet long, both 150 feet wide.

These airports are on the regular schedules of Canadian Pacific Airlines and Pacific Western Airlines with daily flights from Edmonton to British Columbia, Yukon and Alaska.

The accelerated local and northern development has increased air traffic to proportions which will necessitate enlarging facilities in the Central Peace River District, and extension of present runways is now planned.

### **RAILWAYS**

The Northern Alberta Railway which is owned and operated jointly by the Canadian National and Canadian Pacific Railways has been in operation in the Peace River region since 1917 and now provides service to the major centres and most other communities in the Central Peace River area.



This railway, a total of over 600 miles in length runs along the south shore of Lesser Slave Lake on its way north from Edmonton and enters the area under survey at the south west end of the lake. After passing through High Prairie it goes to the divisional headquarters at McLennan, (a total distance from Edmonton of 267 miles). There are then two branches.

The north branch, 115 miles in length, serves six stations on its way to Peace River town, a main distribution point. It then crosses the river running to Grimshaw and Fairview to the end of this line at Hines Creek, serving Roma and five other points en route.

Roma is the southern terminus of the newly completed Great Slave Lake Railway built primarily to transport ore from Pine Point, N.W.T. This railway carries freight and passengers to and from Manning and other places on the west side of the Alberta Peace River area and Hay River in the North West Territories.

The centre branch of the Northern Alberta Railway runs west from McLennan through Falher, to Rycroft and Spirit River crossing the Smoky River at Watino, and serving fourteen stations along this 90 mile route.

At Rycroft, the railway goes another 50 miles south to Grande Prairie with six stations en route. From Grande Prairie, the largest commercial centre in the area, the railway passes through Beaverlodge and ten other points in a north westerly direction 88 miles to the terminus at Dawson Creek, B.C.

Dawson Creek on the Pacific Great Eastern Railway provides an exchange point for freight coming from or going to west coast parts, and other places in British Columbia.

The Northern Alberta Railway has (like most railways) been subject to truck competition, over good highways and shorter routes, as well as by the diversion of grain shipments and revenue to the Pacific Great Eastern at Dawson Creek.

As an indication of the value of freight moved to and from Central Peace River district stations by Northern Alberta Railways in years shown is detailed below:

Year	Freight Received	Freight Forwarded	Total Earnings
1951	\$5,506,034	\$5,960,438	\$12,489,466
1961	2,793,737	8,901,547	12,254,103
1963	4,820,294	5,369,901	10,654,945

The extent of the diversion of grain shipments to the West Coast interchanged from the NAR to the Pacific Eastern at Dawson Creek is indicated by comparing shipments for the 1960/61 and 1962/63 crop years (August 1st to July 31st) as follows:

## GRAIN INTERCHANGED TO PGE AT DAWSON CREEK

	WHEAT	OTHER GRAIN	TOTAL
1960-1961	693,803 bushels 377 cars	773,096 bushels 322 cars	1,466,899 bushels 699 cars
1962-1963	926,419 bushels 475 cars	1,567,619 bushels 662 cars	2,494,038 bushels 1,137 cars

The completion of the Great Slave Lake Railway in Pine Point, N.W.T. with its heavy movement of zinc and lead to the smelter at Trail, B.C. will certainly tend to boost the economy of the Northern Alberta Railway. This in turn should reflect to the advantage of the whole system.

The factor of dual management has not always been conducive to an aggressive long term policy. This year, however, plans for major improvements in equipment and services have been announced.

The role of the railway in the development of this area is a vital one and with the advent of new industry and resource developments expansion of existing railways and new connections have been predicted. A railway from the main Canadian National line in the vicinity of Hinton or Edson into the area south of Grande Prairie would accelerate the development of the important timber, coking coal, metal deposits and natural gas reserves there and could be a major factor in the economy of the Central Peace River district.

## HIGHWAYS

The Provincial Government has, in recent years, provided the Peace River area with first class road transportation by building heavy duty (72,000 lb. and 56,000 lb. standard) paved highways and a network of improved interconnecting roads between all important centres in the Central Peace River district. Construction of additional paved highways, secondary highways and market roads is planned and will continue to encourage new settlements and development of outlying areas. Most local municipalities have, as well, been active in providing better roads.

Access to all main points in the Central Peace River district, the whole year round, and through it to points west and north, is mainly from Edmonton from which there are two highways into the area.

Highway No. 2 runs north through Athabasca and south of Lesser Slave Lake entering our area at Jousard and then on to High Prairie.

Highway No. 43 proceeds north-west from Edmonton through Whitecourt entering the Peace River area at Valleyview. Both of these roads then join the network of fine highways which serve the whole district

The latter highway is a wide, paved road modern in every respect. In addition to providing for fast commercial and private vehicle access to the district, it



is on the Alaska Highway Route and with Highway No. 2 connects with the main British Columbia roads at Dawson Creek. Thus access to the Central Peace River district is provided from Prince George, Prince Rupert and Vancouver and all B.C. points en route.

With the completion and improvement of the Mackenzie Highway (No. 35) running north from Grimshaw to Manning and High Level and then to Hay River and Yellowknife, N.W.T., large new areas have been opened for settlement within and north of the Peace River region. Commercial use of this highway will not only contribute to the agricultural and industrial development of these areas, but will also accelerate development and expansion of commerce and industry in the Central Peace River district to serve them.

Lately, the Provincial Government has indicated in its building program, the construction of a new highway to run north from the main Edmonton-Jasper Highway near Hinton, to the Grande Prairie area. This highway will provide a direct commercial link from the Peace River district to the Yellowhead Route and Pacific Coast markets, as well as for tourists from and to Jasper and Banff.

There are also high standard main highways in the Central Peace River district with a system of good interconnecting roads.

Main Highway No. 2 after leaving High Prairie goes to McLennan, up to the town of Peace River and across the north part of our area through Grimshaw to Fairview. There it runs south through Rycroft to Grande Prairie and west through Beaverlodge to Dawson Creek. Because of this route through fine scenic and recreational areas from Athabasca along Lesser Slave Lake and because of the development possibilities of the Lake Winagami Park region, the paving of this road is very important and valuable commercially as an access road for tourists.

Highway No. 49 leaves Highway No. 2 at Donnelly and runs straight west through Falher, Girouxville and Wanham to Rycroft and Spirit River continuing through Gordondale to Dawson Creek, B.C.

The southern part of the district is served by part of Highway No. 34 from Valleyview through Goodwin to Grande Prairie and then by Highway No. 2 to Dawson Creek, B.C. Highway No. 34 also runs north from Valleyview to High Prairie, Donnelly over Highway No. 2 to Peace River town.

Some twelve thousand commercial vehicles and trucks are registered in the CD-15 area, indicating the need for, and extensive commercial use made of, this entire road system.

## COMMUNICATION

The area under survey is quite centrally located from the standpoint of communication being on the route to Northern British Columbia, Yukon and Alaska, by road and by air, and to the North West Territories by road and rail. The Central Peace River District is provided with all types of communication services, mail, telegraph, telephone, microwave and news media.

A great deal of the freight taken into or out of the area is transported by truck, particularly livestock, lumber and plywood, meat, other foods and staples. Most of this trade is handled by large firms based in Edmonton, Vancouver and other places outside the area. However, a few local firms are in the trucking business and there is a great deal of merchandise moved internally by truck.

A coachways company operating from Edmonton, provides a year-round daily bus service handling passengers, mail and express to centres in the Central Peace River area and beyond. Depots are maintained at many points, and buses for special purposes and tours can also be obtained on a charter basis.

There are over fourteen thousand passenger cars in the district, and heavy traffic from and to Edmonton and British Columbia and the surrounding areas. In addition, tourist traffic is constantly increasing as pointed out in the separate section of this report on "Tourism".

These facilities provide all of the Central Peace River District with fine road transportation, access from and to all major centres on the continent, and particularly with the Alberta, British Columbia, Yukon, Alaska, and North West Territories trading areas.

\* \* \*

It is difficult and in many cases impossible to make a factual comparison of general freight costs to and from the area. Published rates are not always the actual rates if special conditions prevail. Transportation companies and independent truckers quote special or "agreed" rates under contract, backhaul, and volume arrangements. Moreover, on many items particularly certain foodstuffs, there is a general practice of equalizing transportation costs by adopting a uniform selling price over wide areas such as the Prairie Provinces, or even the whole country.

The particular effect of transportation costs on certain products and other commodities has been mentioned in discussing them throughout this report. The cost of transportation from and to any area, in its competitive relationship to other areas is very often the determining factor. The Central Peace River District is no exception. The cost of supplies vital to the area often includes a high transportation factor. Likewise, for products manufactured in the district in comparatively small volume, cost of carriage to outside markets may be a deterrent. However, for natural resources produced in heavy volume, and such superior agricultural products of the district, as grains, legume seeds, and honey—quality and volume tend to overcome the transportation factor and give these products a good competitive position.

### MAIL

Letter mail of all classes, and parcel post services are provided into the Peace River district on a daily basis by air and by truck to central points such as Grande Prairie, Peace River and Falher. The airports at Peace River and Grande Prairie give daily air mail



access to the district, and on the surface daily mail is delivered overnight from Edmonton to Valleyview, Falher, Peace River and Grande Prairie. From these points and others an "internal" daily system is routed to population centres on the main roads, which is supplemented by local stage services and rural deliveries several times per week to all rural residents.

All regular Post Office facilities are available at the main centres.

Direct mail advertising and communication has the same facilities here as in any other similar part of the country.

\* \* \*

## TELEPHONE AND TELEGRAPH

The Central Peace River District is served by Alberta Government Telephones, a member of the Trans-Canada Telephone Association, connected by voice circuits provided over radio and land lines to all points in Canada, the United States and the world.

Long distance services are also being upgraded so that the Peace River area will have Direct Distance Dialing Service and automatic number identification in 1966.

Alberta Government Telephones also operates a microwave system into Peace River through which it provides commercial telephone connections from and to the Mackenzie District in the North West Territories and is constructing a "heavy route" microwave system from the Peace River District to the United States. In addition to this, the expanded microwave plant from Coutts to Grande Prairie is connected

by a new Canadian National Telecommunications microwave system to the Alaska border.

Thus the Central Peace River District is connected to and is a vital link in the most complete microwave and radio-telephone communication system in Canada.

The Northern Alberta Railways operate the usual telegraph and teletype service to the Peace River area.

All these up to the minute facilities provide for the most immediate verbal and written communication from and to supply centres, locally throughout Western Canada, and in fact to any place in the world with similar conveniences.

## NEWS MEDIA

In the district there is one daily newspaper, the Herald Tribune, published at Grande Prairie, and other daily papers, chiefly from Edmonton, have wide circulation throughout the area. In addition, a number of weekly newspapers are published, including the Peace River Record Gazette, Fairview Post, Beaverlodge & District Advertiser, Falher Smoky River News, High Prairie Progress, Spirit River Signal, and the Valleyview Times.

The area is served by two radio stations, CKYL at Peace River and CFGP at Grande Prairie, and television re-broadcasting stations are located at the same two centres and are tied into the national networks.

Thus, ample and up-to-date facilities exist to make the impact of commercial advertising and notices of all kinds and from all sources, both constant and effective.

## MARKETS

### RESUME OF SOME IMPORTANT CONSIDERATIONS

The growth of the economy of the Central Peace River District is assured on a steady basis but the rate of expansion in the various categories of business in the District is dependent on the development and the growth of the respective market areas in which products of the District are sold.

That is, if Edmonton represents the market or chief market for livestock or vegetables, then the rate of growth of the vegetable or livestock economy in the Peace River District is dependent on the growth of Edmonton, and the packing industry there.

If the chief market for iron ore or metallurgical products and coking coal is (say) Japan, then the development of the iron ore and coal deposits and other metallurgical products is dependent on the demand for these products in Japan. Of course there may be other markets.

Products like pulp and paper, wheat, steel, and petroleum are dependent on world market and economic conditions. On the other hand, natural gas is presently dependent on North American continental markets.

The local market does not substantially affect the demand and supply and therefore the prices of such items, which are largely outside the control of any local producer in the District.

It is products of the farm in the fresh vegetable, dairy and poultry categories, construction materials and products handled through retail merchandising channels, which are most affected by local demand.

The necessity for using economical and efficient methods and producing products properly graded according to the accepted standards and requirements of the markets in which the products must be sold cannot be over emphasized. Modern methods of storage, refrigeration, transportation, processing and packaging, pricing, grades and standards, selling and advertising are all subject to constant change and require constant study.

Consumption of most products in any area is directly related to population and to indicate the comparative size of markets in different areas, a table is attached showing the estimated possible populations in certain areas on a very approximate basis.

These figures indicate that the overall population for the areas shown will have doubled between 1961 and 1981, but must not be taken as individually factual, as they are only presented for the purpose of illustrating the size of possible continental markets for any products acceptable for sale in one or more of the selected areas.



## SUMMARY

There can be no doubt of the great future potential for industrial and commercial development in the Central Peace River District of Alberta in the next fifteen to twenty years, if the demand and supply factors mentioned in the outline on "markets" is kept in mind.

The general labour force gainfully employed in the Central Peace River District by 1981 is estimated at about 38,000 and the advent of certain major industries could add several thousand to this figure.

By 1981 this district will have a population of well over 110,000 with attendant increases in practically all of the surrounding region, representing a market area within 500 miles of some two and a quarter million people at that time, the majority in or near urban centres.

This environment with increasing educational, technical and cultural advantages, will create a wide range of demands for all types of products.

The agricultural industry will continue to dominate the basic economy of the area with considerable increase in cultivated acreage, that is some 3,200,000 acres in this category by 1981, and an estimated gross production value for all types of products at that date of nearly 100 million (1961) dollars.

Increased production will not only result from better farm management but will be accompanied by many technological changes in powered equipment and methods, better and more scientific techniques in the use of land, in animal husbandry and the like. By 1981 farm operation will have become much more automatic with every possibility of greater advantages in electronic and remote control of many functions.

The provincial and federal departments of agriculture will continue their most valuable research in increasing productivity, developing species compatible to the area, and practical assistance given to farmers of the district.

The Central Peace River District is one of the major forage seed growing and exporting areas in Canada. The present importance to the agricultural economy, in high quality and dollar value, of rape seed and the major grass seed crops such as creeping red fescue, alsike and red clover, with certain new types will continue and increase.

These crops being dependent on proper pollination has resulted in a very large beekeeping industry of over 25,000 colonies in this Peace River district.

The high quality and natural whiteness of Peace River honey is renowned wherever it is sold, and there is every indication that a specialty product saleable in high priced markets can be developed. The yields per colony are the highest in Canada, and by 1981 the value of honey production to the district can be well over one million dollars.

Certain vegetables, and a few fruits, of excellent quality are now grown at a number of places in the district, and the Shaftesbury Trail area in the river valley near Peace River town has particularly favourable conditions of soil and climate for greatly increased production of such products. The 1981 market of over two million people within 500 miles mentioned under that heading represents in graded staple vegetables a farm price value of some 16 million 1962 dollars, at least part of which could be supplied by volume production from the Peace River District.

In Canada by 1980, 15 million additional acres will be needed to feed and carry increased beef herds for Canadian consumption. The area under survey offers a bright future for raising livestock in this category with ample land available. This will provide for a larger high grade and more profitable cattle production which to a large extent could be absorbed by the ever-increasing Edmonton packing plant demand.

**TABLE M-1**  
**MARKETS**

**ESTIMATED POPULATIONS IN CERTAIN AREAS**  
(Based on very approximate calculations)

AREA	Approximate 1961 Population	Estimated 1981 Population
<b>Within 500 miles</b> .....	1,095,000	2,250,000
Central Peace River District	60,000	110,000
Balance of Northern Alberta (west side) .....	20,000	60,000
Peace River, B.C. ....	30,000	120,000
Prince George Area, B.C. ....	75,000	135,000
Edmonton Area (50 miles) ..	600,000	1,200,000
Calgary Area .....	300,000	600,000
Great Slave Lake (N.W.T.) ..	10,000	25,000
<b>From 500 to 1,000 miles</b> .....	2,800,000	4,535,000
Northern Saskatchewan .....	450,000	600,000
Southern Saskatchewan .....	500,000	650,000
Southern Alberta .....	300,000	500,000
Southern British Columbia ..	500,000	700,000
Vancouver Area (incl. Victoria) .....	1,000,000	2,000,000
Prince Rupert Area .....	35,000	60,000
Whitehorse Area .....	15,000	25,000
<b>Beyond 1,000 miles in Canada</b> .....	6,100,000	11,500,000
Manitoba Area .....	950,000	1,200,000
Lakehead Ontario .....	150,000	300,000
Toronto Area .....	5,000,000	10,000,000
<b>CANADA (Sub Total)</b> .....	9,995,000	18,285,000
<b>In U.S.A.</b> .....	19,370,000	40,000,000
Fairbanks, Anchorage .....	270,000	
Washington, Oregon .....	5,000,000	
Montana, Idaho, Colorado, etc. ....	3,500,000	
San Francisco .....	3,000,000	
Los Angeles .....	7,600,000	
<b>GRAND TOTAL</b> .....	29,365,000	58,285,000



Over one and a half million pounds of poultry are consumed in the local area and at the present average Alberta consumption rate this would increase to six million pounds in 1981.

First quality mink are presently raised in the Lesser Slave Lake area and the economy of this industry is linked with feeding them low cost fish. Fish are in short supply in the area and it is felt that waste fish from Great Slave Lake could well be used to the mutual advantage of the fishing industry there and the local mink ranchers. Chinchilla who feed on grains and forage crops also seem to offer good commercial possibilities.

\* \* \*

Forest reserves accessible from the area are substantial in stands of merchantable species such as white spruce, pine and fir. Poplar is also abundant.

Reserves pertinent to the area contain nearly 8 billion feet (board measure) of saw timber, 41 million cords of coniferous pulpwood and 64.5 million cords of poplar. Major increases in the utilization of these forests are to be expected.

The allowable cut of sawlogs alone could produce over five and a half million dollars by 1981, and the demand for plywood is such that there are likely to be additional production facilities in the area. One or two pulp mills can also be anticipated, each adding from \$10 to \$15 million annually to the local economy.

\* \* \*

There are some industrial mineral deposits in the district, such as silica, the development of which is largely dependent on technological and market factors. However the potential for peat moss production in certain areas is promising if conducted on a large scale basis.

The processing of the immense Clear Hills deposits of iron ore (in excess of 200 million tons), is planned for within the next three years. By 1981 the possibility of a large physical metallurgical centre (based on the initial iron ore installation) processing minerals from other northwestern mines should not be overlooked. An industry of this magnitude exporting minerals and products throughout the world would of course be a major development in the economy of the Central Peace River District and in fact of the whole of Alberta.

The large reserves of coking coal (up to 9 billion tons), south of the Grande Prairie area, could also have great significance in connection with local metallurgical development and transportation facilities for export purposes.

\* \* \*

There are abundant energy resources available to the area, and within the Central Peace River District in addition to coal deposits, we have petroleum, oil sands and natural gas, as well as potential hydroelectric sites on the Peace and the Smoky Rivers which alone total up to 500,000 H.P.

Natural gas will however continue to be the energy source for thermal power stations supplying

local requirements. The power system in the district is part of the whole interconnected provincial grid extending to the U.S. border. Thus constant and adequate electric power is assured, not only from present sources but by development in the future of a potential estimated three million horse power on rivers in Northern Alberta.

\* \* \*

The predicted increases in population, with considerable commercial and industrial growth in this area, gives assurance of expansion in all types of construction. This in turn will facilitate the development of structural material industries including sand and gravel, concrete, timber and plywood, which can be particularly beneficial to local residents who take advantage of these opportunities.

\* \* \*

The Central Peace River District has the promise of becoming one of the finest tourist and recreation regions in Alberta and is quite accessible. Although the area is relatively undeveloped there are at present an estimated 100,000 tourists entering it annually and spending there an estimated \$4.5 million per year. Development of properly appointed facilities with well trained personnel and courteous service could result in up to half a million tourists and a total annual tourist trade revenue in the district of some \$20 million by 1981.

\* \* \*

One of the most important factors in the development of any area is the provision of adequate transportation and communication facilities.

The Central Peace River District has the advantage of daily air services to Peace River and Grande Prairie, of high grade modern year round access highways, a network of good internal roads and railway service to almost all populated centres.

All of these facilities connect directly with Edmonton and thus with all points in Canada and the United States. Through British Columbia they connect with Prince George, Prince Rupert and Vancouver. To the northwest, our area, being on the Alaska Highway, is on the direct route to that state and the Yukon. The Great Slave Lake Railway and the Mackenzie Highway start in the Central Peace district and serve Northern Alberta and the Northwest Territories.

The cost of transportation to and from the area is definitely a matter of which great attention must be paid particularly in starting new enterprises of any sort. However quality products which obtain a higher price, and products involving steady shipments in large volume give such items a good competitive position. Moreover as the population increases in market areas nearer to the district, transportation costs will tend to become a less significant factor.

\* \* \*

As pointed out in the resume of important market considerations, these are vital not only in assessing the general economic prospects of the district, but in the success of each enterprise, present and future.





