

THIS
IS
IRONWOOD

A
SOURCE BOOK
FOR
COMPREHENSIVE
PLANNING

THIS IS IRONWOOD

Prepared in Conjunction with Comprehensive
Planning Activities

Ironwood Planning Commission
and
Kenneth E. Long
City Manager

1976
Memorial Building
Ironwood, Michigan

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PREFACE

This book is a compilation of various papers and studies which were made in an effort to provide a background or "Source Book" for those persons involved in the long range planning for the City of Ironwood. It is not intended to be adopted as an official "plan" but rather to gather into one publication the various data which are needed to analyze the past and present situations of the City in an effort to project future trends.

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INTRODUCTION

Prepared in conjunction
with comprehensive community
planning activities

Kenneth E. Long

INTRODUCTION

The Need for Coherent Policy Development.

A coherent, well articulated set of goals is as necessary for a small city as it is for any organization, large or small. Because Ironwood's resources are limited, they must not be wasted. The community's efforts must be focused on the community's goals if maximum results are to be expected.

Thirteen years ago, Ironwood had a goal, one goal, "To dig itself out of the quagmire of debt into which it had sunk". Every effort was directed toward achieving that goal. All management decisions were focused on that goal. While that goal was kept in mind, Ironwood's deficit position was eliminated and for a while at least reversed.

Now, what is the next goal? What direction will Ironwood take? Will it concentrate on industrial expansion, housing, recreation or what?

Because local government is a very diverse operation, providing widely varied services to the public, it becomes very easy to scatter efforts in a variety of directions without making any real coordinated effort to arrive at a good solution to any problem.

Local government, more than most organizations require a set of goals, and of course programs to achieve these goals, because local government changes more than most organizations. Ironwood for example has a relatively

stable local government, yet any commissioner who serves 10 to 12 years is considered to be a real old timer. Unlike corporate officers who usually share common interests, the electoral process normally sends to the City Commission people of diverse backgrounds and interests. Often their only common interest is to promote the well being of the City.

Normally each individual member of the City Commission has a pretty good idea of the things that he would like to see the City accomplish.

The City as a whole, too, should have a WRITTEN and published set of long range goals, together with the objectives and programs aimed at their achievement.

Once formulated, these goals and programs will serve a variety of functions, for example:

1. They encourage long range thinking and tend to keep the long range view in focus while debating policy and implementary decisions.
2. They help keep the central issues in focus during debate and thus reduce the possibility of diversionary controversy.
3. They expedite the decision making process and tend to produce consistent, compatible decisions as well as improving the quality of decisions.
4. Not only do they offer a rationale for explaining decisions to the public, but they also provide an excellent basis for citizen involvement.
5. They provide a base point for evaluating, from time to time, the progress the City is making toward the achievement of its goals.

THE STUDY APPROACH

In order to systematically develop a logical and coherent set of long range goals and intermediate objectives, together with the programs, policies and methods necessary for their achievement, several tasks must be accomplished.

TASK 1 - An Overview of Ironwood

In order to develop a frame of reference for this study as well as to develop in broad outline some of the unique constraints and opportunities that exist in Ironwood, an overview of Ironwood is developed in this Task. The first part is a history of Ironwood, which is written so as to emphasize the physical and economic development of the City. Next, the location aspects of Ironwood are discussed in an effort to show the political, social, and economic orientation of the community and to show how each differs and is often in conflict with the others. Finally in this Task, the climatic characteristics of the area are discussed because in Ironwood climate is an overriding consideration. The climate of Ironwood was once considered only a liability, but now is looked upon as an economic advantage.

TASK 2 - The Resources of Ironwood

In this Task the resources of the area are set forth. First, the natural resources of the Ironwood area are discussed. They include forestry, agriculture, mines

and minerals, and finally water in its various aspects including ground water as well as lakes and streams. Next the human resources of Ironwood are set forth in a population analysis. The population study includes number of inhabitants, age structure, estimates of future trends, and other population characteristics. Finally, the institutional resources of the area are analyzed.

TASK 3 - Needs and Goals

The various needs of the community together with the long range goals of the community are set forth in this Task. For the purpose of analysis, the needs and goals of Ironwood are divided into the following sections:

- a. Land Use
- b. Housing
- c. Public Facilities and Services
- d. Streets and Transportation
- e. Economic Development
- f. City Design and Community Appearance

In each of these sections, the various needs of the community are set forth. In addition, long range goals are set forth in general terms. The goals set forth herein are simply statements of desirable conditions which the city would eventually hope to attain. These goals will be further refined into measurable objectives and programs in a later Task. In some cases Task 3 and 4 will be undertaken simultaneously.

TASK 4 - Analysis

This Task seeks to systematically analyze the various

aspects of the community which the people of the community can address their efforts in order to achieve social, economic, and political progress. This Task is also divided into the following sections as was Task 3:

- a. Land Use
- b. Housing
- c. Public Facilities and Services
- d. Streets and Transportation
- e. Economic Development
- f. City Design and Community Appearance

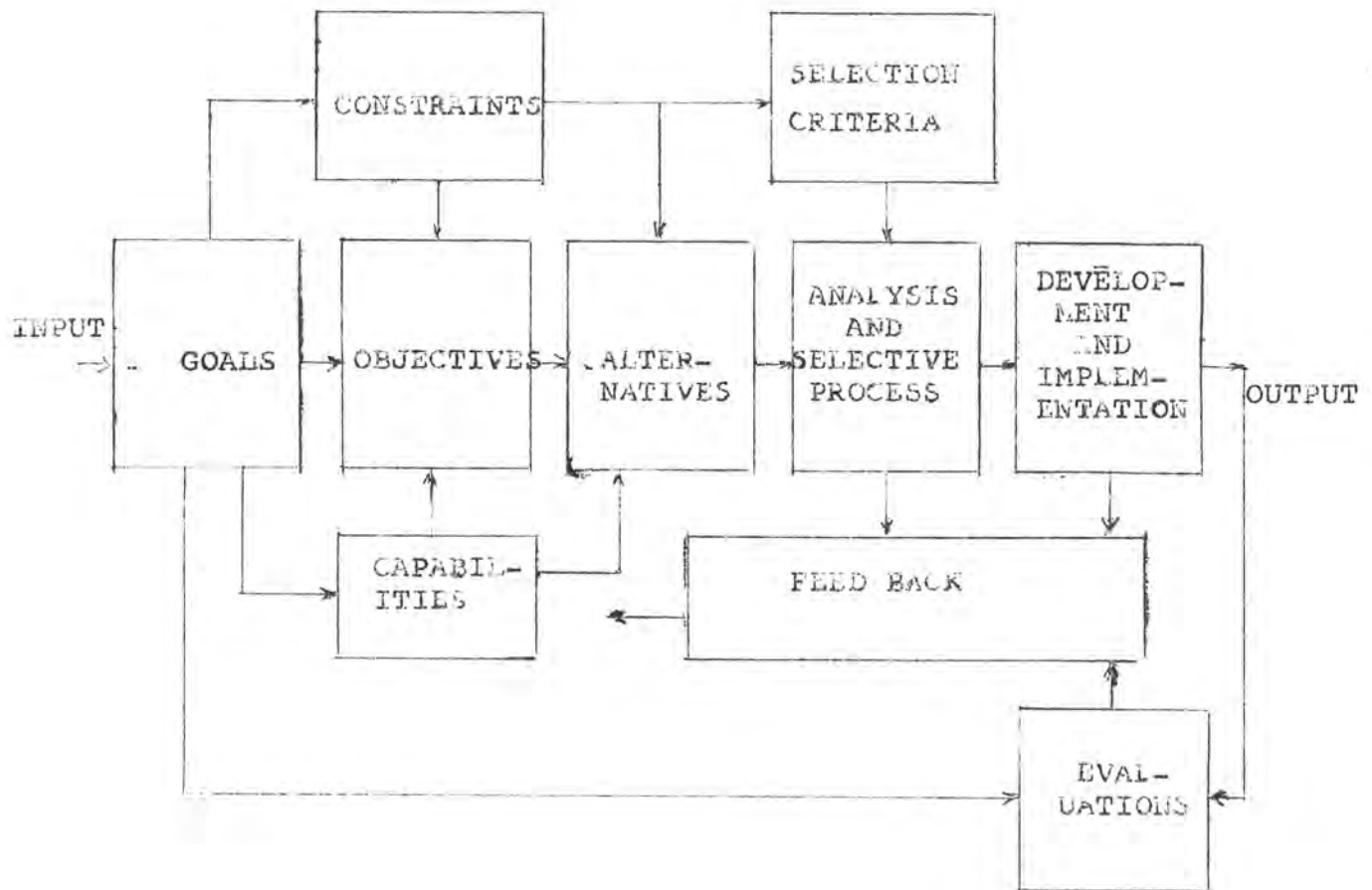
Every section, of course, is not amenable to exactly the same mode of analysis. In each section, however, a systematic analysis is made in an effort to select the most feasible course of action in defining municipal objectives. The systems used are not overly sophisticated, they rely on simple models and matrix screening to test possible approaches to attaining objectives. This is an approach to problem solving that dissects a problem in order to understand its related parts and determine the most workable solution.

As a general rule the problem in each section was broken down into only a minimum of parts. Therefore, for the most part only centralized results are achieved. Where judgement dictates that more specific detailed analyses are required they are isolated and studied as special problems. In the future, as need arises, these special studies can be undertaken using the same mode of analysis outlined in the appropriate section.

In other words this Task seeks to define reasonable goals and objectives for the City to pursue and then

SELECTION CRITERIA

This chart outlines the basic system approach. However, each sectional study is a special modification of this basic system.



to systematically test the validity of these stated goals and objectives in light of inherent constraints and capabilities. The results to be expected from these analyses are a set of reasonable programs and policies that have been tested to show that they are within the capabilities of the City and will not be rendered useless by various financial, physical, temporal and other constraints.

TASK 5 - Summary and Synthesis

This Task seeks first to summarize the results of the preceeding Tasks. The principle elements of each task will be set forth in topical form. As the results of the analysis of each of the sections in Task 4 are summarized the goals for each section will be tabulated together with intermediate objectives and policies.

This Task will then seek to synthesize all of the various sectional goals into overall municipal goals and objectives. An appropriate system will be used in an effort to analyze the relationships of the various sectional goals and to establish or at least suggest a priority list so that the stated objectives can be achieved in an orderly manner and so that resources can be allocated in a manner toward the achievement of overall goals.

TASK 6 - Implementary Recommendations

In this Task, recommendations will be offered regarding various methods and techniques which can be used by the City in its efforts to achieve the various goals it sets for itself.

These recommendations will include regulatory methods

such as building code provisions, zoning ordinance suggestions and various licensing suggestions by which the City can legitimately use its police powers in its effort to attain its stated goals.

Also this Task will include recommendations for achieving stated municipal goals by judicious use of municipal facilities and services.

Also, this Task will include a capital expenditure program by which the City can influence the orderly development of the City.

AN OVERVIEW
of
IRONWOOD

Prepared in conjunction
with comprehensive community
planning activities

Kenneth E. Long
1974

AN OVERVIEW OF IRONWOOD

An analysis of the present situation in Ironwood necessitates a look at the history of the region and the events which affected this city's location and development. Also necessary is a look at the location of the community and the effect of that location on the commerce, the living conditions and the government of the City and surrounding region. The climate of Ironwood also has a profound effect on the life of the City. It is a factor which must be considered in setting and evaluating community goals and policies.

HISTORY

Ironwood is relatively new as cities go. It won't celebrate its centennial until 1987. At the present time, there are several people living in Ironwood who are older than the City itself. Even so, a look at the history of the City will provide an excellent insight into the nature of Ironwood and could well yield many clues to help plan the future of the City.

From a civil history standpoint, Ironwood came into being simply as a mining camp in 1885. The original plat was surveyed during that summer and dated January 6, 1886. A village was organized in 1887, the same year that Gogebic County was organized. Up until that time, Ironwood was part of Ontonagon County. Ironwood was organized as a city in 1889. In 1890, 7745 people lived here, many living in boarding houses under crowded conditions. It has been told that in some boarding houses men slept in shifts in the same bed, one sleeping while the other worked in the mine. Territory was annexed and the City was reincorporated in 1893 and again in 1897. The charter was revised in 1907. By 1910, the population in Ironwood was 12,821. Ironwood adopted a home rule charter in 1916. In 1925, a new Charter was adopted providing for a City Manager form of government, and only then did the City adopt its first master plan. By this time, the City had reached its population peak, 15,739 people, so planning at this time was like locking the barn after the horse.

had escaped. The present Charter was adopted in 1947.

The present boundaries of the City were set in 1893, and since that time, there has been no attempt to annex more territory. The ideal method of laying out a City would be to develop a Master Plan right at the outset. Then when the various parcels of land are surveyed into plats wherein the streets, alleys and building lots are delineated, these plats would all conform to the master plan. Not only would the street system be organized into coherent traffic patterns, but all other systems would be more coherent. The various parcels of land would also be surveyed, platted and recorded in logical sequence.

Within the boundaries of Ironwood there are 61 recorded plats, two neighborhoods or "locations" of 60 or 70 houses built on land leased from land holding companies, and one "location" which was never platted but was sold in small parcels.

Practically without exception, each plat was laid out without regard to any overall City plan. In fact, several plats were surveyed in a manner which seemed to disregard even the street layouts in the existing neighborhood plats. As a result, many streets are poorly aligned where they pass from one plat into another.

Of the 61 plats, 4 were originally recorded in Ontonagon County before Gogebic County was organized. 12 more for a total of 16 were recorded before 1900. 26 more for a total of 38 were recorded by 1925 when the then new Charter mandated master planning was put into

effect. Soon thereafter, before 1930, 15 non-platted but developed neighborhoods were surveyed, as they then existed, and were recorded as assessor's plats. These assessors plats did not plan the street and lot locations, but only recorded the existing situation. The remaining 8 plats in Ironwood were either assessors plats or "fill in" plats between existing plats so no real planning was done even after the importance of planning was recognized. As a consequence of this "platting without planning" practice which existed in Ironwood, most of the streets are too narrow, have poor alignment and have no overall coordinated traffic patterns.

The early history of Ironwood is a story of iron ore prospecting and mining. For more complete information on the history of Ironwood, a reading of Victor Lemmer's "History of the City of Ironwood" is recommended together with other works.⁽¹⁾ This paper is intended only to point up a few historical facts that may tend to affect the planning process of Ironwood.

On October 8, 1871, Professor Rapheal Pumpelli of Harvard University discovered iron ore on the top of Newport Hill. He went to the top of the hill hoping to get a better view of the source of smoke which was rising in the distance in the southeast direction. As it turned out the source of that smoke was a tragic fire in Peshtigo, Wisconsin, in which people died. That tragic fire received scant mention in the press

(1) Navigurst, Walter; Vein of Iron.

Gill, Joseph; Our Heritage.

at that time because it was overshadowed by another fire, one that was started by Mrs. O'Leary's cow, the famed Chicago fire.

Professor Pumpelli had been engaged by the Portage Lake and Lake Superior Ship Canal Company. As a result of his observations, he purchased for the companies several square miles of land where later the Newport and Geneva mines were developed.

In 1873, Richard Langford, an Irish immigrant, discovered ore near Bessemer, near what became the Colby mine. The Colby mine shipped the first Gogebic ore in 1884.

In 1881, a Lanfear Norrie arrived in what is now Ironwood. Norrie was the son of a vice president of Keweenaw Canal Company who lived on fashionable Fifth Avenue in New York. After about five years of working in a London bank, his wealthy father sent him west to prospect for iron. He was permitted to spend substantial sums of money for exploration. In doing so he engaged the services of one James K. Wood, a competent prospector. Norrie and Wood prospected on several properties and discovered ore at the site of the Norrie Mine on September 1, 1882. During the next year, Wood found ore for Norrie on the site where the Aurora and East Norrie Mines were developed.

Norrie leased his interest in the Norrie Mine to the Metropolitan Iron Company. They, in turn, paid royalties to both Norrie and the fee owners. Norrie then returned to New York in 1883 with a considerable annual income. H.W. Oliver later purchased the Metropolitan Iron Company as well as Norrie's interests.

This is one of the transactions by Oliver in behalf of Andrew Carnegie that helped Carnegie make the great deal with J.P. Morgan which resulted in the formation of U.S. Steel.

It was this James R. "Iron" Wood for whom Ironwood is named. It was named by Frederick Rhineland, the president of the Milwaukee, Lake Shore and Western Railway (Now the Chicago and North Western). Mr. Rhineland had come west from New York to inspect the new railway which had just been laid from Watersmeet west to the new mining camp. Several suggested names were under consideration when James R. "Iron" Wood arrived on the scene covered with ore stains. His arrival prompted Mr. Rhineland to name the new town "Ironwood".

An examination of the original map of the plat of Ironwood tends to confirm this story. The place in the dedication for the name was obviously left blank and the name "Ironwood" was lettered in a different hand writing.

The railroad arrived in Bessemer in 1884 and the first train to come from the south to Ashland was on July 1, 1885. The first ore that was shipped from the Colby mine in Bessemer went by rail to Milwaukee and then by boat to Erie, Pennsylvania. Soon the route was to Ashland, Wisconsin, where it was shipped by lake vessel to the steel mills.

From 1884 to 1967, 323,187,921 tons of iron ore was shipped from the Gogebic Range. During that time, mining was the economic mainstay of the area, its reason for existing.

In 1884, there was only one producing mine on the range shipping 1,022 tons. By 1886, there were 20 mines producing 656,041 tons, by 1890, 26 mines shipped 2,226,012 tons. Altogether in the 82 years of mining on the Range, there were some 65 listings of mineral properties, many were grouped together making 34 groups or individual mines. In 1932, during the depression, there were only 5 mines producing only 673,425 tons. In 1966, the Peterson mine produced the last ton of ore from the Gogebic range ending 82 years of mining activity, Only the ore in stockpiles remained to be shipped and in 1967, the last car of ore left the range, leaving behind only the ruins of mine structures, ragged sunken areas where the ore was removed and abandoned homes.

Even though mining was the basic industry of the Range, Ironwood also became the wholesale and retail center of the Range. The natural beauty of the surrounding area, together with ample snow, allowed Ironwood to also diversify its economy in tourist orientated areas.

Ontonagon County was organized in 1846, but was not legalized by the State Legislature until 1853.⁽¹⁾

The Ironwood area was then part of the Carp Lake Township. Later, the western part of the Carp Lake Township became Bessemer Township, and just before the new Gogebic County was formed, it became Ironwood Township. The then village of Ironwood in Ironwood township became the City of Ironwood in 1889. The movement for the new county came about because of the

(1) Michigan Manual.

fact that Ontonagon, the county seat, was for all practical purposes in another world. In order to go from Ontonagon to Ironwood in those days, it was necessary to travel west 50 miles by rail to Ashland, and then by boat, nearly double the distance to Ontonagon. The alternative was a wild stage coach ride through the wilderness near Lake Gogebic and then north along the military road. A stage coach robbery in 1889, took place along this route.

WATER SYSTEM

Ironwood's first water utility was the Ironwood Water Company which was owned by the Ironwood and Bessemer Railroad and Light Company. Exact dates are unavailable but it appears that this water company was formed in 1888 or 1889.

This system utilized the Montreal River as its supply source. A dam was constructed near Norrie Park and water was taken from behind the dam via a wooden stave pipe to a treatment works about a quarter mile to the north. The ruins of this old treatment works consist of a settling basin, a sand filter and steam driven pumps. A wooden storage tank was built on top of Norrie Hill. Much of the distribution pipe was made of "Calomine", a thin metal pipe which had been declared as unsuitable for water works use by the American Water Association.

There was much dissatisfaction with the quality of Montreal River water, and with the system as a whole. The headwaters of the Montreal River are in low swampy areas, and the water was highly colored. It was commonly called "Hemlock soup".

On January 1, 1918, the City purchased the water system together with considerable land, the flooding rights to Pine Lake in Oma Township, Wisconsin for \$143,000.

As a result of extensive study, the City decided to abandon this supply source, and in 1921, constructed

3 batteries of 4 wells each in the Spring Creek area in Ironwoods Township. The quantity and quality of this water was very satisfactory at that time. Meanwhile the mines were discharging waste water into Seaman's Creek, and then into the City's well field. This waste water was pumped from the bottom of the mine and contained large quantities of chloride salts as well as iron and hardness producing chemicals.

As this mine waste water permeated the aquifer, the water quality deteriorated to the point where it became unfit for use. The water's hardness which was naturally around 100 milligrams per liter rose to over 5,000. The chloride also rose to an intolerable level. The water also became badly discolored.

The City then built three new wells in a new wellfield roughly three miles west near the Montreal River. This has been known as the Big Springs wellfield. This is the present source of the City's water. While this field is slightly inadequate from a quantity standpoint, the quality of the water from this wellfield is not only adequate, it is of outstanding quality.

In 1950, the mining companies jointly built a wastewater diversion pipe which diverted the wastewater out of Seaman's Creek into a settling pond near the Black River. The water quality in the Spring Creek wellfield then started to improve. In 1966, of course, the dewatering of the mines ceased altogether and since that time, the quality of the water in this wellfield has improved steadily until now, in 1974, it is almost back to normal. Normal for Spring Creek wellfield is excellent water, a bit harder than Big Spring's water, but still of excellent quality.

SEWER SYSTEM

The first sewer constructed in Ironwood was built on Suffolk Street starting at Vaughn, then going north on Suffolk Street to the tracks, then west to the river. Later branch sewers were connected to this sewer to serve the downtown area. Later in other neighborhoods similar sewer systems were built, each discharging independently into the river. In Jessieville, a large septic tank was built to treat the sewage from that area. In 1922, the City and Oliver Iron Mining Company jointly built a trunk sewer from the septic tank in Jessieville to the Montreal River via a route south of Aurora and Norrie locations paralleling "Red Creek". This sewer also was built to accept waste water from the Pabst mine and the East Norrie mine. Before that sewer was built the waste water from the mine dewatering pumps was simply dumped into this creek south of town, undoubtedly giving it the name "Red Creek".

In 1958, an interceptor sewer was constructed parallel to the Montreal River in order to intercept the sewage from each of these independent sewer systems and to carry it to the new sewage disposal plant which was completed that same year. The sewage disposal plant was started in 1940, but construction was discontinued due to the shortage of material during World War II.

SCHOOL SYSTEM

School district number 1 of Ironwood Township was formed during the winter of 1885-86. The first two-room school for about 40 children was built on the north side of Vaughn Street between Suffolk and Lowell Streets. The school district pre-dates the City or village of Ironwood. The first teacher was Miss Gertrude Fitzimons who later married Otto Karste. In 1887, the school district was reorganized and that year, a new school was built. That school, Central, burned in 1914, and the present Central School was built on the same site.

Also in 1887, a school was built on Bundy Street in Jessieville. In 1890, three new schools were built: Ashland School, on Ashland Court near Aurora Street; North Side School near the present Sleight School; and Norrie School, near the top of Norrie Hill on Houk Street. Several other schools were built, among them the Aurora School, the Oliver School on Wilson Street north of U.S. 2, and a small two-room school on Oak or Tamarack Street south of the East Norrie Mine. These original wood frame schools are all gone, and today, Ironwood has 4 grade schools, Sleight School built in 1930, Norrie School built in 1917, now on Balsam Street, Central school built in 1914 and Newport school built in 1921 in Jessieville.

The original high school was built on what is now the front yard of the present high school. It was named

after Luther L. Wright who was the first superintendent. The present high school was dedicated in 1926.

In 1932, Ironwood Junior College was formed. It utilized rooms in Luther L. Wright high school for classes until 1968. That year, "Gogebic Community College" built a new campus on Mount Zion, north of town, on a 120 acre site given to it by the City of Ironwood.

The Ironwood Area School District now includes the schools in Ironwood and Erwin townships. A special school election consolidated the Township School Districts with that of the City of Ironwood. The election was held in September, 1966, and the consolidation became effective in 1967.

LOCATION

Ironwood is located at 90°10' west longitude and 46°27'30" north latitude. That point is near the Western tip of the Upper Peninsula of the State of Michigan and about 14 miles from the south shore of Lake Superior. Ironwood encompasses 5.8 square miles, or 3711 acres. It ranges in elevation from 1420 feet above sea level at its northwest corner to 1750 on top of Newport Hill near its east boundary.

Ironwood was located at this precise spot because that is the location of the Gogebic iron ore range. Ironwood is no longer being mined, but it might be significant to note that the same geological phenomenon which placed the iron ore in this area also affected the entire topographical and geological character of the region. The area is characterized by precipitous rock outcrops and rocky soil common to semi-mountainous regions.

The Gogebic Range is the remnant of a once mighty range of mountains. As a result, the topography of the Ironwood area is very picturesque. A topographic feature which is man-made, rather than natural, is the sunken area caused by subsidence in the area where the iron ore was extracted. This subsided area, called the caves, roughly divides the city in half, running east and west through the center of the city as a man-made ravine, about $\frac{1}{4}$ to $\frac{1}{2}$ mile wide, from the Montreal River to the east city limits.

Ironwood is the western most city in Michigan's Upper Peninsula and therefore has close ties with its neighboring states as well as with Michigan.

Politically, Ironwood is a Michigan city, while economically and socially, it is allied to Wisconsin and Minnesota. Ironwood is the largest city in Gogebic County, although Bessemer is the County seat. It is in the 110th State Legislative District, the 35th State Senatorial District and in the 11th U.S. Congressional District of Michigan. As well as being the largest city in Gogebic County, Ironwood is the economic "hub" of a 2-state area which includes Iron and Vilas counties in Wisconsin as well as Gogebic and Ontonagon Counties in Michigan.

Even though Ironwood is in Michigan, it is closer to 4 other state and provincial capitals than to its own. The nearest capital to Ironwood is St. Paul, Minnesota, a distance of about 225 miles, Next is Madison, Wisconsin, at 290 miles, next Des Moines, Iowa, 490 miles, next is Winnipeg, Manitoba, Canada, 510 miles, and fifth is Lansing, Michigan our own state capital at 535 miles.

Michigan's Upper Peninsula might well be called its western Peninsula as Ironwood is more west of Detroit than north. Ironwood is roughly 280 miles north of Detroit and is roughly 345 miles west of Chicago and is exactly due north of St. Louis, Missouri. Thus, it can be seen that Ironwood is quite remote from the population centers of Michigan's Lower Peninsula.

Ironwood is near the center of the Upper Great Lakes Region and is linked economically and socially to that

region. Ironwood is a regional service center and is larger than any town for over 100 miles to the east and south and is roughly the same size as Ashland, Wisconsin 40 miles to the west. In addition to the IRONWOOD DAILY GLOBE, a Duluth morning newspaper is delivered daily to Ironwood homes. 3 Duluth television stations are received in Ironwood without the benefit of cable. With cable, television is also received from Green Bay and Rhinelander, Wisconsin, Marquette, Michigan and Thunder Bay, Ontario. Also, via a microwave, and cable, a Detroit T.V. station is viewed in Ironwood. Ironwood is served by 2 educational TV channels.

Ironwood is served by the 9th Federal Reserve Bank in Minneapolis, Minnesota, while Detroit and lower Michigan are served by the 6th district in Chicago, Illinois.

Skiers visit Ironwood area ski hills in the winter and vacationers in the summer visit from Wisconsin, Minnesota and Northern Illinois. Tourist and hosting business is a major industry in this area.

Ironwood has advantages and disadvantages as a result of its location. The advantages of the clean, crisp, northern highlands air and the picturesque topography of the region make this area desirable even though the area is somewhat remote from the major population centers.

THE CLIMATE OF IRONWOOD

The climate of Ironwood has a distinct and profound effect on the social and economic life of the community.

Ironwood is the western portion of the Lake Superior snow belt. The average snowfall is 141.9 inches and ranges up to a maximum of 255 inches. Ironwood is 900 to 1200 feet above Lake Superior, only 14 miles distant. This considerable elevation difference has a strong influence on the development of heavy snow squalls during the winter months and also helps to diminish the lakes influence during other seasons.

Because the day to day weather is controlled largely by the movement of pressure systems across the nation, Ironwood seldom experiences either prolonged periods of hot, humid weather in the summer or periods of more than 10 days of extreme cold in the winter.

Once considered only a drawback, it is now realized that Ironwood has several distinct climatic advantages. For example, Ironwood is in a very favorable position to capitalize on the increasing popularity of skiing and snowmobiling. Large amounts of snow and persistent coverage during the winter months creates an ideal condition for these winter sports.

Source: Climate of Michigan - National Weather Service and Michigan Weather Service, December 1971.

The following tables set forth temperature, snowfall precipitation and various other climatological data for the Ironwood area.

TABLE

Ironwood Climate Characteristics

A.	<u>Temperature</u>			
	Month	Mean	Record	Date
High	July	79.4	104	July 13, 1936
Low	January	3.6	-41	Feb. 12, 1967

Probability for Selected Temperatures

<u>Spring</u>			
Temperature	90%	50%	10%
32° F	May 5	May 20	June 4
24° F	Apr 15	Apr 30	May 15
16° F	Mar 21	Apr 5	Apr 20
<u>Fall</u>			
Temperature	10%	50%	90%
32° F	Sept 7	Sept 23	Oct 9
24° F	Oct 4	Oct 20	Nov 5
16° F	Oct 24	Nov 9	Nov 25

Growing Season 126 days

Degree days is a value which is widely used for measuring heating requirements. It is the difference between 65°F and the days mean temperature. For instance, a day with a maximum temperature of 40°F and a minimum of 18°F would have as the mean the midpoint between the high and low or in this case 29°F, subtract 29°F from 65°F and get 36 degree days for that day.

The mean monthly total degree days over 29 years in Ironwood are as follows:

January	1540	July	40
February	1450	August	60
March	1210	September	250
April	730	October	550
May	350	November	1290
June	120	December	<u>1410</u>
		Total	9000

B.

Precipitation

Mean:

Annual	35.78 inches
February	1.53 inches - Driest month
May- October	22.88 inches - Growing season

Wettest:

Month	15.45	July 1909
Day	6.76	July 16-17, 1942

Driest:

Month	0.04	March 1910
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		<u>Snowfall</u>	
	<u>Mean</u>	<u>Record</u>	<u>Date</u>
Annual	141.9	255.0	1970-71 Season
October	3.5		
December	30.1	89.0	December 1968
January	26.8		
May	1.8		
Daily		21.0	February 23, 1922 December 23, 1968

Probability of First Occurrence of Snow Depth

Snow Depth	10%	50%	90%
1"	Oct. 12	Oct. 29	Nov. 15
3"	Oct. 18	Nov. 7	Nov. 27
6"	Oct. 26	Nov. 19	Dec. 13

Probability of Annual Snowfall

0-50"	0%	150" - 200"	26%
50" - 100"	10%	200 - 250"	4%
100" - 150"	56%	250" -	4%

D. Other Climate Characteristics

Wind

Prevailing direction	West
Average velocity	9 MPH
Maximum velocity	59 MPH June 1958

Humidity (Average at 1 p.m.)

April	61%
November	70%

Percentage of Possible Sunshine

High	67%	July
Low	27%	November
Annual	50%	

Tornados

Only 1 known tornado since 1900 in Gogebic County. None in Ironwood.

Weather conditions do cause some disadvantages. The heavy snows often cause difficult driving conditions, and snow removal is a heavy financial burden which the City government must bear. It must be explained, however, that the days of isolation due to the weather are, for all practical purposes gone. Snow removal methods and equipment have improved to the extent that Ironwood streets are seldom impassable for more than a few hours at the most. Business can easily plan ahead for winter contingencies. Absenteeism in the work force and even tardiness due to weather conditions is at a minimum in Ironwood. Thus the snow and cold weather may cause inconveniences in the winter, but the overall climate in Ironwood together with its scenic topographical features make this area a very pleasant place to live.

NATURAL RESOURCES
of the
IRONWOOD AREA

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1975

NATURAL RESOURCES

FORESTRY

Ironwood is located in the large "cut-over" region of the Upper Midwest. The climate is favorable for forestry, and the primary type of vegetation in this area is forest. Throughout the region, white pine was reported to be the most common species in the virgin forest. However, in the immediate Ironwood area, surveyors who made the original survey of the area noted that the soil is "second-rate sandy loam, mostly heavily timbered with Hemlock, Y-Birch, Sugar Maple, Fir, Cedar, Lynn⁽¹⁾ and Elm with some White Pine and Ironwood - Undergrowth". From that comment, it would appear that the so-called "virgin" forest was not a climax forest, but rather to some extent a regrowth forest, perhaps as a result of fire, wind damage, disease or some other factor which had interrupted the forest growth.

Gogebic County has a total land area of 711,700 acres. Of this 88% or 623,000 acres is classified as forest. Therefore timber and forestry must be considered to be a primary natural resource. Of that 623,000 acres which is classified as forest, 83% or 588,800 acres is further classified as commercial forest, leaving 34,200 acres of non-commercial forest. Of this, 9,800 acres are

- (1) Lynn probably refers to *Tilia Americana* which is known as the Linden tree, or more commonly, in this area as the Basswood. The Basswood is a common species in this region.

non-stocked and 24,000 acres are reserved for recreation and other uses.

The federal government owns or manages 221,400 acres or 38% of the forest land in Gogebic County; the State of Michigan owns 4,700 acres or 1%; Gogebic County and various political subdivisions own 38,300 acres or about 6%. Farmers own 11,000 acres or 2%; large (over 5,000 acres) private landowners own 181,300 acres or 31%. Small, private landowners own 132,000 acres or 22%, all comprising the 588,800 acre total.

Two timber resource surveys (2) (3) provide details on the timber resource condition in Gogebic County. A comparison of these two surveys was made, one in 1954, the other in 1966, also provide some idea of the changes that are taking place in the county's forests. Data from these two surveys are shown in Tables.

It is significant that in 1954 the sapling-seed stands dominated the commercial forest with 51.8% and the pole timber stands with 30.3% and saw timber only 17.9%. However by 1966, saw acreage timber increased to 27.3% while sapling-seedling stand reduced to 27.5%. Pole timber also increased to 45.2%. It is logical to anticipate a continuation of growth until saw timber stands dominate.

(2) Chase, Clarence F. and Arther G. Hoin, Timber Resources of Gogebic and Ontonagon Counties, Michigan, U.S. Forest Service, Lake States Forest Experiment Station 1954.

(3) Spencer, John W. Jr. and Ray E. Pfeifer, The Growing Timber Resource of Michigan, 1966 Unit 2 - The Western Upper Peninsula, Michigan Department of Natural Resources, Lansing, Michigan.

The volume of the growing stock in 1966 in Gogebic County was 836 cubic feet per acre. This compares to 872 cubic feet per acre in the 8 westernmost counties in the Upper Peninsula and 795 cubic feet per acre average in the state. Saw timber amounted to 1819 thousand board feet per acre as compared with 2144 for the 8 counties.

In the summaries shown in Tables NR-1 and NR-2, all volumes have been expressed in cords. A comparison between the charts shows that in spite of the increase in acreage, the total volume of timber declined. This probably reflects an overcut in several species. In 1954, the annual cut of softwoods practically doubled the allowable cut. In 1966, the annual cut was down appreciably.

It can, it is believed, be stated that the forest management practices shown in Gogebic County have shown considerable improvement. Observation reveals that substantial efforts have been made by private and public owners alike to practice proper forest management.

The forest and forest products in the Ironwood area are invaluable natural resources. The forest itself, in addition to being a distinct economic asset, adds by its beauty to the quality of life in the Ironwood area.

TABLE NR-1
FOREST RESOURCE DATA
GOGEBIC COUNTY MICHIGAN

1954

	Acreage			
	Total	Saw Timber	Pole Timber	Saplings & Seedlings
Pine	13,100	600	1,400	11,100
Spruce - Fir	56,800	200	26,700	29,900
Tamarack - Cedar	10,900	800	4,000	6,100
Hemlock	<u>10,200</u>	<u>8,500</u>	<u>1,600</u>	<u>100</u>
All Softwoods	91,000	10,100	33,700	47,200
%	100%	11.1%	37.0%	51.9%
Northern Hardwoods	287,000	70,400	64,500	152,100
Oak - Ash - Elm	24,600	9,100	10,300	5,200
Aspen	<u>109,500</u>	<u>2,300</u>	<u>46,400</u>	<u>60,800</u>
All Hardwoods	421,100	81,800	121,200	218,100
%	100%	19.4%	28.8%	51.8%
All Species	512,100	91,900	154,900	265,300
%	100%	17.9%	30.3%	51.8%

	Volume (Cords)			
	Total	Annual Growth	Allowable Cut	Annual Cut
Pine	93,000	7,900	1,500	3,500
Spruce - Fir	366,700	18,800	9,400	6,900
Tamarack - Cedar	254,600	5,700	5,800	8,800
Hemlock	<u>614,200</u>	<u>4,900</u>	<u>14,900</u>	<u>41,100</u>
All Softwoods	1,318,500	37,300	31,600	60,300
Northern Hardwoods	2,450,800	83,400	41,200	51,900
Oak - Ash - Elm	355,600	6,100	3,300	6,200
Aspen	<u>624,200</u>	<u>50,900</u>	<u>19,700</u>	<u>13,000</u>
All Hardwoods	<u>3,430,600</u>	<u>140,400</u>	<u>64,200</u>	<u>71,000</u>
All Species	4,749,100	177,700	95,800	131,400

TABLE NR-2
FOREST RESOURCE DATA

GOGEBIC COUNTY, MICHIGAN

1966

ACREAGE				
	Total	Saw Timber	Pole Timber	Saplings & Seedlings
Pine	12,100	4,000	2,500	5,600
Spruce - Fir	63,700	10,000	26,500	27,200
Tamarack - Cedar	53,100	5,400	26,100	21,600
Hemlock	<u>Not listed separately</u>			
All Softwoods	128,900	19,400	55,100	54,400
%	100%	51.1%	42.7%	42.2%
Northern Hardwoods	356,000	142,200	135,900	77,900
Oak - Ash - Elm	39,700	10,700	20,900	8,100
Aspen	<u>119,500</u>	<u>3,700</u>	<u>79,100</u>	<u>36,700</u>
All Hardwoods	515,200	156,600	235,900	122,700
%	100%	30.4%	45.8%	23.8%
All Species	644,100	176,000	291,000	177,100
%	100%	27.3%	45.2%	27.5%

VOLUME (CORDS)				
	Total	Annual Growth	Allowable Cut	Annual Cut
Pine	143,900	8,100	3,700	1,700
Spruce - Fir	491,700	24,200	17,000	1,900
Tamarack - Cedar	241,500	5,900	9,800	600
Hemlock	<u>309,200</u>	<u>4,400</u>	<u>8,100</u>	<u>15,700</u>
All Softwoods	1,186,300	42,600	38,600	19,900
Northern Hardwoods	2,086,200	101,100	40,900	30,200
Oak - Ash - Elm	348,100	15,600	11,100	3,000
Aspen	586,000	26,000	21,600	16,500
All Hardwoods	3,020,300	142,700	73,600	49,700
All Species	4,206,600	185,300	112,200	69,600

AGRICULTURE

In the Ironwood area, agriculture is not a dominant factor. In Gogebic County, 3,747 acres of land out of the total land area of the county, 711,680 acres, is harvested cropland. This comprises only 1.6% of the land. In the county there are 73 farms, of which 31 are classified as commercial, which includes the farms with sales of \$2,500 or more.

The average size of all farms in Gogebic County is 160 acres and the average size of the commercial farms is 227.7 acres. About 50.7% of the total farm acreage is cropland or 3,747 acres, and of that 63% is harvested or about 2,360 acres.

Farming in the area around Ironwood is largely a part-time occupation. The typical farmer works off the farm 65% of the days. The average for all farms is 9.6% off the farm 100 to 200 days and 42.5% work off the farm over 200 days. The commercial farmer, however, only averages 6.5% who work off the farm 100-200 days and none over 200 days. (1)

In 1965, there were an estimated 2,400 cattle and calves in Gogebic County, and by 1972, there were only 1,300. Milk cows in 1963 numbered an estimated 1,000, and by 1972, there were only 400.

In 1965, chickens numbered 4,500 and in 1972, there were 3,500 chickens in the county. (2)

(1) Michigan Agriculture Statistics, July, 1972, Michigan Department of Agriculture.

(2) Michigan County Estimates. Livestock-dairy -poultry 1965-1973, Michigan Department of Agriculture, Oct. 1973.

Field crop production is negligible with oats being the only crop even reported and that being only 200 acres. Corn, wheat, soybeans and other crops are not grown to any extent in Gogebic County.

In Gogebic County the predominant vegetation is forest. The climate combined with the soil types tend to make forestry more desirable than agriculture.

In the past, many farms were laboriously cleared of rocks and farmed for one generation only to have the farm abandoned by the next generation. In the last decade, several of these abandoned farms, have been purchased and are used as vacation property, the value as vacation property being a result of the scenic topography of the area more than the agricultural value of the land.

MINES AND MINERALS

The discovery of iron ore and subsequently mining was the reason for Ironwood's existence in the first place. For roughly 80 years, the extraction of iron ore was the principle industry of the community. At present, no iron ore is being mined. Although, iron ore still exists in the area, it is no longer economical to mine. So in the immediate future, iron ore can not be considered a viable natural resource.

Copper, however, is another matter. Although White Pine Copper Company is some 40 miles to the east of Ironwood in Ontonagon County, it is one of the major employers of the area. About 440 Ironwood residents work at White Pine Copper mine and smelting facilities.

It is estimated that White Pine Copper mine can operate economically for at least 25 more years. Therefore, planning in Ironwood and Gogebic County must recognize the fact that White Pine Copper is a significant resource.

A rough estimate of the magnitude of the White Pine operation is about 10million tons of ore per year. From that ore, they extract 1½ million pounds of pure copper and 80,000 to 90,000 ounces of pure silver each month.

While prospects for the development of additional mineral resources in the near future are not encouraging, these mineral resources do exist in the area. It is therefore probable that they will some day be developed.

Ironwood is located directly above vast quantities of low-grade iron ore. This ore is not only difficult to mine, it is also difficult to beneficiate. If this ore is, however, ever extracted, it would be necessary to

relocate a large part of the City of Ironwood. This possibility is considered so remote that it will not be considered as a viable possibility in this study.

Iron ore mining is more of a possibility in the area east of Wakefeild and also in the Pine Lake area in Iron County, Wisconsin. It seems unlikely that such development will take place in the near future, however.

Additional copper is also a possibility in this area. For example, nonesuch shale similar to White Pine's copper exists in the Presque Isle River region. There are also other copper bearing formations in this area which someday may be developed and thus be an economic factor in Ironwood.

WATER

Water is, of course, the most fundamental of all natural resources. It must be considered in accordance with its various uses in order to adequately evaluate the community's strengths and weaknesses. It is also proposed to consider water in this report as regards its availability and quality for domestic consumption, industrial consumption, recreation and transportation.

DOMESTIC WATER SUPPLY

Ironwood gets its municipal water supply from six wells, all of which are located 4 to 6 miles north and west of the City. 4 of these wells are located in what is known as Spring Creek wellfield, located 4 miles due north of Ironwood. The other 2 wells are located in the so-called Big Spring wellfield which is due west of the Spring Creek well field near the confluence of Spring Creek and the Montreal River.

In order to evaluate the supply of water available the City has engaged in a comprehensive planning program over the years. Previous studies which can be used as planning guides and which are presently in the city files are:

1. Area Water Supply Study and Engineering Report by Williams and Works dated 1962.
2. Analysis of the Big Springs Aquafir by Dr. William Keck dated January 1954. His report can be found in the file of the January 11, 1954 City Commission meeting.
3. Analysis of the Spring Creek Basin Aquafir by Dr. William Keck dated November, 1961. It is also on file in the Ironwood City Commission proceedings of November, 13, 1961.

4. Ground Water in Gogebic County, Michigan, Geological Survey 1968, numbered Water Investigation Eight, by C.J. Doonan and G.E. Hendrickson, prepared by the State of Michigan Geological Survey in cooperation with the United States Geological Survey.

The City of Ironwood, in cooperation with the Michigan and U.S. Geological surveys maintains two ground water observation stations, one in each well field. The observation station in the Spring Creek well field is an abandoned well, and the one in Big Springs is a small diameter test well. These stations are equipped with automatic recording devices that record the effects of pumpage and precipitation. Much valuable planning data can be and has been accumulated through the continued maintenance of these two observation stations. Messers Doonan and Hendrickson drew heavily from this data in preparing their paper. Each year this data is published by the Michigan Geological Survey in their report "Ground Water in Michigan".

At present, Ironwood uses approximately 1 million gallons of water a day. The capacity of all the wells pumping simultaneously is over 2½ million gallons a day. With the largest well out of service, the remaining wells could pump approximately 1½ million gallons a day.

The quality of Ironwood's water is excellent. A typical partial chemical analysis would be as follows:

Total Hardness	95-100ppm
Iron	0.0-1.0ppm
Ph	6.9-7.0
Chlorides	6-7 ppm
Fluoride	0- trace

MONTREAL RIVER

The Montreal River flows north between Hurley, Wisconsin and Ironwood, Michigan to Lake Superior. The average flow of the river is 324 c.f.s. with a high on April 24, 1960 of 6,600 c.f.s. The flow exceeds 150 c.f.s. 75.6% of the time.⁽¹⁾ It flows quite slowly from its source in Pine Lake about 15 miles south until it reaches Ironwood. From Ironwood north it flows quite rapidly as it falls over 800 feet in the 15 miles to its mouth. The river's water is not suitable for domestic use, however. It could well be used for industrial purposes such as wash water for cooling. The river is not navigable, even by canoe, because of its rocky bottom and because of the fact that its water passes over several waterfalls enroute to Lake Superior. The only other range communities in the Montreal River watershed along with Ironwood are Hurley, Wisconsin and Montreal, Wisconsin. Hurley and Ironwood are in the watershed of the east branch of the river and Montreal is on the west branch. For watershed planning purposes, Ironwood must work in conjunction with these Wisconsin communities. The rest of Gogebic County is in different watersheds. Bessemer is on the Black River; Wakefield is on the Presque Isle River and the east part of the county drains into the Ontonagon River. Also there are several small coastal streams which empty directly into Lake Superior. Both Ironwood's and Hurley's sewage effluent discharges

(1) Source- Water Resources Uses Present and Prospective for the Menominee and Montreal River Basins in Michigan, etc., State of Michigan Water Resources Commission Revised June, 1967.

into the east branch of the Montreal River, therefore, these two cities' share largely in the responsibility for maintaining the water quality of the stream.

The water quality in the Montreal River is not good. For example, at the Norrie Park Dam, upstream from both Ironwood and Hurley, on April 26, 1966, the water quality was as follows: dissolved oxygen 8.2 ppm; B.O.D. 2.2'; Temperature 6°C; total solids 68; color 90. The coliform count for the river averaged 968 with a maximum of 2,400 and a low of 75. The coliform bacteria probably comes from the ground wash and the color problem is probably due to the vegetation in the swampy regions upstream.

INLAND LAKES AND FLOWAGES

In Gogebic County, there are 26,700 acres of water in inland lakes. Also there are many thousand acres of lakes in Iron and Vilas Counties in Wisconsin. The Wisconsin lakes are closer to Ironwood than are many of the lakes in Gogebic County.

These lakes have a considerable recreation value. Vacation homes on these lakes increase the population of the area in the summer months which of course benefits Ironwood's economy. The nearest lake to Ironwood is Gile Flowage, an artificial lake formed by a power company dam on the west branch of the Montreal River.

Gile Flowage is approximately 3 miles west of Ironwood.

Ironwood is only 14 miles from Lake Superior, one of the largest fresh water lakes in the world. Between Ironwood and Lake Superior along the Black River, several scenic waterfalls can now be visited as parks have been developed near them by the United States Government. At the mouth of the Black River, a scenic park and marina

have also been developed. The picturesque topography, as well as the lakes and waterfalls, creates an idyllic atmosphere unrivaled for serenity and beauty.

The primary planning problem is to provide access to these spots so they can be enjoyed without overdeveloping them so that they will be spoiled.

POPULATION
ANALYSIS

Prepared in conjunction
with comprehensive community
planning activities

Kenneth E. Long
April 12, 1973

POPULATION

An analysis of the population of the City of Ironwood is really the fundamental reason for engaging in comprehensive planning because, after all, it is the only reason that this municipality exists in the first place. All other aspects of planning center around the population analysis. By this we mean the studies of what people do for a living, what the economic base of the community is, and how the land and community facilities are used, etc.

This section of the planning report deals with the character and trends of the population of the City of Ironwood so that all other sections will be more useful in the final planning decisions.

SECTION A NUMBER OF INHABITANTS AND TRENDS

The most recent official estimate of Ironwood's population was the 1970 U.S. Census of Population which listed 8,711 people in the city. The most recent accurate estimate of Ironwood's population was the special census taken on July 1, 1972 for the purpose of assisting the Gogebic County Reapportionment Commission in the task of reapportioning the County Commission Districts. At that time the population was estimated at 8,627.

The official peak population of the City of Ironwood was 15,739 persons as reported by the 1920 U.S. Census of Population. In the Ironwood city planning report of 1928, the population was estimated at 18,400, but no

basis was given for that estimate. Ironwood's population was gaining rapidly between 1900 and 1920 at the rate of about 300 persons per year during that period, and it appears that Ironwood continued to grow until approximately 1928 when the first big shut-down occurred. This was the closing of the Ashland Mine in 1929 by the Hayes Mining Company. By 1930, the population was down to 14,299, but it seems probable that sometime in 1927 or 1928, the population of Ironwood did approach 20,000.

The question that must be answered for planning purposes is "What is the projected rate of population decline?" and "at what point stability or an up-trend might occur?" It is obvious that the decline in population has been the result of the closing of the mines, among other things. The people migrated out of Ironwood in search of other employment. The mining operations on the Gogebic Range ceased completely in the early 60's, yet the population continued to decline through 1970 and on to 1972. No other changes in trends are yet completely apparent; however, it does appear that the end of substantial out-migration is nearing.

SECTION B --AGE STRUCTURE

Ironwood has the questionable distinction of possessing the most aged population of any city of its size in Michigan. 19.3 persons in every 100 in Ironwood are 65 or older. That is nearly 1 person in every 5. This fact makes Ironwood's planning situation unique as the high proportion of elderly persons, especially as contrasted with the small proportion of working-age persons and the small proportion of small children, presents unique problems in planning services for the people of

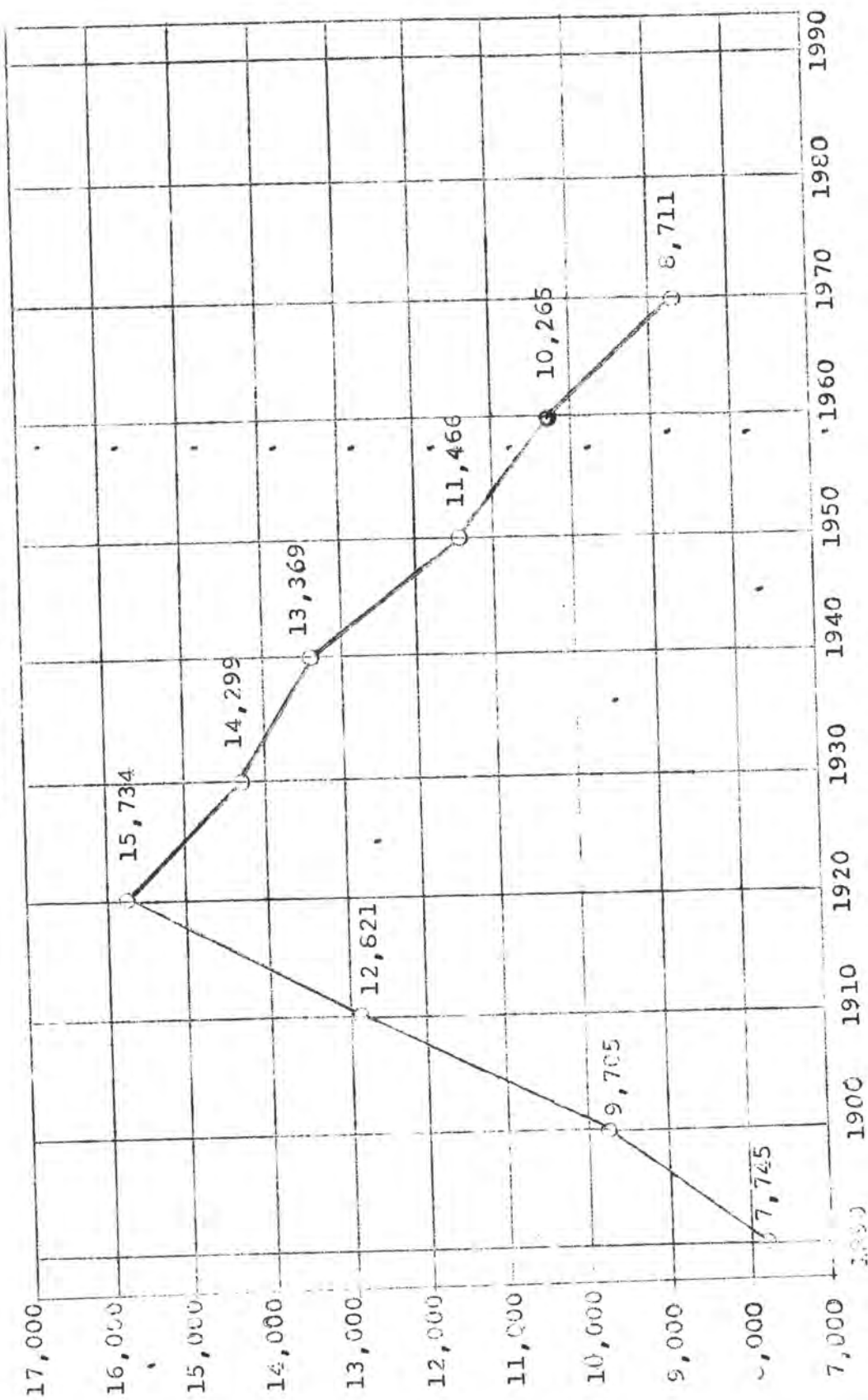
The official population (the U.S. Census) is 44.65% less than it was at the official peak in 1920. The 50-year decrease amounting to 7,038 people; the 50-year rate of reduction per decade was 10.89%, but it is ranging from 5.5% to 15.14% per decade as shown in Table P-1 and figure P-A.

TABLE P-1 NUMBER OF INHABITANTS, TRENDS*

	<u>Population</u>	<u>Change</u>	<u>Percent</u>
1890	7,745	7,745	100.0
1900	9,705	1,960	25.3
1910	12,821	3,116	32.1
1920	15,739	2,918	-22.8
1930	14,299	-1,440	-9.1
1940	13,369	-930	-5.5
1950	11,465	-1,904	-14.2
1960	10,265	-1,200	-10.5
1970	8,711	-1,554	-15.1

*Source: U.S. Census of Population.

POPULATION CHART
IRONWOOD MICHIGAN



the City of Ironwood. Table P-2 and figure P-B compare the percentage of Ironwood's population in each group with Gogebic County and the State of Michigan as a whole. Ironwood has relatively fewer school-age youngsters, fewer in the most productive areas for working and relatively more people in advanced years. It is interesting to note that the median age for the State of Michigan is 26.3 years while in Ironwood the median age is 39.5 years. Figure P-C graphically depicts the age structure in 1970 compared to 1960.

SECTION C - ESTIMATES OF FUTURE TRENDS

As planning deals with the future rather than the past, an important element in planning is an analysis and projection of the population trends. Some sort of population projection is necessary in order to estimate future needs. It would also be desirable to have a population projection for specific age groups. While it is recognized that we must make forecasts of the future population and that we need the best projection possible, we must also recognize that precision is impossible because of the complex chain of inter-relationships affecting population change. The three major factors to consider are mortality, fertility, and migration.

The method used to develop a population projection was the mathematical construction of a general cohort survival model. This approach is illustrated in Figure P-D. The survival parameters used in this model were obtained by calculating five year survival probabilities by age using the standard mortality tables which are commonly used for insurance purposes. The fertility

parameters are the "U.S. General" fertility rate for American white females between the ages of 15 and 44 as of June, 1971.

The complete cohort survival model is shown in Figure P-D and Tables P-3 and P-4. This cohort survival approach considers only mortality and fertility as factors and ignores migration.

TABLE P-2

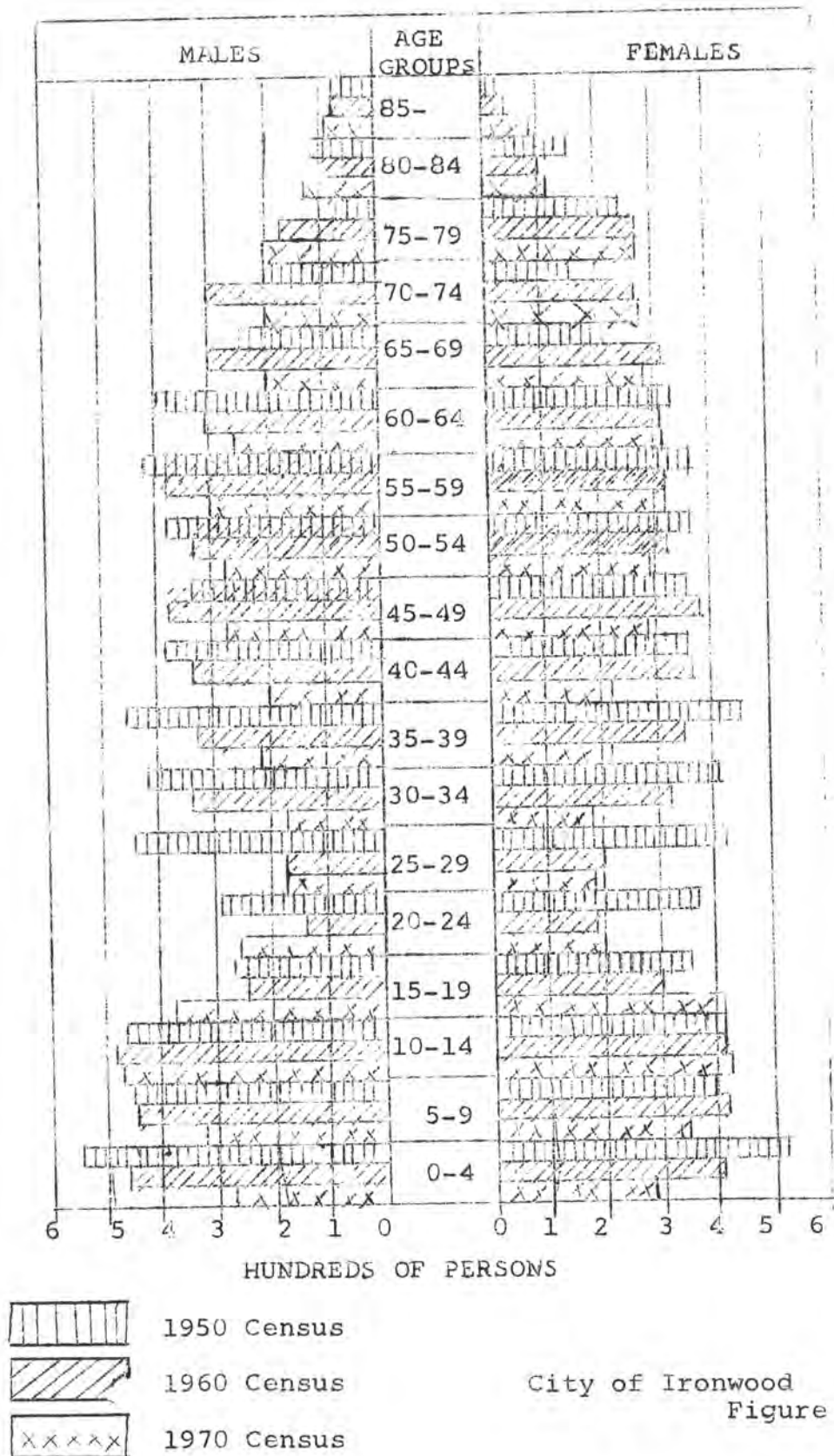
AGE STRUCTURE IN IRONWOOD
 COMPARED WITH
 GOGEBIC COUNTY AND MICHIGAN
 1970*

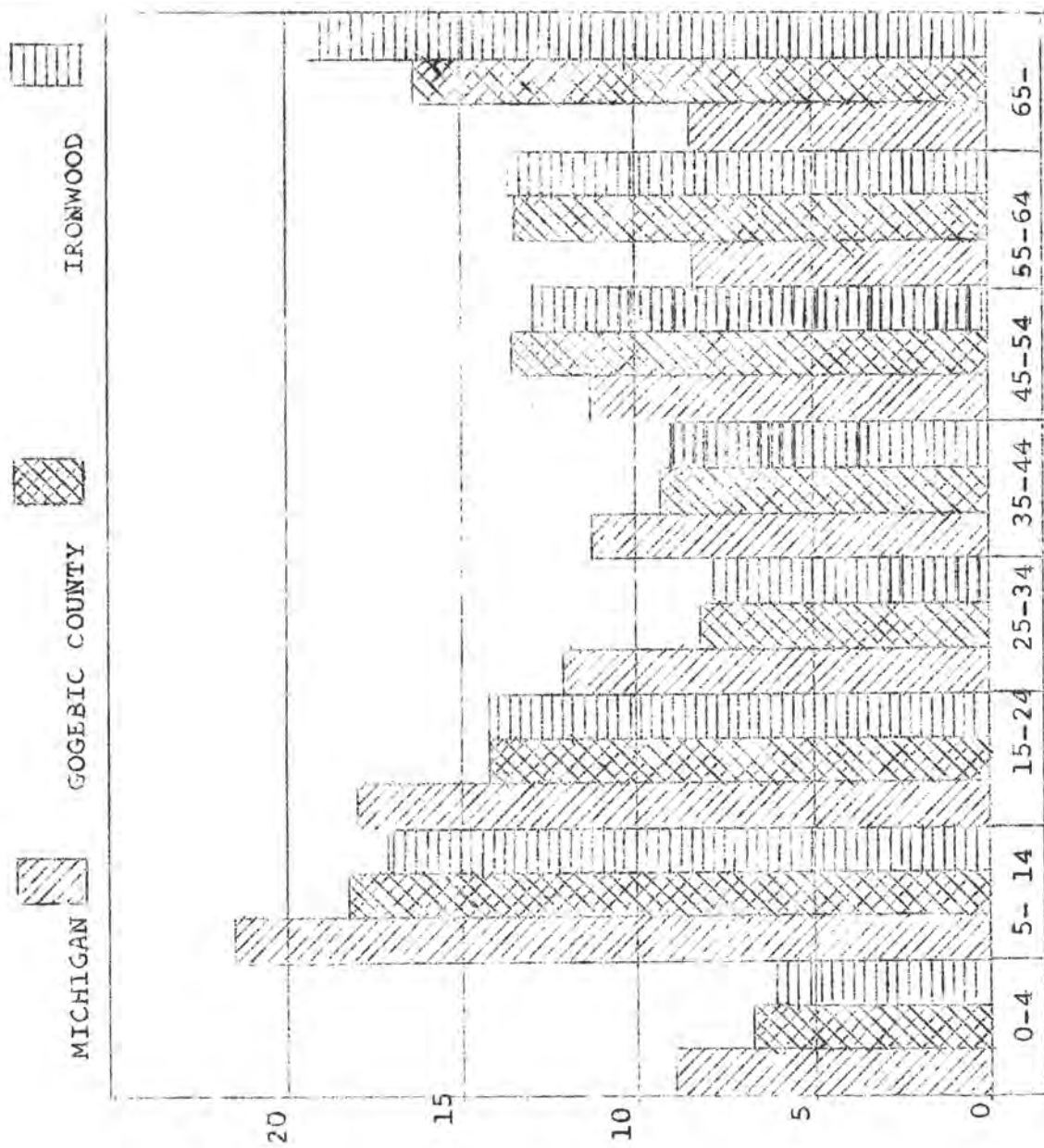
Age Group	State		Gogebic County		City of Ironwood	
	Number	% of Total	Number	% of Total	Number	% of Total
0-4	803886	9.00	1364	6.59	540	6.20
5-9	927230	10.38	1700	8.21	642	7.37
10-14	981631	10.99	2067	9.98	835	9.59
15-19	876404	9.82	1933	9.35	786	9.02
20-24	691471	7.74	980	4.73	425	4.88
25-29	586913	6.57	861	4.16	349	4.01
30-34	490779	5.50	861	4.16	344	3.95
35-39	476792	5.34	975	4.71	400	4.59
40-44	530102	5.94	973	4.71	395	4.53
45-49	527458	5.91	1391	6.72	563	6.46
50-54	476241	5.33	1390	6.71	555	6.37
55-59	412854	4.62	1519	7.34	640	7.35
60-64	338224	3.79	1294	6.25	555	6.37
65-69	263681	2.95	992	4.79	476	5.46
70-74	203537	2.28	991	4.79	475	5.45
75+	287880	3.22	1385	6.70	731	8.39
Total	8875083	100.00	20676	100.00	8711	100.00
Under 18	2263969	25.36	6404	30.97	2571	29.51
Over 65	755098	8.46	3368	16.29	1682	19.30
Median Age	26.3	-	38.4	-	39.4	-

*Source - U.S. Census of Population

COMPARATIVE AGE PROFILES

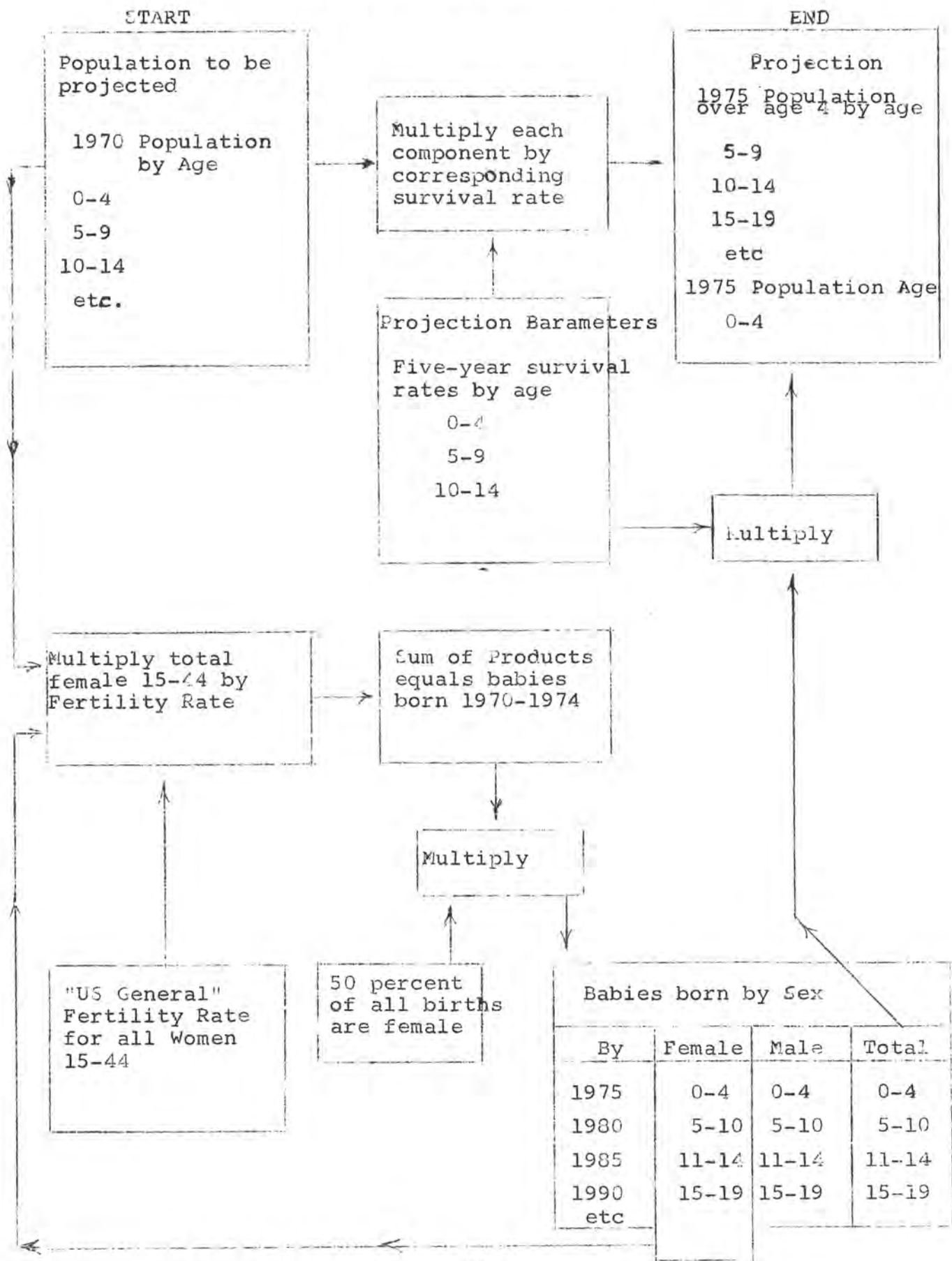
1950 - 1960 - 1970





AGE GROUP - 1970 CENSUS

COHORT SURVIVAL APPROACH



CITY OF IRONWOOD

Probable Survivors of 1970

Population Based on Standard Mortality Rates

Table P-3

AGE	SURVIVAL PROBABILITY	1970	1975	1980	1985	1990	1995	2000
0-4	.98684	540	554*	631*	674*	704*	735*	778*
5-9	.99376	642	533	547*	623*	665*	695*	725*
10-14	.99361	835	638	530	544*	619*	661*	691*
15-19	.99198	786	830	634	527	541*	615*	657*
20-24	.99075	425	780	823	629	523	537*	610*
25-29	.99005	349	421	773	815	623	518	532*
30-34	.98876	344	346	417	765	807	617	513
35-39	.98587	400	340	342	412	756	798	610
40-44	.97918	395	394	335	337	406	745	787
45-49	.96832	563	387	386	328	330	398	729
50-54	.95081	555	545	375	374	318	320	385
55-59	.92407	640	528	518	357	356	302	304
60-64	.88334	555	591	488	479	330	329	279
65-69	.82229	476	490	522	431	423	292	291
70-74	.73854	475	391	403	429	354	348	240
75-79	.63594	343	351	289	298	317	261	257
80-84	.49930	241	218	223	184	190	202	166
85-89	.35702	147	120	109	111	92	95	101
90-94	.20754		52	43	39	40	33	34
95-99	.00001				9	8	8	7
Total		8711	8509	8399	8338	8402	8409	8696

Note: Survivors of future births*
From sheet 2

TABLE P-4

PROBABLE SURVIVORS OF FUTURE BIRTHS IN IRONWOOD

BASED ON STANDARD MORTALITY RATES & CURRENT "US GENERAL" FERTILITY

SURVIVAL								
FEMALE	PROBABILITY	1970	1975	1980	1985	1990	1995	2000
0-4	.98684	278	277*	315*	337*	352*	368*	389*
5-9	.99376	334	274	273*	311*	333*	347*	363*
10-14	.99361	419	332	272	271*	309*	331*	345*
15-19	.99198	406	416	330	270	269*	307*	329*
20-24	.99075	190	403	413	327	268	267*	305*
25-29	.99005	183	188	399	409	324	266	265*
30-34	.98876	182	181	186	395	405	321	263
35-39	.98587	212	180	179	184	391	400	317
40-44	.97918	212	209	177	176	181	385	394
Total women in the child bearing age		1385	1577	1684	1761	1838	1946	1873
"US General"								
Fertility Rate	.080	.080	.080	.080	.080	.080	.080	.080
Births per year	110.8	126.16	134.72	140.88	147.04	155.68	149.84	
Births in 5 years	554	631	674	704	735	778	749	
Assume 50% female	277	315	337	352	368	389	375	

The migration effect on population change was estimated by applying the cohort survival model to the 1940, 1950, and 1960 census data. The results were then compared with the next succeeding census and the difference was attributed to migration, and this past experience was used as one factor in the estimation of future migration trends.

A summary of the difference between actual census counts and the calculated estimate of survivors from the preceding census is shown in Table P-5.

TABLE P-5 SUMMARY OF MIGRATION ANALYSIS

Age Group	1940-1950		1950-1960		1960-1970		1970-1972*
	Estimated Migration	%	Estimated Migration	%	Estimated Migration	%	
0-9	-274	-14	-327	-17	-199	-11	Population
10-19	-1290	-46	-822	-55	-778	-50	Loss, 82
20-29	-681	-29	-236	-16	-70	+10	
30-39	-294	-17	-204	-12	-248	-21	Natural
40-49	-241	-14	-93	-7	-148	-11	Attrition
50-59	-178	-13	-31	-6	-29	-3	(Deaths minu.
60-69	-	-	156	19	0	0	Births), 51
70+	-	-	0	0	0	0	Difference equals out-migration 32
Net Average annual migration	-296		-616		-133		-14

Note: (+) denotes in-migration and (-) denotes out-migration

*Special census on July, 1972 counted total population only, no data was taken by age group.

Many factors affect migration. For example, the general attractiveness of the area, the suitability of housing, the attitude of the community, availability of schools, and change in economic base in the area. In the past this last factor, economics, has been the major cause of out-migration from the area. The degree of success in attracting new generators of employment will be a major determinant of the migration characteristics of the area.

In this report, it is assumed that in and out migration will soon balance. The higher group of out-migrators have been in the 20-24 age group. Some older groups are starting to show a net in-migration. Indications are that migration will stabilize now that there are no more mines left to close and the economy is stabilizing. A summary of the population projections through the year 2000 is shown in Table P-6.

TABLE P-6 SUMMARY OF TOTAL POPULATION PROJECTIONS
(Considering Mortality and Fertility Only and ignoring Migration)

<u>YEAR</u>	<u>CITY OF IRONWOOD</u>
1970	8711
1975	8509
1980	8399
1985	8338
1990	8402
1995	8409
2000	8696

It must again be emphasized, though obvious, that population projections are extremely hazardous. The method used, being a mathematical model, suggests an accuracy that is not attainable. These projections though expressed in numerical values, should be accepted as an indication of trends only.

SECTION DOTHER POPULATION CHARACTERISTICS

A population analysis must also include a discussion of such social and economic characteristics which might be useful in comprehensive planning. Table P-7 sets forth various population characteristics of Ironwood and also, for comparison purposes, Gogebic County and the State of Michigan.

TABLE P-7

	<u>CITY</u>	<u>COUNTY</u>	<u>STATE</u>
% FOREIGN BORN	7.2%	6.7%	4.8%
% NATIVE - residing in state of birth	75.8%	78.4%	72.2%
MEDIAN SCHOOL YEARS Completed	12.1	12.0	12.1
% COMPLETED 4 YEARS High school or more	52.0	45.1	53.0
% 4 OR MORE YEARS OF College	6.7%	4.8%	5.1%
% UNEMPLOYED	6.3%	6.5%	5.9%
MEDIAN INCOME	\$6990	\$7236	\$11032
% POVERTY LEVEL OR BELOW	12.8%	13.2%	7.3%
% \$15,000 OR ABOVE	5.2%	5.0%	26.7%
MEAN INCOME	\$7351	\$7523	\$12296
PER CAPITA INCOME	\$2275	\$2230	\$3373
NON WORKER/WORKER RATIO	2.04	1.96	1.52
% FEMALE 16 OR OVER IN LABOR FORCE	27.9%	29.6%	40.2%
% MALE 16 OR OVER IN LABOR FORCE	62.1	66.5	77.6
EMPLOYED PERSONS IN MFG. INDUSTRY	15.3%	17.7%	35.9%
MALE TO FEMALE RATIO	100:111	100:103	100:104
NON WHITE/WHITE RATIO	1:621	1:176	1:7.5

Source: 1970 Census of Population: General Social and Economic Characteristics

THE ECONOMIC BASE
of
IRONWOOD

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March 7, 1973

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ECONOMIC ANALYSIS

This portion of the basic study's section of the comprehensive planning program will analyze the economic situation of the City of Ironwood. The first part of the study will deal with the economic situation in Ironwood as it is today. The second part will be a feasibility study which will attempt to identify industries that are or might be feasible if located in Ironwood, and also will attempt to identify industries that would be the most desirable from a long-range development standpoint. The third part of this study will evaluate the specific goals which the community might set for itself and will explore methods which might be used by the community to achieve these goals.

THE ECONOMIC BASE

The technique used to analyze urban economic data is the Economic Base technique. It is based on the concept that the total of the city's economy is the sum of its Base activity plus its Local Market activity. The Base activity is that portion of the goods and services that the city exports beyond its boundaries. This "Base" function is of fundamental importance in that it is the "money earning" portion of the city's economy. Both the size of the base and its makeup as well as the changes that occur in it, have an important bearing on the health of the city's economy, on the population, both in total and composition, and on the land use in the city.

The data used in this part of the study has been taken from the official U.S. Census data and the Michigan Employment

Security Commission data. This data is deemed sufficiently accurate and detailed for at least the preliminary studies. As this study is expanded, more detailed data may be obtained by making an actual survey of the business community. The data thus available has been compiled by the political subdivision and therefore restricts the boundaries of this study to the boundaries of the city, county, etc. and is not available by market area. This constraint may be overcome if, and as, this study is expanded by use of locally obtained survey data.

For the purpose of classifying the structural parts of the economy, we will use the STANDARD INDUSTRIAL CLASSIFICATION system (SIC) which has long been used by economists of the Bureau of Census. The SIC system classifies the various major divisions into which an economy can be divided. Each division is in turn broken down into major groups to which are assigned SIC code numbers. For example, Division D, Manufacturing includes among its 21 major groups such classes as Major Group (SIC) 28, Chemical and Allied Products; and (SIC) 37, Transportation Equipment. Two digit designation of the major groups are broken down in the SIC manual to a four-digit level. Each successive digit added represents a description of a deeper level of specialization within the group. For example:

SIC 37,	Transportation Equipment
371,	Motor Vehicle Industry
3714,	Motor Vehicles Parts and Accessories
372,	Aircraft Industry
373,	Boat Building Industry
etc.	

Because of the constraints placed upon this preliminary study in regard to data availability, we will restrict this study to major divisions plus selected 2 digit level major groups.

In order to identify the market status and to determine the distinction of export or base market from local market activity and from auxiliary activity, we will utilize a Location Quotient Method. This method works on the assumption that if a certain industry group in the city has a greater percentage of the local labor force, or sales as the case may be, then its counterpart does at say the State or National level, the excess is assignable to the export sector. For example;

SIC 54 Food Stores.

Number of employees in the state	Total	3,252,830
Number of employees in the state in SIC 54	...	80,721

Therefore in the state, one employee for every 40.3 works in SIC 54, Food Stores.

Number of employees in Gogebic County	Total	6447
Number of employees in Gogebic County in SIC 54		258

Assume one in every 40.3 should be assigned to local = 160. Therefore 258 Total SIC 54 employees minus 160 Local = 98 can be assigned to the export sector. As a part of a tabular report, it would appear as follows:

Economic Division and Group	Market Status		Total
	Base (out of county)	Local (Gogebic County)	
Trade			
SIC 54 FOOD STORES	98	160	258

The U.S. Census data which we are using for this preliminary study does not segregate the economic structure into even 2 digit detail, but only into the major divisions. Therefore, the following Table summarizes the results of the classification and identification analysis for the City of Ironwood.

TABLE E-1
ECONOMIC ACTIVITIES OF IRONWOOD
Classified by Economic Division and Market Status

Economic Division and Group	Employees Market Status		
	Base	Local Market Needs	Total Employment
Construction	-70	127	57
Manufacturing	404	0	404
Transportation	9	70	79
Communication and Utilities	30	70	100
Wholesale and Retail Trade	256	510	766
Finance, etc.	-17	143	126
Professional and Related Services	135	250	395
Public Administration	0	167	167
Other Industries	<u>451</u>	<u>112</u>	<u>563</u>
Total Employment	1198	1449	2547

The results thus obtained must be interpreted with tolerance in view of the nature of the data utilized. The data source was the U.S. Census of Population, 1970 "General, Social and Economic Characteristics", and was obtained by taking a 20% sample of the population. For a population as small as Ironwood, this type of data could not be expected to be very accurate. The use of Location Quotients in identifying the market status of the various segments of the economic structure assume that the bench mark economy used must be a closed economy. In this study the state as a whole was used as a bench mark. While in such economic divisions as Wholesale and Retail Trade, the state is probably a closed economy. The same can not be said regarding Manufacturing as a major portion of the products of Michigan manufacturing are sold

outside of its boundaries.

Considering wholesale and Retail trade for example, Table E-1 shows that 510 out of a total of 766 employees serve the local market needs. This is 67% of the total. This means that according to this analysis the City of Ironwood's wholesale and retail trade serves a total population of 13,000 persons.

In order to check this observation, we can use a completely independant set of published data. The U.S. Census of Business 1967 RETAIL TRADE: Michigan

In this analysis, Sales is used as a parameter. The Classification of the data is again by SIC Code and the identification is again made by the Location Quotient.

Table E-1

E

TABLE E-2
RETAIL TRADE ACTIVITIES IN IRONWOOD
Classified by kind of Business and Market Status of Sales

SIC NO.	KIND OF BUSINESS	\$ PER CAPITA IN MICHIGAN	MARKET STATUS OF SALES (\$1000s)		
			BASE	LOCAL MARKET	TOTAL SALE
52	building material hardware, etc.	88	221,000	767,000	988,000
53	general merchan- dising	242	2,885,000	(d)	-
54	food stores	377	2,885,000	3,284,000	6,169,000
55	automotive dealers	317	971,000	2,761,000	3,732,000
554	gasoline service stations	118	751,000	1,028,000	1,779,000
56	apparel & accessories	81	958,000	706,000	1,664,000
57	furniture, home furnishings, appliances, etc.	77	885,000	671,000	1,556,000
58	eating and drinking places	112	(-132,000)	844,000	844,000
591	drug & proprie- tary stores	59	-	(d)	-
59	miscellaneous retail	90	(-85,000)	699,000	699,000
TOTAL RETAIL TRADE		1,589	7,940,000	13,850,000	21,790,000

(d) Information not available to permit disclosure

Table E-2 shows that \$13.8 million in sales out of \$21.3 million total sales serve local market needs. This is 63.6%. According to this analysis, Ironwood's retail trade serves a total population of 13,700. while this apparently confirms our previous analysis it still should not be viewed as being conclusive.

The data thus far obtained permits the expression of not only the quantitative proportional relationship between the parts of Ironwood's total economy, but also the relationship between these parts and the city's population. These relationships are expressed as follows:

Base employment	1276
Local market employment	1371
Total employment	2647
Total population	8711
Base/Local Market	=1 to 1.07
Base/ Total Employment	=1 to 2.07
LocalMarket/Total Employment	=1 to 1.93
Total Employment/Total Population	=1 to 3.29
Base Employment/Total Population	=1 to 6.83
Local Market/Total Population	=1 to 6.35

In analyzing the economic situation in Ironwood as it is today, we have utilized an economic base technique. From the information derived therefrom, we can make the following conclusions:

1. The economic structure in Ironwood has some obvious weak spots. There is apparently no base employment in Ironwood in construction, transportation or finance, insurance etc. In the wholesale and retail division about 1/3 of the total employment is base employment,

which is not as strong as many had beleived. Within this division itself, some weak areas become apparent. Eating and drinking places in Ironwood fall far short of supplying local market needs.

2. In Ironwood the ratio of Base employment to total population is 1 job to every 6.8 people. This in itself is somewhat high, probably due to the large number of elderly people. Therefore, if Ironwood is to grow, Base employment must increase at a rate in excess of 1 job for each 6.8 people, probably more nearly 1 job for each 5 to 5.5 people. In other words, if Ironwood is to grow until it again has 10,000 people, something on the order of 225 to 250 base jobs must be provided. Inasmuch as base jobs are accompanied by local market jobs at approximately the same rate, total employment must be approximately 450 to 500 jobs.

3. Analysis of the wholesale and retail division of the economy shows that it serves a total population of approximately 13,000 person's. Ironwood's local market area, although so analyzed, bears no relation to the boundaries of the city. In order to delimit the local market area, the population of 13,000 should be taken as a base. This will of course include Ironwood at 8,711, plus Hurley at 2,333, plus enough of the surrounding townships and cities to make up the total.

4. Enough valuable information which may be used to make planning judgements, may be obtained through a study such as this to make it worthwhile to invest time and effort toward making a more definite study. This new study should use carefully collected data on the economic community either in the form of questionnaires or interviews, or both.

LAND USE
ANALYSIS

Prepared in conjunction
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1975

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LAND USE ANALYSIS

The principle objective of this study is to provide an analysis of the present land use in and near the City of Ironwood. It is intended that the results of this study will be used to provide a data base upon which land use policies can be formulated. The data accumulated and the results of this analysis should focus attention to the various land use needs of the City and should identify the most appropriate land use for various districts in and near the City.

Land use policies are implemented by the adoption and enforcement of zoning and other ordinances and by various other methods, including public facilities locations. This study therefore, will not only identify uses to which various lands should be put, but also will help to develop information necessary to systematically identify and properly plan for public facility needs throughout the city.

THE STUDY APPROACH

A systematic approach is being used to identify land use needs and the various factors which would tend to affect the suitability of various parcels of land to the identified needs. The tasks which are necessary to conduct this analysis are as follows:

1. A definition of the land use goals to be ultimately reached in the City of Ironwood and its surrounding area.
2. An evaluation of the capabilities of the City to

satisfy the land use needs thus categorized in terms of its financial and other resources.

3. A categorization of the various land use needs of the City of Ironwood expressed in terms suitable for analysis such as residential land use needs, industrial land use needs, parks and open spaces needs as well as the various other categories appropriate to the study.

4. An inventory of existing land use in and near the City. This inventory will be by planning area and will be categorized according to various land use needs.

5. An itemization and quantification of the various constraints standing in the way of satisfying these land use needs, and also the various resources of the City which could be viewed as conducive to specific land uses.

6. The development of an appropriate selection procedure which will systematically evaluate all alternative land use categories in terms of the objectives and constraints in order to select the most desirable use for each parcel of land in the City.

LAND USE GOALS

A Goal is nothing more than a statement of an ideal as it sets forth a desirable condition. Therefore, a land use goal is a general statement of the land use situation that the City would eventually hope to attain.

An Objective is a statement which is more specific. It is a statement of an intermediate condition to be attained on the way toward achieving a goal. It is stated in specific, measurable terms, such as time,

quantity and so forth. An objective is based on a goal and can often be viewed as a means or step toward achieving a goal.

The land use goals of the City of Ironwood are:

1. That the lands in and around the City be used in a manner that assures livability and harmony and, in a manner, so that the various categories contribute to the overall benefit of the entire community.
2. That the lands in and around the City be fully utilized so that each parcel of land contributes its fair and just share to the community, either monetarily or in other values and that the densities of use be proper for each land use category thus precluding either overcrowded conditions or underutilized and wasted land.
3. That the lands in and around the City be used in a manner consistent with the environment, taking advantage of conditions which tend to optimize a given land use and overcoming or avoiding environmental constraints.
4. That the land use attitudes, policies and programs of the City be recognized and treated as a dynamic, ever changing entity in need of continuing analysis and evaluation, and that growth, development and changes in land use be accomplished in a logical and orderly sequence and in a manner which assures public acceptance.

City's Capabilities for Accomplishment of Land Use Goals

The City of Ironwood has various avenues open to it so that it might influence the use of lands in and near the City.

The first and most obvious is the use of its police power to adopt and enforce various codes and ordinances designed to influence land use. These ordinances and codes include of course, a zoning ordinance, building codes and subdivision regulations among others.

In its efforts to influence proper land use, the City may also use various persuasion techniques. The City can influence land use by setting a good example in the use of its own public land or conversely discourage land use it deems improper. Also, inasmuch as the City files and records contain a vast amount of data regarding the land within its boundaries and of the facilities serving that land, the City can influence land use by education and making information public regarding land and land use as well as offering assistance to people with their building and other land use plans.

Tax concession on the other hand are of dubious value in influencing land use. In most instances tax concessions are outright illegal. When such concessions are legal, they are usually set forth specifically by state law. They have often been used in an effort to attract new industry, but these incentives are becoming more and more formalized by state laws and thus are losing their advantage, as far as an individual city is concerned. The City of Ironwood, of course, can be helped to a great extent if the State of Michigan adopts tax regulations which provide Michigan cities with an advantage over Wisconsin and Minnesota cities.

In an effort to influence land use, the City can also take direct action such as making municipal investments or acquiring land. Examples of this type of effort are

the development of Ironwood's Industrial Park and the efforts of the Ironwood Housing Commission in building Pioneer Park Apartments and other public housing.

Municipal investments in streets, water mains, sewers and schools have a profound effect on land use and are tools that can be used in an effort to achieve the city's land use goals.

CATEGORIZATION OF LAND USE NEEDS

In an effort to build a data base that will be useful even beyond the scope of this study, for example, a data base which can be used to coordinate with regional or state agencies, a standardized land use classification system will be used. The system will be that of the "Standard Land Use Coding Manual" by the U.S. Urban Renewal Administration and the Bureau of Public Roads. The tax and assessment roles are thus being coded so they will be very useful as a data source.

At the one digit level, the system is as follows:

<u>CODE</u>	<u>CATEGORY</u>
1	Residential
2	Manufacturing, light
3	Manufacturing, heavy
4	Transportation, Communication and Utilities
5	Trade
6	Service
7	Cultural, Entertainment and Recreational
8	Resource Production and Extraction
9	Undeveloped Land and Water Areas

This system is also broken down into two, three, and four digit levels. An example of the two digit level expanding Code 5 - "trade" - is as follows:

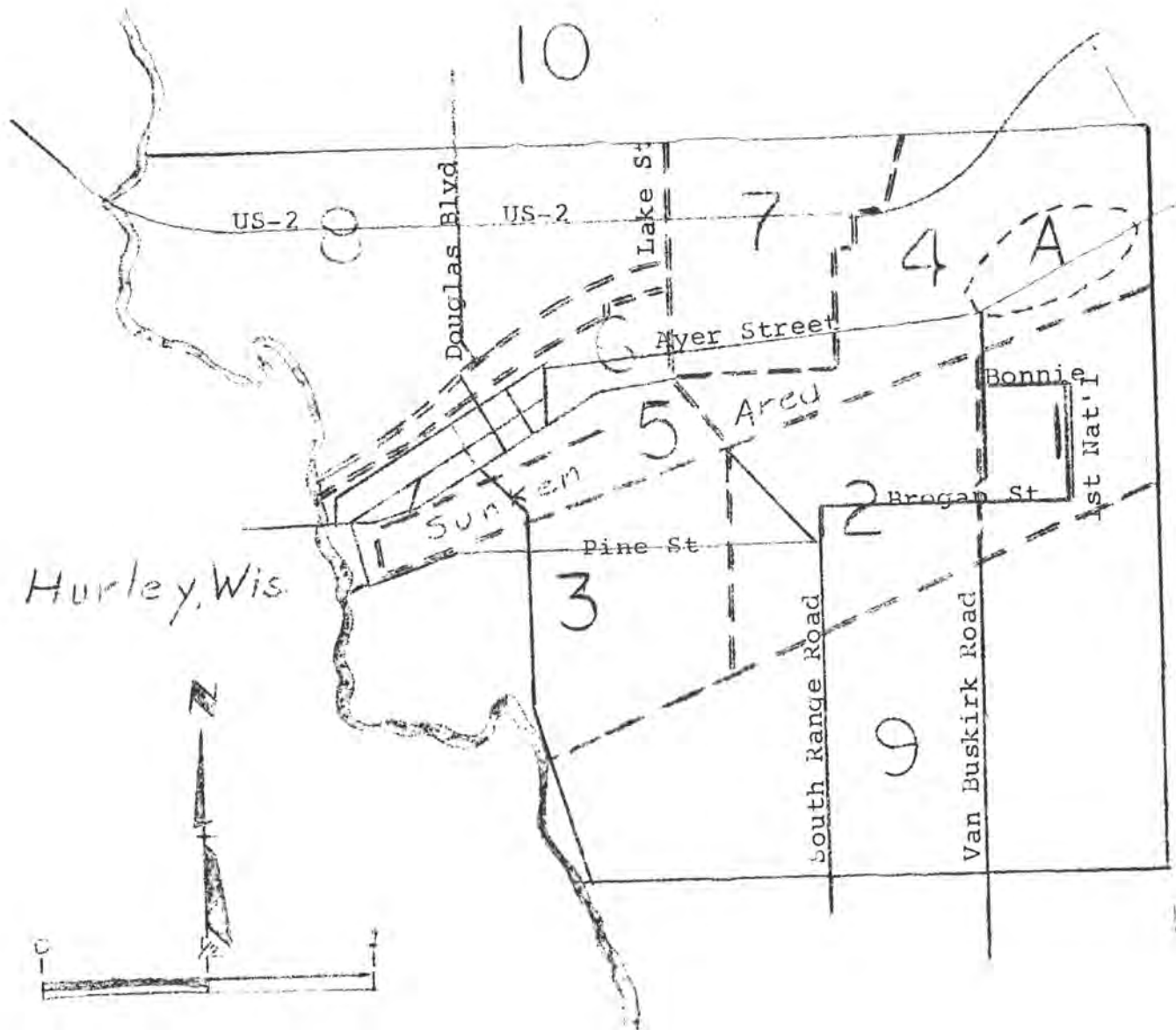
<u>CODE</u>	<u>TRADE</u>
51	Wholesale trade
52	Retail trade- Building materials, etc.
53	Retail trade - General merchandise
54	Retail trade - Food
Etc.	Etc.

This study will be limited to the one digit level keeping in mind that in the future this study can be refined to whatever level is appropriate.

INVENTORY OF EXISTING LAND USE

In this task the existing land use in the various planning areas in and near the City of Ironwood is analyzed and inventoried. This inventory is presented in tabular form in Table 1 through 10. The data base used for this inventory is the city assessment records. This data is accumulated by neighborhood groupings called "economic districts for assessment purposes". These 24 economic districts are further consolidated into 9 planning areas within the City. This study will also consider the 10th planning area being Ironwood township north and adjacent to the City.

PLANNING AREA IN CITY OF IRONWOOD



LAND USE INVENTORY

PLANNING AREA 1

NEIGHBORHOOD 16

ZONING	residential	multiple residential	public	residential commercial	open land	TOTAL
1 All other Residence	1				1	2
11 Single Family Residences	177	1		1	11	190
15 Transient Lodging						
2 Light Manufacturing						
3 Heavy Manufacturing	1					1
4 Transp. Utilities Communication						
5 Trade				4		4
51 Wholesale						
6 All other Services			1	1		2
67 Gov. Services						
7 Cultural Entertainment						
8 Resource Production						
9 All other Vacant Area	60			3	6	69
94 Vacant Floor Area	1		1			2
TOTAL	240	1	2	9	18	270

LAND USE INVENTORY

PLANNING AREA 2

NEIGHBORHOOD 16

ZONING LAND USE CATEGORY							
	heavy industry	open land					TOTAL
1 All other Residence	1						1
11 Single Family Residences	128	15					
15 Transient Lodging							
2 Light Manufacturing	3						3
3 Heavy Manufacturing							
4 Transp. Utilities Communication	1						
5 All other Trade	1						1
51 Wholesale		1					1
6 All other Services							
67 Gov. Services							
7 Cultural Entertainment							
8 Resource Production							
9 All other Vacant Area	39						39
94 Vacant Floor Area							
TOTAL	173	16					

LAND USE INVENTORY

PLANNING AREA 3

NEIGHBORHOOD 18-19-20

ZONING LAND USE CATEGORY	residential	public	heavy industry	residential commercial	open land	TOTAL
1 All other Residence	3		1		1	5
11 Single Family Residences						
15 Transient Lodging						
2 Light Manufacturing						
3 Heavy Manufacturing						
4 Transp. Utilities Communication	2		2			
5 All other Trade	2	1	1	3		7
51 Wholesale	1					1
6 All other Services		1				1
67 Gov. Services						
7 Cultural Entertainment	2					2
8 Resource Production						
9 All other Vacant Area	79	1	6		83	169
VACANT FLOOR AREA	1					1
TOTAL	631	6	49	4	132	822

LAND USE INVENTORY

PLANNING AREA 4

NEIGHBORHOOD 5-6-7-15

ZONING LAND USE CATEGORY	residential	highway commercial	open land				TOTAL
1 All other Residence							
11 Single Family Residence	30	1	90				121
15 Transient Lodging							
2 Light Manufacturing							
3 Heavy Manufacturing							
4 Transp. Utilities Communication							
5 All other Trade			5				5
51 Wholesale			1				1
6 All other Services							
67 Gov. Services							
7 Cultural Entertainment	1						1
8 Resource Production							
9 All other Vacant Area	12	1	13				26
94 Vacant Floor Area							
TOTAL	43	2	109				154

LAND USE INVENTORY

PLANNING AREA 5

NEIGHBORHOOD 14

LAND USE CATEGORY	ZONING						
	Residential	open land					TOTAL
1 All other Residence							
11 Single Family Residences		1					1
15 Transient Lodging							
2 light Manufacturing							
3 Heavy Manufacturing							
4 Transp. Utilities Communication							
5 All other Trade		1					
51 Wholesale							
6 All other Services							
67 Gov. Services							
7 Cultural Entertainment							
8 Resource Production							
9 All other Vacant Area							
94 Vacant Floor Area	1	6					7
TOTAL	1	8					9

LAND USE INVENTORY

PLANNING AREA 6

NEIGHBORHOOD 11-12-13

ZONING LAND USE CATEGORY	residential	multiple residential	public	light industry	heavy industry	residential commercial	TOTAL
1 All other Residence		17		1			
11 Single Family Residences	1	365	16	59	1	13	
15 Transient Lodging							
2 Light Manufacturing			1			1	
3 Heavy Manufacturing		1		1			
4 Transp. Utilities Communication	3	4					
5 All other Trade			1	1		1	
51 Wholesale				1			
6 All other Services		1	4	4		4	
67 Gov. Services			2				
7 Cultural Entertainment		5	16			1	
8 Resource Production							
9 All other Vacant Area	3	22	5	12	1	1	
94 Vacant Floor Area				4			
TOTAL	4	414	49	83	2	21	

LAND USE INVENTORY

PLANNING AREA 6

NEIGHBORHOOD 11-12-13

ZONING	downtown commercial	highway commercial	open land				TOTAL
1 All other Residence	5		1				
11 Single Family Residences	66		23				544
15 Transient Lodging							
2 Light Manufacturing	3						
3 Heavy Manufacturing							
4 Transp. Utilities Communication	9						16
5 All other Trade	53		2				58
51 Wholesale	3		11				15
6 All other Services	31		2				46
67 Gov. Services	4		1				7
7 Cultural Entertainment	10						32
8 Resource Production							
9 All other Vacant Area	14	1	6				65
94 Vacant Floor Area	2						
TOTAL	200	1	46				820

LAND USE INVENTORY

PLANNING AREA 7

NEIGHBORHOOD 4

ZONING LAND USE CATEGORY	residential	mobile residential	public	residential commercial	highway commercial	open land	TOTAL
1 All other Residence	2	16			3		21
11 Single Family Residences	170	9			41	18	238
15 Transient Lodging							
2 light Manufacturing							
3 Heavy Manufacturing							
4 Transp. Utilities Communication					2		2
5 All other Trade				1	6		7
51 Wholesale							
6 All other Services	3				3		6
67 Gov. Services			1				1
7 Cultural Entertainment					1		1
8 Resource Production							
9 All other Vacant Area	78	11	1		12	8	110
94 Vacant Floor Area	1				1		2
TOTAL	254	36	2	1	69	26	388

LAND USE INVENTORY

PLANNING AREA 8

NEIGHBORHOOD 1-2-3-9-10

ZONING LAND USE CATEGORY	residential	multiple residential	public	light industry	heavy industry	residential commercial	TOTAL
1 All other Residence	45	2	5			1	
11 Single Family Residences	950	24	2			2	
15 Transient Lodging							
2 Light Manufacturing	1						
3 Heavy Manufacturing					1	2	
4 Transp. Utilities Communication	2		1	1		2	
5 All other Trade						2	
51 Wholesale	1		1				
6 All other Services	6		8			2	
67 Gov. Services			3				
7 Cultural Entertainment	3		7				
8 Resource Production							
9 All other Vacant Area	165	1	1				
94 Vacant Floor Area	2						
TOTAL	1175	27	28	1	1	1	

LAND USE INVENTORY

PLANNING AREA 8

NEIGHBORHOOD 1-2-3-9-10

ZONING LAND USE CATEGORY	downtown commercial	highway commercial	open land				TOTAL
1 All other Residence		23	7				83
11 Single Family Residence	4	45	20				1047
15 Transient Lodging		6					6
2 Light Manufacturing		1					2
3 Heavy Manufacturing					1		3
4 Transp. Utilities Communication		2					8
5 All other Trade	1	14					17
51 Wholesale		1					3
6 All other Services	2	16	1				35
67 Gov. Services							3
7 Cultural Entertainment		1					11
8 Resource Production							
9 All other Vacant Area		21	6				194
94 Vacant Floor Area		1					3
TOTAL	7	131	34				1415

LAND USE INVENTORY

PLANNING AREA 9

NEIGHBORHOOD 21

ZONING LAND USE CATEGORY							
	residential	heavy industry	open land				TOTAL
1 All other Residence							
11 Single Family Residences		1	15				16
15 Transient Lodging							
2 Light Manufacturing							
3 Heavy Manufacturing							
4 Transp. Utilities Communication							
5 All other Trade							
51 Wholesale							
6 All other Services							
67 Gov. Services							
7 Cultural Entertainment							
8 Resource Production			1				1
9 All other Vacant Area	2	1	15				18
94 Vacant Floor Area							
TOTAL	2	2	31				35

LAND USE INVENTORY

ALL PLANNING AREAS

SUMMARY

ZONING LAND USE CATEGORY	residential single	residential multiple	residential mobile home	public	light industry	heavy industry		
1 All other Residence								
51	19	16	5	1	1			
11 Single Family Residences	1869	390	9	21	59	169		
15 Transient Lodging								
2 Light Manufacturing								
3 Heavy Manufacturing	1			1		3		
4 Transp. Utilities Communication	1	1			1	1		
5 All other Trade	4	3		5	1	3		
51 Wholesale	2			2	1	2		
6 All other Services	2			1	1			
67 Gov. Services	9	1		14	4			
7 Cultural Entertainment				6				
8 Resource Production	6	5		23				
9 All other Vacant Area								
94 Vacant Floor Area	400	23	11	8	12	47		
	5			1	4			
TOTAL	2350	442	36	87	84	227		

LAND USE INVENTORY

ALL PLANNING AREAS

SUMMARY

LAND USE CATEGORY	commercial residential	commercial downtown	commercial highway	open land			TOTAL
1 All other Residence	1	5	26	10			136
11 Single Family Residences	17	70	87	241			2932
15 Transient Lodging			6				6
2 Light Manufacturing	1	3	1				10
3 Heavy Manufacturing	2						6
4 Transp. Utilities Communication	2	9	4				31
5 All other Trade	11	54	20	8			100
51 Wholesale		3	1	13			21
6 All other Services	7	33	19	3			90
67 Gov. Services		4		1			11
7 Cultural Entertainment	1	10	2				47
8 Resource Production				1			1
9 All other Vacant Area	4	14	35	143			697
94 Vacant Floor Area		2	2				14
TOTAL	46	207	203	420			4102

ITEMIZATION AND QUANTIFICATION OF CONSTRAINTS

For the purpose of this study we will define a constraint as a physical, social or environmental determinant which tends to place limits on various categories of land use. For analysis purposes we will assign a value to the constraint to indicate its severity for the category under consideration.

A value of 0 means the land is relatively free of the limitation. In other words this value indicates the land is prime or good for the land use, (an opportunity).

A value of 1 means moderate limitations which must be recognized, but could be overcome with good management and careful design.

A value of 2 means severe limitations which make the land use questionable or impractical.

Each value must be assigned in accordance with the use intended. For example, a sloped site may be a slight or moderate constraint for residential use but would be a severe constraint for industrial use.

In order to systematically itemize various constraints they will first be grouped in an effort to prevent omission or duplications. The groupings will be social, environmental, and physical.

The first group, social constraints, include the following: noise, traffic, building density, schools and churches, shopping, services and distance. The environmental group of constraints are: distance, sloping, caving ground and drainage. The physical group includes: drainage, sewer, water supply and streets. These constraints are further classified by typical values

and comparisons with each land use category. In this comparison each constraint is assigned a value in accordance with the severity of limitation imposed on each land use category. This comparison is set forth in Table 11.

Not listed on the table is a most important land use determinant, "Compatibility with existing land use". Because of its importance additional double value is assigned to it - 0 for slight, 2 for moderate and 4 for severe. Even if the present land use is not ideal, the fact that it is existing makes it a very important determinant.

LAND USE EVALUATION PROCEDURE

The next task to be completed in this land use analysis is to evaluate the various tracts of land in and near the City of Ironwood. In this study we will first make a generalized analysis of the 8 planning areas of the city which have been used in previous planning studies in the City. To these 8 we will add 2 more. Planning area number (9) will comprise all of the area in the southerly part of town that was not included in the previous planning area. Planning area number (10) will be comprised by portions of section 14, 15, and 16 T47 N - R47 W, located in Ironwood Township. The planning areas are shown on the map depicting Economic Condition Area- 1974 of the City of Ironwood ".

These analyses will compare the constraints as shown in tables 1 through 12 in the planning area with the various land use categories and the results should determine the most suitable land use for each planning

area. The generalized results should also point up the portions of the planning area which should be analyzed in further detail. Thus it should not be necessary in this study to analyze in detail each and every block in the City. The procedure used herein, however, will establish a method for further detailed analysis in the future as the need arises. The following tables 1 through 12 set forth the analysis.

OPPORTUNITY CONSTRAINT MODEL

OPPORTUNITY CONSTRAINT MODEL

CONSTRAINT DETERMINANT			LAND USE CATEGORY									
GP	ITEM	VALUE	1 residential	2 Mfg light	3 mfg heavy	4 trans utilities	5 trade	6 services	7 cultural	8 entertainment resource production	9 undeveloped	
	NOISE	80db	0	0	0	0	1	0	0	0	0	
		80-95db	2	1	0	0	2	2	2	0	0	
		95db	2	2	1	1	2	2	2	1	0	
	TRAFFIC	50 cars/hr.	0	0	0	0	2	0	0	0	0	
		100 cars/hr.	0	0	0	0	0	0	0	0	0	
		500+ cars/ hr	1	0	0	0	1	1	0	0	0	
	DENSITY	0-½ acre/bldg.	0	2	2	2	0	0	0	2	-	
		½-2 acre/bldg	0	1	2	2	1	1	1	2	-	
		2+ acre/bldg	0	0	0	0	2	2	2	1	-	
	SCHOOLS AND CHURCHES	½ mile	0	0	1	1	1	1	1	2	0	
		1 mile	1	0	0	0	1	1	1	1	0	
	2 miles	2	0	0	0	1	1	1	1	0		
	SHOPPING AND SERVICES	½ mile	0	0	0	0	0	0	0	0	0	
		1 mile	1	0	0	0	1	1	1	1	0	
	2 miles	2	0	0	0	2	2	2	0	0		
	SLOPE	0-2%	0	0	0	0	0	0	0	0	0	
		2-5%	1	1	2	1	1	1	1	0	0	
		5+%	1	2	2	2	1	1	2	0	0	
	CAVING	yes	1	1	1	2	1	1	0	0	0	
		no	0	0	0	0	0	0	0	0	0	
	DRAINAGE	good	0	0	0	0	0	0	0	0	0	
		moderate	1	1	1	1	1	1	1	0	0	
		poor	2	2	2	2	2	2	2	0	0	

0 = slight constraint
 1 = moderate constraint
 2 = severe constraint

OPPORTUNITY CONSTRAINT MODEL

			LAND USE CATEGORY								
CONSTRAINT DETERMINANT			1 residential	2 mfg light	3 mfg heavy	4 trans utilities	5 trade	6 cultural entertainment	7 resource production	8 undeveloped	9
GP	ITEM	VALUE									
	SEWERS	good	0	0	0	0	0	0	0	0	0
		moderate	1	1	1	1	1	1	1	0	0
		poor	2	2	2	2	2	2	2	0	0
	WATER SUPPLY	100 gpm	0	1	2	1	1	1	1	0	0
		500 gpm	0	1	1	1	0	0	0	0	0
		1000 gpm	0	0	0	0	0	0	0	0	0
	STREET CLASS	local	0	1	2	2	2	2	1	0	0
		collector	0	0	0	0	0	0	0	0	0
		arterial	1	0	0	0	1	1	0	0	0

0 = slight constraint
 1 = moderate constraint
 2 = severe constraint

CONCLUSION

The results of this land use analysis should provide factual data upon which land use plan and policies can be formulated. This study is intended to provide a data base and not necessarily to arrive at conclusions. It should be pointed out that the City of Ironwood, however, has several land use opportunities and constraints which are unique to Ironwood. The area of mining subsidence in the central part of the city is, of course, unique to Ironwood. The steep rocky slopes, while they add to the scenic beauty of the area, constitutes a land use determinant which can not be overlooked. Flood plains along the Montreal River constitute a land use determinant which dictates the avoidance of building in that region.

The information developed in this study can be used in the process of review and revising the City's zoning ordinance. This analysis does indicate that while the present zoning ordinance has been useful in influencing land use since its adoption, it was adopted much too late and improper land use was already established.

This study can also be utilized to advantage in developing a comprehensive community facility plan, a comprehensive housing plan, a comprehensive street and utility plan, as well as other analysis and plans which may be needed in the future.

The city should continue and even accelerate its present policy of acquiring and taking title to any and all tax delinquent and other nonproductive lands in and near the city. The City then should take necessary steps to utilize this land in a manner which will not only

be the best use for that parcel, but also will favorably influence land use in its neighborhood.

The tables on pages 23 and 24 set forth values for the various land use determinants. These values are then used in evaluating the various potential land uses for the different planning areas in the Land Use Analysis Tables.

The total of the value of the determinants should indicate the suitability of each class of land use in each planning area. A low total indicates maximum suitability for the land use class in question.

Severe constraints are also totalled separately because even a small number of severe constraints will indicate a minimum suitability, even assuming the other indicators do not.

LAND USE ANALYSIS

Oct. 1974

PLANNING AREA 1

JESSIEVILLE

LAND USE CATEGORY		residential	mfg light	mfg heavy	trans utilities	trade	services	cultural recreation	resource production	undeveloped
DETERMINANT										
ITEM	DESCRIPTION	1	2	3	4	5	6	7	8	9
NOISE	no inherent noise	0	0	0	0	1	0	0	0	0
TRAFFIC	slight-local only	0	0	0	0	2	0	0	0	0
DENSITY	residents 0- $\frac{1}{2}$ acre/bldg.	0	2	2	2	0	0	0	2	0
SCHOOLS & CHURCHES	grade school $\frac{1}{2}$ high school $\frac{1}{2}$ -2 churches $\frac{1}{2}$ -2 mi	1	0	0	0	1	1	1	2	0
SHOPPING & SERVICES	2 miles	1	0	0	0	1	1	1	0	0
SLOPE	steep 5%+	1	2	2	2	1	1	2	0	0
CAVING	none	0	0	0	0	0	0	0	0	0
DRAINAGE	excellent	0	0	0	0	0	0	0	0	0
SEWER	good	0	0	0	0	0	0	0	0	0
WATER SUPPLY	low pressure pumps needed	1	1	2	1	1	1	1	0	0
STREETS	local only	0	1	2	2	2	2	1	0	0
OTHER TRANSPORTATION	none	1	0	0	0	0	1	1	0	0
COMPATIBILITY	residential class c	0	4	4	4	2	2	2	4	4
	Total	4	10	12	11	11	9	9	8	4
TOTAL SEVERES		0	2	5	4	2	1	1	2	1

LAND USE ANALYSIS

Oct, 1974

PLANNING AREA 2

AURORA LOCATION

LAND USE CATEGORY		residential	mfg light	mfg heavy	trans utilities	trade	services	cultural recreation	resource production	undeveloped
DETERMINANT										
ITEM	DESCRIPTION	1	2	3	4	5	6	7	8	9
NOISE	no inherent noise	0	0	0	0	1	0	0	0	0
TRAFFIC	slight local only	0	0	0	0	2	0	0	0	0
DENSITY	0-1/2 acre/bldg	0	2	2	2	1	1	2	0	0
SCHOOLS & CHURCHES	1 mile ⁺	1	0	0	0	1	1	1	1	0
SHOPPING & SERVICES	1 mile ⁺	1	0	0	0	1	1	1	0	0
SLOPE	steep 5%	1	2	2	2	1	1	2	0	0
CAVING	none	0	0	0	0	0	0	0	0	0
DRAINAGE	good	0	0	0	0	0	0	0	0	0
SEWERS	moderate	1	1	1	1	1	1	1	0	0
WATER SUPPLY	500 gpm+	0	1	1	1	0	0	0	0	0
STREETS	local	0	1	2	2	2	2	1	0	0
OTHER TRANSPORTATION	truck & bus	0	0	0	0	0	0	0	0	0
COMPATIBILITY	old class d ressdential	2	2	2	0	4	4	0	0	0
	Total	6	9	10	8	13	10	6	3	0
TOTAL SEVERES		0	2	3	3	3	2	1	1	0

LAND USE ANALYSIS

Oct. 1974

PLANNING AREA 3

NORRIE & ASHLAND LOCATIONS

LAND USE CATEGORY		residential	mfg light	mfg heavy	trans utilities	trade	services	cultural recreation	resource production	undeveloped
DETERMINANT										
ITEM	DESCRIPTION	1	2	3	4	5	6	7	8	9
NOISE	no inherent noise	0	0	0	0	1	0	0	0	0
TRAFFIC	slight 0-50 cars/hr	0	0	0	0	2	0	0	0	0
DENSITY	0- $\frac{1}{2}$ acre/bldg	0	2	2	2	0	0	0	2	0
SCHOOLS & CHURCHES	1 mile	1	0	0	0	1	1	1	1	0
SHOPPING & SERVICES	$\frac{1}{2}$ mile	0	0	0	0	0	0	0	0	0
ASHLAND	0-2 %	0	0	0	0	0	0	0	0	0
SLOPE NORRIE	5%	1	2	2	2	1	1	2	0	0
CAVING	none	0	0	0	0	0	0	0	0	0
SEWERS	moderate	1	1	1	1	1	1	1	0	0
WATER SUPPLY	500 gpm	0	1	1	1	0	0	0	0	0
STREETS	local	0	1	2	2	2	2	1	0	0
OTHER TRANSPORTATION	truck	0	0	0	0	0	0	0	0	0
ASHLAND	moderate	1	1	1	1	1	1	1	0	0
DRAINAGE NORRIE	excellent	0	0	0	0	0	0	0	0	0
COMPATIBILITY	residential class d	0	4	4	4	2	2	2	4	4
	Total	5	12	13	13	11	8	8	7	4
TOTAL SEVERES		0	3	4	4	2	1	1	2	1

LAND USE ANALYSIS

PLANNING AREA 4

RENO

LAND USE CATEGORY		residential	mfg light	mfg heavy	trans	utilities	trade	services	cultural	recreation	resource	production	undeveloped
DETERMINANT													
ITEM	DESCRIPTION	1	2	3	4	5	6	7	8	9			
NOISE	highway 80-95 db	2	1	0	0	2	2	2	0	0			
TRAFFIC	US 2 500	1	0	0	0	1	1	0	0	0			
DENSITY	0-1/2 acre/blcg	0	2	2	2	0	0	0	2	0			
SCHOOLS & CHURCHES	1 mile	1	0	0	0	2	2	2	0	0			
SHOPPING & SERVICES	2 miles	1	0	0	0	2	2	2	0	0			
SLOPE	0-2%	0	0	0	0	0	0	0	0	0			
CAVING	none	0	0	0	0	0	0	0	0	0			
DRAINAGE	good	0	0	0	0	0	0	0	0	0			
SEWERS	moderate	1	1	1	1	1	1	1	0	0			
WATER SUPPLY	1000 gpm-	0	0	0	0	0	0	0	0	0			
STREETS	collector	0	0	0	0	0	0	0	0	0			
OTHER TRANSPORTATION		0	0	0	0	0	0	0	0	0			
COMPATIBILITY	residential class c	0	4	4	4	2	2	2	4	4			
	Total	6	8	7	7	9	9	8	7	4			
TOTAL SEVERE		1	2	2	2	2	2	2	2	1			

LAND USE ANALYSIS

Oct 197

PLANNING AREA 4A

NEWPORT LOCATION

LAND USE CATEGORY		residential	mfg light	mfg heavy	trans utilities	trace	services	cultural recreation	resource production	undeveloped
DETERMINANT										
ITEM	DESCRIPTION	1	2	3	4	5	6	7	8	9
NOISE	no inherent noise	0	0	0	0	1	0	0	0	0
TRAFFIC	slight local only	0	0	0	0	2	0	0	0	0
DENSITY	0-½ acre/bldg	0	2	2	2	0	0	0	2	-
SCHOOLS & CHURCHES	1-2 miles	1	0	0	0	1	1	1	1	0
SHOPPING & SERVICES	1-2 miles	1	0	0	0	1	1	1	0	0
SLOPE	2-5%	1	1	2	1	1	1	1	0	0
CAVING	yes	1	1	1	2	1	1	0	0	0
DRAINAGE	good	0	0	0	0	0	0	0	0	0
SEWERS	none	2	2	2	2	2	2	2	0	0
WATER SUPPLY	100 gpm	0	1	2	1	1	1	1	0	0
STREETS	local	0	1	2	2	2	2	1	0	0
OTHER TRANSPORTATION	none	0	0	0	0	0	0	0	0	0
COMPATIBILITY	old class d residential	2	2	2	0	4	4	4	0	0
	Total	8	10	13	10	16	13	11	3	0
TOTAL SEVEREC		1	2	4	4	4	3	2	1	0

LAND USE ANALYSIS

PLANNING AREA 6A

FLATS AREA BETWEEN DOWNTOWN AND THE
MONTREAL RIVER

LAND USE ANALYSIS		residential	mfg light	mfg heavy	utilities	trade	services	cultural	recreation	resource	production	undeveloped
DETERMINANT												
ITEM	DESCRIPTION	1	2	3	4	5	6	7	8	9		
NOISE	traffic & rail noise 95db	2	1	0	0	1	0	0	0	0		
TRAFFIC	heavy 1000 cars/hr	1	0	0	0	1	1	0	0	0		
DENSITY	0-½ acre/bldg	0	2	2	2	0	0	0	2	-		
SCHOOLS & CHURCHES	½ mile	0	0	1	1	1	1	1	2	0		
SHOPPING & SERVICES	½ mile	0	0	0	0	0	0	0	0	0		
SLOPE	2-5%	1	1	2	1	1	1	1	0	0		
CAVING	none	0	0	0	0	0	0	0	0	0		
DRAINAGE	flood plain generally good	2	2	2	2	2	2	2	0	0		
SEWERS	excellent 1000 gpm	0	0	0	0	0	0	0	0	0		
WATER SUPPLY		0	0	0	0	0	0	0	0	0		
OTHER TRANSPORTATION	rail available	1	0	0	0	0	0	2	0	0		
COMPATIBILITY	old class d residential & commercial	2	0	2	0	0	0	2	4	4		
	Total	10	6	9	6	7	6	8	8	4		
TOTAL SEVERES		2	2	3	2	1	1	1	3	1		

LAND USE ANALYSIS

Oct 1974

PLANNING AREA 6B

DOWNTOWN AREA

LAND USE CATEGORY		residential	mfg light	mfg heavy	trans	utilities	trade	services	cultural	recreation	resource	production	undeveloped
DETERMINANT													
ITEM	DESCRIPTION	1	2	3	4	5	6	7	8	9			
NOISE	traffic 95db	2	1	0	0	1	0	0	0	0			
TRAFFIC	heavy	1	0	0	0	1	0	0	0	0			
DENSITY	dense	2	2	2	2	0	0	0	2	0			
SCHOOLS & CHURCHES	nearby	0	0	1	1	1	1	1	2	0			
SHOPPING & SERVICES	nearby	0	0	0	0	0	0	0	0	0			
SLOPE	2-5%	1	1	2	1	1	1	1	0	0			
CAVING	none	0	0	0	0	0	0	0	0	0			
DRAINAGE	good	0	0	0	0	0	0	0	0	0			
SEWERS	good	0	0	0	0	0	0	0	0	0			
WATER SUPPLY	1000 gpm	0	0	0	0	0	0	0	0	0			
STREETS	collector	0	0	0	0	0	0	0	0	0			
OTHER TRANSPORTATION	rail, truck	0	0	0	0	0	0	0	0	0			
COMPATIBILITY	commercial & apartment	2	4	4	2	0	0	0	4	4			
	Total	8	8	9	6	4	2	2	8	4			
TOTAL SEVERES		2	2	2	1	0	0	0	3	1			

LAND USE ANALYSIS

PLANNING AREA 6C

HIGH SCHOOL AREA

LAND USE CATEGORY		residential	mfg light	mfg heavy	trans utilities	trade	services	cultural recreation	undeveloped	
DETERMINANT										
ITEM	DESCRIPTION	1	2	3	4	5	6	7	8	9
NOISE	TRAFFIC noise 80db	0	0	0	0	1	0	0	0	0
TRAFFIC	500+	1	0	0	0	0	0	0	0	0
DENSITY	0-½ acre/bldg	0	2	2	2	0	0	0	2	0
SCHOOLS & CHURCHES	nearby	0	0	1	1	1	1	1	2	0
SHOPPING & SERVICES	½ mile	0	0	0	0	0	0	0	0	0
SLOPE	0-2%	0	0	0	0	0	0	0	0	0
CAVING	none	0	0	0	0	0	0	0	0	0
DRAINAGE	good	0	0	0	0	0	0	0	0	0
SEWERS	good	0	0	0	0	0	0	0	0	0
WATER SUPPLY	1000 gpm	0	0	0	0	0	0	0	0	0
STREETS	collector	0	0	0	0	0	0	0	0	0
OTHER TRANSPORTATION	trucks	0	0	0	0	0	0	0	0	0
COMPATIBILITY	residential	0	2	4	4	0	0	0	2	0
	Total	1	4	7	7	2	1	1	4	0
TOTAL SEVERES		0	1	2	2	0	0	0	1	0

LAND USE ANALYSIS

PLANNING AREA 7

NORTHEAST-NORTH PARK-GREENFIELD HEIGHTS

LAND USE CATEGORY		residential	mfg light	mfg heavy	trans utilities	trade	services	cultural	recreation	resource production	undeveloped
DETERMINANT											
ITEM	DESCRIPTION	1	2	3	4	5	6	7	8	9	
NOISE	highway noise 80-95 db	2	1	0	0	2	2	2	0	0	
TRAFFIC	500	1	0	0	0	1	1	0	0	0	
DENSITY	1/2-2 acre/bldg	0	1	2	2	1	1	1	2	-	
SCHOOLS & CHURCHES	1 mile	1	0	0	0	1	1	1	1	0	
SHOPPING & SERVICES	1 mile	1	0	0	0	1	1	1	0	0	
SLOPE	0-2%	0	0	0	0	0	0	0	0	0	
CAVING	none	0	0	0	0	0	0	0	0	0	
DRAINAGE	moderate	1	1	1	1	1	1	1	0	0	
SEWERS	moderate	1	1	1	1	1	1	1	0	0	
WATER SUPPLY	500 gpm	0	1	1	1	0	0	0	0	0	
STREETS	collector	0	0	0	0	0	0	0	0	0	
OTHER TRANSPORTATION	-	0	0	0	0	0	0	0	0	0	
COMPATIBILITY	residential class c	0	4	4	4	2	2	2	4	4	
	Total	7	10	9	9	10	10	9	7	4	
TOTAL SEVERES		1	1	2	2	1	1	1	2	1	

LAND USE ANALYSIS

PLANNING AREA 8

NORTH SILE

LAND USE CATEGORY		residential	mfg light	mfg heavy	trans utilities	trade	services	cultural recreation	resource production	undeveloped
DETERMINANT										
ITEM	DESCRIPTION	1	2	3	4	5	6	7	8	9
NOISE	slight some traffic	0	0	0	0	1	0	0	0	0
TRAFFIC	100-500cars/hr	0	0	0	0	0	0	0	0	0
DENSITY	0-1/2 acre/bldg	0	2	2	2	0	0	0	2	-
SCHOOLS & CHURCHES	1/2-1 mile	0	0	1	1	1	1	1	2	0
SHOPPING & SERVICES	1/2 mile	0	0	0	0	0	0	0	0	0
SLOPE	0-2%	0	0	0	0	0	0	0	0	0
CAVING	none	0	0	0	0	0	0	0	0	0
DRAINAGE	good	0	0	0	0	0	0	0	0	0
SEWER	moderate	1	1	1	1	1	1	1	0	0
WATER SUPPLY	500 gpm	0	1	1	1	0	0	0	0	0
STREETS	collector	0	0	0	0	0	0	0	0	0
OTHER TRANSPORTATION		0	0	0	0	0	0	0	0	0
COMPATIBILITY	residential	0	4	4	4	2	2	2	4	4
	Total	1	8	9	9	5	4	4	8	4
TOTAL SEVERES		0	2	2	2	0	0	0	3	1

LAND USE ANALYSIS

PLANNING AREA 9

SOUTH PART OF CITY

LAND USE CATEGORY		DETERMINANT								
		residential	mfg light	mfg heavy	trans	utilities	trade	services	cultural	recreation
ITEM	DESCRIPTION	1	2	3	4	5	6	7	8	9
NOISE										
TRAFFIC										
DENSITY										
SCHOOLS & CHURCHES										
SHOPPING & SERVICES										
SLOPE										
CAVING										
DRAINAGE										
SEWERS										
WATER SUPPLY										
STREETS										
OTHER TRANSPORTATION										
COMPATIBILITY										
	Total									
TOTAL SEVERES										

LAND USE ANALYSIS

PLANNING AREA 10

PARTS OF SECTIONS 14,15,16
IN IRONWOOD TOWNSHIP

LAND USE CATEGORY		<div> <div>residential</div> <div>mfg light</div> <div>mfg heavy</div> <div>trans</div> <div>utilities</div> <div>trade</div> <div>services</div> <div>cultural</div> <div>recreation</div> <div>resource</div> <div>production</div> <div>undeveloped</div> </div>								
DETERMINANT										
ITEM	DESCRIPTION	1	2	3	4	5	6	7	8	9
NOISE										
TRAFFIC										
DENSITY										
SCHOOLS & CHURCHES										
SHOPPING & SERVICES										
SLOPE										
CAVING										
DRAINAGE										
SEWERS										
WATER SUPPLY										
STREETS										
OTHER TRANSPORTATION										
COMPATIBILITY										
	Total									
TOTAL SEVERES										