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A REGIONAL PLANNING PROJECT IN CARBON AND STILLWATER COUNTIES

by

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A thesis submitted to the Architecture Faculty in partial fulfillment of the requirements for the degree of Bachelor of Architecture

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I. INTRODUCTION

That an urban crisis engulfs most parts of the civilized world is obvious to everyone who lives or works in urban conglomerations. The feeling of frustration in dealing with life in urbia is so strong that there are some who would like to abandon the idea of the city altogether.[1] The city seems to be given over to devitalized mechanisms, desocialized organisms, and a depersonalized society. The old criteria for city development were derived from the goals of increased materialism achieved by private enterprise based on economic grounds.[2] Man has exhausted these possibilities and now is his own self-betrayed victim. Many of our cities or downtown areas have become virtual ghost towns. They are busy eight hours a day on weekdays and are unpopulated in the evenings and on weekends.[3] The people have fled to the suburbian sanctuary. The downtown areas

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[1] Victor Gruen, The Heart of Our Cities (New York: Simon and Schuster, 1964), p. 19.

[2] Charles M. Haar, Land Use Planning (Boston: Little Brown and Company, 1959), p. 56.

[3] S. E. Sanders and A. J. Rabuck, New City Patterns (New York: Reinhold Publishing Corporation, 1946), p. 2.

suffer from a malady known as urban blight. All of this is due to neglect, greed, and lack of interest and knowledge. The people who have fled to the suburbs are still unhappy. The urban fringe areas are being devastated due to the lack of planning and control of expansion. The names of the subdivisions refer to non-existent lakes, woods, glens, dales, etc. Often the village shopping center can only provide a few of the desired trades or services. The recreation areas are few, overpopulated, and generally covered with litter. Suburbanites have given up the benefits of urban culture and have not fulfilled their dreams.[4]

Currently most of the new construction and planning is taking place within the larger central cities' corporate limits. The suburbs and outlying areas are ignored for the most part. Planning cannot be local and stop at municipal boundaries if social and economic forces, physical features, and functions extend far beyond those boundaries.[5] The shaping of the environment cannot be approached by compartmentali-

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[4] Gruen, op. cit., p. 27.

[5] Sanders and Rabuck, op. cit., p. 10.

zation. Thus, planning must become large scale. Housing and Urban Development in recent years has realized this and now promotes statewide and interstate regional planning.

In the past, planning has been thought of as necessary only for highly populated areas. This cannot continue. The United States is growing and unless planning on the broadest level and of the highest quality is utilized, the lands now known as sparsely populated will also be harboring the disadvantages of all known patterns of human habitation and facing problems derived from urban and regional spread.[6]

Thus, I have chosen for my thesis to become involved with a large scale planning project in the sparsely populated state of Montana. In the future as larger numbers of people have more leisure time, they will be looking for additional recreation areas. Montana will grow, as it is an ideal area for many types of recreation. Even now, several new commercial recreational areas are being planned, such as the Big Sky Project in the Gallatin Valley. Specifically, I have chosen to investigate and

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[6] Gruen, op. cit., p. 66.

plan a two-county area, which I shall refer to as the Planning Area. The two counties, Carbon and Stillwater, have been selected because of their linkage one to the other; because no planning or development has been proposed for these areas; and because of their current problems and potentials. These will subsequently be documented in some detail. Planning is a coordinated activity that embraces hundreds of the so-called specialties, guiding them into a single entity that transcends them all.[7] Because I am but one person, I realize the limitations imposed on me in undertaking this project. My goal in doing this is to develop a better understanding of what is incorporated into such a planning problem.

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[7] Jim Annin, They Gazed on the Beartooths (Billings, Montana: Reporter Printing and Supply Company, 1964), p. 2.

II. EXISTING CONDITIONS OF THE PLANNING AREA

There are numerous existing conditions and a wealth of background material that must be considered for the Planning Area if one is to obtain the true picture of the situation here. The Planning Area has certain distinct characteristics that separate it from the rest of Montana and the United States, and yet other characteristics that make it but an extension of the whole. It is my intention in the following sections to consider, consolidate, and correlate this information into a form for future use in the solution stage of the project.

A. The History

Much has been written of the explorations and early history of Montana in general and the Yellowstone Valley in particular. It would be impractical to go into an extensive discussion; the intent here is simply to give a brief background of the Planning Area.

In 1641, deSoto, on the Pacific coastline, claimed it as a colony for the Spanish empire. On January 1, 1743, Chevalier de la Verendrye crossed the Rocky Mountains after having ascended the Missouri River from Fort Berthold and established a claim to this area in the name of France.

In 1762, this region was ceded to Spain, but in 1800, returned by a treaty again to France. Napoleon Bonaparte sold it to the United States for fifteen million dollars and the deed to the Louisiana Purchase was signed in December of 1803.[1]

The first successful expedition sponsored by the United States was the Lewis and Clark expedition. The expedition left St. Louis, April 8, 1805, and reached the great falls of the Missouri, June 14, and the convergence of the three forks of that river, July 27. They named these forks the Gallatin, Madison, and Jefferson, and chose to continue their trip on the Jefferson as far as they could go. By September, they had crossed the Rockies to the Columbia. October, 1805, found the party building winter quarters near the Mandan villages, the traditional jumping-off place for exploring parties headed further west. What happened here during the next few months was to have a definite bearing on the exploration of the Yellowstone Basin. Several Frenchmen and a British trader named Hugh McCracken were at the nearby

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[1] Jim Annin, They Gazed on the Beartooths (Billings, Montana: Reporter Printing and Supply Company, 1964), p. 1.

Indian villages. When Mr. McCracken returned to Fort Montagne a la Bosse, he took with him a letter from Lewis and Clark explaining their mission. British curiosity was immediately aroused since their interests were in trading, and they sent an official party out to investigate. There was friction between the British party and the Lewis and Clark party. The latter did not want any foreigners in their party. When Larocque, the head of the British party, returned with the news to Fort la Bosse, the company officials organized an exploration of their own in the Yellowstone Basin.[2]

Although he never visited the Yellowstone country, it was David Thompson of the British Fur traders who calculated the source of the Yellowstone from information received from the Indians at the Mandan villages and was a mere 21 miles inaccurate. It was also in his records that the words "Yellow Stone" were first used.[3]

On March 23, 1806, the Lewis and Clark party started their return and after crossing the Rockies on

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[2] Mark H. Brown, Plainsmen of the Yellowstone (New York: G. P. Putnam's Sons, 1961), p. 24.

[3] Ibid., p. 23.

July 3, they divided into three parties; one took the north line along the Marias River to eventually join a second party that had gone back down the Missouri. The third party took a route that put them on the Yellowstone and thus started the history of the Yellowstone Valley. They joined the other groups at the mouth of the Yellowstone in August, and reached St. Louis, September 23. At this time the Yellowstone Valley was basically the property of the Indians.[4]

The success of the Lewis and Clark journey stimulated future explorations of the West. The new knowledge of this country also attracted more trappers, hunters, wolvers, and fur seekers. Trading posts were established along the Yellowstone. The history of the Yellowstone did not progress materially until the end of the Civil War, except for the Gore expedition. Gore's records in 1855, spoke extensively of the area including the Shields, Boulder, and Stillwater Rivers.[5]

In 1863, the James Stuart party started from

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[4] Annin, op. cit., p. 2.

[5] Ibid., p. 2.

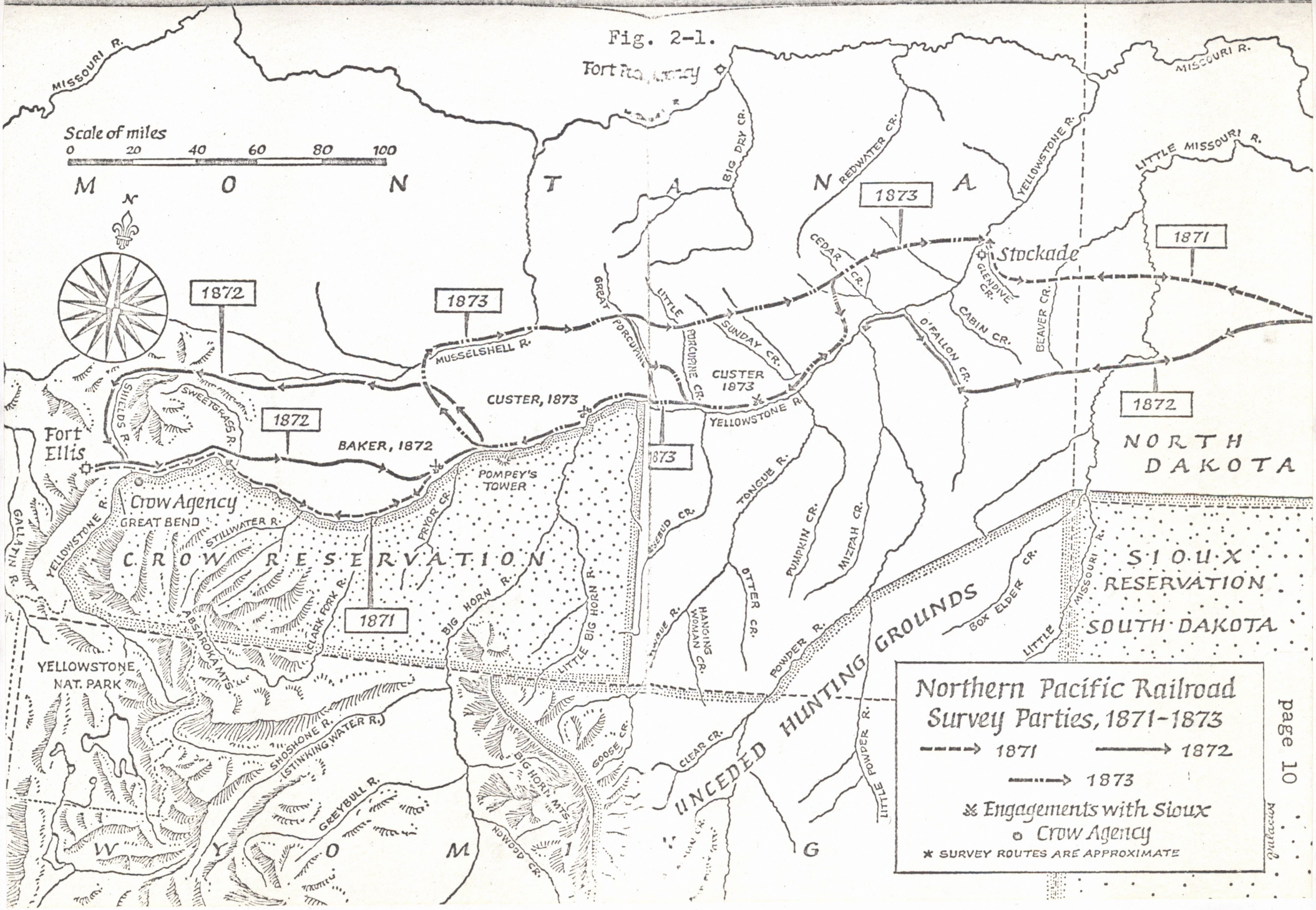
Bannock City, to explore a portion of the Yellowstone area for the purpose of discovering gold mines. On May 5, they were at the mouth of the Big Horn, and the expedition was attacked by the Crow Indians. Again, while the Stuart party was camped on the banks of the Yellowstone where Columbus now stands, a band of thirty Crow Indians appeared and managed to steal articles of all kinds. They were robbed beyond the possibility of future travel. The failure of the Stuart expedition halted future exploration until the survey parties of the Northern Pacific in 1871, 1872, and 1873.[6] (See Routes, Figure 2-1.).

In 1874, the citizens of Bozeman were determined to open up the Yellowstone area with a road to the head of navigation of the river and open the most direct route connecting with the present terminus of the Northern Pacific Railway, Bismarck, North Dakota. The stories of gold discoveries on the south side of the Yellowstone between the Rosebud and Powder Rivers, attracted numerous adventurous men for this party. On February 12, they reached Countryman's Ranch, (three miles west of Columbus),

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[6] Brown, op. cit., p. 196, 197.

Fig. 2-1.


Scale of miles
0 20 40 60 80 100
MONTANA
NORTH DAKOTA
SIOUX RESERVATION
SOUTH DAKOTA
WYOMING
CROW RESERVATION
UNCEDED HUNTING GROUNDS
Fort Ellis
Crow Agency
GREAT BEND
YELLOWSTONE NAT. PARK
Stockade
1871
1872
1873
CUSTER, 1873
BAKER, 1872
CUSTER 1873
MISSOURI R.
YELLOWSTONE R.
LITTLE MISSOURI R.
MUSSELSHELL R.
BIG DRY CR.
REDWATER CR.
CEDAR CR.
GLENDIVE CR.
BEAVER CR.
CABIN CR.
O'FALLON CR.
SUNDAY CR.
GREAT PORCUPINE CR.
LITTLE PORCUPINE CR.
SHIELDS R.
SWEETGRASS R.
GALLATIN R.
STILLWATER R.
PRYOR CR.
POMPEY'S TOWER
CLARK FORK R.
ABSAROKA MTS.
BIG HORN R.
LITTLE BIG HORN R.
TONGUE R.
PUMPKIN CR.
MIZPAH CR.
OTTER CR.
HANGING WOMAN CR.
ROSEBUD CR.
POWDER R.
BOX ELDER CR.
LITTLE MISSOURI R.
LITTLE POWDER R.
CLEAR CR.
GOOSE CR.
SHOSHONE R. (STINKING WATER R.)
GREYBULL R.
BIG HORN MTS.
NOWOOD CR.
Northern Pacific Railroad Survey Parties, 1871-1873
1871
1872
1873
Engagements with Sioux
Crow Agency
* SURVEY ROUTES ARE APPROXIMATE

but the Indians attacks forced them to return to Bozeman.[7]

An army report in 1875, said, "The Indians are bitter and hostile and the route is frought with extreme danger." With such a situation, it is little wonder that the Yellowstone Valley was slow in developing. The Sander's edition of the History of Montana, in 1885, indicates how sparsely the area was settled and how important the natural resources were. Even though the mining areas had drawn many prominent residents, this was still the land of the Indian, a few cattlemen, and a few homesteaders, who came when the N.P. came through.[8]

1. The History of Carbon County

Carbon County was formed from parts of Park and Yellowstone Counties, on March 4, 1895. Its name was derived from extensive local coal deposits. The county seat was placed at Red Lodge. As was mentioned earlier, this county was part of the Crow Indian lands. In the 1860's, both the Bozeman and Bridger trails traversed the

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[7] Annin, op. cit., p. 2.

[8] Ibid, p. 3.

the area, as did one of the Texas Longhorn trails. Coal deposits at Red Lodge were first developed in 1887, and in 1889, the Northern Pacific Railroad completed a branch line from Laurel to Red Lodge. After that, many settlers took up claims in the fertile valleys. In the beginning, livestock raising was the dominant agricultural activity; later, farms became popular and more important as irrigation projects were developed. The nearby coal mining communities provided a market for produce. In 1915, the first commercial oil well was drilled in the Elk Basin field and later the Dry Creek Field was discovered. The Elk Basin has continued to be one of the leading Montana oil fields. The natural gas from Dry Creek has also been important.[9] This county has also experienced from its inception several boundary adjustments, the latest in 1925, as will be discussed later.

2. The History of Stillwater County

Stillwater County faced several quandaries during birth. In this region there were three counties established, cornering where the Stillwater joined the Yellowstone.

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[9] Montana Almanac (Missoula, Montana: University of Montana, 1959-60), p. 379.

Forty miles on the west was Big Timber, county seat of Sweet Grass County, while Billings, the same mileage to the east, was the business center of Yellowstone County. Thirty-eight miles to the south was Red Lodge, county seat of Carbon County. One can see why the area that is now Stillwater County was neglected. There were other reasons for the creation of this county. It contained the confluence of the Stillwater and Yellowstone Rivers, and at that time this was a key point. Back in 1875, this was the main stagecoach stop for many miles of the Yellowstone Trail. This area also had ignored potentials. There was mining, vast forests of virgin timber, sites already retained by the government for power projects, and plenty of water for irrigation of the fertile lands. As far back as 1895, when Sweet Grass County was created, the residents had desired their own county. Several times after that the people of this area fought for their own county.

Mr. Annin was elected Senator, and on February 14, 1907, introduced a bill for the creation of Roosevelt County to be carved from Sweet Grass, Carbon, and Yellowstone Counties. There was bitter fire over this. The Big Timber Pioneer said: "A majority of the people realize the benefits to be derived from the new county would fall to a favored few, and the results would not justify." These were the

general feelings of all the counties involved. The move was defeated. Again in February of 1909, Senator Annin introduced a bill to create Stillwater County, with practically the same area and valuation as was set up for Roosevelt County. Again it was defeated. In the 1911 session, there was a new referendum to permit the residents of a proposed county to vote their desires. The bill passed.

In March, 1913, the vote went to the people for the creation of Stillwater County, and passed 819 to 146.[10] The county was named for the Stillwater River which was so-named by J. M. Bozeman, who crossed it at a ford where the water was relatively still. Another less likely story of the naming of the river was that it was named by Clark in 1806.

This area, too, was originally claimed by the Crow Indians. They claimed the Yellowstone Valley from the Beartooth Mountains to the mouth of the Tongue River. The Crow Reservation, established in 1851, included all of this present county and Carbon County. A treaty of

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[10] Annin, op. cit., p. 11.

1868, still included much of Stillwater and Carbon County, and it was not until 1891, that the area was open for white settlement. The first recorded visit of white men to the area was that of William Clark and party on their return trip in 1806. For the next fifty years, traders and trappers visited the region intermittently.

James Stuart's expedition passed through in 1863, as well as the parties of Jim Bridger and John Bozeman. The first permanent settlement was made in 1875, at the mouth of the Stillwater by Hoppe and Countryman, and was based on business from a newly established Indian agency a few miles up the river at Absarokee.[11] Absarokee was named for the Crows, who called themselves, "children of the large-beaked bird", from their word, "Absa", which was a large, crafty bird that no longer exists. The white man's translation of the Absarokee tribe was "Crow".[12]

Park City, where Clark and his party built rafts for their trip down the river, had a handful of settlers prior to 1882, when it was selected for a settlement by a colony from Wisconsin. It was originally called Clark

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[11] Montana Almanac, p. 415.

[12] Brown, op. cit., p. 41.

City. A mining rush occurred in the early 1890's on the upper reaches of the Stillwater River and the town of Nye arose. Copper and nickel were mined. In 1920, the deposits of chromite ores were discovered in this area.[13]

B. The Topography

Montana was aptly named by James M. Ashley, for it contains extensive areas of "mountainous regions". The Rocky Mountains are wider here than to the south and occupy approximately one-half, (49,000 Sq. Miles), of the state. Within the rugged, generally forested, region are found twenty-five or more ranges.[14] Of all the mountains in Montana, the Beartooth range is considered by many the most impressive. Granite Peak, the highest peak in Montana, lies in this range. The Planning Area contains this range as well as the plains of the more eastern part of the state. (See the map in Figure 2-2).

This makes the Planning Area unique. It has the grandeur of the high peaks capped with snow, the benefit of the streams which begin here, and the fertile basin that

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[13] Montana Almanac, p. 415.

[14] Ibid, p. 2.



LANDFORMS OF MONTANA
(Printed by permission of Erwin Raisz)

Fig. 2-2.

lies at the end of the range. Both Carbon and Stillwater county's topography varies from rugged mountain to fertile valley and from forested mountain slope to grass plains. Elevations range from 3,000 to 12,000 feet above sea level.[15] (See Figure 2-3 and Figure 2-4).

C. The Climate

The Planning Area also has a variety of climate. The differences in altitude are responsible for the variation of temperatures. For every 1000 feet increase in altitude, the average decrease of temperature is three degrees, Fahrenheit. The angle of the sun's rays departs considerably from the perpendicular in Montana; and, thus, the heating effect per unit time is less than that experienced at lower latitudes. The Planning Area does have the benefit of being at a lower latitude in Montana, however. Also, the Planning Area has long hours of daylight in the

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[15] Theodore J. Wirth and Associates, [Mueller Engineers], Comprehensive Area Water and Sewer Plan for Carbon County (Billings, Montana: August, 1968), p. 2; and Theodore J. Wirth and Associates, [Mueller Engineers], Comprehensive Plan for Sewer and Water for Stillwater County (Billings, Montana: 1970), p. 3. (See Appendix B, Section 3, for comment on this resource material).

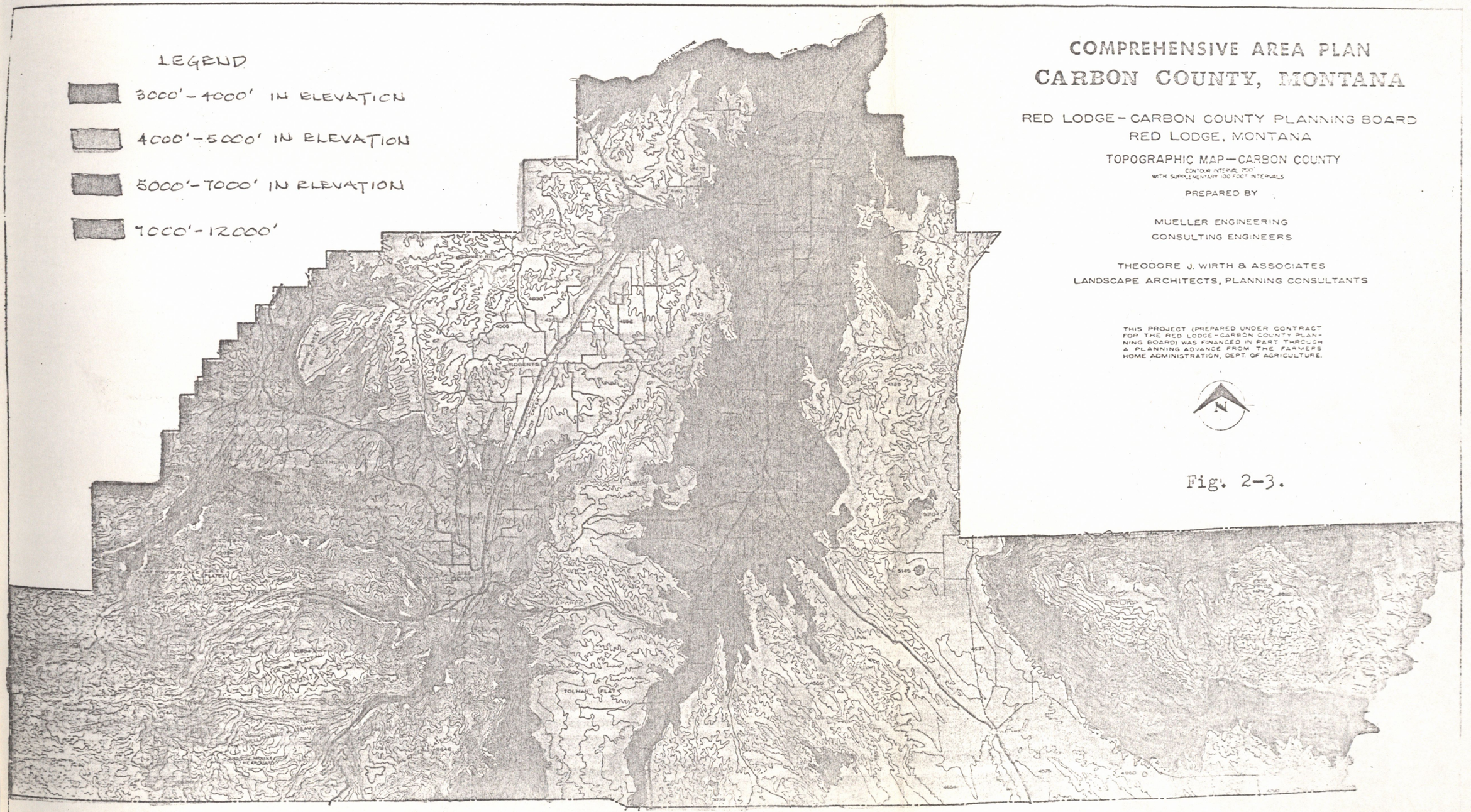
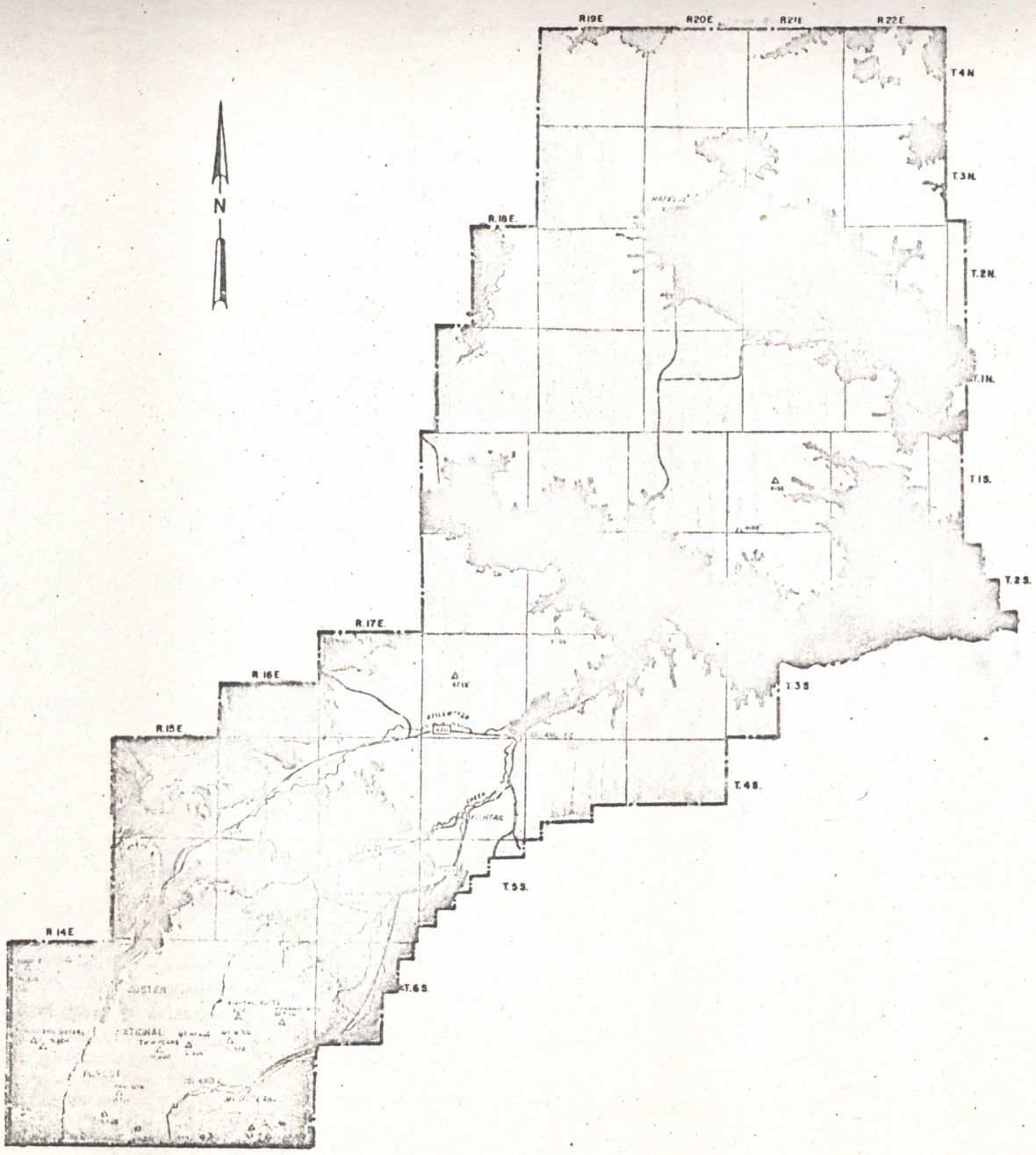

LEGEND
3000'-4000' IN ELEVATION
4000'-5000' IN ELEVATION
5000'-7000' IN ELEVATION
7000'-12000'
COMPREHENSIVE AREA PLAN
CARBON COUNTY, MONTANA
RED LODGE - CARBON COUNTY PLANNING BOARD
RED LODGE, MONTANA
TOPOGRAPHIC MAP - CARBON COUNTY
CONTOUR INTERVAL 200'
WITH SUPPLEMENTARY 100 FOOT INTERVALS
PREPARED BY
MUELLER ENGINEERING
CONSULTING ENGINEERS
THEODORE J. WIRTH & ASSOCIATES
LANDSCAPE ARCHITECTS, PLANNING CONSULTANTS
THIS PROJECT (PREPARED UNDER CONTRACT FOR THE RED LODGE - CARBON COUNTY PLANNING BOARD) WAS FINANCED IN PART THROUGH A PLANNING ADVANCE FROM THE FARMERS HOME ADMINISTRATION, DEPT. OF AGRICULTURE.
N
ROBERTS
RED LODGE
FOLSOM PEAK
BEARTOOTH MOUNTAINS

Fig. 2-3.



COMPREHENSIVE AREA PLAN
FOR
SEWER AND WATER
STILLWATER COUNTY

PREPARED FOR
COLUMBUS – STILLWATER CITY – COUNTY PLANNING BOARD
COLUMBUS, MONTANA

PREPARED BY
MUELLER ENGINEERING, INC.
CONSULTING ENGINEERS

THEODORE J. WIRTH & ASSOCIATES
LANDSCAPE ARCHITECTS, PLANNING CONSULTANTS

TOPOGRAPHIC MAP
Fig. 2-4.

LEGEND

- 3000' – 4000' FEET IN ELEVATION
- 4000' – 5000' FEET IN ELEVATION
- 5000' – 7000' FEET IN ELEVATION
- 7000' – 9000' FEET IN ELEVATION

SCALE IN MILES
5 0 5 10

in the summer months with a great intensity of sunlight occurring at higher altitudes, and it has permissive temperatures. (See Figure 2-5). Thus, conditions exist for growth of a wide range of crops. The more eastern part of the state faces a lack of precipitation problem because of the mountains on the west. However, the Planning Area being on the edge of the range averages high.

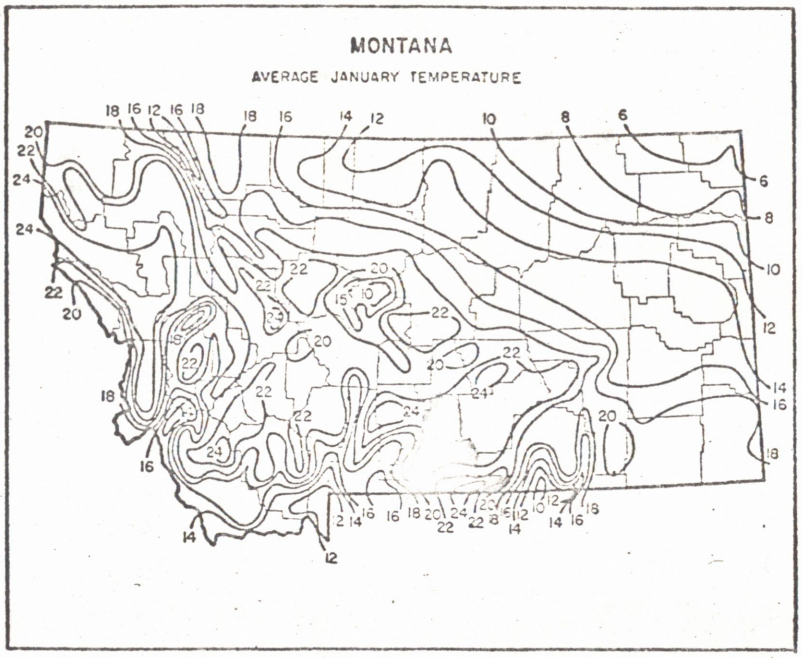
Montana is in the Westerlies wind belt. Principal air masses originate over the Pacific during the winter months. In the summer, generally, there is a thermal low pressure area in the southwestern United States which causes the flow of unstable air to move north to Montana which results in numerous thunderstorms. These also bring hailstorms. The mountains to the southwest of the Planning Area decrease the frequency of hailstorms,but provide the benefit of higher rainfall averages.[16] (See Figures 2-6 and 2-7).[17]

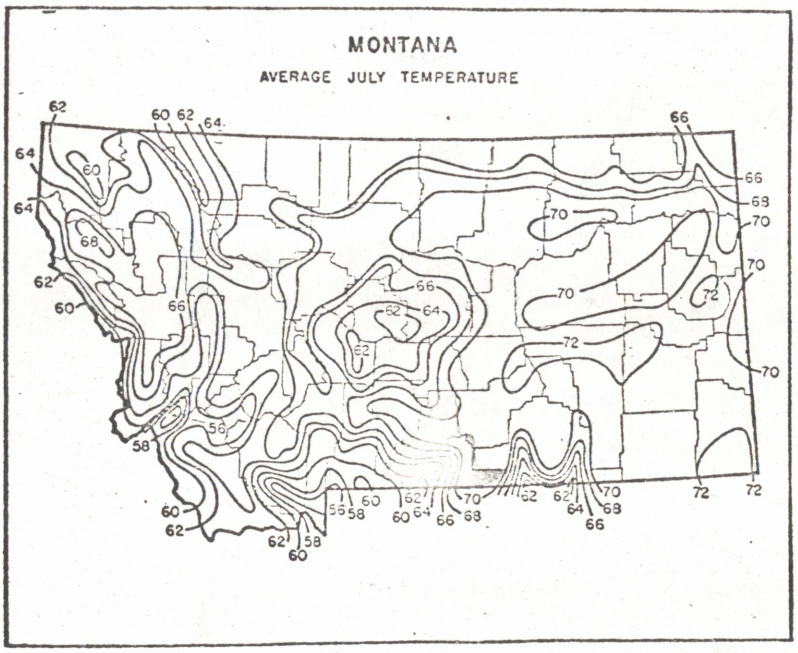
Climatic benefits of the area are low relative humidities which reduce discomfort in both summer and winter and a large daily change in temperature which assures

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[16] Montana Almanac, p. 25 ff.

[17] For more information on killing frosts and the wind chill factor and temperatures, see Appendix A, figures A-1 through A-4.





Source: U. S. Dept. of Agriculture, Yearbook of Agriculture, Climate and Man, 1941.

Temperature Averages
Fig. 2-5.

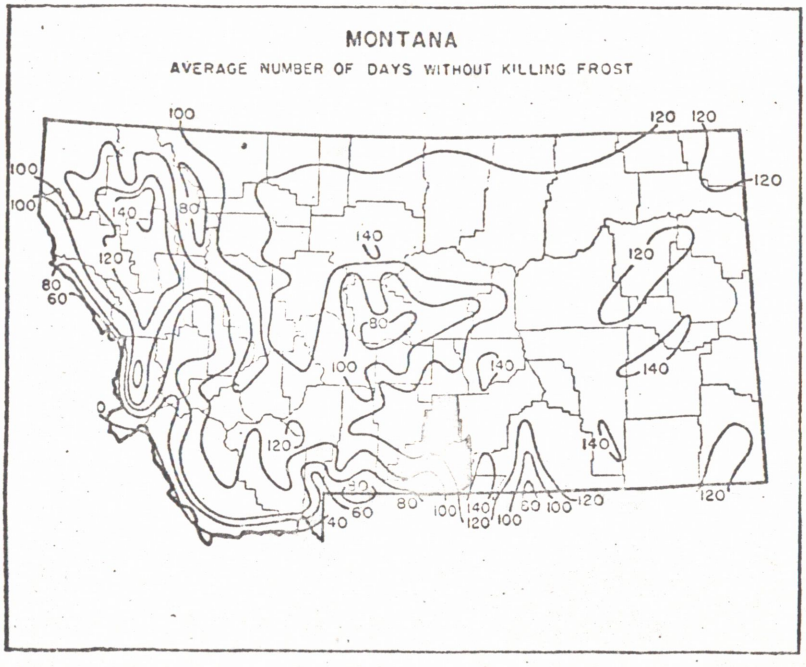


Fig. 2-6.

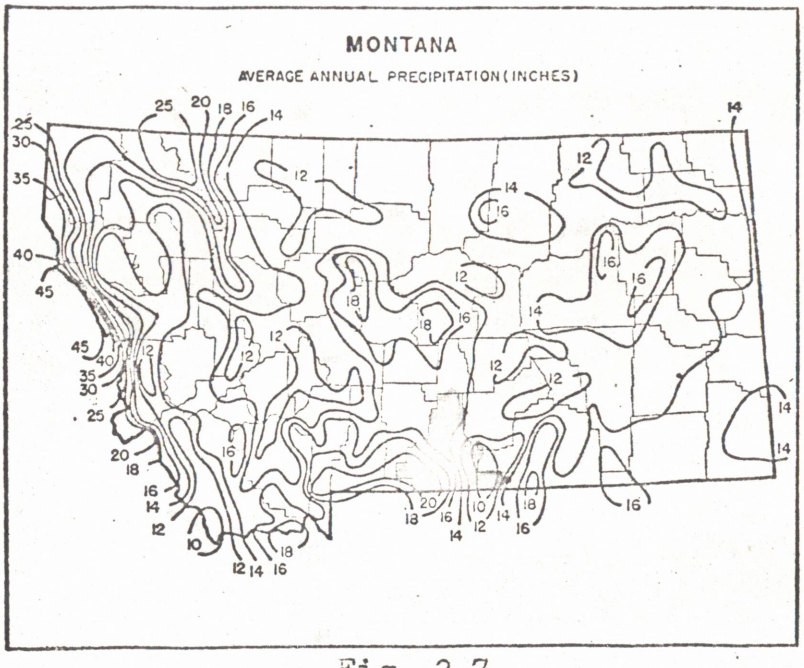


Fig. 2-7.

Source: U. S. Dept. of Agriculture, Yearbook of Agriculture, Climate and Man, 1941.

comfortable sleeping conditions in the summer.[18]

1. The Climate of Carbon County

The climate of Carbon County as the climate of the Planning Area, varies considerably from one area to another because of the wide range of topographic conditions. (See Figure 2-3, page 19). The effect the topography has on the climate is important to the water resources of the county. Prevailing west to southwest wind flowing across the high mountains of Carbon County provide the highest annual precipitation values. A "rain shadow" effect occurs to the east of high mountains in the Clark's Fork Valley near Belfry, which in turn results in the lowest precipitation values in the county. As an example of the net effect of these conditions, a precipitation measuring station 18 miles southwest of Red Lodge, recorded a twelve-year average annual total of 35.23 inches, while a station nine miles southwest of Belfry recorded a ten-year figure 5.51 inches. Less than 25 miles separate the two measuring stations. Precipitation amounts north of the mountains decrease to annual averages of 19.91 inches at Red Lodge,

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[18] Ibid, p. 10.

15.45 inches at Roberts, 14.09 inches at Joliet, 10.23 inches at Bridger, and 15.98 inches six miles east of Edgar. Precipitation occurs as steady rains in the spring months of April through June, intermittent showers throughout the summer and early fall months, and as snowfall during the winter months. Snow does not tend to remain on the ground in the lower elevations of the county due to "chinook" wind conditions and frequent winter warming spells. Snow begins to accumulate in November, in the higher mountain valleys, however, and continues to build up until late March, or early April. Average annual snowfall in the mountains is estimated to be several hundred inches. An average of just over 100 inches of snow falls annually at Red Lodge.[19] The temperature also varies throughout the county including some of the warmest and coolest temperatures in the state. (See Figure 2-5, page 22).

2. The Climate of Stillwater County

Stillwater also has a variety of climate for the same reasons as Carbon County. And again, precipitation in the mountainous areas is greater than in the other portions

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[19] Comprehensive Plan for Carbon County, p. 75.

of the county. See Table I.

TABLE I

PRECIPITATION VALUES FOR VARIOUS LOCATIONS IN STILLWATER COUNTY

Location	Approx. Elevation Above Sea Level	Annual Precipitation (inches)
Absarokee	4,000	21
Columbus	3,600	14
North of the Yellowstone River	3,200-4,000	14
Nye	4,800	22
Mystic Lake	6,500	25

Summer storms occur occasionally with cloud-burst intensity. Snowfall in the higher mountain valleys is estimated to be several hundred inches and it accumulates until early April. The area north of the mountains receives precipitation in the form of steady spring rains during April, May, and June. During the summer and early fall, precipitation is from intermittent showers, and during the winter months in the form of snow. The mountains in the southern portion of the county provide a large area for water storage in the form of snow. These mountains are timbered and contain many glaciers. Granite Peak, mentioned earlier, rises to an elevation of 12,799 feet above sea level and is situated in the mountains near the Stillwater, Carbon, and Park County boundary. Runoff from

the snowpack of these mountains usually occurs in July and August, and coincides with the period of maximum demand for water in the irrigated valleys below. In extremely dry years, there have been reports of water shortages in Fishtail Creek. Also, the temperatures vary within the county including both some of the coolest and warmest within the state.[20] (See Figure 2-5, page 22). The temperatures vary from an average low of 15 to 18 degrees to an average high of 88 to 92 degrees.[21]

D. The Soil

Distribution of soil types is controlled primarily by climate and topography. In mountainous western Montana, soil cover is mainly partially decomposed rock, which is generally residual and slowly moving down the slopes. This means the mountain soils are thin and poorly developed. In the plains area of eastern Montana, soil cover has matured under a climatic regime of cold winters, warm summers with low precipitation, and a vegetation consisting of grasses. This area has little soil movement, which also means relatively no earthquakes.[22] The Planning Area is

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[20] Comprehensive Plan for Stillwater County, p. 41.

[21] Ibid, p. 3.

[22] Montana Almanac, p. 82.

unique in that it is the meeting of the mountain and the plain. This provides a variety of soil and relatively low probability of earthquakes.

1. The Soil of Carbon County

Carbon County has a complicated geologic history which has influenced the soil structure of the area. The important geologic features of the county are the uplifted mountainous areas: the Beartooth and the Pryor Mountains. The drainage pattern of the entire county is north-northeast from these mountainous regions. As a result, the major stream valleys, Clark's Fork Valley and Rock Creek Valley, are filled with alluvial gravels whose origin can be traced directly to the upper regions.[23] Also, many of the lower valley soils can be traced in part to the alluvium itself. Movement of glaciers from the Beartooth Plateau area resulted in the deposition of glacial till material over the south-central portion of the county. Many of the soils of the upper benches on the north slopes of the mountains were derived from these glacial till deposits. Soils of the Beartooth Plateau, itself, are chiefly derived

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[23] Comprehensive Plan of Carbon County, p. 63.

from the local rock formations and have been worked by the action of glaciation and frost heaving. These soils are almost entirely above timberline and are generally regarded as being comprised of very coarse materials.[24]

2. The Soil of Stillwater County

Stillwater County also has a complicated geologic history which has influenced the soil structure of the area. The dominating geologic features here are the Beartooth Mountains. The southern half of the county has a drainage pattern to the northeast from these mountains through the Stillwater Valley to the Yellowstone River. Soils in the county are formed from sandstone, shale, limestone, and granite rocks, and glacial till with mixing of these materials evident. Texture of soils range from very sandy to very clayey.[25] Stillwater County faces a few more soil problems than Carbon County, including more salts and alkali, but has the benefit of some fine types of rocks, for aesthetic as well as structural purposes.

In Appendix A, one can find a classification of soils for both Carbon County and Stillwater County. Each

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[24] Ibid, p. 64.

[25] Comprehensive Plan for Stillwater County, p. 36.

major soil is discussed and its boundaries put forth in a map. (See figures A-6 and A-7). The conclusions one can draw from this datum of the Planning Area are that generally the soil poses no problems in the laying of pipes for various water systems and provides a good base for various building projects. Also, for the most part, the Planning Area has soils that include some of the best tillable soils in the state and with irrigation, where possible, this can become a beneficial economic factor for the state. The areas that cannot be irrigated are also important in that they become the range lands and dryland farming areas.

The areas of mountainous soils cannot be ignored either, as they can provide vast areas for recreational purposes. The Planning Area has the advantage of being able to draw from various types of soils for a greater variety of activities than are possible in many other areas in the state.

E. The Flora and Fauna

As a result of the great diversity in climate, soil, and topography, there is a considerable variety in the Flora and Fauna of the state and, specifically of the Planning Area.

In the Flora category, the state boasts 2000 species

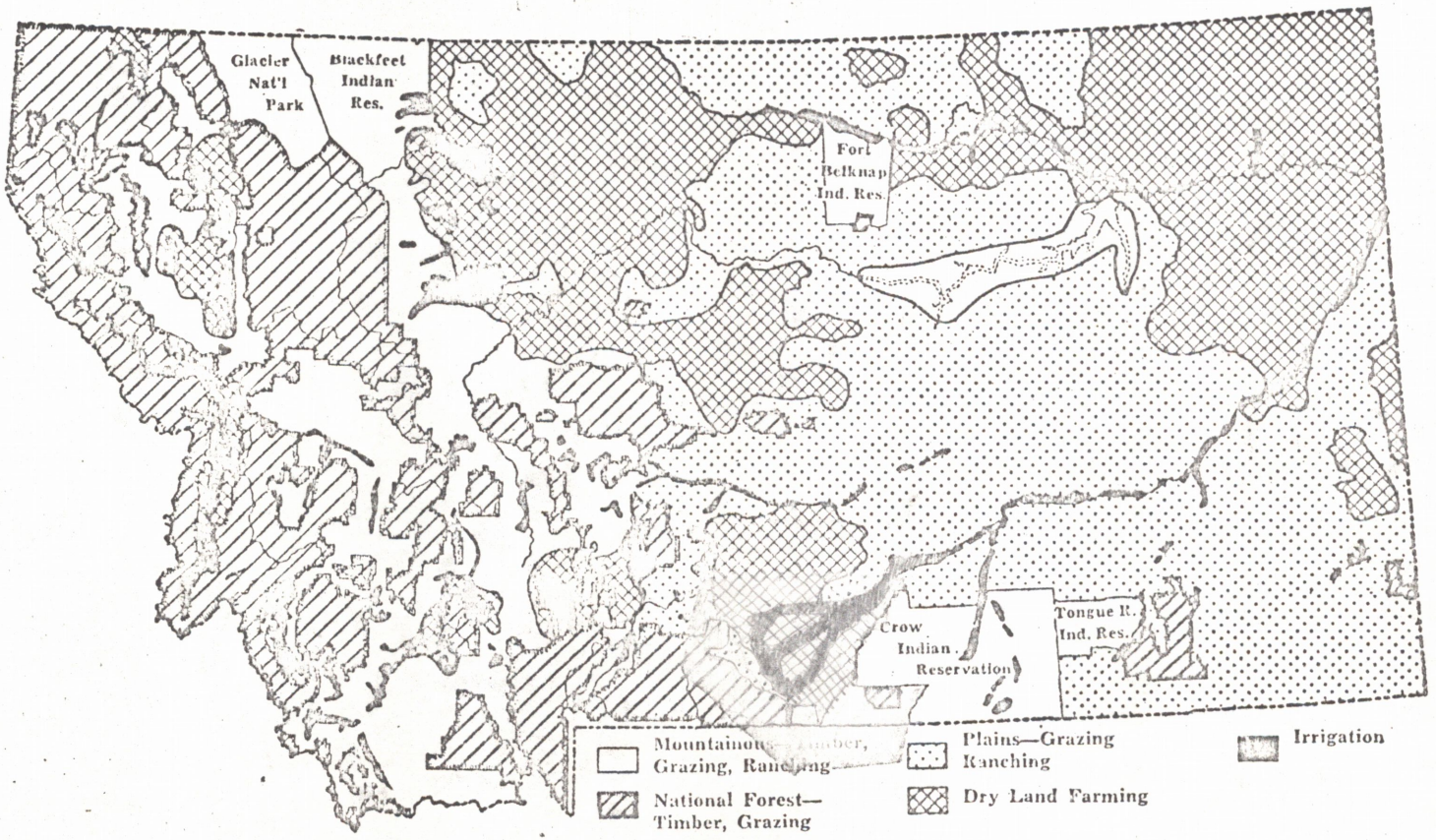
of wild flowering and non-flowering plants. This is divided into three groups. The first group, the Subalpine, is that which is found at the highest altitudes. This category includes the conifers, glacier lilies, Indian paintbrush, etc. The second group, called Montane, is found in the lower mountain areas and includes the hardwoods, the bitterroot, which is very common in Carbon County, etc. The third group is the Plains, which most commonly include the grasses.[26] Figure 2-8, demonstrates the variety of Flora in Montana, and one will notice that it is only in the Planning Area that all groups are found. In Figures 2-9 and 2-10, page 33, there is a further classification of the grasses and it can be observed that the Planning Area again has a variety of only the best grasses or the ones which can be heavily grazed. (Additional information can be found in Appendix A).

Montana's Fauna category boasts 90 species of mammals, 31 species of amphibians and reptiles, 60 species of fish, and 300 species of birds.[27] The Subspecies are not included in these figures. Appendix A, Figures A-7 through A-11, lists these Fauna species and their location in the

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[26] Montana Almanac, p. 41

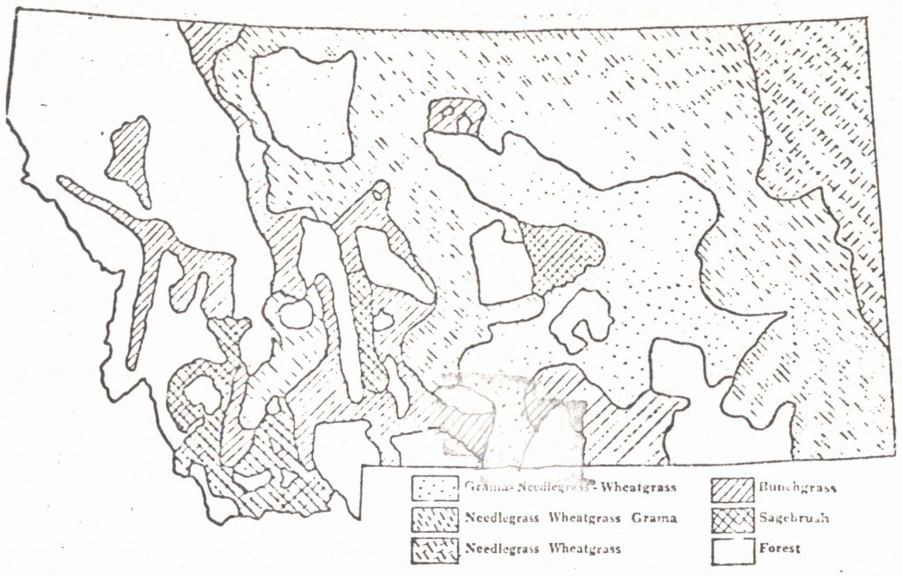
[27] Ibid., p. 42.



GENERAL LAND USE, MONTANA

Source: Montana State College, Agricultural Experiment Station and Extension Service, **Montana Agriculture Basic Facts,** Bulletin No. 293, Bozeman, 1956.

Fig. 2-8.



MAJOR RANGE TYPES OF MONTANA
By Melvin S. Morris, Montana State University, Missoula.

Fig. 2-9.

Fig. 2-10.

CLASSIFICATION OF MAJOR GRASSLAND COMMUNITIES ON AN ECOLOGICAL BASIS SHOWING RELATIVE ORDER OF DOMINANCE[1]

Item[2]	Soil Texture			
	Clay Loams		Sandy Loams	
	Moderate Grazing	Heavy Grazing	Moderate Grazing	Heavy Grazing
Mixed Prairie Complex (Great Plains)				
Summer Precipitation				
14-16 inches: Dark Chestnut	Western wheatgrass Needle-and-thread grass Grama grass	Grama grass Western wheatgrass	Needle-and-thread grass Western wheatgrass Grama grass	Grama grass Sedge Needle-and-thread grass
12-14 inches: Light Chestnut	Western wheatgrass Grama grass Needle-and-thread grass	Grama grass Sagebrush Western wheatgrass	Needle-and-thread grass Grama grass Western wheatgrass	Grama grass Needle-and-thread grass Sagebrush
12 inches or less: Brown	Grama grass Western wheatgrass	Sagebrush Grama grass	Grama grass Needle-and-thread grass	Sagebrush Grama grass
Palouse Prairie Complex (Western Valleys)				
Spring & Fall Precipitation				
15-20 inches; Dark Chestnut or Chernozem	Fescues Bluebunch wheatgrass	Bluebunch wheatgrass Native bluegrass and/or Sagebrush	Bluebunch wheatgrass Fescues	Needle-and-thread grass and/or Cheatgrass or Oatgrass
12-15 inches: Light Chestnut	Bluebunch wheatgrass Native bluegrass	Native bluegrass Cheatgrass	Bluebunch wheatgrass Native bluegrass	Cheatgrass Annual weeds
Miscellaneous Communities on Azonal or Intrazonal Soils				
Lithosols				
Badlands, Sandstones & Shales	Western wheatgrass	Sagebrush	Needle-and-thread grass	Sagebrush
Scablands, Marine Clays	Western wheatgrass	Sagebrush		
Solonetz	Western wheatgrass	Grama grass		
Alluvial	Western wheatgrass Wildrye grass	Sagebrush	Western wheatgrass	Sagebrush

[1]Morris, Melvin S., An Ecological Basis for the Classification of Montana Grasslands, Forestry School, Montana State University.

[2]Scientific names are as follows: Bluebunch wheatgrass—Agropyron spicatum, Cheatgrass—Bromus tectorum, Fescues—Festuca spp., Grama grass—Bouteloua gracilis, Native bluegrass—Poa secunda, Needle-and-thread grass—Stipa comata, Oatgrass—Danthonia spp., Sagebrush—Artemisia spp., Sedge—Carex spp., Western wheatgrass—Agropyron smithii, Wildrye grass—Elymus cinereus.

state. As in the case of Flora, it can be concluded that the Planning Area has the greatest variety of Fauna of any area in the state.

F. The Water and Mineral Resources

The water and mineral resources of an area are also dependent upon the topography, climate, and soil. They become important determinants of land value and, thus, the economy of the area.

1. The Water Resources of the Planning Area

The Planning Area has diversified water resources.

a. The Water Resources of Carbon County

Carbon County has an extensive drainage system which has characteristics of both mountainous and plains topography. The drainage within the county runs several directions; however, the main drainage pattern is to the north-northeast. The Yellowstone River is the eventual recipient of all the runoff from Carbon County. The Yellowstone River borders Carbon County on the north and its drainage area is an important part of the vast Missouri River Basin. The primary streams which flow through Carbon County are Rock Creek and the Clark's Fork of the Yellowstone. Rock Creek has its origin in the Beartooth

Mountains southwest of Red Lodge and flows northeast more than 50 miles before joining the Clark's Fork near Rockvale. The Clark's Fork has its origin in the Beartooth Mountains northeast of Cooke City, and flows 57 miles before entering Carbon County at the Montana-Wyoming border south of Belfry. The Clark's Fork flows northeast through Carbon County for 45 miles before entering Yellowstone County just southeast of Laurel. Four miles from this point it joins the Yellowstone River.[28]

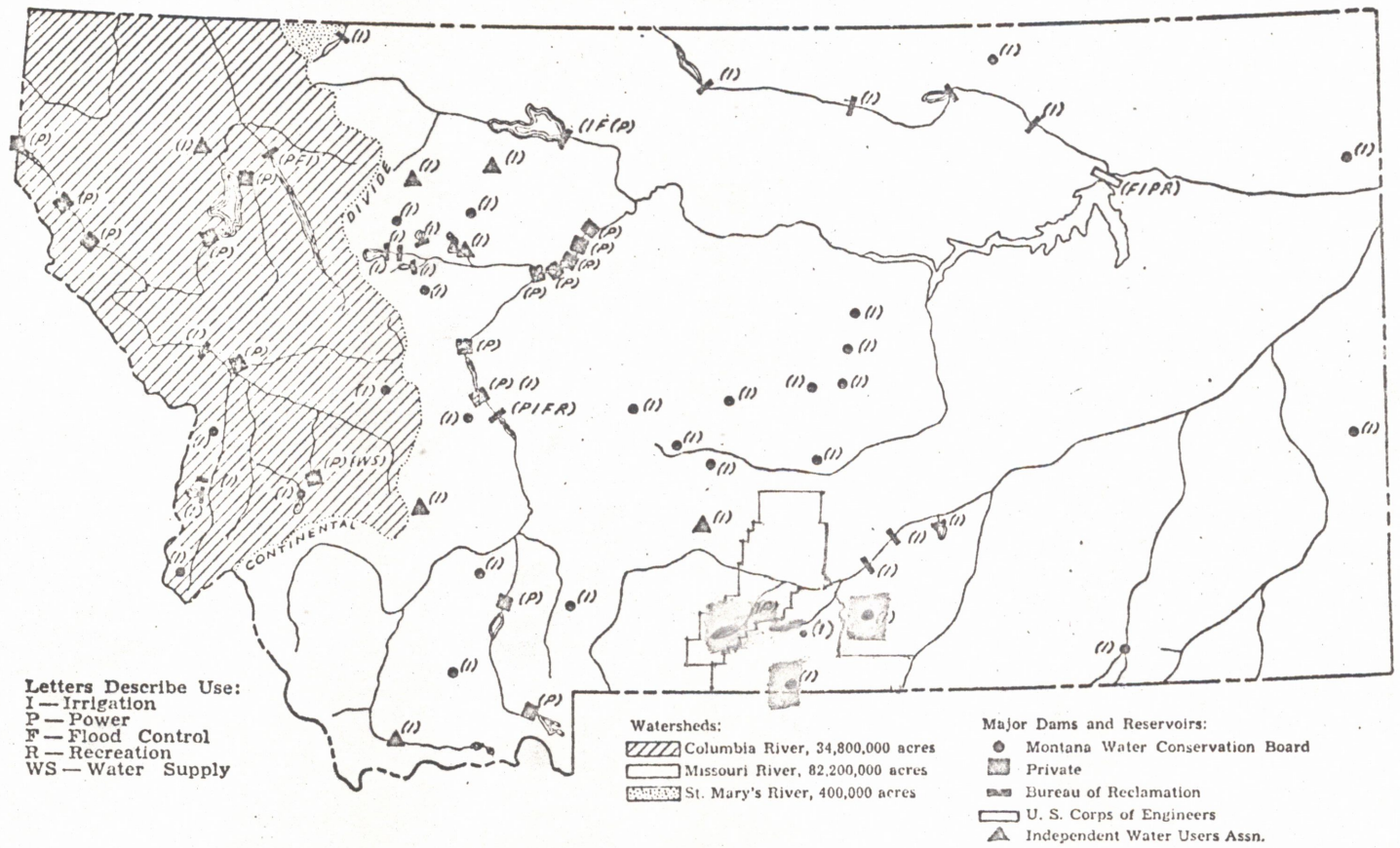
Two other tributaries of the Yellowstone are an important part of the Carbon County drainage system. The Big Horn River, which now forms the Yellowtail Reservoir, borders Carbon County on the southeast. (See Figure 2-11). The other is East Rosebud Creek. It is the major stream in western and northwestern Carbon County and joins the Stillwater River in Stillwater County just south of Absarokee, Montana.[29]

Many other smaller streams in Carbon County provide a year-round source of water for irrigation, livestock, and municipal needs. Among these are: West Fork of Rock

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[28] Comprehensive Plan for Carbon County, p. 72.

[29] Ibid., p. 73.



MONTANA WATERSHEDS — WATER DEVELOPMENT, 1957
(Printed by permission of the League of Women Voters of Montana)
Sources: U.S. Geological Survey, U.S. Bureau of Indian Affairs, U.S. Bureau of Reclamation, U.S. Corps of Engineers, Montana Water Conservation Board and Montana Power Company.

Fig. 2-11.

Creek, Red Lodge Creek, Bluewater Creek, and Bear Creek. As far back as 1895, Carbon County had as much as half of its area artificially watered. Shortly after becoming a county, an extensive canal system was built using the Upper Rosebud at a cost of $ 100,000.[30] To date, two water storage reservoirs have been constructed in the county for the purpose of irrigation. One is at Glacier Lake, built in 1937, and the other is Cooney Reservoir on Red Lodge Creek built in 1936. (See Figure 2-11). For further information on the streams and their drainages, see Appendix A.

Another important source of surface water lies in the high mountain lakes of the Beartooth Plateau. The quality of water is excellent for the survival and growth of trout.

Ground water is also used quite extensively throughout Carbon County, mostly for domestic and stock use. The potential for future use of ground water is practically unlimited as all available data indicates a vast amount of high quality water is stored in several aquifers throughout

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[30] Tri County Atlas; Meagher, Sweetgrass and Carbon Counties, (Big Timber, Montana: Henry and Geiger, 1902?), p. 10.

Carbon County. The alluvial sands and gravels are loosely compacted and provide for storage of large quantities of ground water. Recharge for the valley gravels is from the streams themselves and also from the irrigation and precipitation in the area. Fluctuation of ground water levels along the valley floors reaches a high during periods of maximum irrigation, usually in late summer, and a low level is common in early spring prior to irrigation and runoff.[31]

There are at least five important aquifers beneath Carbon County. Large artesian flows can be expected from the deeper formations along the western flanks of the Pryor Mountains. West of the Clark's Fork River Valley, younger geologic formations appear at the surface than in the Pryor Mountain area, due to the predominate southwestward dip of these geologic structures. Common water-bearing formations which appear are the Eagle sandstone, which is an important aquifer throughout the central and eastern Montana areas, and the Fort Union sandstones and shale. The latter formation does not yield the quantity of water that the Eagle or other deeper formations do, but

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[31] Comprehensive Plan of Carbon County, p. 77.

is important as a water supply for stock and individual farm use. Deeper wells drilled in the south and west portions of the county could be expected to penetrate the Eagle sandstone and produce quality water.[32]

b. The Water Resources of Stillwater County

Surface waters in Stillwater County include Halfbreed Lake in the northeastern portion, mountain lakes such as Emerald, Mystic, Island, Sioux Charlie, and Bill, in the southwestern portion, and the Yellowstone River, and its tributaries, in the central portion. The general drainage pattern is to the east. The land lying north of the Yellowstone River drains to the south and southeast and the lands south of the Yellowstone River drain to the north and northeast. All of the runoff again eventually flows into the Yellowstone River. The Yellowstone's main tributaries from the north are White Beaver Creek, Keyser Creek, Berry Creek, and Valley Creek. The main tributaries flowing from the south are Countryman Creek and the Stillwater River with all of its tributaries. The Yellowstone River crosses the county's western border at a point which is

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[32] Ibid., p. 78.

approximately three miles southeast of Park City.[33]

There is a hydroelectric plant on the West Rosebud and, since it was constructed, users recall only one year when water shortages have occurred. (See Figure 2-11, page 36). It provides water during dry years and retains flows during potential flood periods. Approximately 35,000 acres are presently being irrigated and an additional 11,000 acres could be irrigated. These lands lie in the Musselshell, Rosebud, Stillwater, and Yellowstone River Basins.

The high mountain lakes which feed the Stillwater and Rosebud drainage areas from the Granite Range, Stillwater Plateau, Fishtail Plateau, and Beartooth Plateau, are an important water resource of the county. In addition to their potential for providing irrigation waters, they also provide excellent trout fishing.

Large supplies of ground water can be obtained from the alluvial deposit along the river valleys of the Rosebud, Stillwater, and Yellowstone. Lack of ground water supply in the northeastern area of the county is a definite problem.Water-bearing deposits such as the Bearpaw Shales and Eagle Sandstone produce only small quantities of water.

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[33] Comprehensive Plan for Stillwater County, p. 40.

Ground water supply is available to all cities and towns within the county but in varying quantities.[34]

2. The Mineral Resources of the Planning Area

The varied geologic structure plays an important part in the mineral resources of the Planning Area. The Bighorn Basin, for example, is crossed by a series of folds running in a northwesterly direction between Bridger of Carbon County and Nye of Stillwater County. These anticlines along this line are called the Nye-Bowler lineament and are responsible for at least two producing oil and gas fields; Dry Creek and Golden Dome.[35]

a. The Mineral Resources of Carbon County

The history of petroleum exploration in Montana began in Carbon County. An oil seep, 5.5 miles south of the old Roscoe post office was test drilled in the late 1880's by Thomas Cruse. This was the first attempt to discover oil in Montana by drilling. This well was abandoned as a dry hole in 1889. The first oil and gas field in Montana was discovered by a prospector in 1901. The location was the Swift Current Creek Valley, which in 1910,

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[34] Ibid., p. 43.

[35] Comprehensive Plan for Carbon County, p. 41.

became part of Glacier National Park. This was the only discovery in Montana, that resulted from drilling near surface seepages. The exploration of surface structures, such domes and anticlines proved to be more productive. Again, the first known test hole drilled in a surface structure in Montana, for the purposes of discovering oil, was drilled in Carbon County. R. O. Morse drilled a well on the northeast flank of the Roscoe dome. It was also abandoned as a dry hole. Exploration continued and in 1915, the Elk Basin discovery well was drilled in the Elk Basin anticline.[36] Approximately 87 per cent of that field lies in Wyoming with the remaining 13 per cent, (120 acres), being in Carbon County. The Elk Basin Field became Montana's first commercially producing oil field. Since the initial discovery of oil in the Elk Basin, deeper wells have been drilled and larger pools of oil discovered. A discovery was made in 1942, and the size of the producing area in Carbon County increased to 1,375 acres.[37] Elk Basin has been ranked as the second largest source of oil in Montana. The average annual production of crude oil in Elk Basin is approximately 3.5 million barrels. Several other fields produce oil and

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[36] Tri County Atlas, p. 25.

[37] Comprehensive Plan for Carbon County, p. 43.

gas in Carbon County. They are Frannie, 1928; Dry Creek, 1930; Elk Basin-Northwest, 1947; Clark's Fork-North, 1956; and Belfry, 1958. At the present production rates, the future of the oil industry appears to be good.[38] Reserves are substantial and discovery of new fields quite possible.

Natural gas is produced at several locations in Carbon County. Belfry, Clark's Fork-North, Dry Creek, and Elk Basin Fields produce both gas and oil. The Golden Dome Field, north of Belfry, produces gas alone. The Golden Dome Field ranks high in production with 12,876,000 cubic feet of natural gas as a typical example, in 1961.[39] The Dry Creek Field produced 1.6 billion cubic feet of gas in 1965.[40] For perspective, the total natural gas production in 1961, for the State of Montana, was 34.5 billion cubic feet.[41]

The first coal mining operations in Carbon County began in Red Lodge, in 1887. Two mines were operated by a subsidiary of the Northern Pacific Railway Company until the

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[38] Ibid., p. 43.

[39] Mineral and Water Resources of Montana (Butte, Montana: United States Department of the Interior, Bureau of Mines, 1961), p. 43.

[40] Minerals Yearbook, Vol. III (Butte, Montana: United States Department of the Interior, Bureau of Mines, 1965), p. 499.

[41] Mineral and Water Resources of Montana, p. 43.

cheaper stripping operation in the coal fields of eastern Montana was developed. In 1918, more than 800 men were employed in the Red Lodge mines. Other coal mining operations in Carbon County were begun around the turn of the century. Several large mines were opened near Bearcreek, east of Red Lodge, and production from one continues to this date. Three main coal fields have been mined in Carbon County, and all produce high volatile C Bituminous rank coal. The Bridger and Silvertip fields produce coal from three different levels of the Eagle sandstone. The Red Lodge field, mined at both Red Lodge and Bearcreek, produces coal from eight beds of the Fort Union formation.[42] The coal beds thin in a southwesterly direction and are terminated on the west by the Beartooth Thrust fault. The coal is believed to continue to the northwest, but the Fort Union formation passes beneath alluvium and gravel in this area and development of these beds has not taken place.[43]

Coal production in the State of Montana, reached a peak of 4,844,000 tons in 1944. Due to the reduced use of coal and the change over to other sources of energy by

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[42] Comprehensive Plan for Carbon County, p. 45.

[43] Ibid., p. 46.

industry and individuals, a steady decline of coal production took place in Montana, until a minimum of 305,000 tons was reached in 1958. This same trend is evident in the coal output of Carbon County through the past 30 years. The maximum output of Carbon County was 637,317 tons in 1944. The minimum output was reached recently when the last large commercial contract for coal from Carbon County was discontinued. The total original bituminous coal reserves in Montana, have been estimated at 2.36 billion tons.[44] Of this total, Carbon County is estimated to have over 52 per cent, or 1.24 billion tons. The potential use for this coal cannot be discounted. The idea of using coal for energy conversion processes is already being developed and holds much promise for the future. The discovery and development of strippable coal deposits in central Carbon County could lead to the construction of such plants in the area. Also, industry is looking towards yet another potential, the processing of coal to obtain substitutes for petroleum derivatives.

Chrome ore, at present, is obtained by the United States from foreign sources. Chrome deposits in this

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[44] Mineral and Water Resources of Montana, p. 46.

country, of which more than 80 per cent are in Montana, are small in size, low in grade, and are located in very remote areas. For these reasons, the ore is not competitive with the more easily obtained higher-grade foreign ore. The potential for future use of these chrome deposits is apparent, as the foreign ore has not always proved to be available. Also, new interest is being shown towards developing these resources for the other metal constituents which are present. Chromite also contains aluminum, magnesium, and iron.[45] The first chromite was discovered in the Red Lodge area in 1916, and in 1933. Montana Chrome, Inc., was organized to develop the deposits. The United States Vanadium Corporation, working under a Government contract, began development of the ore deposits in 1941. A mill was built in Red Lodge, where the ore was concentrated and shipped by rail. More than 76,000 tons of ore were mined before operations ceased with World War II. Reserves are estimated well over 5,000 tons of pure chromic oxide.[46]

Several different grades of clays are available in Montana. High grade fire clays are used in the Anaconda

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[45] Comprehensive Plan for Carbon County, p. 48.

[46] Mineral and Water Resources of Montana, p. 60.

Company's smelters, but the most common use of clay in the state is for the manufacture of common brick and similar grade ceramic products. A good quality clay suitable for this use has been mined in the Fromberg area of Carbon County, and a brick plant in Fromberg has been in operation in the past. The Fromberg clays are described as being easily ground and processed and as having a firing range of 1900 to 2200 degrees Fahrenheit. Bentonite is also available in large quantities in Carbon County.[47] The main use has been in connection with the oil industry for foundry sands and drilling muds, however, new uses in the future will probably increase. One such use is in the manufacture of lightweight aggregate for concrete for which many of the bentonite clays of Carbon County would be useful.

Limestone occurs in some form in every state and is the most widely used of all rocks. The Madison formation outcrops in the Pryor Mountains of Carbon County is the location of the quarry presently being mined by the Bighorn Limestone Company of Warren, Montana. Many areas of Carbon County have outcroppings of Madison Limestone. Much

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47 Comprehensive Plan for Carbon County, p. 49.

potential exists for the development of the resource as there are presently an estimated 7,000 uses for limestone and its by-products. Also of economic importance are the travertine marble deposits which occur in the Deadman's Creek area. This stone, now mined by Montana Marble, is marketed as an interior and exterior decorative building stone. This stone does not occur in many areas of Montana, and is in constant demand.[48]

Gypsum reserves of the United States are very large, and Montana has extensive deposits of the mineral. In Carbon County, gypsum appears in the Chugwater formation which is exposed near Bridger. The first gypsum mined in Montana, was taken from a deposit southeast of Bridger in 1892. The gypsum occurs in pure white crystalline form in the upper portion of the Chugwater formation. The main use of gypsum is in the building industry, however, agricultural uses have increased in recent years. Potential exists in Carbon County for the development of this industry but again, inadequate transportation facilities make development difficult.[49]

Carbon County is well-endowed with deposits of sand

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[48] Ibid., p. 50

[49] Ibid., p. 51

and gravel for use as construction aggregates. There is no problem with the production of aggregate as needed in construction projects such as roads and highways. An important aspect here is the presence of a pure white silica sand deposit west of Silesia. The deposit has not been commercially developed but holds potential economic value. Silica sand is used in the manufacture of glass, sand blasting, molding, and many other specialized uses. Again, lack of transportation has been a hindrance.[50]

In 1965, Carbon County continued to rank second, ($9.4 million), in the value of the non-metal and fuel output in the State of Montana. Major producers of fuels were the Elk Basin oil field, Dry Creek gas field, and the Brophy Coal Company of Bearcreek. The quantities produced in order of their economic importance were pretroleum, stone, coal, and sand and gravel.[51]

Also, uranium is produced in Carbon County. It ranks fourth in all minerals produced and is the largest deposit found in Montana.[52]

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[50] Ibid., p. 52.

[51] Minerals Yearbook, p. 525.

[52] Montana Almanac, p. 56.

b. The Mineral Resources of Stillwater County

Chromium is the biggest resource of Stillwater County. History of its most productive mine starts in the spring of 1883, when Jack Nye and Jim and Jonas Hedges gave credence to the rumors of the area. They had found an immense lead of copper-bearing ore, 630 feet wide. Furthermore, they had traced it across the two forks of the Stillwater River, for a distance of 15 miles. The announcement started a "run" to stake claims in this area, but Jack Nye had ownership of the richer-appearing rock.

In 1885, he sold the claim to the Minneapolis Mining and Smelting Company, which had funds available for full development, and the construction of Nye City started immediately. The company worked industriously through the next two years. Despite the fact that the rock was hard, over 8,000 feet of tunneling exposed large faults, or seams, of rich ore, which represented many graduations of copper, such as copper-nickel which assayed as high as 7 per cent. Of the copper lode, coppery pyrites, blue and green copper carbonates and ruby copper assayed from 10 to 50 per cent copper. There were also small amounts of silver and traces of gold. Private prospectors were also coming up with some

valuable ore samples from widely extended areas.[53]

For nearly two years, government surveyors had been working in the Stillwater Basin area and over the range from the new mining town of Cooke City. Their paths finally crossed. Nye City wasn't part of the federal domain included in Gallatin County. It was factually 6 miles east of that boundary, on Indian lands included in the Crow Reservation. Appeals were filed, implorations made, concessions promised. The government was adamant, however, and Congress was determined in its regulations and laws to prohibit the exploitation of tribal lands for such purposes.[54]

In 1889, Stanley Kitchell secured a judgment deed for $ 12,255. He held the property for several years, watching the operation of the individuals who came in after the Indians ceded the land in 1890, and mine-staking was again within the law.

In the next ten years, different mines were purchased and other claims staked. Assays showed rich veins of silver, nickel, and copper. Also, in the mountains at the head of the Stillwater, a promising marble quarry was located. In

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[53] Annin, op. cit., p. 74.

[54] Ibid., p. 75.

October of 1901, Camp Hugheston of Minneapolis, one of the stockholders of the old Nye Company, came. He uncovered what he thought to be the mother lode of this district. The lead was four feet wide, growing wider the farther in. The ore resembled a copper glaze. The assay showed large amounts of gold and silver. Also, at this time rich quartz lodes and a rich body of gold ore were discovered in near areas.[55]

Then in 1904, the prospectors banded together for a practical trial shipment. Taking true samples from each of the several larger properties, they sacked up from five to ten hundred-pound units from each claim and made a six-ton shipment of ore to Omaha for smelting. The results were disappointing. In no instance did the final production live up to the assay analysis, and in no case would the value of the ore warrant production under conditions that existed at that time.[56]

World War II came on before further activity was manifested in the Nye area mines. As it progressed and gave promise of a long drawn-out affair, it became evident

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[55] Ibid., p. 78.

[56] Ibid., p. 79.

that all strategic war metals might become necessary and valuable. Before this, chrome deposits had been virtually ignored. As far back as 1905, T. C. Benbow had found some chrome deposits as he searched for finances to redeem his ill-fated venture with his flying machine, "The Montana Meteor", at the World's Fair in St. Louis, the previous year.

Then, with World War II came the sudden need for chrome. Columbus and the Stillwater Valley boomed overnight. Then, the victory for the Allies, and no further need for the expensively-mined chrome. In 1953, once again the United States began to assemble its natural resources when the Korean event occurred. Chrome found its place once more and operations were restored. 900,000 tons were delivered. And now again, the chrome ore lies dormant for the most part, as it represents an outlay of $ 65.00 per ton. Part of the chrome deposits are mined as it is the number one mineral output of the county, but the amount is insignificant.[57]

Stillwater also contains Iron Mountain, the most recent exploration for the Beartooth hidden wealth. In

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[57] Ibid., p. 81.

1857, United States Steel built roads and started searching and testing an outcropping of iron ore. Core drilling proved the deposit was on an anticline and hard to estimate. Findings are still secret but they continue to do necessary assessment work which could lead to another resource of the county.[58]

Other minerals listed in order of importance and production for Stillwater County are: stone, petroleum, gold, and silver.[59] There are some usable clays, coal, quartz, and sand and gravel. And there are non-commercial copper, nickel, and platinum deposits. Even now, Anaconda Company is sinking two exploratory mining tunnels in search of commercial nickel and copper ore.[60]

The actual potential of most of these minerals has been discussed under the Carbon County mineral section, and for the others, it is but technological speculation. The actual mineral deposits for the most part, in Stillwater County, are unknown due to concealed information.[61]

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[58] Ibid., p. 82.

[59] Montana Almanac, p. 56.

[60] Bozeman Daily Chronicle, December, 1970,

[61] Montana Almanac, p. 103.

It is certain, however, that the Planning Area does have abundant resources[62] that can be exploited now with proper transportation facilities and investments. It is also certain that many other resources can be utilized with technological advances and needs of the future.

G. The Population and Vital Statistics

Population and vital statistics are useful means to understanding the reasons for Montana's and the Planning Area's particular problems. In opposition to most states' problems, Montana has been experiencing "social costs of space"[63] problems for many decades because of its great area and small population.[64] Suppletory to this, Montana has grown at a significantly slower rate than the United States,[65] (See Figure 2-12, Graph 1), and is slated to con-

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[62] For a total picture of the Planning Area's Resources compared with the state, see Appendix A, Figures A-12 through A-17.

[63] Kraenzel's definition of problems due to a low-density population. This will be discussed in detail in Part II, Section J.

[64] Montana Almanac, p. 159.

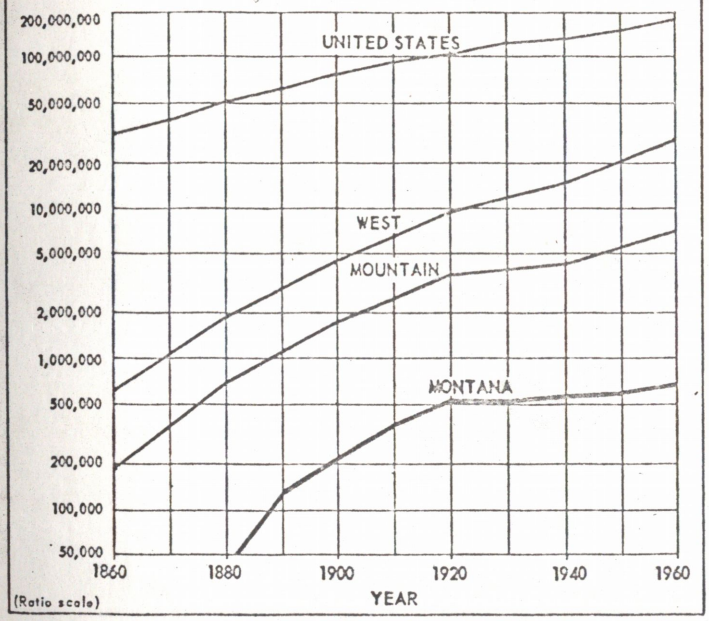
[65] United States Department of Commerce, Characteristics of the Population, Vol. I, Part 28, 1960 Census of Population (Washington: Government Printing Office, 1960), p. 8.

Fig. 2-12.

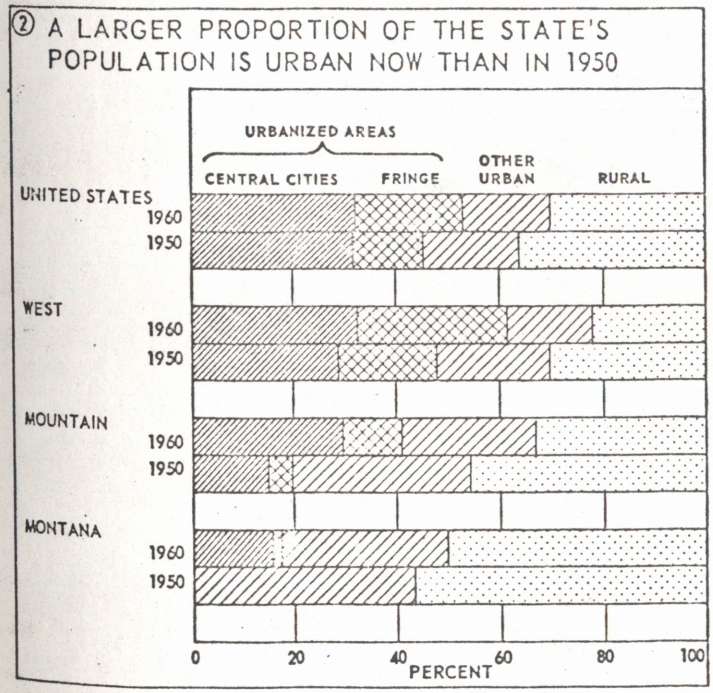
MONTANA

1960 Census of Population — Graphic Summary

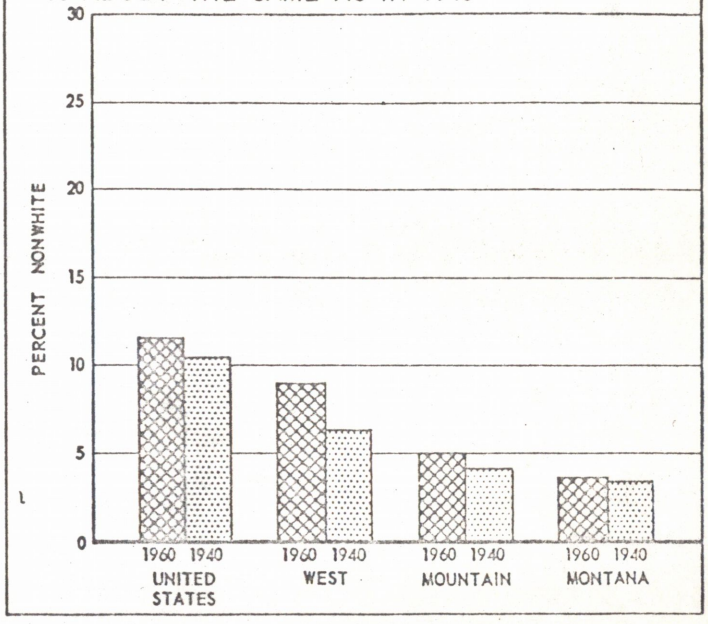
① IN RECENT DECADES MONTANA HAS GROWN AT A SLOWER RATE THAN THE U.S.



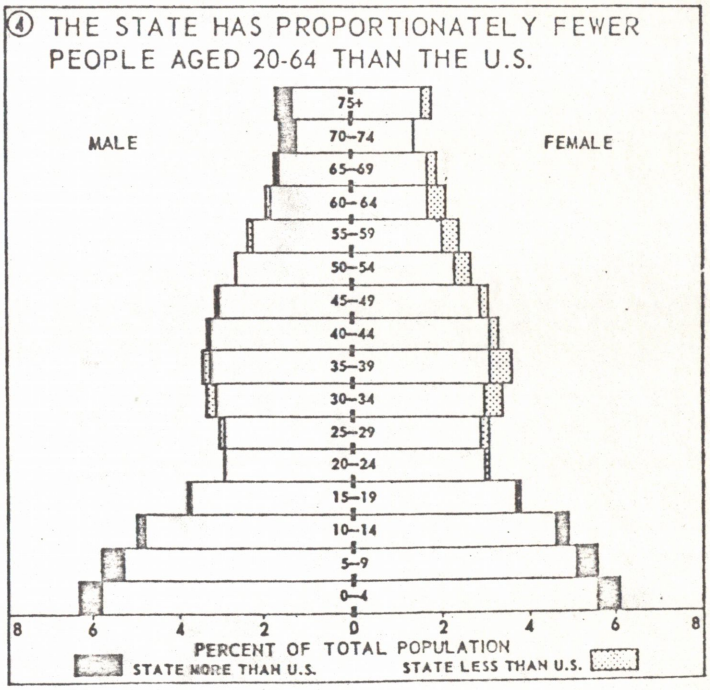
② A LARGER PROPORTION OF THE STATE'S POPULATION IS URBAN NOW THAN IN 1950



③ THE PROPORTION NONWHITE FOR THE STATE IS ABOUT THE SAME AS IN 1940



④ THE STATE HAS PROPORTIONATELY FEWER PEOPLE AGED 20-64 THAN THE U.S.



Note: The 1960 Census geographic classification divides the country into four regions and nine divisions, as follows: Northeast region — New England division (Maine, N. H., Vt., Mass., R. I., and Conn.) and Middle Atlantic (N. Y., N. J., and Pa.); North Central — East North Central (Ohio, Ind., Ill., Mich., and Wis.) and West North Central (Minn., Iowa, Mo., N. Dak., S. Dak., Nebr., and Kans.); South — South Atlantic (Del., Md., D. C., Va., W. Va., N. C., S. C., Ga., and Fla.), East South Central (Ky., Tenn., Ala., and Miss.) and West South Central (Ark., La., Okla., and Tex.); and West — Mountain (Mont., Idaho, Wyo., Colo., N. Mex., Ariz., Utah, and Nev.) and Pacific (Wash., Oreg., Calif., Alaska, and Hawaii). In figures 1, 2, 3, and 5, the pre-1960 data refer, insofar as possible, to the present area of the United States, region, division, and State. In figure 5, fertility rate is the number of children ever born per 1,000 women in the specified age group; in States with fewer than 25,000 nonwhite women 15 to 49 years old in 1940, the 1940 rates refer to white women only. In figure 6, the data refer to persons five years old and over reporting this item; the category "Different State" includes persons living abroad five years prior to the census date. In figure 9, the base for the percent excludes employed persons with occupation not reported. White collar workers include the professional, managerial (nonfarm), clerical, and sales major occupation groups; blue collar workers include the craftsman, operative, private household, service, and nonfarm laborer groups; and farm workers include the farmer and farm laborer groups.

tinue at an even slower rate.[66] Concurrently, Montana has proportionately fewer people compared to the United States, in the 20 to 64 age bracket and is still basically rural.[67] (See Figure 2-12, Graphs 2 and 4, page 56).

In the Planning Area, the above deficits become more crucial. There has been and continues to be a large negative population growth with the biggest losses in the 19 to 24 age bracket.[68] The Planning Area now offers the young no future. The density is beneath the state average and decreasing while the population is classified totally rural. (See Figure 2-13). One of the reasons for the choice of this Planning Area was the progressively large decreasing population and consequent problems being among the most severe in the state. Compounding this, the Planning Area is surrounded by other counties with similar problems. (See Figures 2-14, 2-15, and 2-16).

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[66] Joe B. Williams, Montana in Perspective (Washington: Government Printing Office, 1969), p. 3. (Compiled and produced from Federal Government Published Reports).

[67] Characteristics of the Population, p. 8.

[68] Comprehensive Plan for Carbon County, p. 9.

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POPULATION, BY PERCENT URBAN, RURAL NONFARM AND FARM, MEDIAN AGE, PERCENT 65 AND OVER, PERCENT NON-WHITE, AND MEDIAN SCHOOL YEARS COMPLETED, BY COUNTY, MONTANA, 1960

Fig. 2-13.

County	Percent Urban	Percent Rural Non-farm	Percent Rural Farm	Median Age (years)	Percent 65 and Over	Persons 25 yrs. Old and Over, Percent Non-white	Persons 25 yrs. Old and Over, Median School Years Completed
Montana, total	50.2	34.2	15.6	27.4	9.7	3.6	11.6
Beaverhead	51.3	24.1	24.6	31.6	11.5	0.5	11.3
Big Horn	27.9	39.7	32.4	22.8	7.4	34.2	9.6
Blaine	0	67.4	32.6	25.3	10.6	21.3	10.1
Broadwater	0	71.4	28.6	28.7	11.5	0	11.2
Carbon	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Carter	0	42.1	57.9	28.3	10.3	0.2	10.0
Cascade	78.5	16.8	4.7	25.7	7.7	2.1	12.1
Chouteau	0	52.0	48.0	28.2	10.6	1.6	12.1
Custer	73.1	13.7	13.2	28.8	11.8	1.1	11.1
Daniels	0	67.6	32.4	29.1	11.5	0.1	9.9
Dawson	57.3	25.8	16.9	23.8	7.4	0.2	10.9
Deer Lodge	64.6	33.9	1.5	32.1	10.1	1.4	10.5
Fallon	0	69.9	30.1	25.3	8.9	0.1	9.8
Fergus	52.9	20.1	27.0	30.2	13.6	0.4	11.8
Flathead	39.8	49.1	11.1	30.1	11.4	0.7	11.2
Gallatin	51.3	34.0	14.7	24.6	8.9	0.4	12.4
Garfield	0	38.5	61.5	27.6	11.1	0.1	10.2
Glacier	39.2	48.4	12.4	22.8	5.9	37.8	11.1
Golden Valley	0	48.1	51.9	32.4	14.5	0	11.6
Granite	0	76.4	23.6	32.2	10.8	0.8	11.5
Hill	57.6	26.7	15.7	24.0	8.2	6.7	11.7
Jefferson	0	78.1	21.9	29.5	9.8	1.4	9.3
Judith Basin	0	51.2	48.8	30.5	10.5	0.4	12.2
Lake	0	66.3	33.7	30.6	13.3	11.4	10.6
Lewis & Clark	72.3	22.3	5.4	30.1	10.3	1.7	12.2
Liberty	0	76.3	23.7	24.8	6.3	0.4	12.0
Lincoln	22.6	70.8	6.6	24.8	7.3	0.4	10.7
McCone	0	38.2	61.8	26.5	9.8	0.1	10.2
Madison	0	63.3	36.7	33.9	13.5	1.0	11.3
Meagher	0	74.7	25.3	31.2	11.0	0.4	10.6
Mineral	0	93.7	6.3	25.4	7.3	0.6	11.3
Missoula	69.2	27.3	3.5	26.2	9.2	1.1	12.1
Musselshell	58.1	25.9	16.0	32.7	14.3	0.2	10.7
Park	62.5	24.3	13.2	31.9	11.8	0.4	11.4
Petroleum	0	45.2	54.8	32.4	11.1	0.6	12.0
Phillips	0	62.6	37.4	28.9	13.2	5.3	9.5
Pondera	34.9	30.2	34.9	24.8	8.3	7.5	11.5
Powder River	0	37.0	63.0	28.4	9.7	1.3	10.2
Powell	66.8	21.1	12.1	31.9	9.8	2.3	10.8
Prairie	0	62.7	37.3	27.8	11.1	0.7	9.8
Ravalli	0	69.1	30.9	33.8	14.6	0.7	11.2
Richland	43.5	27.9	28.6	26.2	10.6	0.4	10.0
Roosevelt	30.6	48.5	20.9	22.9	9.4	23.6	10.1
Rosebud	0	74.8	25.2	26.5	10.4	21.9	10.5
Sanders	0	77.6	22.4	32.1	13.3	6.0	10.7
Sheridan	0	56.8	43.2	29.2	12.1	0.6	10.0
Silver Bow	86.4	13.0	0.6	32.3	11.0	0.7	10.8
Stillwater	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sweet Grass	0	58.1	41.9	34.0	15.2	0	10.5
Teton	0	54.6	45.4	28.1	10.0	0.6	11.4
Toole	50.8	28.9	20.3	25.9	7.8	0.7	12.0
Treasure	0	43.2	56.8	24.5	9.0	0.1	11.3
Valley	37.5	44.1	18.4	23.4	6.5	4.9	11.6
Wheatland	0	86.2	13.8	33.1	13.4	0.7	11.6
Wibaux	0	50.3	49.7	28.2	11.3	0.1	9.7
Yellowstone	82.7	11.3	6.0	26.6	7.4	1.0	12.2

Source: U. S. Department of Commerce, Bureau of the Census, *Census of Population, 1960.*

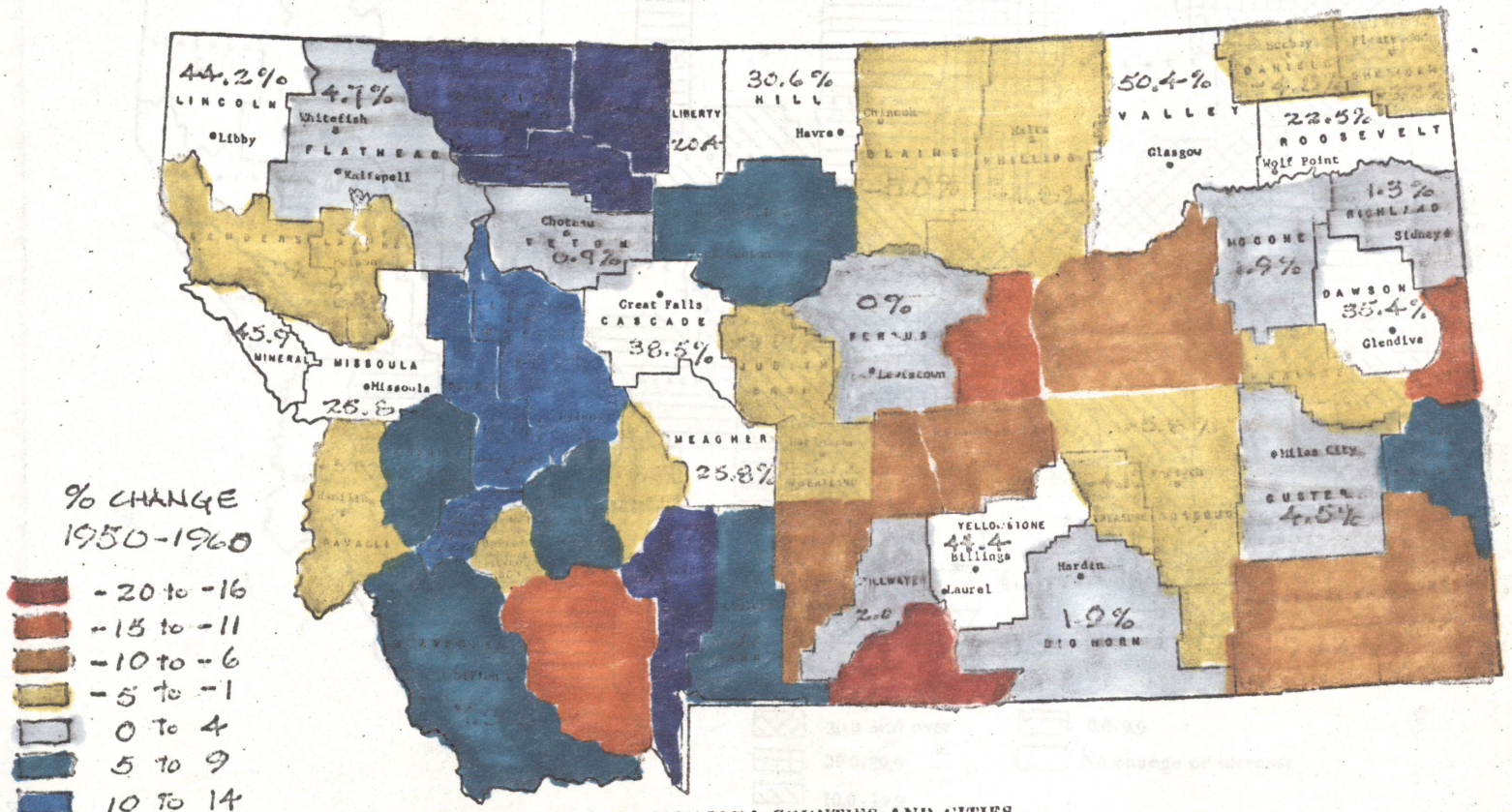


MONTANA COUNTIES AND CITIES

(Cities shown include incorporated places with population in excess of 1,500 in 1950.)

Source: U. S. Bureau of the Census, Census of Population, 1950.

Fig. 2-14.

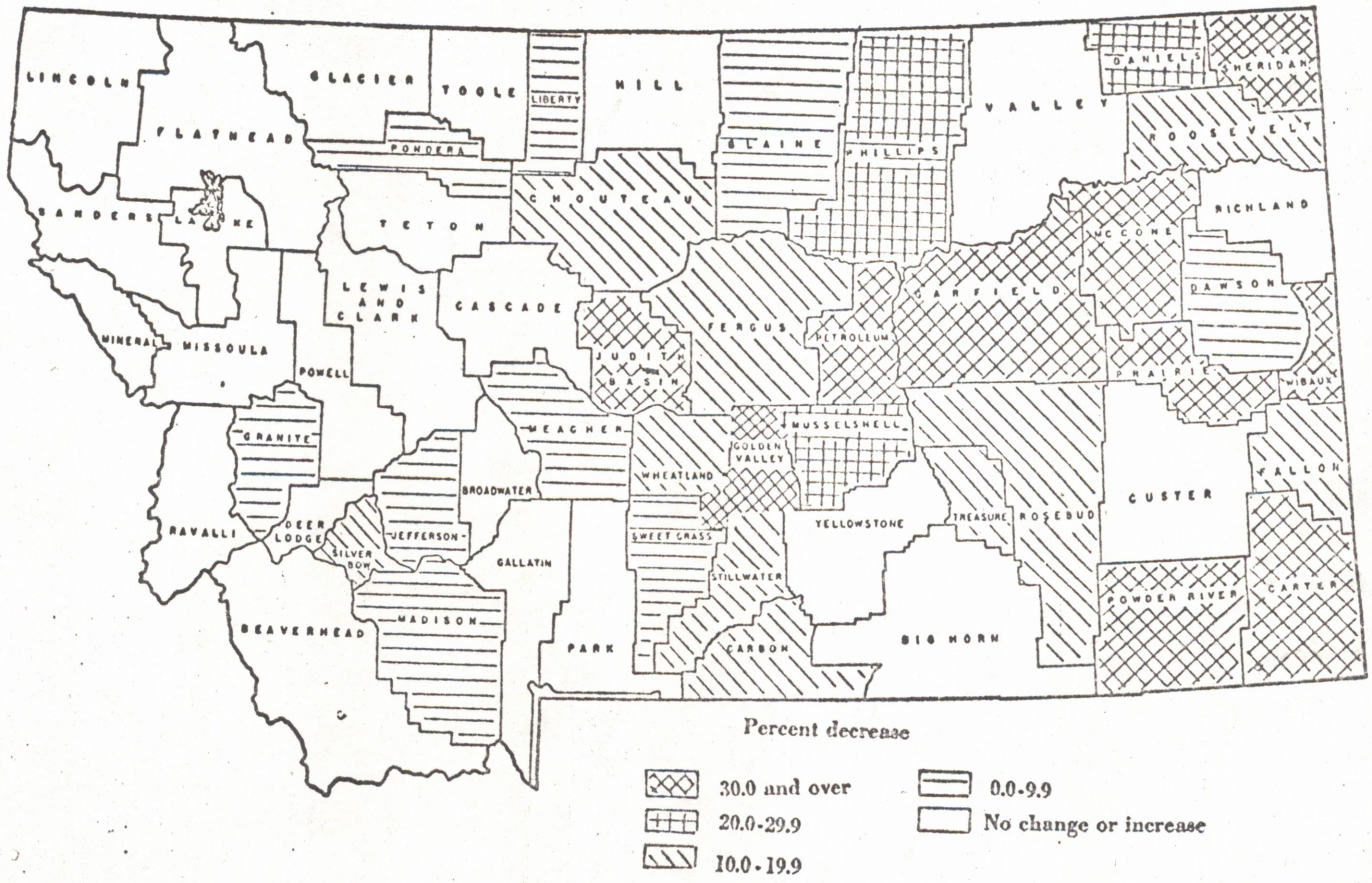


MONTANA COUNTIES AND CITIES

(Cities shown include incorporated places with population in excess of 1,500 in 1950.)

Source: U. S. Bureau of the Census, Census of Population, 1950.

Fig. 2-15.



POPULATION DECREASE, BY COUNTY, MONTANA, 1930 TO 1950
Source: U. S. Dept. of Commerce, Bureau of the Census, Census of Population.

Fig. 2-16.

COMPREHENSIVE AREA PLAN
CARBON COUNTY, MONTANA

RED LODGE - CARBON COUNTY PLANNING BOARD
RED LODGE, MONTANA

LAND OWNERSHIP MAP

PREPARED BY

MUELLER ENGINEERING
CONSULTING ENGINEERS

THEODORE J. WIRTH & ASSOCIATES
LANDSCAPE ARCHITECTS, PLANNING CONSULTANTS

THIS PROJECT (PREPARED UNDER CONTRACT FOR THE RED LODGE - CARBON COUNTY PLANNING BOARD) WAS FINANCED IN PART THROUGH A PLANNING ADVANCE FROM THE FARMERS HOME ADMINISTRATION, DEPT OF AGRICULTURE

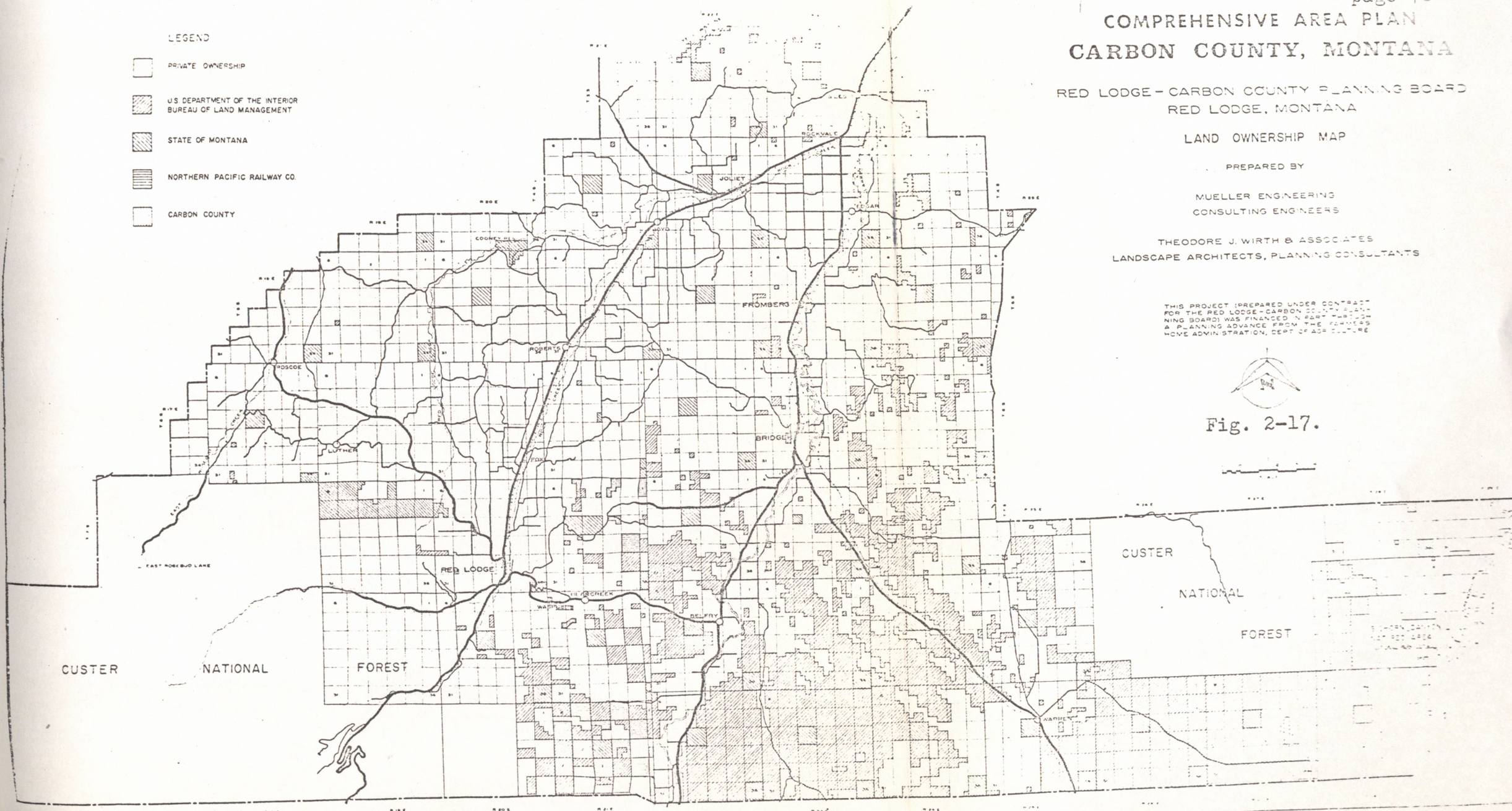


Fig. 2-17.

1. The Population and Vital Statistics for Carbon County

Population in Carbon County has been steadily declining since 1920, with the most rapid decline from 1920 to 1930. (See Table II). This decline can be related to the rapid closing of the coal mining industry.[69] Incorporated areas grew from 1930 to 1940, with the postwar movements of the rural population into the cities. However, after 1940, the incorporated areas also declined. Generally, the highest negative migration has been out of the 15 to 29 age group. (See Table III). This can be explained by the absence of higher education facilities and the small job market.[70] The median school years completed by residents of Carbon County is 10.2, well below the state average of 11.6. (See Figure 2-13, page 58). There is also a negligible per cent of negro and foreign stock. Of the 7,080 residents of Carbon County, seven are negro and 51 of foreign stock.[71] Montana's death rate since 1950, has exceeded the United States by 6 per cent. (See Appendix A, Figure A-18).

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[69] Ibid., p. 4.

[70] Ibid., p. 7.

[71] United States Department of Commerce, 1970 Census of Population, Bureau of the Census (Washington: United States Government Printing Office, Sept., 1970), p. 4.

TABLE II

Population and Growth Rates

1920-1970*

CARBON COUNTY	1920	1930	1940	1950	1960	1970
Population	15,279	12,571	11,865	10,241	8,317	7,080
Per Cent Change		-18	-6	-14	-19	-15
MONTANA						
Population	548,889	537,606	559,456	591,024	674,767	694,409
Per Cent Change		-2	+4	+6	+14	+3

*Compiled from information obtained from the Census of Population reports.

TABLE III

Net Migration of the Population 1950-1960

Carbon County*

Age Group	Total	Male	Female
All ages	-2,532	-1,326	-1,206
0 - 4		- 8	+ 8
5 - 9	- 63	- 12	- 50
10 - 14	- 266	- 151	- 115
15 - 19	- 346	- 152	- 195
20 - 24	- 520	- 283	- 237
25 - 29	- 407	- 229	- 178
30 - 34	- 161	- 115	- 46
35 - 39	- 120	- 59	- 62
40 - 44	- 175	- 73	- 102
45 - 49	- 149	- 84	- 65
50 - 54	- 102	- 61	- 41
55 - 59	- 68	- 35	- 34
60 - 64	- 51	- 30	- 21
65 - 69	- 43	- 25	- 18
70 - 74	- 17	- 11	- 6
75+	- 44		- 44

* Compiled from the 1960 Census of Population.

Mortality rates of Carbon County have been above the state average. The birth rates of Carbon County also have been below those for the state since 1950. The fertility ratio (number of children under five years of age per 1000 females between 15 and 49 years of age), was 459 in 1960, considerably less than the 566 for the state.[72]

The number of housing units has dropped with the negative increase in population. For a summary of 1960 and 1970 housing statistics, see Table IV. The per cent of occupied housing units to total housing units is 75.3 per cent for Carbon County. This is a sizable amount beneath the 88 per cent for the state. The rooms within the unit for Carbon County has the median value of 4.8 compared with 4.6 for the state. However, the people within the unit average 2.3 compared to the state's 2.6 This is an outgrowth of the negative population factor. The median value of owner-occupied homes is $ 8,500.00, compared with the state's $ 14,100.00, and the renters accordingly pay $ 50.00, to the state's $ 71.00 per month.[73] The lower values are

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[72] Comprehensive Plan for Carbon County, p. 10.

[73] United States Department of Commerce, 1970 Census of Housing, Bureau of the Census (Washington: United States Government Printing Office, Sept., 1970), p. 5.

TABLE IV

Housing Statistics*

Carbon County

	1960	1970
Total Population	8317	7080
All Housing Units	3321	3023
Housing Units		
Owner Occupied	1942	1862
Renter Occupied	790	676
Vacant	589	831
Rooms per Unit (median)	4.8	4.8
People per Unit (median)	3.1	2.3
Plumbing		
All Facilities	2657	2663
Lacking Some or All Facilities	664	360
Median Value		
Owner Occupied**	$ 6900	$ 8500
Contract Rent**	$ 52	$ 50

* Compiled from the 1960 and 1970 Census of Housing from the Bureau of Census. For additional information, see Appendix A.

** The Value of the homes has increased due to inflation rather than due to better housing.

accounted for by a lesser demand and lower income figures for Carbon County. A lower median value can also be accounted for by the 1967 statistic that only 65.5 per cent of the housing units are structurally sound and have plumbing facilities.[74]

The labor force has also been shrinking in accordance with the negative population growth. A summary of the employment by industry for Carbon County can be seen in Table V.

In 1950, the median family income for all families in Carbon County was $ 2,455.00, as compared to $ 3,255.00, for the state, and $ 3,107.00, for the nation. Carbon County's family income increased by 76.6 per cent from 1950 to 1960, reaching $ 4,336.00, in the latter year, but was below the state median of $ 5,403.00, and the national median family income of $ 5,417.00. Approximately 30.3 per cent of Carbon County's families earned less than $ 3,000.00, in 1960, (See Table VI), as compared to 20.2 per cent for the state and 23 per cent for the nation.[75] From an

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[74] United States Department of Commerce, City and County Data Book, 1967, Bureau of the Census (Washington:U.S. Government Printing Office, 1967), p. 214

[75] Ibid., p. 29.

TABLE V

EMPLOYMENT BY INDUSTRY
FOR
CARBON COUNTY*

	1950	1960
Agriculture, Forestry	1682	954
Mining	175	41
Construction	171	205
Manufacturing	73	113
Transportation, Communication, and Utilities	176	209
Wholesale and Retail Trades	539	522
Finance, Insurance, and Services	491	606
Government	103	136
TOTAL	3482	2940
Per Cent of Total Population Employed	34.0	35.2

*Compiled from the census figures put forth in the Montana Almanac, p. 379, and its supplement, p. 92.

TABLE VI

1960 Family Income

CARBON COUNTY*

	Number of Families	Per Cent
Under - $ 1,000	65	4
$ 1,000 - 1,999	140	10
$ 2,000 - 2,999	119	8
$ 3,000 - 3,999	211	14
$ 4,000 - 4,999	245	17
$ 5,000 - 5,999	192	13
$ 6,000 - 6,999	178	12
$ 7,000 - 7,999	79	5
$ 8,000 - 8,999	82	6
$ 9,000 - 9,999	38	3
$ 10,000 - 14,999	88	6
$ 15,000 - 24,999	12	1
$ 25,000 and over	8	1
TOTAL	1,457	100

* Compiled from the 1960 census figures.

occupational standpoint, all groups have median earnings considerably less than the state or nation. Economists point out that a family with an income of $ 4,000.00, or less,has to spend virtually all of its income on necessities such as food, clothing, shelter, transportation, and medical care.

2. The Population and Vital Statistics for Stillwater County

Stillwater County also has had a negative population growth dating as far back as the earliest census in 1890. This was altered only once by a 2 per cent increase between 1950 and 1960. (See Table VII). This was due to the chrome mining boom during the Korean War as was discussed under the mining section. Again, the highest negative migration has been from the young, 15 to 29 year old age bracket. The median school years completed here is 10.7, which is below the state median of 11.6. Stillwater, as Carbon County, has but a small per cent of negro and foreign stock. Of the 4,632 residents, six are negro and 31 of foreign stock.[76] Also, Stillwater County is below the state average in birth rates and above the state average in death rates.

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[76] 1970 Census of Population, p. 8.

TABLE VII

Population and Growth Rates

1920-1970*

STILLWATER COUNTY	1920	1930	1940	1950	1960	1970
Population	15,630	6,253	5,694	5,416	5,526	4,632
Per Cent Change		-18	-9	-5	+2	-16
MONTANA						
Population	548,889	537,606	559,456	591,024	674,767	694,409
Per Cent Change		-2	+4	+6	+14	+3

*Compiled from information obtained from the Census of Population reports.

The number of housing units has dropped with the negative increase in population. For a summary of the 1960 and 1970 housing statistics, which indicate the general living conditions, see Table VIII. The per cent of occupied housing units to the total housing units is 81 per cent compared with 88 per cent for the state. The rooms within the unit for Stillwater County has a median value of 4.8 compared with 4.6 for the state. However, the people within the unit average 2.4 compared to the state's 2.6. The median value of owner-occupied homes is $ 10,800.00, while it is $ 14,100.00, for the state, and the renters pay $ 56.00 per month compared to the state's $ 71.00.[77] Here again we find, according to the 1967 City and County Data Book, that only 61.1 per cent of the housing units are structurally sound and have plumbing facilities.

In accordance with the negative population growth, the labor force has been shrinking in Stillwater County, also. A summary of the employment by industry for Stillwater County can be seen in Table IX.

In 1950, the median family income for all families

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[77] Comprehensive Plan for Stillwater County, p. 27.

TABLE VIII

Housing Statistics*

Stillwater County

	1960	1970
Total Population	5526	4632
All Housing Units	2039	1881
Housing Units		
Owner Occupied	1113	1145
Renter Occupied	560	442
Vacant	366	372
Rooms Per Unit (median)	4.6	4.8
People Per Unit (median)	2.9	2.4
Plumbing		
All Facilities	16322	1121
Lacking Some or All Facilities	407	251
Median Value		
Owner Occupied**	$ 9500	$ 10,800
Contract Rent**	$ 56	$ 59

* Compiled from the 1960 and 1970 Census of Housing from the Bureau of Census. For additional information, see Appendix A.

** The value of the homes has increased due to inflation rather than due to better housing.

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TABLE IX

EMPLOYMENT BY INDUSTRY
FOR
STILLWATER COUNTY*

	1950	1960
Agriculture, Forestry	1092	695
Mining	37	187
Construction	95	93
Manufacturing	35	86
Transportation, Communication, and Utilities	125	158
Wholesale and Retail Trades	241	265
Finance, Insurance, and Services	274	332
Government	63	52
TOTAL	2006	1966
Per Cent of Total Population Employed	37.1	35.5

* Compiled from the census figures put forth in the Montana Almanac, p. 415, and its supplement, p. 108. In looking at this data, one must realize this was between 1950 and 1960, when there was a temporary 2 per cent population increase because of the mining during the Korean War.

in Stillwater County was $ 2,189.00, as compared to $ 3,255.00, for the state, and $ 3,107.00, for the nation. Family income in Stillwater County increased by 119 per cent from 1950 to 1960, reaching $ 4,790.00, in the latter year because of the mining surge during the Korean War. Current statistics on income are at present unavailable, but it is certain that the 1960 to 1970 period will not show such a large percentage increase, if any at all. Even reaching $ 4,790.00, Stillwater County still trailed the state median of $ 5,403.00, and the national median family income of $ 5,417.00. Approximately 22 per cent of the families in Stillwater earned less than $ 3,000.00, in 1960, even with the large jump in income.[78] (See Table X). From an occupational standpoint, it is certain that all groups have median earnings considerably less than the state or nation.

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[78] Ibid., p. 21.

TABLE X

1960 Family Income

Stillwater County*

	Total	Per Cent
Total Families	2,221	100.0
Families earning less than $ 1,000	206	9.3
Families earning 1,000 to 1,999	216	9.6
Families earning 2,000 to 2,999	252	11.4
Families earning 3,000 to 3,999	326	14.7
Families earning 4,000 to 4,999	329	14.8
Families earning 5,000 to 5,999	323	14.5
Families earning 6,000 to 6,999	189	8.5
Families earning 7,000 and over	380	17.1

* Compiled from the 1960 census figures.

H. The Land Modes and its Relation to Economic Considerations

Land modes and capacities for future utilization are important economic considerations for the Planning Area. It is not only what exists now, but what can potentially exist. The Planning Area contains 3,875 square miles of actual land araa. This is a small portion of the state's 145,736 square miles, but it is an amount three times larger than the State of Rhode Island.[79]

1. The Land Modes and its Relation to Economic Considerations for Carbon County

Some 2,074 square miles of this lies within the Carbon County border. The largest per cent of this land is privately owned. In 1950, 49.2 per cent of the private land was in farms or ranches, and 6.6 per cent was commercial land. The federal government also has a large holding here, 41.8 per cent. This is disproportionately large compared to both state and nation averages. The remaining 3.3 per cent is owned by the state.[80] (See Figure 2-17, for a land ownership map of Carbon County). Of the total county

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[79] Dan Golenpaul and Associates, Information Please Almanac, Atlas and Yearbook (New York: Simon and Schuster, 1968), p. 401.

[80] Montana Almanac, p. 379.

area, 8 per cent of the land is cropland, 37.6 per cent is pastured, and 6.3 per cent is irrigated.[81]

The topography and climate have favored the development of the present agricultural patterns including livestock grazing over large areas of the county, with cultivation concentrated in the Clark's Fork and Rock Creek valleys. Agriculture has been and remains the prime industry in Carbon Connty. (See Table XI). Between 1950 and 1964, there was a 25 per cent reduction in the number of farms; however, the average farm size during that period increased from 654 acres to 898.5 acres. (For more detail, see Appendix A). The total land in farms essentially remained constant, representing 49.2 per cent of the county in 1950, and 50.8 per cent in 1964.[82] Also, during this period, cropland harvested and pasture lands remained fairly stable, commensurate with the increasingly larger farms. In 1964, statistics showed 6.2 per cent of the land was irrigated, 7.1 per cent was used for dry land farming, 40.2 per cent was used for pasture, and 8 per cent was commerical timberland.[83] (See Figure 2-18). Low and inadequate farm income

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[81] Ibid., p. 379.

[82] Ibid., p. 380.

[83] Comprehensive Plan of Carbon County., p. 59.

TABLE XI

Per Cent of Total Employment by Industry Group
County, State, and Federal*

1960

Industry Group	Per Cent of Stillwater County	Carbon County	Montana	United States
Agriculture	37	33	37	11
Forestry and Fisheries	1	1	1	1
Mining	10[a]	2[b]	3	1
Construction	5	7	7	5
Manufacturing	4	4	10	27
Transportation, Communication and Utilities	8	7	9	7
Wholesale and Retail Trades	14	18	21	19
Finance, Insurance and Service	18	20	26	16
Government	3	5	6	13
TOTAL	100	100	100	100

* Compiled from information from the United States Bureau of Census.
a Figure high because of chrome mined for Korean incident.
b Figure low because of recent loss of coal contract. It was 5 per cent in 1950

COMPREHENSIVE AREA PLAN
CARBON COUNTY, MONTANA

RED LODGE - CARBON COUNTY PLANNING BOARD
RED LODGE, MONTANA
LAND USE MAP

PREPARED BY

MUELLER ENGINEERING
CONSULTING ENGINEERS

THEODORE J WIRTH & ASSOCIATES
LANDSCAPE ARCHITECTS, PLANNING CONSULTANTS

THIS PROJECT (PREPARED UNDER CONTRACT FOR THE RED LODGE - CARBON COUNTY PLANNING BOARD) WAS FINANCED IN PART THROUGH A PLANNING ADVANCE FROM THE FARMERS HOME ADMINISTRATION, DEPT OF AGRICULTURE.

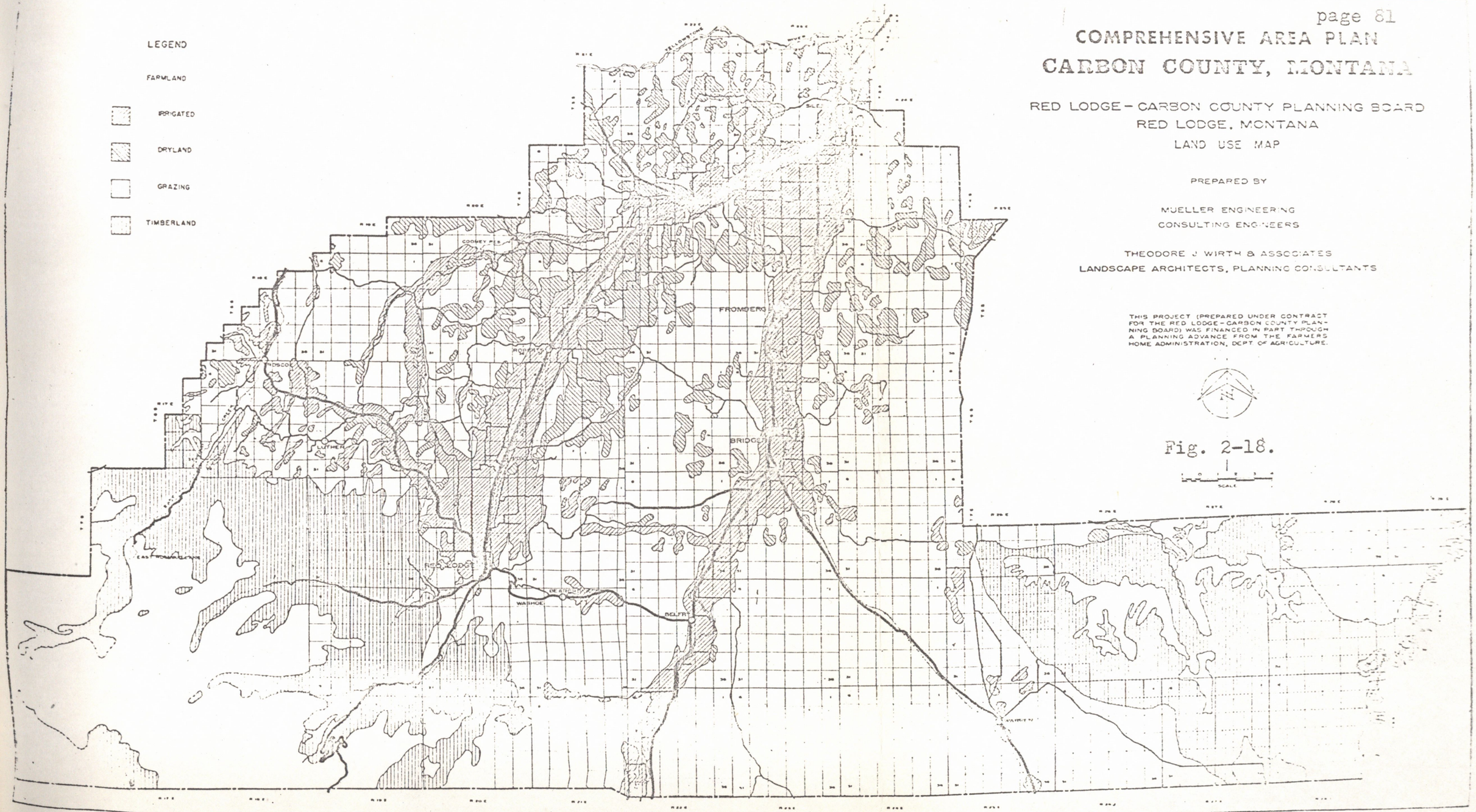


Fig. 2-18.

has been the major problem which caused the reduction of the total acreage in farms. Some factors that contributed to this decline were high labor costs, high equipment costs, low prices for products sold,[84] competition from other areas, limited capital and credit, and farm units too small to produce efficiently and competitively.[85] Unemployment in the rural areas of the county is yet another problem that has increased as a result of farm mechanization and modern agricultural techniques. This continuing reduction in employment in the agricultural industry is consistent with national and state trends. Carbon County does have the potential, however, of a rise in agricultural production with more irrigation and a better transportation system. As is demonstrated in statistics put forth in Appendix A, the problem of the high cost of long distance shipping is involved. Additionally, a better irrigation and transportation system will raise the real estate values here.

Carbon County contains a total of 1,324,800 acres of which approximately 90,000 acres are classified as timber land. The Pryor Mountains and the Beartooth Mountains both

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[84] Statistical Reporting Service, Montana Agricultural Statistics, Montana Department of Agriculture (Helena, 1968), p. 9.

[85] Comprehensive Plan for Carbon County, p. 52.

contain limited amounts of marketable timber. Custer National Forest boundaries encompass the major portion of the timber resources of Carbon County, and thus, the Forest Service controls the annual harvest. The Forest Service estimates indicate 5.5 million board feet of lumber could be harvested each year in the Pryor and Beartooth portions of Custer National Forest.[86] Cutting of timber in the Beartooths and the Pryors has been and will continue to be mainly for aesthetics. Recreational potential in these areas out-weighs all other economic potential, and the Forest Service intends to enhance the beauty of the forest through programmed thinning and cleaning. No major open-cut commercial timber harvest is foreseen for these areas. Two small sawmills are currently in operation near Bridger and Red Lodge in Carbon County. The present output of the mills is small, yet comparatively average for the state. The Forest Service has never had any problem meeting these sawmills' demands and can foresee no problem in the future.[87] Again, future expansion is not foreseen for the above mentioned reasons.

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[86] Ibid., p. 52.

[87] Ibid., p. 53.

The mineral resources of Carbon County, their locations, and potential have been discussed in Part 2, Section F. Thus, they will not be repeated here. The statistics found in Table XI, page 80, for Carbon County are deficient. As was mentioned earlier, between 1950 and 1960, a major coal contract was lost. For as unproductive as this industry appears, (See Appendix A, Figure A-21), the per cent of employment in this group nearly equals Montana, and is above that of the United States. Conjointly, the potential is far more than the statistics demonstrate. In fact, the mineral resources hold one of the better economic potentials for the future.[88]

The effective growth of the labor force (employed compared to number of residents) in Carbon County between 1950 and 1960, was a mere 0.29 per cent, which is less than one-third of the nation's 1.09 per cent.[89] The central problem in Carbon County is the high rate of unemployment in the agriculture and mining industries. And, this continuing reduction poses a bleak future for the county.

Some of the agriculture and mining industries' losses

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[88] The reasons for this statement can be found under the mineral resource section, Section F.

[89] Comprehensive Plan for Carbon County, p. 3.

were offset between 1950 and 1960, by the gain in finance, insurance, and service industry. (See page 80). This industry has been showing the highest growth rate, (an average of 7.25 per cent yearly), because of the increase in tourist services, and offers the most potential for the future.[90]

The manufacturing industry, though far below the state and the United States in employment and production, has been growing in the county. (See Table XI, page 80; and Appendix A, Figure A-22). This growth has been in spite of the lack of capital and transportation. From earliest beginnings, the manufacturing industry has been based on the processing of primary products such as minerals, timber, and agriculture outputs.[91] Thus, with the decline of the production of primary products, the manufacturing industry has had to face numerous problems. The manufacturing industry is prepared to handle more raw products as well as other types of manufacturing that might be introduced if this area were to grow.

The government, transportation, and construction industries face no imminent problems of failure; however,

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[90] Recreation services are part of the service industry.

[91] Montana Almanac, p. 159.

the wholesale and retail trade industry has had a loss in employees and sales. This loss has occurred because of the inadequacy of the trades to supply what the buyer wants. Also, the improved roads to Billings, have promoted its growing dominance.[92]

As was previously mentioned, the biggest potential lies in the service industry as related to recreation.[93] Carbon County has a vast area of mountains, valleys, lakes, and streams. More than 593,572 acres of public land is contained in Carbon County, of which 359,000 acres are in Custer National Forest. Recreational facilities and potential are divided between the Pryor and Beartooth Mountains of Carbon County. (See Figure 2-21, page 96). Custer National Forest officials plan increased camper and day-use accomodations for both of these areas, and state that the projects are top priority as far as funding is concerned. Currently, the use of the Pryor Mountain area is light because of limited access to the area. Development of better roads, and of the ice caves there as tourist attractions, is now being planned. Future plans are being

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92 Comprehensive Plan for Carbon County, p. 23.

93 Ibid., p. 53.

coordinated with the Bureau of Land Management and the National Park Service, in order that the Pryor Mountain recreation area will tie in with the proposed Yellowtail Reservoir tourist facilities.[94] Access to the Beartooth Mountains through Carbon County is primarily along U. S. Highway 212. This highway, called the Red Lodge-Cooke City Highway, is an unique switch-back mountain road that continues to the northeast entrance of Yellowstone National Park. This road is known as an unusually scenic route. (See Photograph 1). Summer homes are numerous in this area and plans to expand are common. The basic drawback is that this route is usually closed from the beginning of September until June, and often longer. However, skiing and other winter sports have been responsible for extending the tourist season. The Red Lodge-Grizzly Peak Ski Area has shown increased growth in recent years, with more development planned. Western Carbon County's East Rosebud Lake area has also been drawing tourists and people to buy summer homes.

Hunting and fishing opportunities account for many additional tourists. Big game hunters are attracted by elk, deer, moose, bear, mountain sheep, and mountain goats

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[94] Ibid., p. 54.



P-1. View from mountain
Red Lodge-Cooke City Highway

predominantly. Bird hunters find water fowl, pheasants, blue and ruffled grouse, sage hens, chukars, and Hungarian partridges. Fishermen have over 45 miles of streams and 62 lakes which contain various species of fish, such as rainbow and eastern brook trout, grayling, and golden trout. Game management and stream and lake rehabilitation programs are in preparation for the future increased use of the area.[95] Ultimately, there is much potential in the recreation category.

2. The Land Modes and its Relation to Economic Considerations for Stillwater County

Stillwater County, the smaller county of the two, has a total of 1,801 square miles of land area. In Stillwater County, as in Carbon County, the largest per cent of the land, (78.5 per cent), is privately owned. Of the privately owned land in 1950, 76.8 per cent was in farms or ranches and 10.8 per cent of the land was owned commercially. The federal government owns 17.3 per cent, and the state owns the remaining 4.2 per cent. (See Figure 2-19, for a land ownership map of Stillwater County). Farms or ranches make up 76.8 per cent of the land in Stillwater County, and 10.8

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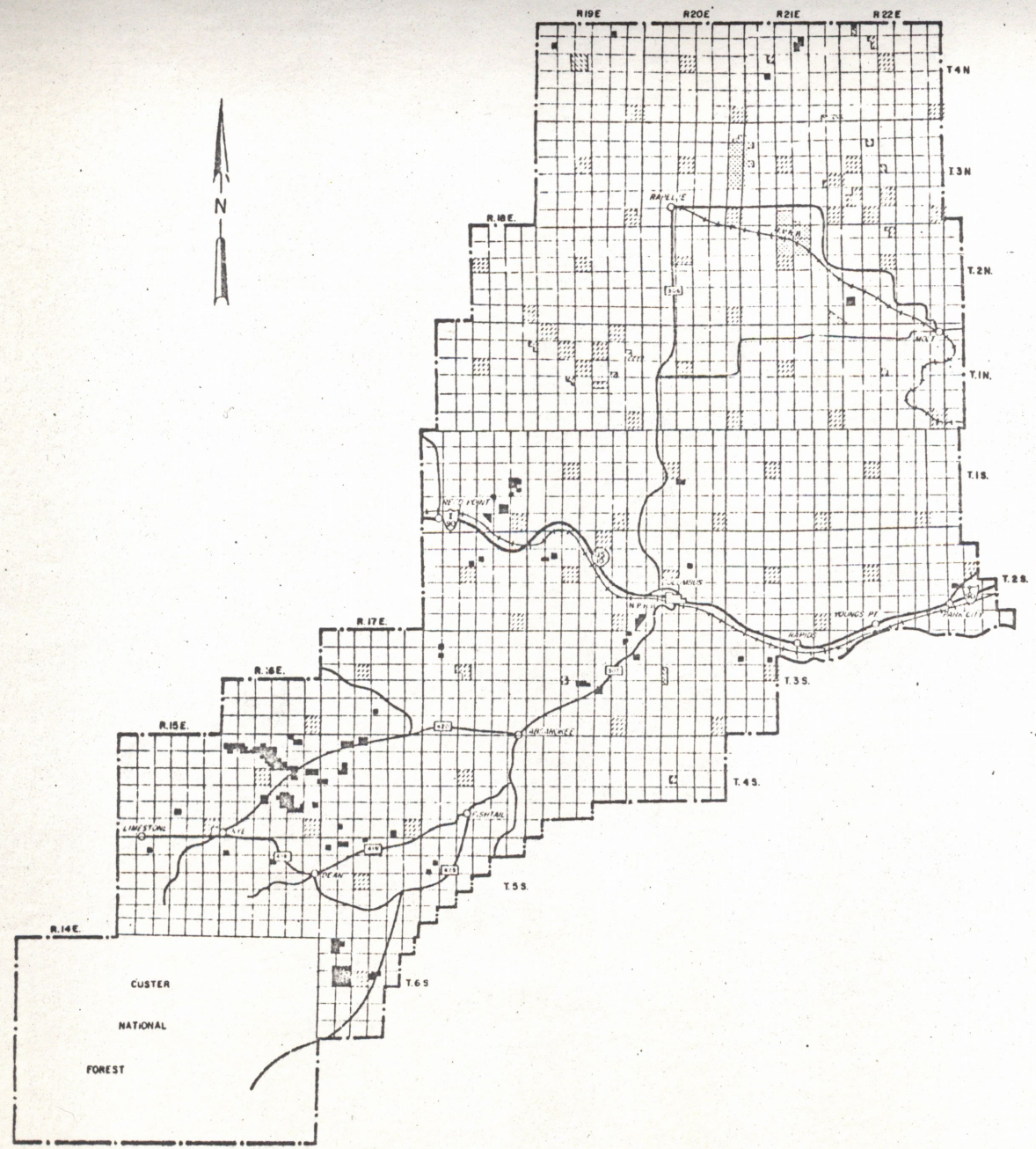
[95] Ibid., p. 56.

COMPREHENSIVE AREA PLAN
FOR
SEWER AND WATER
STILLWATER COUNTY

PREPARED FOR
COLUMBUS - STILLWATER CITY - COUNTY PLANNING BOARD
COLUMBUS, MONTANA

PREPARED BY
MUELLER ENGINEERING, INC.
CONSULTING ENGINEERS

THEODORE J. WIRTH & ASSOCIATES
LANDSCAPE ARCHITECTS, PLANNING CONSULTANTS



LAND OWNERSHIP MAP
Fig. 2-19.

LEGEND

- PRIVATE OWNERSHIP
- FEDERAL LANDS
- STATE OF MONTANA
- NATIONAL WILDLIFE REFUGE

SCALE IN MILES
0 5 10

per cent of the land is used commercially. Cropland harvested composes 10.6 per cent of the land, 57.4 per cent is pastured, and 2.7 per cent is irrigated.[96] (See Figure 2-20). Agriculture in Stillwater County has been, and remains, the prime industry. Livestock grazing is found over large acres and cultivation is concentrated in the Yellowstone and Stillwater valleys, and over a large portion of the northern half of the county. Between 1960 and 1969, there was a 12 per cent reduction in the number of farms; however, the average farm size during that period increased from 1,691 acres to 1,847 acres. (For more detail, see Appendix A). Total acreage in farms did remain fairly consistent during this period, also, representing 78 per cent of the county in 1960, and 79 per cent in 1969.[97] Total agricultural receipts for the county have increased slightly in the past five years;[98] however, as in Carbon County, increasing production costs have resulted in lower net income.

In order to compete with other areas, farmers have been forced to consolidate and to mechanize their operations.[99]

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[96] Montana Almanac, p. 415.

[97] Comprehensive Plan for Stillwater County, p. 22.

[98] Montana Agricultural Statistics, p. 9.

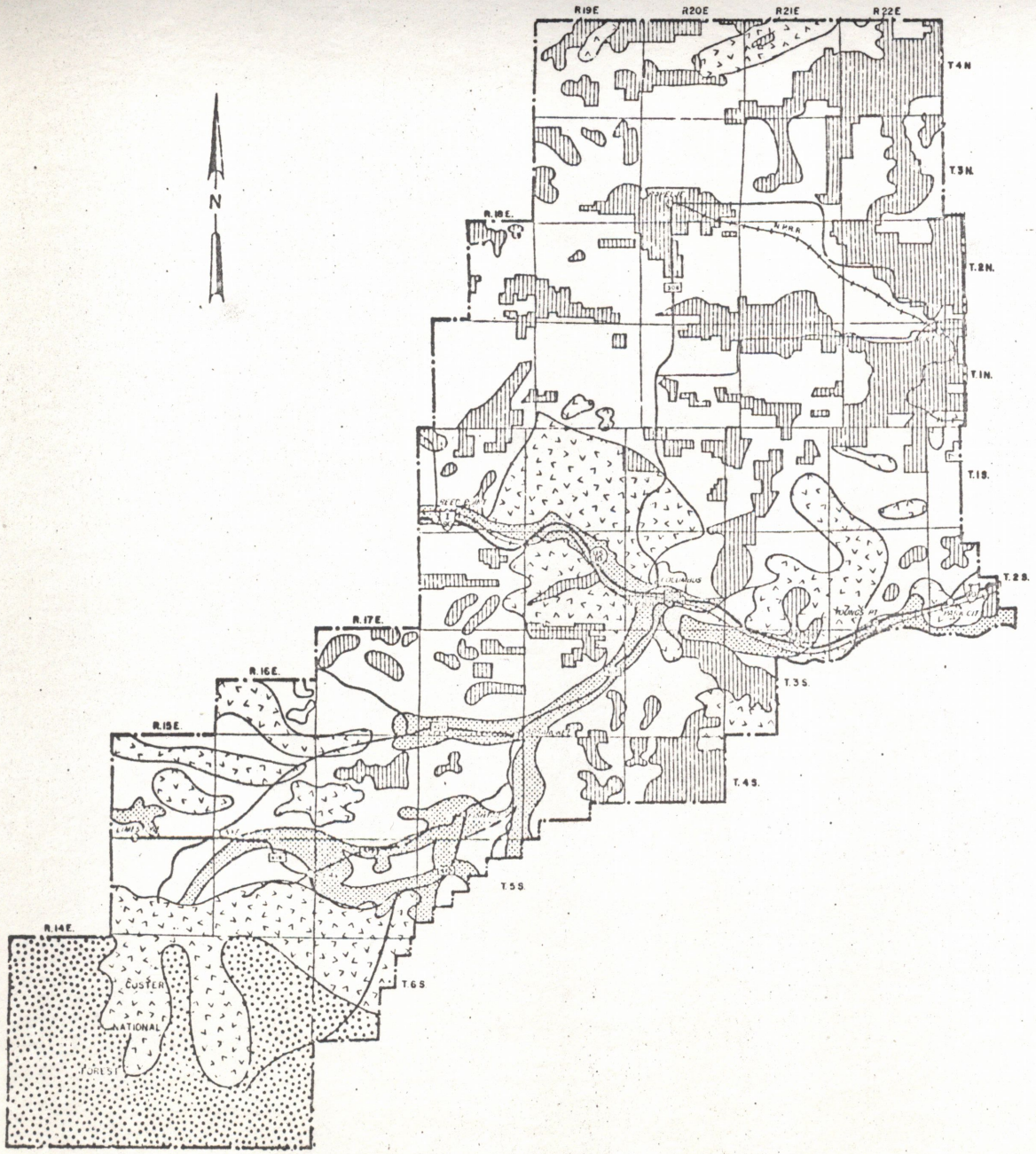
[99] Comprehensive Plan for Stillwater County, p. 22.

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FOR
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LAND USE MAP

Fig. 2-20.

LEGEND

- DRY CROPLAND
- IRRIGATED CROPLAND
- RANGELAND
- WOODLAND
- ALPINE

SCALE IN MILES

This has resulted in unemployment of farm workers and is partly responsible for the net population loss in the county. Stillwater County, as well as Carbon County, does have the potential of raising the agricultural production with more irrigation and a better transportation system.

The trend of a decreasing labor force and employment in Stillwater County continues. Agriculture has been the important loss category. Over one-third of this loss between 1950 and 1960, was offset by enlarged mining activities, with the largest share of this gain provided in chrome operations. The reason for this gain and the inflated mining employment figures was the Korean War. Employment in the mining industry since this period has decreased. The economic future appears bleak. The potential is here, however, as was discussed in Part II, Section F. In fact, as recently as this fall, the mineral deposits at Goose Lake exchanged owners and plans were made for larger operations.[100] Currently, operations are down, but this industry holds one of the most promising potentials for the future.

Concurrently, Stillwater County has been experiencing moderate advances in the manufacturing industry, transporta-

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[100] The Billings [Montana] Gazette, November 11, 1970, p. 17.

tion, communication, and utilities industry, and the wholesale and retail trades industry. These statistics, (Table XI, page 80), were compiled, however, when the mining industry was at a peak. The 1970 statistics will probably put forth a different and more negative picture.

The largest gain in an industry in Stillwater County was in the finance, insurance, and service industry. (See Table IX, page 74). This rise is more valid as it has continued over several decades. The rise has been caused by the influx of tourists to the Stillwater area. Available recreational areas, the amount of water surface, and the amount of open area still undeveloped, all point to a consistent growth in the recreation-tourist industry.[101] Stillwater County, as Carbon County, can provide hunting, fishing, swimming, boating, camping, hiking, sightseeing, and winter sports. Plans are being considered for growth in this area.

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[101] Comprehensive Plan for Stillwater County, p. 3.

I. The Existing Public Utilities

The public utilities of the Planning Area are also important determinants of conditions as they exist and can be important determinants in the future.

1. The Existing Public Utilities of Carbon County

One of the more important public utilities is the transportation system. The movement of goods and people is an important economic consideration. No community is self-sufficient. The main transportation facility in Carbon County is the road and highway system. The two major roadways in Carbon County are U. S. Highway 212 and 310. (See map, Figure 2-21). The highways are one and the same from the Interstate 90 interchange in Laurel, south to Rockvale. At Rockvale, the highway splits and 310 continues along the Clark's Fork River valley. Highway 310 is a direct access from several northern Wyoming communities to the Billings metropolitan area. Montana travelers also use the route as an access to the Pryor Mountains, Yellowtail Reservoir, and the east entrance to Yellowstone National Park.[102] Highway 212 crosses Carbon County from northeast to southwest and

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[102] Comprehensive Plan for Carbon County, p. 35.

COMPREHENSIVE AREA PLAN
CARBON COUNTY, MONTANA

RED LODGE - CARBON COUNTY PLANNING BOARD
RED LODGE, MONTANA

PLANNING AREA MAP

PREPARED BY

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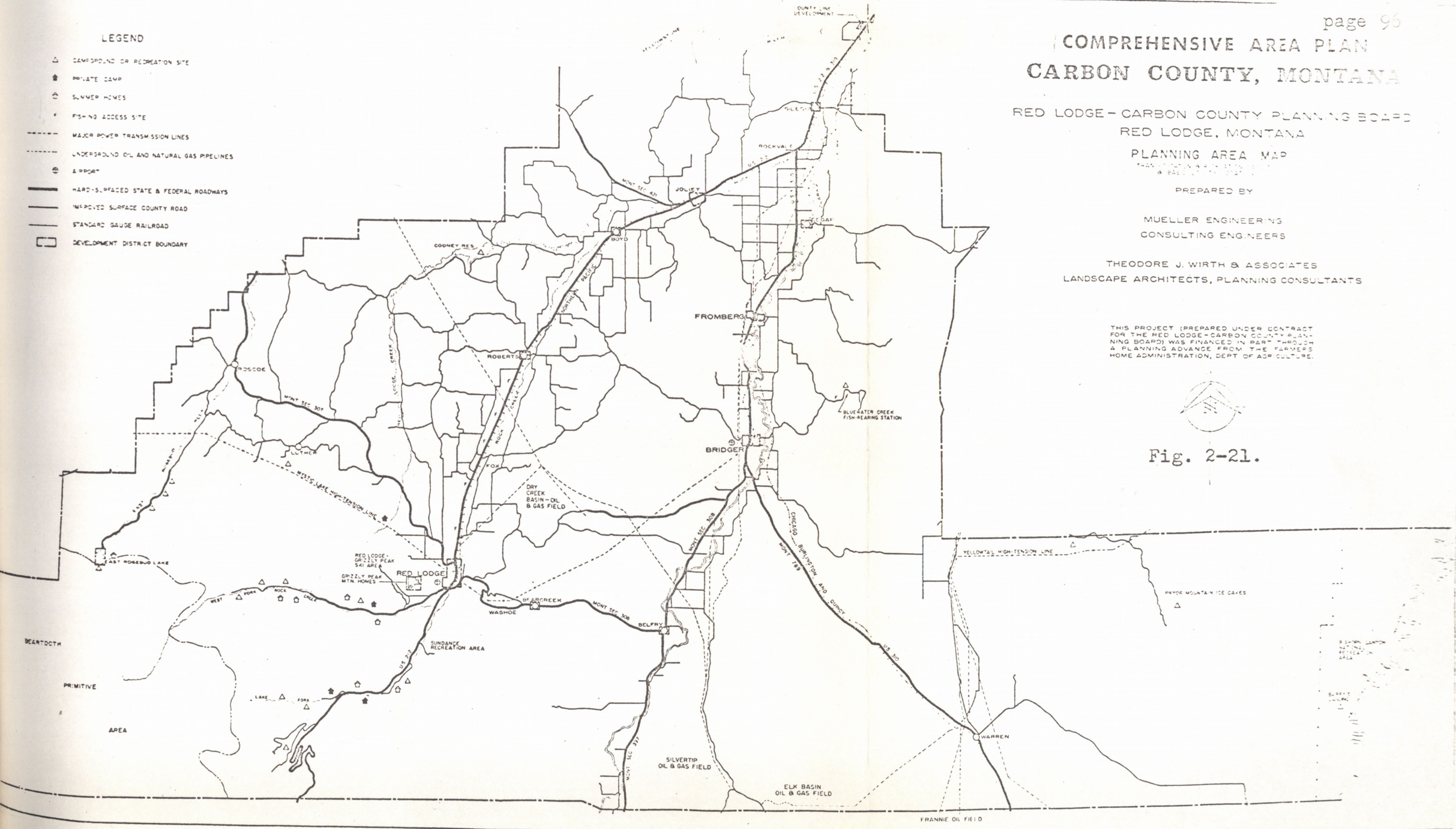


Fig. 2-21.

provides the county's major access to the Beartooth Mountains. Highway 212 follows along the Rock Creek valley from Rockvale to Red Lodge, beyond which it enters the scenic Rock Creek canyon of the Beartooth Mountains. Approximately 25 miles of the highway passes through the canyon and then up over the famous Beartooth switchbacks into Wyoming, (See Photograph, Section H, page 88), and on to the northeast entrance of Yellowstone Park. There are projects planned for both U. S. 212 and U. S. 310 due to increased traffic.

Four state secondary highways are also located in Carbon County, and they complete the major road network of the area. Secondary 308 leaves U. S. Highway 310 south of Bridger and continues on into Red Lodge. Secondary 397 continues south from Belfry and crosses into Wyoming. The town of Cody, Wyoming, is only 47 miles from Belfry along this route. Secondary 307 leaves Red Lodge and runs in a northerly direction to Columbus in Stillwater County. Secondary 421, in northern Carbon County, leaves U. S. 212 at Joliet and crosses to Columbus.[103] Interstate 90, slated to be completed by 1973, will run parallel to Secondary 421, and be a major east-west route carrying

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[103] Ibid., p. 36.

increased traffic. The problems in this county arise from the poor quality of gravel and dirt roads. These service mining, recreation, and more remote farm and ranch areas. In general, these roads are unsuited for most vehicles and are impassable in bad weather. If improvements are made here, the economy of the whole county will benefit.

Two railway companies also serve as transportation for communities in Carbon County. The Northern Pacific Railway Company runs a freight train each Tuesday from Laurel to Bridger, from Bridger to Rockvale, from Rockvale to Red Lodge, and from Red Lodge back to Laurel. The Northern Pacific track now terminates at Bridger; however, at one time, track ran from Bridger to Belfry and on to Washoe. The Chicago, Burlington, and Quincy Railway Company runs a freight train each direction, each day, through Silesia, Fromberg, Bridger, and Warren. The Burlington track continues south through Warren and on into Wyoming.[104] Rail service is now for transportation of goods only. Rail passenger service by the Chicago, Burlington, and Quincy Railway Company has recently been discontinued, and the Northern Pacific Railway Company has not offered passenger service in

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[104] Ibid., p. 37.

some time. Several truck freight services in the Billings area supplement the rail freight system in Carbon County. The rail companies do not anticipate any further cutbacks in the present system and if the county's needs were to grow, an increase in rail service could be made.

Another transportation facility is the bus service. Three bus lines operate in Carbon County. The Northern Pacific Transport Company bus runs daily in each direction between Billings and Red Lodge, with stops at each town along the route. From June 11, to August 30, the Yellowstone Park Line bus operates daily each way between Billings and Mammoth, in Yellowstone Park. Red Lodge is a scheduled stop on this run. The Continental Trailways' bus runs twice daily in each direction between Billings and Bridger. The bus stops at Laurel, Edgar, and Fromberg, along this run.[105]

The final transportation facility is the air service. There are two airports located in Carbon County, one at Bridger and the other at Red Lodge. There is also one private field at the Mackay Ranch near Roscoe. The Bridger airport is classed as a secondary service type by the Federal Aviation Administration. It has one runway which

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[105] Ibid., p. 38.

runs north-south for a total length of 3,000 feet. The surface is bituminous pavement, 35 feet wide. There is no terminal building and an airport attendant is on call. One aircraft is permanently based at the airport. The annual aircraft operations in 1966, totaled 617. No commercial airlines have used the Bridger field. The Red Lodge airport is also classed as a secondary service type. It consists of a north-south bituminous pavement runway, 4,000 feet long and a northeast-southwest turf runway, 2,300 feet long. The paved runway is 75 feet wide, while the turf strip is 250 feet in width. Buildings include eight hangars and a small terminal building. An attendant is on duty during the day. Seven aircraft are permanently based here and accounted for 3,022 operations in 1966. As at the Bridger airport, no commercial airlines operate from the Red Lodge field.[106]

The nearest commercial airline service is in the Billings area. Many people fly into Billings each year and travel from there to Yellowstone National Park, Red Lodge-Grizzly Peak Ski Area, or to mountain guest ranches in or near Carbon County. An air shuttle service from Billings to Bridger or Red Lodge, is a possibility for immediate

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[106] Ibid., p. 38.

growth. Also, since both the Bridger and Red Lodge airports are listed in the National Airport Plan, they are eligible for federal aid. The Airport District office in Helena, has indicated that both the Red Lodge and Bridger airports are eligible for runway extensions, lighting, and other development under this plan.[107]

Another basic public utility system is the telephone service. It is supplied to Carbon County communities and the outlying areas by Mountain States Telephone and Telegraph Company. District headquarter offices for this area are in Billings. The local manager is in Red Lodge.[108]

The Montana Power Company, with headquarters in Butte, Montana, maintains an electrical network which serves the entire State of Montana. Carbon County contains part of this public utility network, and Montana Power has offices in Bridger, Fromberg, and Red Lodge. The town of Roberts and other outlying areas of the county are served by the Beartooth Electric Cooperative, Inc., of Red Lodge. The Co-op power is purchased from the Montana Power Company.

Natural gas is supplied to the communities of Carbon County from the gas fields in Elk Basin and Dry Creek. (See

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[107] Ibid., p. 39.

[108] Ibid., p. 40.

Figure 2-21, page 96). The Montana-Dakota Utilities Company supplies gas from Elk Basin to Belfry, Warren, Bridger, Fromberg, Edgar, Joliet, Silesia, and to many farm customers. The Montana Power Company supplies gas from the Dry Creek field to Red Lodge, Roberts, and outlying areas. As natural gas is readily available in this area, future expansion of the present supply network is feasible. More remote installations in Carbon County are served by the various liquified petroleum gas companies in the area. Also, many residents of the county still use coal from the mines in Carbon County.[109]

The final public utility system is the water supplied. Over 52 per cent of the people in Carbon County are served by community water systems. The remaining people are served by individual systems such as wells, springs, or cisterns. Bearcreek, Bridger, Fromberg, Joliet, Red Lodge, and Roberts have community water systems.[110] Change-over from individual to central water supply in the small rural areas does not appear to be practical at this point as these areas are losing population. If these areas should grow, water would not be a problem. Carbon County has

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[109] Ibid., p. 41.

[110] Ibid., p. 80.

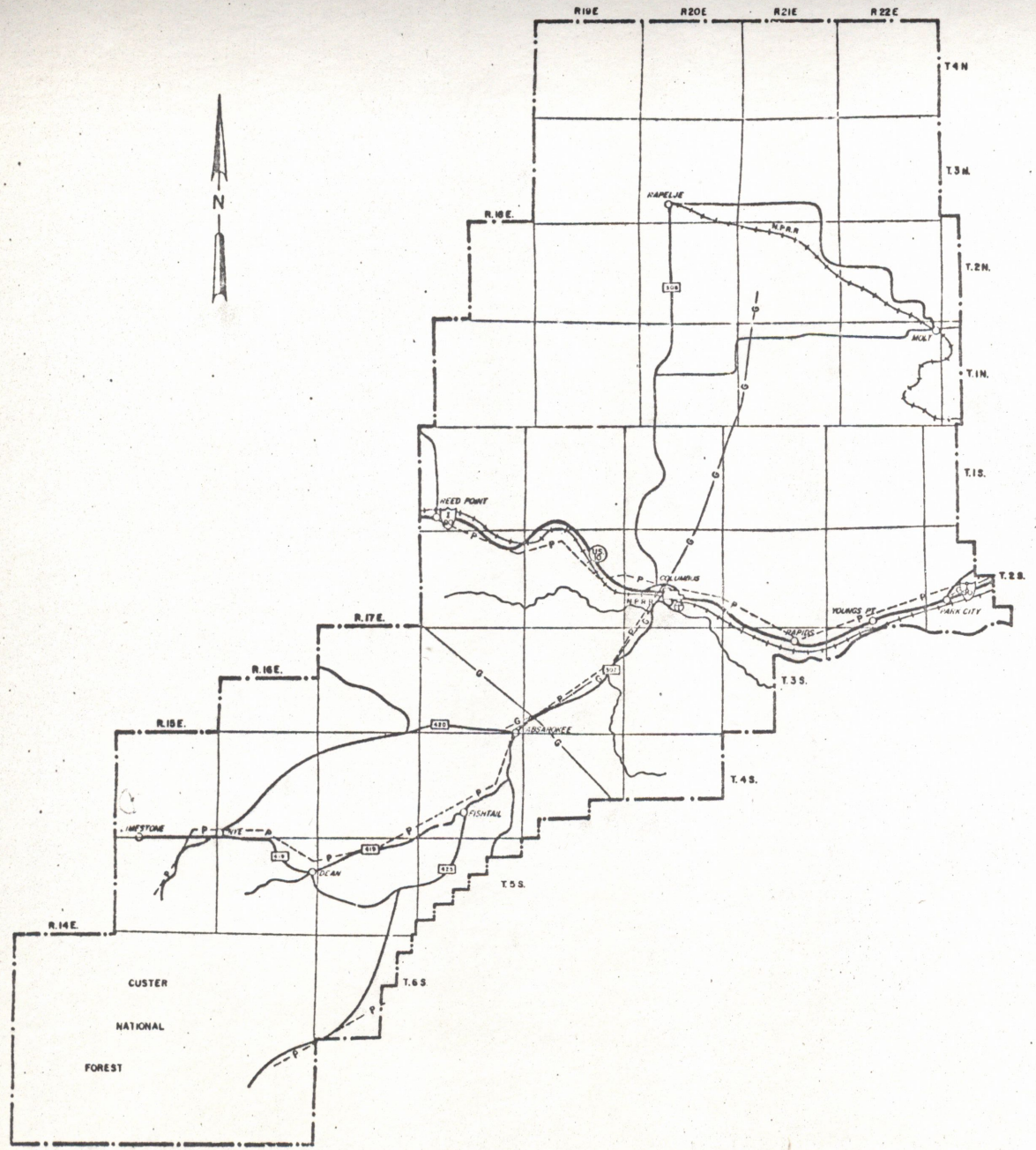
virtually no problem in obtaining water for community water supplies. Ground water, either from deep wells or from shallow infiltration galleries near rivers or streams, is of high quality and little or no treatment is necessary to meet the Montana State Department of Health requirements.[111] Even though the ground water supplies are plentiful, if desired, there are also surface water sources available and usable.

2. The Existing Public Utilities of Stillwater County

The public utilities system in Stillwater County is very smiliar to that in Carbon County. In the transportation system, Stillwater County has but one U. S. Highway, and that is U. S. Highway 10. (See Figure 2-22). U. S. Highway 10 passes through Stillwater County, nearly dividing the county in half. Interstate 90, as mentioned earlier, to be completed in 1973, is the new federal road paralleling U. S. Highway 10. It will bypass Columbus, Park City, Reedpoint, etc.; however, it will be carrying more traffic through Stillwater County. Even now, Highway 10 is the main east-west traffic carrier in the state and is the main

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[111] Ibid., p. 86.



COMPREHENSIVE AREA PLAN
FOR
SEWER AND WATER
STILLWATER COUNTY

PREPARED FOR
COLUMBUS-STILLWATER CITY-COUNTY PLANNING BOARD
COLUMBUS, MONTANA

PREPARED BY
MUELLER ENGINEERING, INC.
CONSULTING ENGINEERS

THEODORE J. WIRTH & ASSOCIATES
LANDSCAPE ARCHITECTS, PLANNING CONSULTANTS

PLANNING AREA MAP

Fig. 2-22.

LEGEND

- P——P— MAJOR TRANSMISSION LINES
- G——G— UNDERGROUND NATURAL GAS PIPELINES
- AIRPORT
- FEDERAL ROADS, HARD-SURFACED
- STATE SECONDARY ROADS, HARD-SURFACED
- IMPROVED SURFACE ROADS
- RAILROADS

SCALE IN MILES
5 0 5 10

traffic carrier to and from Yellowstone Park. Any park visitor from the east using the north or west entrance to Yellowstone Park, will find this the most direct route in the summer and the only route in the winter. There are five, state, secondary roads in Stillwater County. Secondary 304 runs north from near Columbus to Rapelje, and is the main road in northern Stillwater County. Not all of this highway is paved and plans have been made to pave the remaining portion. Secondary 307 leaves Columbus and runs south to Absarokee, and on to Red Lodge, in Carbon County. Currently, this road is in poor shape and plans have been made to widen and straighten this highway. Secondary 420 runs southwest to Nye, and Secondary 419 passes through Fishtail and Dean, and continues on to Nye. Secondary 425 continues south to more remote areas.[112] The problem with this most basic method of transportation arises from the secondary roads being in a state of disrepair, as well as from the deteriorating gravel and dirt roads. These roads, often impassable, are the only method of transportation to the farms, and the mining areas, as well as to the recreation areas. These roads must be improved before growth

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[112] Comprehensive Plan for Stillwater County, p. 32.

will take place in Stillwater County.

Railway transportation in Stillwater County is almost entirely limited to a linear east-west movement across the county. The Northern Pacific main line parallels the main highway, U. S. 10, and when completed, Interstate 90. The Northern Pacific remains the only railroad serving Stillwater County, and yet the main line carries numerous freight trains and two passenger trains through the county daily. This line continues transportation to Minneapolis and Chicago in the east, and to Spokane and Seattle in the west. Supplementing the main line is one branch freight line in the northern part of the county serving the wheat country of Molt and Rapelje. This branch is called the Lake Basin Branch and runs once a week.[113]

The bus service transportation follows the same pattern as it runs east-west, paralleling the main rail line, on U. S. Highway 10. There are three buses each direction, each day. The buses are passenger Greyhound and stop at Columbus, Park City, and whenever there is a flag stop.[114]

The air transportation facility is also located near

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[113] Ibid., p. 32.

[114] Ibid., p. 33.

the main highway, the only bus route, and main railroad line. Columbus has the only public airport, and it is classed as a secondary facility. It has one hard-surfaced runway, 2600 feet long and 60 feet wide. Additionally, there is one private airstrip near Rapelje; and the nearest commercial airline service is in Billings.[115]

Lack of transportation for the county is one of its biggest problems. All of the main transportation is in a thin east-west strip that divides the county into two large areas that are without effective means of transportation. Any growth must begin in the transportation area.

The public utility system of telephone service is provided in Stillwater County by two companies. The Treasure State Telephone from Big Timber provides service for Absarokee, Fishtail, Dean, Nye, Limestone, Rapelje, and Molt. Mountain States Telephone based in Laurel, services Park City, Columbus, and the surrounding area.[116]

The electrical service to Columbus, Absarokee, Nye, Reedpoint, Park City, and nearby rural areas is supplied by Montana Power. The main office is in Billings, however,

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[115] Ibid., p. 34.

[116] Ibid., p. 34.

there is a local manager at Columbus. Also, supplying power are two rural electrification administration cooperatives. The Yellowstone Valley Electric Cooperative supplies electricity along the eastern border of the county. The center of this cooperative is Huntley, which is in Yellowstone County. The Beartooth Electric Cooperative, Inc., serves the main portion of Stillwater County. Its lines cover all areas of the county and provide service to farms, ranches, and small communities. As was mentioned earlier, this cooperative is based in Red Lodge.

Montana Power also supplies natural gas to Columbus and Absarokee for heating. The Montana-Dakota Utilities provides natural gas to Park City. (See Figure 2-22, page 104). The rest of the county has no gas lines and expansion would be necessary if the county were to grow. The natural gas fields in Carbon County are capable of handling this growth. Much of the heating is done now by the various liquified petroleums.[117]

Another public utility system is the water supplied. Only 36 per cent of the people in Stillwater County are presently served by community water systems. The other 64

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[117] Ibid., p. 35.

per cent are served by individual systems such as wells, springs, or cisterns. Absarokee, Columbus, and Rapelje presently have central water systems.[118] Even though the water resources in Stillwater County are not as great as in Carbon County, there appears to be no problem of constructing other water systems should sufficient need and interest develop.

J. The Clusters of People

Yet another phase in the examination of the Planning Area is the individual clusters of people and their particular conditions and problems. In the Planning Area, there are two main clusters or cities, both of which are county seats of their respective counties. They are Red Lodge of Carbon County, and Columbus of Stillwater County. Their population is much larger than any of the other clusters or towns, (See Table XII), thus, these were chosen for a more detailed study. Time does not permit a study of all of the individual clusters; however, in general, their situation and problems are similar but compounded due to a lesser population and a more severe negative population growth.

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[118] Ibid. p. 50.

TABLE XII

CITIES OF THE PLANNING AREA

Population as of 1960[a]

CARBON COUNTY		STILLWATER COUNTY[d]	
Alpine	0[b]	Absarokee	700
Bearcreek	61	Columbus	1500
Belfry	250	Dean	5
Bridger	824	Fishtail	75
Boyd	25	Limestone	5
Edgar	130	Molt	15
Fromberg	367	Nye	15
Joliet	452	Park City	400
Luther	15	Rapelje	75
Red Lodge	2278	Reedpoint	75
Roberts	300		
Rockvale	0[c]		
Roscoe	50		
Silesia	100		
Warren	10		
Washoe	40		

[a] Compiled from information supplied by the Montana Highway Commission, Helena, Montana 59601.

[b] Alpine is a resort area and only has population in the summer months.

[c] There were no statistics available on Rockvale.

[d] The Stillwater County statistics were estimated, and thus, higher than actual.

In the Planning Area, the farm and ranch population tends to be dispersed; and the towns and cities are generally small in size and separated by large distances. There are concentrations throughout the Planning Area along avenues of transportation and communication, where more wholesale and retail facilities are located and the towns are somewhat larger. (The two following cities, Red Lodge and Columbus, are examples of this). The remaining clusters of population have few facilities and services and are sparsely settled. These small town trade centers are often dependent upon near-by mining areas, forestry and harvesting activities, oil exploitations, power production sites, or recreation locations that are dispersed throughout the area. Additionally, these small towns hang on to the few larger oases, often in a parasitic or highly dependent fashion.[119]

The Planning Area has been losing people at a high rate, and the more sparse clusters of people are becoming even more sparse. The main problem associated with this sparsity of population is the high social cost of space. The social cost of space is composed of those expenditures paid

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[119] Carl F. Kraenzel and Francis Macdonald, "The Social Cost of Space Aspects for Services in Sparsely Populated Areas" (Bozeman, Montana: Montana State University, 1966), p. 2.

by the individual in dollars,and also in social deficit situations that arise from neglect of services, or result in anguish and suffering.[120]

Some of these costs are purely economic arising out of, or associated with, distance. Distances are great and travel is costly. The average person in the Planning Area travels perhaps ten times farther than the average Iowan, and perhaps fifty times farther than the average New Yorker, to purchase goods and services. Some economic costs are associated with under-use, or use of smaller than economic-sized facilities. Associated with the miles of travel are numerous other attendant costs. The risk of getting to places and back is greater than when distances are short. When faced with hazardous weather, it means paying for overnight lodging, or owning two or more vehicles with the associated extra investment, financing, and insurance costs.

Sometimes these large distances from town can force ranchers and farmers to invest in two homes; one rural home and one town home near school, doctor, and recreation services. Other costs may be the expense of sending children to boarding places when in school. For school districts,

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[120] Ibid., p. 4.

this means longer bus hauls and/or cancelling school when there are hazardous weather conditions.

People in these areas also tend to have less income; distance results in less income. Farmers and ranchers, for example, have the problem of freight for their wheat or beef being high, as well as the extra cost that must be paid for necessary business items shipped in, such as tractors, trucks, feed, etc. The economics of this nation, because of the location of markets, appears to discriminate against the residents of this area. They must pay more to get the services, and they have less net income to buy these services.[121]

Additionally, the people in the sparsely populated areas receive fewer and poorer services. They often accept shoddy performance and exorbitant charges because of lack of choice. Frequently, they can obtain services only periodically and intermittently.

The inadequacy of health services is also part of this. The doctor-patient ratio is low throughout the Planning Area and the only hospitals are in Red Lodge and Columbus. Of the physicians, there are but few who will go

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[121] Ibid., p. 8.

to a ranch or farm even in emergency cases.[122] Lives have been lost trying to obtain medical care that might not have been lost in a concentrated population area.

Aside from all of this, it is impossible to measure the social deficit that has arisen from the neglect of services or that has resulted in anguish and suffering.

The Planning Area is becoming emptier of people and areas with social cost of space problems are becoming greater. This social cost of space gap is important and must be reckoned with.

1. The Cluster of Red Lodge, Carbon County, Montana

The first main cluster to be discussed is Red Lodge, of Carbon County. It received its name from the first white settlers because it was once inhabited by the Crow Indians. Many people contend it was named for a specific Crow Indian medicine man.

Coal deposits in Carbon County were first developed in 1887, in Red Lodge, and coal mining then became a leading industry. In 1889, the Northern Pacific Railroad completed a branch line from Laurel to Red Lodge, for the

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[122] Ibid., p. 7.

main purpose of shipping coal. The Railroad also brought with it many settlers which took up claims near Red Lodge. The nearby coal mining operations provided a market for the livestock and produce.[123]

Red Lodge grew until 1920. Due to the unexpected closing of a coal mining area there, 1920 to 1930 saw the most rapid decline of population in Red Lodge. Since this period, the population of Red Lodge has continued to decline. In 1960, Red Lodge had a population of 2,278, and according to 1970 statistics, it dropped to 1,844.[124] This is a decrease of 19.1 per cent.

Red Lodge is located in a valley at an elevation of 5,762 feet above sea level. This valley lies in the foothills of the Beartooth Mountains. (For aerial photograph of Red Lodge, see Photographs, P-2 and P-3). Being in close proximity to the Beartooths, Red Lodge averages 20.2 inches of precipitation; and 42.6 degrees average temperature.[125] The climate is of the cool temperate type.

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[123] Montana Almanac, p. 379.

[124] Bozeman [Montana] Daily Chronicle, September 17, 1970,

[125] Montana Agricultural Statistics, p. 7.

P-2. and P-3. Aerial photographs of the city of Red Lodge



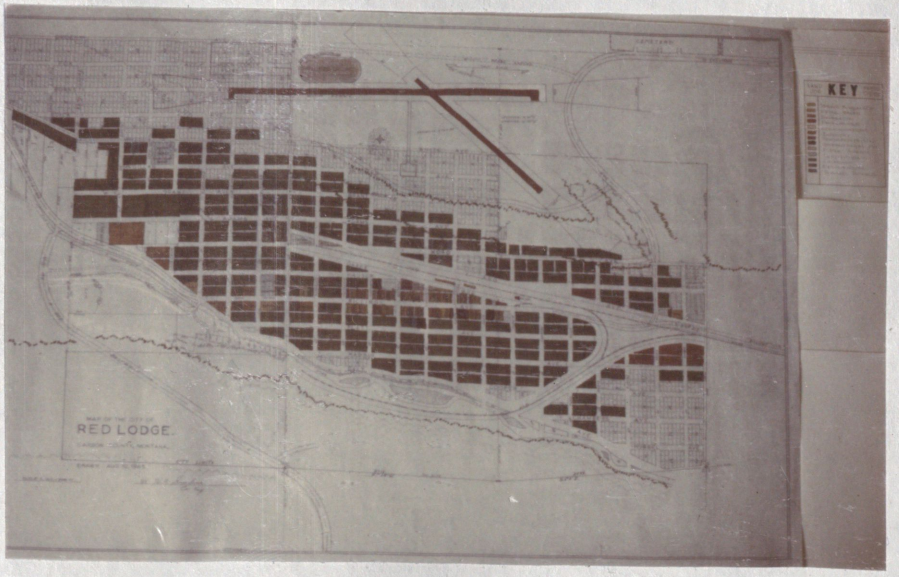


The land use map of Red Lodge is generally disorganized. (For a land use map, see Photograph, P-4, and for a table of land use,[126] see Table XIII). The professions, services, retail sales, and recreation facilities are all intermingled along the length of the main street, Billings Avenue. It is hard to locate a particular type of service; some are lost altogether. It is often hard to tell a vacated premises from a functioning concern. The appearance of the central business district (CBD) is dingy because of the age of most of the buildings as well as the number that have fallen into disrepair. (See Photographs, following on the next pages). Red Lodge has, in more recent years, become dependent on tourists and the aesthetic impression of this area is important. There are a few artful storefronts, but they are lost to the one or two striking new buildings that do not fit the character of the town.

In general, the signs of both the individual establishments and the miscellaneous street signs are lacking in taste, of poor design, quality, and deteriorating, within the CBD. There is a variety of retail stores and service businesses with most all of them carrying curios and tourist

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[126] The following datum has been compiled by myself, with the aid of various Carbon County personnel interviews.



P-4. A land use map for Red Lodge, Mt.
(Compiled by personal observation.)

TABLE XIII

LAND USE OF RED LODGE*

Institutional (types and present enrollment of each.)
Schools
Public: Elementary Grades 1-8, 350.
High School Grades 9-12, 212.
Parochial: None
Area Serves: Elementary: Primary district of Red Lodge, and Roscoe.
High School: Primary district of Red Lodge, # 36, # 10, # 9, # 22, and # 1.
Library: 1
Museums: 1
Hospital: 1, with 30 beds.
Nursing Homes: 2, with 1 connected to the hospital.

Transportation
Air: 1 - public field.
Train: 1, once a week from Laurel.
Bus: 1, from Red Lodge to Billings, daily. The summer bus from Mammoth stops here.
Taxi: None
Car Rental Agencies: None
Travel Agencies: None

Professions
Doctors: 3
Lawyers: 3
Architects: None
Engineers: None
Dentists: 2
Specialists: None
Optometrist: 1

Industries
Cannery: Canned Vegetables. 50 summer employees and 5 winter employees.
Grainery: Grinding of grain. 3 employees.

TABLE XIII (continued)

Service Businesses
- Barber Shops: 3
- Beauty Parlors: 3
- Tailors or Dressmakers: 2
- Laundries: 2 coin-operated; 1 cleaners.
- Dairies: 1 creamery - the milk comes from Wyoming.
- Car Wash: 1 - with a gas station.
- Auto Service Garages: 5
- Gas Stations: 10
- Banks: 2
- Realtors: 3
- Livestock Sales: None
- Accountants or Business Services: 1

Construction
- General Contractors, Homebuilders: 6
- Electrical: 3 of the above.
- Plumbing: 2 of the above.
- Heating and Air Conditioning: 2 of the above.

Retail Sales
- Drug Stores: 2
- Food Stores: 4
- Apparel or Department Stores: 5
- Specialty Stores: 1 ski shop; 1 saddle shop.
- Furniture and Home Furnishings: 4, including hardware.
- Building Supplies: 1 lumber yard
- Automobile and Farm Equipment Sales: 3
- General Store: 1
- Bakery: 1
- Meat Market: 1
- Yarn Shop: 1
- Camera Shop: 1
- Shoe Stores: 2
- Flower Shop: 1
- Gift Shops: 2

Communications
- Newspaper: 1, county paper once weekly.

TABLE XIII (continued)

Recreation
- Hotels: 1
- Motels: 8
- Condominiums: 1, of 24 units. There is only one other in the state.
- Clubs: 2; Elks, Eagles.
- Restaurants or Cafes: 4
- Bars: 12
- Movie Houses: 1
- Bowling Alleys: 1
- Dance Halls: 2
- Golf Course: 1
- Recreation Center: None
- Civic Center: 1
- Zoo: 1
- Ski Area: Nearby.
- Swimming Pool: Condemned.

Organizations:
- Types: Approximately 22, including Lions, Kiwanis, 4-H, Italian Ladies, etc.
- Churches: 6

* Compiled by a personal study.



P-5. View approaching Red Lodge from the North.



P-6. The cannery outside Red Lodge.



P-7. View entering Red Lodge from the North on Main Street.



P-8. Looking North out of Red Lodge from Main Street and Tenth.



P-9. Red Lodge's two banks on the corner of Main and Eleventh.



P-10. Red Lodge City Hall facing North on corner of Eleventh and Hauser.



P-11. View looking North from Main and Twelfth.



P-12. View looking North from Main and Fourteenth.



P-13. View looking South leaving Red Lodge from Main and Nineteenth.

items. There is also a variety of recreation facilities with numerous motels and bars. However, a need exists for a recreation center, as the youth really have no place for themselves. There is a civic center located near the high school, but it is used only as an auditorium.

The county and city government offices are also in this area, intermingled. The county offices have the problem of being divided into two separate buildings separated by the distance of a block.

The professions, not being able to advertise, find themselves at a disadvantage also, as they are among the hardest to locate in the CBD. There are sufficient doctors and lawyers, but there are no architects or engineers. In fact, there are no architects nor engineers in the county.

The contractors also have their offices in the CBD. These men who serve a large portion of the county are generally jacks-of-all-trades. They do the general contracting as well as the electrical, plumbing,and heating contracts. The current plans for the CBD are to continue expanding along the length of Billings Avenue, (Main Street), which will only increase problems and decentralize the CBD.

Institutional buildings are located generally in the residential area. The first school, which housed all education, was located on Billings Avenue. As the need

arose, the high school was built more centralized to the residential area on a site that was once railroad land. The grade school remained on Billings Avenue. The only hospital in the county was built on the fringe of the residential area as that was the only large area available. The only real library in the county is also located in Red Lodge, and it is at the northern end of Billings Avenue. The churches and other various local organizations are dispersed throughout the community. The form of the residential area is awkward as the growth has been diagonally and lengthwise to fit the valley. One predominant problem of the residential area is the lack of recreation for the children. There are no parks and the play equipment on the grade school grounds is isolated from much of the residential land.

Red Lodge has an adequate system of transportation for its size. There is a drawback, however, with the airstrip being uncomfortably close to the residential area. There could be a multitude of problems if this airstrip were to become commercial.

There are also two industries in Red Lodge. The cannery and the grainery are located near the north edge of town. The number of employees and production of the industries are both small.

Utility systems are other descriptive components. A surface-water supply facility on the West Fork of Rock Creek was the main source of water in Red Lodge for many years. It became apparent that a new water source was needed; and in 1961, a well was drilled on Grant Avenue in Red Lodge.

In 1967, a study of the system was completed, and the report[127] recommended additional ground-water supplies to supplement and possibly replace the existing surface source. Ground-water is readily available in large quantities and good quality in the Red Lodge area. Shallow wells or infiltration galleries set in the valley alluvium produce water which requires little or no treatment. The report also suggested updating the present distribution system.

At this time, a report was also made on the sewage system. It was found to need revision. Sewage is currently discharged into four irregularly-shaped stabilization ponds located along Rock Creek, northeast of town. The ponds are neither large enough nor deep enough to handle the sewage from Red Lodge. (See Figure 2-23, for a map of existing and proposed sewer and water facilities).

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[127] The report referred to here is the Comprehensive Plan for Carbon County.

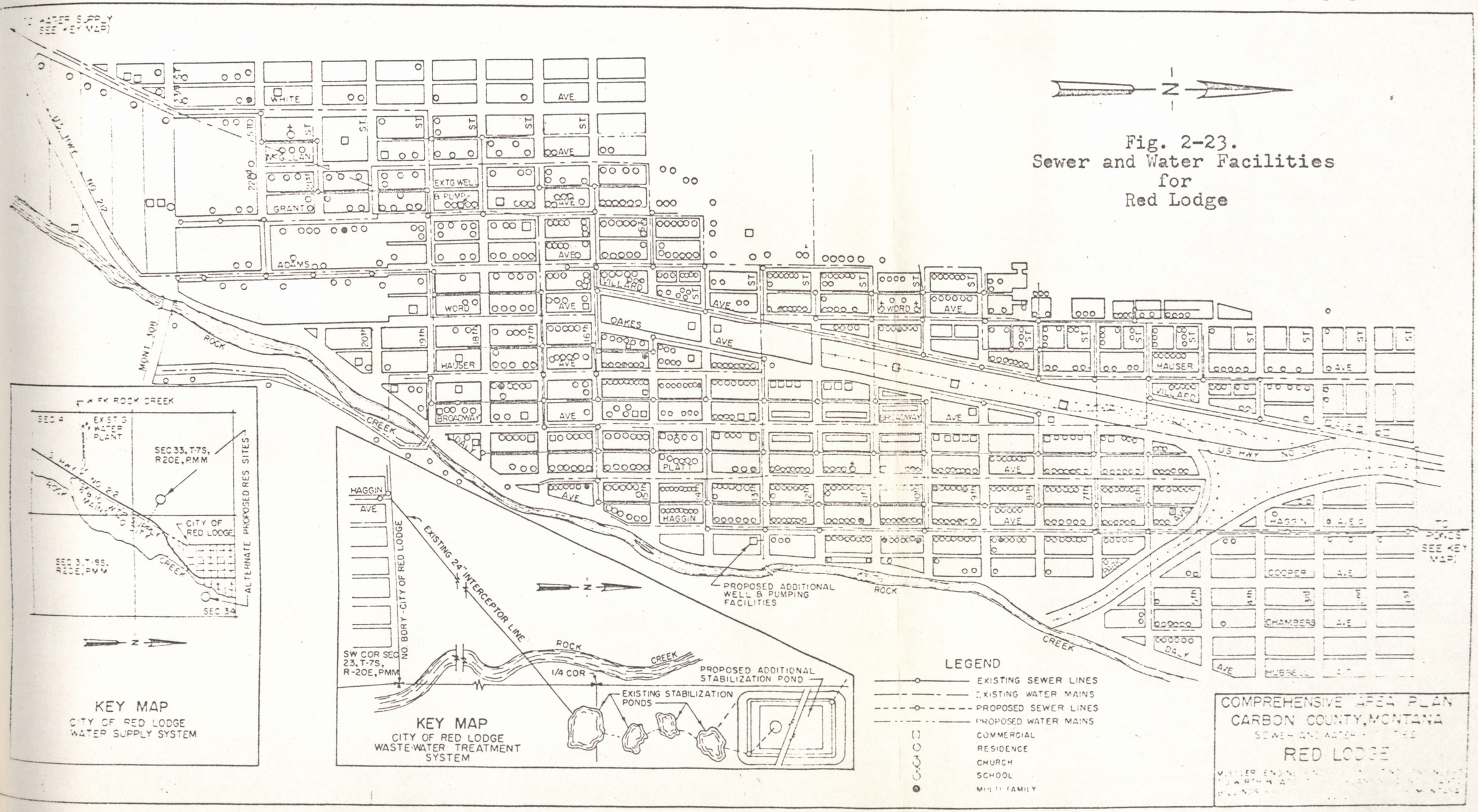


Fig. 2-23.
Sewer and Water Facilities
for
Red Lodge

The remaining utilities of telephone, electricity, and natural gas have been discussed in Part II, Section I.

Red Lodge houses both the county and city government. Carbon County is governed by a Board of County Commissioners, consisting of three members, each representing a district within the county. The county has only five other units of government; and they are in the incorporated cities, of which Red Lodge is one. Law enforcement within the county is administered by a sheriff's department which is in Red Lodge. Additionally, Red Lodge has its local municipal police chief. The county health and welfare offices are also located in Red Lodge. Fire protection is accomplished by a city firechief and volunteer firemen. Uniquely, the zoning enforcement is handled by the firechief. The zoning regulations have been in force since 1947, and are oversimplified and outdated. (See zoning map photograph and a copy of Red Lodge's zoning system in Appendix A).

Currently, the economy of Red Lodge is based primarily on tourism. Secondarily, Red Lodge serves as an oasis of services for the entire county. This includes wholesale and retail trades, service businesses, professional, governmental, and institutional services. The manufacturing output accounts for only a small income and thus, ranks third.

Red Lodge is located in a scenic area. The Beartooth Mountains can be seen upon entering and leaving the main highway through Red Lodge. (See Photographs, P-5, page 121, and P-13, page 125). The feeling, however, is lost within the main part of town, the CBD. There is no greenery or trees and no views of the mountains. Within the CBD, there is a lack of focus. Visually dominant are the competitive, conflicting advertising signs and the new striking buildings that do not fit the character of Red Lodge. General disorder within the CBD is due to a lack of separation of major land use and the lengthy form the CBD takes. Additional confusion arises between the vehicles and pedestrians using the space. Pedestrians face a hazard crossing the main street-highway while using the CBD. The vehicles only have curb parking which is insufficient and is a hazard to other vehicles on such a narrow main street-highway.

Another basic problem in Red Lodge is the railroad track and land that divides the town. This strip of land is a visual blight area as well as a menace. It is located between the CBD and residential area with no safety precautions for children. In addition, it is a barrier for vehicular and pedestrian circulation. To a passing visitor, all seems very confused and disorganized.

2. The Cluster of Columbus, Stillwater County, Montana.

The other main cluster to be discussed is Columbus of Stillwater County. It is doubtful that any other town in Montana had as much trouble or more embarrassment in deciding its location and name. As was mentioned earlier, this portion of the Yellowstone was slow in getting settled. It bordered the north side of the Crow Reservation, and there were constant raids on the area by Sioux and Cheyenne war parties. Before 1875, the Countryman's Ranch and stage station was the only settlement between Coulson and Mission. It was in 1875, that the Crow Agency moved from Mission Creek; and at that time, W. H. Norton and Horace Countryman built a trading store to trade with the Crow Indians on the ranch site. This site, two miles east of the current Columbus, was named Eagles Nest for the lone tree that stood near the store on the bank of the Yellowstone River, with a large eagle's nest on its top branches.[128]

The following year the town's name was changed to Sheep Dip. Its name was derived from the poor liquor that was sold there. The liquor was likened to sheep dip, which

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[128] Annin, op. cit., p. 25.

was the substance the sheep were put into to delouse them.

Next, the town moved to a site just south of Columbus, because the Northern Pacific had surveyed and it was thought that the tracks would soon be built there. Three saloons were built and the name of Sheep Dip was retained as the liquor was about the same as at old Eagle's Nest. It was not until the location of the Northern Pacific Railroad lines was known that the town of Stillwater on the site of the current Columbus began.

In the winter of 1880, Horace Countryman moved here and built an old log hotel just north of the current Northern Pacific depot. In 1881, W. H. Norton built his log store. Horace became postmaster, and the stages stopped here with their mail and passengers. In the fall of 1882, the completed track stopped here and became the starting point of the stages.[129] The Northern Pacific completed the train station in 1882, and the official name of the town of Stillwater became known.

However, there was a problem. The Northern Pacific already had a Stillwater, Minnesota, listed on their main line; and there was much confusion in shipments, etc., so

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[129] Ibid., p. 6.

the name of Columbus replaced Stillwater, on January 1, 1894.[130] No one is sure where the name, Columbus, originated. Some contend it was for Christopher Columbus, and yet, others say it was named for Columbus, Minnesota.[131]

The town grew, and by 1900, the population of Columbus was 178. But the real increase in population came with the opening of a sandstone and limestone quarry in 1900. The stone quarry was in the bluffs a mile north of town. Ben Hager, an old contractor of rock work, claimed this to be the most accessible and finest quality rock along the Yellowstone. All of the existing stone structures on Main Street were built of this stone. In 1899, the capitol building at Helena began, and was built of this stone. Other buildings followed such as the federal buildings of Butte and Helena, the original federal building at Billings, hotels at Forsyth and Havre, the Missoula and Havre high schools, the Masonic Temple at Missoula, and many other public and private buildings.[132]

The turning point of the quarry operation came in

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130 Ibid., p. 22.

131 Montana Almanac, p. 415.

132 Annin, op. cit., p. 32.

1910. An annex was needed for the capitol and the money was appropriated. The stone quarry here could not bid low enough to meet the budget. During this period, a granite quarry was beginning in the Boulder-Butte area and much of the equipment was moved there to get the bid. Also, by this time concrete blocks, brick, and other materials were becoming more popular. The competition reaped its toll.[133] For nearly two decades, however, it was the main contributing factor in the growth and progress of Columbus.

Columbus has gained and lost population with another industry, the mining of chrome, as has been discussed in Part II, Section F. For a time there was a pilot plant making chromic acid that flourished in Columbus. More recently, the coming of Timberweld to Columbus helped to supplement the now basically agricultural economy. In spite of this, between 1960 and 1970, the city of Columbus lost 8.4 per cent of its population. As of 1970, the number of people in Columbus was but 1,176.[134]

Columbus is located in an area called the Flaherty Flats on the northern side of the Yellowstone River, and is part of the Yellowstone Basin. The elevation is 3,575

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[133] Ibid., p. 33.

[134] Bozeman [Montana] Daily Chronicle, September 17, 1970.

feet above sea level. (For aerial photographs of Columbus, see Photographs P-14 and P-15). Being part of the plains area, the precipitation in Columbus averages 13.26 inches. The temperatures average a low of 15 to 18 degrees and a high of 88 to 92 degrees. The climate would fall into a temperate type.[135]

The land use of Columbus is disorganized and illogical for its present functions. (For a land use map, see Photograph P-16, and for a table of land use[136] see Table XIV). The CBD is unusual in that it is basically along one side of the main highway through town, as the railroad land and tracks runs the length of the other side. The remaining portions of the CBD are along the northern side-street and a few spill along the highway south to Absarokee. (See Photographs of Columbus on the following pages).

Within the CBD, the professions, services, retail sales, and recreation facilities are all intermixed along the length of the main street-highway, Pike Avenue. A particular type of service is difficult to locate and it is often a problem to distinguish a functioning establishment

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[135] Montana Agricultural Statistics, p. 9.

[136] The following datum has been compiled by myself, with the aid of various Stillwater County personnel interviews.

P-14. and P-15. Aerial photographs of the city of Columbus







P-16. A land use map for Columbus, Mt.
(Compiled by personal observation)

TABLE XIV

LAND USE OF COLUMBUS*

Institutional (types and present enrollment of each.)
- Schools
  - Public: Elementary Grades 1-8, 290.
    High School Grades 9-12, 130.
  - Parochial: None
  - Area Serves: Columbus and near areas.
- Library: 1, in the basement of the county courthouse approximately 200 square feet.
- Museums: None, though one is desired.
- Hospital: 1, with 27 beds.
- Nursing Homes: 1

Transportation
- Air: 1, classed as a secondary facility. The only public field in the county, though currently private use only.
- Train: 1, Northern Pacific.
- Bus: 1, running each direction 3 times daily.
- Taxi: None
- Car Rental Agencies: None
- Travel Agencies: None

Professions
- Doctors: 2, in 2 offices. 1 doctor in Absarokee.
- Lawyers: 3, in 2 law firms.
- Architects: None
- Engineers: None
- Dentists: 2, in 1 office.
- Specialists: None

Industries
- Timberweld: Laminated wood beams and trusses. 36 employees.

Communications
- Newspaper: 1, county paper once a week.

Organizations
- Types: Approximately 10, including Masons, Eastern Star, Kiwanis, 4-H, Daughters of Rebecca, etc.
- Churches: 6

TABLE XIV (continued)

Service Businesses
- Barber Shops: 2
- Beauty Parlors: 2
- Tailors or Dressmakers: 1, in a home.
- Laundries: 1 laundromat, 1 cleaners.
- Dairies: 1 creamery, but Darigold hauls in.
- Car Wash: 1 self service car wash.
- Auto Service Garages and Gas Stations: 9
- Accountants or Business Services: 1
- Banks: 1
- Realtors: 3
- Livestock Sales: None. Travel to Billings.
- Specialties: 1 radio repair; 1 funeral parlor.

Construction
- General contractors: None, though 1 in Absarokee.
- Homebuilders: None
- Electrical: 1, in a home.
- Plumbing: 2, in homes.
- Heating and Air Conditioning: 1, also handling an appliance store.

Retail Sales
- Drug Stores: 2
- Food Stores: 2; 1 little and 1 supermarket.
- Apparel Stores: 2
- Department Stores: 1
- Specialty Stores: 1 saw shop.
- Furniture and Home Furnishings: None, so order from catalog or go to Billings.
- Building Supplies and Hardware: 1, with 1 lumber co.
- Automobile Sales and Farm Machinery: 5

Recreation
- Hotels: 1, which is actually more apartments.
- Motels: 1 in use.
- Clubs: None
- Restaurants or Cafes: 2 with 1 summer drive-in.
- Bars: 4
- Movie Houses: None, though 1 in Absarokee.
- Bowling Alleys: 1, with bar and restaurant.
- Dance Halls: None
- Golf Course: None
- Recreation Center: 1, for kids, with ping pong, etc.
- City Park and Fairgrounds: 1, baseball and football.

* Compiled by a personal study.



P-17. View approaching Columbus from the Northwest.



P-18. View looking Southeast of Pike Ave. from grain elevators.



P-19. View looking Southeast from Pike Ave. and Fourth St.



P-20. View looking down Fourth St. of Stillwater County Court House.



P-21. View looking Northwest from Pike Ave. and Fourth St.



P-22. View approaching Columbus from the Southeast.

from a non-functioning one. The appearance of the CBD is generally shabby and run-down. Many of the buildings are old and have not been kept up properly. There are no new buildings except for the gas stations. A certain unity exists among the older sandstone buildings along the main street; however, the store fronts and remodeling distract from this. In addition, there is a conglomeration of distasteful signs throughout the CBD.

Within the CBD, there is an assortment of service businesses and retail trades; however, the choice of goods within the establishment is small. One serious omission is furniture and home furnishings sales. There are none in Columbus or in Stillwater County. The furniture is bought out of a catalog or from Billings. Also, neither Stillwater County nor Carbon County have livestock sales or sales for any agricultural products.

Columbus does have some recreation facilities, but only a few. They have no tourists who come to stay, only those passing through. They do have a bowling alley that also serves for dances and various public gatherings. There is no recreation center for the youth; however, they do have a nice city park and public pool.

The professions are also intermingled in this area and perhaps the hardest to locate as they do not advertise.

Columbus has doctors and lawyers, yet there are no engineers nor architects. In fact, there are none in either Stillwater County or Carbon County.

Of the government offices, the city hall lies within the CBD, but the county courthouse lies in the middle of Columbus. Of the contractors, only a heating contractor is located in the CBD, and that is because he handles an appliance store. The plumbers and electricians operate out of their homes while the only general contractor in the vicinity is in Absarokee.

Institutional buildings are located throughout Columbus. The schools and hospital are located in the residential area. The only library in the county is located in the basement of the county courthouse and is quite small. The only nursing home in the county is located on the main street.

In actuality, there really is no CBD or residential area. Columbus has no zoning and there are commercial establishments scattered in the more residential areas.

Columbus is a transportation center as is demonstrated by the transportation facilities. The main east-west highway runs down their main street and one-half block south of this runs the main railroad track across the state. Also, one block south of this lies the only public airport in the

county.

Adjacent to the railroad property and track lies the only industry in town, Timberweld. It operates year round and has 36 employees on its payroll.

There are also six churches and a variety of organizations throughout Columbus.

Another descriptive factor here is the utility systems. The source of water for Columbus is an infiltration gallery. Two pumps presently draw water from two caissons placed in the Yellowstone River. This source provides an adequate supply for the needs of the city. In addition, another well drawing water from the river serves as a source for alternate operation. The only necessary water treatment consists of chlorination. According to a current report[137] the cast iron pipe laid in 1920, is deteriorating in certain areas. Proposals have been made to replace some of this with larger pipe and to provide looping of the system to help reported shortages in the outlying system. (See Figure 2-24).

The sewage collection system at Columbus is also adequate to handle the present population with some reserve capacity. If the city grows, certain areas will require

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[137] The report referred to here is the Comprehensive Plan for Stillwater County.

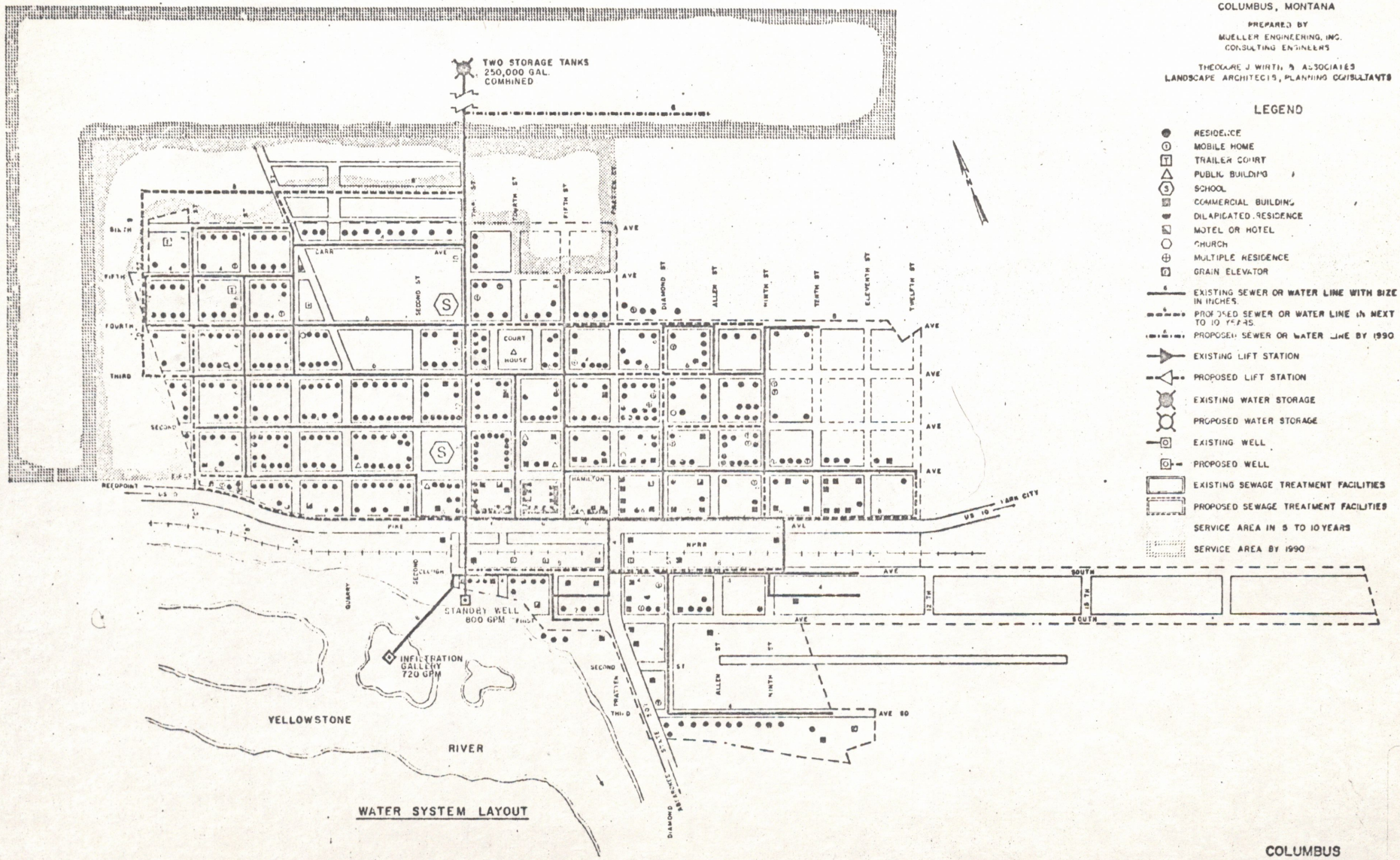
Fig. 2-24.

COMPREHENSIVE AREA PLAN
FOR
SEWER AND WATER
STILLWATER COUNTY

PREPARED FOR
COLUMBUS - STILLWATER CITY - COUNTY PLANNING BOARD
COLUMBUS, MONTANA

PREPARED BY
MUELLER ENGINEERING, INC.
CONSULTING ENGINEERS

THEODORE J. WIRTH & ASSOCIATES
LANDSCAPE ARCHITECTS, PLANNING CONSULTANTS



WATER SYSTEM LAYOUT

COLUMBUS
STILLWATER COUNTY
MONTANA

APPROX SCALE IN FEET
200 0 500 1000

lift stations and the explansion of a lagoon would be necessary. (See the existing and proposed sewer and water facilities, Figure 2-24, page 147).

The remaining utilities of telephone, electricity, and natural gas have been discussed in Part II, Section I.

The county and city government are both contained in Columbus. Stillwater County is governed by a Board of County Commissioners, consisting of three members, each representing a district within the county. The other unit of government is the incorporated City of Columbus.. A sheriff's department located in Columbus is responsible for law enforcement within the county. In addition, Columbus has its own local municipal police chief. The county health offices, county welfare offices, the Superintendent of Schools, etc., are also located within Columbus. The fire protection is provided by a city firechief and volunteer firemen.

The current economy of Columbus is based primarily on being the center of Stillwater County. As a prime oasis, it provides the wholesale and retail trades, service businesses, professional services, governmental services, and institutional services for the county. Additionally, Columbus is the transportation center for Stillwater County. As the nearest rail point to the Stillwater and Rosebud

valleys, Columbus finds a lot of direct shipping, especially grain from three large elevators and calves and lambs to the eastern feeder markets. In recent years, trucking has replaced some of the rail shipping to the auction markets in Billings. Supplementary to the oasis is the production of Timberweld.

Columbus is located on a grassy plain between the river bluffs and river bed. The CBD within Columbus maintains some of this spaciousness and greenness because the railroad right-of-way land on one side of the main street has been given to a park and is planted with trees. (See Photograph, P-18, page 141). A disadvantage exists in that one must cross the main street-highway to reach this park. The park area also leaves a view to the river interrupted, however, by the grain elevators. Upon entering town from the east, the prominent scene is of these grain elevators rather than the view of the river. (See Photograph, P-17, page 141). The park does provide some interest within the CBD, but not a focal point. The courthouse provides somewhat of a focal point, but unfortunately, lies outside the CBD. (See Photograph, P-20, page 142). The courthouse setting does succeed, however, in maintaining the spacious feeling. It is centered on a full block, surrounded by trees. Within the CBD, there is confusion due to the lack

of separation of land use. The scattered businesses also contribute to the quandary since the CBD lacks definition. The shabby buildings and cluttered signs add negatively to the visual effect. The curb-parking facilities are sufficient for this town if both sides of the main street are used. This poses an additional problem for the drivers that must cross the street, however, as well as for the through traffic; the confusion of the pedestrian and vehicle is heightened.

To the visitor the town appears spacious, yet confused. Much will change, however, as soon as the Interstate 90 is completed in 1973. It will bypass Columbus and give even less reason for what now exists.

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