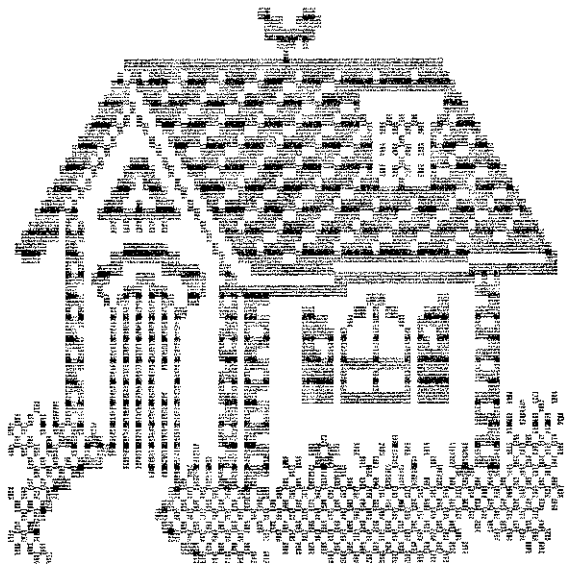
COMPREHENSIVE LAND USE POLICY PLAN



CASS COUNTY NORTH DAKOTA

BOARD OF CASS COUNTY COMMISSIONERS

Don Eckert, Chair
Ayr

Jeannette Stanton
Fargo

Ray Larson
Fargo

Oscar Sondrall
Fargo

Alon Wieland
West Fargo

CASS COUNTY PLANNING COMMISSION

Donald Hanson, Chair
Fargo

L. E. Berger
West Fargo

Jeff Frankhauser
Fargo

Carl Elofson
Fargo

Mort Mazaheri
Fargo

Duane Boehning
Fargo

Jeannette Stanton
Fargo

Fred Selberg
Harwood

Don Eckert
Ayr

Tom Garske
Advisory Member

LAND USE TASK FORCE

Judy Lee
West Fargo

Harvey Pyle
Casselton Twp.

Dave Johnson
F-M Home Builders

John Eliason
Savings/Loan

Wayne Freedland
Harwood Twp.

Mort Mazaheri
Fargo

Fred Selberg
Reed Twp.

Victor Ertman
Cass Rural Water

Jerry Richman
Tower Twp.

John Kunert
Barnes Twp.

Dick Brumfield
Environ. Health

Warren Solberg
Stanley Twp.

PLANNING STAFF

Earl Haugen
Current Planner

Gerald McCullough
Past Planner

Becky Balk
Past Planner

In the Spring of 1986, the Cass County Planning Commission began discussing the need of updating the County's Comprehensive Land Use Plan adopted in 1979. Although that Plan provided a detailed report of background information, the goals, objectives and policies allowed a great deal of discretion for interpretation. Because of this deficiency in the 1979 Plan, The Planning Commission initiated a planning process to update that Plan.

In April 1986, the Planning Commission established a Land Use Task Force who, along with the County Planner, helped in the development of the updated plan. Task Force members represented Fargo, West Fargo, F-M Home Builders, Cass Rural Water Users, Savings & Loan Association, Environmental Health, and six (6) townships. During the two year period, numerous meetings were held by the Task Force to prepare a draft to be forwarded to the Planning Commission. The Task Force held three public meeting to gather additional input from the general public. The meetings were held in:

1. Casselton on December 15th, 1987;
2. Horace on December 16th, 1987;
3. Harwood on December 17th, 1987;

The Task Force presented to the Planning Commission a completed draft of the Plan on February 4, 1988. The Commission reviewed the Plan and held a public hearing on April 7, 1988, in Fargo. After this hearing, the Commission approved the draft and forwarded it to the County Board of Commissioners with the recommendation that it be adopted.

After reviewing the Comprehensive Plan, the Board adopted Resolution #1988-11 on May 10, 1988. The Resolution called for the adoption of the Plan. After Publishing a notice for two weeks stating the nature, purpose, and scope of the Plan, the Plan became effective.

R E S O L U T I O N

WHEREAS, The Cass County Planning Commission in conjunction with the township boards of the affected areas have investigated and determined the necessity of establishing a Comprehensive Land Use Policy Plan, as herein provided in NDCC 11-33-06; and for that purpose, shall consult with residents of affected areas, and with federal, state, and other agencies concerned; and

WHEREAS, after investigation, as herein provided in NDCC 11-33-07, the Cass County Planning Commission has prepared a Comprehensive Land Use Policy Plan to be submitted herewith to the Board of Cass County Commissioners and filed in the office of the Cass County Auditor; and

WHEREAS, after the filing of the proposed Comprehensive Land Use Policy Plan, the Cass County Planning Commission held a public hearing thereon as provided in NDCC 11-33-08, at which the proposed Comprehensive Land Use Policy Plan was submitted for discussion, and parties in interest and citizens had an opportunity to be heard. Notice of the time, place, and purpose of the hearing was published once each week for two consecutive weeks in the official newspaper of the County. Said notice described the nature, scope, and purpose of the proposed Comprehensive Land Use Policy Plan, and stated the times at which it would available to the public for inspection and copying at the office of the Cass County Auditor; and

WHEREAS, the Cass County Planning Commission has approved this draft of the Comprehensive Land Use Policy Plan and recommends it be adopted by the Board of Cass County Commissioners.

NOW, THEREFORE, BE IT RESOLVED that the Board of Cass County Commissioners hereby adopts the Comprehensive Land Use Policy Plan as herein provided in NDCC 11-33-09, and that the County Auditor shall file a certified copy thereof with the Register of Deeds, and the County Auditor shall cause notice of the same to be published for two successive weeks in the official newspaper of Cass County.

Approved and adopted this 10th day of May, 1988.

Don Eckert

Don Eckert, Chairman
Cass County Board of Commissioners

ATTEST:

Ordelle Brua

Ordelle Brua
Cass County Auditor

The information presented in this Plan was complete and accurate as best as could be determined during the development of the Plan. Any question, corrections, etc., should be directed to:

Cass County Planning Department
P.O. Box 2806
Fargo, ND 58108
ph: 701/241-5727

Table of Contents

Page

I. Introduction....1

II. Setting....2

III. Natural Resources....5
- A. Climate....5
- B. Geology....6
- C. Soils....8
  - 1. Soil Association Category....8
- D. Minerals....11
- E. Groundwater....11
  - 1. Type I Aquifers....11
  - 2. Type II Aquifers....12
  - 3. Type III Aquifers....12
  - 4. Dakota Aquifers....12
- F. Surface Waters....15
  - 1. Rivers....15
  - 2. Lakes, Reservoirs, and Wetlands....17
- G. Appendix A....18

IV. Citizen Characteristics....23
- A. Population....23
- B. Urban/Rural Population....24
- C. Township Population....27
- D. Incorporated Area Population....30
- E. Vital Statistics....33
- F. Population by Gender and Age Group....33
- G. School Enrollment....37
- H. Ethnicity....37

V. Housing....39
- A. Number of Housing Units....39
- B. Year Structure Built....40
- C. Units per Structure....40
- D. Rooms per Unit....41
- E. Water and Waste Systems....42
- F. Utilization of the County Housing Supply....43
- G. Mobility....45
- H. Owner/Renter Occupied Housing....46
  - 1. Number of Owner/Renter Housing Units....46
  - 2. Year Structure Built....46
  - 3. Units per Structure....47
  - 4. Utilization of Owner/Renter Housing....48
- I. Urban/Rural Housing....51
  - 1. Number of Urban/Rural Housing Units....51
  - 2. Year Structure Built....52
  - 3. Units per Structure....52
  - 4. Sewage Disposal....53
  - 5. Rural Housing Utilization....54
    - a. Rural Farm Housing Utilization....55
    - b. Rural Nonfarm Housing Utilization...56

Table of Contents, Continued

Page

VI. Economy....58
- A. Labor Force....58
- B. Labor Force Composition....59
- C. Employment Composition....60
- D. Occupation....61
- E. Industry of Employed Persons....62
- F. Manufacturing....64
- G. Retail Trade....65
- H. Service Industries....66
- I. Wholesale Trade....67
- J. Business Establishments....68
- K. Household Income....68
- L. Family Incomes....70
- M. Per Capita Income....72
- N. Farms....73
  - 1. Value per Acre....74
  - 2. Crop Production....75
  - 3. Livestock Production....76
  - 4. Agriculture Sales....76

VII. Public Facilities....77
- A. Water....77
- B. Water Resource Management....78
- C. Education....80
  - 1. Total Enrollments....82
  - 2. Total Education Expenditures....83
- D. Libraries....84
- E. Parks/Recreation Facilities....85
- F. Health Facilities....87
- G. Police Protection....89
- H. Fire Protection....90
- I. Flood Protection....91
- J. Sewage Disposal....93
- K. Solid Waste Disposal....93

VIII. Transportation....95
- A. Highway System....95
- B. Registered Vehicles....97
- C. Air Transportation....97
- D. Rail Transportation....99
- E. Bus Transportation....101
- F. Specialized Transportation....101

IX. Land Use....102
- A. Inventory....102
- B. Subdivisions....105
- C. Township Land Use Map....116

X. Summary....143

XI. Issues Raised....150

XII. Goals, Objectives and Policies....154

List of Illustrations

List of Tables

		Page
Table 1	Average Monthly Temperatures	5
Table 2	Ground Water Aquifers	12
Table 3	River Characteristics	16
Table 4	Population of Cass County	23
Table 5	Population Change of Selected Cities	25
Table 6	Urban/Rural Population	26
Table 7	Township Population	28
Table 8	Population by Incorporated Communities	31
Table 9	Vital Statistics	33
Table 10	Population by Gender and Age Groups	35
Table 11	School Enrollment	38
Table 12	Ethnicity	37
Table 13	Number of Housing Units	39
Table 14	Year Structure Built	40
Table 15	Units per Structure	41
Table 16	Rooms per Unit	42
Table 17	Water and Waste Systems	43
Table 18	Utilization of Housing - Step 1	44
Table 19	Utilization of Housing - Step 2	44
Table 20	Utilization of Housing - Step 3	44
Table 21	Utilization of Housing - Step 4	45
Table 22	Mobility	45
Table 23	Number of Units-Owner/Renter Occupied Housing	46
Table 24	Year Structure Built-Owner/Renter Housing	47
Table 25	Units per Structure-Owner/Renter Housing	47
Table 26	Utilization of Owner Occupied Housing - Step 1	48
Table 27	Utilization of Owner Occupied Housing - Step 2	49
Table 28	Utilization of Owner Occupied Housing - Step 3	49
Table 29	Utilization of Renter Occupied Housing - Step 1	50
Table 30	Utilization of Renter Occupied Housing - Step 2	50
Table 31	Utilization of Renter Occupied Housing - Step 3	50
Table 32	Number of Urban/Rural Housing	51
Table 33	Year Structure Built-Urban/Rural Housing	52
Table 34	Units per Structure-Urban/Rural Housing	53
Table 35	Sewage Disposal-Urban/Rural Housing	53
Table 35	Sewage Disposal-Urban/Rural Housing, continued	54
Table 36	Utilization of Rural Housing - Step 1	54
Table 37	Utilization of Rural Housing - Step 2	55
Table 38	Utilization of Rural Housing - Step 3	55
Table 39	Utilization of Rural Farm Housing - Step 1	55
Table 40	Utilization of Rural Farm Housing - Step 2	56
Table 41	Utilization of Rural Farm Housing - Step 3	56
Table 42	Utilization of Rural Non Farm Housing - Step 1	56
Table 43	Utilization of Rural Non Farm Housing - Step 2	57
Table 44	Utilization of Rural Non Farm Housing - Step 3	57
Table 45	Labor Force	58
Table 46	Employment Composition	60
Table 47	Occupation of Employed Persons	61
Table 48	Industry of Employed Persons	63

List of Tables, Continued

Page

Table 49 Manufacturers....64
Table 50 Retail Trade....66
Table 51 Service Industries....66
Table 52 Wholesale Trade....67
Table 53 Business Establishments....68
Table 54 Household Income 1979....69
Table 55 Family Income 1979....71
Table 56 Per Capita Income 1979 & 1984....73
Table 57 Number of Farms....73
Table 58 Farmland Value per Acre....74
Table 59 Crop Production....75
Table 60 Live Stock Production....76
Table 61 Agricultural Sales....76
Table 62 School District Enrollments....81
Table 63 School Enrollment-Elementary & Secondary....82
Table 64 Education Expenditures....84
Table 65 Health Care Facilities....87
Table 66 Health Practitioners....88
Table 67 Elderly Health Care Facilities....89
Table 68 Road Mileage....95
Table 69 Registered Motor Vehicles....97
Table 70 Air Shipments....98
Table 71 Railroad Mileage....100
Table 72 Land Use....102
Table 73 Subdivisions....105
Table 73 Subdivisions, Continued....106
Table 74 Subdivisions - Stanley Township - Selected....108
Table 75 Subdivisions - Reed Township - Selected....108
Table 76 Subdivisions - Barnes Township - Selected....109
Table 77 Subdivisions - Commercial....109
Table 78 Subdivisions - Industrial....110
Table 79 Subdivisions - Extraterritorial Jurisdictions....110
Table 80 Subdivisions - Vacancy Rates by Township....111
Table 81 Subdivisions - Vacancy Rates by Type....112
Table 82 Subdivisions - Reed Township - All....113
Table 83 Subdivisions - Fargo & Barnes Township - All....114
Table 84 Subdivisions - Stanley Township - All....115

List of Illustrations, Continued

List of Maps

Page

Map 1 Location of Cass County....2
Map 2 Geology....7
Map 3 Soil Associations....10
Map 4 Ground Water Aquifers....14
Map 5 Rivers....15
Map 6 Townships with Population Growth....29
Map 7 Incorporated Communities with Population Growth....32
Map 8 Cass Rural Water System....78
Map 9 Water Resource Management Districts....79
Map 10 School Districts....80
Map 11 Parks/Recreational Facilities....85
Map 12 Fire Districts....91
Map 13 Flood Management Districts....92
Map 14 Road Functional Classification....96
Map 15 Air Transportation Facilities....98
Map 16 Rail Road Tracks....100
Map 17 Addison Township Land Use....118
Map 18 Amenia Township Land Use....118
Map 19 Arthur Township Land Use....119
Map 20 Ayr Township Land Use....119
Map 21 Barnes Township Land Use....120
Map 22 Bell Township Land Use....120
Map 23 Berlin Township Land Use....121
Map 24 Buffalo Township Land Use....121
Map 25 Casselton Township Land Use....122
Map 26 Clifton Township Land Use....122
Map 27 Cornell Township Land Use....123
Map 28 Davenport Township Land Use....123
Map 29 Dows Township Land Use....124
Map 30 Durbin Township Land Use....124
Map 31 Eldred Township Land Use....125
Map 32 Empire Township Land Use....125
Map 33 Erie Township Land Use....126
Map 34 Everest Township Land Use....126
Map 35 Fargo Township Land Use....127
Map 36 Gardner Township Land Use....127
Map 37 Gill Township Land Use....128
Map 38 Gunkle Township Land Use....128
Map 39 Harmony Township Land Use....129
Map 40 Harwood Township Land Use....129
Map 41 Highland Township Land Use....130
Map 42 Hill Township Land Use....130
Map 43 Howes Township Land Use....131
Map 44 Hunter Township Land Use....131
Map 45 Kinyon Township Land Use....132
Map 46 Lake Township Land Use....132
Map 47 Leonard Township Land Use....133
Map 48 Maple River Township Land Use....133

List of Maps, Continued

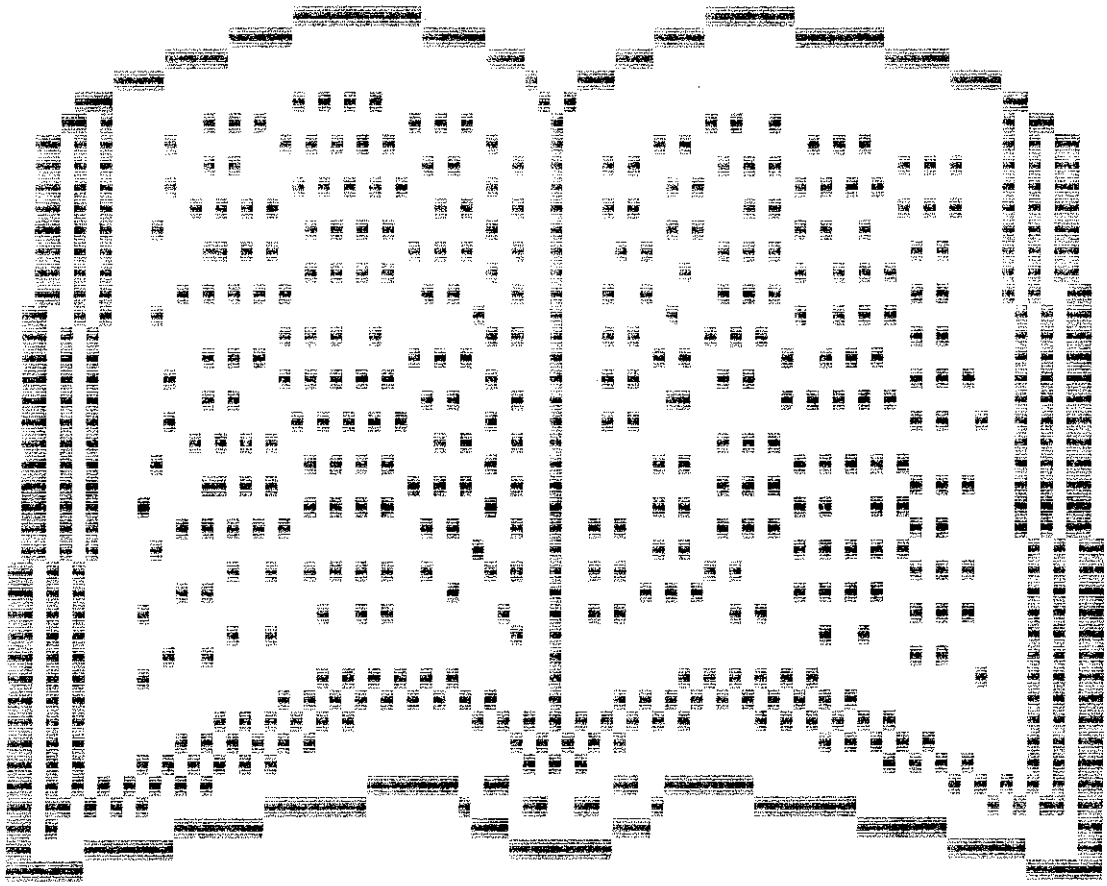
		Page
Map 49	Mapleton Township Land Use	134
Map 50	Noble Township Land Use	134
Map 51	Normana Township Land Use	135
Map 52	Page Township Land Use	135
Map 53	Pleasant Township Land Use	136
Map 54	Pontiac Township Land Use	136
Map 55	Raymond Township Land Use	137
Map 56	Reed Township Land Use	137
Map 57	Rich Township Land Use	138
Map 58	Rochester Township Land Use	138
Map 59	Rush River Township Land Use	139
Map 60	Stanley Township Land Use	139
Map 61	Tower Township Land Use	140
Map 62	Walburg Township Land Use	140
Map 63	Warren Township Land Use	141
Map 64	Watson Township Land Use	141
Map 65	Wheatland Township Land Use	142
Map 66	Wiser Township Land Use	142
Map 67	Rural to Urban Transition Area's	155

List of Illustrations, Continued

List of Figures

Figure 1 Climate Characteristics.....6
Figure 2 Population Growth Graph.....24
Figure 3 Population Pyramids.....36
Figure 4 Unemployment Rates Bar Graph.....59
Figure 5 Labor Composition Bar Graph.....60
Figure 6 Change of Occupations Pie Charts.....62
Figure 7 Production Workers Bar Graph.....65
Figure 8 Household Incomes Bar Graph.....69
Figure 9 Household Incomes Pie Chart.....70
Figure 10 Family Incomes Bar Chart.....71
Figure 11 Family Incomes Pie Chart.....72
Figure 12 Farmland Value per Acre.....74
Figure 13 Elementary & Secondary Enrollments Bar Graph..82
Figure 14 Total School Enrollment Bar Graph.....83
Figure 15 Passenger Shipments Bar Graph.....99
Figure 16 Land Use Pie Chart.....103

INTRODUCTION



INTRODUCTION

Land use changes over time. Some changes occur because of "Mother Nature"; other changes happen because man has altered the land. Although changes in land use made by nature are not controllable, man made land use changes can be influenced to ensure the changes are warranted and desired. This ***Comprehensive Land Use Policy Plan*** was developed to provide guidelines for Cass County to use when making land use decisions.

The Cass County Planning Commission, through its planning staff, has prepared the following comprehensive plan. The plan itself is composed of two parts. The first is an analysis of existing conditions and trends that are occurring in the county. This analysis has provided insight into the future of Cass County. The ***Comprehensive Land Use Policy Plan*** contains the analysis of the county's: natural resources; population; housing; economy; public facilities; transportation; and existing land use. From this analysis, goals, objectives, and policies were established to guide officials in land use decisions. Six goals are identified. Each goal has several objectives and numerous policies listed to help ensure that the goal is reached. The six goals, and their objectives and policies, will be used when land use decisions are to be made.

Just as land use changes over time, the conditions and trends used in the analysis change. Because of this, the plan is intended to be flexible and dynamic. That is it should be reviewed and updated when new information becomes available. By having a current document, the plan will be able to better serve officials when making land use decisions.

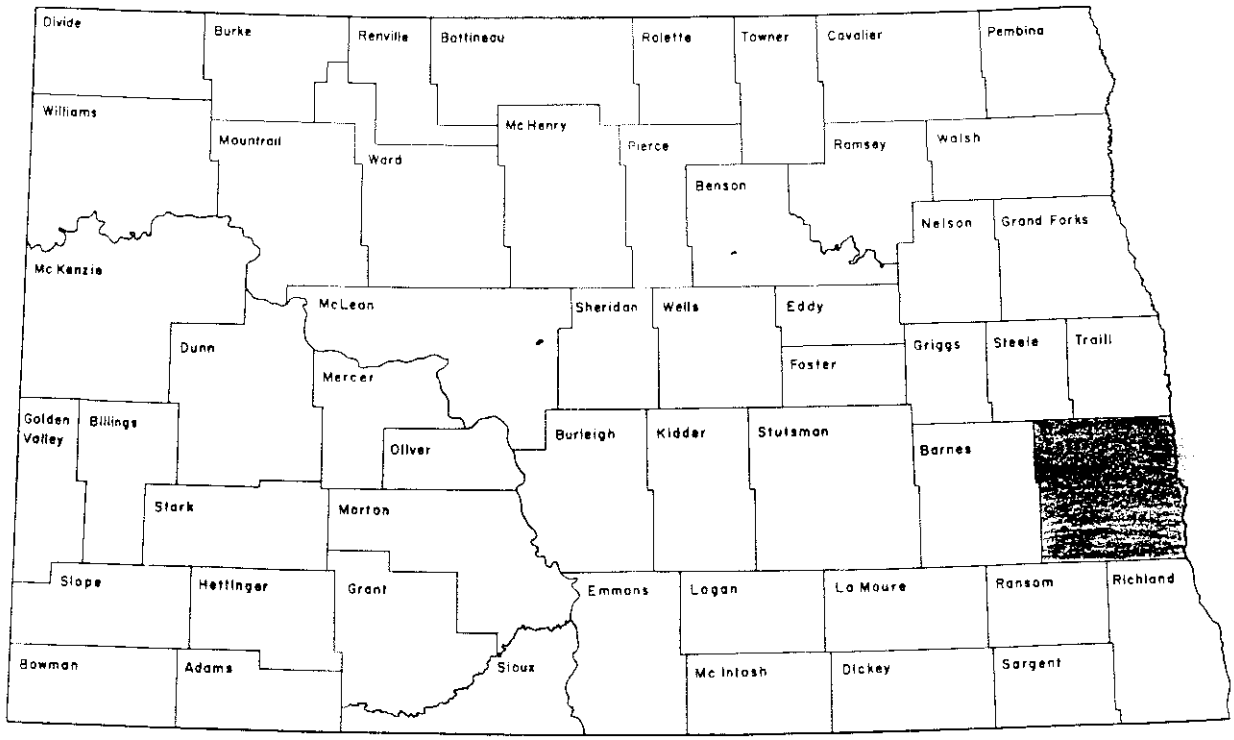
No plan will succeed without public participation. Along with a Land Use Task Force composed of a variety of citizens, public hearings were used in developing this plan. Also, public participation is encouraged by this plan to help determine updates and changes to the plan. Without public participation, this plan cannot reflect accurately the desires of the citizens of Cass County.

Effective implementation of this plan requires the active cooperation of and coordination between officials at all levels. Firm public support is also required. This plan has set objectives and policies to be used to ensure that these become realities. Therefore, implementation of this ***Comprehensive Land Use Policy Plan*** will ensure that future land use decisions will reflect the goals of the citizens of Cass County.

SETTING

Cass County is located in extreme eastern North Dakota. The county is situated approximately 140 miles south of the Canadian border and 225 miles northwest of Minneapolis-St. Paul, Minnesota. The county's borders stretch 42 miles east-west and 44 miles north-south. This encompasses 1,848 square miles. See **Map 1.**

MAP 1
LOCATION OF
CASS COUNTY, ND



The county was originally part of Pembina County which had included all of northern Dakota Territory east of the Missouri River. As settlement developed across the territory, Pembina County was carved into several smaller counties. In 1873, what is known as Cass County was officially created. The namesake of the county was Mr. George W. Cass, President of the Northern Pacific Railway. The County Commission held its initial meeting on October 27, 1873.

Land use in Cass County has changed significantly over the years. A very long time ago, the land supported dinosaurs and tropical vegetation. Perhaps one of the most important land use changes caused by nature occurred during

the Ice Age. These ice sheets carved out the land into its current condition. The western section of the county was left as a rolling upland which acts as a transition from the Red River Valley to the rangelands of Western North Dakota.

The eastern part of the county was shaped as a result of a great glacial lake, Lake Agassiz, formed from the ice melt. What was the lake bed, which was flat and had soil composed of lake sediments, is now the land. The north flowing Red River also resulted.

In addition to changing the land mass, the glaciers also caused the vegetation to change. It developed the short grass vegetation that flourishes today. These short grass provided ideal living environments for the buffalo. Native Americans would cross Cass County on their way to hunt these great animals.

As white settlers migrated west across North America, the first were fur bearers. As such the first settler in Cass County was an employee of the Hudson Bay Company, Peter Goodman, who moved across the Red River from Georgetown, Minnesota, in 1866 or 1867. Other pioneers in Cass County relied heavily of the Red River for transportation of goods, people and services. The steamboat activity on the river provided them with a basis for staying in the area.

Perhaps the most important man made change in land use resulted when the railroad crossed the Red River in 1871. The Northern Pacific Railway crossed at what is now Fargo and signaled the beginning of Western development. Because the lake bed was very fertile, large Bonanza farms developed. These farms "turned over" the native vegetation to grow wheat and other small grains. Because the railroad provided larger markets, these farms cultivated large amounts of land to produce great quantities.

This bonanza farming contributed to the second most important recent land use change caused by nature: the "Dust Bowl" conditions that occurred during the 1930s. Farming practices that were too intensive had left the soil exposed to the elements. Soil erosion removed a significant amount of the county's fertile topsoil. As a result, more soil conservation practices were implemented to prevent this from happening again.

The increased reliance on the motor vehicle caused the second significant man made change in the county's land use. The vehicle really liberated county residents from the "rural-way-of-life". People did not have to rely on the local merchant for goods and services. The automobile allowed them to go to the big city where goods and services were more plentiful and varied. Regional trade centers grew to provide what consumers demanded. Small towns began to dwindle; some cities, primarily Fargo, began to experience growth.

In addition, a road network was built to provide accomondation to the increasing traffic. The township,

county, state and federal road systems were built, converting large amounts of land to transportation uses.

One current result of the increased mobility of the county's residents has been the development of rural housing. Some people desire to reside in a rural setting, although still relying on a large community to provide them with the services. Because the transportation system ensures easy access and short driving times, people can now live miles away from the work place.

While these rural homes provide attractive surroundings for those who live in them, they do create problems. One problem is providing services to them. Road maintenance and snow removal become economically straining on the government body that provides these services to these areas, chiefly the townships. Everyone wants their road maintained first.

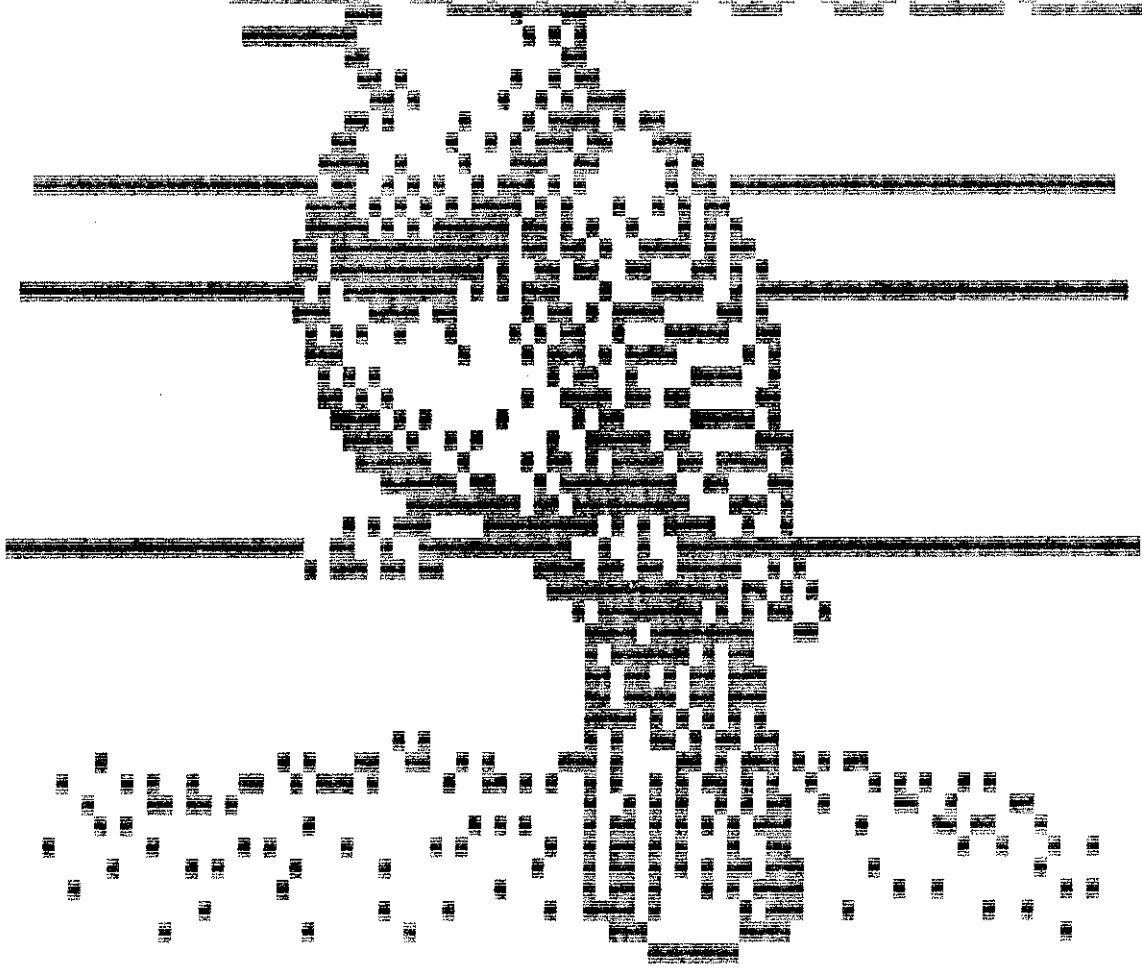
Another problem is that these rural developments rely on individual septic tanks for sewage treatment. Some individual systems are able to operate without problems; on the whole, the reliance on this type of sewage treatment provides great potential health risks. The soil is generally not permeable to provide desired percolation. High water tables also contributes to this problem.

As more and more rural developments occur, the greater the risk of pollution. Once land has been polluted and changed, it is very difficult, if at all possible, to restore it to its original condition.

The increased mobility of county residents has placed a high demand on providing a more peaceful, rural surrounding to live in. This current setting of pressure for rural development caused the Cass County Planning Commission to develop a comprehensive plan to provide citizens who wish to move to rural developments with housing that is in the best interest of all.

BASEBALL

RESOLUTIONS



NATURAL RESOURCES

CLIMATE

Cass County is blessed with mild summers. Generally, nights are cool. Hot, humid days are few. The average daily temperature in the county during summer is 68 degrees Fahrenheit. The average daily maximum temperature during the summer is 82 degrees. There is an annual average of 15 days where the temperature is greater than 90 degrees. Approximately 80 percent of the county's 20 inches of annual rainfall occurs between April and September.

Cass County has long, cold winters. Temperatures are usually below freezing, with an average of only six days per month having above freezing temperatures during the winter. Due to frequent blasts of cold arctic air, about half of the winter days have temperatures that are below zero.

Snowfall in Cass County averages 35 inches annually. However, strong winds frequently cause blizzard conditions even with light snowfalls -- especially in open areas. Snow blowing and drifting is common. In an average year, there are 55 days where there is at least one inch of snow on the ground.

The frost free growing season in Cass County generally lasts between 117 and 147 days. The last freeze in the spring usually occurs around the third week of May and the first freeze in the fall usually occurs around the third week of September.

Average monthly temperatures vary from 5.9 degrees in January to 70.7 degrees in July. Recorded temperatures in the county have been as high as 107 degrees and as low as -36 degrees. Monthly temperature data is presented in Table 1.

Table 1
Average Monthly Temperatures
Cass County, ND

	daily high	daily low	monthly mean
January	15.4	-3.6	5.9
February	20.6	0.8	10.7
March	33.5	14.9	24.2
April	52.6	31.9	42.3
May	66.8	42.3	54.6
June	75.9	53.4	64.7
July	82.8	58.6	70.7
August	81.6	56.8	69.2
September	69.6	46.2	57.9
October	58.4	35.5	47.0
November	37.2	20.0	28.6
December	21.9	4.1	13.0

A summary of the county's climate characteristics is presented in **Figure 1**. It can be seen in **Figure 1** that Cass County has a relatively dry, windy climate with widely varying temperatures.

Figure 1
Climate Characteristics
Cass County, ND

YEARLY AVERAGES	
Rainfall	20 inches
Snowfall	35 inches
Wind speed	12.7 mph
Relative Humidity	71%
Clear Days	87
Partly Sunny Days	112
Cloudy Days	166
Precipitation Days	102
Storm Days	33
Sub-zero Temperature Days	54
Sub-freezing Temperature Days	181
Above 90 degrees Temperature Days	15
Prevailing Winds	
January - May	northerly
June - December	southerly

GEOLOGY

Cass County is part of the Western Lake Section of the Central Lowland Province. During the Pleistocene Epoch, ice sheets advanced over the area. The regional slope in eastern North Dakota is to the northeast and as the ice retreated during the last ice age, it blocked eastern North Dakota. Glacial Lake Agassiz was formed as the ice melted behind the retreating glacier. Lake Agassiz later drained into the Hudson Bay, which is still the outlet for the waters from the area.

The eastern two-thirds of the county is a flat plain that formed from sedimentation of Lake Agassiz. Beach ridges and deltas are the principal relief features of the area that was once the glacial lake bed. This area contains some of the most fertile agricultural soils in the nation.

The Sheyenne Delta, part of which is in the southern part of the county, covers 800 square miles and is one of the largest deltas to have formed in Lake Agassiz. Its surface is an almost featureless plain sloping gently eastward. The northern and eastern edges of the Sheyenne Delta are marked by a steep slope or escarpment which rises as much as 75 feet above the lowest part of the Red River Valley plain.

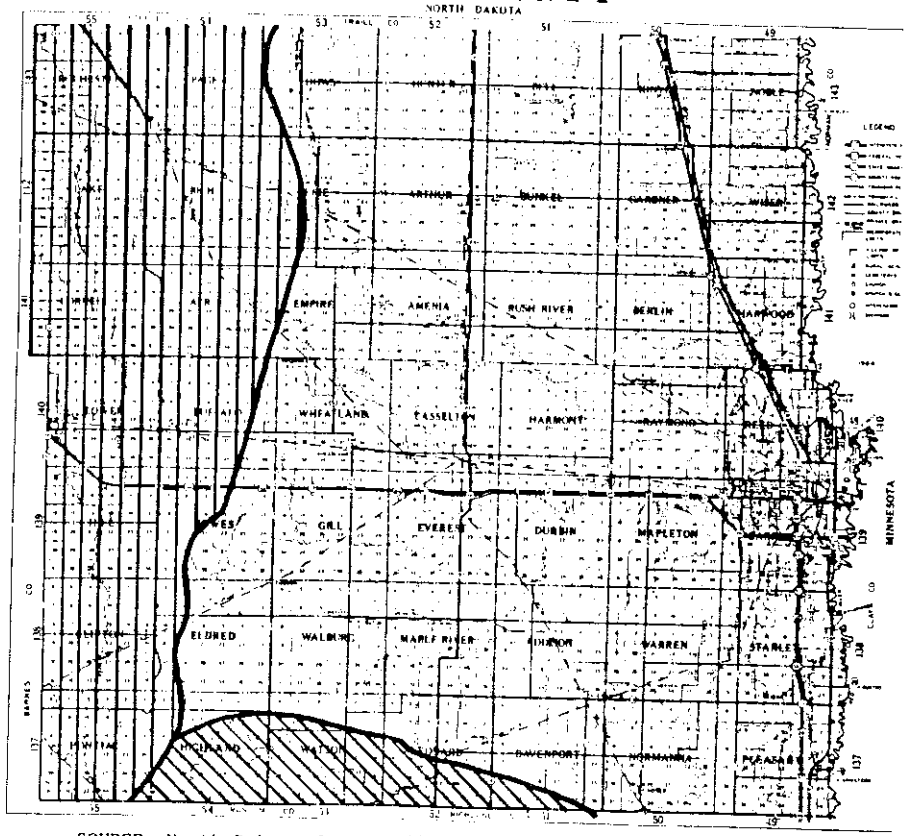
Sediments of Glacial Lake Agassiz have been divided into two units: silt and clay. These overlie the till and associated glacial and stream deposits. The silt unit of the deposits is generally the surface rock throughout the lake area and rests unconformably upon the clay unit. It is composed primarily of buff to yellow to gray silt but locally contains sand and clay.

The clay unit of the deposits is predominately a dark gray to blue gray clay of lacustrine origin. It lies beneath the silt unit and rests unconformably upon till and associated glacial and stream deposits.

The glacial lake plain has been only slightly modified by subsequent erosion. There is no integrated drainage across the broad divides between the meandering channels of the streams.

MAP 2
GEOLOGY
CASS COUNTY ND

CASS COUNTY



SOURCE: North Dakota State Soil Conservation Service; Generalized Glacial Geology Map, August, 1973.

LEGEND

- GROUND MORAINE
- SHEYENNE DELTA
- GLACIAL LAKE AGASSIZ

West of the lake plain is an area descriptively referred to as the "Drift Prairie". It is a plains area modified by slightly eroded glacial drift which forms low, relatively rough hills along the lines of the end moraines and a gently rolling topography elsewhere. The superficial features are attributed to the retreat of the last ice sheet in Lake Wisconsinian time. The major portion of the county's wetlands are in this area.

The general geology of Cass County is shown on **Map 2.** A majority of the county is in the bed of Lake Agassiz. A portion of the Sheyenne Delta lies in the southern part of the county. Ground moraine (earth and stones deposited by glaciers) makes up the western third of the county's geology.

SOILS

It is important to know the characteristics of soils and how they affect land use before development/use of the land area begins. A general soil map of an area shows the type of soils in the area, the soil characteristics, and the location of soils that are suitable for an intended use.

The Soil Conservation Service completed its survey of Cass County soils in 1983. The Soil Survey of Cass County, North Dakota, and the Soil Survey of Tri-county Area, North Dakota describe the types and locations of the soils in Cass County. The soil surveys group the county's soils into broad categories called associations.

There are nineteen soil associations in Cass County. A soil association is a distinctive pattern of soils, relief, and drainage. Each soil association is a unique natural landscape. Typically, a soil association consists of one or more predominant soils and some less frequently occurring soils. The soil associations found in Cass County are described in Appendix A.

The soil associations in Cass County are shown on **Map 3.** The soil associations are grouped into six categories based on similarities of the associations. The six categories are as follows:

ASSOCIATIONS	CATEGORY
1-4	Level to moderately steep, well drained, medium textured soils.
5-6	Level and nearly level, fine textured soils that formed in glacial lacustrine sediment (deposits left from former glacial lakes); on glacial lake plains.
7-10	Level to gently sloping, moderately fine textured and medium textured soils that formed in glacial lacustrine sediment and in medium textured material over that sediment; on glacial lake plains.

11-12 Level to gently sloping, medium textured soil that formed in glacial lacustrine sediment; on glacial lake plains.

13-17 Level to strongly sloping, medium textured moderately coarse textured, and coarse textured soils that formed in glacial lacustrine sediment, glacial outwash sediment (material deposited from melting glaciers), and alluvium (material deposited on land by streams);on glacial lake plains and glacial outwash plains.

18-19 Level to steep, medium textured and moderately fine textured soils that formed in alluvium and in glacial till (material deposited by moving glaciers); on flood plains and glacial till plains.

Soil associations are broken down into series and map units. For land use planning purposes map units are analyzed. A map unit represents an area dominated by one major kind of soil or an area dominated by several kinds of very similar soils. The soil survey gives a general description of each map unit along with the principal soil hazards and limitations to consider when land use planning . The map units in the soil survey, along with the soil survey maps can be used to determine the suitability and potential of a location for specific land uses.

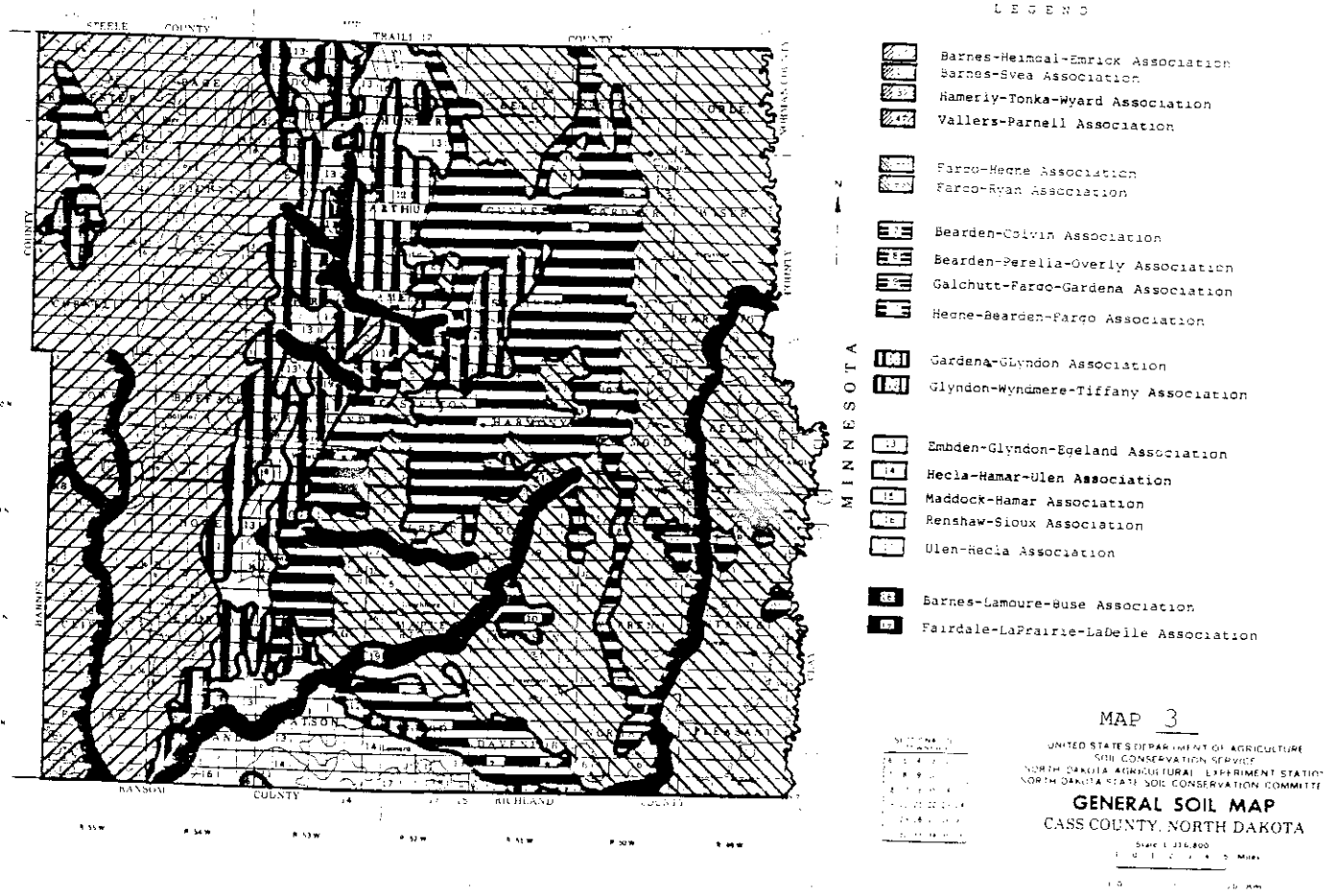
An analysis of the soil characteristics of a proposed development site will help eliminate future problems with that development. Failure to perform an analysis of the soils in the area can lead to future problems that can be very costly or even render the development useless. The characteristics of the soil associations in Cass County present several issues that should be analyzed when reviewing proposals for development.

The soil survey provides information that can be used to aid planning and management of soils for crops and pasture, building sites, sanitary facilities, parks and recreation facilities, and for wildlife habitat. The soil survey identifies potential problems for each soil type as related to a specific land use. The use of the soil survey can help prevent land use problems due to soil properties.

Indiscriminate development in the county without first consulting the soil survey can lead to long range problems. Wetness, shrink-swell, high seasonal water tables, high or low permeability, frost action, and low soil strength are characteristics of many of the soils in the county. In addition, many parts of the county are subject to erosion, flooding, poor drainage, or are considered prime farmland.

The soil survey can aid in proper site selection and help point out soil characteristics that need to be addressed if development is to be allowed on a particular site.

The high productivity of the soils in Cass County have made farming the primary land use activity in the county.



The soils in the county are suited to most of the crops that are grown in the area, and to some crops that are not currently grown in the area: melons, cabbages, sweet corn, and squash. The potential for increased food production from the area soils is good. Production has steadily increased as new technologies have been applied.

However, proper soil management techniques need to be practiced to ensure that the county's soils maintain their high productive capacity. Soil blowing, water erosion, excess or too little water, and maintaining fertility and tilth are principal soil management concerns for farming in Cass County. Many of the soil problems can be dealt with by utilizing modern farming practices such as conservation tillage, stripcropping, cover crops, buffer strips, field windbreaks and diversions, grassed waterways, and grasses and legumes in crop rotations.

MINERALS

The major minerals found in Cass County are sand and gravel. Small deposits of glacial boulders and brick clay also exist. The deposits of sand and gravel and the glacial boulders are located along the beach ridges in the west-central part of the county. The brick clay deposits are in eastern Cass County.

The sand and gravel are used mainly for highway and road construction, railroad ballast, paving, sidewalks and buildings. Glacial boulders have been used in the construction of foundations and, in a few instances, for complete buildings. The boulders, when crushed, can also be used for concrete aggregate.

The potential use for subsurface geological formations is limited. Although a few test wells have been drilled, there are no known commercial quantities of gas or oil in the county. In addition, no other known mineable deposits of minerals exist in the county.

The dollar value of mineral production in Cass County is a fairly small part of the county's economy.

GROUNDWATER

Cass County has excellent potential for development of its ground water resources. The county's major aquifers are generally good quality and are capable of sustained pumping. At present, the county's aquifers are used primarily for individual wells. There are three types of aquifers in the county.

TYPE I AQUIFERS

Type I aquifers are capable of producing large quantities of water and have a high probability of continuing to produce water for a long period of time regardless of climatic conditions. These aquifers possess a high degree of continuity, and wells drilled in them should produce water. The Type I aquifers in Cass County are the Page Aquifer, the

Hillsboro Aquifer, the Sheyenne Delta Aquifer, the West Fargo Aquifer, and the Fargo Aquifer. (See **Map 4**)

TYPE II AQUIFERS

Type II aquifers, which are capable of producing moderate amounts of water, unfortunately , are sensitive to short-term climatically related fluctuations in water levels. They may also have uncertain water supplies due to internal variations. Type II aquifers are a less stable variety than Type I aquifers. In Cass County, the Ridges Aquifer and the Bantel Aquifer are Type II aquifers. (See **Map 4**)

TYPE III AQUIFERS

Type III aquifers, the most unreliable of the three types, are capable of producing large amounts of water for only short periods of time. Type III aquifers are very sensitive to short-term climatic fluctuations of water levels. The Tower City Aquifer and undifferentiated surface sand and gravel aquifers found in west central Cass County are the only Type III aquifers in the county. (See **Map 4**)

THE DAKOTA AQUIFER

The huge Dakota Aquifer underlies most of Cass County. This aquifer, which has low quality water, is generally suitable only for watering stock. The Dakota Aquifer is 300 feet below the surface in the eastern part of the county and approximately 700 feet below the surface in the western part of the county.

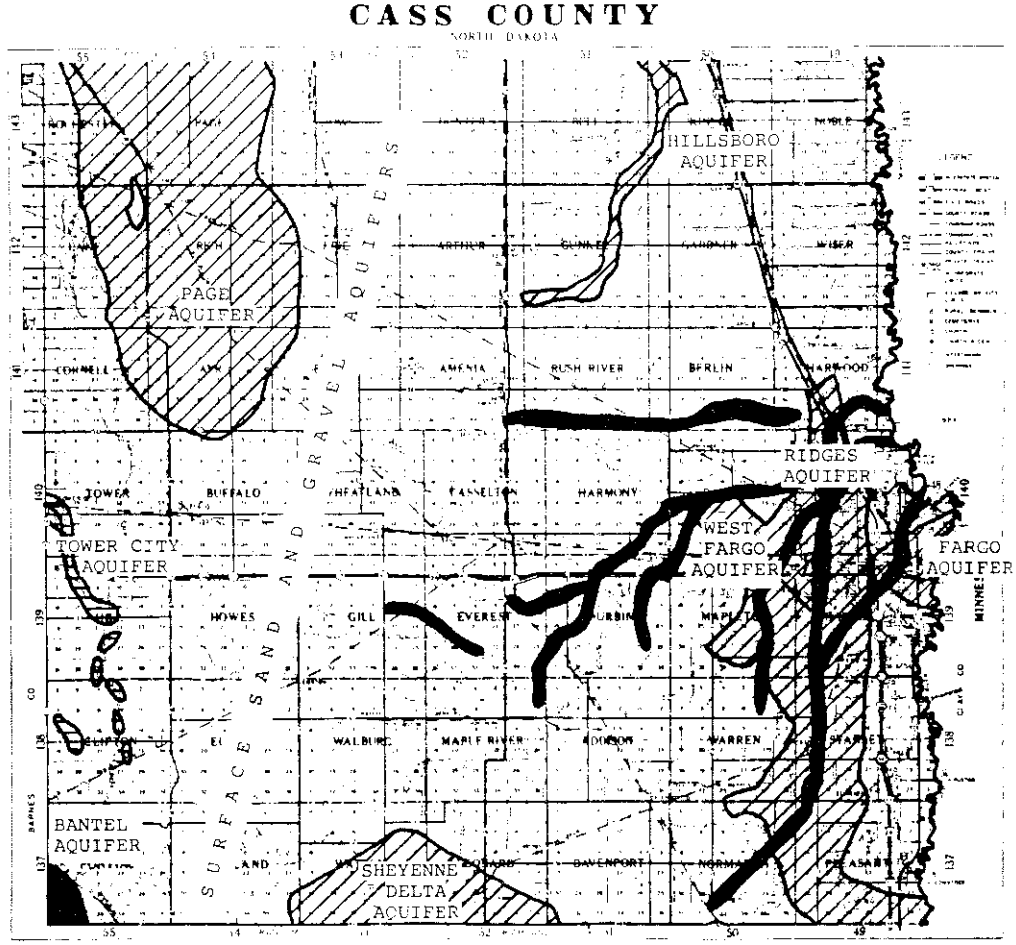
A summary of the aquifers in Cass County by type, usage, and potential for development is presented in **Table 2**. The locations of the major aquifers in the county are shown on **Map 4**.

TABLE 2
AQUIFERS
CASS COUNTY, ND
1974

TYPE I AQUIFERS	DEPTH FROM SURFACE	WATER QUALITY	DISSOLVED SOLIDS (PARTS/MILLION)	USES	STORAGE (ACRE FEET)	WITHDRAWAL CAPABILITY (GALLONS/MINUTE)
[illegible]	10-80 ft.	very hard	370-850	municipal water supply for Page	900,000 AF	200
HILLSBORO	50-100 ft.	very hard high iron content	100-3120	domestic and stock wells		500
CHEYENNE DELTA	surface aquifer	very hard high iron content	500 and up	domestic and stock wells; high future potential	409,000 AF	250-400
WEST FARGO	60-260 ft.	hard to very hard	377-1562	municipal and industrial needs near SW Fargo	972,000 AF	
FARGO	130 ft.	hard	750-1129	used by Cass Clay Creamery; high future potential for industrial use	86,000 AF	1000
TYPE II AQUIFERS						
RIDGES	0-20 ft.	Unknown	Unknown	domestic and stock wells	undetermined	70
BANTEL	5-40 ft.	very hard	1350	domestic and stock wells	Undetermined	Undetermined
TYPE III AQUIFERS						
TOWER CITY	surface aquifer	hard	500	municipal water supply for Tower City	closely related to precipitation	Undetermined
UNDIFFERENTIATED SURFACE, SAND, AND GRAVEL AQUIFERS	surface aquifers	hard	varies	domestic and stock wells	highly dependent on precipitation	1-40
THE DAKOTA AQUIFER	300-700 ft.	very hard	2650-4060	domestic and stock wells	undetermined	100

SOURCE: Physical data for Land-Use Planning, Cass County, North Dakota and Clay County, Minnesota, by Michael Arndt and Stephen R. Moran, North Dakota Geological Survey Report of Investigation No. 54, 1974.

MAP 4
AQUIFERS
CASS COUNTY, ND



SURFACE WATERS

Rivers

The five rivers that comprise the major components of Cass County's surface drainage system are shown in **Map 5**. These rivers are the Red River of the North, the Sheyenne River, the Maple River, the Rush River, and the Wild Rice River. The county's rivers also play an important role in irrigation, recreation, and municipal water supplies. Summary characteristics of the county's rivers are presented in **Table 3**.

MAP 5
RIVERS
CASS COUNTY, ND

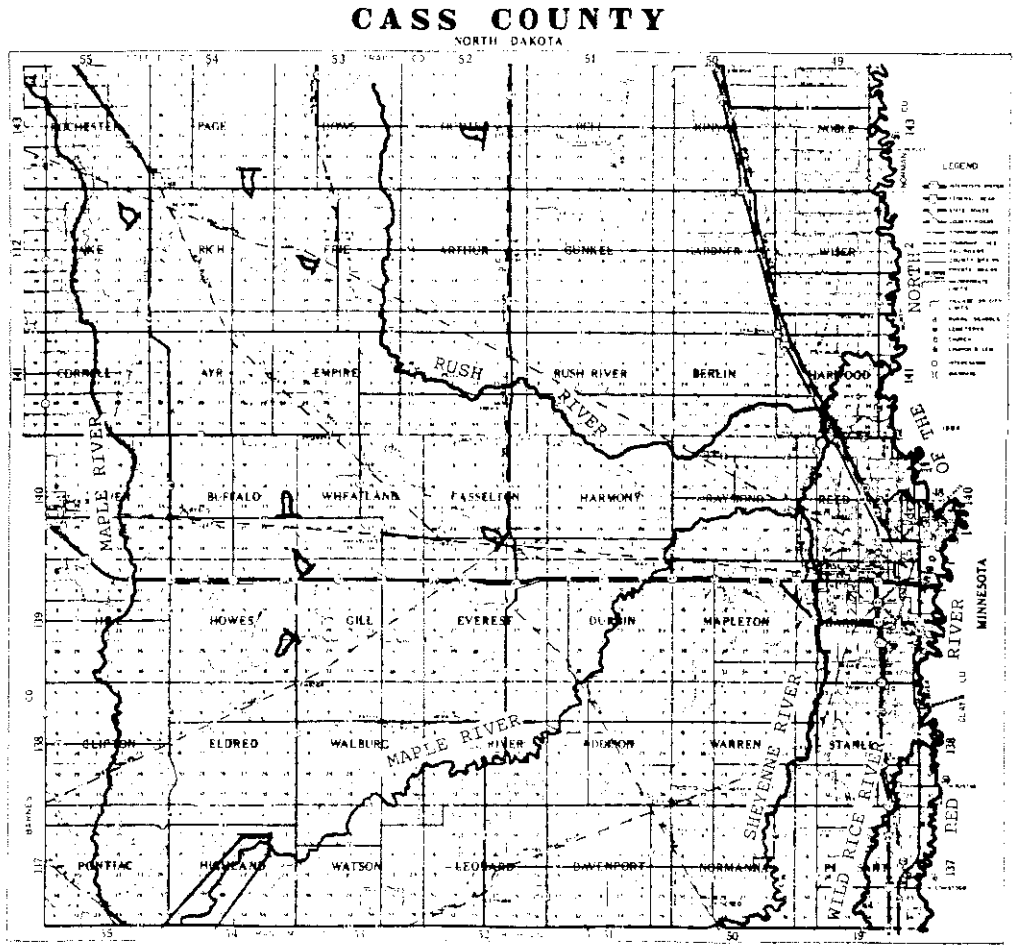


Table 3
Rivers
Cass County, ND

River	Flow (cubic ft./sec) Max	Avg	Area of Drainage Basin (square miles)
Red River	25,300	558	1750
Wild Rice	9,540	75	50
Sheyenne	3,480	173	1295
Maple	11,600	74	900
Rush	965		300

SOURCE: North Dakota State Water Commission, 1983.

Maximum flows of the county's rivers, which vary greatly from their average flows, are indicative of the flooding problems in the county. The flat nature and northerly flow of surface waters in the county make it susceptible to long and extensive flooding during the spring snowmelt and after periods of heavy rain. Therefore, floodplain management is a necessary way of life in a large part of the county. The Red River of the North is a Class I Stream. Class I streams have water quality that permits the propagation of resident fish species. The water in these streams is suitable for boating, swimming, and other water recreation. The water quality of Class I Streams allows it to be used for irrigation, stockwatering, and wildlife without injurious effects.

The Sheyenne River is a Class IA Stream. This class of stream has a water quality that is similar to and suited to the uses of Class I Streams. Water drawn from Class IA Streams for municipal use may require water softening.

The Maple River and the Wild Rice River are Class II Streams. The water quality in these rivers is suited to the uses of Class I Streams. However, additional treatment over that required for Class IA Streams may be necessary to meet the drinking water requirements of the ND State Health Dept.

The Rush River is a Class III Stream. the water quality of Class III Streams is suitable for industrial and agricultural uses. These streams have low average flows and prolonged periods of no flow.

The water quality of the county's rivers is lower than it potentially could be due to several factors. First, the county's rivers have high amounts of sedimentation as a result of soil erosion and unstable stream banks. Second, the water quality is damaged due to pollution from municipal runoff, agricultural chemical runoff, industrial use, inadequate sewage treatment, and inadequate solid waste disposal.

Lakes, Reservoirs, and Wetlands

There are no natural lakes in Cass County. However, eight reservoirs have been created for flood control and recreation purposes. The majority of the county's surface water outside of the rivers is found in the form of wetlands.

Most of the county's existing wetlands are in the western third of the county. A study by the U.S. Soil Conservation Service found that 239,000 acres of wetlands have been drained in Cass County. The study also said that in 1980, only 26,000 acres of soils capable of sustaining wetlands remained in Cass County.

Wetlands play an important role in the county's ecosystem. Some of the values of wetlands to the ecosystem are:

1. Flood Control
2. Groundwater recharge and water supply.
3. Livestock grazing
4. Hunting and trapping
5. Recreation
6. Wildlife habitat
7. Water purification
   - -sediment removal
   - -pollution filter
   - -oxygen production
   - -nutrient recycling
   - -chemical and nutrient absorption

Wetlands are one of the most productive ecosystems on earth. For this reason they are especially attractive areas for agricultural use if drained. The highly fertile soil that remains after draining can produce excellent crop yields.

The value of wetlands to the ecosystem conflicts with the value of wetlands for agricultural production. There has been much debate between environmentalists and farmers as to how wetlands should be used. Meanwhile, the number of wetlands in the county has declined drastically. Decisions on how to use the county's wetland resources must be made quickly because only a fraction of the county's original wetlands remain.

APPENDIX A
Cass County Soil Associations

The soils in Cass County are classified into nineteen soil associations. A soil association is a distinctive pattern of soils, relief, and drainage. Each soil association is a unique natural landscape. Typically, each soil association consists of one or more predominate soils and some lesser ones.

The soil associations for Cass County are:

1. **Barnes-Heimdal-Emrick Association** Deep, nearly level to moderately steep, well drained, medium textured soils. These soils were formed in glacial till (glacial deposits). They are on foot slopes, side slopes, and low knolls of glacial till plains.

The soils in this association are used mainly for cultivated crops. Soil blowing and water erosion are the primary management concerns for this association. Slow permeability limits the use of these soils for septic tank absorption fields. Slope and shrink-swell potential limit the use of these soils for building site development.

2. **Barnes-Svea Association** Deep, level to moderately steep, well drained to moderately well drained, medium textured soils. These soils were formed in glacial till. They are on side slopes, low knolls, foot slopes, and in swales of glacial till plains. Water on these soils commonly flows to small depressions.

The soils in this association are used mainly for cultivated crops. Soil blowing, water erosion, and wetness are the primary management concerns for this association. Moderately slow permeability limits the use of these soils for septic tank absorption fields. Slope and shrink-swell potential limit the use of these soils for building site development.

3. **Hamerly-Tonka-Wyard Association** Deep, level to gently sloping, somewhat poorly drained and poorly drained, medium textured soils. These soils were formed in glacial till and local alluvium (material deposited on land by streams). They are on toe slopes, foot slopes, and in depressions of glacial till plains.

The soils in this association are used mainly for cultivated crops. Soil blowing, wetness, and maintenance of drainage systems are the primary management concerns for this association. Wetness, slow permeability, ponding, and shrink-swell potential limit the use of these soils for septic tank absorption fields and building site development.

4. **Vallers-Parnell Association** Deep, level, poorly drained and very poorly drained, medium textured and moderately fine textured soils. These soils were formed in glacial till and local alluvium. They are on broad flats and in depressions of glacial till plains.

The soils in this association are suitable for cultivated crops in dry areas and for wildlife habitat in wet areas. Wetness, salinity, and soil blowing are the primary management concerns for this association. Ponding, wetness, slow permeability, and shrink-swell potential limit the use of this association for septic tank absorption fields and building site development.

5. **Fargo-Hegne Association** Deep, nearly level, poorly drained, fine textured soils. These soils were formed in glacial lacustrine sediment (deposits left from former glacial lakes). They are found in swales and on low swells of glacial lake plains.

The soils in this association are used mainly for cultivated crops. Wetness, soil blowing, and maintenance of the drainage system are the primary management concerns for this association. High clay content, slow permeability, wetness, and shrink-swell potential limit the use of these soils for septic tank absorption fields and building site development.

6. **Fargo-Ryan Association** Deep, poorly drained, fine textured soils. These soils were formed in glacial lacustrine sediment. They are found on flats and swales and slight depressions of glacial lake plains.

The soils in this association are used mainly for cultivated crops. Wetness, soil blowing, maintenance of drainage systems, and reduced yields due to alkalinity are the primary management concerns of this association. High clay content, wetness, slow permeability, and shrink-swell potential limit the use of these soils for septic tank absorption fields and building site development.

7. **Bearden-Colvin Association** Deep, level, somewhat poorly drained and poorly drained, moderately fine textured soils that have a silt loam or silty clay loam substratum (the material from which upper levels of soil are formed). These soils were formed in glacial lacustrine sediment. They are found on swells and in swales of glacial lake plains.

The soils in this association, are used mainly for cultivated crops. Wetness, salinity, soil blowing and maintenance of drainage systems are the primary management concerns for this association. Wetness, slow permeability, and shrink-swell potential restrict the use of the major soils in this association for septic tank absorption fields and building site development.

8. **Bearden-Perella-Overly Association** Deep, level to gently sloping, somewhat poorly drained, poorly drained, and moderately well drained, moderately fine textured soils. These soils were formed in glacial lacustrine sediment. They are on low ridges and swells and in swales of glacial lake plains.

The soils in this association are used mainly for cultivated crops. Wetness and soil blowing are primary management concerns for this association. Wetness, slow permeability, ponding, and shrink-swell potential limit the use of these soils for septic tank absorption fields and building site development.

9. **Galchutt-Fargo-Gardena Association** Deep, level and nearly level, moderately well drained, somewhat poorly drained, and poorly drained, moderately fine textured and medium textured soils. These soils were formed in glacial lacustrine sediment. They are found on low ridges and swells and in swales of glacial lake plains.

The soils in this association are used mainly for cultivated crops. Soil blowing and drainage system management are the primary management concerns for this association. Wetness, slow permeability, and shrink-swell potential limit the use of these soils for septic tank absorption fields and building site development.

10. **Hegne-Bearden-Fargo Association** Deep, level, somewhat poorly drained and poorly drained, moderately fine textured soils that have a silt loam, silty clay loam, or silty clay substratum. These soils were formed in glacial lacustrine sediment. They are on flats and swells and in swales of glacial lake plains.

The soils in this association are used mainly for cultivated crops. Wetness, soil blowing, and maintenance of drainage systems are the primary management concerns for this association. Wetness, slow permeability, and the shrink-swell potential limit the use of these soils for septic tank absorption fields and building site development.

11. **Gardena-Glyndon Association** Deep, level and nearly level, somewhat poorly drained and moderately well drained, medium textured soils. These soils were formed in glacial lacustrine sediment. They are on flats, swells, and low ridges of glacial lake plains.

The soils in this association are used mainly for cultivated crops. Soil blowing is the primary management concern for this association. Wetness restricts the use of the these soils for septic tank absorption fields and building site development.

12. **Glyndon-Wyndmere-Tiffany Association** Deep, level to gently sloping, somewhat poorly drained and poorly drained,

medium textured soils. These soils were formed in glacial lacustrine sediment. They are on swells and in swales and depressions on glacial lake plains.

The soils in this association are used mainly for cultivated crops. Wetness, soil blowing, and maintenance of drainage systems are the primary management concerns for this association. Wetness and ponding restrict the use of the these soils for septic tank absorption fields and building site development.

13. **Embden-Glyndon-Egeland Association** Deep, level to gently sloping, well drained, moderately well drained, and somewhat poorly drained, moderately coarse textured and medium textured soils. These soils were formed in glacial lacustrine and outwash sediment. They are on flats, swells, and side slopes and in swales on lake plains and outwash plains.

The soils in this association are used mainly for cultivated crops. Fertility, soil blowing, and maintenance of drainage systems are the primary management concerns of this association. Wetness restricts the use of these soil for septic tank absorption fields and building site development.

14. **Hecla-Hamar-Ulen Association** Deep, level to gently sloping, moderately well drained, somewhat poorly drained, and poorly drained, moderately coarse textured and coarse textured soils. These soils were formed in glacial lake sediment. They are in depressions and swales and on swells, side slopes, and flats of glacial lake plains.

The soils in this association are used mainly for cultivated crops, although some soils are in native grasses and are used as pasture. Fertility, soil blowing, maintaining drainage systems, and maintaining the vigor of pasture plants are the primary soil management concerns of this association. Wetness and rapid permeability , which can cause contamination of groundwater, restrict the use of these soils for septic absorption fields and building site development.

15. **Maddock-Hamar Association** Deep, level to strongly sloping, well drained, somewhat poorly drained, and poorly drained, coarse textured soils. These soils were formed in glacial lacustrine sediment. They are on side slopes and knobs and in swales and depressions of glacial lake plains.

The soils in this association are used mainly as pasture, but some are used for cultivated crops. Controlling soil blowing and maintaining the vigor of pasture plants are the primary management concerns of this association. Wetness and rapid permeability restrict the use of these soil for septic tank absorption fields and building site development.

16. **Renshaw-Sioux Association** Deep, nearly level to strongly sloping, somewhat excessively drained and excessively drained, medium textured soils. These soils were formed in alluvium and glacial outwash. They are in swales and on swells, side slopes, and low ridges on terraces of glacial outwash plains.

The soils in this association are used mainly for cultivated crops. Soil blowing, droughtiness, water erosion, and maintaining the vigor of pasture and hay plants are the primary management concerns of this association. Rapid permeability limits the use of these soils for septic tank absorption fields.

17. **Ulen-Hecla Association** Deep, level and nearly level, somewhat poorly drained and moderately well drained, coarse textured and moderately coarse textured soils. These soils were formed in lacustrine sediment (material deposited in lake water and exposed when the water is removed). They are on swells and flats and in swales on the glacial lake plain.

The soils in this association are used mainly for cultivated crops. Soil blowing and maintenance of drainage systems are the primary management concerns for this association. Wetness and rapid permeability restrict the use of these soil for septic tank absorption fields and building site development.

18. **Barnes-Lamoure-Buse Association** Deep, level to steep, well drained and poorly drained, medium textured and moderately fine textured soils. These soils were formed in glacial till and in alluvium. They are on valley sides, flood plains, and in glacial outwash channels.

The soils in this association are used mainly as pasture, but in some places they are used for cultivated crops. Wetness, flooding, water erosion, and maintaining the vigor of pasture plants are the primary management concerns of this association. Wetness, flooding, and slope limit the use of these soils for septic tank absorption fields and building site development.

19. **Fairdale-LaPrairie-LaDelle Association** Deep, level and nearly level, moderately well drained, medium textured and moderately fine textured soils. These soils were formed in alluvium. They are located on flood plains that have been dissected into small, irregularly shaped areas by meandering channels that are bordered by woodlands.

The soils in this association are used mainly for cultivated crops; however,a large part of the native woodland in the county is on these soils. Flooding, deposition or scouring during flooding,and erosion are the primary management concerns of this association. Flooding restricts the use of these soils for septic tank absorption fields and building site development.

CITIZEN CHARACTERISTICS

POPULATION

In 1980, Cass County's population was 88,247 persons. The county's population grew by almost twenty-percent during the 1970s. Historically, Cass County's population has experienced healthy growth. Cass County's population trends are shown in **Table 4**. Over the last fifty years the slowest population growth during a decade was 8.4 percent (and that was during The Great Depression, 1930 to 1940).

Cass County is expected to continue to grow at a healthy rate throughout this century. In 1985, the North Dakota Census Data Center projected Cass County's population to grow to over 107,000 persons by 1990, and to over 121,000 persons by the year 2000. These projections represent growth rates of 22.1 percent and 12.9 percent for the 1980s and 1990s respectively. These figures are also presented in **Table 4**.

Table 4
Population
Cass County, ND
1930 a 2000

	1930	1940	1950	1960	1970	1980	1990*	2000*
population	48,735	52,849	58,887	66,947	73,653	88,247	107,747	121,623
% increase over last decade	--	8.4%	11.4%	13.7%	10.0%	19.8%	22.1%	12.9%

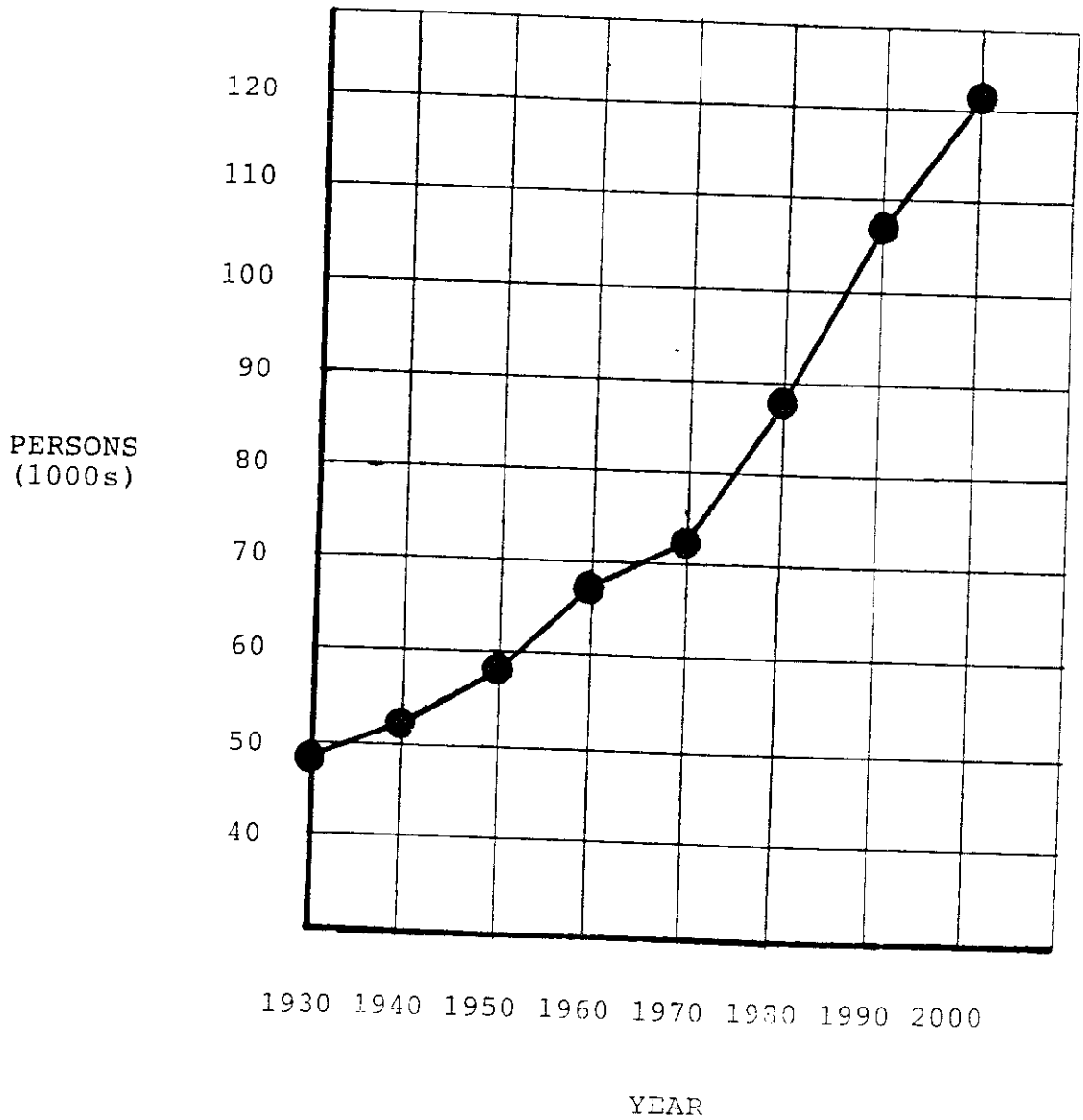
* projected

SOURCE: U.S. Dept. of Commerce, 1980 Census of Population; North Dakota Census Data Center, "*Revised Population Projections by Age and Gender, 1985-2000, For North Dakota*, June, 1985.

Figure 2 is a graph of Cass County's population trends since 1930. The graph shows that overall, the county's population has been increasing at an accelerating rate over time. Strong population growth is expected to continue at least to the year 2000 under current conditions. However, population projections are sensitive to changing conditions and should viewed under that assumption.

The growth that the county has experienced in the early 1980s is slightly behind the population projection for 1990. In 1984, the U.S. Dept. of Commerce estimated Cass County's population to be 94,639 persons. At this rate of growth Cass County could be expected to grow by 18.1 percent during the 1980s.

Figure 2
Population Trends
Cass County,ND
1930-2000



URBAN/RURAL POPULATION

The City of Fargo had a population of 61,383 persons in 1980 according to the 1980 Census of Population. In October, 1984, the City of Fargo took a census of its population. In less than four years the City's population had grown by 4659

persons to a population of 66,042 persons. At this rate, the City could expect to grow by 19 percent during the 1980s. Further growth is evidenced by housing unit construction in Fargo during 1985 and 1986. Almost 1500 new housing units were built in Fargo in the two years following the 1984 Special Census. Since approximately 70 percent of the county's residents live in Fargo, Fargo's population trends greatly influence the county's overall population trend.

Population growth is occurring throughout the Fargo metropolitan area. In 1985, the City of West Fargo conducted a special census. The City found that its population had grown from 10,099 persons in 1980 to 11,044 persons in 1985. At this rate of growth West Fargo could expect to grow by 18.4 percent during the 1980s.

The results of the City of Harwood's official census were presented at the City's December, 1986, council meeting. The census showed Harwood had grown from 326 persons in 1980 to 559 persons in 1986. If Harwood were to continue to grow at that rate for the rest of the decade, the City would have a growth rate of 119.2 percent for the 1980s.

Many of the incorporated cities around Fargo are also experiencing growth, although maybe not as great as Harwood. A study performed by a graduate student at NDSU for a masters paper in the Community and Regional Planning Dept. showed that the communities in Table 5 have experienced growth since the 1980 census. (While not taken from a formal census, these population figures are representative of the growth occurring in these cities.)

TABLE 5
Population Changes of
Selected Cities
Cass County, ND
1980a1986

	1980	1986	percent change 1980a1986
Briarwood	47	65	38.3
Frontier	160	220	37.5
North River	65	67	3.1
Reile's Acres	191	201	5.2

SOURCE: "***Recently Incorporated Subdivisions Near Fargo, North Dakota***", Kim Lee, May, 1986.

When taking into consideration the communities in Table 5 along with the other growing communities in the Fargo area, it is apparent that a majority of the growth in the Fargo area (outside of Fargo) is to the south and west of Fargo.

A very large proportion of Cass County's population lives in the county's Urban Area. The U.S Dept. of Commerce

defines Cass County's Urban Area as the incorporated parts of Fargo, West Fargo, and Riverside. **Table 6** shows that over eighty percent of the county's population lived in these three communities, with almost seventy percent of the county's population living in Fargo.

While the county's population is becoming increasingly urban, the percentage of people in the county who live in Fargo declined from 72.5 percent to 69.6 percent between 1970 and 1980. Overall, the county's urban population increased by 13,393 persons (or 23.5 percent) between 1970 and 1980.

The county's rural population increased by 913 persons during the 1970s. All of the county's rural population increase is due to the growth of the rural nonfarm population. The county's rural nonfarm population grew by 3,124 persons during the 1970s (33.9 percent), while the rural farm population declined by 2,211 persons (a36.1 percent).

At 3,922 persons, the rural farm population still made up a majority of the county's rural population in 1980, but the rural nonfarm population is gaining ground. The rural farm population is expected to continue to decline because of a nationwide trend of declining farmland values, increasing average farm size, and the sluggish farm economy.

TABLE 6

URBAN AND RURAL POPULATION
CASS COUNTY, ND

1970 & 1980

	1970		1980		Change 1970 - 1980	
	#	%	#	%	#	%
Rural, Nonfarm	9,220	12.5%	12,344	14.0%	3,124	33.9%
Rural Farm	6,133	8.3%	3,922	4.4%	-2,211	-36.1%
Total Rural	15,353	20.8%	16,266	18.4%	913	6.8%
Urban	58,300	79.2%	71,981	81.6%	13,681	23.5%
TOTAL	73,653	100%	88,247	100%	14,594	19.8%
Largest City (Fargo)	53,365	72.5%	61,383	69.6%	8,018	15.0%

SOURCE: 1970 and 1980 US CENSUS OF POPULATION

TOWNSHIP POPULATION

In Cass County, only six townships grew during the last decade. It can be seen in **Table 7** that only Harwood, Mapleton, Normanna, Pleasant, Raymond, and Stanley townships increased in population during the 1970s. These townships are all in the south and east portions of Cass County.

The location of the townships that experienced population growth during the 1970s is shown in **Map 6**. Four of the townships that grew abut or contain part of the extraterritorial area of the cities comprising Cass County's Urban Area. These townships (Harwood, Mapleton, Raymond, and Stanley), along with Barnes, Reed, and Fargo townships, contain land area that can be called the urban fringe.

The urban fringe is the "transition" area around an urban area where development pressure tends to be greatest due to land availability and lower land costs. The urban fringe is generally on the outside edges of the urban area between the developed urban area and undeveloped rural areas. In the Fargo metropolitan area, all of the above mentioned townships contain land that could be classified as urban fringe.

Barnes, Fargo, and Reed townships all lost population during the time period covered in **Table 7**. The primary reasons for population decline in these townships are municipal incorporation and annexation by neighboring communities. During the 1970s Briarwood, Frontier, Harwood, North River, Prairie Rose, and Reile's Acres all incorporated. Also, in the 1970s, Fargo and West Fargo annexed land in their extraterritorial areas. While the population of these areas did not physically decrease, the change in the boundaries of Barnes, Fargo, and Reed townships caused the decline in their populations.

Between 1960 and 1980, 44 townships in Cass County lost population. In 1960, the total population of these 44 townships was 9838 persons. The population of these townships dropped to 7569 persons in 1970, and to 6137 persons by 1980. The total population decline in these townships was 23.1 percent in the 1960s and 18.9 percent in the 1970s. So, although the townships in the southeast part of the county are experiencing growth, the rest of the county's townships are experiencing population declines.

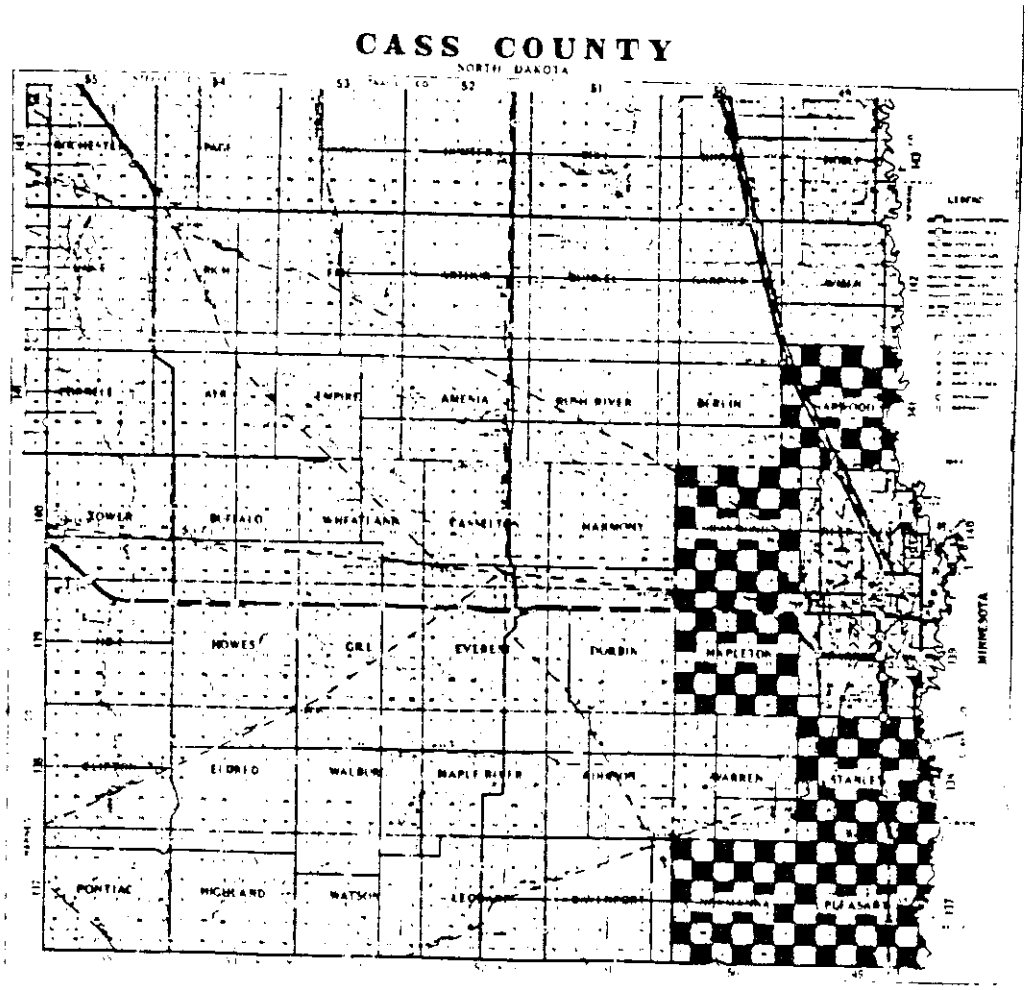
Table 7
Population of Townships
Cass County, ND
1960-1980

TOWNSHIP	1960	1970	1980	TOWNSHIP	1960	1970	1980
Addison	163	113	103	Hill	145	93	76
Amenia	182	164	135	Howes	162	106	98
Arthur	209	120	103	Hunter	164	153	117
Ayr	138	123	96	Kinyon	135	126	119
Barnes	1230	1221	490	Lake	94	78	62
Bell	114	95	56	Leonard	160	124	142
Berlin	167	148	147	Maple River	228	184	155
Buffalo	121	148	99	Mapleton*	150	217	244
Casselton	188	120	111	Noble	164	129	107
Clifton	188	146	113	Normanna*	304	278	331
Cornell	130	100	84	Page	142	73	78
Davenport	203	150	165	Pleasant*	351	326	398
Dows	136	108	93	Pontiac	186	145	140
Durbin	133	128	124	Raymond*	223	199	255
Eldred	225	129	124	Reed	1373	655	848
Empire	191	150	150	Rich	139	107	108
Erie	238	185	136	Rochester	127	84	76
Everest	159	142	122	Rush River	192	177	141
Fargo	195	133	10	Stanley*	506	857	1706
Gardner	184	146	114	Tower	128	121	69
Gill	173	140	114	Walburg	327	281	206
Gunkel	155	113	93	Warren	186	160	158
Harmony	166	165	110	Watson	193	168	138
Harwood*	354	436	530	Wheatland	291	225	183
Highland	181	123	130	Wiser	133	97	94

*Townships that gained population between 1960-1980.

SOURCE: U.S. Dept. of Commerce, Census of Population,1980.

Map 6
Townships That Gained
Population from 1960-1980
Cass County, ND



LEGEND

Townships that
- gained population
from 1960-1980

INCORPORATED AREA POPULATION

It can be seen **Table 8** that over half of Cass County's incorporated communities had their populations increase between 1950 and 1980. The total population of incorporated areas in Cass County more than doubled during that time period, increasing from 44,476 persons in 1950, to 89,592 persons in 1980. Meanwhile, the population of the county's unincorporated areas declined from 14,401 persons in 1950, to 9601 persons in 1980.

Generally, the incorporated areas of the county are growing, while the unincorporated areas are experiencing declining populations. The population projections presented in **Table 8** tend to differ from the actual growth that the county is experiencing so far in the 1980s. Censuses conducted by incorporated communities in the county and 1985 population projections by the NDSU Census Data Center show that Fargo metropolitan area is growing faster than the Metro Council projected.

The incorporated communities that increased in population between 1950 and 1980 are shown on **Map 7**. The growing communities are either located in or near the Fargo metropolitan area or within a radius of approximately 20 miles of Fargo. No incorporated communities west of State Highway 18 experienced population growth in the 1970s. All of the growing communities outside of the Fargo metropolitan area, except Davenport, are located on a state or federal highway. The communities with declining populations have one or more of the following characteristics:

1. Located over 20 miles from the Fargo Metropolitan area.

2. Not located on a state or federal highway.

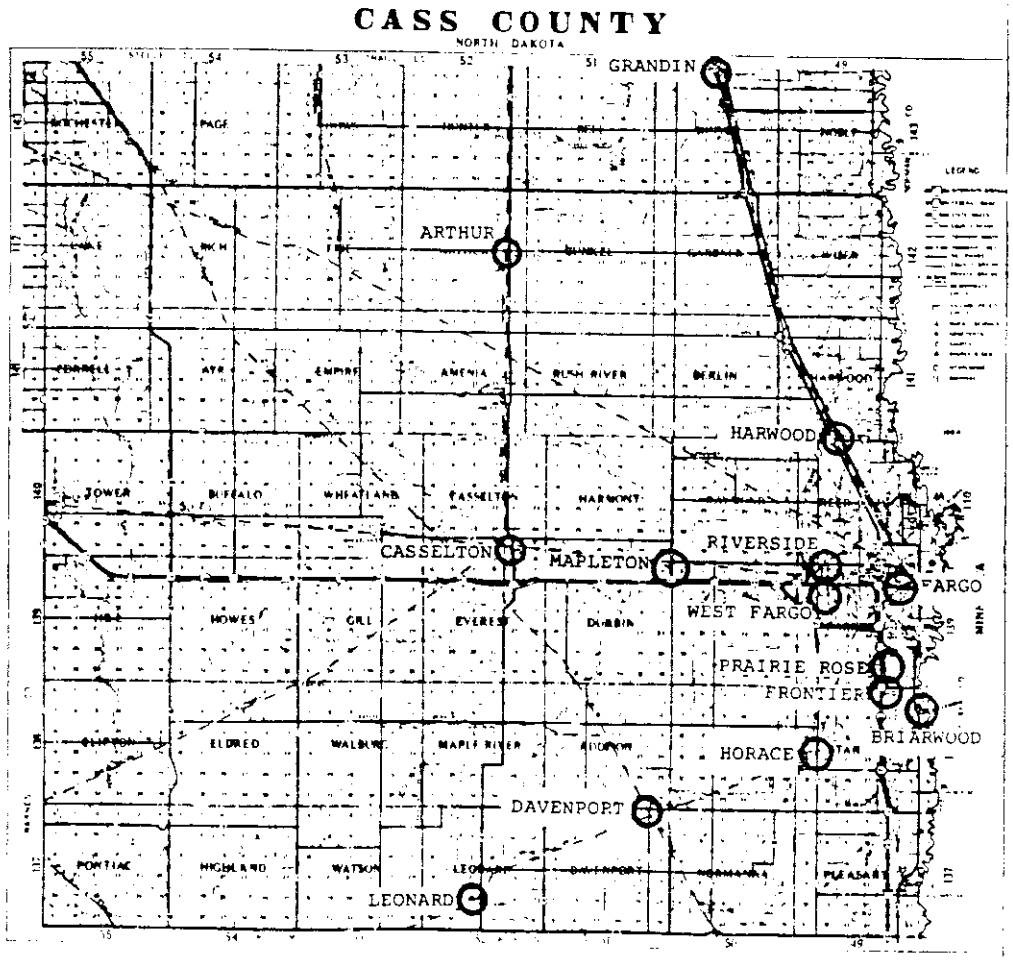
3. Located near a growing local trade center.

Table 8
Population of Incorporated Communities
Cass County, ND
1950-2000

Community	1950	1960	1970	1980	Projected 1990	Projected 2000
Alice	162	124	83	62	44	31
Amenia	127	117	80	93	74	58
Argusville	126	118	118	147	164	183
Arthur	380	325	412	445	520	607
Ayr	104	81	48	42	30	22
Briarwood	-	-	-	47	51	56
Buffalo	261	234	241	226	222	218
Casselton	1,373	1,394	1,485	1,661	1,813	1,979
Davenport	150	143	147	195	227	265
Enderlin (pt)	-	-	-	11	12	13
Fargo	38,256	46,662	53,365	61,383	69,000	75,000
Frontier	-	-	-	160	175	191
Gardner	136	107	96	94	88	83
Grandin (pt)	156	147	187	210	251	299
Harwood	-	-	-	326	356	388
Horace	190	178	276	494	539	589
Hunter	417	446	362	369	335	305
Kindred	504	580	495	568	562	556
Leonard	-	232	221	289	323	360
Mapleton	169	180	219	306	360	324
North River	-	-	-	65	71	77
Page	482	432	367	329	287	250
Prairie Rose	-	-	-	76	83	90
Reile's Acres	-	-	-	191	208	228
Riverside	159	93	104	465	507	554
Tower City (pt)	292	300	289	293	290	286
West Fargo	1,032	3,328	5,161	10,099	13,000	15,500
TOTALS						
Incorporated	44,476	55,221	63,756	78,646	89,592	98,612
Unincorporated	14,401	11,726	9,897	9,601	9,600	9,600
County	58,877	66,947	73,653	88,247	99,192	108,212

SOURCE: Fargo-Moorhead Metropolitan Council of Governments, "Population Analysis and Population Projections," 1983.

Map 7
Cities that Gained
Population from 1960-1980
Cass County, ND



LEGEND

HORACE - Cities that gained population from 1960-1980

VITAL STATISTICS

The vital statistics for Cass County are presented in **Table 9**. During the 1960s, 2253 more persons moved out of Cass County than moved into the county. Even though outamigration occurred, the county still experienced population growth during that time period because the number of births taking place outnumbered the number of deaths and the number of people who moved out of the county.

However, during the 1970s, people began to move into the county in greater numbers than those moving out of the county. When the net migration (the difference between the number of people moving into and out of the county during a time period) is combined with the net natural increase (the number of births less the number of deaths in the county during a time period) for the 1970s, the county grew by almost 14,000 persons.

In the 1980s, the number of births in the county began to increase. However, changing family compositions are evidenced by the county's declining birth rate; from 18.1 births/1000 persons in 1970, to 17.2 births/1000 persons in 1980, and approximately 16.4 births/1000persons in 1985.

Cass County has continued to grow inspite of falling birth rates. The county has experienced a large increase in the number of births so far this decade and the county continues to attract people from outside its borders (see **Table 5**). In addition, the county's death rate continues to decline; from 7.3 deaths/1000 persons in 1970, to 6.7 deaths/1000 persons in 1980, and approximately 6.3 deaths/1000persons in 1985.

Table 9
Vital Statistics
Cass County, ND
1960a1980

	1960a1969	1970a1979	1980a1985
Births	14,490	12,890	9,278
Deaths	5,453	5,840	3,651
Net Natural Increase	9,037	7,150	5,627
Net Migration	-2,253	6,623	3,288*

* Estimated using the 1985 Cass County population projection from above.

SOURCE: North Dakota State Health Dept, 1987.

POPULATION BY GENDER AND AGE GROUP

In 1985, the NDSU Census Data Center projected Cass County's population by sex and age groups for the years 1985, 1990, 1995, and 2000. The Data Center's population projections are based on the assumption that lifestyles,

employment trends and migration rates will remain at current levels. These projections along with population by age group and sex for 1980 are presented in **Table 10.**

The age groups 15-19, 20-24, and 25-29 were the largest age groups in 1980. According to the Data Center projections, this segment of the population will remain the largest segment of the population as it ages. The 60 and over age group has shown strong growth in the past and is expected to grow at a healthy rate in the future. The total number of females outnumbers the number of males for every year of the projections. The 5-9 and 10-15 year old age groups had large declines in population between 1970 and 1980. The effects of this decline are shown throughout **Table 10** as these age groups become older.

Cass County's population pyramids* for the years 1970, 1980, 1990, and 2000 are presented in **Figure 3.** It can be seen that the population of all age groups is expected to increase over time. The movement of the 15-19, 20-24, and 24-29 year old age groups through the population from 1980 to the year 2000 can also be seen. The large increase in the county's elderly population (especially females) is also apparent from the figure. In 1990, another large segment of the population can be seen developing in the 0-14 year age groups. This "bulge" in the population is more apparent as that segment of the population becomes older and is depicted in the year 2000 population pyramid.

On average, the county's population is becoming older. The county's median age increased from 24.7 years in 1970 to 27.0 years in 1980. The increasing median age is a national trend that is a result of the baby boom generation growing older.

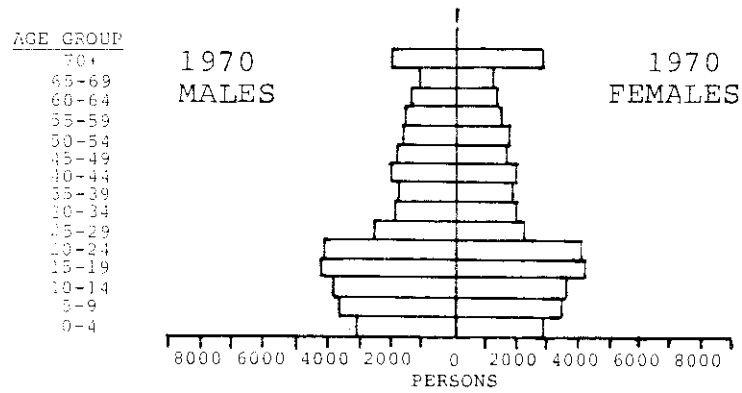
* A population pyramid is a graphic representation of an area's population by sex and age group. Population pyramids simplify comparisons of an area's population composition between different time periods.

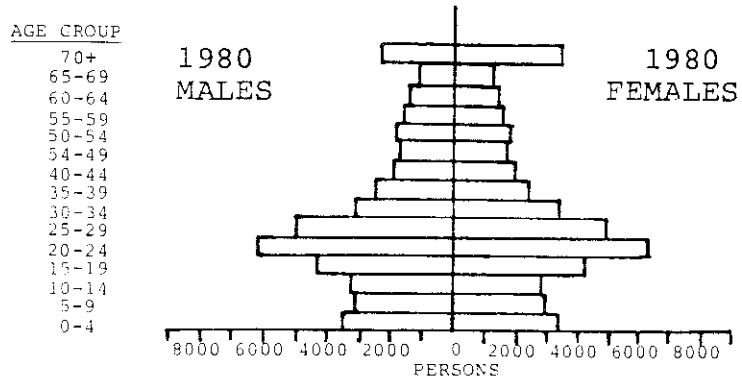
Table 10
Population Projections by Sex and Age Group
Cass County, ND 1980-2000

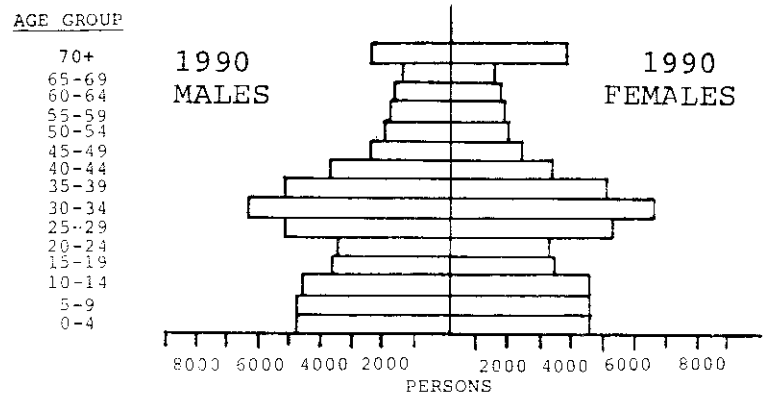
AGE GROUP	1980		1985		1990		1995		2000	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-4	4149	3967	4514	4190	4878	4533	4149	3847	3923	3642
5-9	3166	2936	4398	4223	4866	4549	5119	4780	4375	4079
10-14	3132	2913	3383	3154	4690	4517	5053	4738	5308	4972
15-19	4864	4783	3310	3100	3628	3409	4843	4683	5200	4900
20-24	5892	6147	4985	4924	3499	3301	3744	3540	4947	4807
25-29	4897	4666	6064	6343	5238	5196	3644	3461	3909	3720
30-34	3540	3152	5126	4911	6376	6673	5430	5406	3853	3681
35-39	2329	2216	3664	3288	5292	5094	6484	6802	5519	5513
40-44	1931	1928	2384	2281	3732	3374	5302	5131	6481	6828
45-49	1814	1899	1954	1969	2421	2340	3719	3397	5255	5134
50-54	1825	1855	1791	1907	1940	1989	2378	2340	3633	3379
55-59	1689	1685	1752	1829	1726	1886	1863	1961	2277	2301
60-64	1391	1545	1566	1639	1628	1782	1598	1831	1725	1904
65-69	1098	1440	1228	1496	1385	1589	1435	1722	1408	1769
70 +	1997	3401	2127	3663	2314	3903	2561	4149	2753	4439
TOTALS	43,714	44,533	48,245	48,917	53,613	54,134	57,323	57,788	60,564	61,068

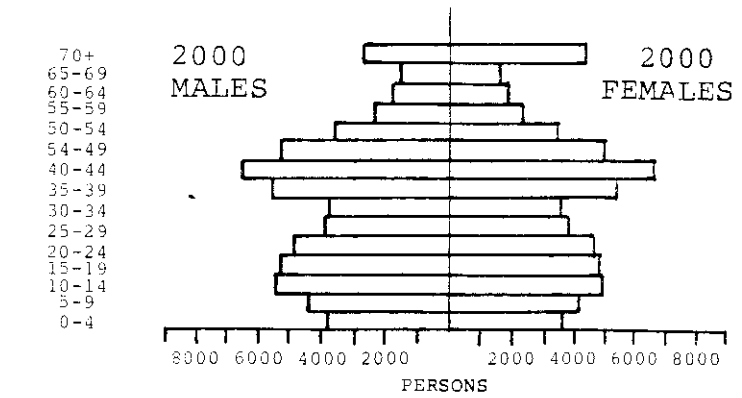
SOURCE: North Dakota Census Data Center, "Revised Population Projections by Age and Gender, 1985-2000, for North Dakota; Report Series No. 3, June 1985.

Figure 3
Population Pyramids
Cass County, ND
1970, 1980, 1990, 2000









SCHOOL ENROLLMENT

Cass County's school enrollment in 1987 was the highest it has been in this decade. The county's total school enrollment has increased every year since the 1982-83 school year. However, the county's school enrollments for this decade have not reached the highs that occurred in the 1970s. School enrollment figures for Cass County are presented in Table 11.

Historically, elementary school enrollment has been about twice as high as secondary enrollment in the county. Elementary school enrollment has increased every year since the 1983-84 school year. However, elementary school enrollment still has not reached the level of enrollment that occurred in the 1970s.

Secondary school enrollment declined throughout the 1980s until the 1984-85 school year; and has fluctuated since then. Secondary school enrollment also is lower than the levels that occurred in the 1970s.

According to the NDSU Census Data Center projections, the number of elementary and secondary aged persons (ages 5-19) in the county is expected to grow until the early 1990s (see Table 10 above).

ETHNICITY

Historically, Cass County has not had a very large minority population. Over 99 percent of the county's population was white in 1970. By 1980, the county's percentage of white population had declined slightly to just under 99 percent of the total population. It can be seen in Table 12 that the county's minority population as a percentage of the total population doubled during the 1970s. Yet, the county's minority population still only made up 1.5 percent of the county's population in 1980.

Table 12

Ethnicity*

Cass County, ND 1970, 1980

WHITE	73,133	99.3	86,909	98.5
BLACK	36	0.1	80	0.1
INDIAN	234	0.3	678	0.7
OTHER	250	0.3	580	0.7
TOTAL	73,653	100%	88,247	100%

*Comparibility between 1970 and 1980 is limited due to changes in the definition of the "white" and "other" categories in 1980.

SOURCES: U.S. Dept. of Commerce; 1980 Census of Population.

TABLE 11
SCHOOL ENROLLMENT CASS COUNTY, ND
1970-71, 1980-87

	ELEMENTARY			SECONDARY			ELEMENTARY & SECONDARY		
	BOYS	GIRLS	TOTAL	BOYS	GIRLS	TOTAL	BOYS	GIRLS	TOTAL
1970-71	6533	6157	12,690	2857	2782	5639	9390	8939	18,329
1980-81	5688	5268	10,956	2732	2595	5327	8420	7863	16,283
1981-82	5686	5246	10,932	2602	2513	5115	8288	7759	16,047
1982-83	5722	5375	11,097	2585	2426	5011	8307	7801	16,108
1983-84	5752	5509	11,261	2566	2367	4933	8318	7876	16,194
1984-85	5847	5614	11,461	2577	2408	4985	8424	8022	16,446
1985-86	5964	5687	11,651	2697	2421	5118	8661	8108	16,769
1986-87	6090	5892	11,982	2641	2399	5040	8731	8291	17,022

SOURCE: NORTH DAKOTA DEPT. OF PUBLIC INSTRUCTION, 1987


MINING

HOUSING

NUMBER OF HOUSING UNITS

In 1980, as shown in Table 13, the county's housing stock numbered 35,215 units, of which 35,129 were year round units. This was an increase of 45.5% (or 10,937 units) since 1970. This increase was to be expected because of the increase in population that occurred during the same time and a concurrent decrease in household size. The urban housing supply accounted for 92% of the increase in housing units. Rural nonfarm housing accounted for all of the 17.7% increase in rural housing (a more complete analysis of the rural housing stock is provided below). These housing trends demonstrate additional evidence of the county's urbanization. Urban housing has increased from 78.8% of the total housing supply in 1970 to 82.8% in 1980.

TABLE 13
HOUSING UNITS
CASS COUNTY, ND
1970 & 1980

NUMBER PERSONS	1970		1980		% Change 1970-1980	
	#	%	#	%	#	%
Cass County	73,653		88,247		14,594	19.8%
Townships	9,897	13.4%	9,601	10.9%	-296	-3.0%
Cities	63,756	86.6%	78,646	89.1%	14,881	23.3%
Urban	58,300	79.2%	71,981	81.6%	13,681	23.5%
Rural	15,353	20.8%	16,266	18.4%	913	6.0%

NUMBER UNITS	1970		1980		% Change 1970-1980	
	#	%	#	%	#	%
Cass County	24,278		35,215		10,937	45.5%
Townships	NA		3,401	9.7%	NA	NA
Cities	NA		31,814	90.3%	NA	NA
Urban	19,313	78.8%	29,157	82.8%	10,026	52.4%
Rural	5,147	21.2%	6,058	17.2%	911	17.7%

NUMBER YEAR ROUND HOUSING UNITS	1970		1980		% Change 1970-1980	
	#	%	#	%	#	%
Cass County	24,075		35,129		11,054	45.9%
Townships	NA		3,324	9.5%	NA	NA
Cities	NA		31,805	90.5%	NA	NA
Urban	19,081	79.3%	29,156	83.0%	10,075	52.8%
Rural	4,994	20.7%	5,973	17.0%	979	19.6%

SOURCE: 1970 & 1980 US CENSUS OF HOUSING

Also in **Table 13** it can be seen that 90% of the housing supply is located within incorporated cities, leaving the townships with only 10% of the housing supply. Unfortunately, 1970 data on township and city housing supplies could not be readily found. However, it is assumed that the cities' housing increased while the townships' decreased. This assumption is based upon the 3% drop in township population between 1970 and 1980.

YEAR STRUCTURE BUILT

As shown in **Table 14**, 46% of the housing in Cass County was built before 1960, making a significant part of the housing over 27 years old. In addition, 26% was built before 1939. This suggests that the housing supply is old and will continue to get older.

TABLE 14

YEAR STRUCTURE BUILT
YEAR ROUND HOUSING UNITS

CASS COUNTY, ND
1980

YEAR BUILT	# UNITS	%
1979 - March 1980	1935	5.5%
1975 - 1978	6429	18.0%
1970 - 1974	5182	15.0%
1960 - 1969	5368	15.0%
1950 - 1959	4699	13.0%
1940 - 1949	2463	7.0%
1939 & Earlier	9050	26.0%

SOURCE: 1980 US CENSUS OF HOUSING

Although this does not mean that these older units are of poor quality, it does point out that a substantial number of the housing is of the older, larger units built in those times. Because the county's average household size is decreasing (down to 2.5 persons per household), these older, larger units are not being fully utilized (as will be shown more fully below).

UNITS PER STRUCTURE

Just over half (53.5%) of the housing units are of the single unit type, as shown in **Table 15**. Even though the number of single unit structures increased 31.9% (or 4,562 units) between 1970 and 1980, they actually dropped as a percentage of the total housing, from 59.4% of the total in 1970 to 55.5% in 1980. One of the reasons for the lower percentage is the change in structures with ten (10) or more units. These structures increased a whopping 358.8% (or 6,053 structures) during the 1970s.

The use of mobile homes (trailer, etc.) also increased during the 1970s, from a total of 975 in 1970 to a total of 1,810 used in 1980, an increase of 85.6% or 835 units.

TABLE 15

NUMBER OF UNITS IN STRUCTURE
YEAR ROUND HOUSING UNITS

CASS COUNTY, ND
1970 & 1980

1970	# Units	%	# Units	% 1980	# Units (% change 1970 - 1980)	%
1 Detached	14,321	59.4%	17,997	51.0%		
1 Attached			886	2.5%	4,562	31.9%
2	1,795	7.4%	1,737	5.0%	-58	-3.2%
3 & 4	2,062	8.5%	2,202	6.0%	140	6.8%
5 - 9	3,280	13.6%	2,754	8.0%	-526	-16.0%
10 - 49	1,687	7.0%	6,568	19.0%	6,053	358.8%
50 or More			1,172	3.0%		
Mobile Home, Trailer, Etc.	975	4.0%	1,810	5.0%	835	85.6%
TOTAL	24,120	100%	35,126	100%	11,006	45.6%

SOURCE: 1980 US CENSUS OF HOUSING

These findings suggests a trend of many households wanting housing that is less permanent. Today's household is likely to be more mobile than before; thus these households are less willing to be tied down by buying single unit housing. They are renting more apartments, condominiums, and townhouses because of the reduced commitment to staying in these types of housing. Another factor may be the increased cost of housing. Single unit homes are more expensive to own and maintain in the 1980s than they were in the 1970s. Rental housing requires less financially; thus it is becoming more attractive.

ROOMS PER UNIT

Table 16 presents a summary of the number of rooms per housing unit in the county. In 1980, nearly two-fifths (2/5), or 39.4%, of the units had six or more rooms, indicating rather large units. For example, a three room unit is generally considered to be a one bedroom dwelling; a six room unit would be a four bedroom dwelling; hence, an eight room unit would be quite large. As presented in Table 16, the category "eight or more rooms per unit" increased 139.4% during the 1970s. In fact the only two categories which increased as percentages of the total housing stock were the seven and eight or more rooms per unit categories, even though all categories increased in numbers except the one room per unit category. So of the new housing being built during the 1970s, a large percentage were larger units.

TABLE 16

NUMBER OF ROOMS PER UNIT
YEAR ROUND HOUSING UNITS

CASS COUNTY, ND
1970 & 1980

# Rooms	1970 # Units	%	1980 # Units	%	% Change 1970 - 1980 # Units	%
1	1,167	4.8%	1,072	3.1%	-95	-8.1%
2	1,224	5.1%	1,755	5.0%	531	43.4%
3	2,868	11.9%	4,064	11.6%	1,196	41.7%
4	5,005	20.8%	7,234	20.6%	2,229	44.5%
5	5,602	23.2%	7,207	20.5%	1,605	28.7%
6	3,598	14.9%	4,797	13.7%	1,199	33.3%
7	2,330	9.7%	3,432	9.8%	1,102	47.3%
8+	2,326	9.6%	5,568	15.9%	3,242	139.4%
TOTAL	24,120	100%	35,129	100%	11,006	45.6%

The median number of rooms per unit is another indicator of the county's trend toward larger housing units. The median number of rooms per unit increased from 4.8 in 1970, to 5.0 in 1980.

The trend of housing units becoming larger was a rather surprising find. This trend would seem to be contrary to the assumed need for housing units that would accommodate today's smaller households. Because of the smaller households, one would expect a trend of smaller housing units. However, the data shows the opposite is happening in the county.

While answers to this trend are not exactly known, some reasons may be that: (1) with more two income households, larger housing is affordable; (2) some households have grown resulting in the need to finish basements or add additions which would increase the housing size; and (3) a significant amount of single unit housing is still being built in the county.

WATER AND WASTE SYSTEMS

More and more housing units are using regional systems to provide water and sewage disposal. As Table 17 points out, 93.5% (32,828 out of 35,126) housing units use either a public or private system to provide them with water. This was an increase from the 1970 figure of 86% of the total housing. Not only are new units being built using one of these systems, but older units are being converted to these systems, as evidenced in the decrease in use of well or other for water supplies.

Sewage disposal data indicate similar trends. 90% of the housing units in 1980 used public sewers, compared to 86% in 1970. However, some new housing being built (404 units) still relies on septic tank systems for sewage disposal. Because of the county's soils, especially in the eastern half, it is encouraging to see that more housing is relying on public sewage disposal. However, the county should update

should update existing policies concerning new housing that relies on soil absorption sewage treatment systems.

TABLE 17

WATER AND SEWAGE DISPOSAL FACILITIES
YEAR ROUND HOUSING UNITS

CASS COUNTY, ND
1970 & 1980

WATER

	1970		1980		Change 1970-1980	
	#	%	#	%	#	%
Public or Private System	20,866	86.0%	32,828	93.5%	11,962	57.3%
Individual Well	2,896	12.0%	2,142	6.0%	-754	-26.0%
Other	368	1.5%	156	0.5%	-202	-54.4%
TOTALS	24,120	100%	35,136	100%	11,006	45.6%

SEWAGE DISPOSAL

	1970		1980		Change 1970-1980	
	#	%	#	%	#	%
Public Sewer	20,727	86.0%	31,643	90.0%	10,918	52.7%
Septic Tank/ Cess Pool	2,862	12.0%	3,266	9.0%	404	14.1%
Other	533	2.0%	217	0.6%	-316	-59.3%
TOTALS	24,120	100%	35,126	100%	11,006	45.6%

SOURCE: 1970 & 1980 US CENSUS OF HOUSING

UTILIZATION OF THE COUNTY HOUSING SUPPLY

When determining the utilization of Cass County's housing, first the number of one, two, three, and four or more bedroom dwellings are determined by using the rooms per unit data found in the **1980 US Census of Housing**. Units with one, two, or three rooms were classified as one bedroom/efficiency dwellings. Units with four rooms were classified as two bedroom dwellings; five rooms as three bedroom; and six or more rooms were classified as four or more bedroom dwellings. This data can be found in **Table 18.**

TABLE 21

STEP 4

	# UNITS	# NEED	DIFFERENCE	% SURPLUS
1 Bed/Eff.	6,891	13,774	-6,883	-99.9%
2 Bed	7,234	10,357	-3,123	-43.2%
3 Bed	7,207	7,306	-99	-1.4%
4+ Bed	13,971	1,177	12,794	91.6%

Housing utilization analysis is important because of the large percentage of household being spent for housing. Inefficient use of this income becomes an unnecessary waste. It also causes a special hardship for those lower income households because they are using a higher percentage of their already small incomes on oversized housing. Under utilization can also create expenses for governments because of programs that subsidize a the cost of housing for low income households.

Granted, underutilization of housing space is a complex issue to resolve. However, the county may look into policies, such as encouraging accessory apartments, that could lead to better utilization of the county's housing supply.

MOBILITY

The length of residence in the Cass County indicates some interesting trends. As shown in **Table 22**, in 1970 48% of those age 5 or older lived in the same dwelling as they did in 1965. However in 1980, just 42% lived in the same dwelling as they did in 1975, suggesting a more mobile population.

TABLE 22

MOBILITY
CASS COUNTY, ND
1970 1980

RESIDENCE IN:	1975		1965	
PERSONS 5+	81,216		67,662	
SAME HOUSE	33,342	41.0%	32,183	48.0%
DIFFERENT HOUSE	47,181	58.0%	33,036	52.0%
SAME COUNTY	22,641	48.0%	15,055	45.5%
DIFFERENT COUNTY	24,540	52.0%	17,981	54.5%
SAME STATE	8,972	36.5%	8,478	47.0%
DIFFERENT STATE	15,568	63.5%	9,503	53.0%

SOURCE: 1970 & 1980 US CENSUS OF HOUSING

Of those who are migrating into the county, most are coming from a state other than North Dakota. Of the 24,540 in 1980 who migrated into Cass County, 63.5% (15,568) came from a different state.

TABLE 18

UTILIZATION OF
HOUSING UNITS
STEP 1

CASS COUNTY, ND
1980

#Rooms	# Units		# Units by Beds
1	1,072		6,891
2	1,755	(1 bed/eff.)	
3	4,064		
4	7,234	(2 bed)	7,234
5	7,207	(3 bed)	7,207
6+	13,979	(4+ bed)	13,979

Next an estimate of the different types of housing by bedrooms needed was made by using the data for persons per unit found in the 1980 US Census of Housing. This data was classified according to the criteria found in **Table 19** into the estimated housing need in Cass County, as shown in **Table 20.**

CRITERIA FOR DETERMINING
HOUSING NEED
STEP 2

CASS COUNTY, ND
1980

UNIT SIZE	PROJECTED HOUSEHOLD SIZE
1 bedroom/Efficiency	All 1 person households **plus** ½ of all 2 person households
2 Bedrooms	½ of 2 person households plus all of 3 person households
3 Bedrooms	All 4 & 5 person households
4 Bedrooms	All 6+ person households

SOURCES: "USING RESIDENTIAL SPACE WISELY", URBAN LAND, NOVEMBER 1984

TABLE 20

UTILIZATION OF
HOUSING UNITS
STEP 3

CASS COUNTY, ND
1980

# PERSONS	# UNITS	HOUSING NEED
1	8,626	13,774
2	10,295	
3	5,209	10,357
4	5,034	
5	2,272	7,306
6+	1,177	1,177

The last step involves comparing the number of housing units by bedrooms in **Table 18** with estimated housing needed by bedroom in **Table 20.** This comparison, found in **Table 21,** estimates how well the county's housing is being utilized. As shown, over 24,100 households in the county could live in one bedroom/efficiency dwellings, but only 14,125 units of this type were available in the county. Therefore, over 10,000 households are using housing which is theoretically larger than they "need" (opposed to demand), suggesting an inefficiency in the utilization of the county's housing supply.

This inefficiency is also seen in the surplus of four or more bedroom dwellings existing (13,971) and the estimated need (1,177) for four or more bedroom dwellings. An estimated 12,794 dwellings are potentially underutilized.

OWNER/RENTER OCCUPIED HOUSING

The number of owner occupied housing units in the county totaled 19,257 in 1980, as shown in **Table 23**. These units represented 59% of the total housing supply in Cass County. This was an increase of 43.3% (5,823 units) from the 1970 total of 13,434 owner occupied housing units. The median value of these units rose a dramatic 187.6% from $18,500 in 1970 to $53,250 in 1980. The median number of rooms per owner occupied unit also rose from 5.5 to 6.1 rooms while the median number of persons per unit decreased from 3.3 to 2.8 persons during the 1970s.

Table 23 also summarizes renter occupied housing in the county. As shown, 13,356 (or 41%) of the total housing units in the county were renter occupied in 1980, an increase of 44.6% (4,120 units) from the 1970 total of 9,236 renter occupied units. The median contract rent rose significantly during the 1970s, going from $90/mo to $201/mo, an increase of 123.3%. While the median number of persons per unit decreased (from 2.0 to 1.62), the median number of rooms per unit increased (from 3.6 to 3.8) during the 1970s.

TABLE 23

HOUSING UNITS
OWNER OCCUPIED AND RENTER OCCUPIED
CASS COUNTY, ND
1970 & 1980

	OWNER OCCUPIED				
	# UNITS	%	MEDIAN PERSONS PER	MEDIAN # ROOMS	MEDIAN VALUE
1980	19,257	59.0%	2.82	6.1	$53,200
1970	13,434	59.0%	3.3	5.5	$18,500
% CHANGE 1970-80	5,823	43.3%			$34,700(187.6%)
	RENTER OCCUPIED				
	# UNITS	%	MEDIAN PERSONS PER	MEDIAN # ROOMS	MEDIAN CONTRACT RENT
1980	13,356	41.0%	1.62	3.8	$201/MONTHLY
1970	9,236	41.0%	2.0%	3.6	$ 90/MONTHLY
% CHANGE 1970-80	4,120	44.6%			$110/MONTHLY (123.3%)

SOURCE: 1970 & 1980 US CENSUS OF HOUSING

Table 23 supports the findings of the utilization analysis done on the county housing supply. The housing is being underutilized because housing units are getting larger even though households are getting smaller. **Table 23** also indicates the financial strain lower income households have had to bear due to the increased cost of housing. A utilization analysis for owner and renter occupied housing will be presented below.

YEAR STRUCTURE BUILT

As shown in **Table 24**, 51% of owner occupied housing was built before 1960 and 26% was built before 1940. While this

indicates an aging housing supply, it does not totally reflect the quality of the housing. However, it does suggest that repairs, both major and minor, may have to be made by many homes in order to keep them in standard condition.

While many of the renter occupied units were built before 1960 (over 40 %), a significant amount (24%) was built before 1940. However, the largest share of these renter occupied units (41.5%) have been built since 1970, reflecting the recent trend of fewer households buying and owning units.

TABLE 24

YEAR STRUCTURE BUILT
OWNER AND RENTER OCCUPIED HOUSING UNITS
CASS COUNTY, ND
1980

YEAR BUILT	# UNITS(OWNER)	%	# UNITS(RENTER)	%
1979-March 1980	756	4.0%	603	4.5%
1975-1978	3,541	18.0%	2,354	18.0%
1970-1974	2,471	13.0%	2,503	19.0%
1960-1969	2,735	14.0%	2,468	18.5%
1950-1959	3,429	18.0%	1,210	9.0%
1940-1949	1,339	7.0%	954	7.0%
1939-Earlier	4,986	26.0%	3,254	24.0%
	19,257	59.0%	13,356	41.0%

SOURCE: 1980 US CENSUS OF HOUSING

UNITS PER STRUCTURE

As one may expect, the majority of owner occupied housing is in single units while renter occupied housing has more units larger than duplexes. The data shown in Table 25 confirms these assumptions. 80% of owner occupied housing was in the form of single units, and 75% of renter occupied housing was in structures with three or more units in 1980. Only 8% of the owner occupied housing was mobile homes, trailers, etc., which was an increase from a 1970 percentage of 6.7%.

TABLE 25

NUMBER OF UNITS IN STRUCTURE
OWNER AND RENTER OCCUPIED HOUSING UNITS
CASS COUNTY, ND
1980

	OWNER OCCUPIED		RENTER OCCUPIED		
# UNITS	# STRUCTURES	%	# STRUCTURES		%
1 DETACHED	15,463	80.0%	1,779		13.0%
1 ATTACHED	518	3.0%	255		2.0%
2	455	2.0%	1,173		9.0%
3 - 4	256	1.5%	1,700		13.0%
5+	1,075	5.5%	5-9	1,873	14.0%
	--	--	10-49	5,348	40.0%
	--	--	50+	1,080	8.0%
MOBILE HOMES, TRAILER, ETC.	1,490	8.0%		168	1.0%
	19,257	59.0%		13,356	41.0%

SOURCE: 1980 US CENSUS OF HOUSING

Even though owner occupied, single unit housing is still the dominant type of housing found in the county, **Table 25** (as well as other tables) demonstrates the current trend of households securing alternative types of housing that result in higher population densities. The county may need to study the effect these densities have on the social conditions of those using these housing types.

UTILIZATION OF OWNER/RENTER OCCUPIED HOUSING

Just as determining the utilization of the total housing supply for Cass County was important, so is an analysis of owner/renter occupied housing. The process is the same as used previously, except, using different data. As you recall (refer to the ***Utilization*** section for total housing, pages 43-45), the first step in determining utilization is to estimate the number of bedrooms per unit. By using the rooms per unit data, this estimate can be done by classifying one, two, and three room units as one bedroom/efficiency dwellings. Units with four rooms become two bedroom dwellings; five as three bedroom; and six or more rooms become four or more bedroom units. **Table 26** shows the estimates for the number of bedrooms per dwelling.

TABLE 26

STEP 1
UTILIZATION OWNER OCCUPIED
HOUSING UNITS
CASS COUNTY, ND
1980

ROOM/UNIT	# UNITS	DWELLING UNITS BY # OF BEDROOMS	
1	28		
2	77	1 BEDROOM/EFFICIENCY	483
3	378		
4	2,468	2 BED	2,468
5	4,525	3 BED	4,525
6+	11,781	4+ BED	11,781

The next step is determining the number of one, two, three, or four or more bedroom units needed according to the persons per unit in owner occupied housing data. This data was grouped according to the criteria found in **Table 18** (see page 44). The housing needed according to bedrooms per unit is shown in **Table 27.**

TABLE 27

STEP 2
UTILIZATION OWNER OCCUPIED
HOUSING UNITS
CASS COUNTY, ND
1980

PERSONS/HOUSEHOLD	# HOUSEHOLDS	NEED	
1	2,478	1 BED	5,476
2	5,996	2 BED	6,661
3	3,663		
4	4,160	3 BED	6,121
5	1,961		
6+	999	4+ BED	999

SOURCE: 1980 US CENSUS OF HOUSING

The last step involves comparing supply (Table 26) with need (Table 27). This comparison, found in Table 28, points out how the county's owner occupied housing is being utilized. As shown, over 12,000 households are estimated to need one and two bedroom units; however, only 2,971 units are available. This suggests that over 9,000 households are using owner occupied housing which is theoretically too large, resulting in a significant undersupply of that type of housing. Underutilization is expressed in the estimated surplus of 10,782 four or more bedroom dwellings.

TABLE 28

STEP 3
UTILIZATION OWNER OCCUPIED
HOUSING UNITS
CASS COUNTY, ND
1980

UNITS	# UNITS	NEED	DIFFERENCE	%
1 BED	483	5,476	-4,993	-1,103.0%
2 BED	2,468	6,661	-4,193	-107.0%
3 BED	4,525	6,121	-1,596	-35.3%
4+ BED	11,781	999	10,782	91.5%

When the renter occupied housing utilization analysis was done, a different type of underutilization was found. The first two steps of the process are shown in Tables 29 and 30. Table 31 demonstrates the estimated surplus of rental units in Cass County. Whereas the other two utilizations analyses estimated a high need for one and two bedroom housing, the renter occupied utilization analysis shows that, although a need of 567 additional one bedroom/efficiency housing existed, an estimated surplus of rental units was present in Cass County in 1980.. The estimated need (demand) was not enough to meet the existing supplies.

TABLE 29

STEP 1
UTILIZATION RENTER OCCUPIED
HOUSING UNITS
CASS COUNTY, ND
1980

ROOMS	# UNITS	# UNITS/BEDROOM	
1	851	1 BED	5,581
2	1,459		
3	3,271		
4	4,132	2 BED	4,132
5	2,183	3 BED	2,183
6+	1,460	4+ BED	1,460

TABLE 30

STEP 2
UTILIZATION RENTER OCCUPIED
HOUSING UNITS
CASS COUNTY, ND
1980

PERSONS/HOUSEHOLD	HOUSEHOLDS	NEEDS
1	6,148	6,148
2	4,299	
3	1,546	3,696
4	874	
5	311	1,185
6+	178	178

TABLE 31

STEP 3
UTILIZATION RENTER OCCUPIED
HOUSING UNITS
CASS COUNTY, ND
1980

UNITS	# UNITS	NEED	DIFFERENCE	%
1 BED	5,581	6,148	-567	-10.2%
2 BED	4,132	3,696	436	10.6%
3 BED	2,183	1,185	998	45.7%
4 BED	1,460	178	1,282	87.8%

While an utilization analysis is a theoretical practice, it does provide an idea of how the housing supply is being utilized. The underutilization of housing Cass County is a complex issue. The county may want to develop policies that would encourage better utilization of the housing stock.

URBAN/RURAL HOUSING

As shown in **Table 32**, both the rural and urban housing stock increased during the 1970s. Urban housing increased at 52.4% (10,026 units), while rural housing increased by 17.8% (911 units). Of the rural housing, the rural nonfarm housing accounted for all of the increase by growing 44.5%. This increase was offset by the significant decrease in the rural farm housing, which experienced a 30% decline during the 1970s. The decline in farms both in population and housing is yet another indication of the crisis facing the farm economy.

It is interesting to note that the percentage increases in the housing supply were approximately twice the increase in population. This may suggest that housing was in short supply. It may also suggest that the current housing market has more households participating because of the decrease in the number of persons per household.

TABLE 32

URBAN/RURAL HOUSING UNITS
CASS COUNTY, ND
1970 & 1980

NUMBER OF PERSONS

	1970	1980	CHANGE '70 - '80	
RURAL	15,353	16,266	913	6.8%
FARM	6,133	3,922	-2,211	-36.0%
NONFARM	9,220	12,344	3,124	33.9%
URBAN	58,300	71,981	13,681	23.5%

NUMBER OF UNITS

	1970	1980	CHANGE '70 - '80	
RURAL	5,147	6,058	911	17.8%
FARM	1,854	1,298	-556	-30.0%
NONFARM	3,293	4,760	1,467	44.5%
URBAN	19,131	29,157	10,026	52.4%

NUMBER OF YEAR ROUND UNITS

	1970	1980	CHANGE '70 - '80	
RURAL	4,994	5,973	979	19.6%
FARM	1,854	1,298	-556	-30.0%
NONFARM	3,140	4,675	1,535	48.9%
URBAN	19,081	29,156	10,075	52.8%

SOURCE: 1970 & 1980 US CENSUS OF HOUSING

YEAR STRUCTURE BUILT--URBAN/RURAL HOUSING

Table 33 shows the age of the county's rural and urban housing supply. As can be seen, there is a difference in age between the urban and rural housing. Only 22.7% of the urban housing was built before 1940, whereas 40.9% of the rural housing was built before then. Closer examination of Table 33 reveals even a greater difference. Only 36.5% of rural nonfarm housing was built before 1940, while 57.8% of rural farm housing was built before then. Rural farm housing is not being replenished as demonstrated by the fact that just over 10% of it has been built since 1970, suggesting that the supply will continue to get older and deteriorate with age.

TABLE 33

YEAR STRUCTURE BUILT
URBAN/RURAL HOUSING UNITS
CASS COUNTY, ND
1980

	URBAN		RURAL		FARM		NONFARM	
	#	%	#	%	#	%	#	%
1979 - March 1980	1668	5.7%	267	4.5%	43	3.3%	224	4.8%
1975 - 1978	5361	18.4%	1068	17.9%	88	6.8%	980	21.0%
1970 - 1974	4446	15.3%	736	12.3%	107	8.2%	629	13.5%
1960 - 1969	4672	16.0%	696	11.7%	119	9.2%	577	12.3%
1940 - 1959	6400	22.0%	762	12.8%	204	15.7%	558	11.9%
1939 & Earlier	6606	22.7%	2444	40.9%	737	57.8%	1707	36.5%
	29153	100.0%	5973	100.0%	1298	21.7%	4675	78.35

SOURCE: 1980 US CENSUS OF HOUSING

UNITS PER STRUCTURE--URBAN/RURAL HOUSING

The units per structure data, shown in Table 34, also reveals the difference between rural and urban housing. The urban housing is virtually split between one and two or more units per structures (47.8% and 47.6%, respectively). However, the rural housing supply is dominated by one unit structures, which comprise 83.1% of the total rural housing stock.

Again, close examination of the rural housing shows a difference between the rural farm and rural nonfarm housing. The rural nonfarm housing has a larger percentage (11.4%) of its stock in two or more units per structure while rural farm housing has only 2.6% of its supply with two or more units per structure.

TABLE 34

UNITS IN STRUCTURE
RURAL HOUSING
CASS COUNTY, ND
1980

# OF UNITS	URBAN # STRUCTURES	URBAN %	RURAL # STRUCTURES	RURAL %	FARM # STRUCTURES	FARM %	NONFARM # STRUCTURES	NONFARM %
1	13,921	47.8	4,962	83.1	1,173	90.4	3,789	81.0
2+	13,865	47.6	568	9.5	34	2.6	534	11.4
MOBILE, TRAILER,ETC.	1,367	4.7	443	7.4	91	7.0	352	7.5
	29,153	100%	5,973	100%	1,298	21.7%	4,675	

SOURCE: 1980 US CENSUS OF HOUSING

Mobile homes, trailers, etc., have a noticeable role in the rural housing supply. Composing 7.4% of the total rural housing units (compared to 4.7% for urban), mobile homes provide a less costly alternative to these households. Because of their characteristics, the County may need to establish policies to ensure the role of mobile homes in providing for the housing needs in the county.

SEWAGE DISPOSAL

As shown in Table 35, an increasing number of the rural housing units are using the public sewer system for their sewage disposal needs, increasing from 32.6% in 1970 to 43.4% using public sewers in 1980. The reason why rural housing does not have a higher percentage using public sewage systems is the lower density of rural development makes the cost of public sewage systems prohibitive. In addition, almost all rural farm housing relies on septic tanks and cesspools.

The data does point out an encouraging finding: public sewer systems are becoming more of the norm for both rural and urban housing, which is important in Cass County because of clay soils and high water tables.

TABLE 35
SEWAGE DISPOSAL
URBAN/RURAL HOUSING UNITS
CASS COUNTY, ND
1980

PUBLIC SEWERS

	1970 #	1970 %	1980 #	1980 %	% CHANGE 1970 - 80 #	% CHANGE 1970 - 80 %
RURAL FARM	34	1.9%	11	0.9%	-23	-67.6%
RURAL NONFARM	1583	50.6%	2584	55.3%	1001	63.2%
RURAL	1617	32.6%	2592	43.4%	987	60.5%
URBAN	19110	99.8%	29048	99.6%	9938	52.0%

TABLE 35 CONTINUED

SEPTIC TANK/CESSPOOL

	1970		1980		% CHANGE 1970 - 80	
	#	%	#	%	#	%
RURAL FARM	1642	90.7%	1246	96.0%	-396	-24.1%
RURAL NONFARM	1174	37.2%	1951	41.7%	777	66.2%
RURAL	2816	57.6%	3197	53.5%	381	13.5%
URBAN	46	0.2%	69	0.2%	23	50.0%

OTHER

	1970		1980		% CHANGE 1970 - 80	
	#	%	#	%	#	%
RURAL FARM	135	7.5%	41	3.2%	-94	-69.6%
RURAL NONFARM	398	12.6%	140	3.0%	-258	-64.8%
RURAL	533	10.7%	181	3.0%	-352	-66.0%
URBAN	0	0.0%	36	0.1%	36	360.0%

SOURCE: 1970 & 1980 US CENSUS OF HOUSING

RURAL HOUSING UTILIZATION

Utilization analysis for rural housing indicates that rural housing is underutilized. That is, there are more large housing units than there is an estimated need for. There also exists a greater estimated need for smaller housing units than the existing housing supply provides. The utilization analysis for the rural housing supply can be found in Tables 36-38.

TABLE 36

STEP 1
UTILIZATION OF RURAL HOUSING
CASS COUNTY, ND
1980

ROOM/UNIT	# UNITS	DWELLING UNITS BY NUMBER OF BEDROOMS	
1	40		
2	88	1 BED/EFFICIENCY UNIT	423
3	295		
4	714	2 BEDROOM UNIT	714
5	1100	3 BEDROOM UNIT	1100
6+	3736	4+ BEDROOM UNIT	3736

SOURCE: 1980 US CENSUS OF HOUSING

TABLE 37

STEP 2
UTILIZATION OF
RURAL HOUSING UNITS
CASS COUNTY, ND
1980

# PERSON	# UNITS	# HOUSING NEED
1	908	1,737
2	1,658	
3	931	1,760
4	1,053	
5	556	1,609
6+	316	316

In **Table 38** you can see that there is an estimated need of 3,497 one and two bedroom units compared to a supply of 1,137 of these units. This suggests a deficiency of 2,360 of these types of units. The oversupply of larger units is shown by the excess of 3,420 units that have four or more bedrooms per unit (3,736 existing units minus 316 estimated units needed).

TABLE 38

STEP 3
UTILIZATION OF RURAL HOUSING
CASS COUNTY, ND
1980

	# UNITS	# NEED	DIFFERENCE	SURPLUS/DEFICIENCY(%)
EFFICIENCY/1 BED	423	1737	-314	-310.6%
2 BED	714	1760	-1046	-146.0%
3 BED	1100	1609	-509	-46.3%
4+ BED	3736	316	3420	91.5%

The utilization analyses for rural farm housing (found in **Tables 39** through **41)** and nonfarm housing stock (found in **Tables 42-44)** show similar findings. That is the housing supply contains an abundance of units which are larger than the estimated need; resulting in underutilization.

The first two steps of determining the utilization of rural farm housing are found in **Tables 39** and **40,** shown below. **Table 39** has the number of bedrooms per unit and **Table 40** has the estimated "need" for units by number of bedrooms.

TABLE 39

STEP 1
UTILIZATION OF RURAL
FARM HOUSING UNITS
CASS COUNTY, ND
1980

# ROOMS	# UNITS	TYPE	# UNITS BY BEDS
1	2		
2	4	1 BED	35
3	29		
4	77	2 BEDS	77
5	186	3 BEDS	186
6	1000	4 BEDS	1000

TABLE 40

STEP 2
UTILIZATION OF RURAL
FARM HOUSING UNITS
CASS COUNTY, ND
1980

# PERSON/HOUSEHOLD	# HOUSEHOLD	NEED
1	152	369 - 1 BED
2	433	
3	265	482 - 2 BED
4	215	
5	139	354 - 3 BED
6+	98	94 - 4+ BED

As shown in **Table** 41, the rural farm housing supply has a deficiency of 739 units with one or two bedrooms, while there was a surplus of 906 units with four or more bedrooms per unit.

TABLE 41

STEP 3
UTILIZATION OF
RURAL FARM HOUSING
CASS COUNTY, ND
1980

	# UNITS	HOUSEHOLDS	DIFFERENCE	% SURPLUS/DEFFICIENCY BY UNIT SIZE
1 BED/EFFICIENCY	35	369	-334	-954.3%
2 BEDROOM	77	482	-405	-526.0%
3 BEDROOM	186	354	-168	-90.3%
4+ BEDROOM	1000	94	906	90.6%

Tables 42-44 contain the utilization analysis for the county's rural nonfarm housing, with **Table 42** showing the number of bedrooms per unit and **Table 43** showing the "needed" units by number of bedrooms.

TABLE 42

STEP 1
UTILIZATION OF RURAL
NON FARM HOUSING UNITS
CASS COUNTY, ND
1980

# ROOMS	# UNITS	TYPE	# UNITS BY BED
1	38		
2	77	1 BED/EFFICIENCY	388
3	266		
4	637	2 BED	637
5	914	3 BED	914
6+	2736	4 BED	2736

TABLE 43

STEP 2
UTILIZATION OF RURAL
NON FARM HOUSING UNITS
CASS COUNTY, ND
1980

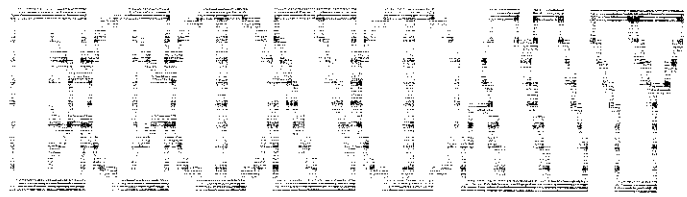
# PERSONS/HOUSEHOLD	# HOUSEHOLDS		HOUSING NEED
1	756	1 BED/EFFICIENCY	1369
2	1225		
3	696	2 BED	1279
4	838		
5	417	3 BED	1255
6+	222	4+ BED	222

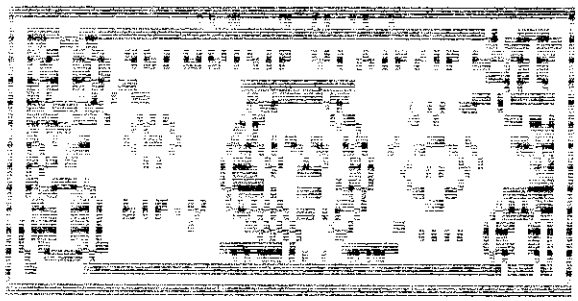
Table 44 shows that the rural nonfarm housing supply has a deficiency of 1,523 one and two bedroom units and a surplus of 2,514 four or more bedroom units.

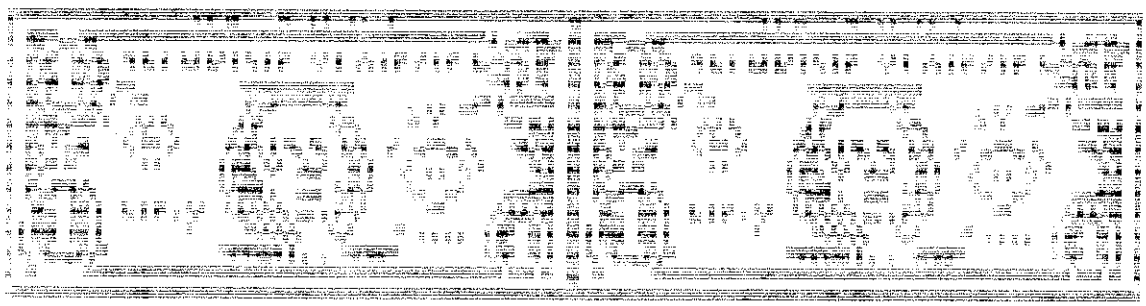
TAELE 44

STEP 3
UTILIZATION OF RURAL
NON FARM HOUSING UNITS
CASS COUNTY, ND
1980

TYPE	# UNITS	# NEED	DIFFERENCE	% SURPLUS/DEFFICIENCY
1 BED/EFFICIENCY	388	1369	-981	-252.8%
2 BED	637	1279	-642	-100.8%
3 BED	914	1255	-341	-37.3%
4+ BED	2736	222	2514	91.9%







ECONOMY

LABOR FORCE

The size of Cass County labor force has increased significantly, as shown in **Table 45**. From 1980 to 1985, 10,102 persons entered the county's labor force. This was an annual growth rate of 2,020 persons or 4.6%! The labor force for the State of North Dakota grew by 33,000 persons during this time, making the county's growth about one-third of the State's total growth. This was so even though the county's labor force was only 14.6% of the State's total labor force in 1980. The county's labor force increased to 16.2% of the state total in 1985.

From January to October of 1986, the labor force continued to grow, adding 441 persons. However, an indication of how exceptional this growth was is reflected in the sharp decline the State's labor force experienced during this time. The state had 10,634 fewer persons in its labor force! Two reasons for this sharp decline: 1) the large exodus of natural resource extraction workers and 2) a newly developed counting procedure by the North Dakota Job Service.

TABLE 45
LABOR FORCE
Cass County, ND
1980-1986

	LABOR FORCE		EMPLOYMENT		UNEMPLOYMENT		UNEMPLOYMENT RATE	
YEAR	CASS	ND	CASS	ND	CASS	ND	CASS	ND
1980	44,192	303,000	42,369	288,000	1,823	15,000	4.1	5.0
1981	44,620	311,000	42,447	295,000	2,173	16,000	4.9	5.0
1982	44,787	316,000	42,592	297,000	2,195	18,000	4.9	5.9
1983	44,370	319,000	42,660	301,000	1,710	18,000	3.9	5.6
1984	51,771	328,000	50,231	311,000	1,540	17,000	3.0	5.1
1985	54,294	336,000	52,316	316,000	1,978	20,000	3.6	5.9
1986*	54,735	325,366	53,514	310,548	1,221	14,818	2.2	4.6

SOURCE: "North Dakota Labor Force" (NDRS 31d); Job Service ND Nov. 1986

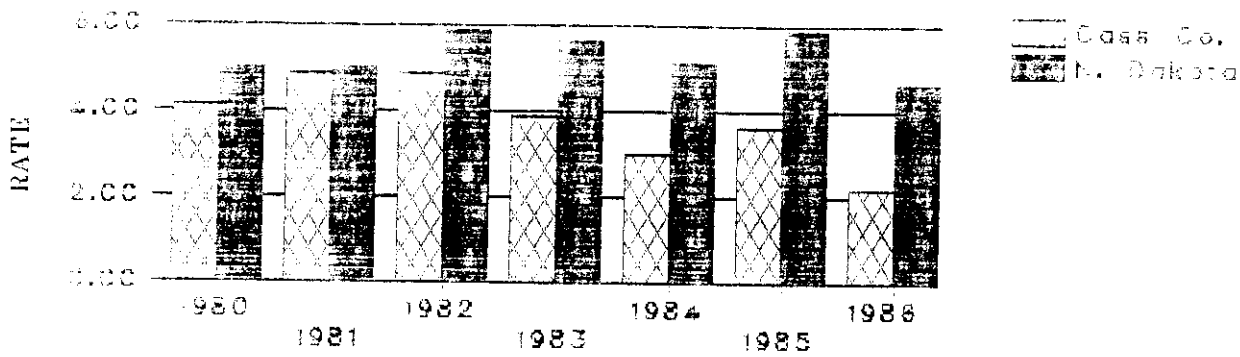
* Data are for October, 1986

If the current labor force growth rate(1980-1985) were to continue, the county would have 66,779 persons in its labor force in 1990, 79,212 persons in 1995, and 91,645 persons by the year 2000. If the rate of change between 1984 and 1985 were to be projected out, these figures would be slightly higher, projecting 92,139 people in the county's labor force by the year 2000.

Table 45 also includes the unemployment rates for the county and State for 1980-1985 and October, 1986. The county's unemployment rate has consistently been below the State's rate. While in the early 1980s it was just slightly

below the State's rate, recently, unemployment has been as much as 2.3% lower in Cass County. See **Figure 4** for a graphic illustration of the comparison of unemployment rates.

Figure 4
Unemployment Rates



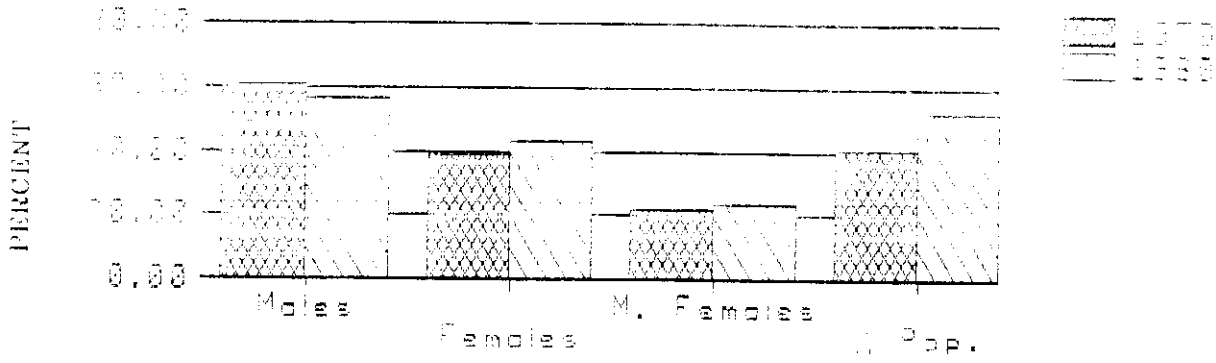
In addition, **Figure 4** shows that unemployment rates for both the county and State rise and fall together. That is, if the State's rate falls, then the county's rate falls also; if the State's rate rises, then the county's rises too. This indicates that both economies are based upon similar sectors. Agriculture is the sector of the economy which heavily influences the employments rates for both the State and the county.

LABOR FORCE COMPOSITION

As shown in **Figure 5**, over half of the county's population was part of the labor force in 1980. This was an increase of about 12% from the 1970 rate of 40.5% of the population in the labor force. Females accounted for much of the growth, increasing from 39.2% to 43.4% of the labor force, while males decreased from 60.7% to 56.6% of the labor force. Another reason for the increased size of the labor force was the county's population growth during the 1970s.

An additional trend is indicated in **Figure 5**. More married females were in the labor force in 1980 than in 1970. With the high cost of living in today's world, many households need the extra income the married spouse can bring home. Because more and more households have two income earners today than in the past, new issues such as "latch key kids", day care provision, etc., are facing society.

Figure 5
Labor Force Composition



EMPLOYMENT COMPOSITION

The components of the county's employed are shown in **Table 46** for the years 1970 and 1980. The tremendous growth of the county's economy is also demonstrated in this table. The 1970 total of 28,457 persons employed increased by 51.6% (14,681 workers) to 43,138 workers in 1980, an annual increase of 5.2%. This growth was at an even higher rate than the annual increase between 1980 and 1985 (shown in **Table 45**), which was 4.6%. However, this trend shows that employment growth has slowed slightly in recent years.

Table 46
Employment Composition
Cass County, ND
1970, 1980

Class of Worker	1970		1980		% Change 70-80	
	#	%	#	%	#	%
Private Wage and Salary Worker	20,245	71.1	31,792	73.7	11,457	57.0
Federal Gov't			1,984	4.6		
State Gov't	3,735	13.1	3,099	7.2	1,348	36.1
Local Gov't	1,714	6.0	2,607	6.0	893	52.1
Self Employed	2,631	9.3	3,285	7.6	654	24.9
Unpaid Family Worker	132	0.5	371	0.9	239	181.1

SOURCE: 1970 and 1980 US Census of Population

The largest component of the labor force is private wage and salary workers, making up 73.7% of the labor force in 1980 or 31,792 employed. This was a 57% increase (11,457 persons) in the number employed in that sector from the 1970 total of 20,245 employed. The second largest component of

the labor force is state and federal government workers, who composed 11.8% of the labor force (5,083 persons). Although this was an increase of 36.1% from the 1970 total of 3,735 employed, this sector decreased from 13.7% to 11.8% of the labor force during the 1970s.

The component that changed the most during the 1970s was unpaid family workers, increasing 181.1% (239 persons). They remained a very insignificant percentage of the labor force at less than 1% of the total (0.5% in 1970 and 0.9% in 1980).

Self employed workers grew at the slowest pace during the 1970s, increasing by 24.9%. Their percentage of the total labor force decreased from 9.3% in 1970 to 7.6% in 1980.

OCCUPATION

During the 1970s, as shown in **Table 47**, all occupations experienced growth in the number of employed. Employed persons age 16 or more increased by 51.1%, or 14,591 persons. The fastest growing occupation was Operators, Fabricators, and Laborers which increased 112.6%, or 2,738 persons. Their percentage of all employees increased from 8.5% in 1970 to 12% in 1980. The second fastest growing occupation was Technical Sales and Administrative Support occupations, which increased 87.4%, or by 6,852 persons.

TABLE 47
Occupation of Employed Persons
Cass County, ND
1970, 1980

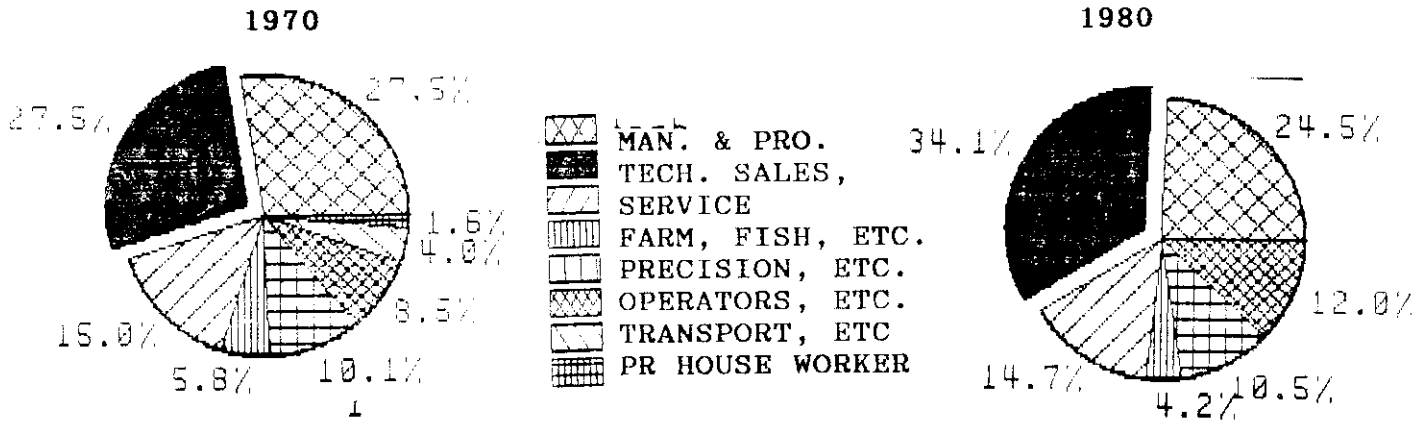
	1970		1980		% Change 70-80	
	#	%	#	%	#	%
Employed Persons 16 years old +	28,547	100.0	43,138	100.0	14,591	51.1
Managerial and Professional	7,854	27.5	10,576	24.5	2,722	34.7
Technical, Sales, and Administrative Support Occupations	7,837	27.5	14,689	34.1	6,852	87.4
Service Occupations	4,281	15.0	6,364	14.7	2,062	48.2
Farming, Forestry, and Fishing Occupations	1,660	5.8	1,820	4.2	160	9.6
Precision Production, Craft, and Repair Occupations	2,887	10.1	4,541	10.5	1,654	57.3
Operators, Fabricators and Laborers	2,431	8.5	5,169	12.0	2,738	112.6
Transport Equipment Operatives	1,143	4.0	------			
Private Household Workers	454	1.6	------			

SOURCE: 1970 and 1980 US Census of Population

The smallest growth occurred in the Farming, Forestry, and Fishing occupations. This occupation increased only 9.6% (160 persons) and actually dropped as a percentage of all employees by occupation from 5.8% to 4.2% of the labor force.

Technical, Sales and Administrative Support occupations continued to make up the largest percentage of employed persons, growing from 27.5% of the labor force in 1970 to 34.1% in 1980. Over one-third of all employed persons were technical, sales, and administrative support workers in 1980, as shown in **Figure 6**. This category of workers also had the largest gain in percentage of the labor force.

Figure 6



Comprising 27.5% of all employed persons, the managerial and professional occupation was as large as the technical, sales, and administrative support occupations in 1970. However, even though increasing by 34.7% in the 1970s, the managerial and professional occupations declined to 24.5% of the labor force in 1980 (also shown in **Figure 6**).

INDUSTRY OF EMPLOYED PERSONS

As shown in **Table 48**, all industries experienced increases in number of employees during the 1970s. The mining industry had the largest growth, increasing by 516.7%. However, only 31 new employees were added, bringing the total number of mining employees in the county to 37. This industry had only 0.1% of employed persons in the county in 1980.

The service industry had the largest increase in number of employees. It added 5,155 new employees, an increase of 52.3%. Despite this large increase, the service industry increased by only 0.3% as a percentage of the total employed by industry, going from 34.5% to 34.8%. However, it continued to be the largest employer by industry, having over one-third of those employed in 1980.

TABLE 48
Industry of Employed Persons
Cass County, ND
1970, 1980

Industry	1970		1980		% Change 70-80	
	#	%	#	%	#	%
Agriculture			1,980	4.6		
Forestry and Fishing	1,805	6.3	27	0.1	202	11.2
Mining	6	--	37	0.1	31	516.7
Construction	1,533	5.4	2,363	5.5	830	54.1
Manufacturing	1,712	6.0	3,653	8.5	1,941	113.4
Transportation, Communication, and other Public Utilities	2,108	7.4	3,660	8.5	1,552	73.6
Wholesale Trade	2,281	8.0	3,320	7.7	1,035	45.6
Retail Trade	5,814	20.4	8,305	19.3	2,491	42.9
Finance, Insurance, and Real Estate	1,829	6.4	3,122	7.2	1,293	70.7
Services	9,856	34.5	15,011	34.8	5,155	52.3
Public Administration	1,603	5.6	1,660	3.9	57	3.6
TOTALS	28,547	100	43,138	100	14,591	51.1

SOURCE: 1970 and 1980 US Census of Population

The manufacturing industry had both a large increase in numbers and an increase as a percentage of the total employed industry. It increased 113.4%, or by 1,941 new employed persons, and increased from having 6.0% of all workers to 8.5% of all employed workers. Two other industries which also showed significant growth were transportation, communication, and other public utility industries; and the finance, insurance, and real estate industries.

The second largest employing industry was the retail trade industry with 20.4% of the employed in 1970. Despite having an increase of 42.9%, or 2,491 new persons, it decreased to 19.3% of the total workers by industry in 1980.

The industry with the slowest growth was public administration, which grew by only 3.6% (57 persons) during the 1970s. Another relatively slow growing industry was the agriculture, forestry, and fishing industry. It grew by just 11.2% (202 persons) during the 1970s. Whether the new workers were in the agriculture, forestry, or fishing categories of this industry is not known. However, it appears that most of the growth occurred in the agricultural sector. This is because the total number employed by agriculture in 1970 was 1,805 while in 1980 the total for agriculture alone was 1,980. That should account for 175 of the 202 new employees in this industry.

MANUFACTURING

The number of manufacturers in the county, presented in **Table 49**, increased 33% during the 1970s. In 1972, there were 88 manufacturing establishments, and by 1982, there were 117 manufacturing establishments in the county. The number of large manufacturing establishments (those with 20 or more employees) also increased during that period, growing by 34.3%. However, only two more manufacturing establishments existed in 1982 than in 1978, suggesting a slow down of new large manufacturing establishments being created in the county.

Although the number of manufacturing employees increased between 1972 and 1982 (2.3 million to 3.5 million), they actually peaked in 1977 at 3.8 million. The payroll also increased during this time from $19 million in 1972, to $61.6 million in 1982. Even though the number of employees decreased between 1977 and 1982, the payroll from $46.7 million to the $61.6 million. The overall increase in payroll was a whopping 225.8% between 1972 and 1982!

Table 49
Manufactures
Cass County, ND
1972, 1977, 1982

YEAR	All Establishments		All Employees		Production Workers			Value of Shipments		New Capital Expend
	#	20+ Employees	#[1]	Payroll[2]	#[1]	Hours[1]	Wages[2]	$[2]	% State	$millions
1982	117	39	3.5	61.6	2.3	4.1	34.9	532.6	21.6	11.1
1977	104	37	3.8	46.9	2.7	5.2	29.6	318.7	24.3	(D)
1972	88	29	2.3	19.0	1.6	3.2	11.8	143.5	24.2	1.7

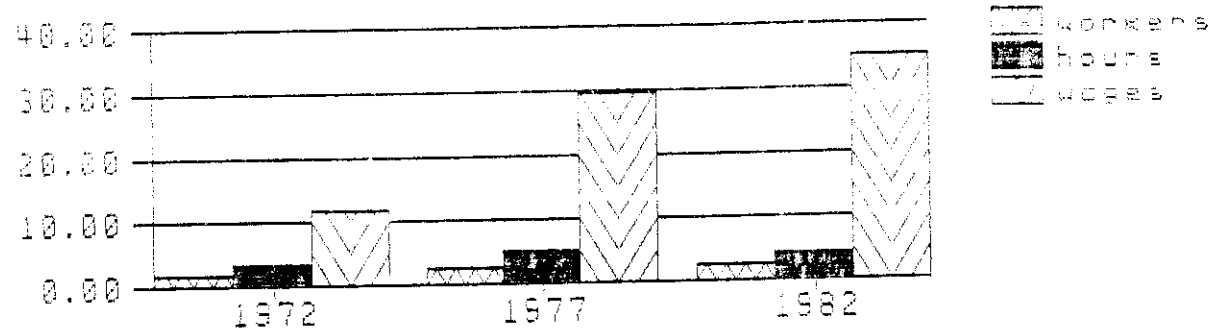
SOURCE: 1972, 1977, 1982 US Census of Retail Trade

1. In thousands
2. In millions

The growth in the number of production workers followed a pattern similar to the growth of all manufacturing employees. Increasing in number between 1972 and 1982 (1,600 to 2,300 persons), but reaching a peak in 1977 of 2,700 production workers. The number of hours worked by production workers also increased between 1972 and 1982, going from 3.2 million hours to 4.1 million hours. However, hours worked also peaked in 1977, at 5.2 million hours. See **Figure 7.**

The wages of the production workers increased steadily during this time period going from $11.8 million in 1972, to $29.6 million in 1977, and to $34.9 million in 1982. This was an increase of 115.8% between 1972 and 1982. Total wages increased in 1982 even though fewer workers were employed and fewer hours were being worked. See **Figure 7.**

Figure 7
Production Workers



The value of shipments produced by Cass County manufacturers increased steadily between 1972 and 1982, as shown in **Table 49.** Growing by a whopping 271.1%, the value of shipments rose from $143,500,000 in 1972 to $532,600,000. The value of shipments increased this much even though the number of workers and number of hours worked decreased.

Although this was a very strong growth rate, the county's percentage of the State's total value of shipments decreased between 1972 and 1982. The county shipped 24.2% of the State's total in 1972; but dropped to 21.6% in 1982. This indicates that the State's manufacturers have grown at an even higher rate than those in Cass County.

RETAIL TRADE

Table 50 reveals how retail trade establishments have increased between 1972 and 1982. As can be seen, retail trade establishments in the county increased by 89% (70 establishments), from 779 in 1972 to 849 in 1982. The volume of retail sales in the county increased 200.8% during this period, growing from $218.183 million in 1972 to $656.22 million in 1982. But despite this large increase in sales, the county's percentage of the total retail sales in the State increased by just 2.4% during this time period, going from 17.1% in 1972, to 19.5% in 1982, and actually peaking at 19.6% in 1977.

Even though the county's percentage of the State retail sales total decreased slightly between 1977 and 1982, it was the only industry whose sales increased as a percentage of the State total sales by industry between 1972 and 1982. Manufacturing, service industries, and wholesale trade all saw their sales decrease as a percentage of State totals. This points out how strong the growth in the county's retail

trade industry has been between 1972 and 1982. This also points out the increasing importance of the retail trade sector in the county's economy.

TABLE 50
Retail Trade
Cass County, ND
1972, 1977, 1982

YEAR	ESTABLISHMENTS #	SALES ($1000s)	PERCENT OF STATE TOTAL SALES ($1000s) %
1982	849	656,220	19.5
1977	830	439,854	19.6
1972	779	218,183	17.1

SOURCES: 1972, 1977, and 1982 US Census of Retail Trade

Another indication of the growth that has occurred in retail trade in the county can be seen in the increase per capita retail sales has experienced between 1977 and 1982. It went from $5,165 in 1977 to $7,436 in 1982, an increase of 44% during this period.

SERVICE INDUSTRIES

Data for the county's service industries between 1972 and 1982 is shown in **Table 51**. As shown, data was not collected for some categories in 1982; thereby making comparisons between 1972 and 1982 impossible. However, the trends between 1972 and 1977 can be analyzed. Healthy growth is shown in the all establishments category between 1972 and 1977, which increased by 42.3% (271 establishments). Receipts taken in by all establishments between 1972 and 1977 nearly doubled; yet the percentage of the State's total receipts taken in the county decreased an insignificant 0.1%.

Table 51
Service Industries
Cass County, ND
1972, 1977, 1982

YEAR	All Establishments #	Receipts*	% of State	Establishments with Payroll #	Receipts*	% of State
1982	NA	NA	NA	564	221,145	27.3
1977	911	89,311	28.0	363	81,894	29.4
1972	640	45,909	28.1	296	43,226	31.0

SOURCE: 1972, 1977, 1982 US Census of Retail Trade
* In $1000s

Fortunately, 1982 data was available for service industry establishments with payrolls. Therefore, a better analysis of recent trends can be made. This type of retail establishment has increased by 97% (268 more) and receipts have increased at a staggering 413.9%, from $43,226,000 in

1972 to $221,145,000 in 1982. Despite the increased receipts in the county, the percentage of the State's total receipts taken in by Cass County service industry establishments with payroll has decreased 3.7% between 1972 and 1982. This suggests that the State's service industries have grown at even higher rates.

Note that although more service industry establishments have no payroll, those with payrolls account for over 90% of the receipts taken in by this industry in Cass County (at least for 1972 and 1977). Because data was not available in 1982, the exact percentage is not known; however, it is assumed that those establishments with payroll still accounted for an overwhelming majority of receipts taken in by the county's service industry in 1982.

WHOLESALE TRADE

As indicated in **Table 52**, between 1972 and 1982, the number of wholesale trade establishments in Cass County increased by 10.1%, from 345 establishments in 1972, to 370 establishments in 1982.

Wholesale trade receipts increased significantly during this time, going from $820,401,000 in 1972 to $1,954,252,000 in 1982 (an increase of 138.2%!). Despite this growth, the county's percentage of the State's total wholesale trade receipts decreased from 36.9% in 1972, to 36.4% in 1977, and to just 32.7% of the State's total in 1982. But the county's wholesale trade industry still accounts for nearly one-third of all wholesale trade receipts in the State.

Table 52
Wholesale Trade
Cass County, ND
1972, 1977, 1982

YEAR	All Establishments			Merchant Wholesales	
	#	Receipts*	% of State	#	Sales*
1982	370	1,954,252	32.7	306	(D)
1977	359	1,413,933	36.4	291	774,712
1972	345	820,401	36.9	261	391,339

SOURCE: 1972, 1977, 1982 US Census of Retail Trade
* In $1000s

In addition, **Table 52** shows merchant wholesales data. It can be seen that the number of merchant wholesalers increased by 17.3%, (45 establishments), from a total of 261 merchant wholesalers in 1972 to 306 in 1982, with sales increasing by 97.9% between 1972 and 1977. Although merchant wholesaler sales data for 1982 was suppressed by the US Census Bureau, it is assumed the figure would show that growth continued because of the growth shown for all wholesale trade establishments between 1972 and 1977.

BUSINESS ESTABLISHMENTS

As shown in **Table 53**, approximately one-third (33%) of all business establishments in the county are either durable goods, eating or drinking places, or nondurable goods business establishments. The fewest number of establishments in one type of business was the selected educational services business, with only two establishments in 1982.

In addition, **Table 53** shows the number of paid employees for each type of business. Unfortunately, some of the data, represented by the (D) in the table, was suppressed. Of the establishments with data available, eating and drinking places employed the most people (2,981 employees). Health services, employed the second largest number of people (1,646) and machinery establishments employed the third largest number of people (1,100).

Table 53
Business Establishments
Cass County, ND
1982

Type	#	Paid Employees	Type	#	Paid Employees
Building materials, hardware, garden supply, and mobile home dealers	33	283	Personal services	92	662
			Business services	108	784
			Automotive repair services & garage	58	306
General merchandise, group stores	11	(D)	Miscellaneous repair services	32	105
Food stores	59	988	Amusement & recreation services, including motion pictures	34	335
Automotive dealers	38	827			
Gasoline service stations	47	564	Health services, except hospitals	101	1,646
Apparel & accessory stores	67	506	Legal services	41	271
Furniture, home furnishings & equipment stores	46	252	Selected educational services	2	(D)
			Engineering, architectural, and surveying services	31	(D)
Eating & drinking places	145	2,981			
Liquor stores	17	139	Accounting, auditing, & bookkeeping services	25	247
Florists	5	56			
Miscellaneous retail stores	94	(D)	Social & other services	15	(D)
Durable goods	232	(D)	Food & kindred products	16	900
Nondurable goods	138	(D)	Printing & publishing	25	600
Hotels, Motels, & other lodging places	25	710	Machinery, except electrical	22	1,100

SOURCE: 1982 US Census of Retail Trade, Wholesale Trade, Service Industries, Manufactures.

HOUSEHOLD INCOME

Household incomes are listed for the county in **Table 54.** Also listed are figures for the State of North Dakota. It can be seen that the county has a larger percentage of its households receiving higher incomes than the State. Nearly 60% of the county's households receive an income of $15,000 or more while only 50% of the State's households do. This trend is also reflected in mean and median incomes. The county's mean income is 112.7% of the State's ($20,397 annually compared to $18,099 for the State); and its median

income is 115.2% of the State's ($17,620 annually compared to $15,293 for the State).

Table 54
Household Income
Cass County, ND
1979

Income ($)	Cass County #	Cass County %	North Dakota #	North Dakota %
< 5,000	3,555	10.9	31,486	13.8
5,000-7,499	2,363	7.2	20,749	9.1
7,500-9,999	2,720	8.3	20,239	8.9
10,000-14,999	4,948	15.2	39,595	17.3
15,000-19,999	4,911	15.1	34,523	15.1
20,000-24,999	4,526	13.9	28,663	12.5
25,000-34,999	5,797	17.8	32,533	14.2
35,000-49,999	2,467	7.6	14,038	6.1
50,000 +	1,334	4.6	6,739	3.0
Median	$17,620		$15,293	
Mean	$20,397		$18,099	

SOURCE: 1980 US Census of Population

Please note that although the numbers listed are for the year 1979 and may be considered outdated, the relationships between county and State household incomes are what is important to understand. How the county compares to the State is what needs to be analyzed in order to comprehend the relative income level of the county's households.

Figure 8
Household Incomes

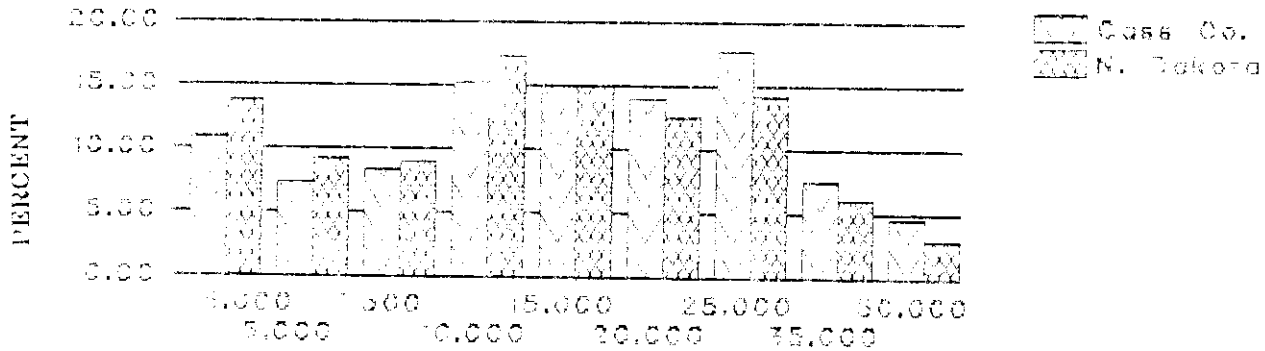
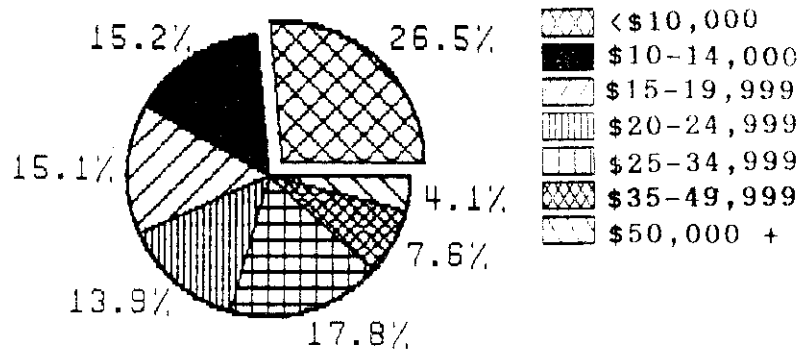


Figure 8 may help in understanding the relationship the county's household income has with the State's. As you can see, the county incomes follow the same general pattern as State incomes. That is, the county income ranges rise and fall at the same ranges as State incomes.

Also shown are the income ranges where the county has fewer percentages of its household in and the ranges it has a higher percentage of households in. Although the previous figures suggest that most households have "good" incomes, this is not entirely the case. As shown in **Figure 9**, over one quarter of the county's households (the exploded pie slice) have annual incomes below $10,000. This is significant when ones considers how difficult it is to live in our society with an income under this amount. Many of these households are the elderly which live on fixed incomes.

Figure 9
Household Incomes



The State has a larger percentage of its households (31.8%) receiving less than $10,000. This points out that not just the county, but the whole state has a significant amount of households that do not have an adequate income. And although the problem is not as great in Cass County as it is in the State, the county may want to study ways to improve the incomes for these households. Why? Many of these households become dependent upon federal, state and local governments to help them sustain a decent living. By improving their incomes, they can become more valuable participants in the county's economy.

FAMILY INCOMES

Another indication of the county's "wealth" relative to North Dakota's are family income levels, as revealed in **Table 55**. Again note that it is the relationship between incomes that is important, not the actual figures. Family incomes are higher than the household incomes shown above. However, as in the household figures, the county has less families in the low income levels and more families in the high income levels than the State. In fact almost one quarter of the families in Cass County have an income in the $25,000 to $34,999 range.

Table 55
Family Income
Cass County, ND
1979

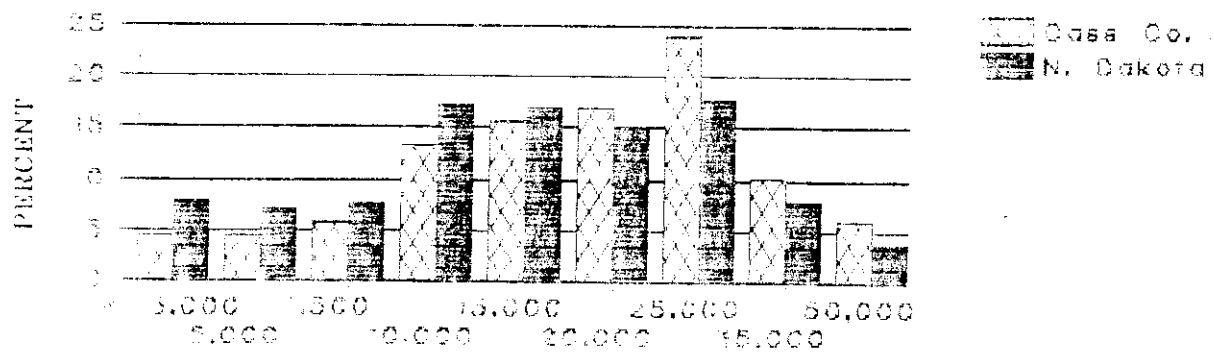
Income ($)	Cass County #	Cass County %	North Dakota #	North Dakota %
< 5,000	932	4.3	12,902	7.7
5,000-7,499	970	4.5	11,733	7.0
7,500-9,999	1,220	5.6	12,633	7.5
10,000-14,999	2,893	13.3	29,072	17.3
15,000-19,999	3,423	15.7	28,217	16.8
20,000-24,999	3,660	16.8	25,118	14.9
25,000-34,999	5,212	24.0	29,627	17.6
35,000-49,999	2,201	10.1	12,892	7.7
50,000 +	1,293	6.0	6,224	3.7
Median	$21,738		$18,023	
Mean	$24,381		$20,473	

SOURCE: 1980 US Census of Population

Another indication of the difference between county and State family incomes levels can be found in their respective median and mean figures. The county's median family income was $21,738 in 1979, compared to $18,023 for the State in 1979. The difference in mean income was even bigger, with the county's mean income at $24,381 in 1979, and the State's at $20,473.

Figure 10 is presented to help better understand the relationships between family income levels of the county and the State. As was the case with household incomes, the percentage of families in an income range in the county incomes rise and fall at the same ranges as the State's family income levels.

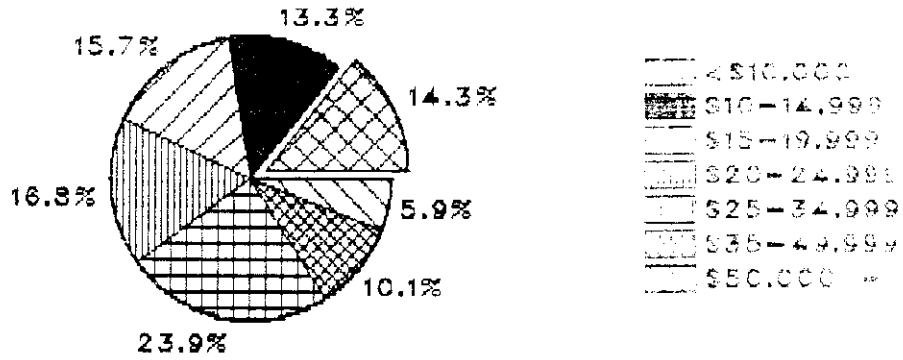
Figure 10
Family Incomes



Even though the figures cited thus far for family incomes might suggests that all families receive an income

that is "good", as **Figure 11** demonstrates, this is not the case. Over 14.% of the families in Cass County have incomes of less than $10,000. While this is better than the 22.2% for the State, the county should not view this as an acceptable percentage of families in this income range.

Figure 11
Family Incomes



Just as in households that receive low incomes, families that receive less than $10,000 have a hard time meeting their needs. After housing, food, and clothing are paid for, little funds are left. Also consider that many of these families are being supported financially by governments through programs such as food stamps, fuel assistance, etc.

PER CAPITA INCOME

Per capita income is a third indication of how healthy county incomes are compared to the State. Per capita income is the total income received in a jurisdiction divided its total population. Per capita incomes are shown in **Table 56** for the years 1979 and 1984. The county's per capita income increased 81.4% during this time, going from $7,686 to $13,943. Although State per capita income changed at a faster rate (91.5%), going from $6,417 in 1979, to $12,250 in 1984, it was still about $1,500 less than county per capita income.

Both county and State per capita incomes grew at healthy rates between 1979 and 1984. These rates break down into annual growth rates of 16.3% and 18.2%, respectively. This is yet another indication of how fast the economies of the county and the State have grown in recent years.

Table 56
Per Capita Incomes
Cass County, ND
1979 & 1984

	1979	1984	Change 79-84 #	Change 79-84 %
Cass County	$7,686	$13,943	$6,257	81.4
North Dakota	$6,417	$12,250	$5,873	91.5

SOURCE: Bearfacts, Cass County, ND, 1983-1984, North Dakota Job Service, 1984

FARMS

Just as in the national and state trends, the number of farms in Cass County has decreased. As shown in **Table 57**, the number of farms has dropped from 1,433 in 1978 to 1,276 in 1982. This is a decrease of 157 farms. When the data for 1987 is available it is expected that the total number of farms in the county will have declined to near 1,000 farms in 1987.

With fewer farms, the average number of acres per farm has been increasing. However, as shown in the table, not very many farms are growing to be over 2,000 acres. This is because the average size of farms has been relatively small and much farmland is being converted into residential, commercial, industrial, and wildlife uses. Farms with less than 220 acres experienced the largest decline, decreasing in number by 8.7% between 1978 and 1982.

Table 57
Number of Farms
Cass County, ND
1978, 1982

	1978	1982	% Change 78-82	
Number of Farms	1,433	1,276	-157	-10.96%
Average number of acres per farm	781	830	49	6.27%
Number of farms over 2000 acres	85	86	1	1.18%
Number of farms under 220 acres	276	252	-24	-8.70%
Average $ value per farm	$682,193	$918,341	$236,148	34.62%

Source: 1978, 1982 US Census of Agriculture

The average value per farm, including the buildings and equipment, also increased between 1978 and 1982, going from $682,193 to $918,341. This was an increase of 34.62% or $236,148.

VALUE PER ACRE

As shown in **Table 58**, the value of the county's farmland remained relatively constant from 1880 to about 1954. It went from $12.00 per acre in 1880 up to $86.00 per acre in 1920, down to $31.00 in 1940, and back to $85.00 per acre in 1954. From then it went up in price dramatically until it reached $981.00 in 1982.

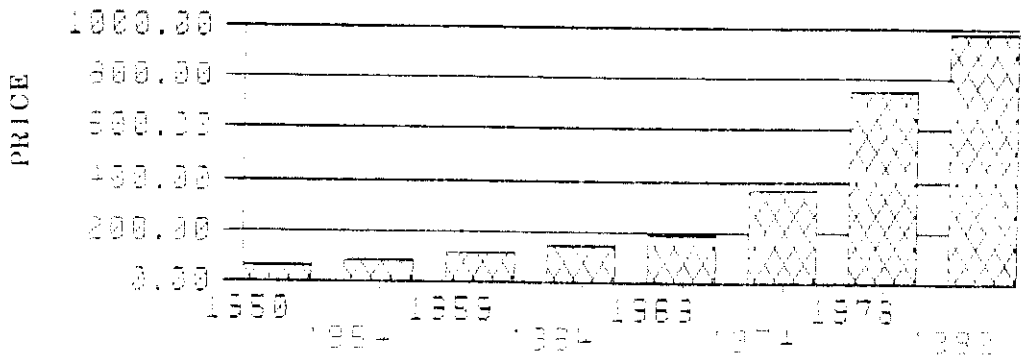
Table 58
Farmland
Value Per Acre
Cass County, ND
Selected Years

YEAR	$/Ac	YEAR	$/Ac
1880	$12.00	1945	$39.00
1890	$15.00	1950	$66.00
1900	$23.00	1954	$85.00
1910	$47.00	1959	$113.00
1920	$86.00	1964	$145.00
1925	$58.00	1969	$192.00
1930	$43.00	1974	$365.00
1935	$34.00	1978	$753.00
1940	$31.00	1982	$981.00

SOURCE: 1987 North Dakota Agricultural Statistics

Figure 12 shows how steep this growth was between 1940 and 1982. As shown, the price really climbs from 1969 to 1982. Between those years alone, the value increased approximately 410%! One reason for the increase is the growth of the urban areas in the county has inflated price of agricultural land around the urban centers.

Figure 12
Value Per Acre



A big problem with inflated values is the tax burden on the land becomes high. This means that the land can not realistically be kept agricultural because that use will not bring in enough money to pay the taxes on the land and support a farming operation.

CROP PRODUCTION

Wheat continued to be the principal crop produced in the county, as indicated in **Table 59.** Spring wheat had 234,000 acres harvested; durum had 37,000; and winter wheat had 19,200. Other crops with large acres harvested in the county were barley, soybeans, corn and sunflowers.

Table 59
Crop Production
Cass County, ND
1986

Crop	Ac Harv.	$ Produced*	$/Ac Harv
All wheat	290,200	$52,338	$180.35
Spring wheat	234,000	$43,354	$185.30
Barley	181,000	$21,600	$119.34
Soy beans	146,000	$19,822	$135.77
Corn	82,800	$13,137	$158.66
Sunflowers	66,500	$7,065	$106.24
Durum wheat	37,000	$4,521	$183.71
Dry beans	27,300	$6,797	$165.60
Winter wheat	19,200	$2,580	$134.40
Sugar beets	17,100	$9,471	$553.88
Oats	7,800	$671	$86.02
Flaxseed	5,500	$385	$70.00

SOURCE: 1987 North Dakota Agricultural Statistics
*: In thousands

Wheat was also the crop that produced the most value. It brought in over $52,000,000 in 1986. Spring wheat brought over $43,000 000 of this total. Barley brought in $21,000,000; Soy beans had $19,822,000; and corn had $13,137,000. Although sunflowers had 66,500 acres harvested, it brought in about $7,065,000.

Sugar beets had a large value as it brought in $9,471,000 for just 17,100 acres harvested. Dry beans was another crop in 1986 that had a large value ($6,797,000) for a small amount of acres harvested (27,300).

Because of its high value with small acres harvested, sugar beets had the highest value per acre harvested. By being $553.88/acre, the sugar beets dwarfed the value per acre for wheat, which was at $180.35/acre. However, wheat was still a good value for each acre harvested. Dry beans and corn also had good values per acre harvested.

LIVESTOCK PRODUCTION

Table 60 lists the livestock production for the county in 1985. As shown, all cattle had the largest number at 28,000, followed closely by hogs with 23,000. Milk cows had the highest value per head with the average milk cow being valued at $740.00. Sheep were valued at just $24.00 per head in 1985.

The total value of the livestock shown in Table 60 is $14,728. All cattle represented $11,760 or 79.9% of the total livestock value. Hogs had a value of $2,035, or 13.8% of the total value.

Table 60
Livestock Production
Cass County, ND
1985

	#	$/Hd	Value*
All cattle	28,000	$420	$11,760
Milk cows	1,000	$740	$740
Hogs	23,000	$89	$2,035
Sheep	7,900	$24	$193

SOURCE: 1987 North Dakota Agricultural Statistics
*: in thousands

AGRICULTURAL SALES

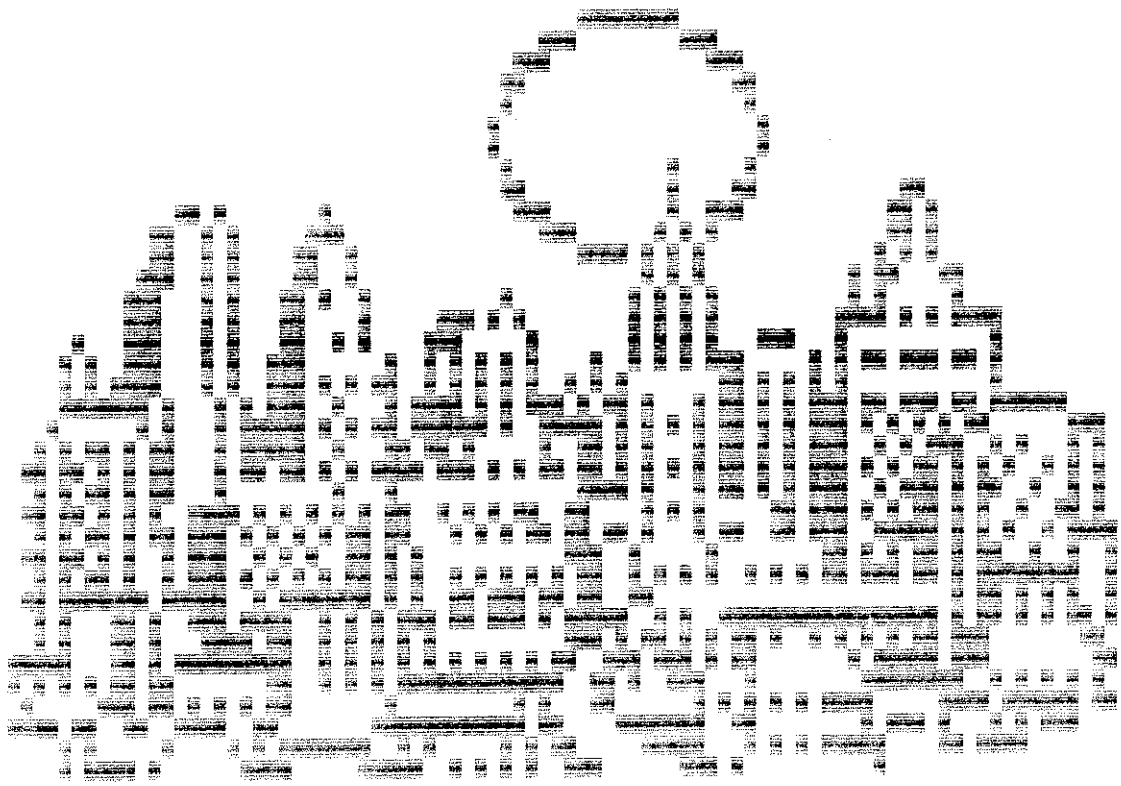
As shown in Table 61, agricultural sales have increased by 12.64% between 1978 and 1982. The total sales in 1978 were $114,167,000 and increased to $128,599,000 in 1982. Crop sales remained at 87% of the total agricultural sales despite growing 12.76% during this time. Livestock sales remained at 13%, even though they increased from $14,851,000 to $16,615,000. These figures support the fact that the county, because of its rich soil, is more suited to producing crops than livestock.

Table 61
Agricultural Sales
Cass County, ND
1978 & 1982

	1978		1982		Change 78-82	
Item	$*	%	$*	%	#*	%
Crops	$99,316	87%	$111,984	87%	$12,668	12.76%
Livestock	$14,851	13%	$16,615	13%	$1,764	11.88%
TOTAL	$114,167	100%	$128,599	100%	$14,432	12.64%

SOURCE: 1978 & 1982 US Census of Agriculture
*: In thousands

PUBLIC PARTICIPATION



Public Facilities

WATER

Having a potable water supply readily available to all areas makes Cass County an attractive place to live. In 1980, 93.5% of all housing units in the county were provided their potable water by either a public or private system.[1] This means that before the customer received the water, it had been treated and/or filtered. The public systems are those municipal systems that provide the residents of those communities with water. Fargo, West Fargo, and Casselton are three cities served by this type of system.

The major private potable water supplying system operating in the county is the Cass Rural Water Users, Inc. It consists of a water distribution system providing water to rural and urban users in much of Cass County, and parts of Richland, Ransom, Barnes, Steele, and Traill Counties.

This system started its development in early 1973. In November of that year, Cass Rural Water Users, Inc., incorporated as a nonprofit corporation. Its Board of Directors authorized a feasibility study, which is required by the Farmers Home Administration (the major source of funding for the project). Because it was impossible to receive funding in one lump sum, the project was separated into three phases. By late 1975, design started on Phase I.

In general, Phase I (Hickson Phase) consists of approximately 405 miles of pipe, seven reservoirs, three booster stations, and three wells (see **Map 8**). Phase II (Leonard Phase) consists of 475 miles of distribution pipe, six reservoirs, and six wells. Phase III (Page Phase) consists of approximately 550 miles of distribution pipe, four reservoirs, and three wells. Each of the main reservoirs contains an iron and manganese filtration plant. The system serves about 2,100 billing customers.[2] Although it does serve bulk users, the system generally supplies water to users on an individual basis. Some cities served by the CRWU, are Reile's Acres, North River, Frontier, and Briarwood. The system is limited by law to serve cities of 5,000 or less and draw 475 acre feet of water annually.

One consequence of this rural system has been the growth of rural nonfarm housing. This is so because potable water made rural areas near the urban center more attractive places to live. This is not to say that the rural water system was ***the*** reason for rural nonfarm housing development; rather, it points out that this system was a contributing factor in the development of rural nonfarm housing.

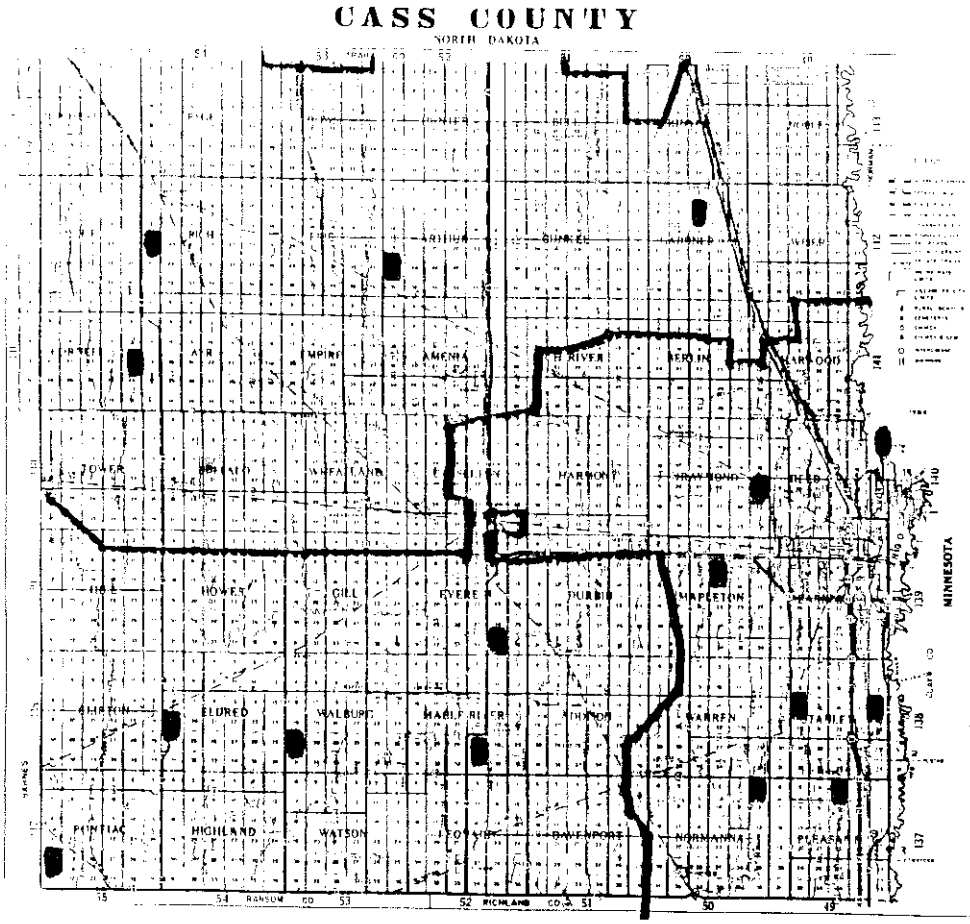
The remaining 6.5% of the housing units in the county, in 1980, were provided water by either individual wells or by

---

1. U.S. Census of Housing, 1980.

2. Cass Rural Water Users, Inc., 1987.

other means. This was a decrease from the 13.5% which used these means in 1970.



MAP 8
Phase
Reserviors

WATER RESOURCE MANAGEMENT

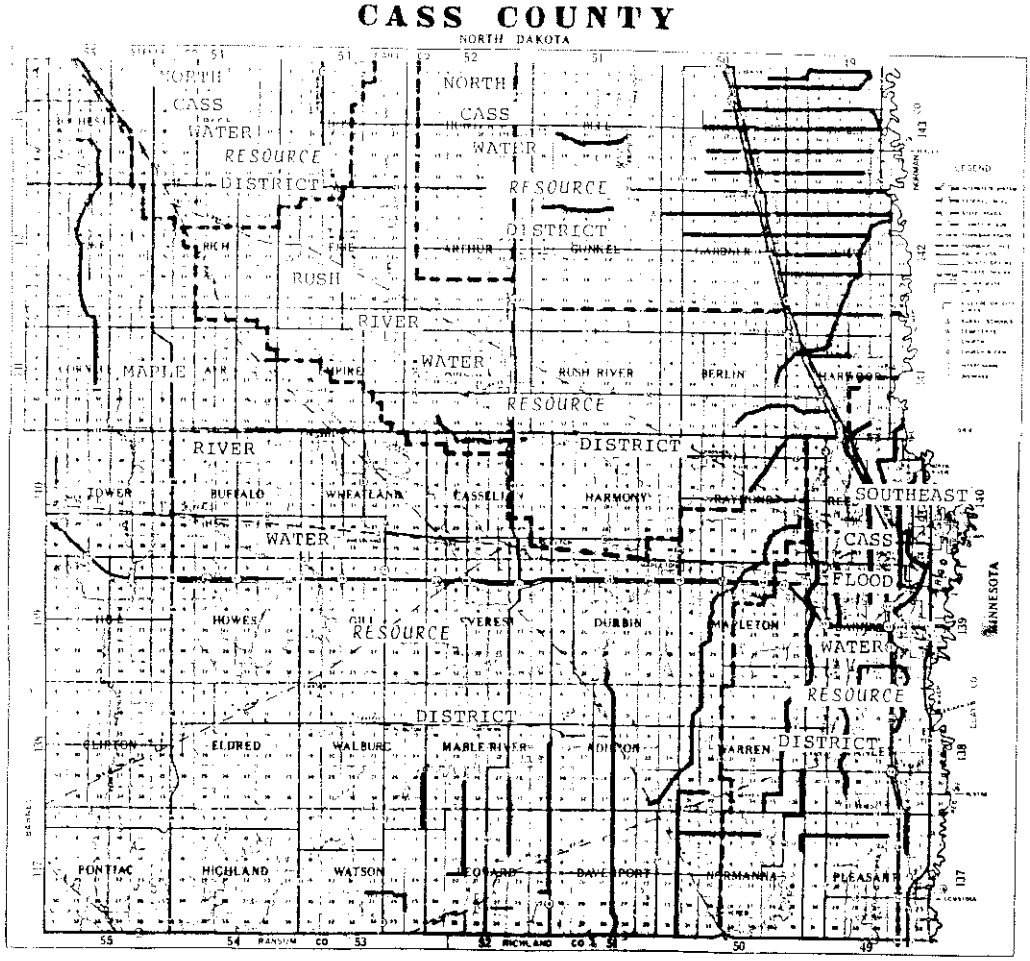
A simple fact of life is that plants, animals and humans need water in order to survive. Managing this resource in Cass County is the primary goal of the four water resource districts in the county (see **Map 9**). The boundaries of these districts follow the natural watershed boundaries of the main rivers flowing through the district. In addition to managing the water resources of the county, these districts are also trying to ensure the proper development of the water resources. The important aspect of these districts to point out is the fact that they "do not have the authority of control over the appropriation of the water resources in the county".

---

3. U.S. Census of Housing, 1980.

4. U.S. Census of Housing, 1970.

5. Handbook for North Dakota Water Managers, ND Water Resource Districts Association, 1986.



MAP 9
District
Drain

Two of the primary tasks of these districts are to review and approve permits to:

"a. build dikes, dams, or other devices which are capable of retaining, impounding, diverting, or obstructing more than 12 1/2 acre-feet of water;

b. build drains which drain a pond, slough, lake, or any series thereof having a watershed area of 80 acres or more."

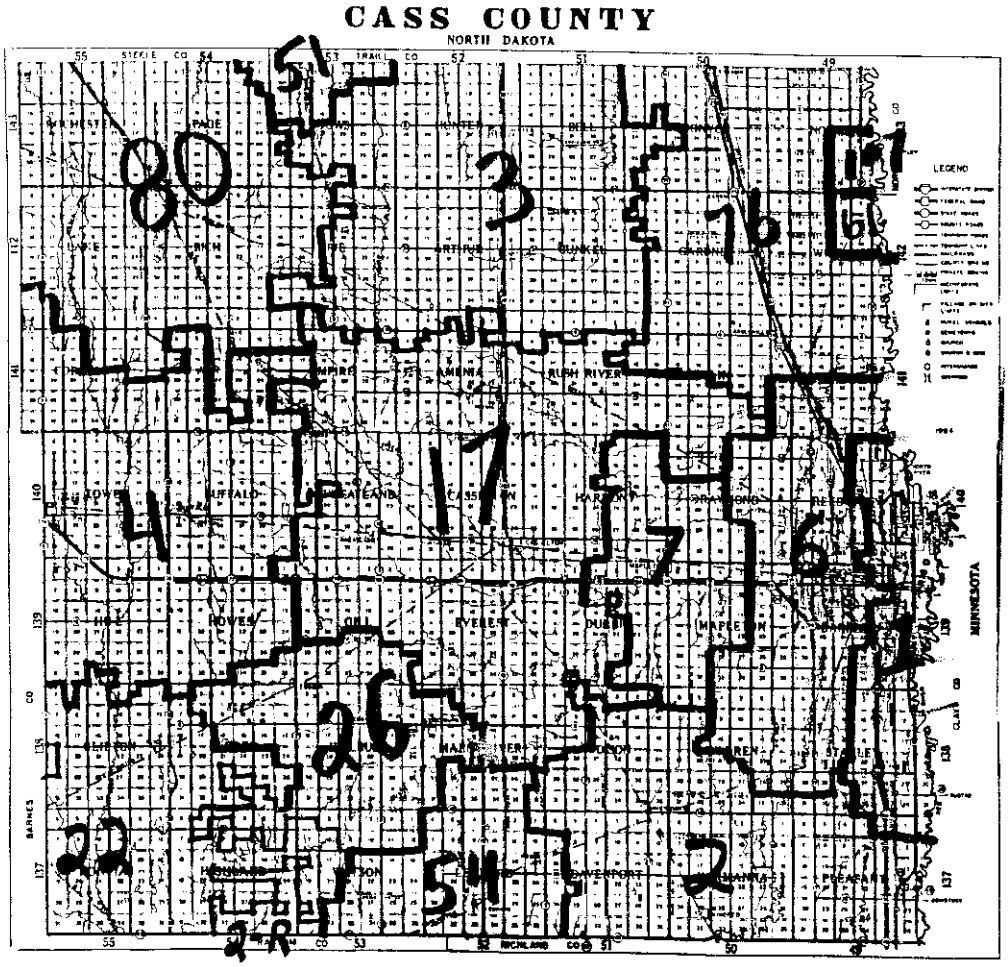
A Joint Board of the four water districts helps oversee the coordination of the management and development of the water resources in the county. Currently, a proposed dam site on the Maple River in Highland Township is being reviewed and awaiting approval. The districts operate and maintain assessment drains in the county (these are commonly referred as legal drains). There are over 50 such drains in place in the county at this time (see **Map 9**). The function of these drains is to aid in the water drainage of the county's watersheds. Each drain has a special assessment

6. ND Water Resource Districts Association, 1986.

district to generate revenue to provide the maintenance of the drain. These drains provide more land that can be cultivated for crop production and most drains were built over 40 years ago.

EDUCATION

The county is divided into sixteen (16) different school districts (see **Map 10**). The purpose of these districts is to provide educational and learning experiences for the children of those families who reside in the district. However, not all districts operate schools in the county. This is so because some districts include just a small part of the county in their total area; their schools are operating in locations outside of Cass County. In addition, two districts (Pleasant Valley and Noble) are not operating. The students from these districts attend schools in the Cass Valley North District.



MAP 10

1 Fargo
2 Kindred
3 Dakota
4 Maple Valley
6 West Fargo
7 Mapleton
17 Central Cass
22 Enderlin
26 Chaffee
54 Leonard
61 Pleasant Valley
76 Cass Valley N.
80 Page
107 Noble
2R Sheldon
51 Clifford-Gales.

Table 62
School District Enrollments
Cass County, ND
1984-19 88

	83-84		84-85		85-86		86-87		87-88	
	Elem	Sec	Elem	Sec	Elem	Sec	Elem	Sec	Elem	Sec
1 Fargo	6,932	3,366	6,978	3,274	7,108	3,379	7,400	3,275	8,199	3,340
2 Kindred	214	151	333	134	337	137	341	122	342	141
3 Dakota	230	86	139	91	132	79	123	88	124	81
4 Maple Valley	164	93	182	74	174	126	175	72	175	66
6 West Fargo	2,672	901	2,792	958	2,882	1,050	2,956	1,090	3,009	1,110
7 Mapleton	123	a	137	a	141	a	136	a	161	a
17 Central Cass	454	204	455	201	444	192	431	179	433	177
22 Enderlin	in	Ransom	county							
26 Chaffee	66	30	66	25	59	29	56	27	55	25
54 Leonard	94	33	102	32	96	43	90	52	87	50
61 Pleasant Valley b	non-	operating								
76 Cass Valley N.	162	87	158	52	156	59	169	55	176	60
80 Page	102	55	101	52	107	45	110	46	119	42
107 Noble b	non-	operating								
2R Sheldon	in	Ransom	county							
51 Clifford-Gales.	in	Traill	county							

SOURCE: Cass County Superintendent of Schools
a. Secondary students attend Central Cass
b. Students attend Cass Valley North

The educational opportunities in the various districts differ widely. The main reason for these differences is diverse populations of the districts. Because of their population, some districts can operate a number of schools, ranging from elementary to junior high to high schools. Most notable is the Fargo School District. Other districts, such as the Mapleton District, can only operate one school. Although the districts do differ in the number of educational and learning opportunities, each district ensures its students are given at least a good, sound, basic education. The enrollments for each school district are shown in Table 62. As you can see, some districts are gaining students while others are declining. Although Fargo District had the largest increase in number of enrollments (1,241), the Kindred District had the greatest percentage increase (32.3%) during the five year period. The District with the largest drop in enrollments and in percentage was the Dakota District which lost 111 enrollees or -34%.

If a generalization could be made about school enrollment changes in the 1970s, as shown in Figure 13, the

elementary schools have increased in enrollments while the secondary school have experienced a decrease in enrollments. The population pyramids presented in the *Population* element of this report (see page 36) also confirm this. More children in this county are of elementary school age than are young adults of secondary school age.

Figure 13
Elementary & Secondary Enrollments

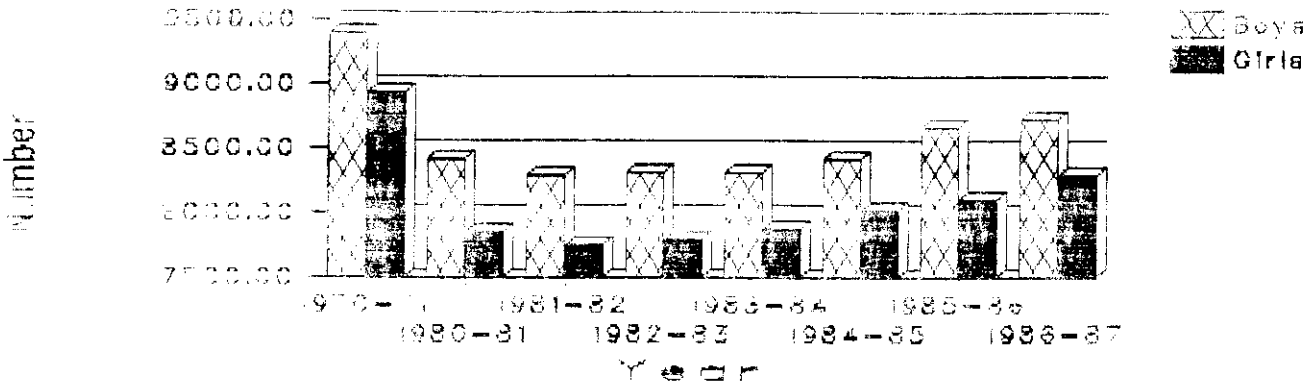


Table 63 exhibits the total enrollments in the county according to gender and school type for the years 1970-71 and 1980-87. As you can see, 1970-71 had over 2,000 more enrollees than there were in 1980-81. This indicates that the enrollments declined significantly during the 1970s. However, this trend has been reversed during the 1980s. Enrollments are up. The total enrollment for 1987-88 is just 357 short of the 1970-71 figure (17,972 compared to 18,329).

Table 63
School Enrollment
Cass County, ND
1970-71, 1980-87

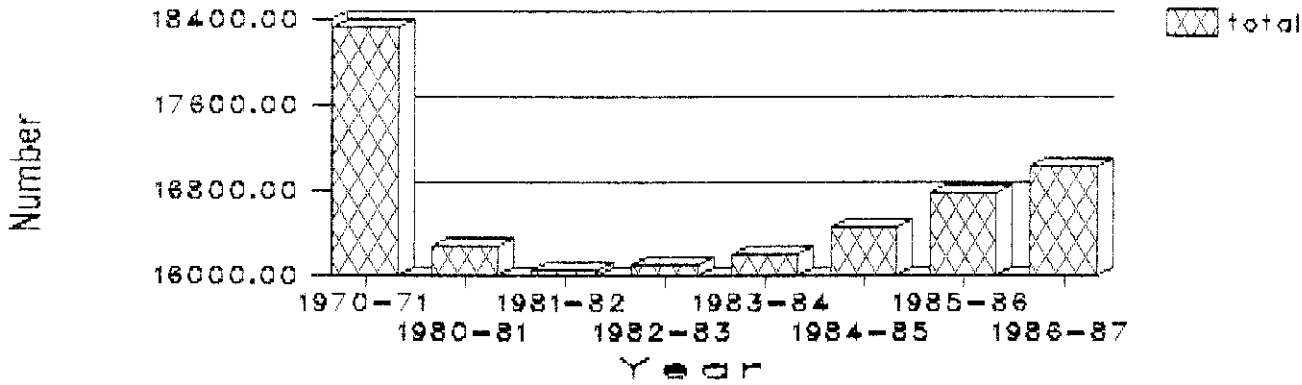
Year	Elementary			Secondary			TOTAL		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
1970-71	6,533	6,157	12,690	2,857	2,782	5,639	9,390	8,939	18,329
1980-81	5,688	5,268	10,956	2,732	2,595	5,327	8,420	7,863	16,283
1981-82	5,686	5,246	10,932	2,602	2,513	5,115	8,288	7,759	16,047
1982-83	5,722	5,375	11,097	2,585	2,426	5,011	8,307	7,801	16,108
1983-84	5,752	5,509	11,261	2,566	2,367	4,933	8,318	7,876	16,194
1984-85	5,847	5,614	11,461	2,577	2,408	4,985	8,424	8,022	16,446
1985-86	5,964	5,687	11,651	2,697	2,421	5,118	8,661	8,108	16,769
1986-87	6,090	5,892	11,982	2,641	2,399	5,040	8,731	8,291	17,022

SOURCE: ND Dept. of Public Instruction, 1987

A closer examination of the population pyramids would reveal that the school age groups are expected to increase during the 1990s. As this happens, the school districts will experience increased enrollments first in the elementary schools (which is happening now). Then as this group becomes older, the secondary school enrollments will increase as a result.

Figure 14 shows the increase in enrollments that has occurred in the county during the 1980s in a bar graph. As you can see, the annual increases have been dramatic. As already alluded to, the enrollment total should surpass the total shown for 1970-71 sometime in the near future. And as the population pyramids indicate, enrollments should be up until the 2010s before they begin to decrease significantly.

Figure 14
Total Enrollment



One important question about this expected increase in enrollments is: Are all districts going to experience these increases? Most of the increase enrollments are expected to occur in those districts that have large communities located in them. These communities are a drawing center for families to locate in or near because of the increased services available in them. Also, because of the declining farm population, the rural districts should not experience significant increased enrollments. Districts such as Dakota, Chaffee, and Page may witness some increase in enrollments that may deter the downward trend; however, these increase would only be temporary. Thus the declining enrollments will again be of concern for these districts.

Table 64 shows the total expenditures the county has spent for education since 1980. The expense has risen by $14,807,108.64 or 54.5% during this time, having gone from $27,191,309.07 in 1980 to $41,998,417.71 in 1987. Each and every year has experienced a sharp increase in expenditures. This has been a tremendous increase. The average cost per pupil in the county has risen by $1,166.59 or 62.1%. These increases occurred despite the average daily membership

decreasing by -4.7% between 1980 and 1987. One reason for this decrease was that, in 1985, the county stopped including the kindergarten class in its computation of the average daily membership.

Table 64
Education Expenditures
Cass County, ND
1980-1987

Year	Total Education Expenditure	Total county ADM*	county Average Cost/Pupil
1980 (K-12)	$27,191,309.07	14,477.02	$1,878.24
1981 (K-12)	$29,778,636.52	14,533.77	$2,048.93
1982 (K-12)	$35,220,431.83	13,608.57	$2,588.11
1983 (K-12)	$36,321,340.19	14,051.34	$2,584.90
1984 (K-12)	$37,583,820.51	14,290.95	$2,629.90
1985 (1-12)	$38,570,854.33	13,135.68	$2,936.34
1986 (1-12)	$40,030,595.89	13,443.26	$2,977.74
1987 (1-12)	$41,998,417.71	13,793.35	$3,044.83
Change 80-87	$14,807,108.64 54.0%	(683.67) -4.7%	$1,166.59 62.1%

SOURCE: Cass County Superintendent of Schools
* Average Daily Membership

Increased cost will have more impact on those districts that are more limited in the revenue they can generate. A smaller district is restricted by the small tax base from which they can draw funds. These districts will have a more difficult time in the future unless more funds are provided by outside sources. The local population is willing to provide their share of revenue; but they are willing only to provide a "reasonable" amount.

Because of these increased costs, many difficult decisions have to be made. Where can more revenue be generated? Where can cuts in spending be found? But it is not just a question of how these decisions are made, who makes these decisions is just as important. These are not simple questions; so there are no simple answers.

LIBRARIES

There are three municipal libraries in the county, located at Fargo, West Fargo, and Casselton. The Fargo and West Fargo libraries provide a wide range of services, from checking out books to checking out videos to showing movies. Also, they have expanded hours to provide access in the evenings and on weekends. The Casselton Library offers a more limited range of services and hours.

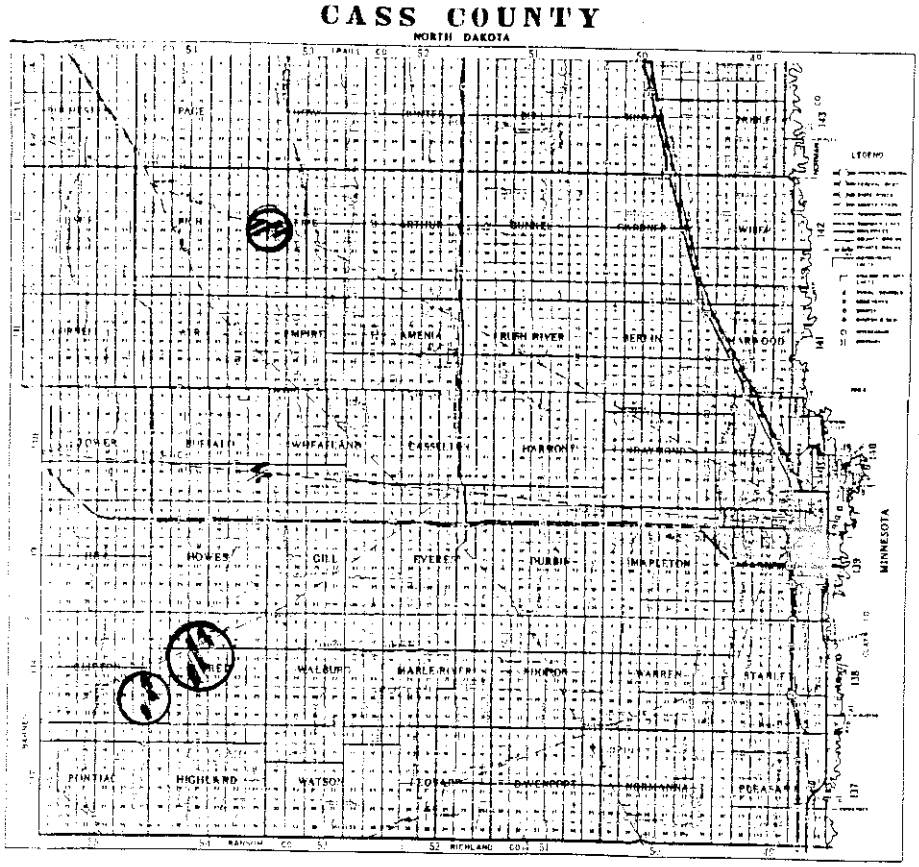
The public has access to the services provided at the North Dakota State University Library at an annual fee charge. This library has a computerized card catalogue which allows access to the Tri-College holdings as well as the Minnesota State System. Additional libraries with limited

access for the public are located at the schools in the county. Some private libraries, such as those located in hospitals and nursing homes, are also located in the county.

There is a huge difference in the level of accessibility to the library system between the urban and rural sectors in Cass County. No bookmobile service is provided to the rural residents. This means that they have to travel some distances before they can enjoy the services offered by the libraries in the county.

PARKS/RECREATIONAL FACILITIES

Although there are many parks and recreational facilities in Cass County, the county does not own any of them. Rather the county collects revenue through a park mill levy and distributes the funds generated to the local jurisdictions. They in turn use these funds for development and maintenance of the parks and recreational facilities they operate. The county does keep a small amount of the funds generated to provide the maintenance of the recreational facilities located at Erie Dam.



MAP 11

Wildlife Mgmt Area

Wildlife Production Area

Map 11 shows the location of recreation areas outside of incorporated cities. All of these sites, with the possible exception of the Erie Dam facilities, are not meant to

provide intense recreational use. As you can see, most of these sites are present for the protection and production of waterfall and other animals. This places restrictions on the amount of use the sites receive.

The North Dakota State Game and Fish Department has two (2) sites, totaling 1,133.9 acres, in Cass County. Both sites are designated as ***Wildlife Management Areas.*** One is located around Erie Dam in Erie Township; the other is the Magnolia WMA located in Buffalo Township. The primary purpose of these sites is to provide habitat for animals, both game and nongame species. Some areas of the sites are open to hunting and fishing. Also, the sites are "ideal for nature study, hiking and primitive camping". The United States Fish and Wildlife Service owns land and has easements of additional land in the county. The land it owns, totaling 3,034.96 acres, is designated as ***Waterfowl Production Areas.*** The sites provide nesting areas for waterfowl as well as habitat for other species.

There are 1,694 acres in the county that the Service has easements on wetlands (all located in the Northwest corner of the county). This easement is an agreement which stipulates that the draining, burning, leveling and filling of wetlands is strictly prohibited. The Service has no physical management of the land, has no control over hunting or trapping on the land, nor does it interfere with any agricultural use except when that use infringes on the wetlands.

As outlined in their goals to provide the optimum acreage for waterfowl production, the service would like to acquire a total of 5000 acres and obtain easements on a total of 8000 acres.

The incorporated communities in the county each own and maintain parks and recreational facilities. Although the level of service varies greatly, such as Fargo's system compared to Hunter's system, each provides their residents an area in which they may enjoy recreation. In addition to the funds they receive from the county, most have additional mill levies taxed on property within their jurisdictions.

At least one subdivision in the county provides a recreational facility. The Oxbow Country Club and Estates Subdivision provides an excellent golf course. In fact, one of the main reasons this subdivision exists is because of the golf course.

The county has two historical sites designated and are administered by the State Historical Society. The two sites are the Buffalo Creek Crossing and the Maple Creek Crossing.

ND Dept. of Game and Fish, 1987.

US Fish and Wildlife Service, 1987.

Both are historically significant because the sites are the locations where the Native Americans crossed when migrating to and from their hunting grounds.

The Statistical Abstract of North Dakota, identifies the following recreational facilities in Cass County:

20 miles of hiking trails (52 acres),
157 sites available for camping by tent,
161 sites available for camping by trailer,
182 picnic sites.

Bonanzaville, USA and the adjacent fair grounds offer yet another type of park/recreational facility for Cass County. The museum and pioneer village allow people to catch a flavor of what life was like.

HEALTH FACILITIES

Due to the regional significance of the Fargo-Moorhead's medical facilities, Cass County is provided with excellent health care facilities. Three hospitals are located in Fargo: the Dakota Hospital, Saint Luke's Hospital and Saint John's Hospital. A fourth hospital, the Veterans Administration Hospital, is also located in Fargo, but it provides only limited access to the general public.

Table 65
Health Care Facilities
Cass County
1975 & 1984

	Hospitals	Hospital Beds	Persons Per Bed
Cass County			
1975	3	682	117
1984	3	778	122
North Dakota			
1975	53	3,897	165
1984	52	3,953	174

SOURCE: ND Department of Health

Table 65 exhibits the number of hospital beds and the number of persons per bed that are in Cass County and the State of North Dakota for 1975 and 1984. In the county the number of hospitals remained constant and the number of beds increased, 3 hospitals and an increase of 96 beds. However, the number of persons per hospital bed also increased even though more beds were available, increasing from 117 persons

9. The Statistical Abstract of North Dakota, Bureau of Intercontinental Affairs, University of North Dakota, 1983.

per bed to 122 persons per bed. North Dakota experienced similar findings. Even though the number of beds increased, the number of persons per bed also increased.

This may indicate that the population of the county, if it continues to grow at the present rate, may outgrow the number of hospital beds, if they continue to grow at present rate. However, it is assumed that the occupancy of these beds would never be 100%; so there should be beds available to those who need them.

Because the hospitals in the county have such regional significance, there is a high concentration of health practitioners in the county. As **Table 66** reveals, there are 275 doctors, 173 physicians and over 1,000 registered nurses.

Table 66
Health Practitioners
Cass County, ND
1982

Doctors	275	Chiropractors	11
Dentists	66	Registered Nurses	1,068
Physicians	173	Licensed Practical Nurses	470

SOURCE: ND Statistical Abstract, 1983

Also, because of the general health care available in the county is plentiful, the county has a large number of elderly health care facilities. Two different types of facilities exist in the county. First, there are the **Skilled Nursing** facilities; second, the **Intermediate Care** facilities. The difference between the two facilities is the level of care available to the residents. A **Skilled Nursing** facility can provide more medical care than the other, such as Title XVIII beds. **Table 67** shows the two types of facilities and the number of beds in each facility.

In **Table 67** you can see a difference in where the different levels of elderly health care facilities are located. The **Skilled Nursing** facilities are all located in the City of Fargo. As already mentioned, Fargo is where most health practitioners are located; so this difference is not surprising.

One negative aspect of having all of the **Skilled Nursing** facilities located in Fargo is that it causes the elderly to be relocated from their homes. This is hard on the elderly because they are placed into unfamiliar settings. Also, if one person of an elderly couple needs to be placed in an institution, the other must either travel many miles to visit or relocate to the area the institution is located.

The costs of health care is an issue too complex to be included in this report. But it can be mentioned that these costs are becoming more expensive than many can afford. Without health insurance, most could not afford any type of health care. As these costs continue to grow, more and more people will have to decide on whether to obtain care or not.

Table 67
Elderly Health Care Facilities
Cass County, ND
1986

	Total Beds	Title XVIII Beds
American Health care Center (Fargo)	104	19
Bethany Homes (Fargo)*	96	96
Elim Home (Fargo)	125	125
Fargo Nursing Home (Fargo)	102	102
Villa Maria Health care, Ltd. (Fargo)	132	6
TOTALS	559	348
Intermediate Care Facilities		
Arthur Good Samaritan Center (Arthur)	96	
Enderlin Hillcrest Manor, Ltd. (Enderlin)	62	
Bethany Homes (Fargo)*	96	
TOTAL	254	

SOURCE: ND Department of Health
* A combined SNF/ICF facility

LAW ENFORCEMENT

Every inch of land in the county is protected by the police. There are two different types of local law enforcement this land could receive. One is by the local municipal police force; the other is by the County Sheriff's office.

The cities of Fargo, West Fargo, Casselton, Riverside and Kindred have municipal police protection. These law enforcement agencies are limited in that their jurisdiction is just the land within the city limits. The level of service provided by the municipal police forces differs. The Fargo Police Department provides many different specializations in police work while Kindred's cannot afford to provide this specialization.

The Cass County Sheriff's Office provides the local law enforcement for the other areas in the county. These areas include incorporated cities as well as the rural areas. The department has 23 Field Deputies, 10 Jail Deputies and 32 deputized persons it could use in emergencies. [10] The county is basically divided into fourths, with each fourth having a deputy located in it at most times. This enables the department to have a response time of 15 minutes or less.

10. Cass County Sheriff's Office, 1987.

Because of its resources, the department is able to have specialization in the various levels of law enforcement.

The Sheriff's Office maintains the jail facility for Cass County, located in the City of Fargo. All prisoners are held in this jail. Juvenile prisoners are detained in the Juvenile Justice Center also located in Fargo. Because of antiquities and limitations the current facility has, the county is considering building a more modern facility; so jail facilities should meet future needs.

There is a mutual aid agreement among the various departments in the county. This allows one force to request aid by another to assist in emergency situations. This agreement allows the helping force to have police powers in the jurisdiction they are helping. This agreement also is in place with the Moorhead and Clay County law enforcement agencies in Minnesota.

A current study is being undertaken to try and remove duplication between the various police forces in the county. [11] This study is also looking into the possibility of a joint law enforcement center between the Cass County Sheriff's Office, the Fargo Police Department, the North Dakota Crime Bureau, and the North Dakota Highway Patrol. This is hoped to end communication difficulties and reduce the cost of police protection.

FIRE PROTECTION

All land in the county is protected from fire. Some areas are included in a rural fire district while others are provided fire protection from volunteer fire departments. The difference between the two is districts levy taxes for funds, while the departments rely on contributions and fees. **Map 12** shows where the fire districts are. If a fire should break out somewhere in the county, the district or boundary that the fire is in would respond. If assistance is needed, mutual aid agreements are in place to allow neighboring fire equipment to be used.

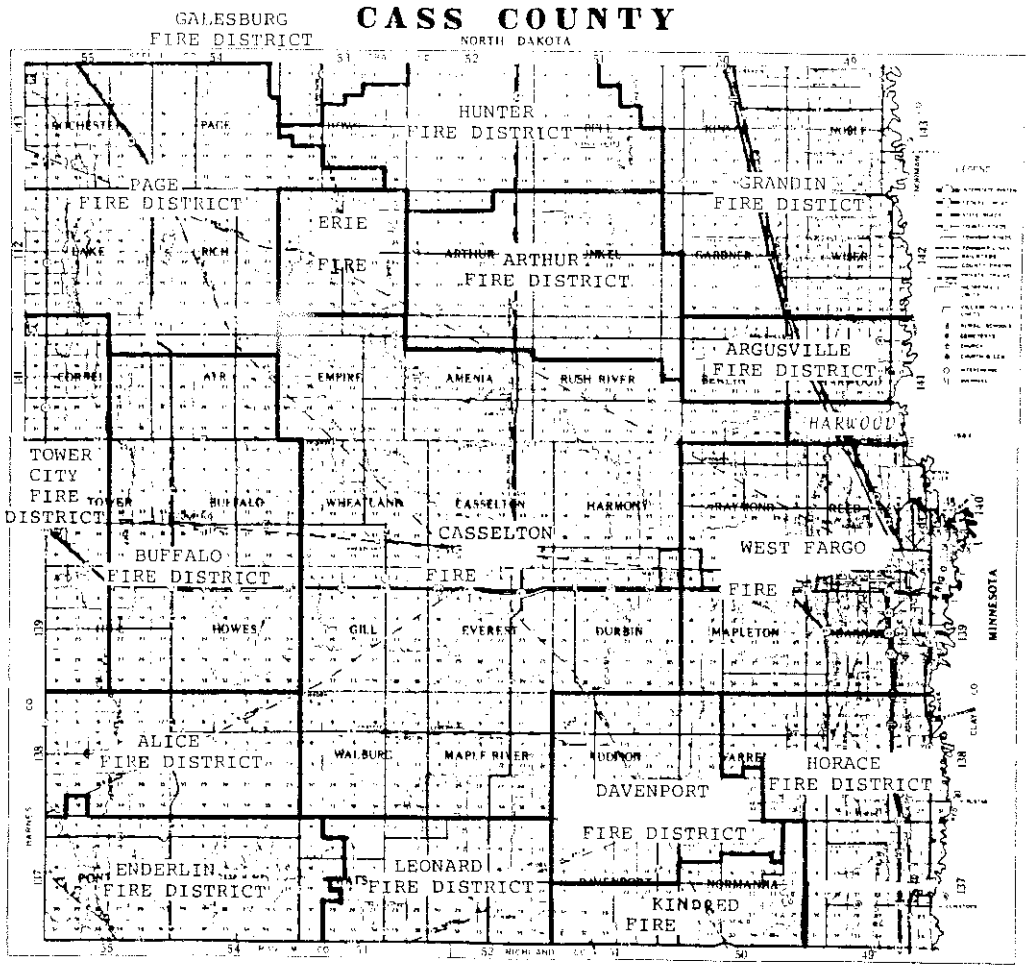
Although the county is provided with good, basic fire protection, there are some problems. The biggest concern is the difficulty the various fire fighters have in communicating with each other. The radio equipment is not the same. This causes special problems when one outfit is assisting another at a fire. Poor communication could cause the serious loss of property or life.

Another concern is the level of expertise the various units have in responding to chemical mishaps. These situations do require a special knowledge of equipment to ensure that it is taken care of safely and effectively. Chemicals are used everywhere, everyday. All firemen receive some training and education, but the potential for mishandling these types of situations is great.

---

11. Cass County Sheriff's Office, 1987.

Chemicals are used everywhere, everyday. All firemen receive some training and education, but the potential for mishandling these types of situations is great.

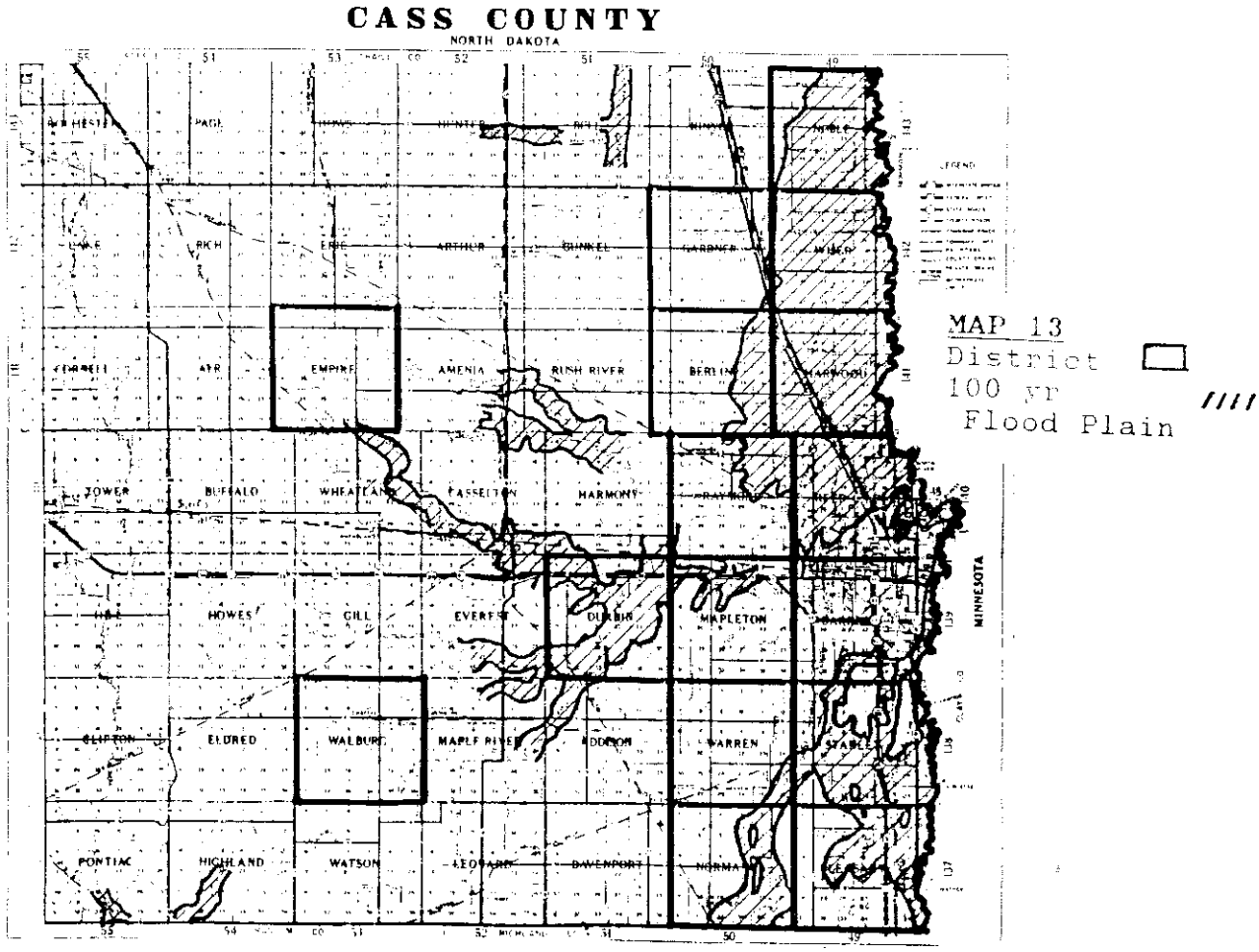


MAP 12
District

FLOOD PROTECTION

Flooding has been a problem in Cass County for quite some time. Every spring brings on the eternal question of how big is the flooding going to be this time. To help combat this, The Congress of The United States created the National Flood Insurance Program (NFIP). This was an effort to reduce loss of life and property due to flooding. The federal government provides subsidized flood insurance through this program in return for local adoption and enforcement of floodplain management procedures aimed at reducing or avoiding future damage due to flooding.

There are two phases to the program. The first phase, the emergency phase, begins when a locality applies to become part of the NFIP. The locality is provided with a map that shows the general areas of the locality that may be flooded during a 100 year flood. Under the NFIP, property owners will be eligible for flood insurance as soon as the locality



enacts a development permit system. The development permit is designed to ensure that new developments in the flood hazard areas are protected from the 100 year flood, and that new developments will not increase the flood hazard to other areas.

During the emergency phase, the Federal Insurance Agency conducts a Flood Insurance Study. The boundaries of the floodway, the 100 year flood and the 500 year flood are determined for the locality and are shown on a Flood Boundary and Floodway Map.

The Flood Insurance Study also determines the insurance risk of the areas in the floodplain. These risks areas, which are shown on the Flood Insurance Rate Map, are used by insurance agents to determine insurance rates.

The second phase, the regular phase, begins when the Flood Insurance Rate Map becomes effective. Insurance coverage limits are increased under the regular program in exchange for the locality's adoption of a floodplain management program. The locality's management program must ensure that:

1. The lowest floor (including basement) of new residential structures must be higher than the 100 year flood elevation.

2. All new or substantially improved nonresidential structures shall be floodproofed to the elevation of the 100 year flood.
3. Any new uses or developments in the floodway are limited to those that do not increase the height of a flood.

The typical flood management program consists of a floodplain ordinance and a development review and permit system. **Map 13** shows which townships in the county have established programs for flood management.

In addition to the county's assessment drain system, two other facilities are being proposed to help ease the flood problem. One is the dam proposed on the Maple River in Highland Township. This would assist in controlling the flooding that occurs downstream.

The other proposed facility is the Sheyenne River Diversion. This would divert a porportion of water from the Sheyenne River around the west edge of West Fargo. The water would reconnect with the river north of West Fargo.

SEWAGE DISPOSAL

The proper disposal of sewage is a concern in Cass county. The soils in the eastern part of the county are "generally not suited to use as septic tank absorption fields because of their high clay content and their slow permeability" [12]. Despite this, the majority of rural non farm housing being built occurs in the eastern part of the county and they rely on the septic tank absorption field method to dispose of their sewage. As more and more of these systems are put into use, the potential for pollution increases.

In 1980, although 3,266 (9%) of the total housing in the county used the septic tank/cesspool methods of sewage disposal, there were 41.7% of rural nonfarm housing using these methods. [13]

To provide some relief, the county is currently studying the possibilities of providing the rural nonfarm housing south of Fargo with an alternate method of sewage disposal. The purpose of this study is to determine the most effective and efficient method which could be used. Once this system is put into effect, the concern will lessen to some degree. However, this system may entice more housing to be built in the area because the sewage problem is not much of a problem anymore.

---

12. Soil Survey of Cass County Area, North Dakota, US Department of Agriculture, Soil Conservation Service, 1983.

13. US Census of Housing, 1980.

SOLID WASTE DISPOSAL

Currently, there are three (3) public landfills operating in Cass County: Fargo's, Casselton's, and Hunter's landfill. The Fargo landfill has an anticipated twenty year life span left before it will be full; the Casselton landfill is brand new and has an anticipated twenty year life span; the Hunter landfill is expected to be closed to the public in early spring of 1988. [14]

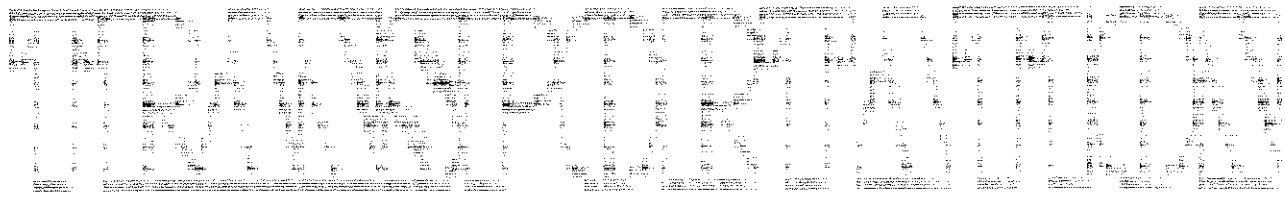
Much of the solid wastes in the county is collected by private companies that haul the garbage to landfills located out of Cass County. These private companies are licensed by the state of North Dakota.

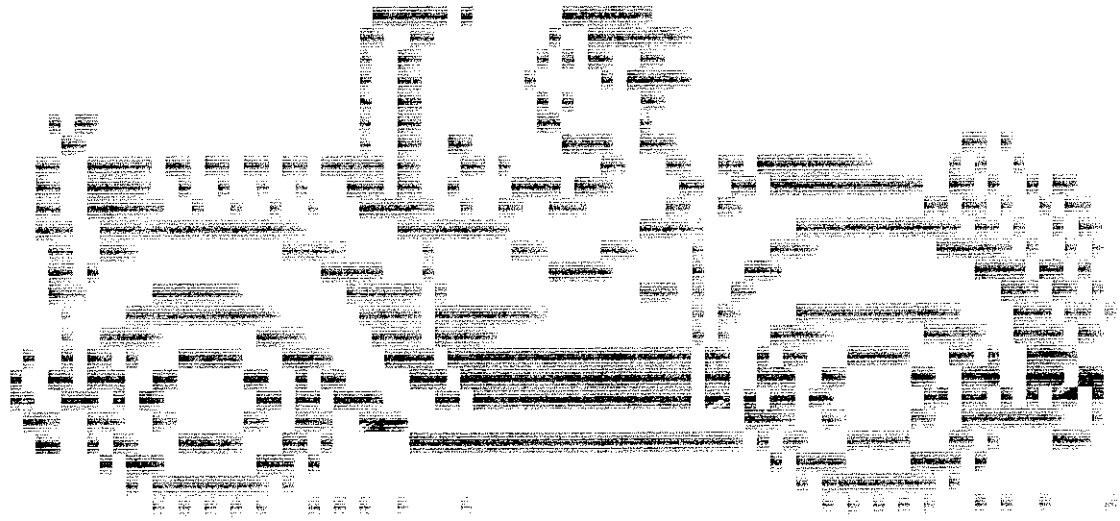
Most solid waste can be recycled. One project that has great potential is the waste depot suggested to be built in or near Fargo. This depot would separate the garbage into different piles. Each pile would then be processed to extract the potential uses out of the waste. This method of waste disposal would be beneficial because it would reduce the waste going to the Fargo landfill by approximately 90%.

Junked vehicles and used tires are another concerns of the county Sanitarian. [15] About ten years ago a program funded by the federal government did exist to help the county dispose of these properly. Since then, nothing of substance has occurred. These junked vehicles and tires are a problem because they provide good habitat for the production of mosquitoes. The county may want to study the possibility of implementing policies, rules and/or regulations on the disposal of these items.

Cass County Sanitarian, 1987.

Cass County Sanitarian, 1987.





TRANSPORTATION

HIGHWAY SYSTEM

Cass County's highway system is composed of federal, state, county and township roads. These roads combine together to form a network for the transportation of goods, people and services. The network enables the transportation of an item to and from any location in the county, as well as the state and nation. The county's network links with other networks to form a national network for the transportation of goods, people and services. These networks function much like the circulatory system of transporting blood in a human body; both are vital and organic for the entity to live.

Table 68 presents the number of miles each road type has in the county. There are a total of 3,645 miles of roads in the county. Organized Township roads comprise 69.9% of all roads in the county. This is so because, generally, all township section lines have roads to ease the transport of goods to and from markets. Because the majority of these township roads, as well as county roads, are gravel, the cost of maintenance and upkeep is a major expense for the governments.

Table 68
Road Mileage
Cass County, ND
1987

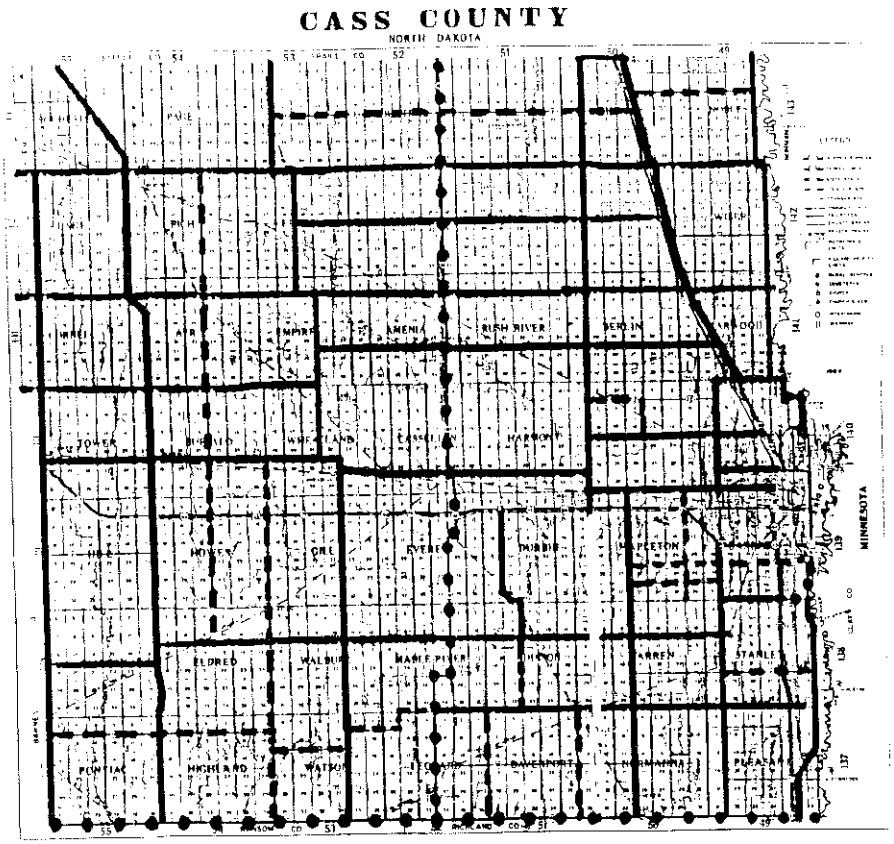
Jurisdiction	#	%
Interstate	89	2.40
State		
Primary	108	2.90
Secondary	27	0.70
Urban	2	0.06
County		
Federal Aid	156	4.30
Regular	489	13.40
Organized Township	2548	69.90
Village Streets	20	0.55
Trail in Use	206	5.70
TOTAL	3645	100.00

SOURCE: Cass County Engineer, 1987

The intersecting of the two Interstate Highways (I-94 and I-29) at Fargo provide the county with easy access to markets outside of the area. This intersection has also made Fargo a distribution point for many goods that are distributed throughout the region.

The highway network is divided into five basic categories based upon the degrees of access, mobility and

travel of a road. **Map 14** shows the functional classification of the roads in Cass County.



MAP 14
Minor Artierial
Major Collector
Minor Collector

These functional classifications are based upon the traffic counts of each road. Those roads with a high count would be classified higher than those with low traffic counts. Thus, Interstate Highways are classified differently that county Highways.

Bridges provide farmers vital links to markets. In Cass county there are 192 bridges on federal aid and 520 bridges off federal aid. [16] If these bridges are too narrow, cannot support heavy truck traffic or are washed out, the goods cannot be transported easily. Farmers then have to take round-about routes to markets; thus increasing their costs.

16. Cass County Engineer, 1987.

REGISTERED VEHICLES

The number of registered motor vehicles in the county has risen dramatically. As shown in **Table 69** the increase has been 246.2% between 1950 and 1980. This increase has resulted in an increase in traffic flows. The increase in vehicles and the development of the road network has helped in the nonfarm housing that has sprung up around the urban center. Most of the roads were not built to handle the traffic that now travels on them.

Table 69
Registered Motor Vehicles
Cass County, ND
Selected Years

Y	#
1950	24,553
1960	32,611
1970	47,245
1975	69,760
1980	85,014

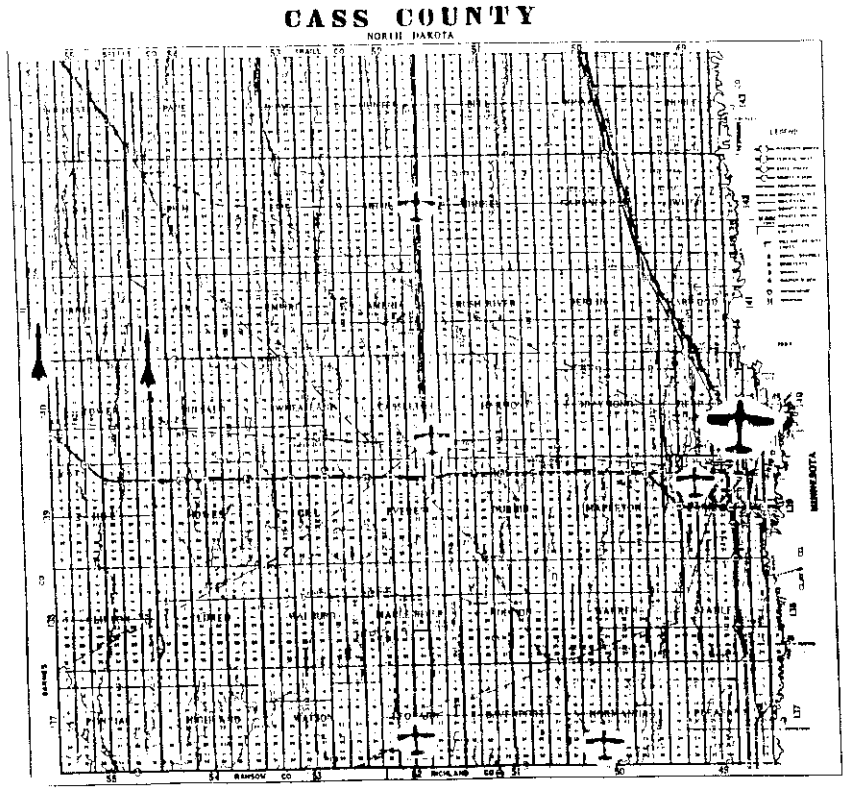
SOURCE: ND Statistical Abstract, 1983

Not all of the new vehicles are of the traditional type, i.e., the passenger car, farm truck, etc. An increasing number of the vehicles are recreational, off road vehicles. These present a whole different set of problems. They are often operated by unlicensed drivers, not safely driven and travel off established, known paths.

AIR TRANSPORTATION

Cass County has six public airports located in it (See **Map 15**). Five are for general aircraft while the sixth is an air transport facility. The Hector International Airport located in Fargo provides the county with air links around the world. Not only are passengers flown to exotic places, but goods are air freighted to world markets. **Table 70** shows the number of passengers, freight and mail coming and going at Hector International.

As you can see, the number of passengers increased by approximately 50% between 1976 and 1986. This increase in use was one reason why a new air terminal was recently opened. However, although more passengers are using the airport, less freight is being shipped out and received. The decrease was 34% for freight being shipped out; the decrease was 45% for freight being shipped into the county. Mail being shipped from the county increased by 103% between 1976 and 1986. Mail being dropped off increased by 39% during this same time.



MAP 15
Airport

Missiles Site

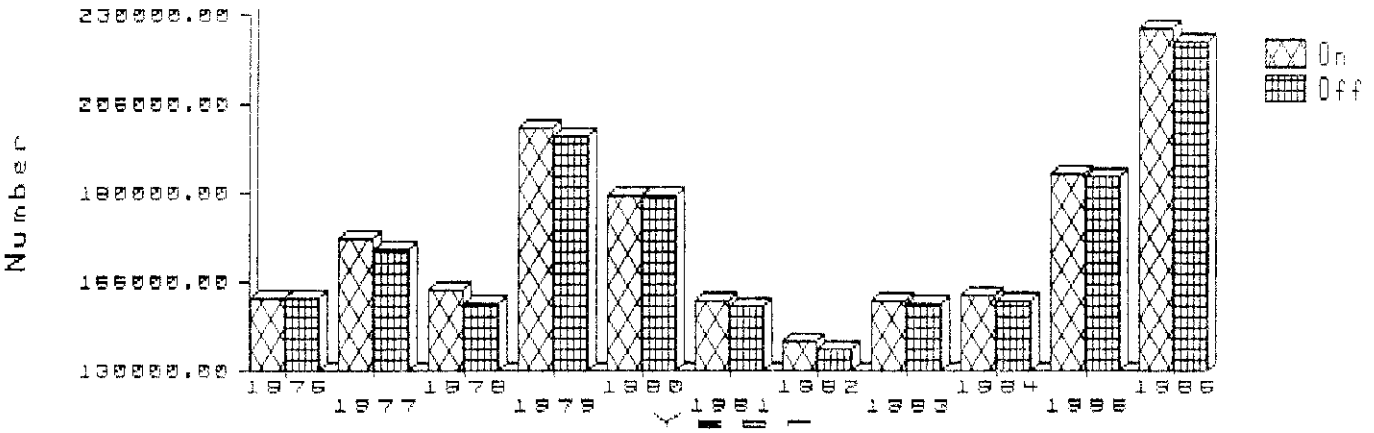
Table 70
Air Shipments
Hector International Airport
Cass County, ND
1976-1986

	Passengers		Freight (lbs)		Mail (lbs)	
	ON	OFF	ON	OFF	ON	OFF
1976	150,215	150,100	792,332	1,662,024	1,078,098	2,774,488
1977	166,959	164,248	631,738	1,588,457	1,284,444	3,017,533
1978	152,577	148,900	705,981	1,746,648	1,865,438	3,149,689
1979	198,220	196,273	908,018	1,791,049	1,059,205	3,630,067
1980	179,564	178,996	688,477	1,359,028	1,674,707	4,275,341
1981	149,906	148,461	498,142	954,150	1,634,441	4,205,603
1982	138,510	136,264	451,739	972,481	1,456,646	3,990,531
1983	149,699	148,842	517,868	1,067,743	1,779,916	3,465,650
1984	151,430	149,466	518,798	977,019	1,824,538	3,222,797
1985	185,637	184,217	525,127	1,008,842	1,950,010	3,211,667
1986	225,964	222,767	524,653	920,500	2,185,967	3,845,107
Change	75,749	72,667	(267,679)	(741,524)	1,107,869	1,070,619
76-86	50.4%	48.4%	-33.8%	-44.6%	102.8%	38.6%

SOURCE: Fargo Airport Authority

Closer examination of **Table 70** reveals that the shipments at Hector International have really fluctuated over the past ten years. **Figure 15** shows how the passenger numbers have fluctuated. Two reasons can be given. First, deregulation occurred in 1978. This resulted in an increase of service to Fargo. The decrease in 1982 can be attributed to fuel prices that caused air shipment rates to be high. Recent years have showed dramatic increases because the market is becoming very competitive. Rates were lower and more service was being provided to Fargo.

Figure 15
Passenger Shipments



A total of 19 private airstrips are in operation in the county. These strips are used for recreational use or as a base for crop dusting companies. These strips provide some nuisance if they have been located too close to neighboring housing developments.

In addition to the airport facilities located in the county, two missile silos are located in the western edge of the county (see **Map 15**). These sites are maintained by the Grand Forks Air Force Base located approximately 70 miles to the north.

RAIL TRANSPORTATION

Three Railroad Companies provide freight service to Cass county: Red River Valley and Western; Soo Line; and Burlington Northern (see **Map 16**). From the map you can see that Burlington Northern operates lines in the northern half of the county while the Red River Valley and Western operates tracks in the southern half. The Soo Line operates just a small portion of its tracks in the southwestern corner of the county.

As **Table 71** indicates, Burlington Northern has the most rail mileage in the county. The Red River Valley and Western provides the county with unique service in that it has bought the abandoned lines of the Burlington Northern; thus

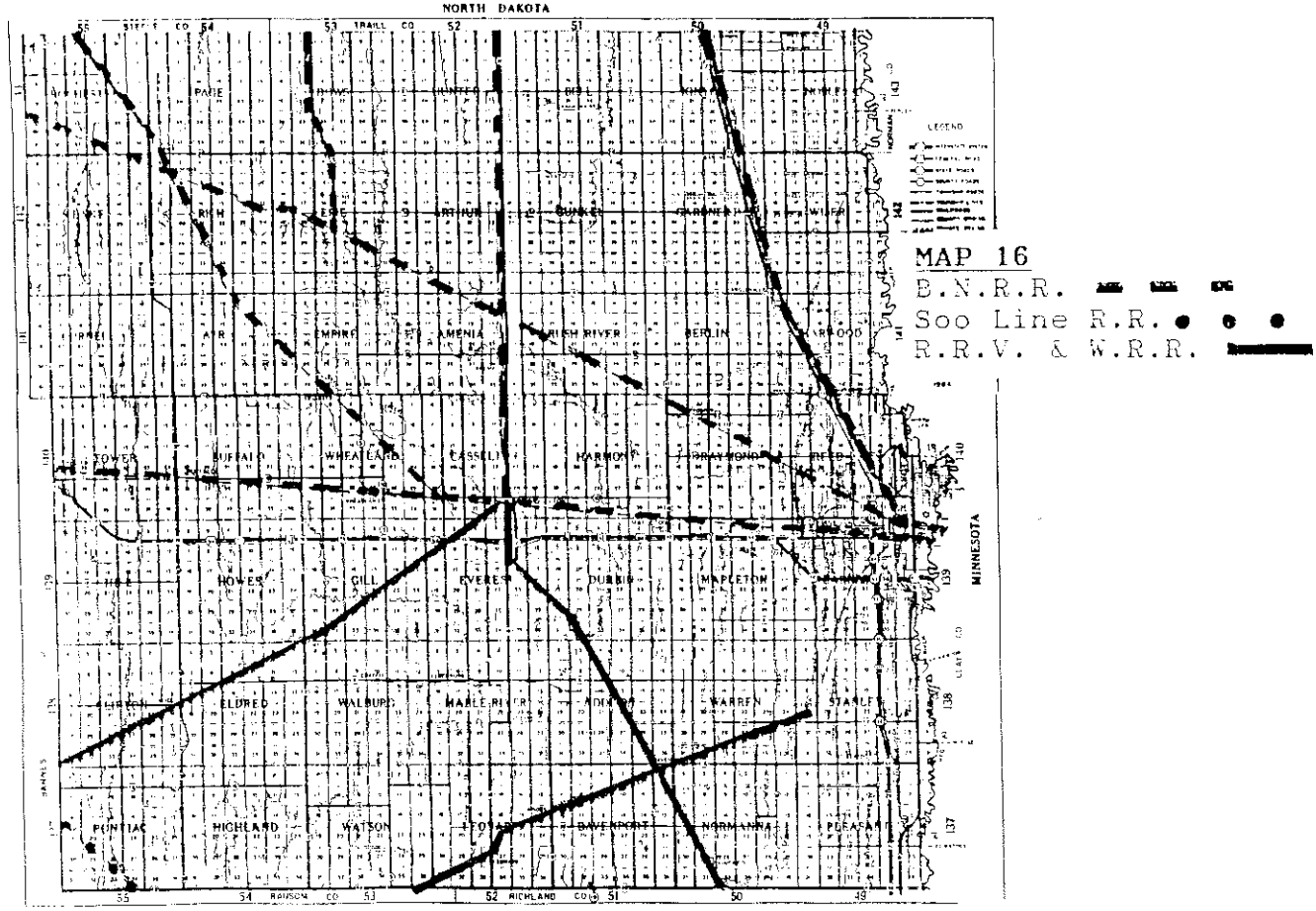
continuing service to those areas of the county. All three railroads provide the county with excellent freight service that allows the goods to effectively get to and from many markets.

Table 71
Railroad Mileage
Cass County, ND
1987

Red River Valley and Western	85
Soo Line	5
Burlington Northern	321
TOTAL	411

SOURCE: The three companies, 1987

CASS COUNTY



Passenger rail service is provided by the ***Amtrak's Empire Builder.*** This service runs east and west on alternate nights with Fargo being the terminal point. Although this service is good, the trains stop in Fargo very early in the morning. This does provide some inconvenience to users. The line does run North from Fargo to Grand Forks, North Dakota. From there the line runs due west to Seattle, Washington. Going East from Fargo the line runs straight east to Detroit Lakes, Minnesota; then ultimately to Chicago, Illinois.

BUS TRANSPORTATION

Cass County has bus service both for interstate travel and intracounty travel. The interstate service is provided by three bus companies: Greyhound, Triangle, and Jackrabbit. Towns which are served by these lines are those that are on the two interstate highways (I-94 & I-29). Fargo is the terminal that connects passengers to both north/south and east/west lines.

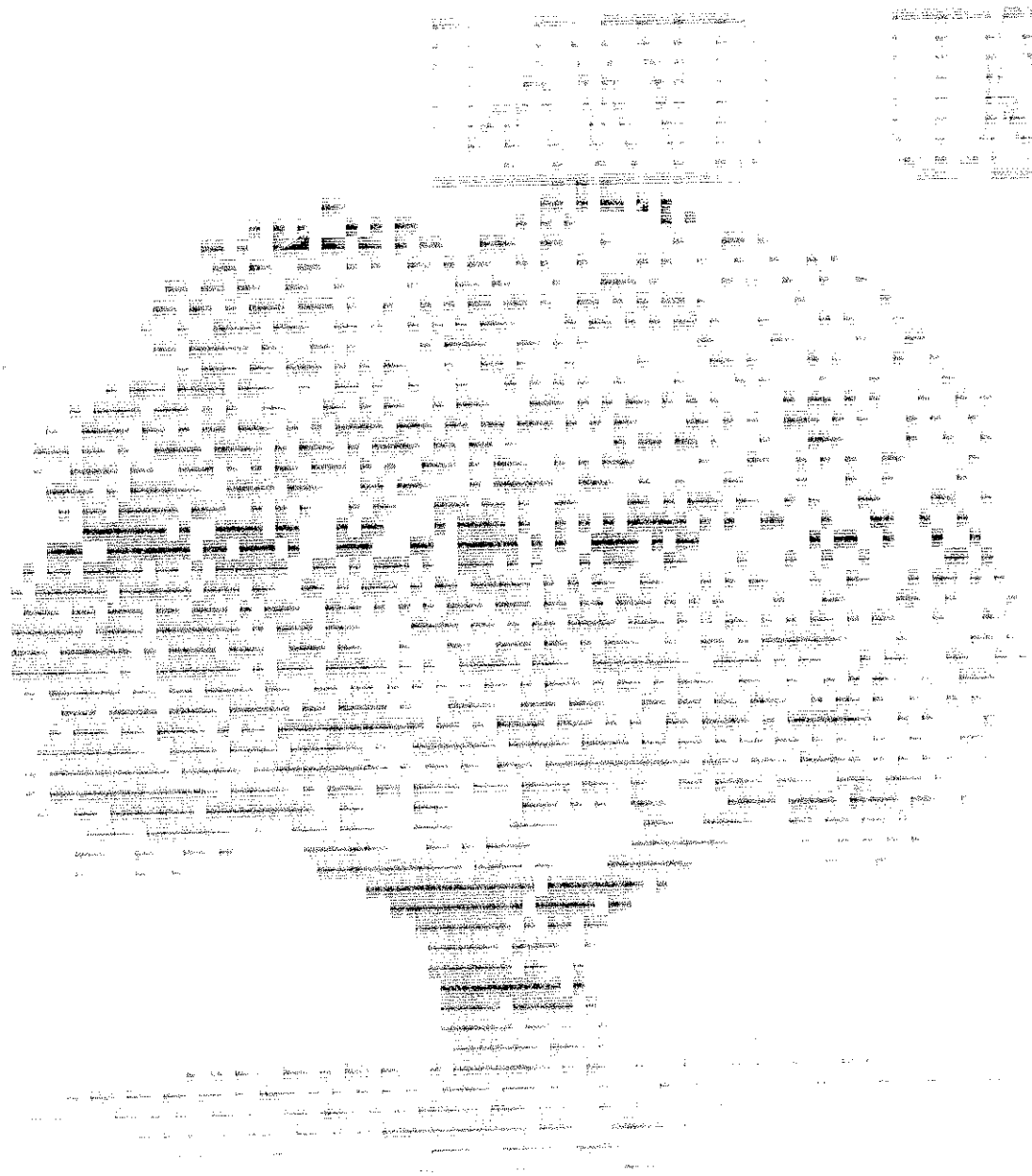
The intracounty bus service is provided to senior citizens by the Cass County Council on Aging. This service is split into two with one bus serving the North Cass County Senior Citizens and the other bus serving the South Cass County Senior Citizens.

Charter bus service is also available in the county. These services will provide buses to travel to practically all points. Fargo has a city bus service, the Metropolitan Area Transit. Fixed route bus service links popular destination points in Fargo. All buses begin their routes at the Ground Transportation Center, located in downtown Fargo. The service also allows transfers to the Moorhead, Minnesota, transit systems.

SPECIALIZED TRANSPORTATION

Some citizens of the county need special transportation service. Senior citizens in the county are provided with the rural buses. In addition, senior citizens in Fargo and West Fargo are provided bus service within those cities. These services are provided by the Fargo Senior Commission, Inc.

Mentally handicapped and Physically handicapped persons who reside in Fargo are serviced by the Fargo Transit's Taxi Dial-a-Ride service. Physically handicapped citizens of Fargo and West Fargo are provided service by Handi-Wheels, Inc. This service must either begin or end in Fargo. North Dakota State University will provide on campus transportation to mobility impaired faculty, students and staff. The American Red Cross will provide transportation to patients needing health care, based upon a recommendation from a human service agency. They will provide this service to residents of Fargo and West Fargo.



Land Use

INVENTORY

As Cass County has aged over the past 100 hundred years or more, change has taken place. The prairie have given way to settlement. Native grasses have been plowed over; land converted from agriculture to residential uses; rural residence overtaken by urbanization. Yet, changes take place slowly.

An inventory of the use of the land is important because it reveals the past changes and the possible changes that occur to the use of the county's land. **Table 72** provides the Land Use Inventory for the year 1986. **Figure 16** (shown on Page 103) shows the county's land use in a pie chart.

Table 72
Land Use
Cass County, ND
1986

USE	ACRES	%
Agriculture	1,032,900	92.2
Forest	4,400	0.4
Built Up (i.e., roads, incorporated cities, etc.)	76,500	6.8
Water	1,639	0.1
Wetlands	4,461	0.4
TOTAL	1,119,900	100

SOURCE: Cass County Planning Department, 1987.

As indicated in **Table 72**, agriculture is still the dominate use of the county's land. This includes all cropland, rangeland, summer fallow, land used for farm building, etc. Because land in the county is excellent for agricultural production, it is wise that most of it is used for agriculture.

Forest land in the county is primarily located on the river beds. Although it occupies only 0.4% of the land in the county, these forests are important to land use because they attract a large number of rural nonfarm housing developments.

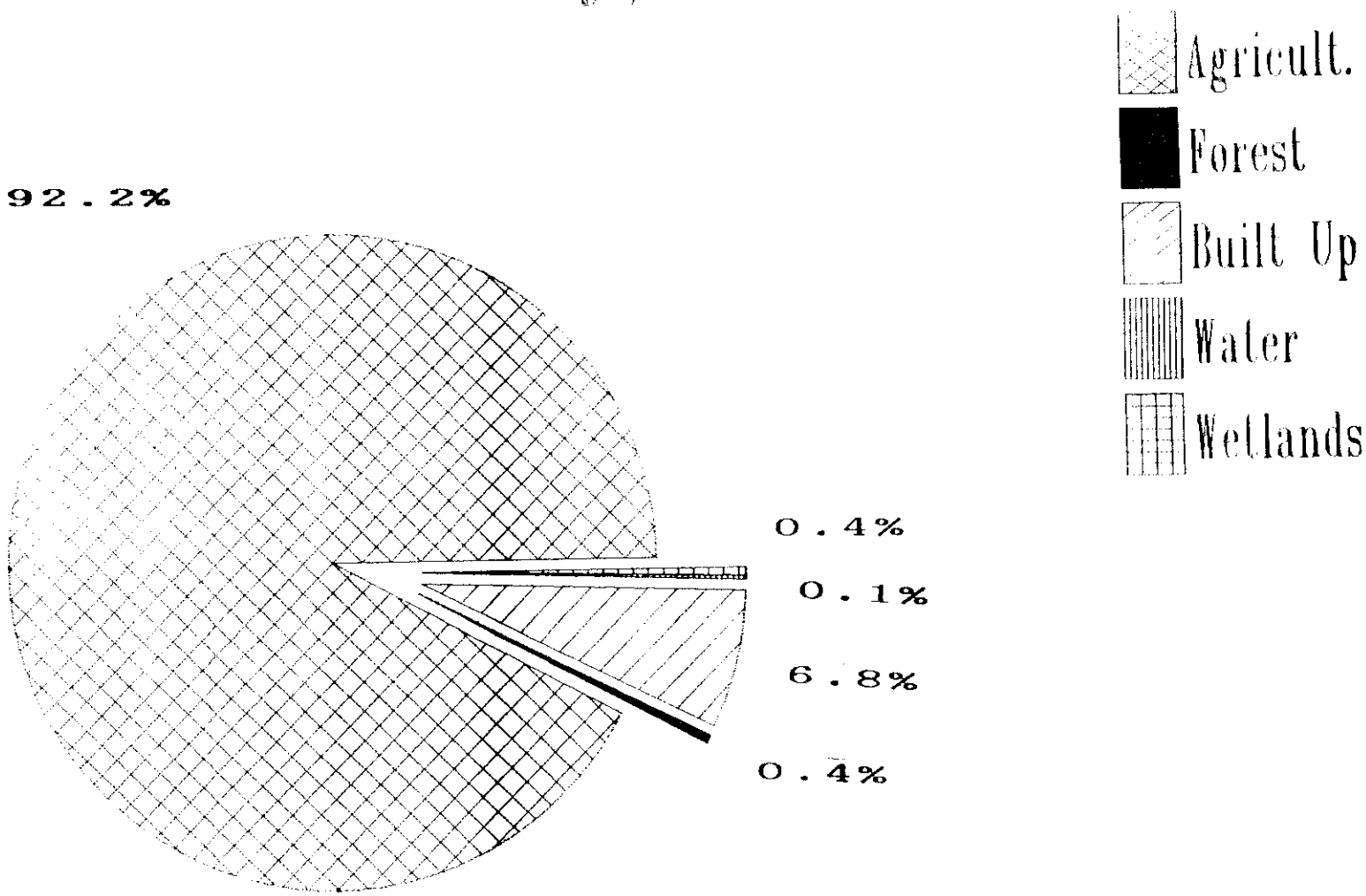
The third category of land is Built Up land. This includes land that has been incorporated into a city, used for transportation facilities, etc. In 1986, nearly 7% of the county's land was included in this category. This land use has been increasing.

Incorporated cities is the main reason for the increases. More and more land is being annexed into communities. Although some new incorporated communities have been made, most of the land is being annexed by existing incorporated cities. In 1978, 25,700 acres of land in the county were identified as being used for incorporated

FIGURE 16

Land Use Pie Chart

Cass County, N. Dakota



cities. [17] Data taken in 1986 reveals that the land used for incorporated cities increased to a total of 39,214 acres. [18] This is a difference of over 13,500 or a change of approximately 53% over an eight year time span. Fargo annexed about another 2,000 acres in 1987.

Not all of the land newly incorporated is used as agricultural land. A sizable portion of it was land that had been developed. Most of this developed land was included in rural subdivisions that are located near the urbanized areas. Because some of the land annexed is this developed land and already included in the inventory as built up land, the majority of increase in the Built Up category would be agricultural land. However, this does not mean that the land is no longer being used for agricultural production. It has been recategorized.

Water in the county is confined to the rivers that flow through or adjacent to the county. The Major rivers are: the Red River; Maple River; Sheyenne River; the Rush River; and the Wild Rice River. The major reservoir of water is Brewer Lake or Erie Dam. The water acreage is expected to increase once the proposed dam on Maple River is built in Highland Township.

The wetlands in the county are bodies of water ranging from potholes or areas that are seasonally wet to permanent standing bodies of water. While wetlands were once widely occurring in Cass County, intensive drainage efforts have greatly reduced wetlands. They are located primarily in the western half of the county. The drainage practices that reduced the wetland acreage and quality have halted. This was done because the wetlands have high value as waterfowl production areas. Through easements and fee acquisitions, the US Fish and Wildlife Service is conserving the remaining wetlands in the county.

In late Spring of 1985, the Cass County Planning Department made a complete county inventory of land uses. The information gathered was placed on individual township maps. These maps provide a better understanding of how land in the county is being used. Although some changes have taken place since these maps were completed, they are fairly representative of the actual land use in late 1987. The individual **Township Land Use Maps (Maps 17-67)** appear in the following pages.

Another excellent source of land use in the county is the *Atlas of Cass county, North Dakota, 1984,* compiled by the **Midland Atlas Company, Inc.**, of Milbank, South Dakota. This source provides other valuable information on its maps than just general land use.

---

7. Cass County Planning Department, 1978.

8. Cass County Planning Department, 1987.

SUBDIVISIONS

Rural living is an attractive setting for some people. It provides a more quiet, simple, restful way of life. Yet these people do not prefer living on a farm. They want the life styles of a farmer without the hardships of owning and operating a farm. As a result rural nonfarm housing developments have occurred in Cass County. The beautiful river beds in the county attract most of these developments. Most of the development has centered in the eight townships that surround the Fargo-West Fargo urban center.

Platted subdivisions is one way rural nonfarm housing occurs. **Table 73** shows the number of acres of land in Cass County that has been subdivided. This does not include unincorporated villages. As you can see nearly 2300 acres of land has been subdivided.

Table 73
Subdivisions
Cass County, ND
1987

Barnes Township	
Adam's 1st	7.05
Adams 2nd	2.2
Atonement 1st	7.0
Borderud's	16.22
Collin's' 1st	8.43
Colons' 2nd	5.89
Collin's' 3rd	71.47
Sheyenne Substation	13.39
Twin Meadows	12.9
Windsor Green	31.0
TOTAL	175.55

Harwood Township	
Brooktree Park	17.87
Brooktree Park 2nd	
Siebel's Sub	101.85
Siebel's 2nd	58.33
TOTAL	178.05

Mapleton Township	
Meadow Brook Park	75.6
Willow Creek	30.87
TOTAL	106.47

Normanna Township	
Braaten	17.84
Norman Acres	5.6
Woodlawn	15.8
TOTAL	39.24
Peasant Township	
Elmer Bakke	2.09
Elmer Bakke 2nd	37.42
Rivershore	1.0
Butch-R-Block	11.4
Klitzke Brothers	7.96
Oxbow CC & Estates	255.48
TOTAL	315.35

Reed Township	
Hectors Sub	
Cole's	
North Central	12.68
Stockman's	47.9
Currier	10.2
Griffeth	4.16
Sunrise Acres	21.4
Quam's	12.7
Barkers	2.84
Harris Homestead	9.54
Highland Park	21.0
Lake Shure Estates	46.52
Leedahl	4.9
Palmer's	3.01
Selberg's 1st	3.24
Selberg's 2nd	22.08
Sheyenne Valley Farm	22.88

Stanley Township	
Chrisan 1st	12.08
Brinks Sub	54.38
Chrisan Add	46.81
Chrisan 2nd	15.98
Chrisan Glen	20.7
Country Acres	24.9
Forest River	60.8
Forest River 2nd	9.47
Glen Van Bmk	8.18
Granberg's	35.54
Headland-Rutten 4th	
Heritage Hills Estates	48.6
Holmen Sub	28.25
Holmen's 2nd	37.81
Holmen's 3rd	42.93
Holmen's 4th	34.81
Januscheitis	20.0

TABLE 73 CONTINUED

TBL Sub	28.64	Johnson 2nd	10.75
Miller's First	14.91	Melby's	6.89
North 81-20 Sub	56.37	Minn-kota Sub	0.68
Northwood	6.88	Newman	85.51
Northwood 2nd	6.43	Ornberg's	1.02
Northwood 3rd	8.59	Ponderosa 1st	43.5
Shady Acres	15.7	River Bend	25.14
Sondreal's	2.55	Riverdale	24.0
Riverview Estates	15.9	River Place	18.08
Willowtree Park	61.95	Round Hill Estates	75.32
		South Haven	22.33
TOTAL	462.97	Fradet's	28.0
		Scilley's	11.41
		Sun Valley	10.35
		Sheyenne Shadows	10.6
		Ulphie Sub	24.5
		West Brook	19.6
		TOTAL	953.03

TOTAL LAND IN SUBDIVISIONS:

SOURCE: Cass County Register of Deeds, 1987.

As shown in **Table 73**, Reed and Stanley Townships contain the largest number of subdivisions. Most of Barnes Township has been incorporated into the Cities of Fargo and West Fargo. Pleasant Township has the largest subdivision -- the Oxbow Country Club and Estates at 255.48 acres -- and the smallest subdivision -- the Rivershore at 1 acre.

Cass County has established an approval process for new subdivisions being proposed outside of incorporated cities and their extraterritorial jurisdictions. The Cass County Planning Commission reviews the proposal and forwards its recommendation to the county Board of Commissioners. Before the Board makes its final decision, it also requests approval of the subdivision from the Township Board(s) in which the subdivision is to be located. If approved, the developer has to file a final plat within six (6) months, otherwise the approval shall be null and void.

In the Spring of 1985, the Cass County Planning Department conducted a study on the existing Subdivisions in Reed, Fargo, Barnes and Stanley Townships. The analysis appears in the pages following this text. Although some changes have occurred to these subdivisions since that time, the study does provide a better understanding of the subdivisions in Cass County. From the analysis, you can see that one problem has been the high vacancy rate the subdivisions have had. The high vacancy rate may suggest that some of the subdivisions may have been premature. That is the need for the land being subdivided was not all that great. Previously subdivided land in the county had not been

fully developed. The supply should have been able to fill the need.

Not all subdivisions are for residential development. From the study done in 1985, there were eight subdivisions identified as commercial. The study concludes that 94.5% of the lots in the commercial subdivisions were vacant. This percentage is highly questionable because of the methods used in the analysis. However, the vacancy rate for the commercial subdivisions is still assumed to be greater than 50%. This is still a high vacancy rate.

Another way for rural nonfarm housing to occur is through the Auditor Lot process. Although the intent of this process was to make it easier for the auditor to identify a lot for tax purposes, the auditor's lot has become a way for rural nonfarm housing development to bypass the subdivision regulations. To date, this has not been a major problem in the county, but some developers are discovering that the auditor's lot may be the process to follow when developing rural nonfarm housing.

ANALYSIS ON EXISTING SUBDIVISIONS IN
REED, FARGO, BARNES AND STANLEY TOWNSHIPS
MAY, 1985

An analysis of the subdivisions located in Reed, Fargo, Barnes and Stanley Townships shows there are 77 subdivisions consisting of 1352 lots of which 849 lots are vacant. An overall vacancy rate of 62.8 percent. These subdivisions have been classified as residential, commercial or industrial. (See Chart A.)

RESIDENTIAL:

There is a total of 61 residential subdivisions consisting of 1218 lots of which 690 lots are vacant. A vacancy rate of 56.7 percent. Stanley Township has the largest number of subdivisions, 28, with 265 out of the 601 lots standing vacant. This gives Stanley Township the lowest vacancy rate of 44.1 percent. The subdivisions that have at least 15 lots and a vacancy rate of 60 percent or more are:

Table 74

Twp.	Subdivision	Total No. of Lots	No. of Vacant Lots	Percent of Lots Vacant
Stanley	Holmen's 4th	32	30	93.8%
Stanley	Chrisan Glen	31	30	96.8%
Stanley	Heritage Hill Estates	25	17	68.0%
Stanley	Ulphie	16	15	93.8%
Stanley	South Haven	28	18	64.3%
Stanley	Januscheitis	19	12	63.2%

The residential subdivisions in Reed and Fargo Townships have the highest percentage of vacant lots. With 20 subdivisions in Reed Township, 346 out of the 433 lots are vacant. A vacancy rate of 79.9% percent. Thirteen of the 20 residential subdivisions are at least 60 percent vacant. The subdivisions that have at least 15 lots and have a vacancy rate higher than 60 percent are:

Table 75

Twp.	Subdivision	Total No. of Lots	No. of Vacant Lots	Percent of Lots Vacant
Reed	Highland Park	148	147	99.3%
Reed	Cole's	19	16	84.2%
Reed	Lake Shure Est.	39	26	66.7%
Reed	Willow Tree Park	48	48	100.0%
Reed	Shady Acres	20	18	90.0%
Reed	Quam's	27	21	77.8%

All three subdivisions in Fargo Township are nearly vacant in which 43 of the 44 lots stand vacant, a 97.8 percent vacancy rate.

Barnes Township has 10 residential subdivisions in which 77 out of the 140 lots are vacant. A vacancy rate of 55 percent. Most of the subdivisions in Barnes Township are relatively small averaging between 1 to 13 lots. The largest subdivisions which have at least a 60 percent vacancy rate are:

Table 76

Twp.	Subdivision	Total No. of Lots	No. of Vacant Lots	Percent of Lots Vacant
Barnes	Windsor Green	21	15	71.4%
Barnes	*Southwood Park	47	47	100.0%

* Southwood Park consists of 41 residential lots and 6 commercial, all lots are vacant.

COMMERCIAL:

The four township area has 8 commercial subdivisions, consisting of 73 lots of which 69 are vacant. These subdivisions are located in Barnes and Stanley Townships. Barnes Township has 6 commercial subdivisions. These subdivisions, plus the six lots located in Southwood Park, a largely residential subdivision, total 24 lots. Stanley Township has only 2 commercial subdivisions with a total of 49 lots all of which are vacant. These commercial subdivisions are:

Table 77

Twps.	Subdivision	Total No. of Lots	No. of Vacant Lots	Percent of Lots Vacant
Barnes	Adams	2	0	0%
Barnes	Virgil Monplaiser	1	1	100%
Barnes	Virgil Monplaiser 2nd	6	6	100%
Barnes	Metzger's	1	0	0%
Barnes	Lana	4	4	100%
Barnes	Kinney	4	3	75%
Barnes	Southwood Park (Commercial Lots Only)	6	6	100%
Stanley	Minnkota	1	1	100%
Stanley	Newman	48	48	100%
TOTAL		73	69	94.5%

INDUSTRIAL:

The industrial subdivisions are located in Reed and Barnes Townships. There are eight subdivisions consisting of 61 lots in which 49 are vacant. A vacancy rate of 80.3 percent. Reed Township has 5 subdivisions with 45 lots, 37 are vacant, whereas, Barnes has 3 subdivisions with 16 lots and 12 are vacant. The industrial subdivisions are:

Table 78

Twps.	Subdivisions	Total of of Lots	No. of Vacant Lots	Percent of Lots Vacant
Reed	North 81-20	35	31	88.6%
Reed	North Central	1	0	0%
Reed	Palmer's	1	1	100.0%
Reed	Griffeth	3	2	66.7%
Reed	T.B.L.	5	3	60.0%
Barnes	Collins 1st	1	0	0%
Barnes	Collins 2nd	3	2	66.7%
Barnes	Collins 3rd	12	10	83.3%
TOTAL		61	49	80.3%

EXTRATERRITORIAL JURISDICTIONS:

Over half of all the subdivisions are located within city extraterritorial zoning limits. With 77 subdivisions in the 4 township area, 42 are located in city jurisdictions, 31 in Cass County's jurisdictions and 4 are located within both.

Most of the subdivisions are located within the City of Fargo's jurisdiction. Fargo's jurisdiction includes 35 subdivisions, 8 industrial, 7 commercial and 20 residential. The City of Briarwood includes 5 subdivisions and the City of Horace has 2, all are residential.

Table 79

NUMBER OF SUBDIVISIONS LOCATED
WITHIN GOVERNMENTAL JURISDICTIONS

Twps.	Cass Co.	Cass Co. & Fargo	Fargo	Cass Co. & Briar-wood	Briar-wood	Cass Co. & Horace	Horace	Total
Reed	11	2	12					25
Fargo			3					3
Barnes	3		16					19
Stanley	17		4	1	5	1	2	30
TOTAL	31	2	35	1	5	1	2	77

TABLE 80

SUBDIVISIONS AND VACANCY RATES

Twps.	Tot. No. of Subd.	Tot. No. of Lots	Tot. No. of Vacant Lots	% of Lots Vacant
Reed	25	478	383	80.1%
Fargo	3	44	43	97.8%
Barnes	19	180	109	60.6%
Stanley[1]	30	650	314	48.3%
TOTAL[2]	77	1352	849	62.8%

[1] Exludes Horseshoe Bend Tr. Crt. - 31 lots

[2] Excludes Horseshoe Bend Tr. Crt. (not a platted subdivision)

TABLE 81

CHART B

TYPES OF SUBDIVISIONS AND VACANCY RATES

	RESIDENTIAL				COMMERCIAL				INDUSTRIAL			
Twps.	No. of Subd.	No. of Lots	No. of Vacant Lots	% of Lots Vacant	No. of Subd.	No. of Lots	No. of Vacant Lots	% of Lots Vacant	No. of Subd.	No. of Lots	No. of Vacant Lots	% of Lots Vacant
Reed	20	433	346	79.9%	-	-	-	-	5	45	37	82.2%
Fargo	3	44	43	97.8%	-	-	-	-	-	-	-	-
Barnes[1]	10	140	77	55.0%	6	24	20	83.3%	3	16	12	75.0%
Stanley[2]	28	601	265	44.1%	2	49	49	100 %	-	-	-	-
TOTAL	61	1218	731	60.0%	8	73	69	94.5%	8	61	49	80.3%

[1] Residential and Commercial analysis includes Southwood Park subd. which consists of 41 residential and 6 commercial lots.

[2] Excludes Horseshoe Bend Tr. Crt.

SOURCES:

Director of Tax Equalization - 1985 Assessments
Register of Deeds
County Surveyor
Plats
Fargo Comprehensive Plan
Windshield Survey

Date: May 1, 1985

TABLE 32

SUBDIVISIONS IN REED, FARGO, BARNES AND STANLEY TOWNSHIPS

Subdivision Name	Type of Subdivision	No. of Lots	Vacant Lots	Vacancy Rate (%)	Governmental Jurisdiction
REED					
Northwood	Res.	6	2	33.3	Cass County
Northwood 2nd	Res.	5	2	40	Cass County
Northwood 3rd	Res.	8	2	25	Cass County
Highland Park	Res.	148	147	99.3	N ½ - Cass Co./ S ½ Fargo
Harris Homestead	Res.	4	4	100	Fargo
Cole's	Res.	19	16	84.2	Cass County
Barker's	Res.	11	8	72.7	Cass County
Sheyenne Valley Farm	Res.	9	6	66.7	Cass County
Lake Shure Estate	Res.	39	26	66.7	Cass County
Willowtree Park	Res.	48	48	100	Fargo
North 81 - 20	Ind.	35	31	88.6	Fargo
Leedahl's	Res.	1	1	100	Fargo
Currier's	Res.	8	0	0	Fargo
Stockman's	Res.	17	5	29.4	Fargo
T. B. L.	Ind.	5	3	60	Fargo
North Central	Ind.	1	0	0	Fargo
Palmer's	Ind.	1	1	100	Fargo
Griffeth	Ind.	3	2	66.7	Fargo
Riverview Estates	Res.	14	8	57.1	W 2/3 Cass C / E 1/3 Fargo
Selberg's 1st	Res.	7	5	71.4	Fargo
Selberg's 2nd	Res.	14	5	35.7	Fargo
Shady Acres	Res.	20	18	90	Cass County
Sunrise Acres	Res.	19	18	94.7	Cass County
Quam's	Res.	27	21	77.8	Cass County
Miller's	Res.	9	4	44.4	Cass County
TOTAL		478	383	80.1	

BLE 83

SUBDIVISIONS IN REED, FARGO, BARNES AND STANLEY TOWNSHIPS

Subdivision Name	Type of Subdivision	No. of Lots	Vacant Lots	Vacancy Rate (%)	Governmental Jurisdiction
FARGO					
Riverwood	Res.	24	23	95.8	Fargo
Riverwood 2nd	Res.	14	14	100	Fargo
Riverwood 3rd	Res.	6	6	100	Fargo
TOTAL		44	43	97.8	

Subdivision Name	Type of Subdivision	No. of Lots	Vacant Lots	Vacancy Rate (%)	Governmental Jurisdiction
BARNES					
Twin Meadow's	Res.	13	1	7.7	Cass County
Borderud's	Res.	21	3	14.3	Cass County
Winsor Green	Res.	21	15	71.4	Cass County
Adams	Com.	2	0	0	Fargo
Virgil Montplaiser	Com.	1	1	100	Fargo
Virgil Montplaiser 2nd	Com.	6	6	100	Fargo
Collins 1st	Ind.	1	0	0	Fargo
Collins 2nd	Ind.	3	2	66.7	Fargo
Collins 3rd	Ind.	12	10	83.3	Fargo
Southwood Park	Res. - Com.	R-41/C-6	47	100	Fargo
Schultz	Res.	10	10	100	Fargo
Metzger's	Com.	1	0	0	Fargo
Burritt's	Res.	10	1	10	Fargo
Burritt's 2nd	Res.	1	1	100	Fargo
Sweeney	Res.	5	3	60	Fargo
Lana	Com.	4	4	100	Fargo
Kinney	Com.	4	3	75	Fargo
Maier 1st	Res.	15	1	6.6	Fargo
Sabo	Res.	3	1	33.3	Fargo
TOTAL		180	109	60.6	

TABLE 84

SUBDIVISIONS IN REED, FARGO, BARNES AND STANLEY TOWNSHIPS

Subdivision Name	Type of Subdivision	No. of Lots	Vacant Lots	Vacancy Rate (%)	Governmental Jurisdiction
STANLEY					
Minnkota	Com.	1	1	100	Fargo
Scilley's	Res.	18	3	16.7	Fargo
Ponderosa	Res.	10	7	70	Cass County
Riverdale	Res.	24	2	8.3	Cass County
Horseshoe Bend	Tr. Crt.	31			Cass County
Ornberg's	Res.	1	1	100	Fargo
Januscheitis	Res.	19	12	63.2	Fargo
South Haven	Res.	28	18	64.3	Cass County
Holmen's	Res.	26	0	0	Cass County
Holmen's 2nd	Res.	34	1	2.9	Cass County
Holmen's 3rd	Res.	30	8	26.7	Cass County
Holmen's 4th	Res.	32	30	93.8	Cass County
Chrisan 1st	Res.	21	4	19	Briarwood
Chrisan 2nd	Res.	22	1	4.5	Briarwood
Chrisan Glen	Res.	31	30	96.8	Briarwood
Chrisan Add	Res.	25	2	8	Briarwood
Sheyenne Shadows	Res.	9	8	88.9	Cass County
Brink's	Res.	6	5	83.3	N ½ Cass Co./ S ½ Horace
Fradet's	Res.	27	14	51.9	Horace
Newman	Com.	48	48	100	Cass County
Granberg's	Res.	31	18	58.1	Cass County
Melby's	Res.	7	2	28.6	Briarwood
Forest River 1st	Res.	65	35	53.8	N ½ Briarwood/ S ½ Cass County
Forest River 2nd	Res.	11	2	18.2	Cass County
Round Hill Estates	Res.	22	7	31.8	Cass County
Westbrook	Res.	15	8	53.3	Horace
River Bend	Res.	21	3	14.3	Cass County
Heritage Hills Estates	Res.	25	17	68	Cass County
Ulphie	Res.	16	15	93.8	Cass County
Country Acres	Res.	19	8	42.1	Cass County
Sun Valley	Res.	6	4	66.7	Cass County
TOTAL		650	314	48.3	
GRAND TOTAL	77	1352	849	62.8 %	

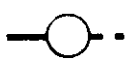
EXISTING LAND USE
(BY TOWNSHIP)

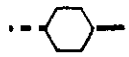
CASS COUNTY, NORTH DAKOTA

LEGEND


INTERSTATE SYSTEM


FEDERAL ROAD


STATE ROADS

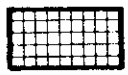

COUNTY ROADS

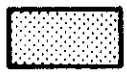

INCORPORATED CITY LIMITS


UNINCORPORATED CITY OR VILLAGE

LAND USES


SINGLE-FAMILY RESIDENTIAL

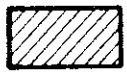

MOBILE HOMES


COMMERCIAL


INDUSTRIAL

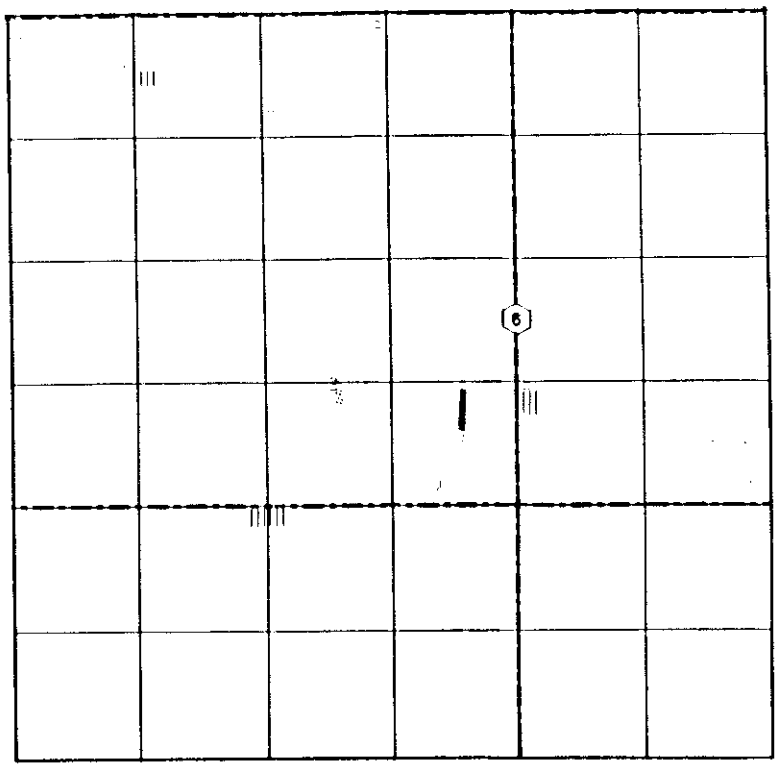

TRANSPORTATION,
COMMUNICATION,
UTILITIES


PUBLIC/SEMI-PUBLIC

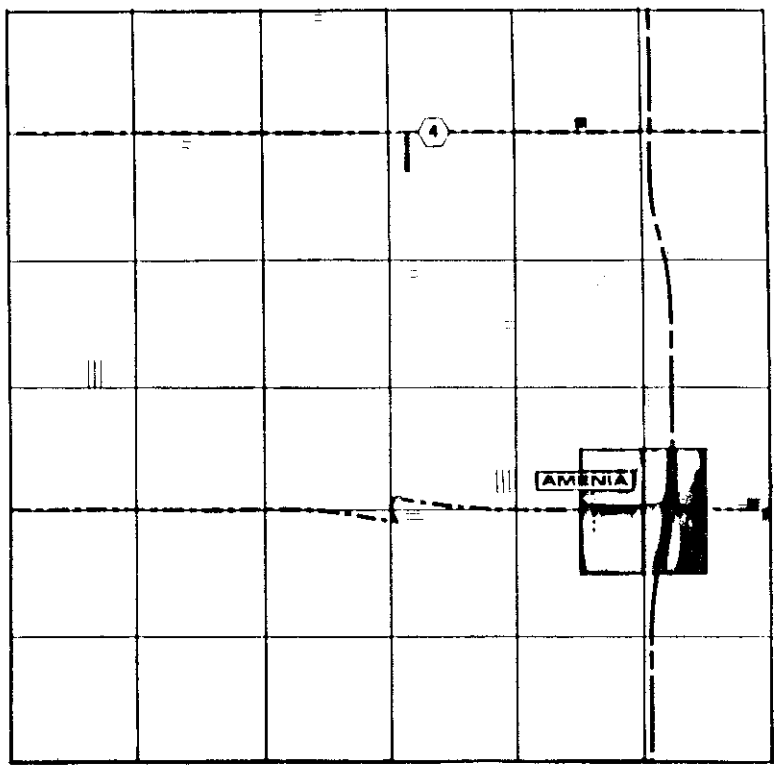

PARKS & RECREATION


AGRICULTURE/VACANT

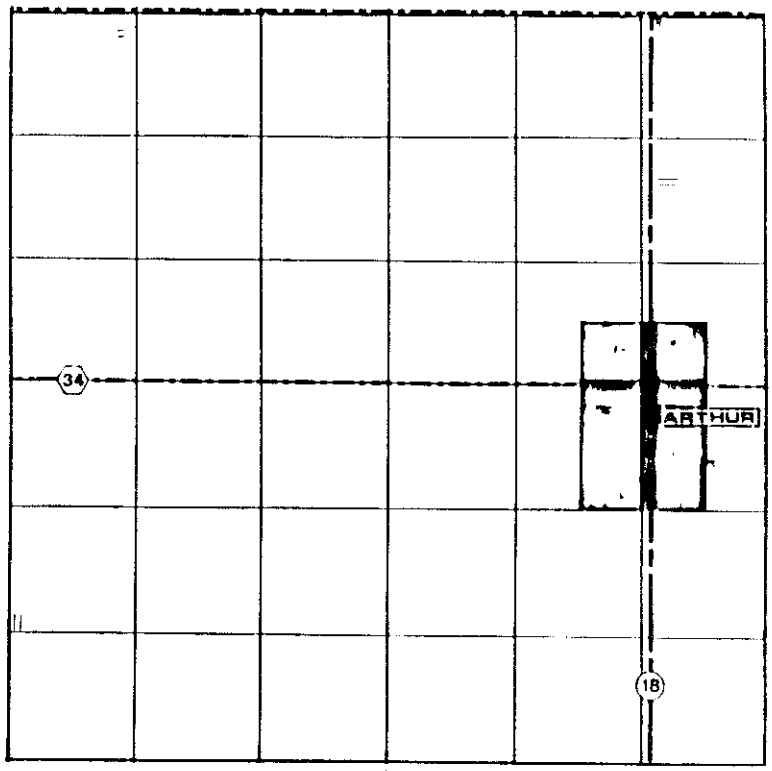
MAP #17
ADDISON



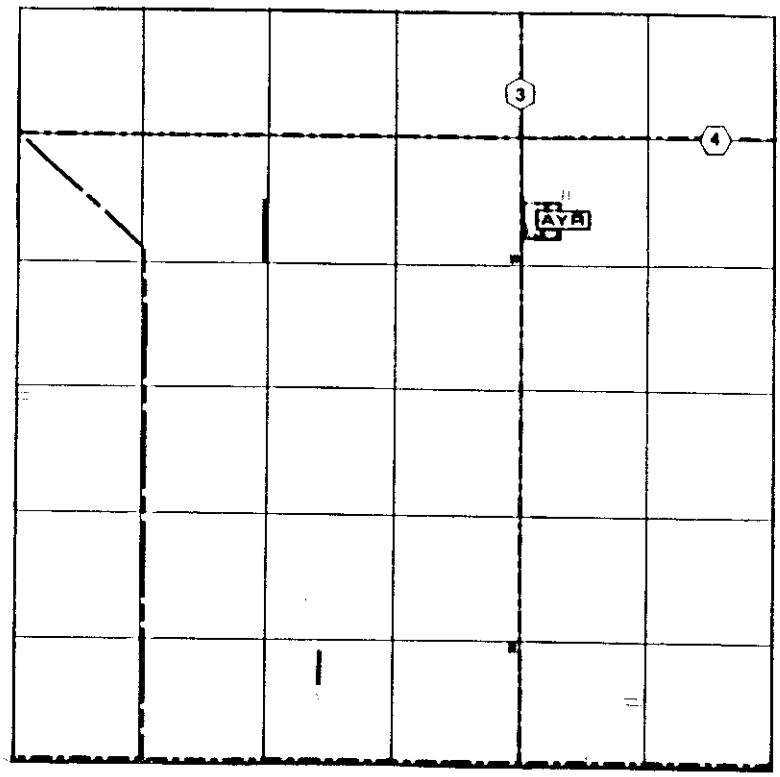
MAP #18
AMENIA



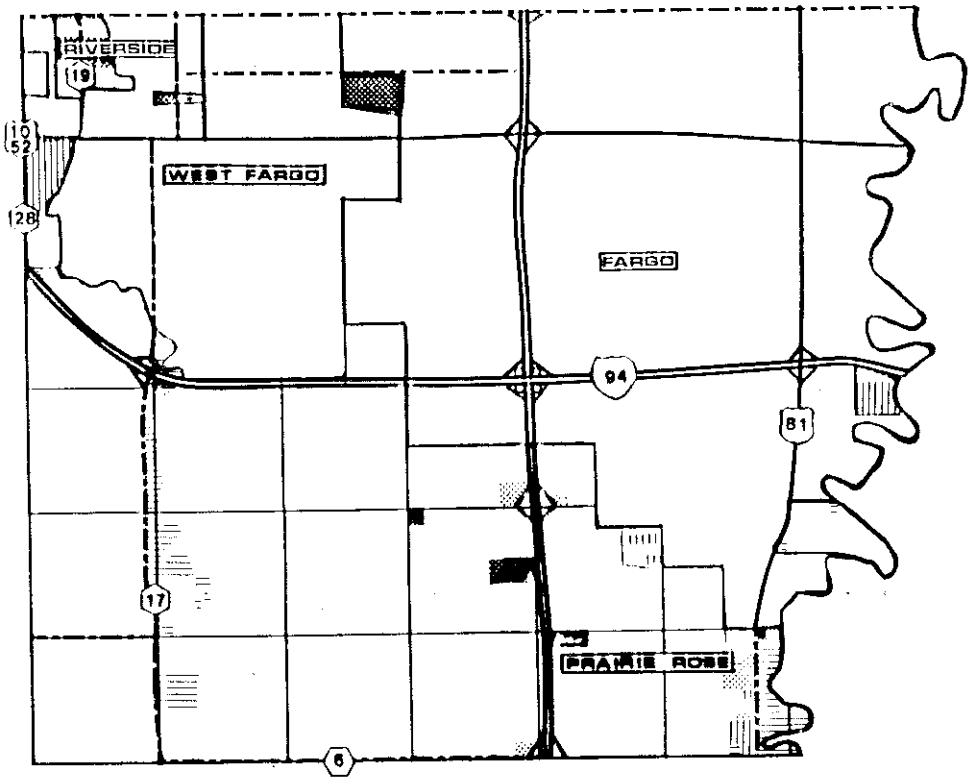
MAP #19
ARTHUR



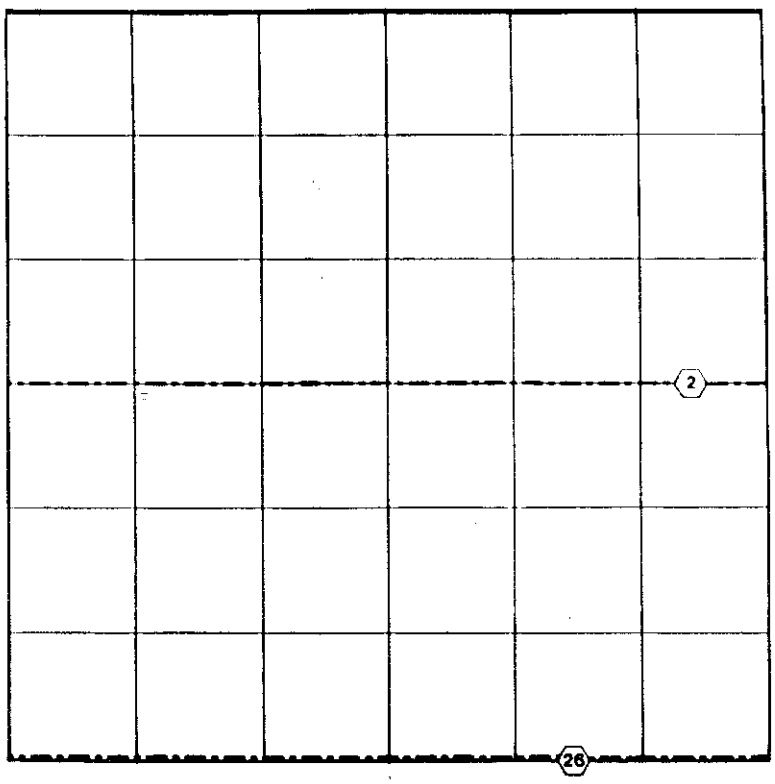
MAP #20
AYR



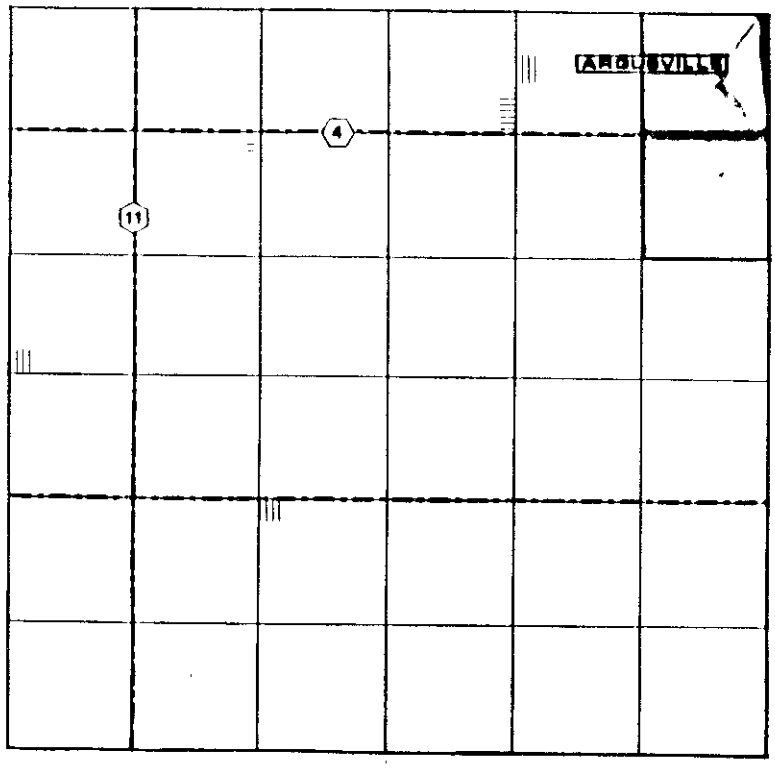
MAP #21
BARNES



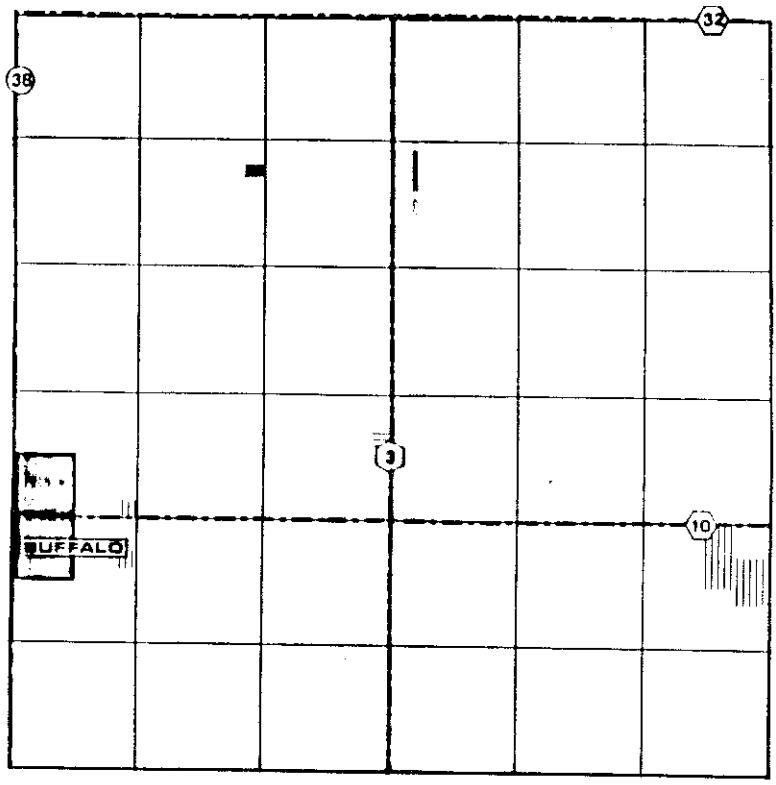
MAP #22
BELL



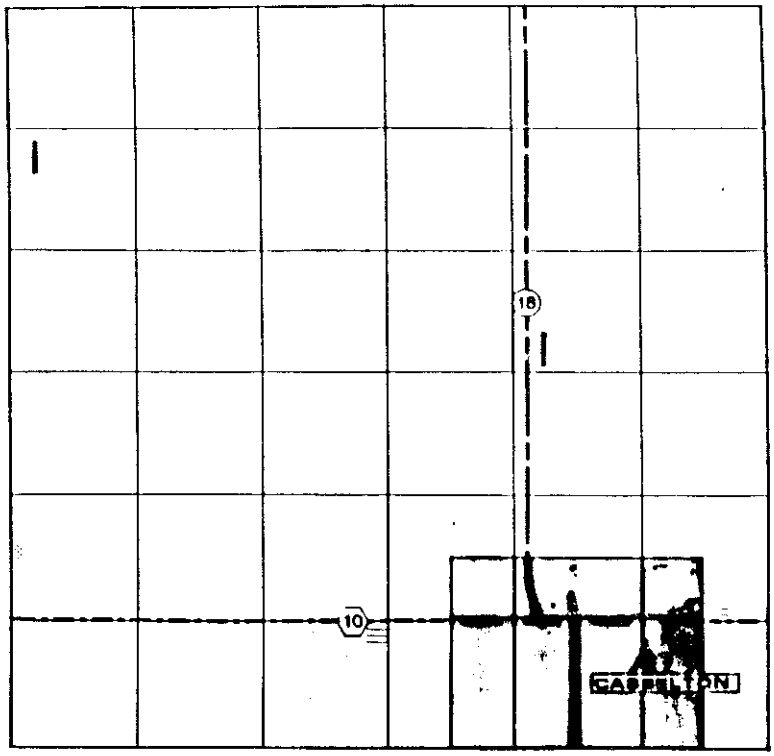
MAP #23
BERLIN



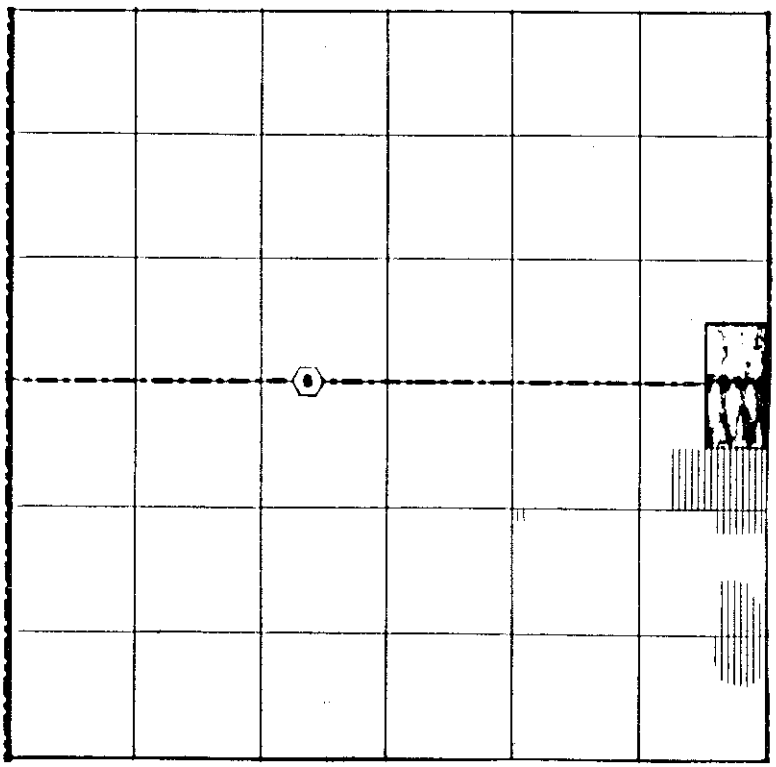
MAP #24
BUFFALO



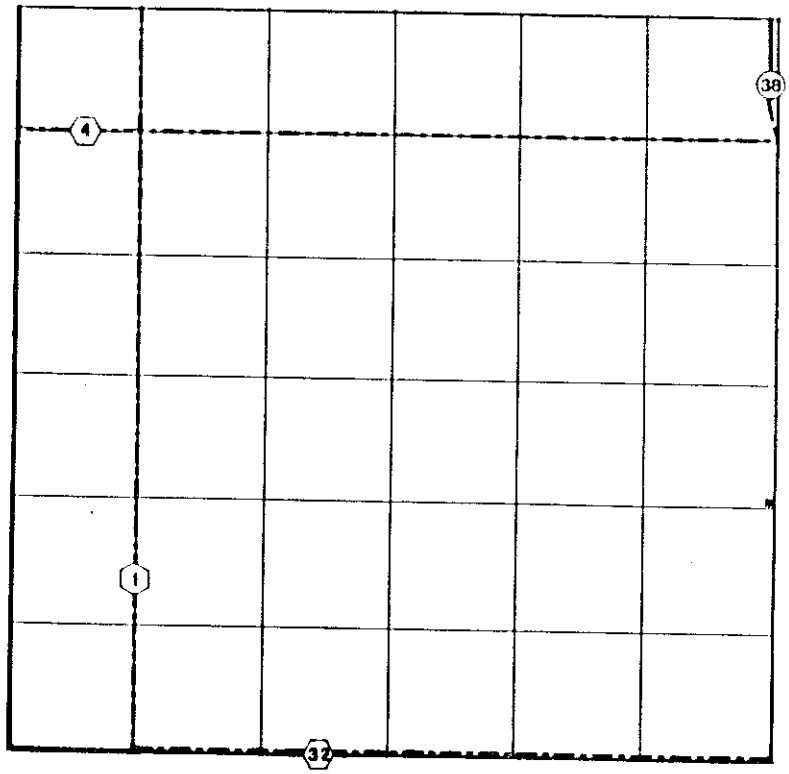
MAP #25
CASSELTON



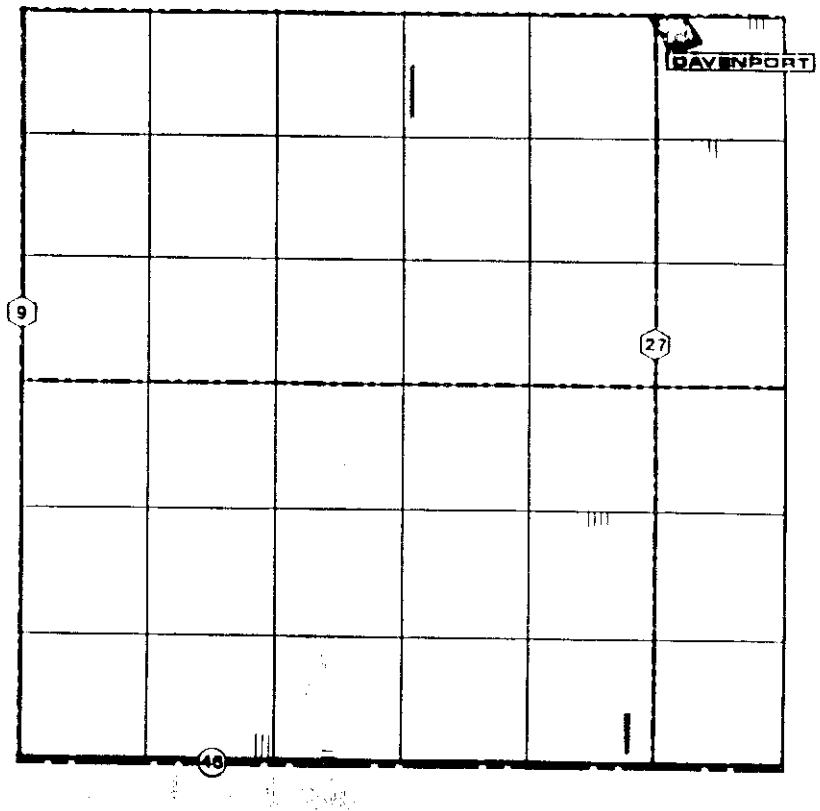
MAP #26
CLIFTON



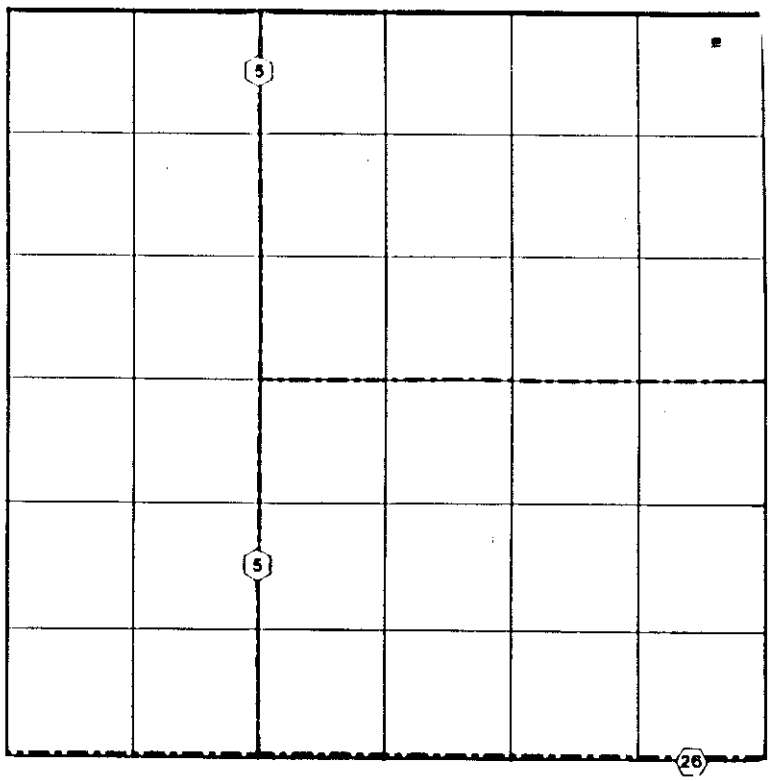
MAP #27
CORNELL



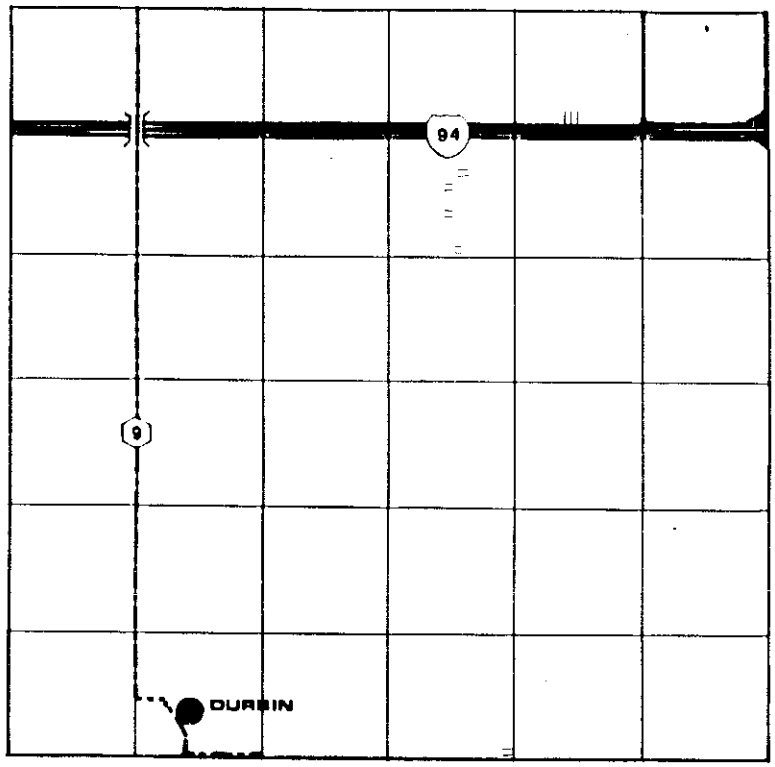
MAP #28
DAVENPORT



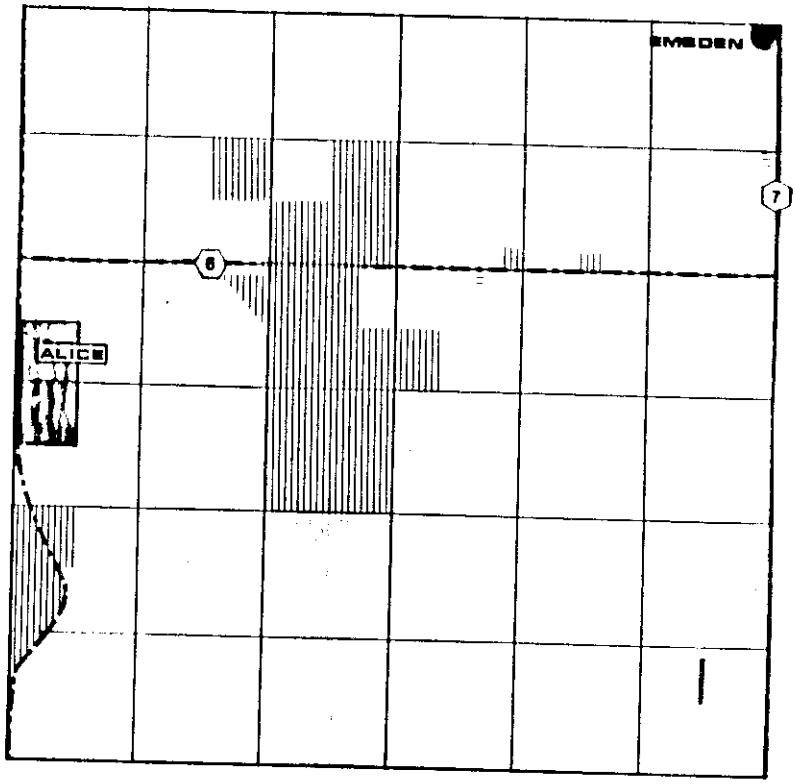
MAP #29
DOWS



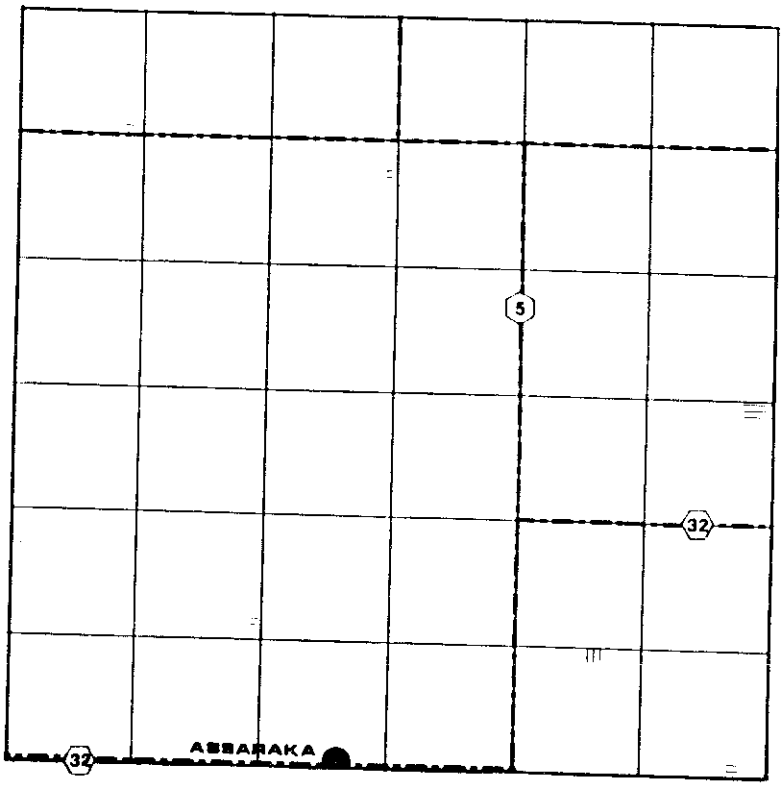
MAP #30
DURBIN



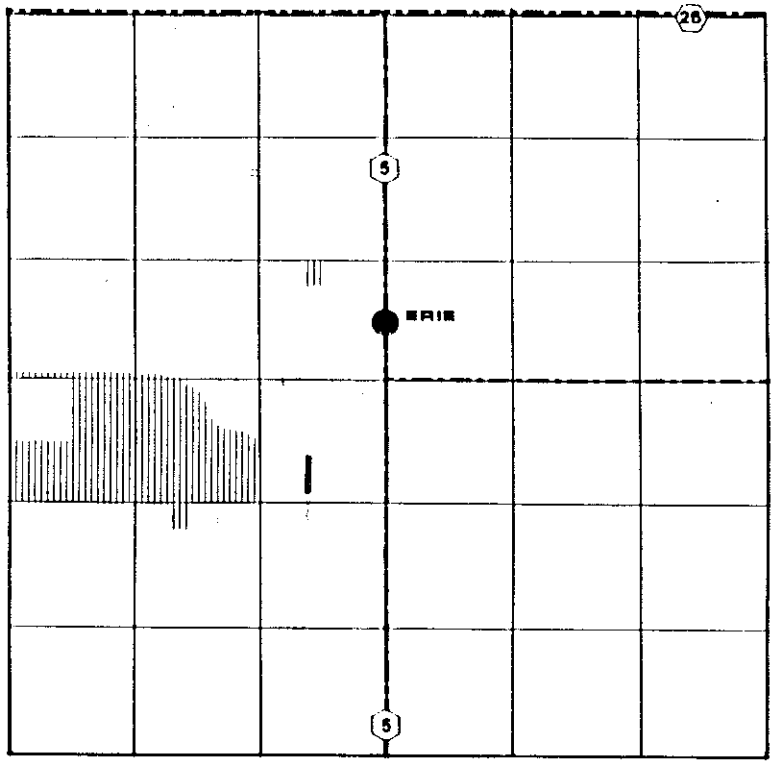
MAP #31
ELDRED



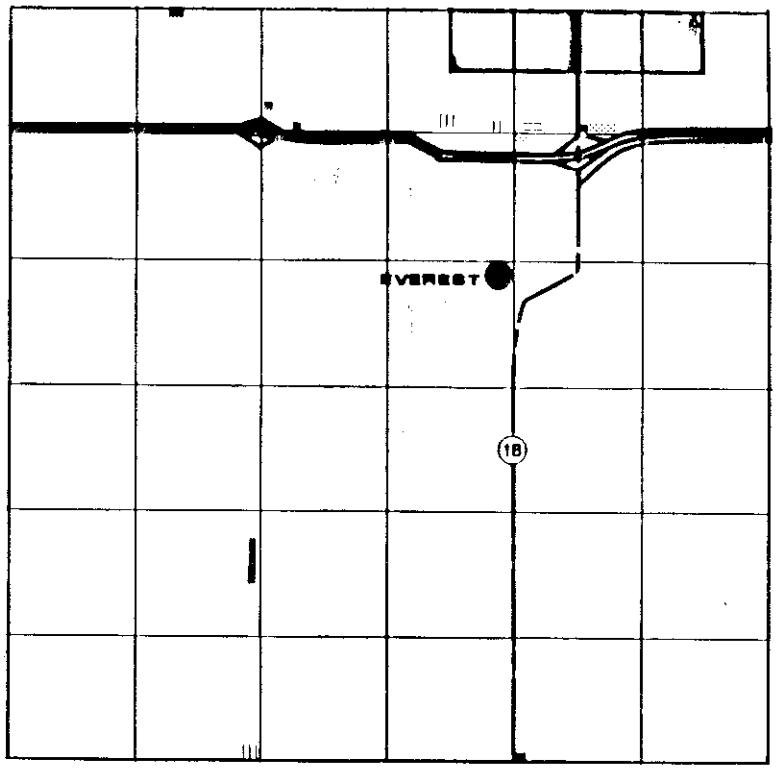
MAP #32
EMPIRE



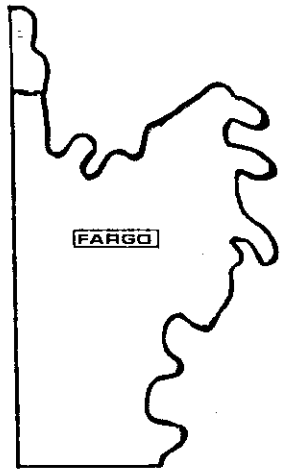
MAP #33
ERIE



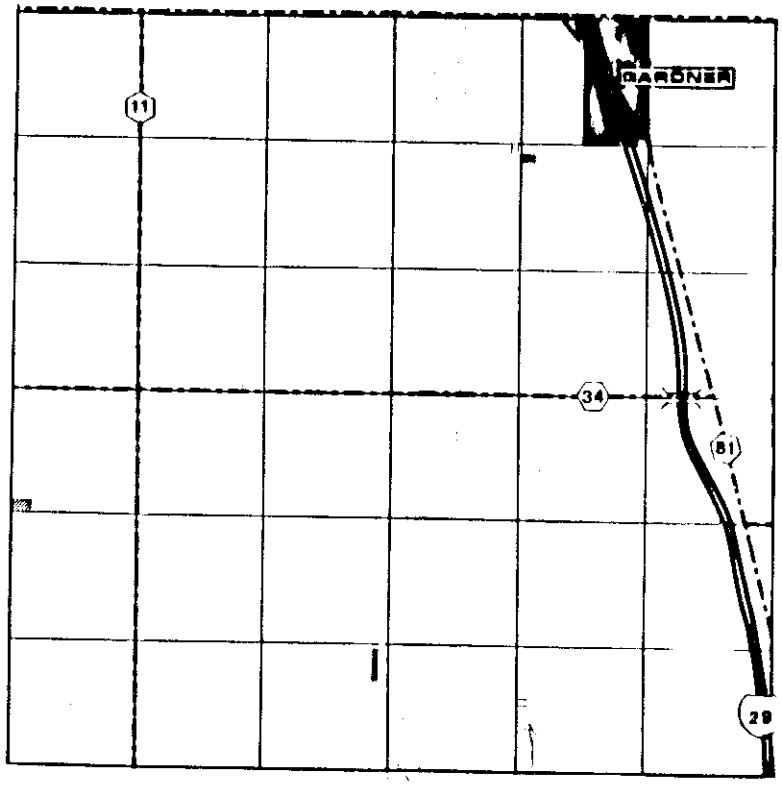
MAP #34
EVEREST



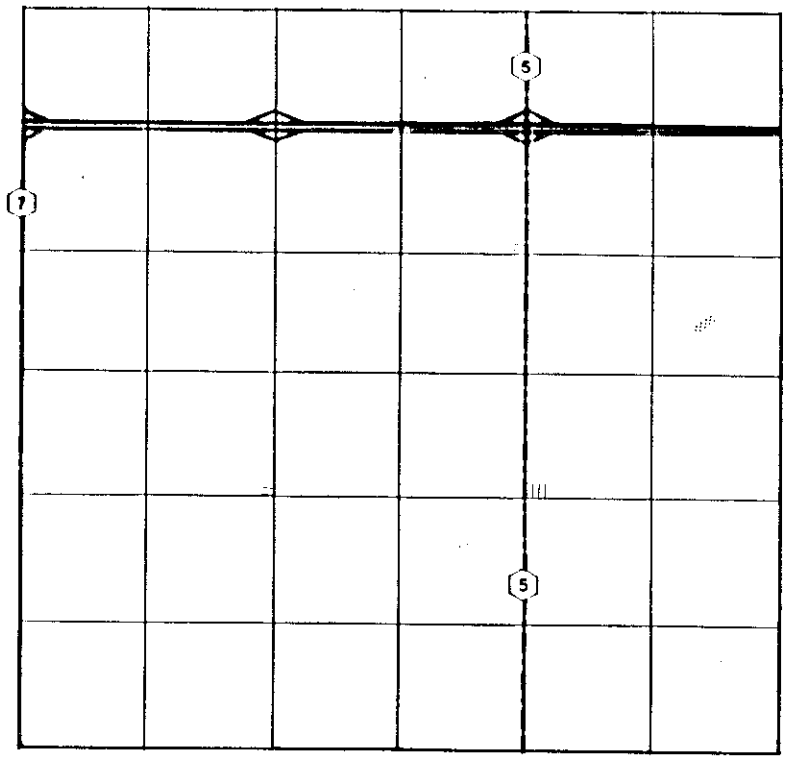
MAP #35



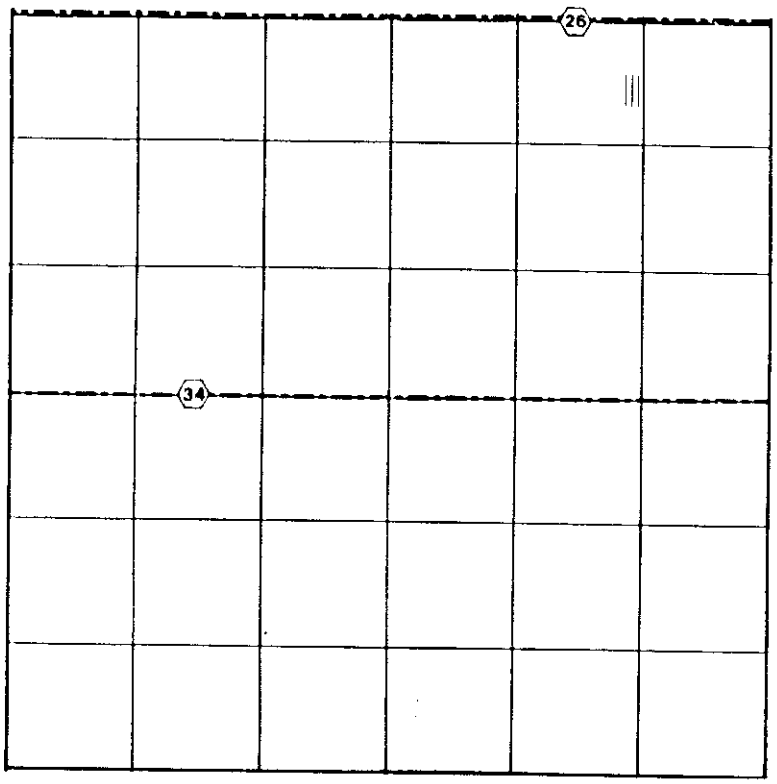
MAP #36
GARDNER



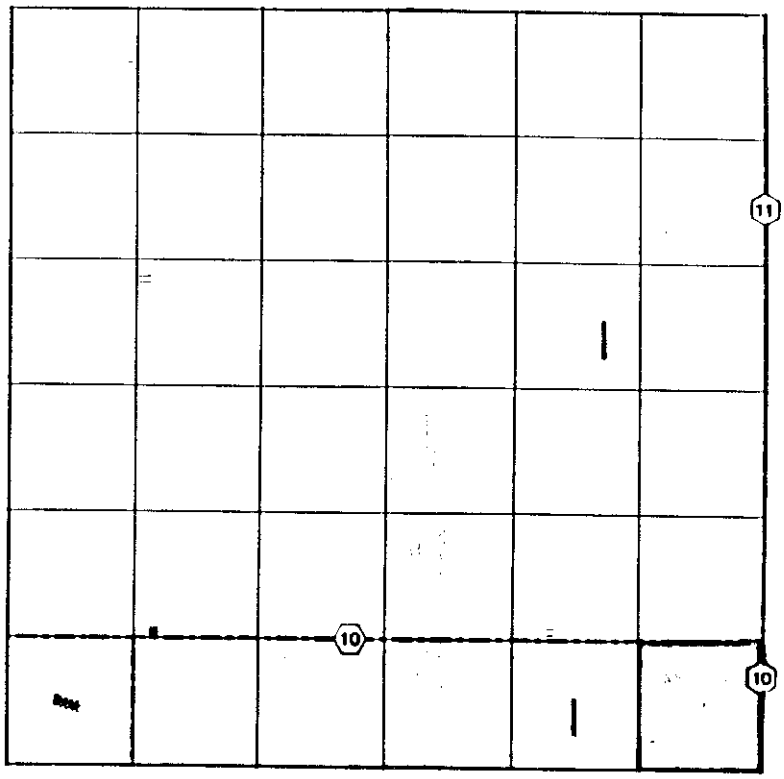
MAP #37
GILL



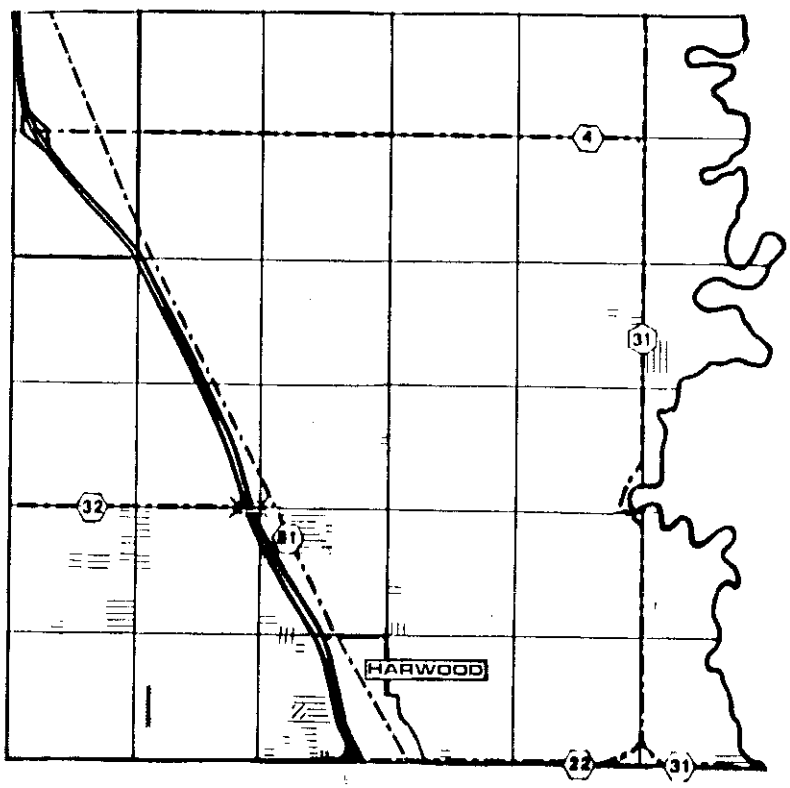
MAP #38
GUNKLE



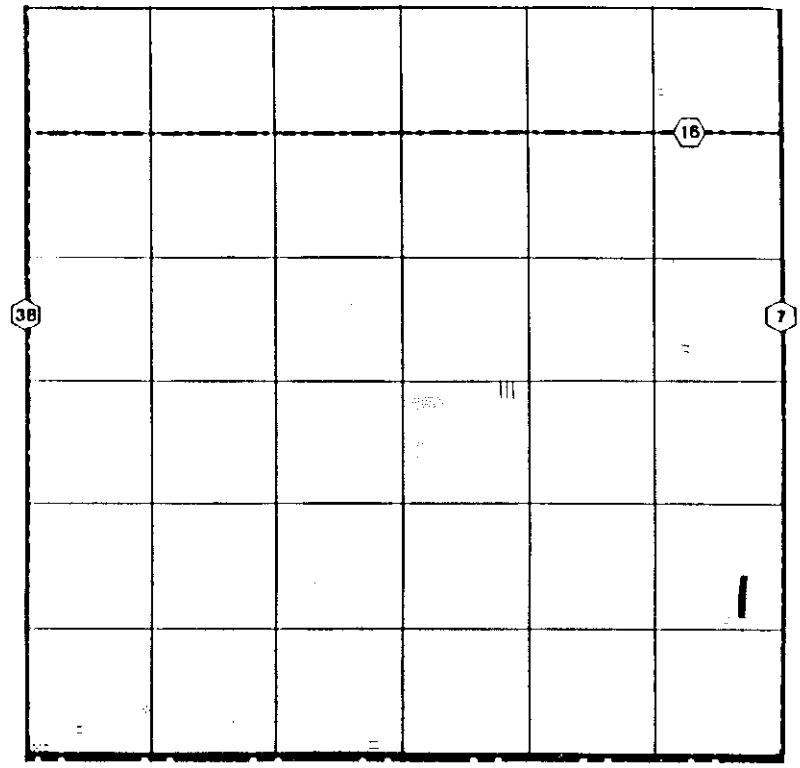
MAP #39
HARMONY



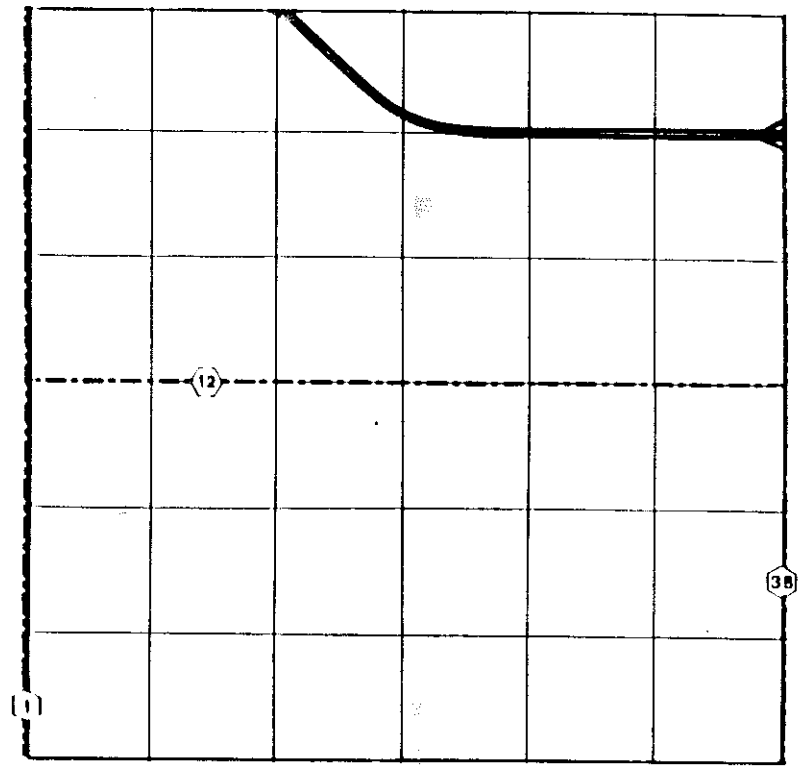
MAP #40
HARWOOD



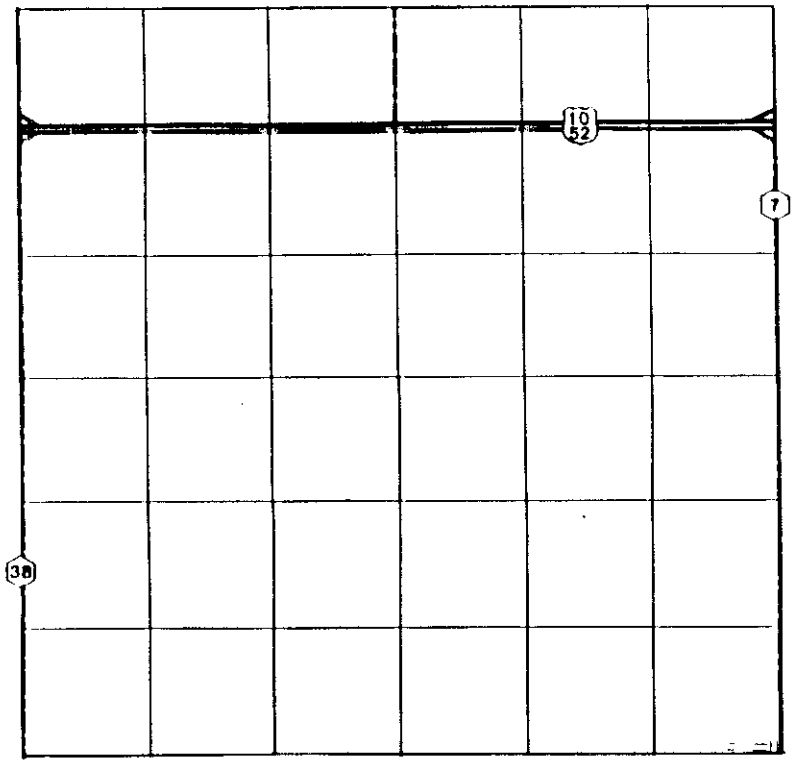
MAP #41
HIGHLAND



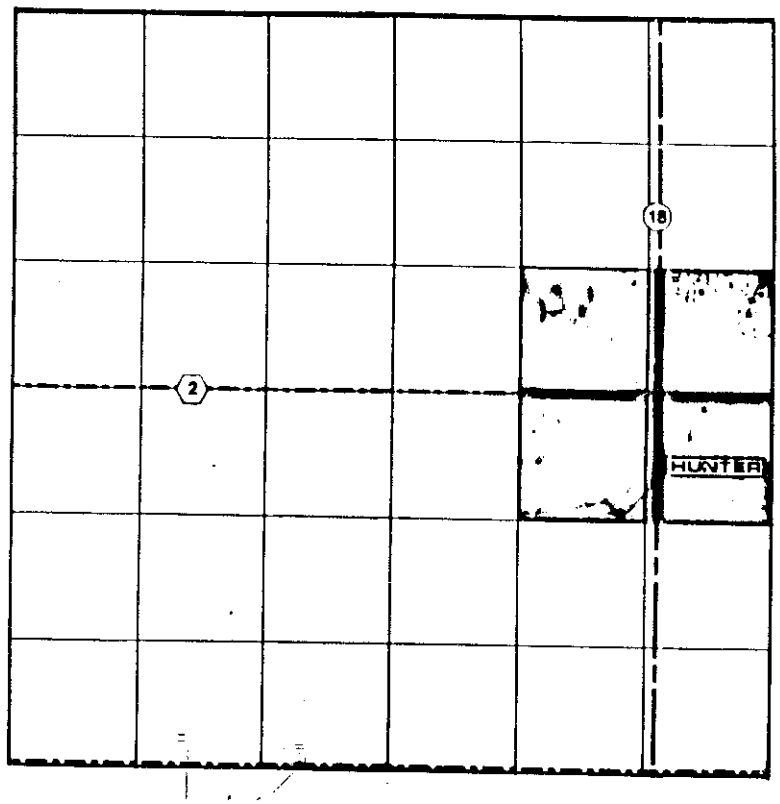
MAP #42
HILL



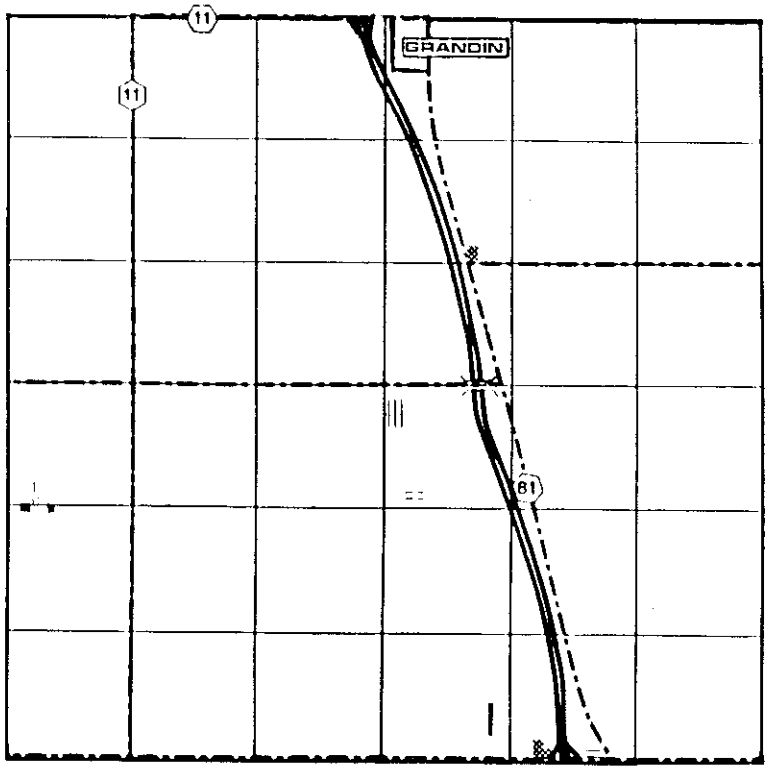
MAP # 43
HOWES



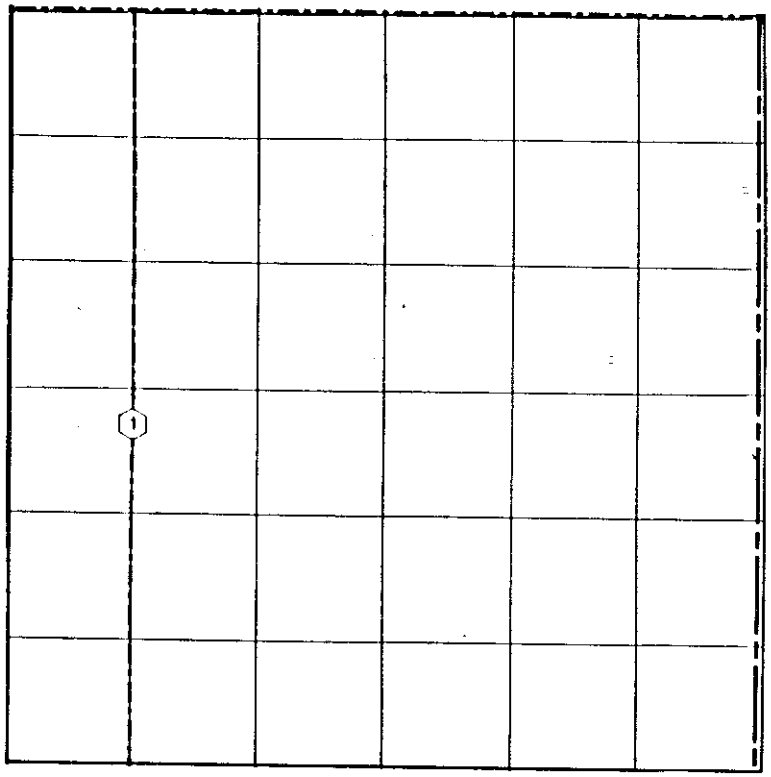
MAP #44
HUNTER



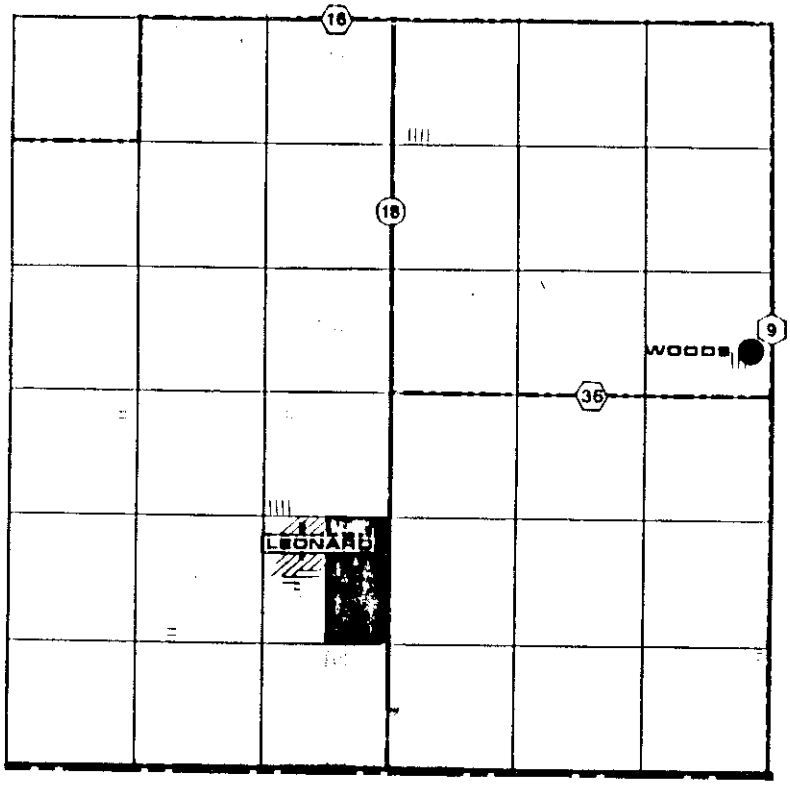
MAP #45
KINYON



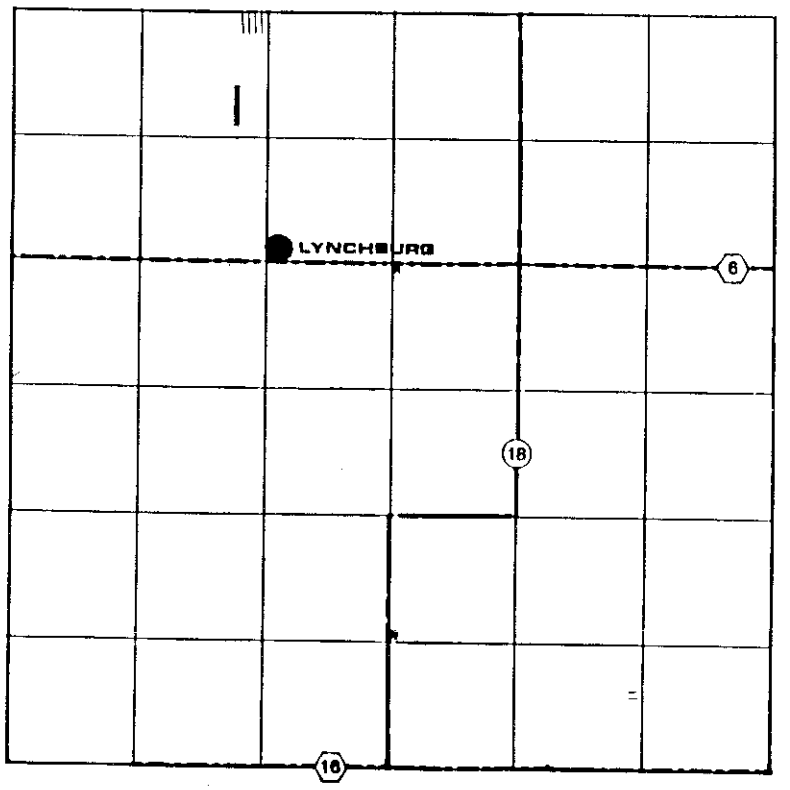
MAP #46
LAKE



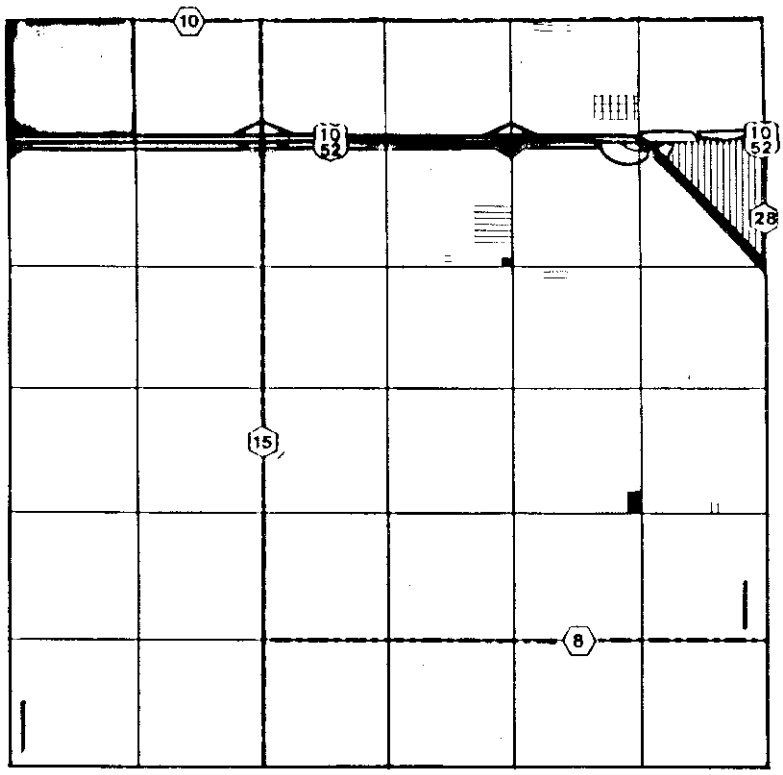
MAP #47
LEONARD



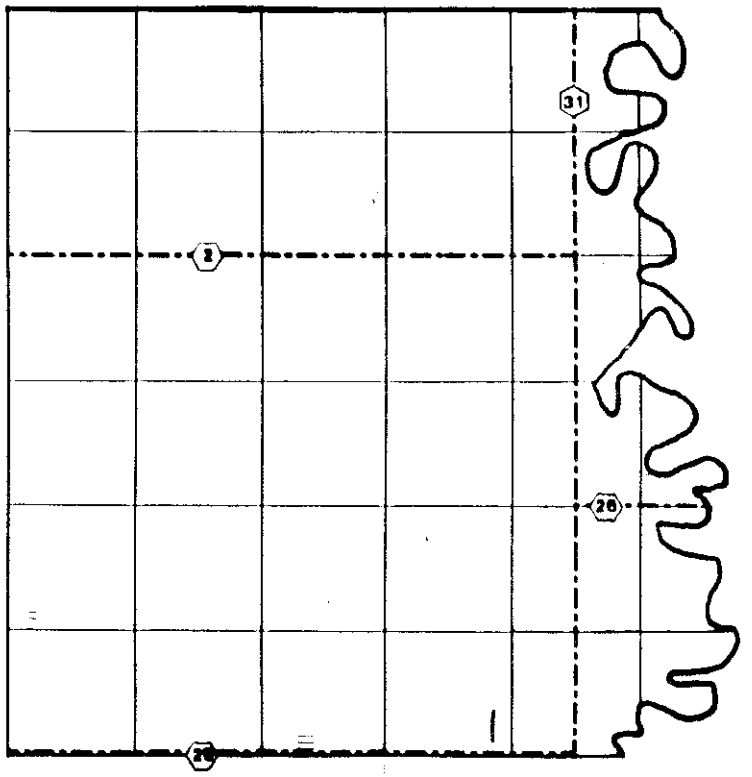
MAP #48
MAPLE RIVER



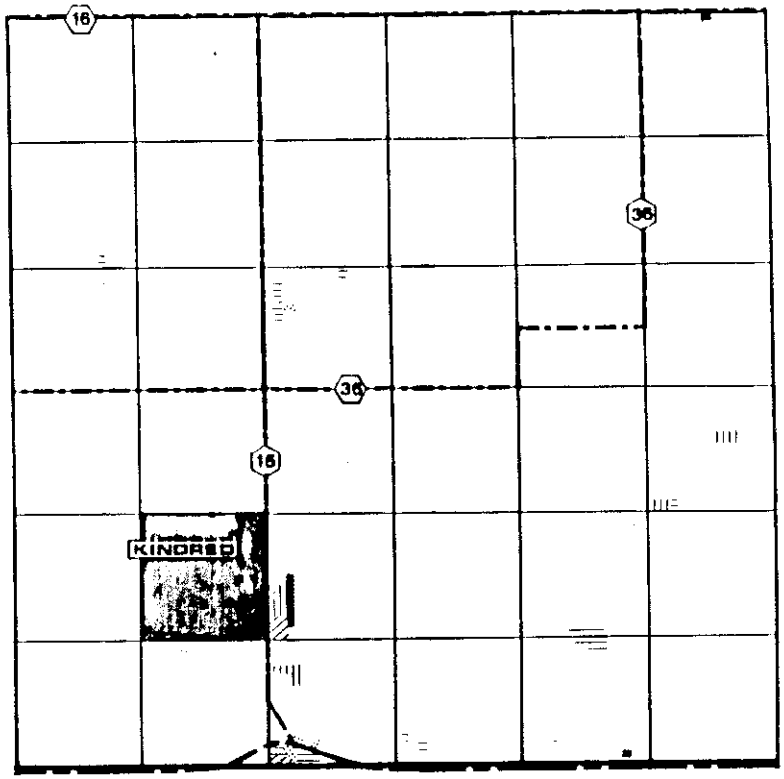
MAP #49
MAPLETON



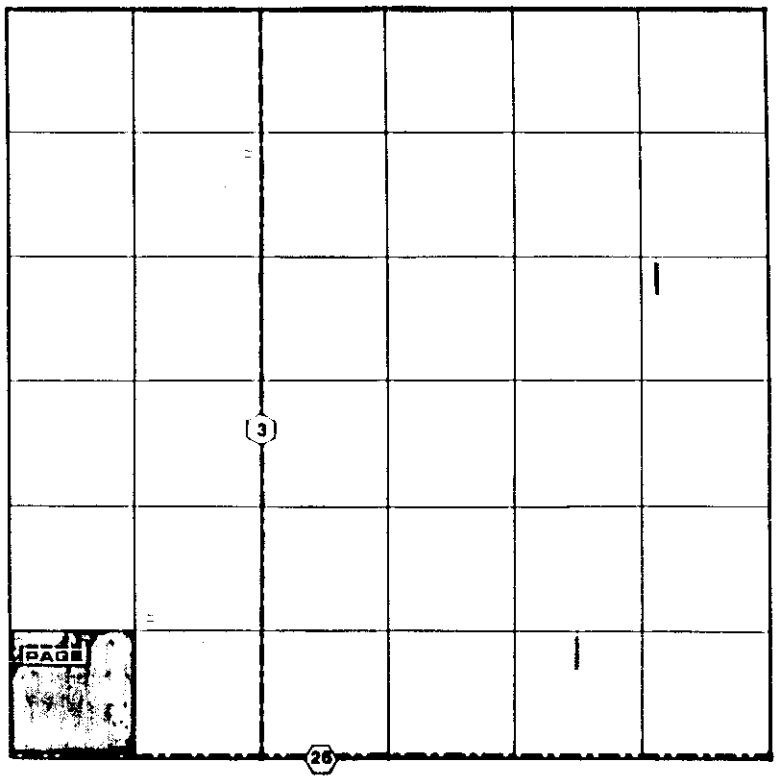
MAP #50
NOBLE



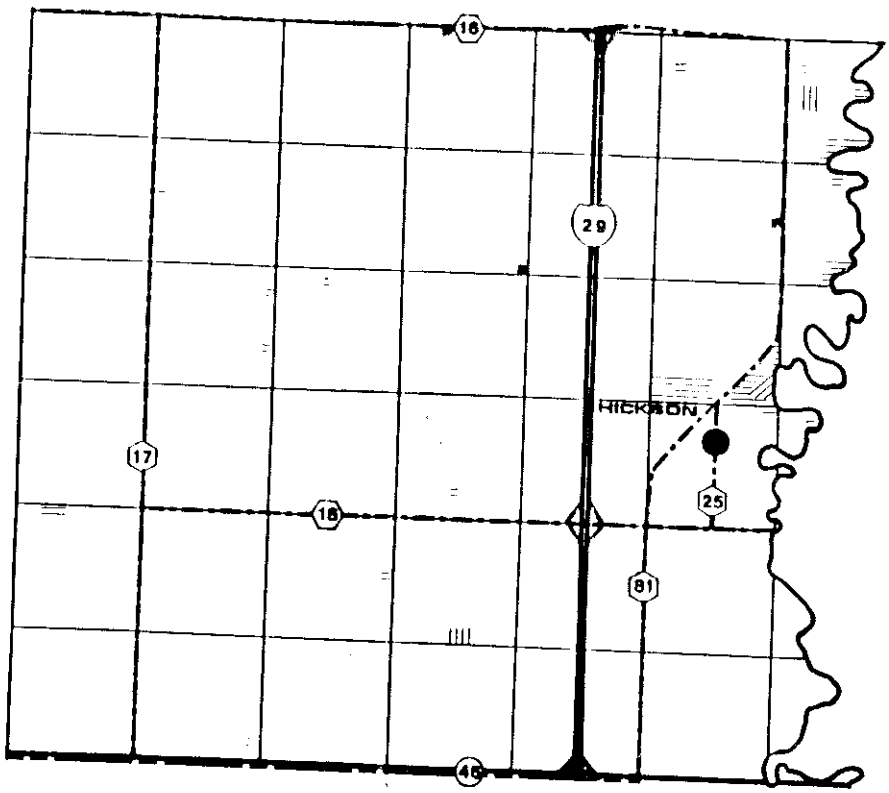
MAP #51
NORMANA



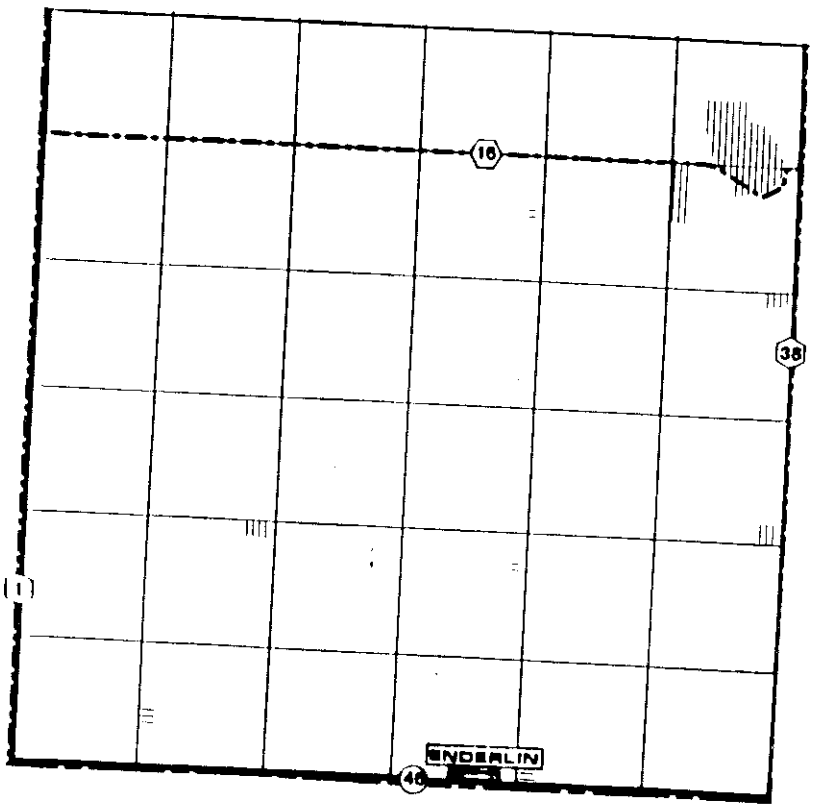
MAP #52
PAGE



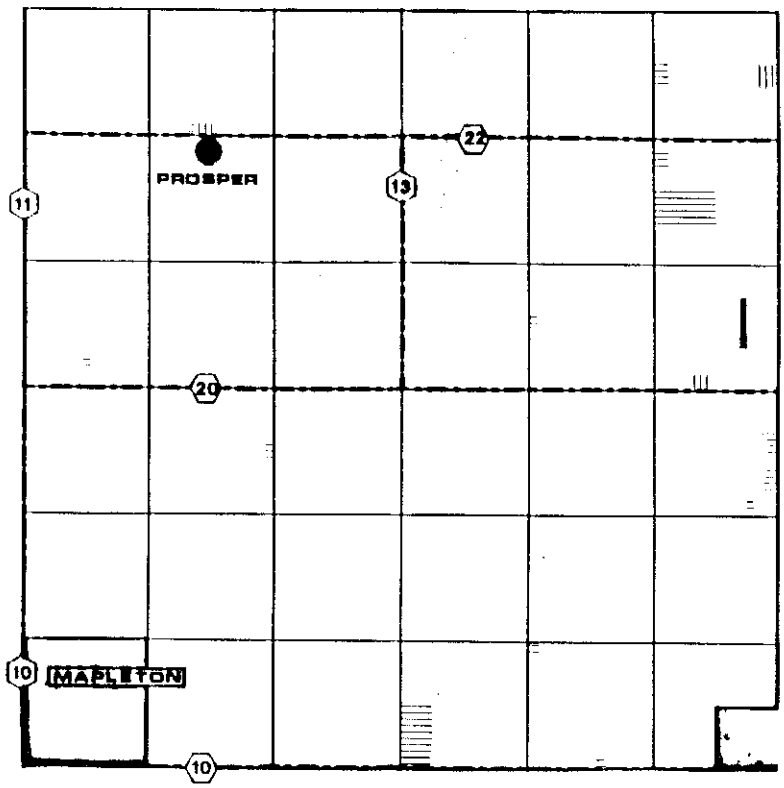
MAP #53
PLEASANT



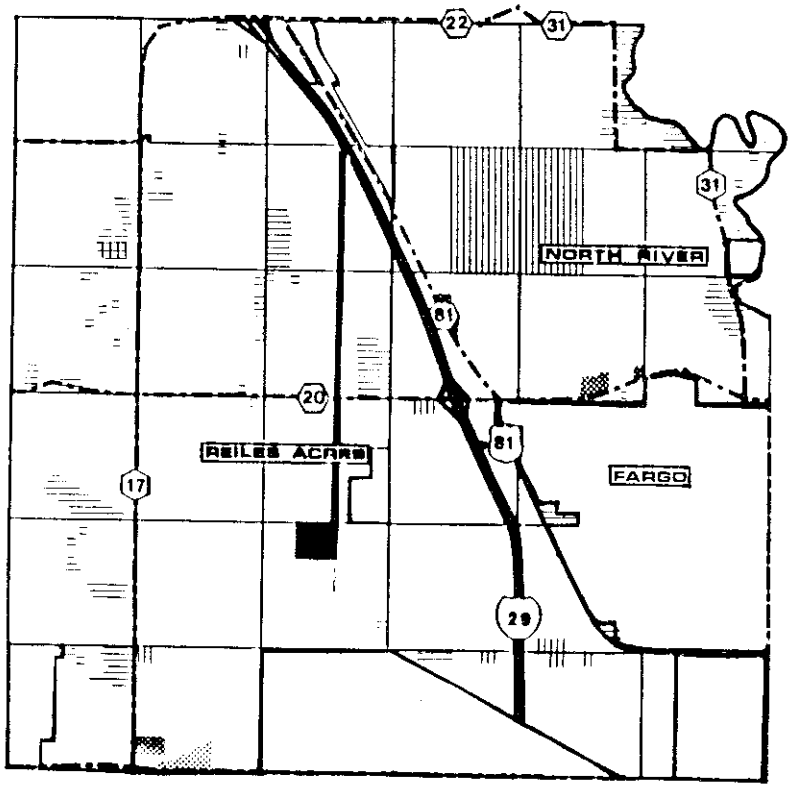
MAP #54
PONTIAC



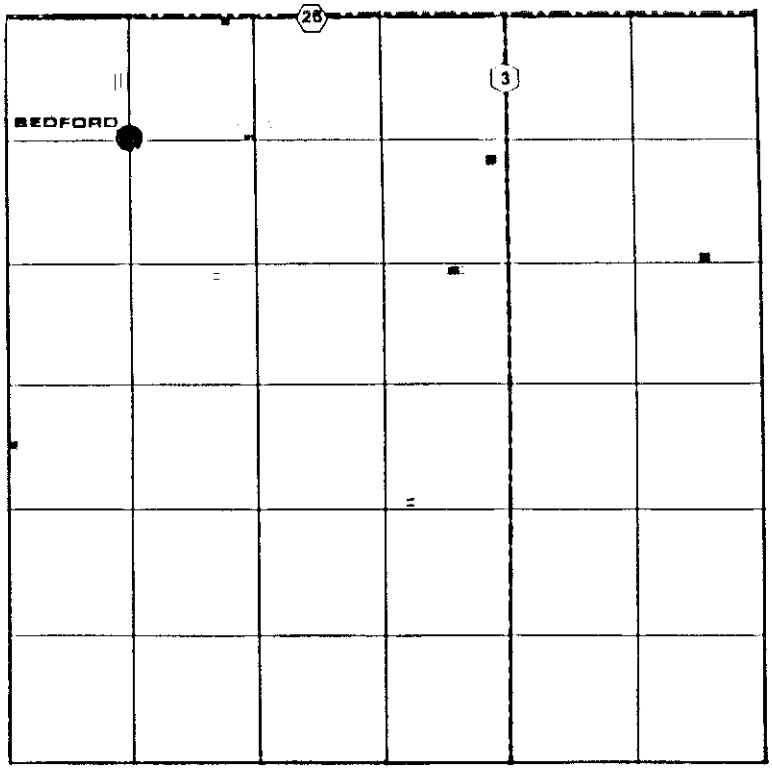
MAP #55
RAYMOND



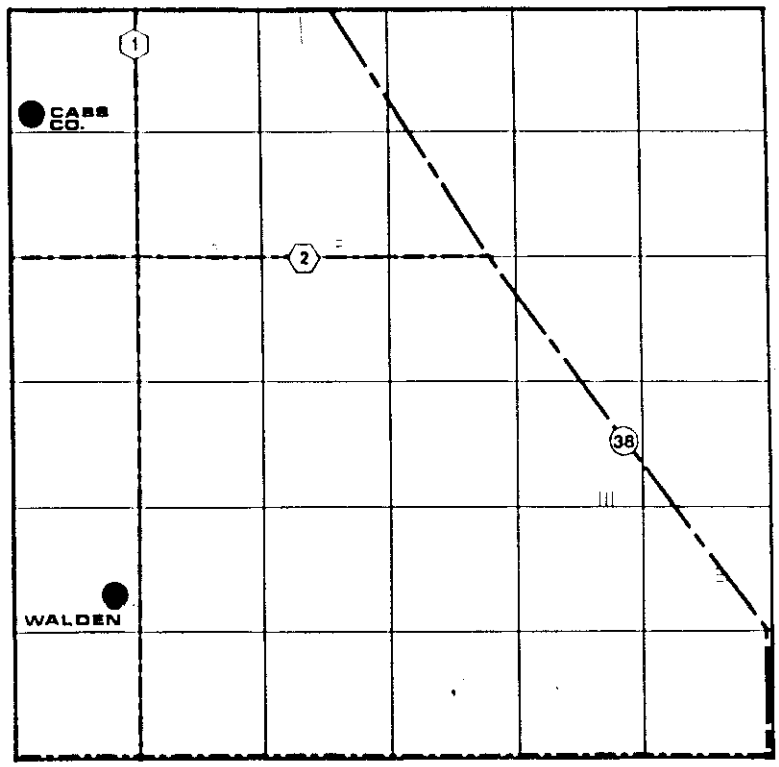
MAP #56
REED



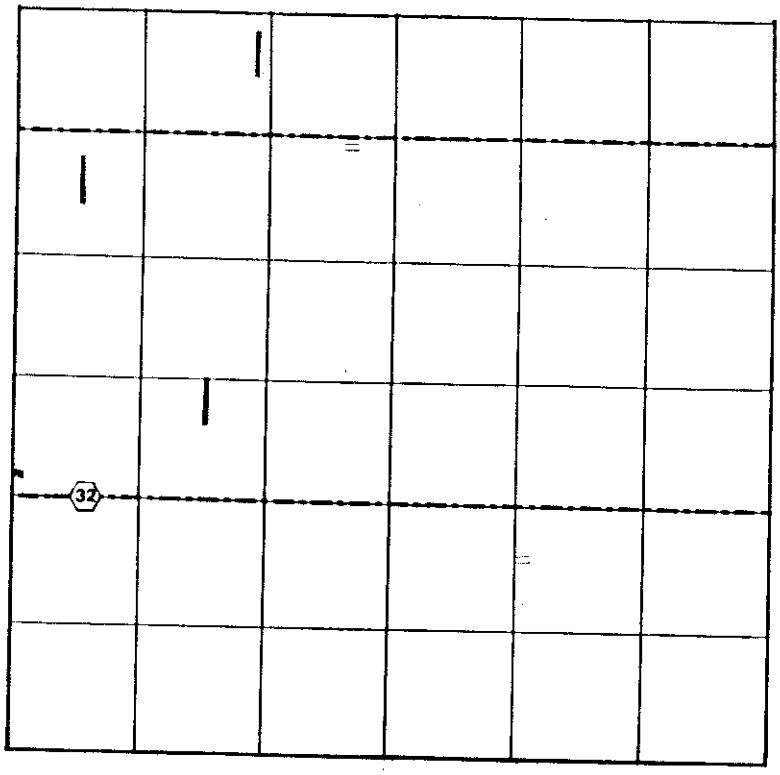
MAP #57
RICH



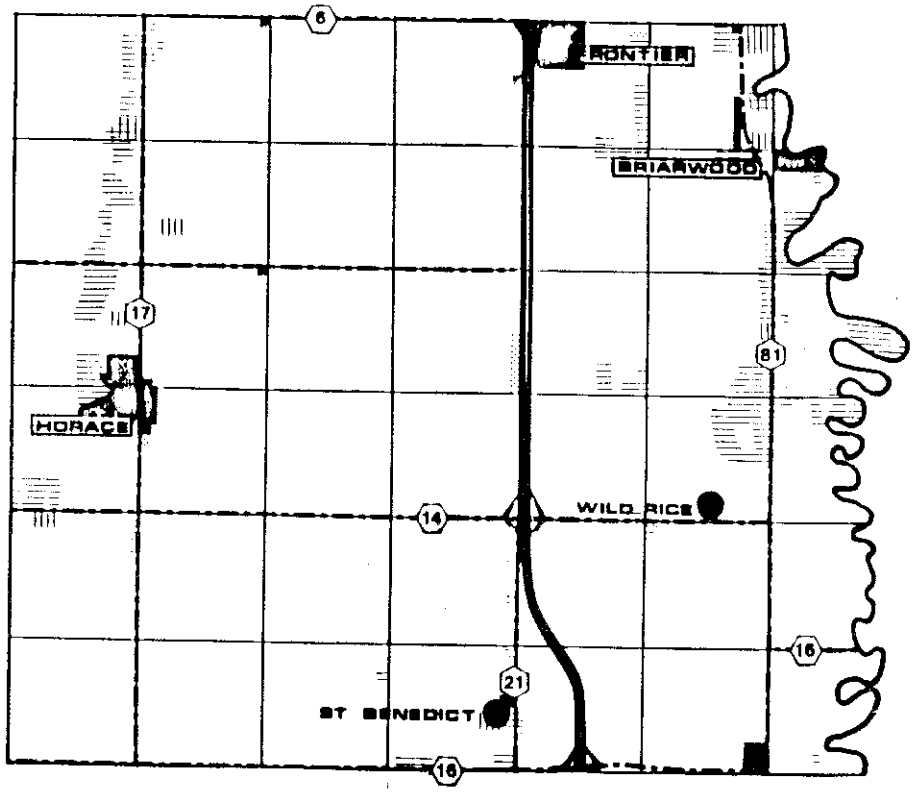
MAP #58
ROCHESTER



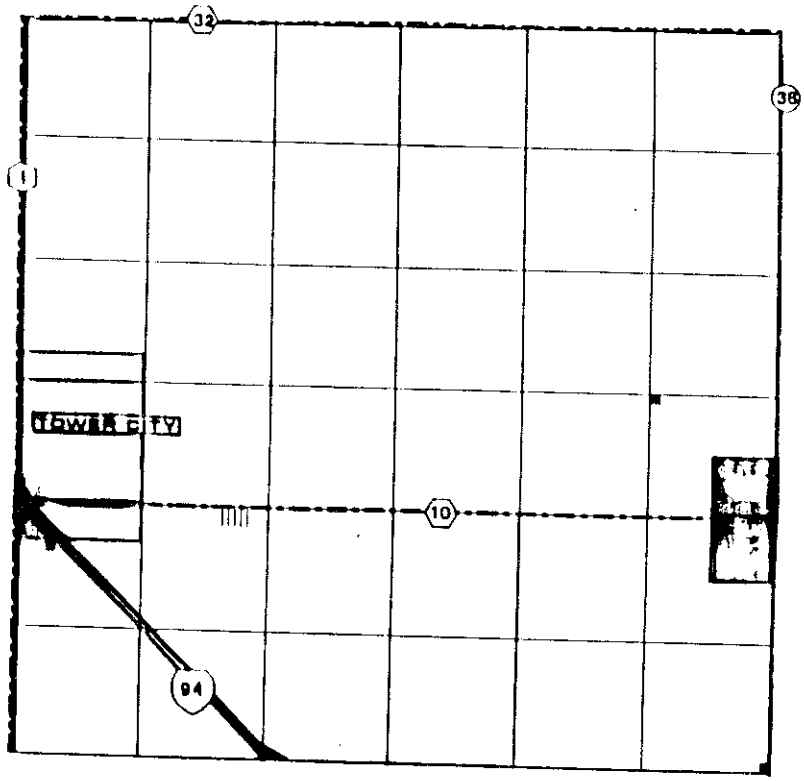
MAP #59
RUSH RIVER



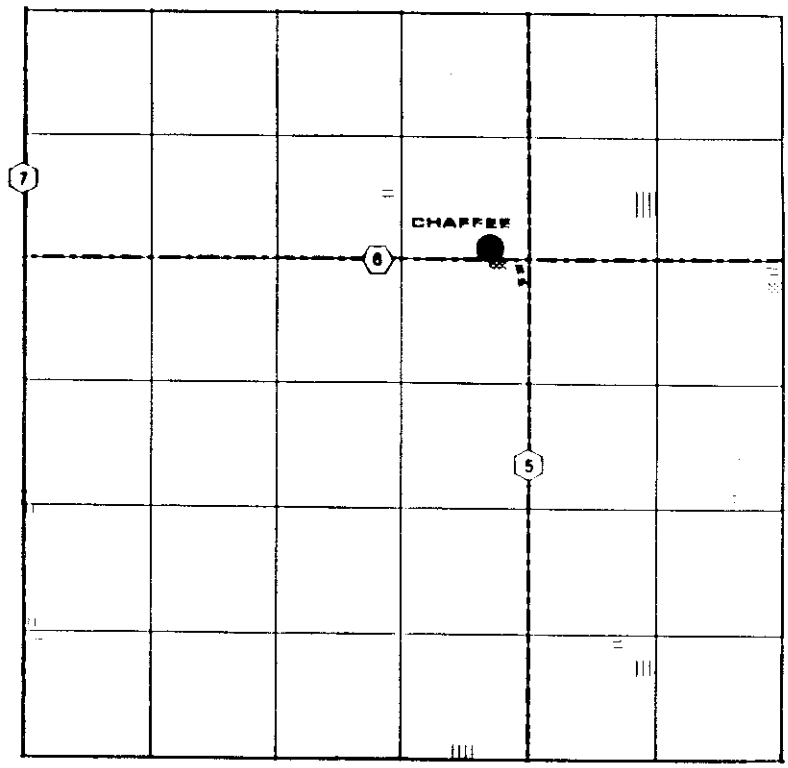
MAP #60
STANLEY



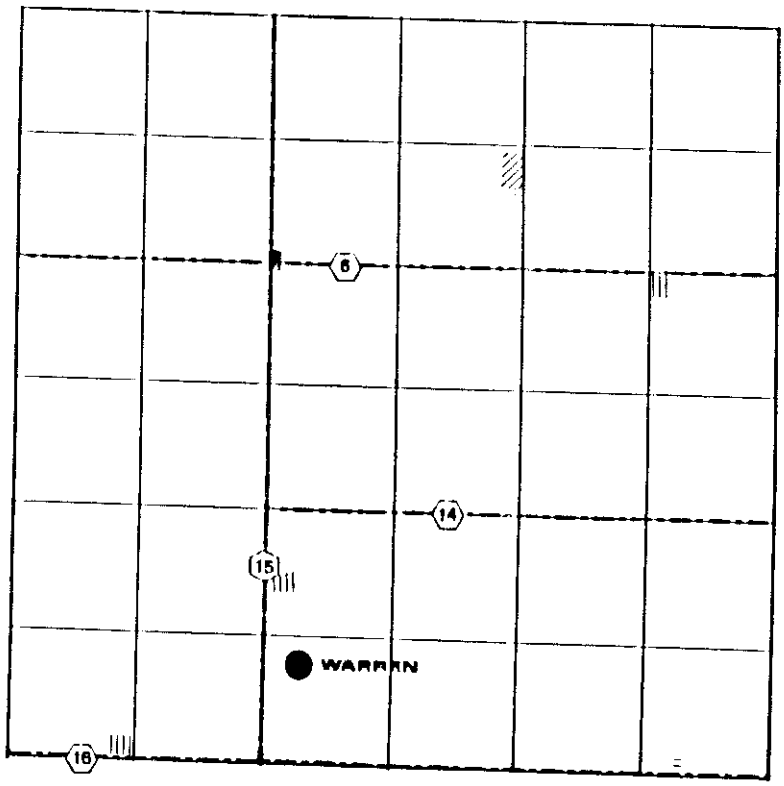
MAP #61
TOWER



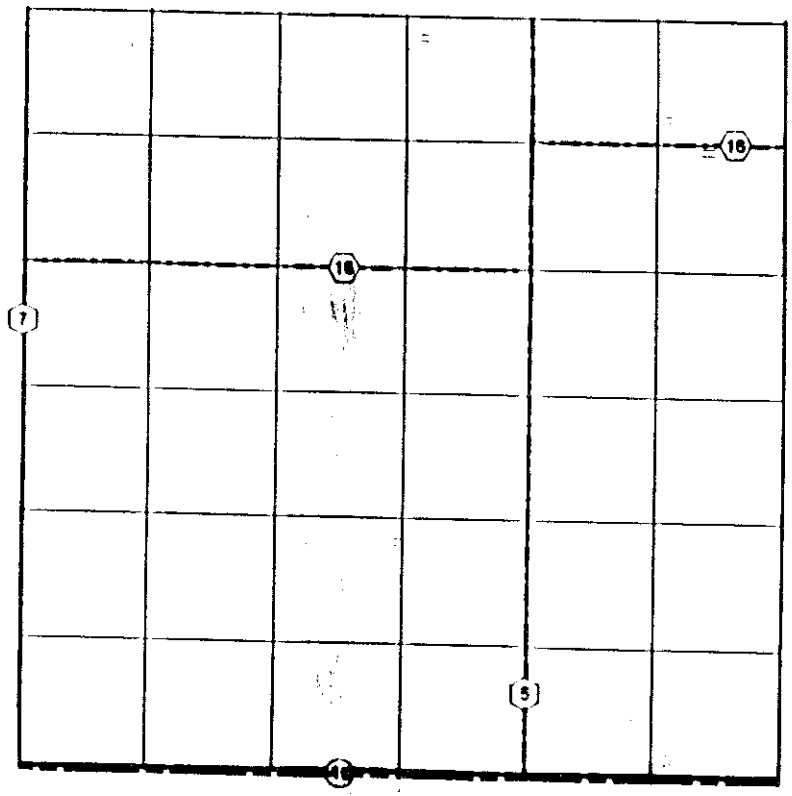
MAP #62
WALBURG



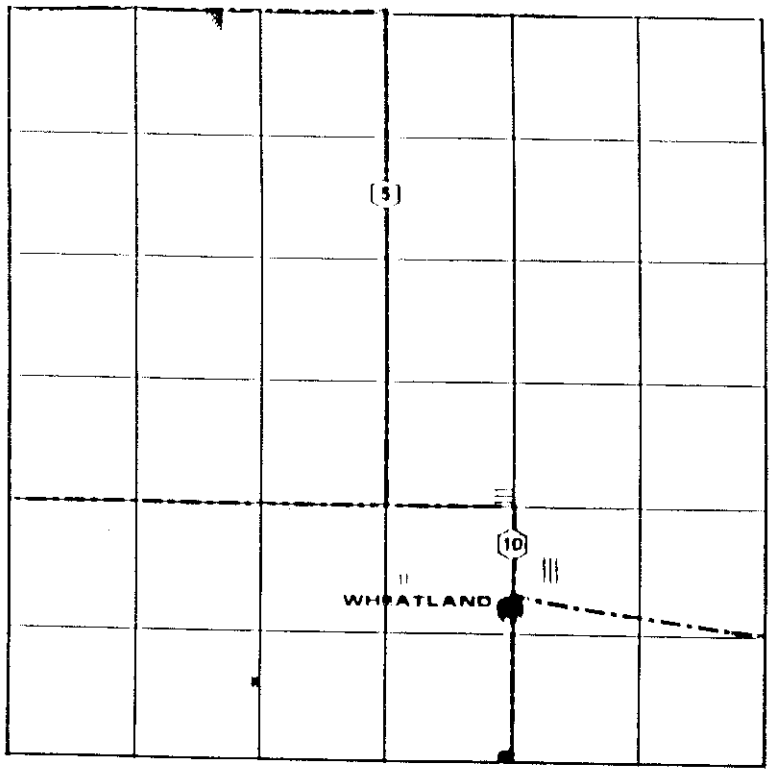
MAP #63
WARREN



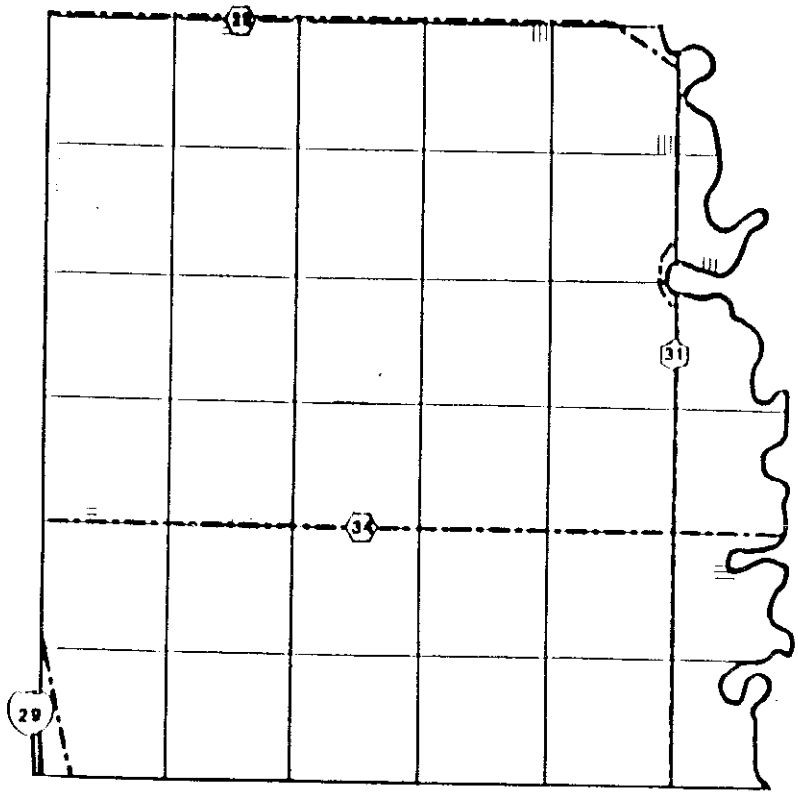
MAP #64
WATSON



MAP #65
WHEATLAND



MAP #66
WISER



SUMMARY

The following is a summary of the ***Background Report*** of the ***Comprehensive Land Use Policy Plan.***

Natural Resources

1. Cass County has a relatively dry, windy climate with widely varying temperatures.

2. The eastern one/third of Cass County is a flat plain that formed from sedimentation of the glacial Lake Agassiz.

3. The southern part of Cass County is part of the Sheyenne Delta, formed in Lake Agassiz.

4. The western part of Cass County is an area descriptively referred to as the Drift Prairie.

5. There are nineteen soil associations in Cass County. These are grouped into six categories based on similarities of the associations. The majority of soils in Cass County can be described as: "Level to gently sloping; moderately fine textured and medium textured soils that formed in glacial lacustrine sediment and in medium textured material over that sediment".

6. The major minerals found in Cass County are sand and gravel.

7. There are three types of aquifers in Cass County.
   a. Type I aquifers - capable of producing large quantities of water and have a high probability of continuing to produce water for a long period of time regardless of climatic conditions. The Page, Hillsboro, Sheyenne Delta, West Fargo, and the Fargo Aquifers are Type I aquifers.
   b. Type II aquifers - capable of producing moderate amounts of water, but are sensitive to short-term climatically related fluctuations in water levels. The Ridges and the Bantel Aquifers are Type III aquifers.
   c. Type III aquifers - quite unreliable but can produce large amounts of water for short periods of time. The Tower City and undifferentiated surface sand and gravel aquifers are Type III aquifers.

8. There are five major rivers that flow through Cass County. They are: Red River, Maple River, Rush River, Wild Rice River and the Sheyenne River.

9. There are no natural lakes in Cass County. Eight reservoirs have been created for flood control and recreational purposes, most noticeable is the Erie Dam/Brewer Lake.

10. Only 26,000 acres of soils capable of sustaining wetlands remain in Cass County; 239,000 acres of wetlands have been drained in Cass County.

Population

1. Cass County's population grew by 19.8% during the 1970s to total 88,247 in 1980.

2. Cass County's estimated population in 1985 was 95,600.

3. The population is projected to grow at about 2% annually to reach 121,623 by the year 2000.

4. Rural population in Cass County grew by 6.8% during the 1970s; however, the rural nonfarm grew by 33.9% while the rural farm declined by 36.1%.

5. Urban population grew at 23.5% during the 1970s.

6. Urban population composes 81.6% of Cass County's total population.

7. The City of Fargo grew by 15% during the 1970s and nearly 70% of Cass County's population reside in the City of Fargo.

8. Only six townships increased in population during the 1970s. They were: Harwood, Mapleton, Normanna, Pleasant, Raymond and Stanley Townships. Fargo, Reed and Barnes Townships lost population during the 1970s due to annexation of land to incorporated cities.

9. There are slightly more females than males in Cass County

10. The median age for Cass County increased from 24.7 years in 1970 to 27.0 years in 1980.

11. Cass County's elderly population is expected to increase by about 40% by the year 2000 with approximately twice as many elderly females than males.

12. Cass County does not have a very large minority population as 98.5% of the population consider themselves as white.

Housing

1. The year round housing units in Cass County increased by 45.9% during the 1970s.

2. The urban year round housing increased by 52.8% during the 1970s.

3. The rural year round housing increased by 19.6% during this time. However, rural farm housing decreased by 30% and rural nonfarm housing increased by 48.9%.

4. 46% of the housing were built before 1960; 26% were built before 1939.

5. 51% of the housing are single, detached housing units; 19% are 10-49 units per structure.

6. The median number of rooms per housing unit in Cass county is 5.0.

7. 93.5% of the units are provided their water by public or private water systems.

8. 90% of the units are provided sewage disposal by means of public sewer.

9. Theoretically, most of the housing units in Cass County are being under-utilized.

10. 59% of the housing are owner occupied.

Economy

1. From 1980 to 1985, Cass County's labor force increased by 46%, going from 44,192 to 54,294. It is 16.2% of North Dakota's total labor force.

2. The labor force is projected to be approximately 92,000 by the year 2000.

3. All sectors of the labor force are experiencing increases in numbers.

4. Cass County's unemployment rate has consistently been below North Dakota's. In 1985, the county's annual rate was 3.6 compared to 5.9 for the state.

5. More of the county's population and females in particular are participating in the labor force in 1980 than before.

6. Private wage and salary workers compose 73.7% of the county's total employment composition.

7. One/third of the county's employed are in the Technical, Sales, and Administrative Support occupations; one/fourth are Managerial and Professional occupations.

8. Service industries employ one/third of the county's employed; retail trade employes one/fifth.

9. The median household income in Cass County was $17,620 in 1979; the mean was $20,397.

10. 26.5% of the county's households earned less than $10,000 in 1979.

11. The median family income was $21,738 in 1979; the mean income was $24,381 in 1979.

12. 14.3% of the county's family earned less than $10,000 in 1979.

13. The per capita income for Cass County in 1984 was $13,943.

14. There were 157 fewer farms in Cass County in 1982 than there were in 1978. There are expected to be 200 fewer farms in 1987 than there were in 1982.

15. The average value per farm in Cass County increased by 34.6% between 1978 and 1982, going from $682,192 to $918,341.

16. The major crops in the county are: wheat, barley, soy beans and corn. The crop with the highest value per acre harvested was sugar beet with an average of $553.88.

17. The major livestock in Cass County are cattle and hogs.

Public Facilities

1. Most county residents are provided with reliable potable water supplies.

2. The county is divided into four water resource management districts to ensure the proper development of water resources.

3. The county has a fully developed assessment drain system to help drain water.

4. 16 different school districts operate in Cass County.

5. Although educational opportunities vary among the districts, all provide basic education.

6. School enrollments are increasing yet have not reached 1970 enrollment figures. They are projected to increase into the 2000s.

7. Total county education expenditures increased by 54.0% between 1980 and 1987.

8. Three communities operate libraries; however, rural residents are not provided with bookmobile services.

9. Cass County does not own any recreational facilities nor parks. It does provide tax revenue to the localities so that the localities can operate recreation facilities.

10. There are over 5000 acres of land reserved for wildlife/waterfowl production/protection in Cass County.

11. Three public hospitals with a total of 778 beds are located in the City of Fargo. A Veterans Hospital is also located in Fargo.

12. A sizable number of health practitioners are located in Cass County.

13. Five skilled nursing elderly health care facilities with a total of 559 beds are located in the City of Fargo.

14. Almost every area in Cass County has police protection that could respond within fifteen minutes.

15. A new jail facility is being considered that will meet the future needs for some time.

16. All areas of the county are provided fire protection.

17. Most areas suspect to flooding have flood management districts in place to minimize the effects of flooding that occurs.

18. Generally, septic tank absorption fields are not a suitable way of sewage disposal in Cass County because of the soil's high clay content and slow permeability.

19. One of the three public landfills in Cass County is expected to be closed to the public in early 1988.

20. Much of the solid waste in the county is privately collected and hauled to sites outside of the county.

Transportation

1. Cass County has a highly developed highway system that provides easy and efficient movement of people, goods and services.

2. 156 miles of county road are on the Federal Aid Functional Classification System.

3. The highway system has been classified into three functional classifications

4. 192 of the 712 bridges in the county are on federal aid.

5. The number of registered motor vehicles in Cass County increased by 246.2% between 1950 and 1980.

6. Cass has six public airports with one providing regularly scheduled air service; there are nineteen private airstrips located in Cass County.

7. The Red River Valley and Western Railroad is continuing rail service on lines abandoned by the Burlington Northern Railroad.

8. Cass County has both inter-county bus service and intra-county bus service.

9. Urban residents who need specialized transportation are provided service by a number of agencies.

Land Use

1. 92.2% of the land in Cass County is used for agriculture purposes.

2. Annexation of land by incorporated cities accounts for much of the land being newly classified as built up.

3. Drainage practices that reduced wetland acreage have been halted.

Subdivisions

1. Most subdivided land occurs near the cities of Fargo and West Fargo.

2. Reed and Stanley Townships contain the largest number of subdivisions.

3. Cass County has subdivision regulations in place to help ensure rural development occurs in an orderly and timely manner.

4. Most of the subdivisions in Cass County have high rates of vacancy.

5. The Auditor Lot process provides another method of developing rural housing in Cass County.

ISSUES

The following is a list of the issues raised in the *Background Report* of the *Comprehensive Land Use Policy Plan*.

Natural Resources

1. The soils in Cass County do not allow for indiscriminate development. Wetness, shrink-swell, high seasonal water tables, high or low permeability, frost action and low soil strength are characteristics of many of the soils.

2. The high productivity of the soils in Cass county have made farming the primary land use.

3. Cass County has excellent potential for development of its ground water resources. The major aquifers are of good quality and are capable of sustained pumping.

4. The water quality of the county's rivers is lower than it potentially could be due to: high amounts of sedimentation and pollution from municipal runoff, agricultural runoff, industrial use, inadequate sewage treatment and inadequate solid waste disposal.

5. Only 26,000 acres of soil remain that are capable of sustaining wetland in the county.

Population

1. Cass County's population is becoming urban. Only 4.4% of the population is rural farm.

2. "Urban Sprawl" has occurred into the rural areas.

3. Growth occurred mainly in the eastern half of county.

4. There is an increasing elderly population, especially female elderly.

Housing

1. There was an increase in rural nonfarm housing and a decrease in rural farm housing.

2. 46% of the housing was built before 1960; 26% built before 1939.

3. The housing units are under-utilized.

4. 9% of the housing relies on septic tank systems for sewage disposal.

Economy

1. There was tremendous growth in most sectors of the economy. However, growth centered around urban areas.

2. The low overall unemployment rate may hurt areas of the county with higher unemployment when applying for federal funds.

3. The healthy economy attracts even more people to locate in the county.

4. There are more females participating in the labor force/"latch key children"

5. The economic sectors are decreasing as a percentage of North Dakota's total.

6. 26.5% of households and 14.3% of families earned less than $10,000 in 1979.

7. The number of farms is decreasing.

8. The economy is becoming less directly dependent on agriculture.

Public Facilities

1. Some school districts are facing decreasing enrollments.

2. Education costs are increasing faster than some districts can keep up with.

3. Rural residents are not provided with bookmobile service.

4. Cass County does not own any recreational facilities.

5. Health care costs are increasing, especially for the elderly; and the location of health care is in urban centers.

6. Increasing population may demand more police manpower to provide adequate protection.

7. Communication problems exists among the various fire protection agencies.

8. The fire personnel may lack training to handle hazardous and/or chemical accidents.

9. Soils are not generally suitable for septic tanks; southside sewer system may ease problem; may also cause more intense development.

10. Public landfills will eventually reach capacity; we should study ways to reduce amount of garbage: recycle to capture hidden resources.

11. Junk cars, tires and other debris litter vacant lots and river banks.

Transportation

1. The functional classification of the county's highway system needs to be updated.

2. As development increases in rural areas, the roads and bridges are placed under stress and require more maintenance and repair.

3. Some roads are experiencing over capacity traffic.

Land Use

1. "Prime" agricultural land is being built up: 13,500 acres of agriculture land became built up between 1978 and 1986.

2. The county's soils are very productive; therefore, agriculture should be the primary use of the land.

Subdivisions

1. Most subdivisions have high rates of vacancy; may have been premature.

2. Rural nonfarm housing depends on the septic tank system for sewage disposal and county soils not generally suitable for this system.

3. The county's subdivision regulations need to be updated.

4. The Auditor's Lot process and its impact on rural housing development needs further review to ensure its proper usage.

5. Annexation agreements between incorporated cities, townships and subdivisions may provide answers to concerns about townships and subdivisions being "gobbled-up".

LAND USE POLICY PLAN

The Cass County Comprehensive Land Use Policy Plan is to be used as a guide on which the county's development policies and regulations will be based. From the analysis provided by the background study, certain goals, objectives and policies were written to ensure that land use in Cass County will be wise and desirable. As conditions change, so should the plan change. By being a flexible document, this plan will reflect the goals of the citizens of Cass County.

For clarification, a **goal** is a broad, general concept that the county wishes to attain in the future. An **objective** is a more specific, measurable step to be taken toward achieving a goal. A **policy** is a general principle that guides the actions taken to meet the goals and objectives.

Six goals have been established. Although each addresses a particular subject, they all work together towards providing guidelines to ensure desired land use in the county. The six goals are:

 # 1 Ensure economic and efficient land use development patterns.

 # 2 Provide and maintain an adequate, safe and efficient transportation system which serves agricultural uses, existing communities and creates desired growth patterns.

 # 3 Provide the citizens of Cass County with adequate public facilities and services.

 # 4 Use and preserve significant natural resources in a manner that retains their characteristics.

 # 5 Ensure and maintain Cass County's rural heritage.

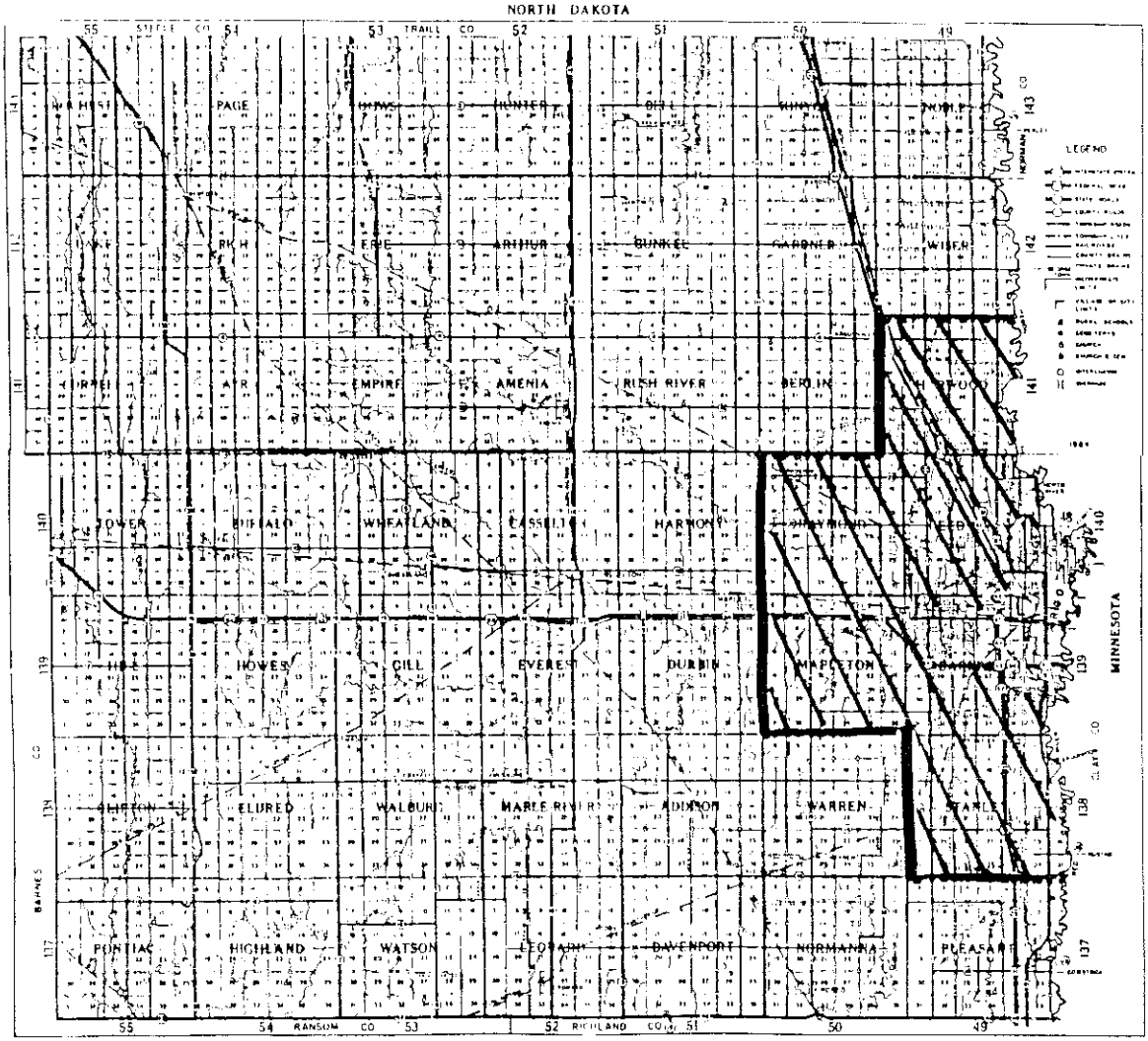
 # 6 Ensure and maintain the public participation in decisions affecting the future of Cass County and its residents.

While all of Cass County will be included under this plan, the areas this policy plan directs much of its attention to are the townships that surround the urban center of Fargo/West Fargo (see **Map 67**). These areas have been identified as "'Rural-to-Urban' Transition" areas because they have experienced and are experiencing the greatest change in land uses. The land uses in these areas are being primarily converted from agriculture to residential uses. The plan seeks that, as these areas become more intensively developed, the development occurs in areas that have existing, compatible developments.

Coordination and cooperation among the cities, townships, developers and the county is vital and organic to the success of this plan. When a development proposal is reviewed, the affected parties should coordinate and cooperate to ensure that the goals of the public are satisfied. Each governmental unit should examine their development review processes and update them if needed. This plan does state that the county's subdivision regulation is to be updated and the auditor's lot process be reviewed. In addition it encourages townships and communities (specifically those in the "'Rural-to-Urban' Transition Areas") to update, or develop, comprehensive plans, zoning ordinances and subdivision regulations.

RURAL TO URBAN TRANSITION AREA

CASS COUNTY



TRANSITION AREAS

G O A L S

GOAL #1

Ensure economic and efficient land use development patterns.

Objectives

A. Prevent incompatible land uses from locating in close proximity to one another.

B. Minimize the impacts development has on the natural environment.

C. Provide development that is compact and orderly.

D. Protect important natural areas that should be preserved.

E. Provide orderly transition from rural to urban land use.

F. Use land in manners that are well suited to soil qualities.

G. Provide technical assistance to help townships and communities develop and implement comprehensive plans, zoning ordinances and subdivision regulations.

Policies

1. Direct development into areas that are already experiencing development.

2. Discourage nonfarm development in farming areas.

3. Prevent rural areas from becoming dumping grounds for undesirable land uses not wanted elsewhere.

4. Restrict land uses which will increase flood hazards.

5. Require developments to adapt to the natural environment.

6. Make land use decisions in accordance with this comprehensive plan.

7. Require proposed developments to provide site plans.

8. Regularly review and update the county's subdivision regulations.

9. Encourage the development of annexation agreements between incorporated communities, townships and subdivisions.

10. Develop policies for reviewing and approving municipal incorporation petitions.

11. Coordinate development reviews with affected governmental bodies

12. Utilize the Soil Conservation Service when reviewing development proposals.

13. Encourage the siting of public facilities to promote development in desired growth patterns.

14. Preserve and enhance places of historic and cultural importance.

15. Provide buffer zones to separate conflicting land uses where necessary.

16. Encourage townships and communities to develop and implement comprehensive plans, zoning ordinances and subdivision regulations.

17. Identify important natural areas.

18. Study the Auditor's Lot process and its impact on rural housing development to ensure its proper usage.

19. Recognize the importance of zoning in townships to help direct desired development patterns.

20. Implement a rural addressing program to ensure proper identification of all locations.

GOAL #2

Provide and maintain an adequate, safe and efficient transportation system which serves agricultural uses, existing communities and creates desired growth patterns.

Objectives

A. Provide reliable routes for the transfer of people, goods and services.

B. Ensure access to necessary facilities and services.

C. Maintain and/or improve the existing roads and bridges in Cass County.

D. Manage transportation facilities to direct development.

Policies

1. Discourage direct development on major routes which would result in increased congestion and hazards.

2. Limit direct access to the county roads.

3. Direct development to occur in areas already served by adequate transportation facilities.

4. Update and review regularly the levels of use and the functional classification of county roads.

5. Encourage cooperation among governing bodies to ensure consistent road maintenance and snow removal throughout the county.

6. Review development to prevent strip developments along major routes.

7. Encourage the development of alternate transportation systems linking the county.

8. Construct new roads that conform to soil, slope and geologic conditions; and institute erosion and sediment control standards for road construction.

9. Coordinate the development of transportation facilities with cities, counties and state governments.

10. Designate future corridors and crossings in conjunction with the Extraterritorial Study being prepared by the Fargo-Moorhead Metropolitan Council of Governments.

GOAL #3

Provide the citizens of Cass County with adequate public facilities and services.

Objectives

A. Ensure healthy and safe living conditions for the residents of the county.

B. Provide a direction for future growth and development.

C. Ensure that future needs will be met.

D. Ensure economic and efficient development.

Policies

1. Assess county, townships and communities financial capabilities and limitations.

2. Maintain effective and improved educational facilities and opportunities.

3. Provide necessary recreation facilities for persons of all ages.

4. Provide effective law enforcement services and adequate equipment.

5. Reduce and control pollution and wastes resulting from inadequate public facilities.

6. Encourage better communication among the fire protection districts.

7. Discourage land uses which will endanger the physical well-being of the County's residents.

8. Direct development to areas where adequate public facilities and services exist.

9. Analyze public facility and service needs of new developments.

10. Promote compact development so public facilities and services are economical.

11. Promote joint ventures among communities, townships and the county to provide more efficient, effective and economic public facilities and services.

12. Encourage private and public investment in local housing for every citizen.

13. Deter offensive and incompatible uses from locating in or near residential areas.

14. Promote proper standards of design, construction and maintenance of developments.

15. Locate new educational, medical and other public facilities in proper relation to present and future population distribution.

16. Develop a comprehensive solid waste management plan to ensure future and existing facilities meet demands.

GOAL #4

Use and preserve natural resources in an environmentally sound manner.

Objectives

A. Recognize the potentials and capabilities of the land and its uses, particularly in regard to natural resource development.

B. Maintain the county's clean and favorable environment.

C. Preserve adequate quantity and quality of ground and surface water supplies.

D. Prevent the exploitation of productive agricultural land.

Policies

1. Determine water requirements for present and future populations.

2. Identify available and potential sources of surface and ground water.

3. Maintain cooperation and communication among the Water Resource Boards, township officials, community officials and county officials.

4. Coordinate with the Cass County soil survey to help determine the best land use.

5. Discourage land use practices which contribute to or cause water and wind erosion.

6. Ensure that proper measures are taken to reduce runoff and retain natural vegetation at development sites.

7. Encourage the development of centralized sewage waste treatment facilities.

8. Encourage the development of recycling facilities and utilizing the resources available in solid wastes.

9. Gear development intensity to the level of environmental sensitivity.

GOAL #5

Ensure and maintain Cass County's rural heritage.

Objectives

A. Preserve agricultural areas classified as "prime farmland".

B. Ensure the importance and viability of the family farm concept.

C. Recognize the importance of the agricultural economy.

Policies

1. Use the Cass County soil survey when reviewing development requests.

2. Maintain an equitable agricultural land taxation system.

3. Discourage nonfarm development in farming areas.

4. Maintain agricultural land values by controlling adjacent land uses.

5. Support the establishment and continuance of adequate farm programs.

6. Encourage utility easement locations which minimize interference with farming operations.

7. Encourage the siting of public facilities to minimize the impact on farming areas.

8. Direct nonfarm developments to areas where development exists.

9. Promote agriculture.

GOAL #6

Ensure and maintain the public participation in decisions affecting the future of Cass County and its residents.

Objectives

A. Keep open lines of communications between citizens and decision makers.

B. Provide constant public awareness of planning goals and objectives adopted.

C. Involve the public in land use decision making.

D. Provide citizens with every opportunity to express their opinions on public decisions.

Policies

1. Give timely notice of all meetings and hearings.

2. Actively solicit public comment and opinion concerning land use decisions.

3. Consider and utilize citizen suggestions when making public decisions.

4. Inform citizens as to decisions made and actions taken by decision makers.

5. Make public documents available for review.

6. Encourage educational activities for local governments, planning commissions and the public.