COMPREHENSIVE PLAN

ADOPTED JULY, 2 2002

CLAY COUNTY

2002 COMPREHENSIVE PLAN

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ACKNOWLEDGMENTS

The Clay County Comprehensive Plan was completed with the help of all of the project participants including county staff and officials, the Comprehensive Planning Task Force, state agencies and the project consultants. These people devoted their time, energy and thought over many months to create the Plan's framework and guiding principals.

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TABLE OF CONTENTS

I. INTRODUCTION 1-1
Community Based Planning 1-2
Project Participants 1-4
Planning Process 1-5
Plan Setting 1-6

II. INVENTORY & ANALYSIS 2-1

DEMOGRAPHIC OVERVIEW 2-2
Population 2-2
Urban & Rural 2-2
Age of Population 2-7
Race 2-9
School Enrollment 2-10
Household Characteristics 2-11
Population Projections 2-13

HOUSING 2-21
Housing Characteristics 2-21
Housing Needs 2-23

ECONOMIC OVERVIEW 2-25
General Employment Characteristics 2-25
Labor Force 2-26
Employment 2-27
Place of Work 2-29
Income 2-30
Economic Development Activities 2-33

ENVIRONMENTAL CONDITIONS 2-35
Geology 2-35
Soils 2-36
Vegetation 2-38
Special Animals and Plants in Clay County 2-39
Aggregate Deposits 2-40
Hydrology 2-44
Drainage 2-44
Groundwater Levels 2-44
Wellhead Source Water Protection 2-45
Lakes, Rivers and Wetlands 2-46
Surface Water Quality 2-47
Flood Plain 2-48
Groundwater Quantity and Quality 2-49
Wind Energy 2-50

TRANSPORTATION 2-62
Transportation System 2-62
Transportation Planning 2-66
Planning Tools 2-71

LAND USE AND GROWTH 2-75
Planning Framework 2-75
Land Use Inventory 2-75
Agriculture 2-77
Prime Agricultural Lands 2-80
Residential 2-81
Commercial / Industrial 2-83
Public / Semi-Public 2-83
Park / Recreation 2-83
Land Use Controls 2-84

III. GOALS AND POLICIES 3-1
Formulation of Goals and Policies 3-1
Planning Task Force Workshop 3-1
Barnesville Workshop 3-2
Dilworth Workshop 3-3
Ulen Workshop 3-4
County Vision 3-4
Goals & Policies 3-7
Definitions 3-7
General Goals and Policies 3-9
Citizen Participation / Public Education Goals and policies 3-9
Intergovernmental Coordination Goals and Policies 3-10
Land Use Goals and Policies 3-10
Housing Goals and Policies 3-14
Public Facilities Goals and Policies 3-14
Transportation Goals and Polices 3-15
Economic Development Goals and Policies 3-16
Natural Resources Goals and Policies 3-17

IV. LONG RANGE PLAN 4-1
Framework 4-1
Future Land Use 4-2
Planned Growth Areas 4-3
General Rural Areas 4-4
Rural Service Areas 4-4
Environmentally Sensitive Areas 4-4
Public / Semi Public Areas 4-5
Park / Recreation Areas 4-6
Growth Management 4-7
Process 4-8

Methodology 4-8
Growth Areas 4-10
Cities Not Anticipating Growth Beyond Existing Limits 4-10
Comstock 4-11
Felton 4-12
Georgetown 4-13
Glyndon 4-14
Hitterdal 4-16
Sabin 4-17
Ulen 4-19
Cities Anticipating Growth 4-20
Barnesville 4-21
Dilworth 4-23
Hawley 4-25
Moorhead 4-27

V. IMPLEMENTATION 5-1
Zoning Regulations 5-1
Subdivision Regulations 5-2
Capital Improvement Plan 5-2
Planned Growth Areas & Annexation 5-2
Citizen Involvement 5-3
Public Education 5-4
Review & Revision 5-4
Ongoing, Shared Planning 5-4

LIST OF TABLES & FIGURES

TABLES:

Table 2-1: Population Trends Clay County, 1940-1990 2-3
Table 2-2: Population Trends Clay County Townships, 1950-1995 2-5
Table 2-3: Population Trends Clay County Cities 1950-1995 2-6
Table 2-4: Median Age Area Counties & MN, 1980 and 1990 2-7
Table 2-5: Age Cohorts Clay County, 1980 and 1990 2-8
Table 2-6: Public School Dist. Enrollment by Grade Clay County 1993-1998 2-9
Table 2-7: Pop., Households & Persons per Household Clay Cty, 1970, 1980 & 1990 2-10
Table 2-8: County Population & Household Estimates 1997 & 1998 2-11
Table 2-9: Household Projections Clay County 1995-2020 2-12
Table 2-10: Population Projections by Age Group Clay County, 1995-2020 2-13
Table 2-11: Population Projections Clay County Townships 2-15
Table 2-12: Population Projections Clay County Cities 2-17
Table 2-13: County, Rural & Urban Projections Clay County, 2000-2020 2-18
Table 2-14: FM COG Population Projections Moorhead, Hawley & Dilworth 2000-2025 2-19
Table 2-15: FM COG Population Projections Urban & Rural Clay County 2000-2025 2-19
Table 2-16: Housing by Number of Bedrooms Clay County, 1990 2-22
Table 2-17: WCI Housing Needs Assessment Based on 1998 Population & Household Est. . 2-24
Table 2-18: Average Unemployment Rates Clay County, 1990-1999 2-25
Table 2-19: Labor Force Projections Clay County, 1990-2020 2-26
Table 2-20: Employment by Industry Clay County 2-27
Table 2-21: Ten Industries with Greatest % Growth in Private Employment 1994-1998 2-28
Table 2-22: Ten Industries with Greatest % Decline in Employment 1994-1998 2-29
Table 2-23: Average Weekly Wage by Industry Clay County, 1995-1997 2-32
Table 2-24: Total Percentage of Persons Below Poverty Level Clay County, 1979 & 1989 ... 2-32
Table 2-25: Project. Pop. Growth & Aggregate Consumption Fargo-Moorhead 1980-2010 .. 2-42
Table 2-26: Rural Transit Rider ship Trends Clay County, 1995-1999 2-65
Table 2-27: Short Range Potential Future Transportation Improvements Clay County 2-66
Table 2-28: Long Range Potential Future Transportation Improvements Clay County 2-67
Table 2-29: Short Range MnDOT Potential Future Transportation Improvements Clay Cty.. 2-68
Table 2-30: Long Range MnDOT Potential Future Transportation Improvements Clay Cty . 2-69
Table 2-31: Hwy Dept. Proposed Major Construction Projects Clay County, 2000-2005 2-70
Table 2-32: Existing Land Use Clay County, 2000 2-76
Table 2-33: Agricultural Statistics Clay County, 1978-1997 2-77
Table 2-34: Crops Grown Clay County, 1987-1997 2-78
Table 2-35: Number and Type of Farms Clay County, 1987-1997 2-79
Table 2-36: Crop Sales Information Clay County, 1987 to 1997 2-79
Table 2-37: Residential Building Permits by Township Clay County, 1990-1999 2-82
Table 2-38: Townships & Cities with Zoning Ordinances Clay County 2-85

Tables Continued:

Table 4-1: Future Land Use Unincorporated Clay County 4-3
Table 4-2: Population Trends & Projections City of Comstock, 1950-2020 4-11
Table 4-3: Population Trends & Projections City of Felton, 1950-2020 4-12
Table 4-4: Population Trends & Projections City of Georgetown, 1950-2020 4-13
Table 4-5: Population Trends & Projections City of Glyndon, 1950-2020 4-14
Table 4-6: Population Trends & Projections City of Hitterdal, 1950-2020 4-16
Table 4-7: Population Trends & Projections City of Sabin, 1950-2020 4-17
Table 4-8: Population Trends & Projections City of Ulen, 1950-2020 4-19
Table 4-9: Population Trends & Projections City of Barnesville, 1950-2020 4-21
Table 4-10: Future Land Use Planned Growth Area Surrounding Barnesville 4-22
Table 4-11: Population Trends & Projections City of Dilworth, 1950-2020 4-23
Table 4-12: Future Land Use Planned Growth Area Surrounding Dilworth 4-24
Table 4-13: Population Trends & Projections City of Hawley, 1950-2020 4-25
Table 4-14: Future Land Use Planned Growth Area Surrounding Hawley 4-26
Table 4-15: Population Trends & Projections City of Moorhead, 1950-2020 4-27
Table 4-16: Future Land Use Planned Growth Area Surrounding Moorhead 4-28

FIGURES:

Figure 1-1: Planning Process 1-8
Figure 1-2: Clay County Regional Context 1-6
Figure 1-3: Counties Surrounding Clay County 1-7
Figure 1-4: Clay County Base Map 1-9

Figure 2-1: Clay County Population Trends & Projections 1940-2020 2-2
Figure 2-2: Townships With Growth 2-20
Figure 2-3: Year Structure Built Clay County, 1990 2-21
Figure 2-4: New Housing Starts Clay County, 1990-1998 2-22
Figure 2-5: New Single-Family Housing Starts, Rural vs Urban Clay County, 1990-1998 2-23
Figure 2-6: Earnings Clay County, 1980 & 1990 2-31
Figure 2-7: General Soil Map Clay County, Minnesota 2-52
Figure 2-8: Original Vegetation of Clay County 2-53
Figure 2-9: Natural Communities & Biodiversity Significance Clay County, Minnesota 2-54
Figure 2-10: Major Prairie Areas in Clay County 2-55
Figure 2-11: Aggregate Resources Eastern Clay County, Minnesota 2-56
Figure 2-12: Gravel Tax Revenue Clay County, 1980-1996 2-43
Figure 2-13: Prairie & Gravel Pits, Eastern Clay County, Minnesota 2-57
Figure 2-14: Major Watersheds, Clay County, Minnesota 2-58
Figure 2-15: Drainage Ditches, Clay County, Minnesota 2-59
Figure 2-16: Surface and Ground Hydrology, Clay County, Minnesota 2-60
Figure 2-17: Floodplains, Clay County, Minnesota 2-61
Figure 2-18a: Metro Functional Classification, Clay County, Minnesota 2-72
Figure 2-18b: Rural Functional Classification, Clay County, Minnesota 2-73

Figures Continued:

Figure 2-19: Planned Transportation Improvements, Clay County, Minnesota 2-74
Figure 2-20: Existing Land Use, Clay County, Minnesota 2-86
Figure 2-21: Barnesville Existing Land Use, Barnesville, Minnesota 2-87
Figure 2-22: Dilworth Existing Land Use, Dilworth, Minnesota 2-88
Figure 2-23: Felton Existing Land Use, Felton, Minnesota 2-89
Figure 2-24: Glyndon Existing Land Use, Glyndon, Minnesota 2-90
Figure 2-25: Hawley Existing Land Use, Hawley, Minnesota 2-91
Figure 2-26: Moorhead Existing Land Use, Moorhead, Minnesota 2-92
Figure 2-27: Prime Agricultural Areas, Clay County, Minnesota 2-93
Figure 2-28: Clay County Zoning 2-94

Figure 4-1: Future Land Use Plan, Clay County, Minnesota 4-29
Figure 4-2: Growth Planning Process 4-9
Figure 4-3: Planned Growth Areas Surrounding Barnesville, Clay County, Minnesota 4-30
Figure 4-4: Planned Growth Areas Surrounding Dilworth, Clay County, Minnesota 4-31
Figure 4-5: Planned Growth Areas Surrounding Hawley, Clay County, Minnesota 4-32
Figure 4-6: Planned Growth Areas Surrounding Moorhead, Clay County, Minnesota 4-33

COMPREHENSIVE PLAN

INTRODUCTION
INVENTORY & ANALYSIS
GOALS & POLICIES
LONG RANGE PLAN
IMPLEMENTATION

INTRODUCTION

CLAY COUNTY COMMUNITY-BASED COMPREHENSIVE PLAN

This document is the Comprehensive Plan for Clay County, Minnesota. This Plan sets forth the basic guiding principals that have been embraced by Clay County to shape its future. It evolved through the interchange of information, analysis and response between the citizens, community leaders, staff and public officials within the County through a planning process undertaken from 2000 to 2001.

The county is currently guided by a Comprehensive Plan that was adopted in 1980. It is now necessary to create a new Plan that assesses what changes must be made today to prepare for tomorrow. The County has prepared this Comprehensive Plan to guide development of cities and rural areas in a logical and efficient manner and to protect growth areas and transportation corridors.

While the Table of Contents presents a clear listing of what is contained in this document, the reader will benefit from a brief overview of the organization of the Plan. This **Introduction** presents an abridged summary of the planning process and the framework within which the Plan was developed.

The **Inventory and Analysis** chapter describes the background information compiled for this plan and is divided into six subsections:

- Demographic Overview
- Housing
- Economic Overview
- Environmental Conditions
- Transportation
- Land Use and Growth

The chapter on **Goals and Policies** contains a detailed expression of the community's desire for the future and describes the public participation process. This chapter is truly the heart of the Comprehensive Plan. Everything that precedes it is background information and input used to provide a clear picture of the current state of conditions in Clay County from which the issues, needs and opportunities facing the community were identified. Everything that follows is a description of how the County has chosen to address those needs and achieve the desired results expressed in the goals and policies.

The **Long Range Plan** chapter is divided into three subsections:

- Land Use
- Growth Areas and Annexation
- Transportation

Issues and recommendations related to the future growth and development of the County are discussed within this chapter.

The **Implementation** chapter describes how the County intends to execute this Plan. It includes a description of the tools available to the County to implement the Plan as well as specific strategies the County may use to ensure the Plan continues to reflect the aspirations of the community and changing circumstances facing it.

COMMUNITY-BASED PLANNING

This Plan was developed through the Community-Based Planning Act passed by the 1997 Minnesota State Legislature. The Act encourages voluntary, cooperative land-use planning among local governments. This law was enacted in response to challenges caused by the state's growth and related urban sprawl during the 1990's, the loss of agricultural land, and unsustainable land use practices.

To promote the development of Community-Based plans, Minnesota Planning, the State's planning agency, awarded grant funds to communities through a competitive application process. In September of 1998, Clay County applied to the program jointly with the City of Hawley and entered into a contract with the State of Minnesota to begin project work in March of 1999. The County hired a planning consultant to lead the process and work began on the project in early 2000.

The Community-Based Planning Act establishes a statewide planning framework outlining 11 goals and emphasizes strong public participation and intergovernmental communication and cooperation in the planning process. The goals of Community-Based planning are:

Citizen Participation – To develop a community-based planning process, with broad citizen participation in order to build local capacity. To plan for sustainable development and to benefit from the insights, knowledge, and support of local residents. The process must include at least one citizen from each affected unit of local government.

Cooperation – To promote cooperation among communities to work towards the most efficient planned, and cost effective delivery of government services by, among other means, facilitating cooperative agreements among adjacent communities and to coordinate planning to ensure compatibility of one community's development with development of neighboring communities.

Economic Development – To create sustainable economic development strategies and provide economic opportunities throughout the state that will achieve a balanced distribution of growth statewide.

Conservation – To protect, preserve, and enhance the state's resources, including agricultural land, forests, surface water and groundwater, recreation and open space, scenic areas, and significant historic and archeological sites.

Livable Community Design – To strengthen communities by following the principles of livable community design in development and redevelopment, including integration of all income and age groups, mixed land uses and compact development, affordable and life-cycle housing, green spaces, access to public transit, bicycle and pedestrian ways, and enhanced aesthetics and beauty in public spaces.

Housing – To provide and preserve an adequate supply of affordable and life-cycle housing throughout the state.

Transportation – To focus on the movement of people and goods, rather than on the movement of automobiles, in transportation planning, and to maximize the efficient use of the transportation infrastructure by increasing the availability and use of appropriate public transit throughout the state through land-use planning and design that makes public transit economically viable and desirable.

Land-Use Planning – To establish a community-based framework as a basis for all decisions and actions related to land use.

Public Investments – To account for the full environmental, social, and economic costs of new development, including infrastructure costs such as transportation, sewers and wastewater treatment, water, schools, recreation, and open space, and plan the funding mechanisms necessary to cover the costs of infrastructure.

Public Education – To support research and public education on a community's and state's finite capacity to accommodate growth, and the need for planning and resource management that will sustain growth.

Sustainable Development – To provide a better quality of life for all residents while maintaining nature's ability to function over time by minimizing waste, preventing pollution, promoting efficiency, and developing local resources to revitalize the local economy.

A comprehensive process of public input, information gathering, communication and cooperation was undertaken to incorporate these 11 goals into the Plan. The planning process itself also included extensive citizen participation, education, and coordination between all of the affected jurisdictions and stakeholders in the County.

In order to facilitate and enhance public participation, a community-based planning process was set forth to create a plan that reflects the unique traditions, values and aspirations of area community members. The underlying premise of this approach is that broad-based citizen participation leads to common understanding and from that understanding comes support and commitment to shared strategies that have been forged through consensus.

The planning process was greatly benefited from the insights, knowledge and support of residents, business owners, interest groups and other stakeholders in the County.

Area community members were involved with three Issues Forums, a public Review Workshop/Open House and a public hearing and served on a Planning Task Force that met six times during the planning process.

A public outreach campaign utilizing flyers, press releases and a project newsletter was important in informing the public and project participants about the project activities. Educating the public on various aspects of the County, including land use, demographic trends, transportation, environmental conditions and other issues was another important part of the planning process. Information was presented on these topics at the Issues Forums, a Synthesis Workshop, a Goal and Policies Workshop, two Alternatives Workshops, the Review Workshop/Open House and public hearing; and was included in project newsletters.

PROJECT PARTICIPANTS

This project required the coordination of many participants. A citizen group whose members were appointed by the County Board made up the *Planning Task Force*. Members represented a broad cross section of interests and perspectives throughout the County, as shown below. This group reviewed and commented on all work products, but was particularly focused on preparing and recommending a complete set of goals and policies for inclusion in the Plan. The areas of interest represented on the Task Force include:

- Economic Development
- Business Community (2 representatives)
- Farmers/Feedlots
- Grain Farmers
- Small Cities (3 representatives)
- Large Cities
- Townships (2 representatives)
- Unincorporated Villages
- Rural/Farm Community
- Lakeshore Residents
- Non-Farm, Non-Lakeshore Residents (3 representatives)
- Environmental Interests (2 representatives)
- Water Resources
- Transportation
- Minority Community
- Outdoor Recreation
- Housing Interests (2 representatives)
- Health and Social Services
- Mining Industry
- Agribusiness
- Education Interests
- County Planning Commission
- County Board of Commissioners

The County Board secured the services of a professional planning team to facilitate the development of this Plan. The *Consultant Team* consisted of two member firms. The Minneapolis-based firm of Dahlgren, Shardlow and Uban, Inc. served as the lead consultants and Community Solutions in Park Rapids provided project services such as research, synthesizing background information and facilitating meetings.

One of the foundations of the Community-Based Planning Act is close communication between the funded projects and the State of Minnesota. To aid in this effort, two groups were assembled at the state level. The *Local Technical Advisors* comprised of designated representatives of each of the State agencies involved in the project. They were charged with providing information and technical review throughout the planning process. A group of *State Technical Advisors* was also assembled to oversee the development of Community-Based plans. This group consists of the mid-level staff members of State agencies and representatives of cities, townships, counties and regional development commissions.

An initial meeting was held with the State Local Technical Advisors to allow them to identify issues relating to the project and resources available to aid in the planning process. To help overcome the "us vs. them" scenario that can sometimes arise when the State is involved with local planning, the Local Technical Advisors also were encouraged to attend and participate in the Task Force meetings. Finally, a meeting was held with the group near the end of the project to present the draft Plan and receive their comments.

PLANNING PROCESS

Comprehensive planning is a systematic, ongoing, forward-looking process of analyzing opportunities and constraints to accomplish a community's goals and objectives. Figure 1-1, *Planning Process*, illustrates the process Clay County undertook to complete this Plan.

The planning process was divided into three Phases:

- Phase I: Issue Identification, Research and Analysis
- Phase II: Goal Development and Alternatives Generation
- Phase II: Plan Development and Approval

Phase I initiated the overall study, analyzed existing conditions, organized the local participation process, and identified needs and opportunities in Clay County. Planning typically begins with the development of a vision for the community that it seeks to achieve through the planning process. Thus, three community visioning workshops were held throughout the County to formulate a vision for its future and to elicit citizen views on the issues, opportunities and threats facing Clay County as well as its existing strengths and weaknesses. A visioning exercise was also conducted with the Task Force at the Project Kickoff Session and another kickoff meeting was held with the Local Technical Advisors to elicit their views of issues facing the County.

In addition to creating a vision for a community's future, it is also important at the outset of a planning project to assemble and evaluate objective facts about the community. Data related to land use, growth trends, transportation, demographics, the economy, environmental conditions and housing was collected, analyzed, mapped and compiled into a background report. This information was distributed to the Task Force and Local Technical Advisors and was presented at the Synthesis Workshop. The background data comprises the Inventory and Analysis chapter of this Plan.

After the basic studies are completed, it is generally deemed useful to formulate goals and policies on how a community would like to reach its vision for the future. ***Phase II*** focused on the preparation, evaluation and refinement of issues, goals, policies and alternative development strategies. The ideas generated at the community visioning workshops were analyzed in conjunction with the background data to develop draft goals and policies. These were then presented to the public at the Goals and Policies Workshop along with the highlights of the background studies. The draft goals and policies were then modified based on the public's input and are presented in the Goals and Policies chapter of the Plan.

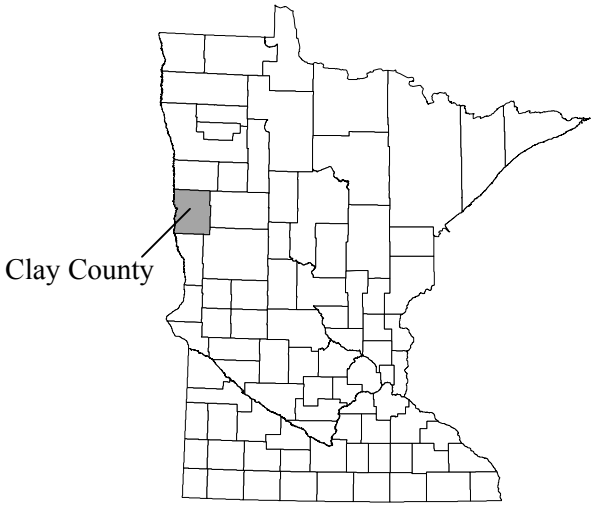
During Phase II practical alternative strategies for guiding and implementing the community's goals were also developed relating to land use, growth and transportation. Alternative plans and recommendations were prepared and evaluated based on the goals and policies, and options that best achieved them were selected and refined. These comprise the Long Range Plan chapter of this document.

Phase III involved the preparation of the final plan recommendations and the final Comprehensive Plan document. A draft plan was prepared and distributed to the Task Force and Local Technical Advisors and presented at the Review Workshop/Open House as well as a special workshop held with the Local Technical Advisors. Refinements were then made to the plan based on input from the public, Task Force and Local Technical Advisors and was presented at a public hearing. The County Board adopted the Plan in July of 2002 and made final revisions based on State comments in December of 2002.

PLAN SETTING

Clay County's western boundary borders eastern North Dakota and is located in the Fargo-Moorhead metropolitan statistical area as shown on Figure 1-2. Figure 1-3 shows that on the east is Becker County, to the north is Norman County, Wilkin County borders on the South and Otter Tail County borders a small portion of the county on the East and South. On the western side of Clay County is Cass County in North Dakota.

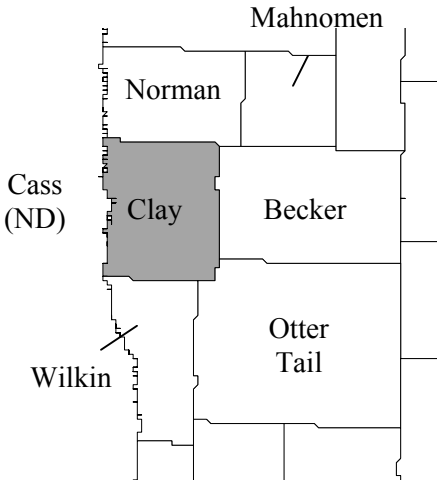
Figure 1-2: Clay County Regional Context



The County is located approximately 240 miles north and west of the Minneapolis-St. Paul area and Duluth is approximately 240 miles straight east.

The Fargo-Moorhead area is the largest metropolitan area between Minneapolis-St. Paul and Spokane, Washington with a population of 174,357 in 2000.

Figure 1-3: Counties Surrounding Clay County



Moorhead is the county seat and largest of the County's incorporated cities. The County is situated along the Red River of the North on the western edge of the state. The other ten cities located within the County in order of largest to smallest population are: Dilworth, Barnesville, Hawley, Glyndon, Ulen, Sabin, Hitterdal, Felton, Comstock and Georgetown. These cities along with the County's townships and major roadways are shown on Figure 1-4, *Clay County Base Map*.

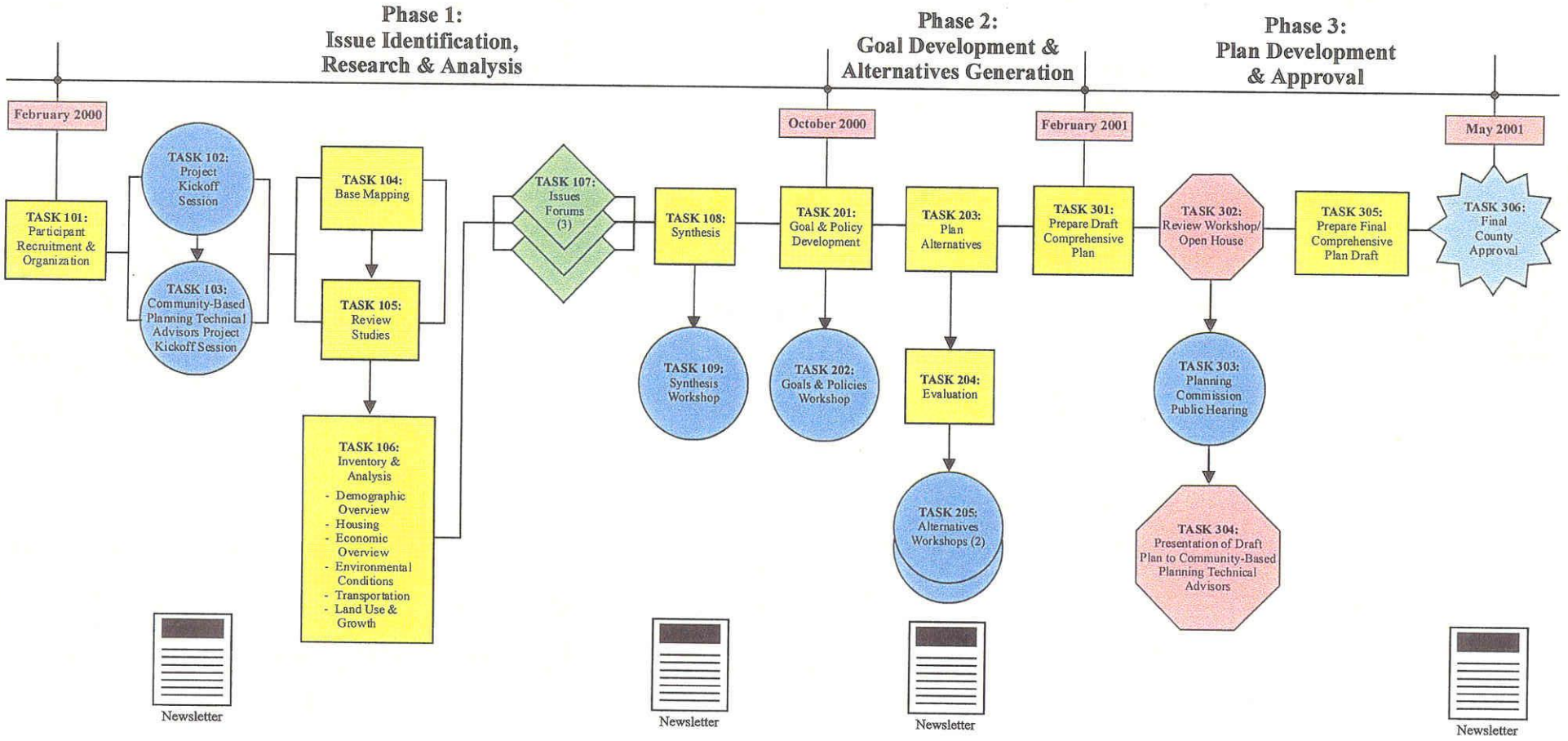
Scandinavian and European immigrants in search of fertile farmland originally settled the area. Clay County was established and named "Breckenridge" County after John C. Breckenridge, the Vice President of the United States in 1861. After the Civil War began, Breckenridge joined the army of the south and pressure from Minnesotans resulted in the State legislature passing a bill in 1862 rescinding the name of Breckenridge. The county was renamed for Henry Clay, a statesman and orator.

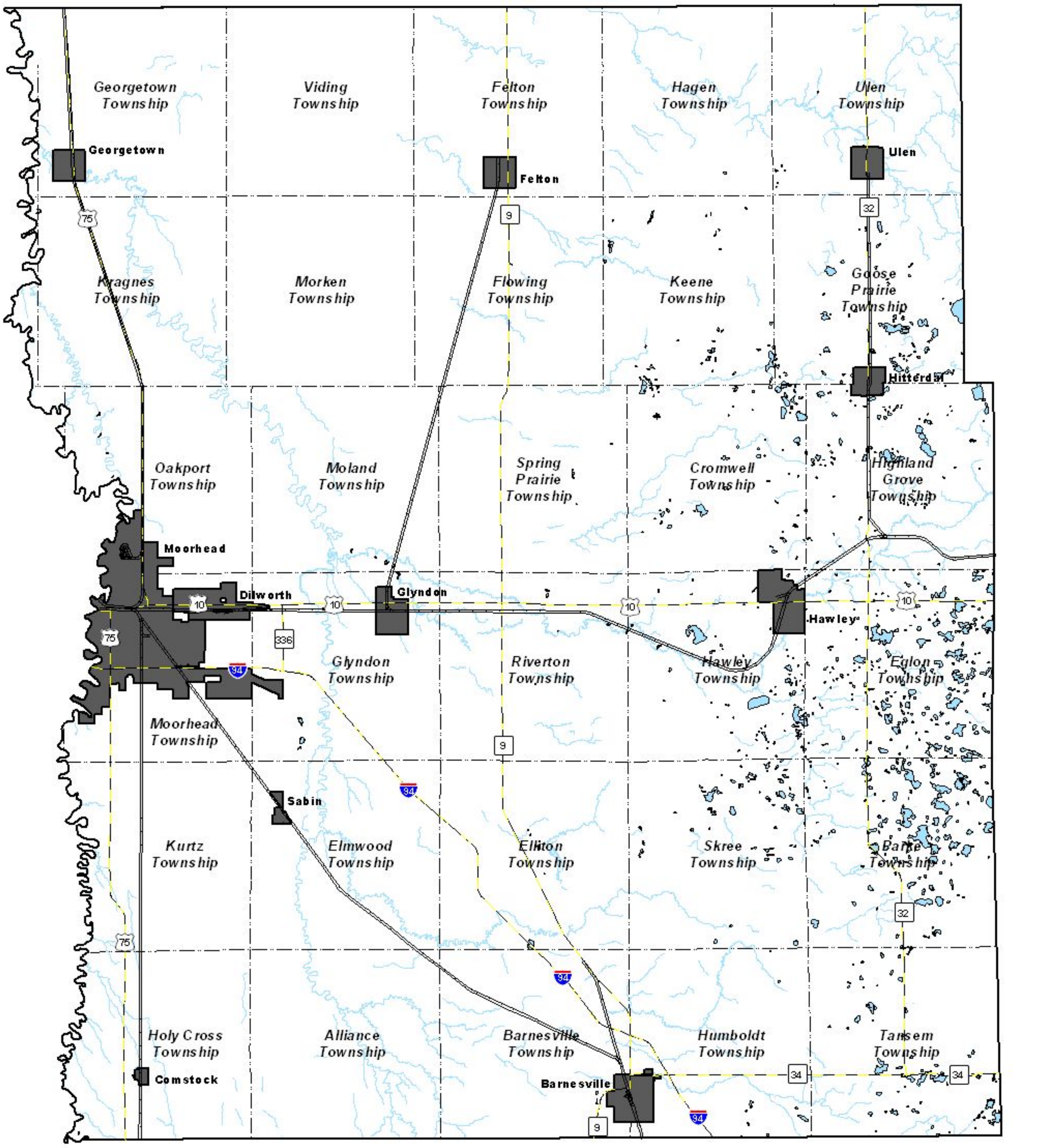
In 1871, the Northern Pacific Railroad built a crossing on the Red River at the present site of Moorhead. Moorhead was designated the county seat in 1872. For many years, the area served as a transfer point for goods and passengers between the Minneapolis-St. Paul area and Winnipeg, Manitoba. Hudson Bay Company goods were hauled by oxcart from St. Cloud to Moorhead and reloaded onto riverboats for the journey north on the Red River. Today, Moorhead is still an important hub of interstate, and even transcontinental, commerce with the intersection of Interstates 94 and 29 located just west of the city limits.

Figure 1-1

Planning Process

Clay County Community-Based Comprehensive Plan





County Base Map

Clay County, Minnesota

Figure 1-4

DAHLGREN SHARDLOW AND UBAN

July 3, 2001

COMPREHENSIVE PLAN

INTRODUCTION

INVENTORY & ANALYSIS

GOALS & POLICIES

LONG RANGE PLAN

IMPLEMENTATION

INVENTORY & ANALYSIS OVERVIEW

CLAY COUNTY COMMUNITY-BASED COMPREHENSIVE PLAN

The existing pattern of development and other conditions in Clay County and the surrounding area have a great influence on the County's future. Accurate, complete and up-to-date information on existing conditions is essential to a successful Comprehensive Plan. Background information for this report was gathered and analyzed for six key planning components including:

- Demographic Overview
- Housing
- Economic Overview
- Environmental Conditions
- Transportation
- Land Use and Growth

The information gathered during this phase of the planning process was combined with the issues articulated during the Community Issues Workshops to develop the goals, policies and implementation strategies contained in this Comprehensive Plan.

A description of each of the Inventory and Analysis components is outlined in the following pages.

DEMOGRAPHIC OVERVIEW:
CLAY COUNTY COMMUNITY-BASED COMPREHENSIVE PLAN

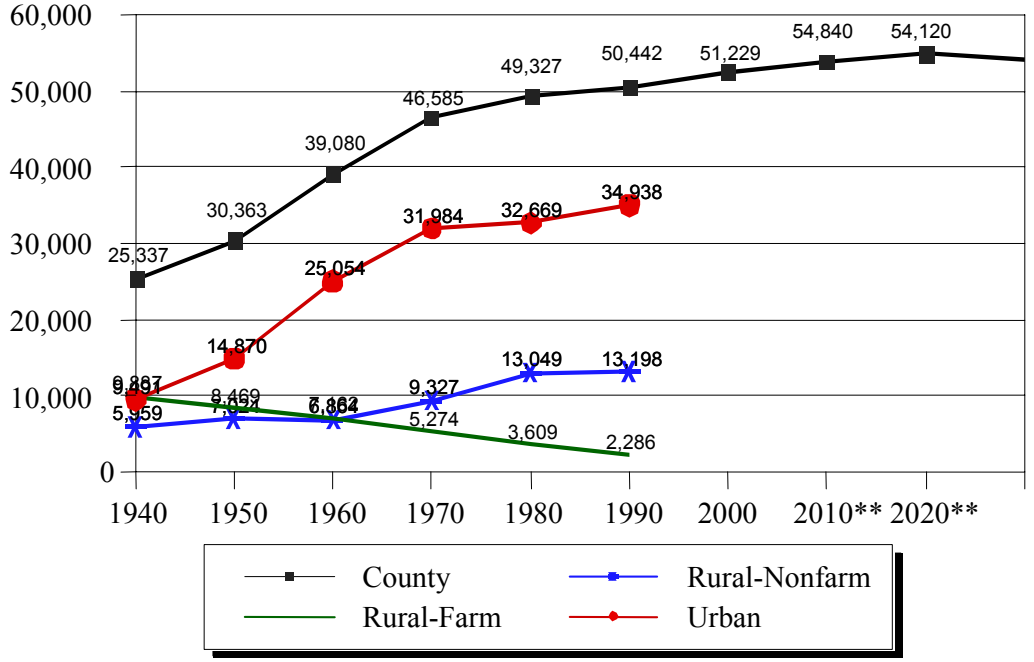
The demographic overview presents population and household trends and projections from 1940 to 2020 and illustrates how these trends and forecasts will influence the policies guiding growth and development in Clay County.

POPULATION

URBAN AND RURAL

The population in Clay County slightly more than doubled from 1940 to 2000. Figure 2-1 shows the rapid growth from 1940 to 1970, followed by steady growth in the 1970's, 1980's and 1990's. Projections from the State Demographer's office project that the County will grow at a much slower rate in the coming decades: 5.6% from 2000 to 2020.

Figure 2-1
Clay County Population Trends and Projections
1940 to 2020



*1995 estimate & **2000-2020 - MN Planning 1998
1940 to 1990 - U.S. Census

March 2000

In 1940, the rural-farm population in Clay County comprised 39% of the total population, more than the rural-non-farm and urban areas. Urban areas are defined as incorporated communities with populations of 2,500 or more. Rural-farm population is defined as the population living on active farms, outside the urban areas. Rural, non-farm population is the rural population outside of the urban areas, not engaged in farming as a primary occupation. Thus, only Moorhead and Dilworth would be considered urban areas in Clay County, as the population of each of these cities is over 2,500.

Table 2-1 shows that by 1950, the urban population had surpassed rural-farm population by over 6,000. The table also illustrates the rapid increase in urban population from 1950 to 1970 and the steady growth in the 1970's and 80's. During this same time, the rural, non-farm population continued to grow and in 1990 comprised 26% of the Clay County population. In 1990, the rural-farm population made up only 5% of the total population in the County. Although urban and rural figures are not yet available for the 2000 Census, it is likely that this trend will continue.

Table 2-1
Population Trends
Clay County
1940-1990

	1940	%	1950	%	1960	%	1970	%	1980	%	1990	%
Rural-Nonfarm	5,959	24	7,024	23	6,864	18	9,327	20	13,049	26	13,198	26
Rural-Farm	9,887	39	8,469	28	7,162	18	5,274	11	3,609	7	2,286	5
Urban	9,491	37	14,870	49	25,054	64	31,984	67	32,669	67	34,938	69

Source: 1940 - 1990 U.S. Census

The trend of decreasing rural population and increasing urban population is not unique to Clay County. In part, the farm crisis has taken a toll on the rural, and particularly the farm, population throughout Greater Minnesota with younger people leaving the farm for higher paying jobs in the urban areas. As a result, small communities and rural areas are seeing their schools consolidated or closed, businesses shut down, and other services within their towns are being closed or down-sized. The migration of young people from the rural areas to more urban areas is one reason for the decline of many rural communities. In addition, elderly persons often eventually move to the larger cities to be close to needed health care services and shopping. These factors all contribute to the decline of the rural-farm population and the growth of the urban centers.

Converse to the trend of migration toward larger urban areas, however, is the increase in non-farm rural residential development, particularly in close proximity to larger population centers. This trend is occurring throughout Minnesota and the nation as residents increasingly seek the perceived higher quality of life and natural amenities available in rural areas while still enjoying the benefits of being near employment and shopping centers.

This type of development often occurs on large lots, as people desire to build bigger homes in the country with more acreage and privacy. Thus, communities with only modest population growth may experience the geographic growth associated with this trend.

Results of the 2000 Census show population losses for many rural Minnesota communities. Growth that did occur in Greater Minnesota was primarily in counties that have larger cities that serve as regional trade and employment centers, such as Moorhead. Clay County was one of the few counties in Western Minnesota that experienced overall growth during the 1990's. The areas that experienced the greatest population losses in Minnesota are located primarily in the southern, western and northwestern parts of the state, those most dependent on agriculture. The four states bordering Minnesota and most of the rest of the plains states also experienced population losses in their farm-dependent rural counties.

Although over half of the townships in Clay County have experienced a decline in population since 1950, ten have increased or remained steady as shown in Table 2-2 on the following page, and also in Figure 2-2, *Townships With Growth*. Four of the townships showing growth are located along U.S. Highway #10. The others are located around major population centers with the exception of Spring Prairie and Parke Township.

One reason that Parke Township experienced an increase may be that the Township includes several lakes where seasonal cabins are being converted into year-round homes. The township also includes marginal agricultural land and wooded lots, where more residential development can occur.

Table 2-2
Population Trends
Clay County Townships
1950 - 2000

Township	1950	1960	1970	1980	1990	2000
Alliance	434	442	358	353	267	246
Barnesville	235	190	200	181	180	149
Cromwell	341	319	294	334	310	323
Eglon	405	403	379	410	419	440
Elmwood	409	425	437	385	392	283
Elkton	385	323	301	397	338	371
Felton	208	196	183	115	106	108
Flowing	143	123	106	129	114	97
Georgetown	251	196	263	187	179	188
Glyndon	316	295	350	299	314	281
Goose Prairie	397	388	283	233	206	199
Hagen	274	231	171	215	200	153
Hawley	306	280	243	431	421	459
Highland Grove	468	421	348	333	300	304
Holy Cross	287	250	220	181	137	129
Humboldt	222	231	233	308	260	239
Keene	218	218	178	183	165	128
Kragnes	260	270	342	361	346	319
Kurtz	257	275	262	335	322	288
Moland	350	371	352	340	310	340
Moorhead	326	463	629	420	501	442
Morken	245	240	226	217	190	203
Oakport	561	950	1,265	1,450	1,386	1,689
Parke	450	409	354	511	468	450
Riverton	196	173	258	448	401	462
Skree	225	215	181	179	157	166
Spring Prairie	214	226	277	344	311	364
Tansem	352	272	208	247	226	222
Ulen	323	208	212	206	192	163
Viding	219	166	172	159	139	124
Total	9,277	9,169	9,285	9,891	9,257	9,329

Source: US Census

While Table 2-3 shows that some cities have declined in population, overall the greatest historic growth in Clay County has been within its cities. From 1950 to 2000, cities gained 20,184 people, while townships gained 52. However, the past few decades have brought a shift in the population dynamics within the County. One of the most significant results of the 2000 Census is that the population of the County's largest city, Moorhead, actually declined during the 1990's, after numerous decades of steady growth. Conversely, a number of smaller cities, which had previously been experiencing declining populations, gained population during the 1990's. Also, the gap between city growth and township growth has narrowed significantly with cities gaining 735 residents in the 1990's and townships gaining 72. It is interesting to note that the overall township growth in the past decade is greater than it's total overall growth from 1950 to 2000. This is a result of growth occurring in a number of townships, which previously experienced declining populations in the 1980's.

Table 2-3
Population Trends
Clay County Cities
1950 - 2000

City	1950	1960	1970	1980	1990	2000
Barnesville	1,593	1,632	1,782	2,123	2,066	2,173
Comstock	139	138	135	163	123	123
Dilworth	1,429	2,102	2,321	2,575	2,562	3,001
Felton	258	201	232	241	211	216
Georgetown	192	178	141	111	107	125
Glyndon	411	489	674	875	862	1,049
Hawley	1,196	1,270	1,371	1,406	1,655	1,882
Hitterdal	262	235	201	273	242	201
Moorhead	14,870	22,934	29,687	30,641	32,295	32,177
Sabin	211	251	333	447	495	421
Ulen	525	481	486	583	547	532
Total	21,086	29,911	37,363	39,438	41,165	41,900

Source: US Census

AGE OF POPULATION

The median age of Clay County residents in 1990 was 28.9 years of age while in 2000 it was 32.3, indicating an aging of the population. A comparison of surrounding counties is shown in Table 2-4.

Table 2-4
Median Age
Area Counties and Minnesota
1980 - 2000

Year	Clay	Becker	Otter Tail	Wilkin	Norman	Cass, ND	Minnesota
1980	25.2	30	34.2	30.7	36.2	27.2	29.2
1990	28.9	35	37.3	34.4	39	30	32.5
2000	32.3	39.4	41.1	38.1	40.9	31.3	35.4

Source: US Census

Although the data shows the population is aging, the median age is well below those of most surrounding counties and the State of Minnesota. The large number of higher education institutions may have the largest affect on the relatively young median age found in Clay County.

Table 2-5 shows the County's population by age cohorts for 1990 and 2000. The overall population of Clay County increased 1.6% from 1990 to 2000 but changes in various age groups were much more significant. In the 45 to 54 year age group, an increase of 43.5% was seen and the 85+ age group increased nearly 40%. Age groups beyond 34 years old saw increases, with the exception of the 60 to 64 year olds. The population decreased in that category by 12.4% from 1990 to 2000. The increases seen in these age groups would account for the overall increase in the County's median age. The baby boom generation would help account for the increase in the 35 to 54 year olds but in the older categories, this could indicate an influx of senior-aged residents moving into Clay County. This information is critical for the future planning of community facilities and services.

Table 2-5
Age Cohorts
Clay County
1990 - 2000

Age Cohort	1990	2000	Change	
			Number	Percent
Under 5	3,541	3,167	-374	-10.6%
5 to 9	3,874	3,491	-383	-9.9%
10 to 14	3,379	3,886	507	15.0%
15 to 19	5,334	5,485	151	2.8%
20 to 24	6,480	5,532	-948	-14.6%
25 to 34	7,119	5,643	-1,476	-20.7%
35 to 44	6,635	7,522	887	13.4%
45 to 54	4,239	6,160	1,921	45.3%
55 to 59	1,881	2,028	147	7.8%
60 to 64	1,962	1,718	-244	-12.4%
65 to 74	3,184	3,187	3	0.1%
75 to 84	2,060	2,379	319	15.5%
85 +	737	1,031	294	39.9%
Total	50,425	51,229	804	1.6%

Source: US Census

RACE

Clay County experienced a growth in racial diversity during the 1990's. In 1990 minorities comprised 3.6% of the total population but comprised 6.1% in 2000. All minority groups increased in population during this decade, although absolute increases were relatively small. The vast majority of the County's population continues to be white, which makes up approximately 94% of the total.

Table 2-6
Population by Race
Clay County
1990 - 2000

	1990	2000	Change	
			Number	Percent
White	48,612	48,149	-463	-1.0%
Black	135	268	133	98.5%
American Indian, Eskimo, or Aleut	583	740	157	26.9%
Asian or Pacific Islander	420	463	43	10.2%
Other Race or More than 1 Race	672	1,609	937	139.4%
Total	50,422	51,229	807	1.6%

Source: US Census

SCHOOL ENROLLMENT

School enrollment in Clay County reached a high of 9,502 in 1995 for kindergarten through twelfth grade, but since then declined each year to 1999, but began increasing again in 2000. From 1995 to 1996, there was a decrease of 2.6%. The overall decrease from 1995 to 2000 was 6.5%. This decrease in enrollment has a significant effect on the overall funding that schools receive from the State of Minnesota.

Table 2-7
Public School District Enrollment by Grade
Clay County
1993-1998

Grade	1993	1995	1996	1997	1998	1999	2000
Kindergarten	733	776	660	642	633	501	645
1st grade	763	739	786	n/a	n/a	504	600
2nd grade	735	697	739	n/a	n/a	544	658
3rd grade	742	778	691	n/a	n/a	519	665
4th grade	743	721	776	n/a	n/a	609	630
5th grade	759	737	707	n/a	n/a	734	735
6th grade	740	761	729	n/a	n/a	549	706
1-6 subtotal	4,482	4,433	4,428	4,268	4,212	3,960	3,994
7th grade	781	770	752	n/a	n/a	609	688
8th grade	750	746	741	n/a	n/a	568	741
9th grade	688	797	734	n/a	n/a	613	722
10th grade	670	710	731	n/a	n/a	613	715
11th grade	628	639	637	n/a	n/a	594	709
12th grade	593	631	571	n/a	n/a	524	669
7-12 subtotal	4,110	4,293	4,166	4,274	4,251	3,539	4,244
Total K-12	9,325	9,502	9,254	9,184	9,096	7,499	8,883

Source: MN Dept. Of Children, Families & Learning

HOUSEHOLD CHARACTERISTICS

Household characteristics may change over time and relates to the population change by number and by size. If there is a growth in population and an increase in the both number and size of households, it tends to indicate a community growing from within, i.e., a high birthrate. However, if population growth is reflected primarily by an increase in the number of households and a decrease in the size of households, it may indicate that the community is growing due to an influx of new residents.

Table 2-7 shows that the number of households in the County is increasing along with the population, while the average size of the households are decreasing. This would indicate that the growth is coming from new residents. In 1980, average household size was 2.77 persons while in 1990, household size decreased to an average of 2.64. Household size continued to decrease to an average size of 2.53 persons in 2000. The table shows that the population grew 3.9% from 1980 to 2000 while the number of households grew by 15.3% in the same time period. Again, smaller household size and growth from outside the County would account for this increase.

Table 2-8
Household Trends
Clay County
1980 - 2000

	1980	1990	2000	% Change 1980-90	% Change 1990-00	% Change 1980-00
Population	49,327	50,442	51,229	2.3%	1.6%	3.9%
Households	16,199	17,490	18,670	8.0%	6.7%	15.3%
Persons Per Household	2.77	2.64	2.53	-4.7%	-4.3%	-8.8%

Source: US Census

Based on past trends, the Minnesota Demographer's office has made some projections of household types to the year 2020. These can be seen in Table 2-9.

From the State Demographer's projections, you can see that *Married Couples with Children* are expected to decline by over 15 percent from 1990 to 2020. The baby boomer age groups would be moving into the empty-nester category by this time and could account for a large part of this decrease. The largest increase is expected in the *Living Alone, 65+ year old* category with an over 32% increase, again indicative of the baby boomers reaching retirement age.

This information is important for planning purposes and shows an aging household population that may be in need of increased services such as at-home health care, assisted care living facilities and eventually, nursing homes. *No family Households-Living Alone* is also expected to increase by approximately 25%. The social trend of people marrying at a later age and more people able to afford housing are some reasons for this increase. Also, more divorced people, living by themselves, could be contributing to the increase.

In non-family households with a female householder, 71% live in the urban areas, while those with a male householder see 55% living in urban areas.

Table 2-9
Household Projections
Clay County
1995-2020

H.H. Type	1990*	1995	2000	2005	2010	2015	2020	% Change
Married-Couple Households	9,890	10,100	10,130	10,220	10,400	10,660	10,870	9
Married with Children	4,929	4,980	4,730	4,480	4,250	4,240	4,270	-15.43
Other Family Households	2,031	2,160	2,260	2,390	2,490	2,570	2,640	23.07
Other Families with Children	1,274	1,320	1,340	1,400	1,450	1,500	1,540	17.27
Male Householder	217	220	230	240	240	250	250	13.20
Female Householder	1,057	1,100	1,110	1,160	1,210	1,250	1,290	18.06
Non-family, Living Alone	4,097	4,340	4,570	4,820	5,030	5,240	5,490	25.37
Living Alone, 65+ Years Old	1,903	2,090	2,190	2,290	2,370	2,520	2,820	32.52
Other Non-family HH	1,472	1,550	1,750	1,930	1,960	1,910	1,800	18.22
Total	17,490	18,160	18,700	19,360	19,890	20,390	20,800	15.91

Source: MN State Demographer's Office - 1999
* 1990 figures are not projections but actual census data.

POPULATION PROJECTIONS

The State Demographer's Office has also prepared population projections through 2020 for the County as shown in Table 2-10. As can be seen from the table, the population is expected to decrease in the age 0 to 54 age categories through the year 2020. All categories from age 55 to 85+ are projected to increase to 2020. Some considerations that will need to be made in community planning will include declining school enrollment and an increasing senior population, signifying an increase in the need for services for the elderly. The table also shows general growth for the County to 2010 and then a slight decrease in the following years.

Table 2-10
Population Projections by Age Group
Clay County
1995 to 2020

Age Group	2000	2005	2010	2015	2020	% Change
0-4	3,167	3,240	3,110	3,070	2,910	-8.1%
5-9	3491	3,570	3,320	3,180	3,120	-10.6%
10-14	3,886	3,740	3,730	3,450	3,280	-15.6%
15-19	5,485	5,370	4,970	4,720	4,370	-20.3%
20-24	5,532	6,240	6,190	5,600	5,190	-6.2%
25-34	5,643	5,270	5,610	5,920	5,610	-0.6%
35-44	7,522	7,210	6,020	5,620	5,940	-21.0%
45-54	6,160	7,650	8,310	7,250	6,060	-1.6%
55-59	2,028	2,800	3,410	4,240	4,040	99.2%
60-64	1,718	2,350	2,720	3,300	4,100	138.6%
65-74	3,187	3,430	3,850	4,500	5,360	68.2%
75-84	2,379	2,270	2,310	2,450	2,770	16.4%
85+	1,031	1,210	1,290	1,310	1,370	32.9%
Total	51,229	54,350	54,840	54,610	54,120	5.6%

Source: MN Planning, 1999
Note: Due to rounding, the number of people in age groups by year may not add up to the total.

In addition to the Demographer's projections, four formulas were used to calculate population projections for this Plan. According to these projections shown in Table 2-11 and 2-12, Clay County shows a mix of growth and decline by township and city. The first three methods were based on the actual population counts for the townships and cities for the years 1970 to 2000 and assume that growth will continue along these trends through 2020. The formulas are as follows:

Straight Line: This method uses the average *number* of people per decade that the city/township added (or lost) to its population over the past 30 years. From 1970 to 2000, the city/township's average gain or loss was added to or subtracted from, each decade from 2000 to 2020 starting with its 2000 base population. For example: The average *number* of people that Hawley gained from 1970 to 2000 was 170 per decade, thus 170 was added to each decade starting with 2000 and so on.

Exponential: This method uses the average rate of growth (or loss) the city/township saw per decade between 1960 and 1990. This gain or loss was then used to increase or decrease the population by that percentage each decade beginning with the 1990 base. For example: the average gain for Skree Township from 1960 to 1990 was 3.77%, so 3.77% was added to the 1990 population and so on for each decade to arrive at the next decade's projected population.

Top Down: This method combines population projections prepared by the State Demographer's Office with historic population trends. It first calculates the city/township's average share of the County's population from 1970 to 2000. This percentage of the County's population is then allocated to the Demographer's projections for Clay County through 2020 at a straight percentage for each decade. For example: Barnesville had an average share of 4.1% of the total Clay County population from 1970 to 2000, thus Barnesville is assumed to have 4.1% of Clay County's total expected population for the years 2010 and 2020

Demographer's Rates: This method also uses the State Demographer's projections for Clay County through 2020, but it assumes that each city/township will grow at the same rate as the County is expected to grow during each decade. For example, Clay County is expected to grow to 54,840 by 2010, a 7% increase from its 2000 population, so 7% was added to each city/township's 2000 population to estimate its 2010 population. From 2010 to 2020, the County is expected to lose 1.3% of its population; each city/township's 2020 population is projected by subtracting 1.3% from its 2010 population.

Table 2-11
Population Projections
Clay County Townships
2000 - 2020

Township	* 2000 Base	Straight Line		Exponential		Top-Down		Demographer Rates	
		2010	2020	2010	2020	2010	2020	2010	2020
Alliance	246	209	171	217	192	342	337	263	260
Barnesville	149	132	115	135	122	198	195	160	157
Cromwell	323	333	342	333	344	350	345	346	341
Eglon	440	460	481	462	486	457	451	471	465
Elmwood	283	232	180	245	212	418	412	303	299
Elkton	371	394	418	398	426	390	385	397	392
Felton	108	83	58	91	76	143	142	116	114
Flowing	97	94	91	94	91	124	122	104	102
Georgetown	188	163	138	168	150	228	225	201	199
Glyndon	281	258	235	261	243	347	342	301	297
Goose Prairie	199	171	143	177	157	257	254	213	210
Hagen	153	147	141	147	142	205	203	164	162
Hawley	459	531	603	567	701	429	423	491	485
Highland Grove	304	289	275	291	278	358	353	325	321
Holy Cross	129	99	68	108	90	187	184	138	136
Humboldt	239	241	243	241	243	289	285	256	252
Keene	128	111	95	115	103	182	180	137	135
Kragnes	319	311	304	312	305	380	375	341	337
Kurtz	288	297	305	297	307	335	330	308	304
Moland	340	336	332	336	332	373	368	364	359
Moorhead	442	380	317	393	349	556	549	473	467
Morken	203	195	188	196	189	233	230	217	214
Oakport	1,689	1,830	1,972	1,860	2,048	1,604	1,583	1,808	1,784

Table 2-11
Population Projections
Clay County Townships
2000 - 2020

Township	* 2000 Base	Straight Line		Exponential		Top-Down		Demographer Rates	
		2010	2020	2010	2020	2010	2020	2010	2020
Parke	450	482	514	487	528	494	487	482	475
Riverton	462	530	598	561	681	433	427	495	488
Skree	166	161	156	161	157	190	188	178	175
Spring Prairie	364	393	422	399	437	359	354	390	385
Tansem	222	227	231	227	232	251	247	238	235
Ulen	163	147	130	149	137	215	213	174	172
Viding	124	108	92	111	100	166	164	133	131
Township Total	9,329	9,344	9,358	9,344	9,358	10,492	10,354	9,987	9,855
County Total	51,229	52,756	54,283	52,854	54,530	54,840	54,120	54,840	54,120

Source: * US Census, DSU/Community Solutions

Table 2-12
Population Projections
Clay County Cities
2000 - 2020

City	* 2000 Base	Straight Line		Exponential		Top-Down		Demographer Rates	
		2010	2020	2010	2020	2010	2020	2010	2020
Barnesville	2,173	2,303	2,434	2,322	2,480	2,257	2,227	2,326	2,296
Comstock	123	119	115	119	116	151	149	132	130
Dilworth	3,001	3,228	3,454	3,269	3,562	2,898	2,860	3,213	3,170
Felton	216	211	205	211	206	250	247	231	228
Georgetown	125	120	114	120	115	135	133	134	132
Glyndon	1,049	1,174	1,299	1,216	1,409	956	944	1,123	1,108
Hawley	1,882	2,052	2,223	2,092	2,325	1,747	1,724	2,015	1,988
Hitterdal	201	201	201	201	201	255	251	215	212
Moorhead	32,177	33,007	33,837	33,053	33,952	34,634	34,179	34,445	33,993
Sabin	421	450	480	455	492	469	463	451	445
Ulen	532	547	563	548	565	596	588	569	562
City Total	41,900	43,412	44,925	43,532	45,227	44,348	43,766	44,853	44,265
County Total	51,229	52,756	54,283	52,854	54,530	54,840	54,120	54,840	54,120

Source: * US Census, DSU/Community Solutions

Table 2-13 illustrates the sum of the population projections for Clay County, the rural areas and the urban area, which includes Moorhead and Dilworth. For each decade, the high and low projections were taken and an average of the two was figured for each of the three areas. Taking the *average* numbers in each decade shows growth for both urban and rural Clay County. Both Rural and Urban Clay County shows about 6% growth from 2000 to 2020. Overall, Clay County's *average* projections show 6% growth from 2000 to 2020 as well. This generally in line with the State Demographer's growth projections for Clay County of 6.8% for the same time period.

Table 2-13
County, Rural and Urban Projections
Clay County
2000 to 2020

Clay County	2010			2020		
	High	Med.	Low	High	Med.	Low
County Total	52,854	52,805	52,756	54,530	54,325	54,120
Rural	17,309	16,915	16,521	17,267	17,112	16,957
Urban	37,658	36,946	36,235	37,514	37,276	37,038

Source: DSU/Community Solutions – 2001

Not every method gives an accurate forecast of what the population of a given city or township will be. Those living in and working at the township and city level will know best which method may be the most accurate to use for future planning purposes. For example, those townships or cities that have historically been losing population over the past four decades will not have an accurate picture of the future if they use the Demographer's Rates method of projecting the population, as this method would take the base percentage that the County is projected to grow from 2000 to 2020 and add this same rate to each city and township. Realistically, because the township had been decreasing each decade since 1970, it is reasonable to assume this trend may continue and show a decline in population, rather than an increase; therefore, one of the other methods for projecting population may be more accurate for that particular city or township.

The cities of Hawley, Dilworth and Moorhead have all recently completed Comprehensive Plans for their respective cities. During this process, population projections were also completed, in some cases using slightly different methods to arrive at the projections. Moorhead used low, medium and high projections, while Hawley did projections based on annual growth from 1980 to 1997 (.367%); annual rate of growth from 1990-1997 (.699%); and, a medium growth projection using a rate midway between the two, which was .533%. Dilworth used projections provided by the Fargo-Moorhead Metropolitan Council of Governments (FM COG). All of these projections are included in Table 2-14 below.

Table 2-14
FM COG Population Projections
Moorhead, Hawley and Dilworth
2000-2025

	Moorhead			Hawley			
Year	Low	Medium	High	.367%/Year	.699%/Year	.533%/Year	Dilworth
2000	34,066	34,799	35,986	1,755	1,772	1,764	3,093
2005	34,518	35,959	38,050	1,787	1,834	1,811	3,241
2010	34,447	36,373	39,265	1,820	1,898	1,858	3,328
2015	34,367	36,753	40,210	1,853	1,964	1,906	3,467
2020	34,133	36,956	40,946	1,887	2,033	1,955	3,592
2025	33,878	37,145	41,641	1,922	2,104	2,006	3,649

Source: Moorhead (1998), Hawley (2000), and Dilworth (1998) Comprehensive Plans

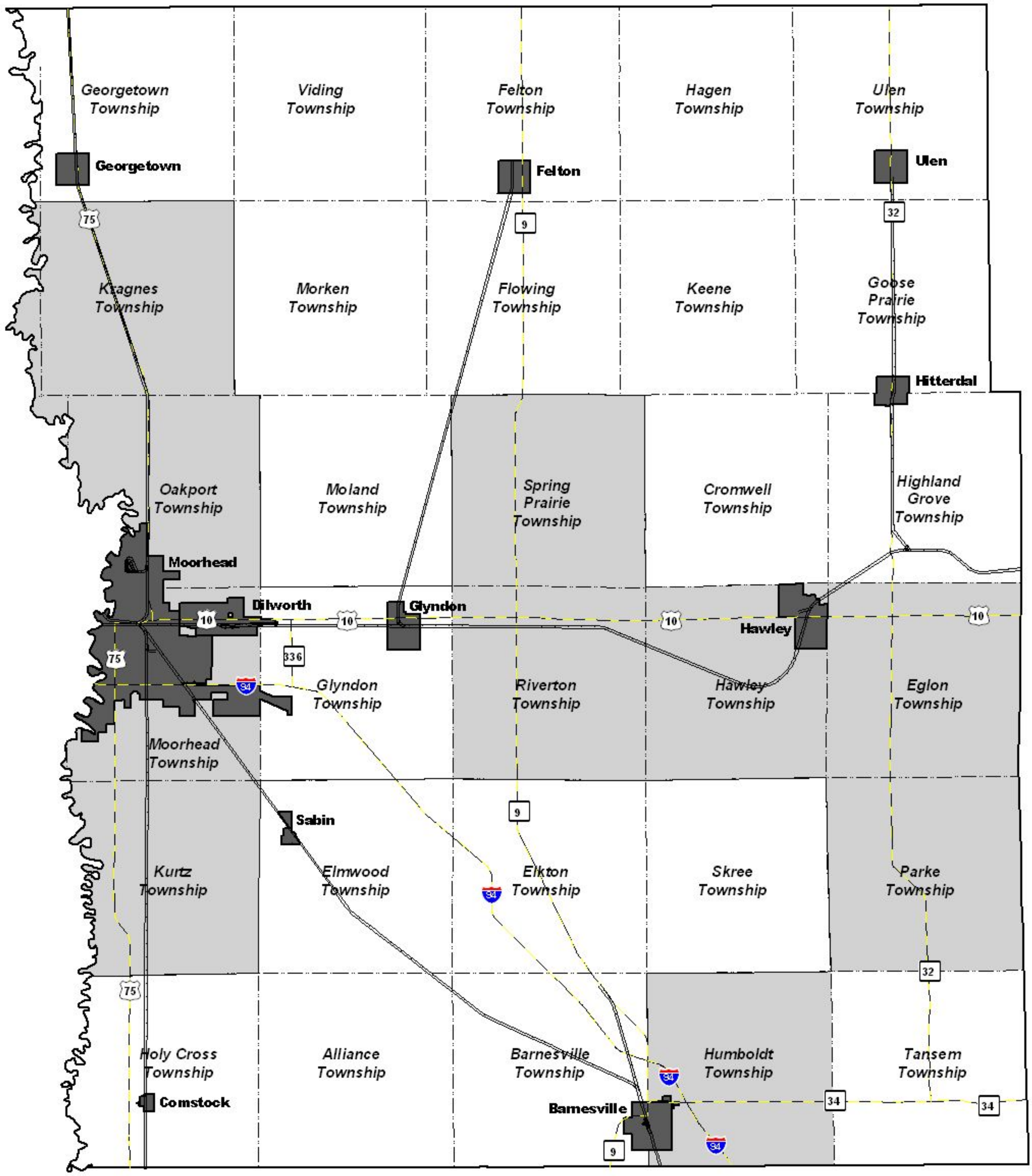
The FM Metropolitan COG also has made projections for Clay County, separating them out by urban (Moorhead and Dilworth) and rural Clay County and based on medium estimates for the area. The medium estimates for Dilworth are the same as the preceding table. These are presented in Table 2-15 below as urban and rural Clay County.

Table 2-15
FM COG Population Projections
Urban and Rural Clay County
2000-2025

	2000	2005	2010	2015	2020	2025
Urban	38,283	39,592	40,278	41,451	42,434	43,347
Rural	16,411	16,633	16,596	16,176	15,246	14,278
Total	54,694	56,225	56,874	57,627	57,680	57,625

Source: FM COG Population Projections

No method of projecting the future population of a community is foolproof, but by using past historical trends and the best information available, planning for the future can be accomplished so that growth and development can be as proactive, rather than reactive, as possible.



Townships With Growth

Clay County, Minnesota

Figure 2-2

DAHLGREN SHARDLOW AND UBAN

July 3, 2001

HOUSING CHARACTERISTICS

The majority of housing units in Clay County are single-family units (63%) with 68 % of these being owner-occupied. Although the majority of homes are owner-occupied, the percentage is not as high as many other communities, due in large part to the effect of the colleges and the demand for rental housing. A younger median age often means a more transient population, which translates into a higher percentage of rental housing.

Of those owner-occupied housing units, more people (34%) paid $500 to $699 in monthly owner costs than any other amount. Approximately 25% spent $700 to $999 per month. About 63% of owners spent less than 20% of their household income on housing costs. The median value of housing units in 1989 was $58,600.

For renters, 50% spent $300 to $499 per month for gross rent. Over 43% spent more than 35% of their household income on rental housing gross rents.

The average value of owner-occupied (non-condominium) housing in Clay County is $61,323 and $65,917 for Moorhead, according to the 1990 U.S. Census.

In Clay County, the largest percentage of housing was built in the 1970's, with 62% of the housing built in urban areas. New housing starts decreased sharply during the 1980's and can be seen in Figure 2-3 below. Approximately 75% of all new housing in the 1980's was built in urban areas.

Figure 2-3
Year Structure Built
Clay County

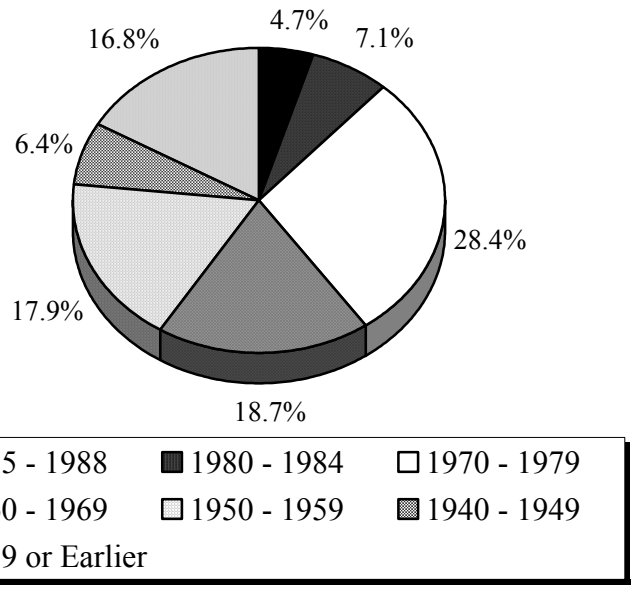


Table 2-16 below illustrates the type of housing by number of bedrooms in Clay County. Of 18,546 total units, 3 bedroom units occupy the largest percentage of all types of housing with 37%.

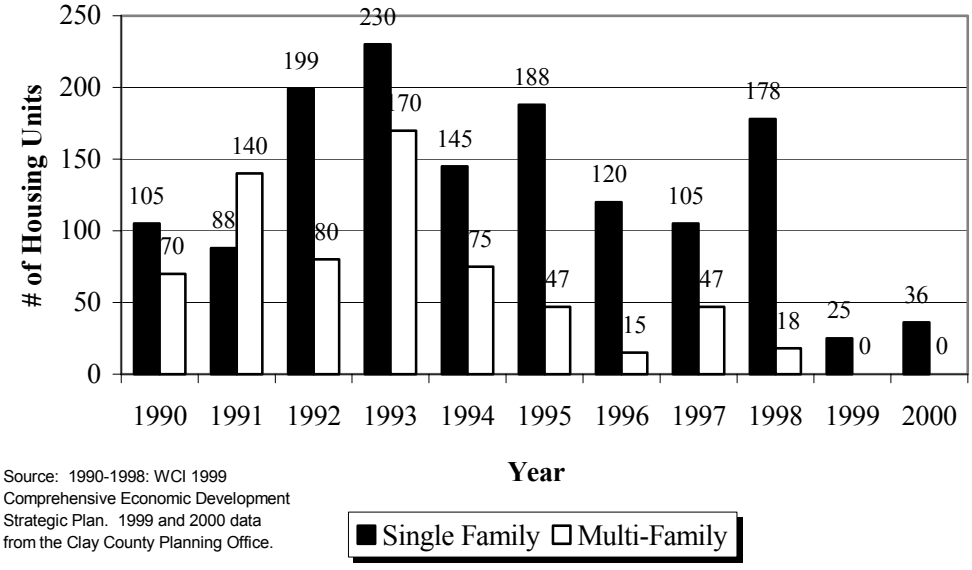
Table 2-16
Housing by Number of Bedrooms
Clay County
1990

No Bedroom	1 Bedroom	2 Bedrooms	3 Bedrooms	4 Bedrooms	5+ Bedrooms
298	2,326	5,263	6,914	3,097	648

Source: 1990 U.S. Census

Figure 2-4 illustrates the number of single and multi-family housing starts in Clay County from 1990 to 2000.

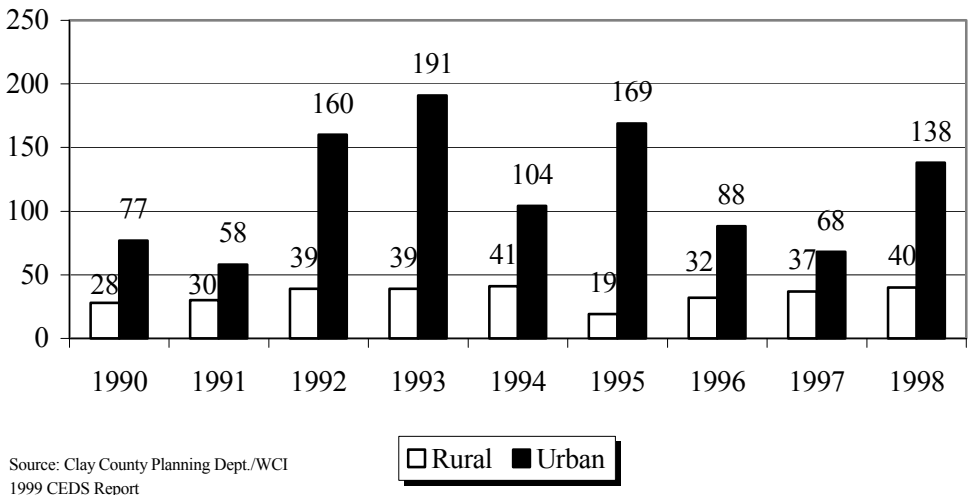
Figure 2-4
New Housing Starts
Clay County
1990-2000



Source: 1990-1998: WCI 1999 Comprehensive Economic Development Strategic Plan. 1999 and 2000 data from the Clay County Planning Office.

Figure 2-5 illustrates rural and urban new, single-family housing starts from 1990 to 1998 in Clay County. From 1990 to 1998, urban, new housing starts accounted for 78% of all new housing in the County. In each of the past nine years, new, urban single-family housing has far surpassed that of the rural areas. Over this time period, urban housing starts have fluctuated from a high in 1993 of 191 new single-family homes, to a low of 58 new homes in 1991, with no apparent or consistent pattern. In the rural area, new single-family home construction has remained somewhat constant, averaging about 34 new homes each year from 1990 to 1998.

Figure 2-5
New Single-Family Housing Starts
Rural vs. Urban
Clay County
1990-1998



Source: Clay County Planning Dept./WCI
1999 CEDS Report

HOUSING NEEDS

According to the West Central Initiative (WCI) located in Fergus Falls, Minnesota, their projections indicate that Clay County needs to create 500 housing units per year to meet its demand for new housing. This figure includes the annual housing needs for all of Clay County, both urban and rural, including within the city of Moorhead. In the first nine years of the 1990's, the County averaged 221 housing starts annually. In the nine-county WCI region, Clay County has the highest housing deficit, with an annual shortage of 279 housing units per year.

Table 2-17 is from the WCI's 1998 housing needs assessment of their region, which includes Becker, Clay, Douglas, Grant, Otter Tail, Pope, Stevens, Traverse, and Wilkin counties. Only the counties of Becker, Clay, Otter Tail and Wilkin were included in this table for the purposes of this report, as these counties directly surround Clay County. All nine counties are included in the figures for the column labeled, *"Region"*.

Table 2-17
WCI Housing Needs Assessment
Based on 1998 Population and Household Estimates

	Becker	Clay	Otter Tail	Wilkin	Region
Persons Per Household 1990	2.66	2.88	2.6	2.68	2.69
Persons Per Household 1998 est.	2.56	2.58	2.48	2.55	2.51
Population 1990	27,881	50,422	50,714	7,516	197,295
Population 1998 estimate	29,582	53,183	54,404	7,316	208,005
1998 Persons Per Household est.	2.56	2.58	2.48	2.55	2.51
Units Needed	11,555	20,614	21,937	2,869	82,871
1990 Units	10,477	17,490	19,510	2,805	73,460
Additional Units Needed	1,078	3,124	2,427	64	9,411
Needed for Attrition (Repl.) -'90 units	524	875	976	140	3,673
Total New Units Needed	1,602	3,998	3,403	204	13,084
Annualized Need	200	500	425	26	1,635
Annualized Actual 1990-98	124	221	329	24	1,023
Surplus/Deficit	-77	-279	-96	-2	-612
% of Total Need Met	61.75%	44.18%	77.33%	92.70%	62.56%
Annualized Single-family Need	100	250	213	13	818
Annualized Single-family starts 90-98	115	151	299	19	867
% of Single-family Need Met	115.27%	60.43%	140.75%	152.27%	106.03%
Annualized Multi-family Need	100	250	213	13	818
Annualized Multi-family starts 90-98	8	70	30	4	156
% of Multi-family Need Met	8.21%	27.93%	13.90%	33.05%	19.09%
Median sale price of existing					
Homes 1995-96 ($)	56,000	67,900	52,500	35,000	58,000

Source: WCI 1999 Comprehensive Economic Development Strategic report
(# Units was changed and rounded to the next highest number if over .50)

Table 2-17 shows that Clay County has met only 60% of its single-family needs and 28% of it's multi-family needs. Taking into account the proximity of Fargo, some of the region's housing need may likely be filled on the North Dakota side of the region if not provided within Clay County. This has significant impacts for Clay County. A community that does not provide enough housing to meet demand will lose population which in turn leads to lower school enrollments, possibly fewer employment opportunities, and loss of tax base.

GENERAL EMPLOYMENT CHARACTERISTICS

In 1990, the total available work force in Clay County was 25,917 persons. The average annual unemployment rate was 5.5 percent, which was slightly higher than the State unemployment rate of 4.9%. In 1992, the unemployment rate for Clay County was 4.0% and dropped below the state's rate of 5.2%, and has stayed lower for most of the 1990's.

The County benefits significantly from the strong employment base in the Fargo-Moorhead metropolitan area.

Table 2-18 shows historic figures for average unemployment rates for Clay County and the State of Minnesota.

Table 2-18
Average Unemployment Rates
Clay County
1990-2000

Year	Clay County	Minnesota
1990	5.5%	4.9%
1992	4.0%	5.2%
1994	3.6%	4.0%
1996	4.2%	4.0%
1998	2.0%	2.5%
1999	2.5%	2.8%
2000	2.9%	3.3%

Source: MN Dept. of Economic Security, 2001

LABOR FORCE

The State Demographer's office has made labor force projections for counties to the year 2020. These are included in Table 2-19. From the projections it appears that the labor force will see a slight decrease in the 16 to 44 year old groups. The labor force will increase significantly in the 45 to 64 age group and also in the age 65 and older. To keep pace with the growth in population and industry, an older labor force will need to be employed. Projections show that through the year 2020, the largest group of those seeking employment will remain in the age 25 - 44 group, but by 2000 there will be more people available in the labor force in the age 45 to 64 age group than those in the age 16-24 sector. Again, the baby boom generation would fall into this 45 to 64-age range in 2000, thus accounting for the larger numbers in the labor force. This same group would be reaching retirement age in 2020, or at least age 65, and may choose to work longer as life expectancy increases and retirement can realistically last twenty or more years.

Table 2-19
Labor Force Projections
Clay County
1990-2020

Labor Force Type	1990*	1995	2000	2005	2010	2015	2020	1990-2020 % Change
Males	13,349	13,520	13,920	14,400	14,610	14,560	14,350	6.98
Female	12,568	13,010	13,680	14,320	14,690	14,910	14,910	15.71
Ages 16-24	7,377	7,150	7,700	8,210	8,010	7,650	7,170	-2.89
Ages 25-44	11,864	11,960	11,140	10,540	10,410	10,780	11,270	-5.27
Ages 45-64	5,977	6,650	7,960	9,140	9,960	9,920	9,400	36.41
Ages 65+	699	780	800	830	930	1,130	1,420	50.77
Total Labor Force	25,917	26,540	27,600	28,720	29,300	29,470	29,620	11.43

Source: * 1990 Census Data; MN State Demographer's Office-2000

EMPLOYMENT

The WCI reports that Clay County has the fewest large industrial employers for compared to its total population in the nine county region. Clay County is, therefore, less prone to single-event employment difficulties than other counties where a few industries make up a majority of the employment base. According to the report, while the State Demographer's population projections show a 7% overall population growth from 1990 to 2020, their labor force projections show a healthy increase of 11.43% overall from 1990 to 2020.

Table 2-20 shows the highest percentage of employed persons (34%) is involved in professional and related services such as health care, education and other related services. Wholesale and retail trade follows closely behind with 25% of all employed persons. The agriculture industry employs approximately 4.6% of all employed persons in the County.

Table 2-20
Employment by Industry
Clay County

Industry	Number of Persons
Ag, Forestry, Fisheries	1,115
Mining	19
Construction	1,078
Manufacturing	1,831
Transportation/Communications/Other public utilities	1,438
Wholesale/Retail Trade	6,079
Finance, Insurance, and Real Estate	1,521
Business, repair, personal services	1,669
Entertainment and Recreation services	469
Professional and Related services (health, educational, other related)	8,305
Public Administration	750

Source: 1990 U.S. Census

Information from the Minnesota Department of Economic Security on the ten industries with the greatest percentage growth in private employment from 1994 to 1998 in Clay County is included in Table 2-21, below. Trucking and warehousing led with a 110.8% growth in employment during this time.

Table 2-21
Ten Industries with the Greatest Percentage Growth
In Private Employment
Clay County
1994-1998

Industry	Number of Persons		1994 – 1998	
	1994	1998	Change	% Change
Trucking and warehousing	139	293	154	110.8%
Engineering and management services	130	239	109	83.8%
Social Services	625	1003	378	60.5%
Industrial machinery and equipment	129	192	63	48.8%
Wholesale trade, non-durable goods	356	456	100	28.1%
Building materials and garden supplies	119	151	32	26.9%
Miscellaneous repair services	30	38	8	26.7%
Heavy construction, except building	184	233	49	26.6%
Automotive repair, services, and parking	106	131	25	23.6%
Automotive dealers and service stations	484	587	103	21.3%

Source: MN Department of Economic Security

Table 2-22 shows the ten industries with the greatest percentage decline in employment from 1994 to 1998. Agricultural services had the highest percentage decline in number of employees with a 53% loss.

Table 2-22
Ten Industries with the
Greatest Percent Decline In Employment
Clay County
1994-1998

Clay County	Employment 1994	Employment 1998	Change 1994-98	% Change 1994-98
Agricultural services	100	47	-53	-53%
Printing and publishing	47	37	-10	-21.3%
Apparel and accessory stores	123	98	-25	-20.3%
Business services	447	358	-89	-19.9%
Real Estate	134	116	-18	-13.4%
Depository institutions	296	259	-37	-12.5%
Agricultural production, crops	177	155	-22	-12.4%
Agricultural production, livestock and animals	64	57	-7	-10.9%
Eating and drinking places	1,554	1,391	-163	-10.5%
Motion pictures	58	52	-6	-10.3%

Source: MN Department of Economic Security

PLACE OF WORK

From 1990 Census data, it appears that approximately 54% of all Clay County residents work within Clay County, while 42% work outside of the state of their residence. In most cases, this would indicate employment in Fargo, ND. Approximately 3% work outside the county of their residence. Of urban Clay County residents, 46% work outside of Minnesota, most likely in North Dakota, while 51% work within Clay County.

On the North Dakota side including West Fargo and Fargo, approximately 11% of these urban employees work outside the state of their residence, again in most cases, an assumption is made that this would be somewhere in neighboring Clay County. West Fargo and Fargo residents comprise approximately 85% of the Cass County, ND labor force. Almost 88% of all Cass County's labor force works within Cass County.

Although more Minnesota residents appear to work on the North Dakota side than North Dakotans work in Minnesota, a significant number of the North Dakota labor force work in Minnesota. This information illustrates the importance of the Fargo-Moorhead metropolitan area on the economy of Clay County.

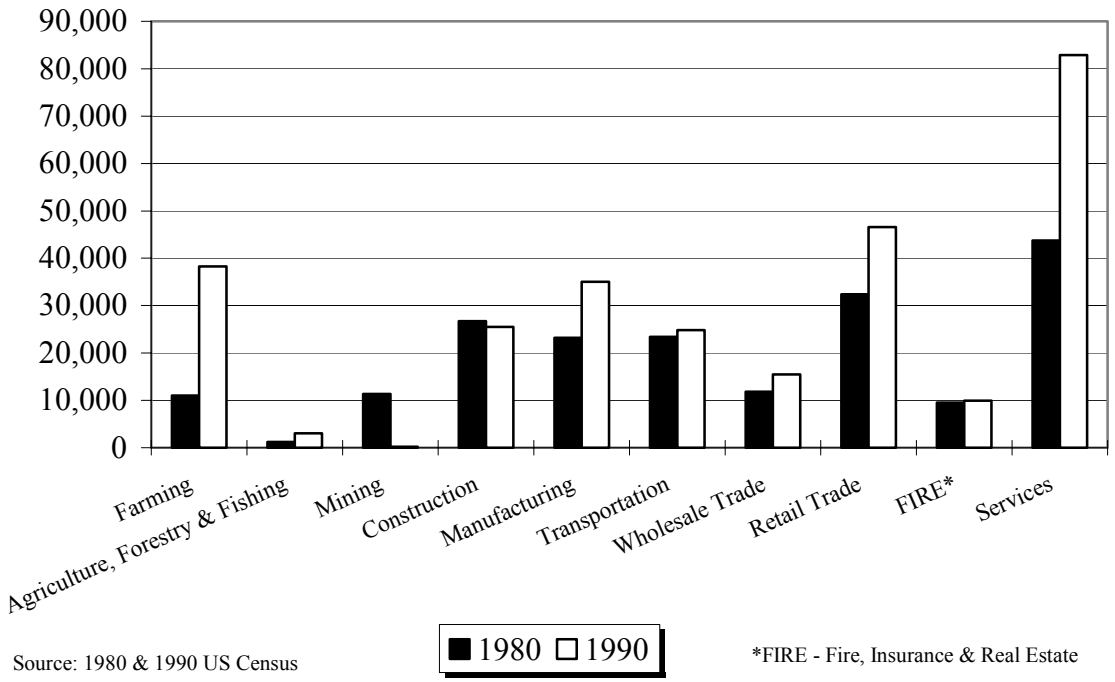
INCOME

Clay County median family income in 1979 was $20,139 compared to $21,185 for the State of Minnesota. 1989 median family income was $32,983, compared with $36,916 for the State. Clay County saw an increase of 63% in median family income from 1979 to 1989 while the state median family income rose 74%.

Farm earnings rose sharply from 1980 to 1990 and reached an all-time high in 1992, but appear to be decreasing through the rest of the 1990's. Mining earnings reached an all-time high in 1984 and also are decreasing significantly.

Figure 2-6 shows a slight decrease in construction earnings from 1980 to 1990 but figures beyond 1990 show a healthy increase in earnings. Retail and Wholesale trade are both increasing rapidly into the 1990's as are manufacturing earnings. Increases in earnings from service industries are also seen into the 1990's. In 1990, service industry earnings comprised the largest percentage of total earnings in Clay County, followed by retail trade, farming and manufacturing.

Figure 2-6
Earnings
Clay County
1980 & 1990



Source: 1980 & 1990 US Census

*FIRE - Fire, Insurance & Real Estate

Table 2-23 shows that manufacturing is the highest paying industry in Clay County with 1997 weekly wages at $661.85. Although retail trade is one of the largest employment sectors, it has the lowest 1997 weekly wage at $232.73. Transportation shows the largest increase in weekly wages with a 17.94% increase from 1996 to 1997. Retail trade also increased significantly with an 8.24% increase.

Table 2-23
Average Weekly Wage by Industry
Clay County
1995-1997

Industry	Weekly Wages			Percent Change	
	1995	1996	1997	1995-96	1996-97
Ag., Forestry & Fishing	N/A	N/A	N/A	N/A	N/A
Mining	N/A	N/A	N/A	N/A	N/A
Construction	$517.39	$528.57	$559.85	2.2%	5.92%
Manufacturing	$608.85	$643.71	$661.85	5.7%	2.82%
Transportation	$364.90	$382.18	$450.76	4.7%	17.94%
Wholesale Trade	$479.70	$521.63	$539.18	8.7%	3.36%
Retail Trade	$205.64	$215.01	$232.73	4.5%	8.24%
F.I.R.E.	$385.60	$414.66	$441.43	7.5%	6.46%
Services	$313.68	$323.68	$331.24	3.2%	2.34%
Government	$532.32	$562.84	$549.36	5.7%	-2.39%

Source: Minnesota Department of Economic Security

PERSONS BELOW THE POVERTY LEVEL

Clay County shows a large increase in persons below the poverty level from 1979 to 1989 with a 5% increase to 16%, overall. This compares with 10% for the State of Minnesota.

Table 2-24
Total Percentage of Persons Below Poverty Level
Clay County
1979 & 1989

	1979	1989	% Change 1979-89
Clay County	11%	16%	45%
Minnesota	9%	10%	11%

Source: 1980 and 1990 U.S. Census

As Table 2-24 illustrates, Clay County's percentage of persons below the poverty level has increased by 45% from 1979 to 1989, a much higher rate than the State of Minnesota, which has increased by 11%.

ECONOMIC DEVELOPMENT ACTIVITIES

Much of the information for this section came from the *"1999 Comprehensive Economic Development Strategy Update for West Central Minnesota"* prepared by the West Central Initiative, an economic development organization serving nine counties in West Central Minnesota.

Moorhead is the primary regional center for the Clay County area. The City of Moorhead has the most extensively staffed economic and community development department in the region. The Moorhead Area Chamber of Commerce and the Fargo Chamber were merged in 1998 to become the Chamber of Commerce of Fargo-Moorhead. They maintain close communication with city staff to foster economic development in the Fargo-Moorhead area. The City of Moorhead also works with the Fargo-Cass County Economic Development Corporation to recruit industry to the area.

Moorhead has a large revolving loan fund, which is available for lending. The main source of funds is from the City and the West Central Initiative.

The Cities of Moorhead and Dilworth received significant economic development tools and incentives in 1998 to become more fully competitive with North Dakota. The Border Cities legislation allows these two cities to develop border city development zones. This legislation was enacted in response to the devastating floods during the spring of 1997. These communities can provide up to five years of property tax exemption and an additional twenty years of negotiated payments in lieu of taxes, corporate income and sales tax credits and a new industry payroll credit subject to the appropriations cap provided in the legislature. Commercial and industrial real estate taxes will now be written down through the Disparity Reduction Credit to a net of 2.3% of market value. The cities hope to increase economic development activity through these incentives on the Minnesota side of the Red River.

Barnesville has been promoting economic development through the use of tax increment financing (TIF). Housing development continues to be a focus as a means of economic development for the City. The City offers $1,000 in utility installation and credits for homeowners who buy spec homes or build new ones in the community. A new commercial/industrial park opened that will be up to 44 acres in size when completed. Light industrial and technical industries are being recruited.

Dilworth and Glyndon contract with a private consulting firm for community development assistance. Dilworth has recently installed a new sanitary sewer line to the Moorhead treatment plant and has contracted to purchase water from Moorhead as well. Glyndon has recently finished a sanitary sewer line replacement project.

Clay County has a revolving loan fund established in 1992 and administered by the County Extension Service, to provide new and existing businesses with additional funding. The Clay County Loan Fund makes loans for the start-up, expansion, succession, or preservation of businesses in Clay County, outside the City of Moorhead.

The West Central Initiative Fund in Fergus Falls fiscally manages this fund. The loans are mostly gap financing mechanisms, providing funding for projects that might otherwise not receive funding without this support.

The purpose of this section is to identify areas of high environmental and natural resource value. These features will often determine what kind of land use may occur and the intensity of that use. Some areas contain limitations to development or may function best if left in a natural state. Preservation of significant natural resources is a legitimate goal for any local government. Protection of important sensitive areas not only allows them to be enjoyed for generations to come, but also contributes to the quality of life for residents of the County today.

In addition to the ecological and aesthetic benefits of preserving and/or enhancing natural resources, communities are increasingly recognizing the economic benefits of such resources. For example, the Minnesota Department of Tourism and Economic Development has data showing that during recent years, more than 617,000 people traveled in Minnesota each year to see wildlife, spending more than $125 million annually. Thus, the County's natural resources should be considered important economic resource as well, particularly the birding opportunities and native prairie areas available in Clay County.

GEOLOGY

Clay County encompasses 675,026 acres or 1,053 square miles and is located in the fertile Red River Valley in northwestern Minnesota. (Clay County GIS Office, May 2000).

The Red River Valley is the youngest major landscape in the contiguous United States. It is also one of the flattest land surfaces in North America. About 9,300 years ago, glacial Lake Agassiz receded and left clay-rich sediments that would be prairie grasslands for many years. Today, this area is one of the most fertile farming regions in the world.

The native vegetation prior to settlement by Europeans consisted of tall bluestem prairie in the river valley and cottonwood, elm and willow groves along watercourses. With the exception of the river and stream bottoms, all of Clay County was once covered by prairie vegetation. Today, native prairie remains over just 3% (21,310 acres) of the County.

The geology of Clay County is a direct result of the glaciers that once covered the area. The western portion of the County is made up of glacial drift (ground moraine) resulting in flat topography. The eastern part of the County is a result of terminal moraine creating undulating, hilly topography.

The varying levels of Lake Agassiz and an ancient streambed that flowed between two ice sheets caused several linear beach ridges to form. These ridges are made up of sandy soils and are recharge areas for surficial aquifers. These areas are also home to some of the largest and best examples of native prairie remaining in Minnesota and the entire Midwest.

The eastern highlands can be severely eroded if inadequate groundcover and without proper land use management. Water resource protection in these areas is very important.

Clay County ranges in elevation from 1,500 feet in the eastern highlands to 900 feet in the Red River Valley to the west, resulting in an average of 600 feet of maximum relief. The highest elevations (1,550 ft. above sea level) in the County are on the hills near Rollag, with the lowest point (880 ft. above sea level) in the northwest corner of the County near the Red River. The western half of Clay County is flat with slopes averaging 0 to 0.5 percent. The eastern half of the County is more undulating with slopes of 3 to 10 percent, and in some cases, 20 percent or more.

Much of the information in this section has been taken from the *"Clay County Comprehensive Local Water Plan Update: 1998-2003"* , the *"Revised Watershed Management Plan of the Buffalo-Red River Watershed District - 1997"* and the "*Clay County Beach Ridges Forum for Gravel Mining and Prairie Protection: A Final Report",* published in 1997.

SOILS

Figure 2-7, *General Soil Map,* illustrates the soils in the County. The following is a summary of those soils.

Fargo Association: The Fargo Association covers approximately 16% of the western portion of Clay County on nearly level, poorly drained areas. Fargo soils have silty clay surfaces and subsurface horizons. Associated minor associations range from mucky to silty clay loams. This association has severe restrictions for urban, industrial and recreational uses due to its wetness, frost action and shrink-swell properties. It has good agricultural potential despite its wetness and tillage difficulty.

Bearden-Colvin: This association covers about 17 percent of the County and is nearly level with low rides, depressions and draws. These soils are silty clay loams; Bearden soils are somewhat poorly drained and Colvin soils are poorly drained. These soils are fertile; however, they are strongly calcareous under the surface so nutrient imbalance can be a problem. The main concerns for cropping are wetness and wind erosion. Limitations for other uses include wetness, high water tables, shrink-swell and frost heave potential.

Viking-Donaldson-Glyndon: This association is found on about 2% of the County where nearly level areas contain micro-relief with ridges, swales and draws. The poorly drained, sandy-clay loam Viking soils occupy the depressions and the fine sandy loam Donaldson soils and the loam Glyndon soils, the remaining area. Both of the latter soils are somewhat poorly drained. These are good agricultural soils with the major management problem being wind erosion. Drainage can improve production. Nutrient imbalance can occur due to calcareousness. Concerns for other uses include high water tables, wetness, a high potential for frost action and moderate potential for shrink-swell.

Glyndon-Wyndmere-Wheatville: These soils cover about 18% of the County on nearly level to gently sloping areas with some shallow draws and depressions. These soils run north south, through the middle of the County. Wyndmere soils are poorly drained and are fine sandy loams, while Glyndon loams and Wheatville silt loams are somewhat poorly to moderately well drained. All three soils are strongly calcareous below 8-10 inches, which causes nutrient imbalance.

Drainage will improve production and wind erosion is a problem on these fertile soils. Major factors affecting other uses include wetness, high water tables, and frost action.

Ulen-Arveson-Flaming: This association covers 10% of the County on level areas characterized by pronounced ridges, deeper depressions and shallow draws. Ulen soils are fine sandy loams over strongly calcareous material and are somewhat poorly drained to moderately well drained. Arveson soils are poorly drained to very poorly drained calcareous clay loams while Flaming soils are somewhat poorly drained to moderately well drained fine sands. Soils of this association are all susceptible to wind erosion and may suffer from nutrient imbalance due to calcareous. Flaming soils also have only modest fertility levels. Drainage in some, but not all sites due to topography can elevate wetness. Limitations for other uses include wetness, frost action and flooding.

Lohnes-Sioux: This association occurs on about 12% of the County on nearly level to very steep relief containing hills, ridges and broad flats. The moderately well drained to well drained Lohnes loam occupy the level to gently sloping areas while the excessively drained sandy loam Sioux soils occupy the steeper slopes and crests of hills and ridges. Minor soils make up over one-half of this association and range from poorly drained to excessively drained soils depending on local topography and landform. This association is not well suited to cropping because of low fertility and available water capacity and susceptibility to wind erosion. When steepness is not a factor, these soils have few limitations for other uses except where high permeability is not desirable.

Barnes-Langhei: This association is found on nearly level to hilly upland areas with local relief containing deep depressions, complex slopes, well-defined drainages and small valleys. The association covers about 22% of the area in the eastern one-third of the County. The strongly calcareous Langhei loams are found on the knobs and steeper upper slopes and the calcareous Barnes loam soils are found farther down slope on more level areas. Minor associated soils vary according to diverse local relief and micro-topography. These soils are fairly well suited to cropping although erosion is a hazard. Fertility is moderate and calcareousness may cause nutrient imbalance. Slope is a limitation for other uses. Due to the complex nature of the soil pattern, topography, and local relief, use suitability needs to be determined on a case-by-case basis.

Waukon-Langhei: The Waukon-Langhei association covers about 3% of the County, and is found on nearly level to hilly uplands that are well to excessively drained. The loamy Langhei soils which are found on the knobs, ridges and upper slopes are strongly calcareous which causes nutrient imbalance. The fine sandy loam Waukon soils are found on the down slope and more level areas. The region contains numerous potholes, marshes and lakes and the minor soils of the association found in these areas are heavier in texture. Both soils are good agricultural soils, although steeper areas are best utilized as pasture. Wind and water erosion can be a problem. Limitations for other uses include steepness of slope and shrink-swell potential.

VEGETATION

As mentioned earlier, Clay County is located in the Red River Valley, which was once the lakebed of glacial Lake Agassiz. Tall grass prairie was typically found in western Minnesota where prairie grasses sometimes grew six feet high. Prior to European settlement, almost the entire Red River Valley was covered by tall grass prairie. The original vegetation map of Clay County (Figure 2-8, *Original Vegetation of Clay County*) shows that only the river and stream bottoms were wooded in the County. The rest of the County was tall grass prairie.

Drought, fire and extreme temperatures and large grazing animal herds such as bison shaped the prairie landscape. Plants and animals living on the prairie are specially adapted to the unique climate and conditions found in western Minnesota. Prairie plants evolved to conserve water and survive fire. More than 200 different plants and animals can be found on a single acre of prairie ground. Most of the plant growth is underground where long roots reach deep for water and food.

With settlement underway in the 1860's, many immigrants found the rich prairie soils of the Red River Valley to be valuable for farming. Almost the entire original tallgrass prairie was eventually cleared except for some land on the beach ridges. This land was probably not plowed because the soil was sandy compared to the rich heavy soils on the lake plain of Glacial Lake Agassiz to the west. Prairie land that has never been plowed is generally called native prairie. Today, less than 1% of the original 18 million acres of prairie in Minnesota remains. Most of these prairie remnants are found on the beach ridges in the Red River Valley.

The remaining prairie and other natural communities in the eastern half of Clay County was mapped by the DNR in 1997 (see Figure 2-9, *Natural Communities and Biodiversity Significance*). About 21,310 acres in the County were identified as having some prairie characteristics. Prairie resources in the County vary in quality from those of low, modest, medium and high significance. The prairie with medium or high significance represents the best and least disturbed prairie in the County. About 14,290 acres of prairie with high or medium significance are found in Clay County. This includes some of the best prairie in the State and approximately 10% of the entire prairie remaining in Minnesota.

Two main concentrations of prairie found in Clay County are the Felton and Bluestem Prairies. Felton Prairie is a special kind of prairie that supports animals and plants specially adapted to dry conditions. It is the best example of dry prairie left in the state and perhaps the entire Midwest. Several endangered plants and animals are found in this location. Bluestem Prairie is located south of Trunk Highway #10 near Buffalo River State Park. It is an example of a mesic tallgrass prairie landscape. Much of Bluestem Prairie is contiguous and offers uninterrupted views of the tallgrass prairie.

A third area of shrub swamp and marsh with scattered prairie remnants is found in the southeastern corner of the County and is known as the Barnesville Slough. Also found in this general location is a concentration of prairie/savanna/woodland remnants. These three areas can be seen in Figure 2-10, *Major Prairie Areas in Clay County* and combine to account for most of what remains of the County's original prairie vegetation. Other parcels of prairie are scattered throughout the eastern part of the County.

Some of the best prairie in the County is protected by designation as Scientific and Natural Areas (SNA's) or through conservation efforts of private landowners or conservation organizations like the Nature Conservancy. In addition, other large tracts of the high quality prairie are owned by the County. Most of the remaining prairie is in private ownership and will take the efforts of these landowners to protect these areas in the future.

Some of the prairie areas contain wetlands which are protected by the Minnesota Wetlands Conservation Act (WCA) and require mitigation if allowed to be filled. Others may be classified as calcareous fens, which is a unique type of wetland that is protected through the WCA. Ten calcareous fens are located in Clay County out of a total of 103 statewide. Also, some plants and animals that live on prairie remnants are threatened or endangered species because of the loss of prairie. These areas would require careful review to be developed.

Some areas of disturbed native prairie have been restored, while many others have not.

SPECIAL ANIMALS AND PLANTS IN CLAY COUNTY

The Minnesota Department of Natural Resources (DNR) County Biological Survey began in 1987 to systematically identify and catalogue rare biological features and has been completed in 41 of Minnesota's 87 counties. The Endangered Species Act of 1973, which is regulated by the U.S. Department of the Interior, Fish and Wildlife Service, protects rare, endangered and threatened species, but there are currently no regulations pertaining to the natural communities identified by the DNR. However, any project funded in whole or part with federal dollars must be reviewed by the DNR, as do projects that require the preparation of an Environmental Assessment Worksheet (EAW) or Environmental Impact Statement (EIS). During this review process, the DNR may provide site-specific development recommendations if natural communities are present.

In Clay County the loss of prairie habitat has caused many plants and animals to be considered endangered or threatened. Seventeen (17) animal species and nineteen (19) plant species have been identified by the state as threatened, endangered or special concern species. One of these, the western prairie fringed orchid is a federally listed species. Most, but not all of these species are found on the beach ridges. The plants and animals are listed below.

Special Animals in Clay County

Baird's sparrow
Henslow's Sparrow
Sprague's pipit
Prairie vole
Poweshiek skipper butterfly
Chestnut-collared longspur
Assiniboia skipper butterfly
Dakota skipper butterfly
Western hognose snake
Loggerhead shrike
Marbled godwit
Uhler's arctic butterfly
Greater prairie chicken
Burrowing owl
Lake sturgeon (fish)
Plains pocket mouse
Yellow rail

Special Plants in Clay County

Blanket flower
Red threeawn
Prairie moonwort
Louisiana broom-rape
Hall's sedge
Northern gentian
Sterile sedge
Dry sedge
Felwort
Nuttall's sunflower
Clustered broom-rape
Hair-like beak-rush
Whorled nut-rush
Small white lady's slipper
Carex scirpiformis (type of sedge)
Few-flowered spike rush
Western prairie fringed orchid

Source: MN Department of Natural Resources

Each year, visitors come to Clay County to view the prairie vegetation or the animals that live there. These visitors have a positive economic impact on the local economy.

AGGREGATE DEPOSITS

Gravel deposits are an important source of construction material in Clay County. The glaciers left behind beach ridges that contain sand and gravel, most predominantly in eastern Clay County. Sand, gravel, rock, and crushed stone are referred to as aggregate materials. These materials are important to a variety of construction products. They are used in concrete, asphalt, road base, fill, snow and ice control and other uses. These deposits contribute significantly to the economic base of the local economy. Much of these deposits are located under the remaining native prairie vegetation. This has created a conflict between the use of the aggregate resources and the possible loss of the native vegetation.

Sand and gravel deposits vary widely in quality. In 1995, a local forum was organized and met to discuss gravel mining and prairie protection on the beach ridges in Clay County. This was an opportunity for landowners, native prairie supporters, gravel producers, governmental agencies, and interested members of the community to meet and learn about the prairie and gravel resources in the County and to discuss the future of both in a neutral setting. This work was concluded in 1997. During the process, 18 eastern townships were studied and maps were produced that show existing gravel mining activities, gravel deposits and the quality of the deposits, and the location and quality of remaining native prairie vegetation in this area.

Because sand and gravel are relatively inexpensive to mine but expensive to transport, it is important to locate operations close to where the resource will be used. Gravel pits are found in every county in Minnesota. Figure 2-11, *Aggregate Resources,* shows the aggregate potential for eastern Clay County completed by the DNR. This map indicates where there is potential within the eastern half of the County to find future gravel deposits.

It shows that gravel resources vary throughout the area and future deposits of good gravel is limited to certain locations. A rare deposit of high quality aggregate needed for the manufacture of concrete is found near Felton. This is one of the best and largest sources of concrete aggregate in the Red River Valley.

Gravel mining is concentrated in 18 eastern townships and there are approximately 236 gravel mining sites. These sites include inactive, reclaimed and active pits. About 3,700 acres have been affected by gravel mining. Of the 236 sites, about 75 have been recently active. A major concern throughout the County is the reclamation of inactive pits.

Eight to twelve companies are currently mining gravel in Clay County. The exact number depends on current construction projects. It is estimated that 500 people are employed by the industry during peak construction season.

The demand for aggregate material is expected to rise to keep up with the high demand for construction materials in the Fargo-Moorhead metropolitan area. Some estimates for future aggregate consumption has been done based on population projections to the year 2010. These are included in Table 2-25 below.

Table 2-25
Projected Population Growth and Aggregate Consumption
Fargo-Moorhead Area
1980-2010

Year	Population: Cass & Clay Counties	Estimated Aggregate Consumption: tons/year
1980	137,574	1,308,722
1990	153,296	1,468,878
1995	163,048	1,564,176
2000	173,695	1,667,722
2005	182,287	1,752,268
2010	189,323	2,108,300

Source: Clay County Beach Ridges Final Report, 1997

These estimates are based on a per capita rate of 8 tons/person/year multiplied by the rural population and 10 tons/person/year multiplied by the urban population. The rural rate was taken from an average of 8 tons per capita per year for projects such as road building and infrastructure development. The 10 tons per year for urban residents is due to the special needs of that market and the growth rate that has been seen in the area.

Gravel mining in Clay County requires a conditional land use permit from the County. A township permit may also be required for new gravel mining operations, depending on the location. About 25 permits had been issued between the late 1980's and 1997. Permit guidelines have been developed but they do not address reclamation. Some state permits may be required if there is a need to appropriate water, or if there is storm water discharge, water quality concerns, air emission or above ground storage tanks. Wetland mitigation may also be necessary if wetlands are impacted by the operation.

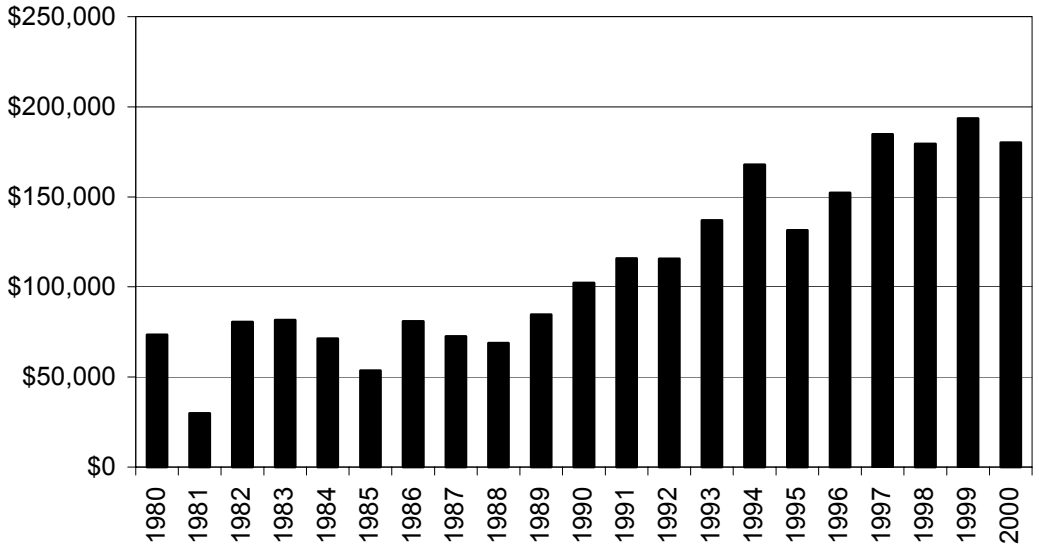
An Environmental Assessment Worksheet (EAW) is required when a gravel mining operation exceeds 40 acres in size and a mean depth of 10 feet. Environmental Impact Statements (EIS) are mandatory for operations exceeding 160 acres. Clay County completed three EAW's in 1996 relating to gravel mining and no EIS's have been conducted.

Clay County has a "gravel tax" that is a production tax on the removal of gravel material. The tax is calculated on a per cubic yard or per ton basis. This tax is imposed upon operators (any person engaged in removal of aggregate material from the surface or subsurface for the purpose of sale) at the rate of ten cents per cubic yard & seven cents per ton of gravel produced in the County.

The state statute for this tax requires all counties to distribute the proceeds as follows: 60% to the County Road and Bridge Fund, 30% to the Township Road and Bridge Fund, and 10% to a special reserve fund for the restoration of abandoned or depleted pits on public lands. Governmental units that own pits and use them for public uses are exempt from this tax. Figure 2-12 summarizes the amount of gravel tax revenue Clay County received from 1980 to 2000.

Through the mapping process, existing and future potential for conflict between gravel producers and native prairie vegetation is more clearly shown (see Figure 2-13 *Prairie and Gravel Pits*). The maps reveal that gravel is not found everywhere in the eastern half of the County but only in certain

Figure 2-12
Clay County Gravel Tax Revenue
1980-2000



locations. Likewise, significant parcels of prairie are not found uniformly on the beach ridges but in some well-defined locations. The maps also show that prairie is found in areas of low aggregate potential. High aggregate potential can be observed in areas that do not contain prairie. But, there are areas of potential conflict where both high aggregate potential and significant prairie co-exist, according to the maps. Further testing for aggregate potential would be necessary in specific areas. More detailed information can be found in the report titled "*Clay County Beach Ridges Forum for Gravel Mining and Prairie Protection: A Final Report"*. This document contains much useful information for land use planning in Clay County.

The work of the Forum helped the County focus attention on where areas of potential conflict may lie and gave them better information for future planning. Recommendations were also given for future use of the areas studied. At the present time, the County planning office is using this information when Conditional Use Permits are being considered.

HYDROLOGY

Drainage

Generally, movement of ground water, like surface water, follows the topography. Figure 2-14, *Major Watersheds*, shows the major watersheds in Clay County.

Surface water drainage in Clay County is generally to the north and west, except for a very small portion, which drains south to the Otter Tail River Watershed. The major watersheds include the Red River, Buffalo River, and Wild Rice/Marsh River Watersheds. These watersheds drain the western, central and northern parts of the County, respectively. The Buffalo River and the Wild Rice River are the primary tributaries to the Red River of the North.

Most of the man-made drainage systems are located in the western lakebed area. This is due to the lack of natural drainage systems in the Lake Agassiz plain. Drainage systems within the beach ridge area are practically nonexistent because of the abundant supply of natural drainage with sufficient gradient. Artificial drainage in the glacial moraine area in the eastern part of Clay County is significantly less than that in the western region of the County.

Most of the drainage systems were constructed prior to 1920 and maintenance was almost nonexistent until the establishment of the Watershed Districts. Any new drainage requires a watershed district permit and environmental review. Any unpermitted drainage is illegal. Currently, the artificial drainage systems or public ditches within the County are administered by the Watershed Districts. Assessments are based on who is determined to benefit from each particular ditch system or whose land experiences an increase in market value, due to a ditch project. Most of these ditches are oriented in an east-west direction, perpendicular to the Red River. The drainage system in Clay County is quite extensive and thousands of acres of farmland have benefited from drainage. Drainage has made the Red River Valley a dominant agricultural force. Figure 2-15, *Drainage Ditches*, shows the public drainage system in Clay County.

Spring flooding is an annual problem in the area and is exacerbated by the flat slope of the watershed and channel obstructions such as logs, ice and dams. Annual average flood damage (in 1996 dollars) in the Buffalo River Watershed is estimated at $2,705,710 and is 99.5% rural damage. Floodwater can spread many miles through municipalities and over fields and is called overland flooding. This occurred during the flood of 1997 when much of the Red River Valley was under water due to overland flooding.

Groundwater Levels

High groundwater levels are experienced throughout the County on a consistent basis. Exceptions are during drought periods. The clay soils present in most of the agricultural areas have low infiltration rates and recharge deep subsurface aquifers very slowly. This results in waterlogged conditions in the upper strata of the clay soils, which have resulted in very low permeability. These conditions, when combined with the occurrence of excessive rainfall, have contributed to considerable damage to growing crops through inundation of the root zones.

The County has experienced little or no situations of drastically reduced groundwater levels because of drought or excessive pumping.

Wellhead and Source Water Protection

Since 1974 the U.S. Environmental Protection Agency has been responsible for regulating the nation's public water supply systems, under the provisions of the Safe Drinking Water Act. However, most states, including Minnesota, have assumed responsibility for enforcing the Act within their borders. To be considered "public" a water supply system must have its own water source and provide water to 25 or more people or have 15 or more service connections.

In Minnesota there are two programs that address protection of public drinking water: the Wellhead Protection Program (also called Source Water Protection), and the Source Water Assessment Program. The Source Water Protection Program requires wellhead protection plans for all community and noncommunist, nontransient public water suppliers. A source water assessment will be completed for all public water supply systems, (transient systems included). The assessement is limited to delineating the area that supplies water to the system, identification of potential contaminants that are of concern to users of the system, and to the extent practical, the location of potential contaminant sources. A wellhead protecion plan goes further and identifies issues applicable to protection of the source water and establishes action items that implement management strategies to address those issues.

In 1995~~7~~, the Minnesota Department of Health (MDH) adopted the Wellhead Protection Program with rules to safeguard public wells that supply drinking water against pollution. The goal of the program is to prevent contaminants from entering the area that contributes water to public water supply wells. For transient public water supply wells, an inner wellhead protection zone (IWMZ) is the wellhead protection area .This is defined as the 200-foot radius around the well. The state Wellhead Protection Rule requires an inner wellhead management zone be established for all such wells and that potential contamination sources be managed within it. There are approximately 40 transient public water supply systems in Clay County.

For all community and non-community, non-transient public wells, a "wellhead protection area" must be determined through a detailed hydrologic and geologic analysis. Once this area is delineated and an assessment of vulnerability is completed for a particular well, possible sources of pollution are identified and the supplier is required to develop a Wellhead Management Plan to mitigate existing and potential pollution problems. Because of the large number of community and non-community, non-transient systems in the state, the MDH is implementing these requirements in phases, targeting the most vulnerable wells first. In Clay County there are 13 community systems and no non-community, non-transient systems.

Public water supply systems including Moorhead, Glyndon, Barnesville, and Georgetown are currently in the wellhead protection program and are in the process of developing wellhead protection plans. Other vulnerable public water supply systems expected to be brought into the program in the next five years include Brentwood Acres, Dilworth, Sabin and Comstock. Some public water supply systems enter the wellhead protection program due to construction and connection to service of a new well.

A Source Water Assessment is currently being developed by the Department of Health for the surface water intake of the City of Moorhead. Upon completion of this assessment, the Cities of Moorhead and Fargo are expected to start a non-mandated process to develop a source water protection plan for this surface intake. This process will require the coordination and cooperation of all local governments in the identified protection area for it to be successful.

Although it is the public water suppliers that will be required to develop management plans once wellhead protection areas have been delineated, some of the wellhead protection areas will likely extend into surrounding townships. Because cities generally do not have land use authority outside their boundaries, it will be very important for townships and the County to work with cities in developing these plans, particularly with regard to land use policies.

Lakes, Rivers and Wetlands

Rivers in Clay County include the Red River of the North, North and South Branches of the Buffalo River, the South Branch of the Wild Rice River and many meandering streams. Probably the most significant of these rivers is the Red River of the North. The river provides important natural, recreational and economic benefit to the County. According to the Department of Natural Resources, eighty-four species of fish have been identified in the Red River and it is known as the premier channel cat fishery in North America, while the walleye fishery is equal to any walleye lake in the state. The best walleye habitat is found in the headwaters of the tributaries leasing out of the beach ridge area of Clay County. These rivers offer fishing opportunities in a part of the state where there are few natural lakes.

There are over 200 DNR-protected water bodies, which cover over 7,200 acres in the County. Figure 2-16, *Surface and Ground Hydrology*, shows the surface hydrology and aquifer recharge areas of the County.

Four lakes, all located in the eastern third of the County, have moderate to intensive development within their shoreland. These include Turtle Lake, Silver Lake, Lee Lake and Lake Fifteen. Each has a public access and some degree of recreational development around them.

According to the DNR classification system of lakes over 25 acres, there are approximately 74 lakes in Clay County; 71 of which are classified as Natural Environment lakes. Most of these lakes are less than 100 acres in size. There are two Recreational Development lakes in the County, Turtle and Sand, both of which are also partially located in Becker County. One lake, Flora, is classified a General Development lake due to its proximity to a municipality (Hitterdal).

Clay County currently has a little more than 37,000 acres of wetland areas, which translates, to about two percent of pre-settlement wetland areas. Most wetlands are found in the eastern half of Clay County.

Wetlands have generally been regarded as obstacles to development rather than opportunities. Only recently have public attitudes changed and brought destruction of these productive areas to an end. Most wetlands are valuable for storing essential surface waters to alleviate the danger of droughts and floods and support wildlife habitat areas. They also serve as the primary method of recharging aquifers to insure a continued supply of water to serve an area's needs. Wetlands also serve to cleanse and purify the water by removing nutrients and other contaminants in storm water runoff.

Minnesota Statutes require counties to identify high priority areas for: 1) wetland preservation, 2) wetland enhancement 3) wetland restoration, and 4) wetland establishment. Clay County has preliminarily identified all wetlands east of State Highway #9 and wetlands located within the shoreland zone as high priority wetlands. The Clay Soil and Water Conservation District (SWCD) is currently spearheading the development of a Comprehensive Wetland Protection and Management Plan. Prior to implementation, the plan needs to be reviewed by appropriate state agencies. Once the review process is completed, the County needs to enact a wetland ordinance to implement the plan. State review is expected to be completed in late 2001/early 2002. Under MN Rules, part 8420.0650, as an alternative to Wetland Conservation Act Rules governing certain wetland impacts, a local governmental unit (LGU), i.e., the Clay SWCD, may develop a comprehensive wetland protection and management plan to provide for alternative standards for the management of wetland resources based on the needs and priorities of the LGU (and county).

Surface Water Quality

The Red River Basin was designated as a study area for a National Water Quality Assessment (NAWQA) in 1991.

The potential for contamination by human activity is high in Clay County from several sources. Agricultural activities have the greatest potential to contribute pollutants to surface water resources. Pollutants would likely include sediment, fertilizers and pesticides. Urban centers and food processing plants also have a potential to pollute surface waters. Treated effluent, coliform bacteria, organics, pesticides and fertilizers all would be possible pollutants. Transportation arteries and pipelines that transect the County represent possible toxic-waste spill sites and discharges of contamination to water sources.

Although pesticides are used extensively in the Red River Valley, only small amounts have been detected in streams. Organic soils, flat land, pesticide degradation and pesticide management limit the amount of pesticide contamination that reaches Red River Basin streams.

Lake water quality in Clay County is a concern. Lake Thirteen and Lee Lake's water quality is listed as threatened, while Silver Lake and Tilde Lake's quality is impaired according to an assessment of lake water quality based on the 1994 Minnesota 305b report to the U.S. Congress. Some streams and rivers are also significantly impacted by land use.

The Red River, Buffalo River, South Branch of the Buffalo River between Whiskey Creek and Stoney Creek and Hay Creek are judged to be impaired. Pollution sources include sediment, feedlots, agricultural chemicals, urban runoff, animal holding/management areas, and septic systems.

Sedimentation is a concern for the County's streams and rivers. These may have been impacted and degraded by increased sedimentation over the past 100 years. High levels of total suspended solids (TSS) in the Red River have raised concern by the MPCA and the City of Moorhead as to continued use of Red River water for domestic consumption. Municipal and commercial facilities also have discharges, which have raised the level of free ammonia in the Red River to levels, which sometimes exceed State and Federal discharge standards.

Overall, the surface waters in the County are generally of good quality with the exception of previously noted water bodies.

Flood Plain

Flood plains often determine the land use around a water body. The DNR administered Floodplain Management Program is intended to minimize the threat to life and property resulting from flooding. This program restricts development in Flood plains by preventing structures from being built at too low an elevation in areas that have a high risk of flooding. It also controls encroachment so the Flood plain's capacity to hold water will not be reduced, causing flooding of even properly located structures. Figure 2-17, *Floodplains*, also shows the 100 and 500-year floodplain in Clay County. According to the 1997 Clay County Water Plan, spring flooding is an annual problem in the Red River Valley. The shape of the Red River Valley is a result of a glacial lake plain as opposed to a river valley. As a result, the floodplain is relatively undefined, and floodwater can spread many miles through municipalities and over fields. This occurred during the spring flood of 1997 when much of the Red River Valley was under water due to overland flooding.

Flooding in the Red River Valley has caused extensive damage in numerous past years as well. According to records, since 1873 , major flooding has occurred in the Red River Basin in 1882-83, 1893, 1897, 1916, 1943, 1947-48, 1950, 1952, 1965-66, 1969, 1975, 1978-79, 1989, and 1997. Due to the flat topography of Clay County, spring flooding often occurs along the Red River and Buffalo River. In addition to the area's relatively flat topography, several factors contribute to the degree of flooding include: greater than normal precipitation; deep frost penetration prior to the first snowfall; greater than normal snowfall in late winter; rapid warming following below normal temperatures in March and April; and greater than normal precipitation during the spring snowmelt. Flooding may occur at other times of the year from saturated soils and higher than normal precipitation.

There are concerns that agricultural drainage is contributing to the severity of flood events experienced in the past few decades. According to the County's Water Plan, these concerns may be warranted as studies indicate that increased streamflow in some eastern North Dakota streams may have been aggravated by drainage activity. For these studies, changes in precipitation patterns do not account for increased streamflow. However, statistics suggest that the increase in drainage area by landowners has caused this effect.

Conversely, a study by J.R. Calton states that no sound hydrologic analyses have been found to support the view that drainage (and other human activities) has had a measurable effect on major flood peaks on the main stem of the Red River at Emerson, Manitoba. Similarly, other studies suggest that large floods are the result of rare combinations of weather conditions, not human activities (i.e., drainage). It is also suggested that drainage of cropland reduces soil saturation, thus infiltration of precipitation is actually increased. It is clear that relationships between flooding and land use are complex. It is also clear that more research is necessary to determine such relationships.

In addition to the obvious monetary damages and threat to human life, flooding has other environmental ramifications. According to the County's Water Plan, flooding can increase risks of water pollution, increase erosion and cause excess sedimentation of surface waters.

Due to its flat topography, the Red River Valley has been susceptible to flooding throughout its geologic history. Further, flooding and associated flood damages will occur in the future. The County should continue to work with the SWCD, watershed districts and others to address future flood concerns.

Ground Water Quantity and Quality

There are three primary aquifers in Clay County; the Buffalo, Moorhead, and Kragnes aquifers. The Buffalo Aquifer is the primary source of groundwater in the County. It is approximately one to eight miles wide and 32 miles long. It lies about five miles east of Moorhead. Glacial sediments overlay more than half the aquifer at a depth from 20 to 120 feet. The thickness of the aquifer ranges from 0 feet at the edges to around 200 feet at the center with the flow generally northward or toward adjacent streams. Pump tests of the aquifer resulted in a decrease in the level of the Buffalo River indicating a direct link between the surface and groundwater resources, thus illustrating the potential for pollution on the aquifer.

Until recently, Moorhead used the aquifer for about 30 percent of its annual water needs while Sabin uses it as a primary water source. Irrigation water is also withdrawn from this aquifer. Sabin and Moorhead also use the Moorhead Aquifer for water supply. Moorhead hopes to decrease annual withdrawals from groundwater to twenty percent of annual demand.

Intense irrigation occurs in Clay County, which is a concern for groundwater quality as most irrigation occurs in the eastern part of the County in areas of sandy soil where aquifers are recharged and easily contaminated. There are concerns that contamination of groundwater is occurring, as there is a combination of irrigation and application of pesticides and fertilizer in these sensitive areas.

Groundwater to streams and wells is mostly from surficial aquifers or those near the land surface or those 100 to 300 feet below the land surface (buried aquifers). Surficial aquifers are more prone to contamination than buried aquifers.

The quality of surficial aquifers is typically a calcium bicarbonate type with dissolved solid concentrations of 300 to 700 mg/l. As water moves toward the Red River or west, these concentrations tend to increase. At the present time, groundwater quality is thought to be of good quality. The Clay County Environmental Health Office offers a comprehensive water well testing program for nitrates and coliform bacteria. The Minnesota Pollution Control Agency and Department of Natural Resources have also been conducting groundwater tests in the County.
Clay County participates in a cost-sharing program for proper sealing of abandoned wells, which has been a priority for several years. The abandoned well sealing program is funded through the Clay County Comprehensive Water Plan and is currently administered by the Clay SWCD. Presently, 114 wells have been properly sealed through this cost share program, and the demand for cost share dollars is strong. As of 1997, only three townships - Highland Grove, Goose Prairie, and Keene had not been inventoried for abandoned wells.

Studies have been conducted on the Buffalo Aquifer due to concerns for potential contamination from abandoned wells, industrial development and land use. The Aquifer has been the focus of a Clean Water Partnership study from 1990 to the present. Only one sulfate level has exceeded EPA recommended limits. All other concentrations are well below EPA limits. Water quality is generally good. Concentrations of nearly all constituents increase towards the west, although not severe. The Moorhead and Kragnes Aquifers have satisfactory water quality.

The Beach Ridge area of eastern Clay County is an area highly susceptible to water resource contamination. Several wells were sampled for nitrates in 1994. Twenty-one percent of those sampled were found to have elevated nitrate levels, while 15% had levels exceeding EPA drinking water limits. The source of contamination has not yet been identified, but was identified as a priority task for the 1997-98 water plan update.

Activities of concern for the contamination of groundwater include gravel mining, improperly sealed wells, major highways, industrial development, petroleum pipelines, railroads, sewage lagoons, and land use on sensitive groundwater areas.

WIND ENERGY

The Upper Midwest has tremendous wind resources and has been called the Saudi Arabia of Wind Energy. Measurements of how hard and how consistently the wind blows show that the southwestern and western parts of Minnesota, in general, have the greatest potential for wind energy. The City of Moorhead constructed a wind turbine in 1999 to capture the wind for generating electricity and is constructing an additional turbine in 2001. In addition, there are three 750 kw turbines operating in rural Clay County on the western edge of Keene Township. These turbines feed into the Excel Energy (the area's electric service provider) grid, providing an alternative energy source for the area.

Moorhead's program is called "Capture the Wind" and generates electricity through the process of capturing the wind. The City provides residents with electricity through it's own public utility department and residents have eagerly supported this endeavor. Customers agreed to purchase a certain amount of electricity that is generated through the wind turbine.

Moorhead State University is the largest customer participating in the program and agreed to purchase 83,000-kilowatt hours of electricity each month at the wind power rate over a period of 10 years. During this time, the University will prevent an estimated 7.3 million pounds of greenhouse gases from being emitted into the air by using wind-generated electricity.

The City's existing wind turbine is a 750-kilowatt turbine and weighs 92 tons. The tower is 180 feet tall and the total height of the turbine is 250 feet. The blades of the turbine each weigh 4 tons and are 78 feet long. The one-third of Moorhead resident's electricity that came from coal, now comes from wind-generated electricity, with the rest from hydro power.

Wind Energy can also be captured on an individual basis. The Minnesota Project conducted a survey of farmers in 1995 that showed nearly unanimous support for wind development, both for environmental benefits and rural economic development. The potential for wind development on marginal farmland particularly interested Conservation Reserve Program (CRP) landowners. Small turbines can be purchased from $6,000 to $30,000 and can produce the energy needed to run a farm. Electricity generated beyond the farm's needs could be sold to a local utility. Minnesota law requires local utilities to buy energy generated from small wind systems (up to 40 kilowatts) at the retail rate.

Wind energy is a resource that is being pursued and studied throughout Minnesota. The Minnesota Department of Public Service conducted a wind resource assessment of annual wind power speeds from 1984 to 1993 at 36 sites around the state. Sites capable of producing more than 320 watts per square meter were determined to be suitable for commercial development for wind energy. The Clay County area falls into this category.

Wind is an endless resource that is never used up. Using wind benefits the environment, as there is almost no pollution associated with producing wind energy. Long-term costs to society are lower than those associated with coal and nuclear energy.

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
MINNESOTA AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP

CLAY COUNTY, MINNESOTA

Scale 1:253,440

1 0 1 2 3 4 Miles

1 0 1 2 3 4 5 6 Kilometers

N

SOIL LEGEND

1 Fargo association: Nearly level to gently sloping, poorly drained soils which formed in silty to clayey lacustrine sediment; on lake plains

2 Bearden-Colvin association: Nearly level to gently sloping, somewhat poorly drained and poorly drained soils which formed in silty lacustrine sediment; on lake plains

3 Viking-Donaldson-Glyndon association: Nearly level to gently sloping, poorly drained to moderately well drained soils which formed in sandy to clayey lacustrine sediment, water modified till, and shoreline deposits; on lake plains

4 Glyndon-Wyndmere-Wheatville association: Nearly level to gently sloping, somewhat poorly drained and moderately well drained soils which formed in sandy to clayey lacustrine sediment; on lake plains

5 Ulen-Arveson-Flaming association: Nearly level, very poorly drained to moderately well drained soils which formed in loamy to sandy lacustrine sediment; on outwash plains and in lake basins

6 Lohnes-Sioux association: Nearly level to very steep, moderately well drained to excessively drained soils which formed in loamy to sandy outwash material; on lake beaches and outwash plains

7 Barnes-Langhei association: Nearly level to hilly, well drained soils which formed in loamy glacial till; on uplands

8 Waukon-Langhei association: Nearly level to very steep, well drained soils which formed in loamy glacial till; on uplands

Compiled 1981

Figure 2-7

SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

Georgetown Township
Viding Township
Felton Township
Hagen Township
Ulen Township
Georgetown
Felton
Ulen
Kragnes Township
Morken Township
Flowing Township
Keene Township
Goose Prairie Township
Hitterdal
Oakport Township
Moland Township
Spring Prairie Township
Cromwell Township
Highland Grove Township
Moorhead
Dilworth
Glyndon
Hawley
Glyndon Township
Riverton Township
Hawley Township
Eglon Township
Moorhead Township
Sabin
Kurtz Township
Elmwood Township
Elkton Township
Skree Township
Parke Township
Holy Cross Township
Alliance Township
Barnesville Township
Humboldt Township
Tansem Township
Comstock
Barnesville

Original Vegetation of Clay County

Clay County, Minnesota

- Prairie
- Wet Prairie
- Brush Prairie
- Big Woods - Hardwoods (Oak, Maple, Basswood, Hickory)
- Oak Openings and Barrens
- River Bottom Forest
- Lake (Open Water)
- Municipality
- Township

N

0 8500 17000 25500 Feet

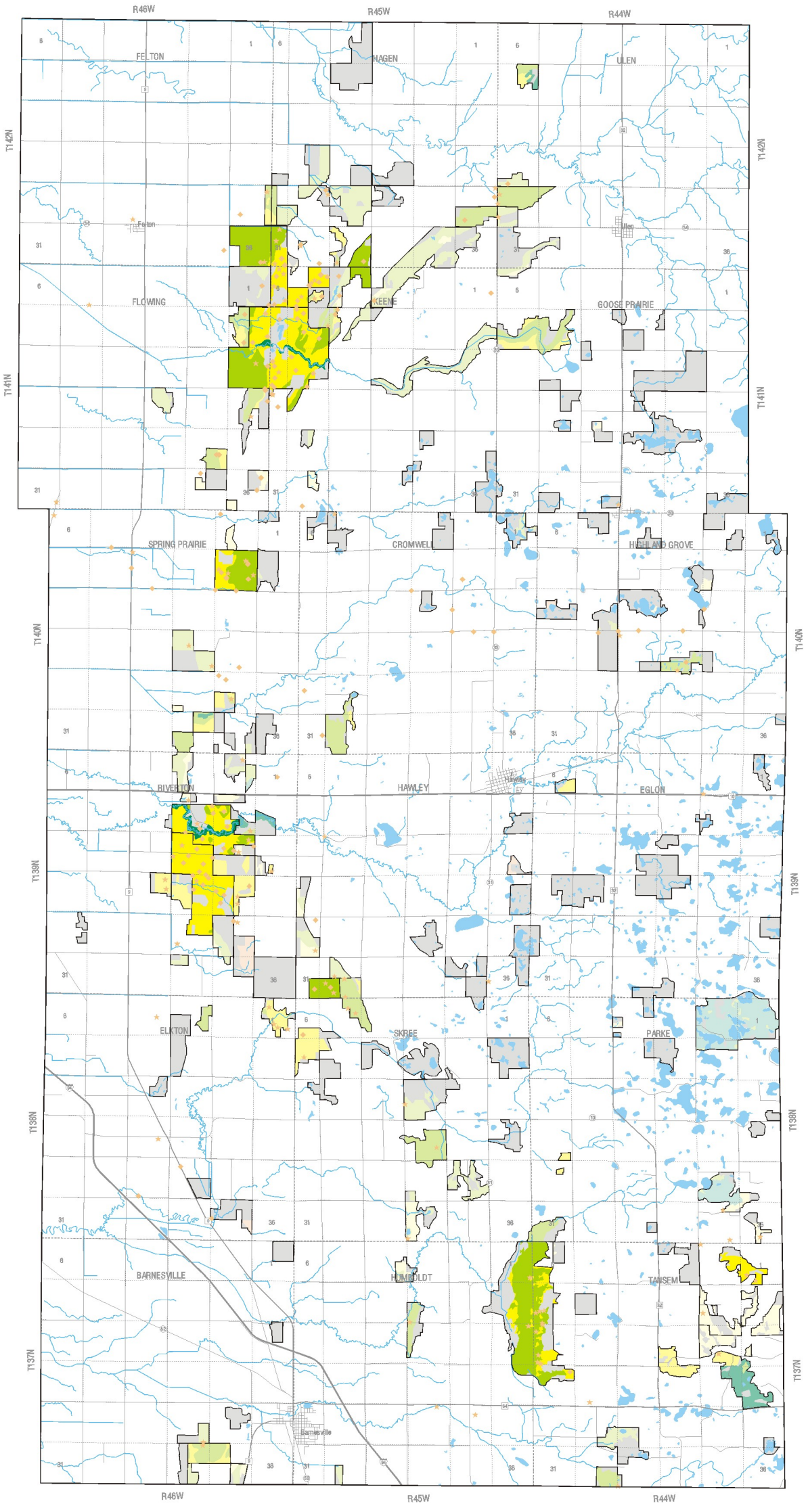
Figure 2-8

DAHLGREN SHARDLOW AND UBAN

July 3, 2001

Figure 2-9

NATURAL COMMUNITIES AND BIODIVERSITY SIGNIFICANCE EASTERN CLAY COUNTY, MINNESOTA



MCBS site boundary[1]

Biodiversity significance[2]			Natural community groups[3]
high	medium	modest	
			Upland prairie
			Wet prairie and marsh
			Forest

Natural community groups below the biodiversity significance threshhold

Disturbed land in surveyed sites

Special plant[4]

Special animal[4]

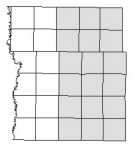
[1]The Minnesota County Biological Survey (MCBS) is a systematic survey of rare biological features funded by the Minnesota Legislature with substantial funding from the Minnesota Environment and Natural Resources Trust Fund as recommended by the Legislative Commission on Minnesota Resources. State Wildlife Management Areas, Federal Waterfowl Production Areas, State Parks, State Scientific and Natural Areas, and Nature Conservancy preserves were automatically designated as survey sites. Otherwise, site boundaries encompass areas photointerpreted as possible natural vegetation from 1982 color-infrared aerial photography. Field survey work in Clay County was conducted in 1987-1988, with some followup in 1994.

[2]Biodiversity significance is evaluated on the basis of the rarity of the species and natural communities present and the quality of these occurrences within individual MCBS sites.

[3]Natural communities are functional units of the landscape, classified and described by considering vegetation, hydrology, landform, soils, and natural disturbance regimes. Areas outside of MCBS sites are primarily cropland or other lands where the natural vegetation has been destroyed by human activity. Natural community groups depicted here are reclassified from the natural community types in the original Natural Heritage Information System data.

[4]The special plant and animal data are not based on an exhaustive inventory of the state. The lack of data for any geographic area shall not be construed to mean that no significant features are present. In addition, there may be inaccuracies in the data, of which the DNR is not aware and shall not be held responsible for.

0 1 2 3 Miles
0 1 2 3 4 Kilometers



Sources:
(1) Natural Heritage Information System - biodiversity significance, natural communities, and special plants and animals. Minnesota Department of Natural Resources, Natural Heritage and Nongame Research Program, Section of Ecological Services, Division of Fish and Wildlife. Data current as of January 1997.
(2) Public Land Survey - PLS Project, Minnesota Department of Natural Resources, Division of Minerals.
(3) State of Minnesota BaseMap, CD-ROM produced by Minnesota Department of Transportation, Surveying and Mapping BaseMap Development Group.

Created for the Clay County Beach Ridges Forum by the Minnesota Department of Natural Resources, Division of Minerals, June 1997.

The Clay County Beach Ridges Forum acknowledges funding for this project approved by the Minnesota Legislature, ML 1995, Chapter 220, Section 19, Subdivision 5(e), as recommended by the Legislative Commission on Minnesota Resources from the Minnesota Future Resources Fund.

Georgetown Township
Georgetown
Viding Township
Felton Township
Felton
Hagen Township
Ulen Township
Ulen
Kragnes Township
Morken Township
Flowing Township
Keene Township
Goose Prairie Township
Hitterdal
Oakport Township
Moland Township
Spring Prairie Township
Cromwell Township
Highland Grove Township
Moorhead
Dilworth
Glyndon
Hawley
Glyndon Township
Riverton Township
Hawley Township
Eglon Township
Moorhead Township
Sabin
Kurtz Township
Elmwood Township
Elkton Township
Skree Township
Parke Township
Holy Cross Township
Comstock
Alliance Township
Barnesville Township
Barnesville
Humboldt Township
Tansem Township

Major Prairie Areas in Clay County

Clay County, Minnesota

Barnesville Slough

Bluestem Prairie

Felton Prairie

Municipality

Township

N

0 25000 Feet

Figure 2-10

DAHLGREN SHARDLOW AND UBAN

July 3, 2001

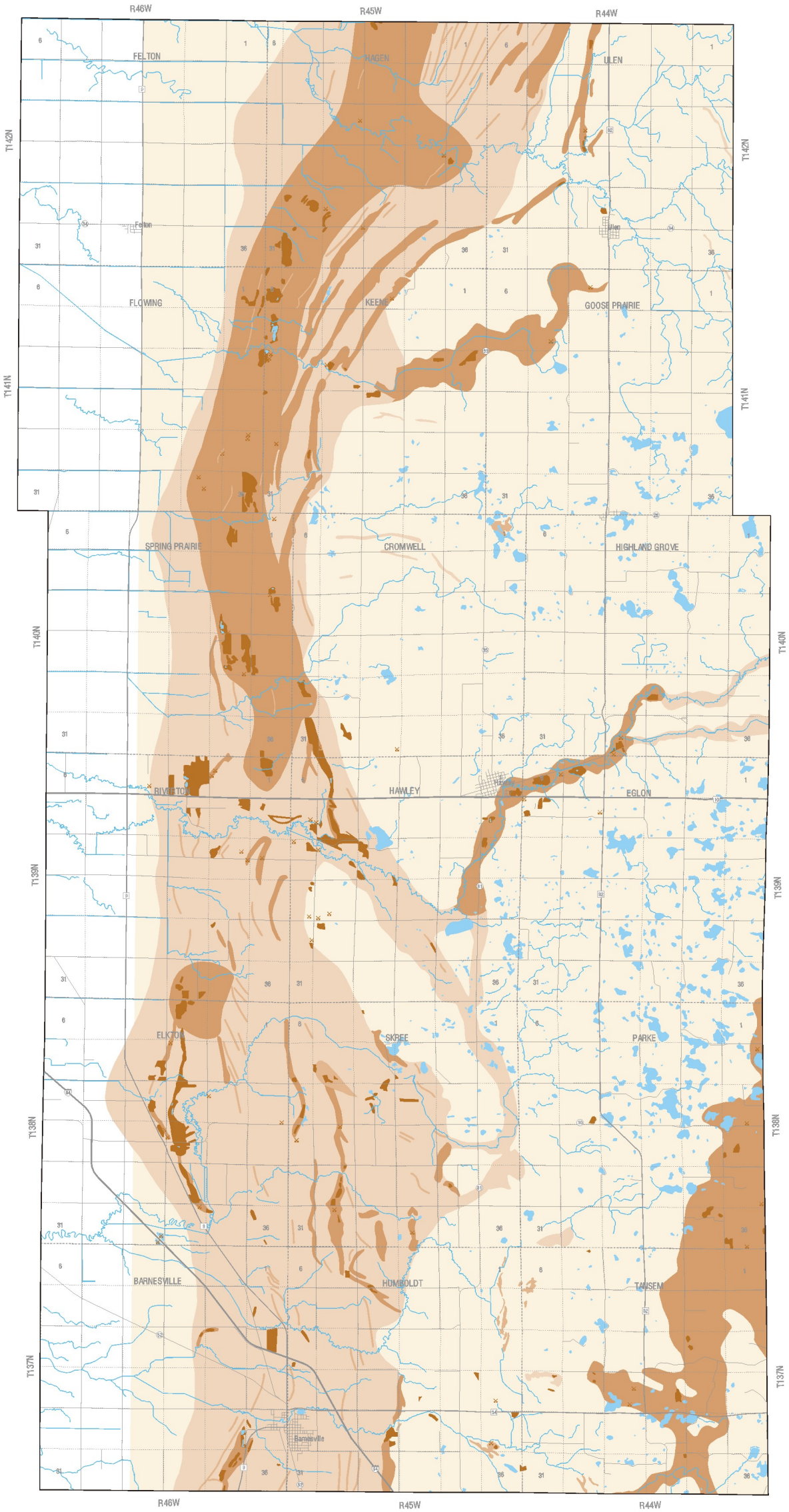


Figure 2-11

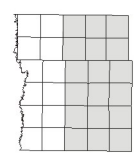
AGGREGATE RESOURCES EASTERN CLAY COUNTY, MINNESOTA

Gravel pit
Gravel pit (mapped as a point)

High potential
Moderate potential
Slight potential
Limited potential

Water

0 1 2 3 Miles
0 1 2 3 4 Kilometers



Sources:
(1) Aggregate potential and gravel pit locations based on air photo interpretation and field work done by J.D. Lehr, 1994-1996, as part of the Aggregate Mapping Program, Minnesota Department of Natural Resources, Division of Minerals.
(2) Public Land Survey - PLS Project, Minnesota Department of Natural Resources, Division of Minerals.
(3) State of Minnesota BaseMap , CD-ROM produced by Minnesota Department of Transportation, Surveying and Mapping BaseMap Development Group.

Created for the Clay County Beach Ridges Forum by the Minnesota Department of Natural Resources, Division of Minerals, June 1997.

The Clay County Beach Ridges Forum acknowledges funding for this project approved by the Minnesota Legislature, ML 1995, Chapter 220, Section 19, Subdivision 5(e), as recommended by the Legislative Commission on Minnesota Resources from the Minnesota Future Resources Fund.

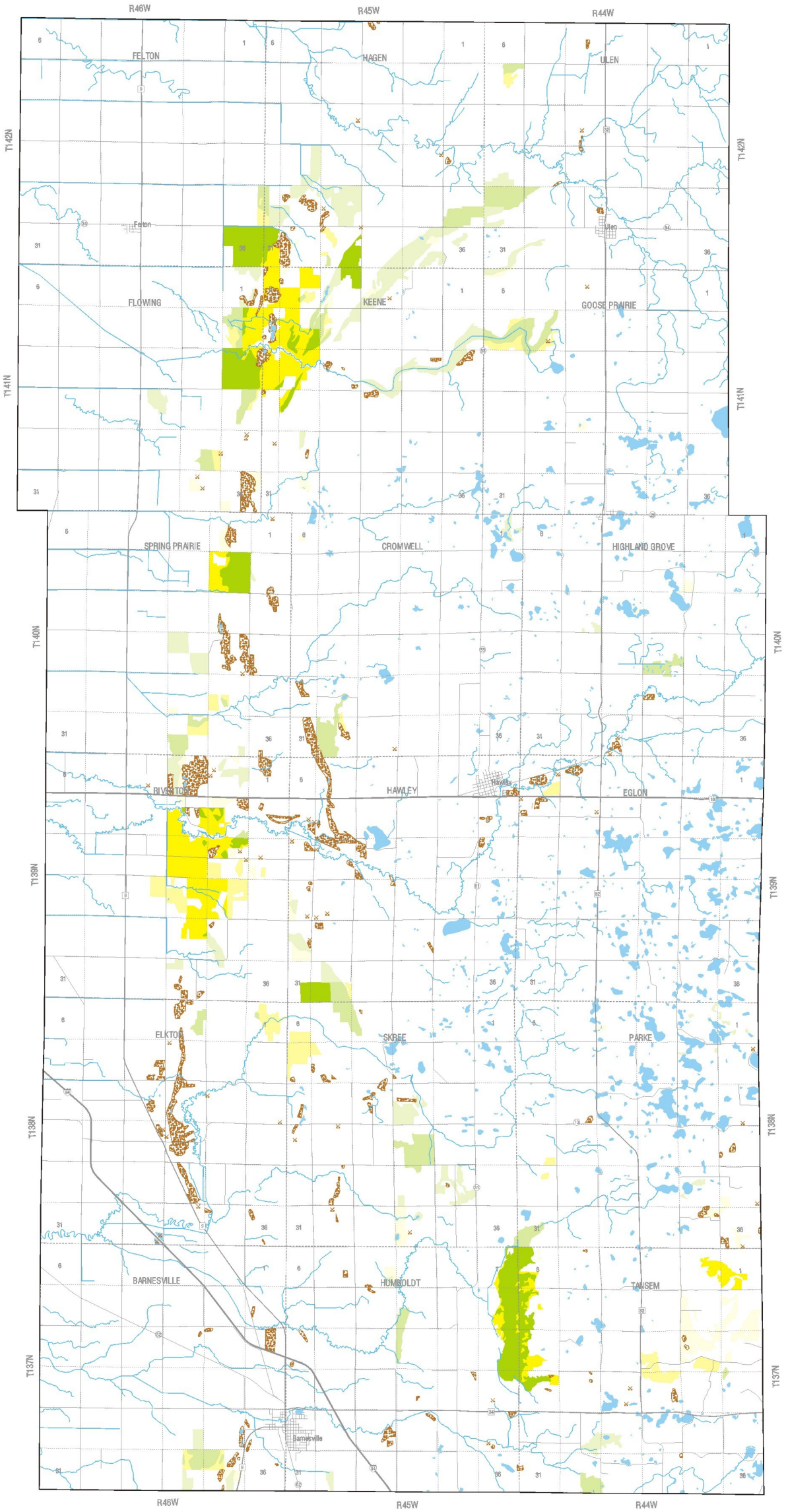
Figure 2-13

PRAIRIE

AND

GRAVEL PITS

EASTERN CLAY COUNTY, MINNESOTA



Biodiversity **significance**[1]

high medium modest

Natural community groups[2]

Upland prairie

Wet prairie and marsh

Gravel pit

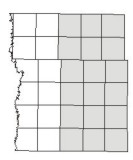
Gravel pit (mapped as a point)

[1]Biodiversity significance is evaluated on the basis of the rarity of the species and natural communities present and the quality of these occurrences.

[2]Natural communities are functional units of the landscape, classified and described by considering vegetation, hydrology, landform, soils, and natural disturbance regimes.

0 1 2 3 Miles

0 1 2 3 4 Kilometers



Sources:

(1) Natural Heritage Information System - biodiversity significance and natural communities. Minnesota Department of Natural Resources, Natural Heritage and Nongame Research Program, Section of Ecological Services, Division of Fish and Wildlife. Data current as of January 1997.

(2) Gravel pit locations based on air photo interpretation and field work done by J.D. Lehr, 1994-1996, as part of the Aggregate Mapping Program, Minnesota Department of Natural Resources, Division of Minerals.

(3) Public Land Survey - PLS Project, Minnesota Department of Natural Resources, Division of Minerals.

(4) State of Minnesota BaseMap, CD-ROM produced by Minnesota Department of Transportation, Surveying and Mapping BaseMap Development Group.

Created for the Clay County Beach Ridges Forum by the Minnesota Department of Natural Resources, Division of Minerals, June 1997.

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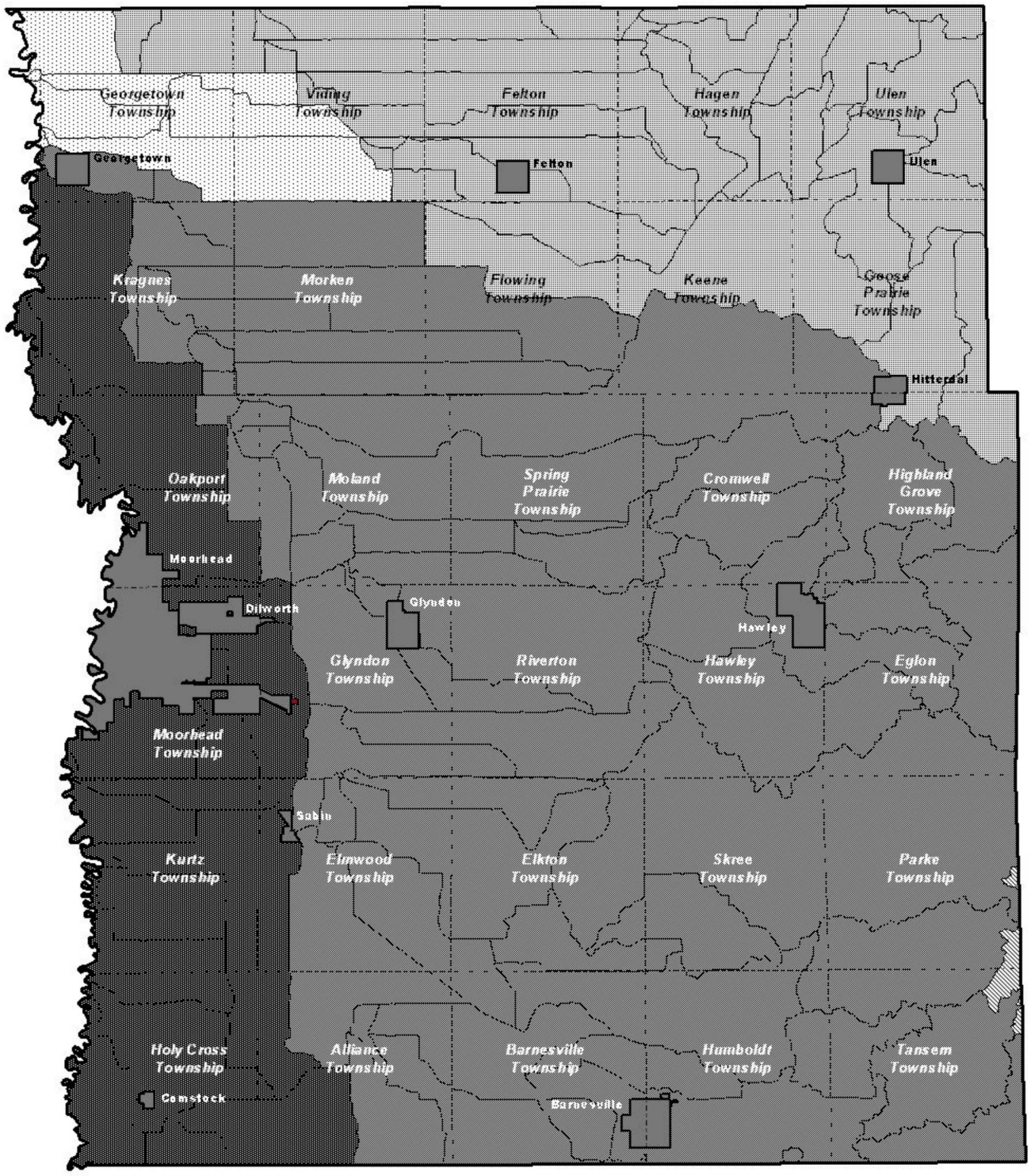


Major Watersheds

Clay County, Minnesota

- Red River of the North
- Buffalo River
- Wild Rice River
- Otter Tail River
- Marsh River
- Municipality
- Township

N

0 25000 Feet

Figure 2-14

DAHLGREN SHARDLOW AND UBAN

December 7, 2001

Drainage Ditches

Clay County, Minnesota

Judicial Ditch 56 Main
Judicial Ditch 56 Lat. No. 1
Judicial Ditch 45 Lat. No. 2 Proj. No. 20
Judicial Ditch 45 Lat. No. 1 Proj. No. 20
Felton Ditch Prjt. No. 9
South Branch Proj. No. 9
County Ditch 44
County Ditch 42
County Ditch 14
County Ditch 52
County Ditch 6
County Ditch 23
County Ditch 23
County Ditch 28
County Ditch 22
County Ditch 5
County Ditch 4
County Ditch 8
County Ditch 10
County Ditch 49
County Ditch 59
County Ditch 39
County Ditch 65
County Ditch 65
County Ditch 3
County Ditch 2
County Ditch 63
County Ditch 35
County Ditch 41
County Ditch 57
County Ditch 12
County Ditch 9
County Ditch 21
County Ditch 58
County Ditch 55
County Ditch 32
County Ditch 33
County Ditch 40
County Ditch 11-N
County Ditch 11-S
County Ditch 36
County Ditch 60
County Ditch 53
Judicial Ditch 1
County Ditch 54
County Ditch 17
County Ditch 31
County Ditch 31
County Ditch 18
County Ditch 16
County Ditch 47

Georgetown
Felton
Ulen
Moorhead
Dilworth
Glyndon
Hawley
Hitterdal
Sabin
Comstock
Barnesville

Wild Rice Watershed

Buffalo-Red River Watershed

N

0 25000 Feet

Drainage System Under Watershed Jurisdiction

Watershed Boundary

Open Water

Municipality

Figure 2-15

DAHLGREN SHARDLOW AND UBAN
INCORPORATED

July 17, 2002

Georgetown Township
Viding Township
Felton Township
Hagen Township
Ulen Township
Georgetown
Felton
Ulen
Kragnes Township
Morken Township
Flowing Township
Keene Township
Goose Prairie Township
Hitterdal
Oakport Township
Moland Township
Spring Prairie Township
Cromwell Township
Highland Grove Township
Dilworth
Moorhead
Glyndon
Hawley
Glyndon Township
Riverton Township
Hawley Township
Egion Township
Moorhead Township
Sabin
Kurtz Township
Elmwood Township
Elkton Township
Skree Township
Parke Township
Holy Cross Township
Alliance Township
Barnesville Township
Humboldt Township
Tansem Township
Comstock
Barnesville

Surface and Ground Hydrology

Clay County, Minnesota

River/Stream

Acquifer Recharge Area

Lake (Open Water)

Municipality

Township

N

0 25000 Feet

Figure 2-16

DAHLGREN SHARDLOW AND UBAN

April 30, 2002

Georgetown Township
Viding Township
Felton Township
Hagen Township
Ulen Township
Georgetown
Felton
Ulen
Kragnes Township
Morken Township
Flowing Township
Keene Township
Goose Prairie Township
Hitterdal
Oakport Township
Moland Township
Spring Prairie Township
Cromwell Township
Highland Grove Township
Moorhead
Dilworth
Glyndon
Hawley
Glyndon Township
Riverton Township
Hawley Township
Eglon Township
Moorhead Township
Sabin
Kurtz Township
Elmwood Township
Elkton Township
Skree Township
Parke Township
Holy Cross Township
Alliance Township
Barnesville Township
Humboldt Township
Tansem Township
Comstock
Barnesville
75
9
10
32
336
34

N

0 25000 Feet

100 Year Floodplain
500 Year Floodplain
Open Water
Municipality
Township
Interstate/Highway
Railroad

Floodplains

Clay County, Minnesota

Figure 2-17

DAHLGREN SHARDLOW AND UBAN

July 3, 2001

TRANSPORTATION:
CLAY COUNTY COMMUNITY-BASED COMPREHENSIVE PLAN

There are several organizations that cooperate on transportation planning within Clay County. The Clay County Highway Department works in conjunction with the Fargo-Moorhead Metropolitan Council of Governments (F-M COG) on transportation issues for Clay County. The WCI in Fergus Falls also participates as a regional planning agency, assisting as an advisory body and providing technical assistance to the overall transportation planning process. There is also a district-wide committee - the Area Transportation Partnership, which is composed of local and state staff and elected officials. This group is allocated federal funds through the Minnesota Department of Transportation and works with the counties within their district to decide how those funds will be spent. Townships also have authority over the roads within their jurisdictions that are not County or State highways.

F-M COG's study area includes a sixteen-township ring around the Fargo-Moorhead metropolitan area; eight of those townships are in Clay County. Some of the information contained in this section is taken from the *2000 Surveillance and Monitoring Report* prepared by F-M COG in May 2000, which contains data on countywide services also. Information from the *1998 Metropolitan Transportation Plan* also prepared by the F-M COG is used throughout this section.

TRANSPORTATION SYSTEM

The Clay County area is well served with a variety of transportation options. These options are outlined in the following pages.

Highways

Clay County has two interstate highways transecting the area: Interstate 29 runs north south (in North Dakota) and Interstate 94 runs east west. State Highways #10 and #75 also provide important intrastate accesses within the County. Two maps the functional classifications of roads within Clay County are shown in Figures 2-18a and 2-18b, *Roadway Functional Classification, Metro and Rural,* respectively. The metro roadway functional classification map includes the area under FM-COG jurisdiction, while the rural classification map applies to areas not within FM-COG's jurisdiction.

Bikeways

There are numerous bikeways throughout Moorhead and Fargo, making an enjoyable ride for the recreational bicyclist and providing transportation for those riding their bikes to work. Dilworth has also constructed bikeways from 34th Street to CSAH 9 and from 2nd Avenue North to 8th Avenue North.

F-M COG completed an extensive evaluation of the metropolitan bikeway system in 1995 with the preparation of the "*Metropolitan Bikeway Plan"*. Bikeway deficiencies were identified and inventoried and it was recommended that this report be updated every five years to continue to invest in bikeway improvements based on sound planning.

Airports

Five airports are located in the Clay County area: Hector International Airport in Fargo, North Dakota; Moorhead Municipal Airport; West Fargo Municipal Airport in West Fargo, North Dakota; Hawley Municipal Airport; and the Barnesville Municipal Airport.

The Hector International Airport provides for the commercial movement of passengers, freight and mail. There are approximately 25 to 30 aircraft landings each day. This airport has four runways ranging from 4,199 feet to 9,545 feet long and 100 to 150 feet wide.

These runways have lighting and navigation aids to continue operations into the night. There is a terminal building for airline operations, rental cars, and baggage handling, restaurant and gift shop and conventional and maintenance hangers for the North Dakota Air National Guard and area businesses. In 1997, Hector Airport had over 200,000 boarding passengers.

The Moorhead Municipal Airport was constructed in 1996 to serve the area's industrial and business needs. Currently, it has one runway that is 4,000 feet long and 75 feet wide. The airport provides 28 conventional hangers and one maintenance hanger to serve its aircraft. Nighttime landings are possible with pilot activated lights on the runway. The airport also has a helicopter-landing pad and a chemical loading facility is provided for crop spraying airplanes. Flight instruction and aircraft rental are available.

The West Fargo Municipal Airport is a single runway airport that serves West Fargo and the surrounding area. The runway is 2,400 feet long and 50 feet wide. There are eleven hangers to provide maintenance and storage for aircraft. Night operations are possible with pilot activated lights on the runway.

The Hawley Municipal Airport has one asphalt runway in good condition that is 3,406 feet long by 75 feet wide. It is lighted dusk to dawn. This airport provides local general aviation services and also agricultural operations (aerial spraying) and aircraft sales.

The Barnesville Municipal Airport has one turf runway that is 2,707 feet long by 80 feet wide. The runway is not plowed during the winter months as the airport is closed. Aerial spraying services utilize the airport.

There are also several private airfields within the County used both for recreational and agricultural operations such as aerial spraying

Railroad Facilities

The Clay County area includes a major east-west railroad facility, with minor routes branching into and out of its cities in a number of directions. A major intermodal terminal facility is located in Dilworth. A large railroad yard where railroad car transfers occur is located in Fargo, North Dakota. Industrial land uses are located in the vicinity of both facilities to take advantage of the convenient access for freight shipping. The Burlington Northern Santa Fe Railroad owns the majority of the tracks. The Otter Tail Valley Railroad Company owns one track entering Moorhead and the Red River Valley Short Line Railroad Company owns another.

The Amtrak trains provide daily passenger rail service to the area and also express service for packages and mail.

The FM-COG continues to work closely with the cities of Moorhead, Fargo, West Fargo and Dilworth on issues relating to railroad traffic within the metro area.

Trucking

Trucking is an important mode of freight hauling in the area as both Interstates 29 and 94 transect the area. Because of this, the area has become a hub for over 250 trucking companies.

The cities of Fargo and Moorhead are participating in the Red River Trade Corridor project, which is intended to maximize the potential of I-29 as an international trade route through the United States between Mexico and Canada. This route is vital to the movement of freight and agricultural commodities and has the potential to increase in the future due to the passage of NAFTA and the efforts of the Red River Trade Corridor group.

There are no designated truck routes currently in Clay County. However, a system of roadways called the Metropolitan Beltline has been identified in the periphery of the urban area. This is intended to serve as an alternative route for drivers that wish to by-pass Fargo-Moorhead or freight haulers who would prefer a route with lower traffic volumes. The roads included in the Beltline are: CSAH #11, MN #336, CSAH #12, and CR #26 in Clay County; and, CR #22, CR #17, and 52nd Ave. South on the North Dakota side.

The City of Moorhead requires permits for over-sized loads. There are weight restrictions placed on some roads during the spring to protect the roadways during the spring thaw. Signs are placed on these roadways and a map is also available from the Moorhead City offices.

Agricultural Goods

The movement of agricultural goods is also a concern in Clay County. This includes both trucks and the movement of other farm implements, such as tractors and implements pulled behind tractors such as plows, cultivators, etc. In 1995, Clay County in conjunction with the FM-COG completed a study called the "Clay County Agricultural Goods Movement Study". From this study, eight alternatives were developed for improvements to the transportation system within Clay County for the movement of agricultural goods. The alternatives are listed below.

- Take no action
- Develop MN 336 improvements. (This includes both planning long and range improvements including an overpass, four lanes, and wide shoulder to accommodate both trucks and farm implements.)
- Pave CSAH 7 from CSAH 52 to CSAH 12.
- Extend County Highway #80 to MN #336.
- Implement Planned Highway 10/21st street intersection improvements.
- Establish designated truck routes in Moorhead with corresponding ordinances favorable to truck route design.
- Improve the I-94/S.E. Main Avenue interchange design.

- Implement Transportation System Management solutions at key intersections along agricultural goods movement routes. (A number of conditions undesirable from a freight movement basis were identified during the analysis of the report.)

The alternatives were presented to the local governmental entities with the recommendation by FM-COG that local governments and MnDOT pursue implementation of those alternatives within their jurisdictions.

Transit

Clay County Rural Transit started operations in 1995. This service provides affordable transportation to Clay County residents, particularly elderly and disabled persons. Four handicap-accessible vehicles serve four flexible-fixed routes and provide limited demand response service on a weekly schedule.

The Clay County Transit System is available to residents in both rural Clay County and Becker County. There are two daily commuter routes, traveling as far as Detroit Lakes, Audubon, Lake Park, Hawley, and Glyndon along Highway 10 to the Fargo/Moorhead area, and along Highway 52 from Barnesville and Sabin into Fargo/Moorhead (and Interstate 94). Most of the riders on the commuter routes travel to and from work in the Fargo/Moorhead area, although some do use the system to travel to the three local universities. These fixed routes begin at 6:30 a.m. and 6:15 a.m., with return trips at 4:30 p.m. and 4:45 p.m. The County also has a Dial-A-Ride service which requires riders to reserve a ride 24 hours in advance.

Table 2-26 illustrates rider ship numbers from 1995 to 1999.

Table 2-26
Rural Transit Ridership Trends
Clay County
1995-1999

1995	1996	1997	1998	1999
1,080	10,126	32,133	22,317	17,729

Source: F-M COG, 2000

Other transit programs are available in the Fargo-Moorhead metropolitan area, including: Moorhead Fixed Route system, Dial-A-Ride/Senior Dial-A-Ride, Moorhead College Route; Fargo Fixed Route System and Para transit/MAT Para transit; West Fargo Fixed Route System; and the Dilworth Fixed Route System.

TRANSPORTATION PLANNING

The following tables illustrate the short and long range, potential transportation improvement projects for Clay County from F-M-COG's *"1998 Fargo-Moorhead Short and Long Range Metropolitan Transportation Plan*."

Table 2-27
Short Range Potential Future Transportation Improvements
Clay County

STREETS AND HIGHWAYS	Status in 1993 Highway Plan
Clay County Corridor Safety Project Rail Safety Improvements at County or Township Roads (three year project)	New, scheduled for 1999-2001 in TIP
Red River Crossing (South of CR 74) -Preserve adequate right of way for a bridge corridor between CR 74 and CR 67 (pending 1998 Red River Crossing Study recommendation). Preserve the selected corridor between the Red River and TH 75) - Preserve adequate right of way for a County Rd. 65 bridge corridor and increase CR 65 ROW to 150 ft. (aligns with 100th Ave. S. in Cass Co.)	Short Range Short Range
CSAH 10 (TH9 to CR71) Reconstruct 2.5 miles of CSAH 10. Includes grading bridge replacement and 10 ton paving (outside MPO)	New, scheduled for 2000
BIKEWAYS	
County Road 74 (Red River to TH 75) Construct Class I bikeway, as identified in the 52nd Ave. S. Corridor Study	Long Range in MBP
County Road 11 (County Road 12 to I-94) Construct Class II bikeway (wide shoulders) when the roadway is reconstructed	Long Range in MBP
TRANSIT	
Purchase two medium buses	New
Purchase one mini-bus	New

Source: 1998 Fargo-Moorhead Short and Long Range Metropolitan Transportation Plan by FM-COG

Table 2-28
Long Range Potential Future
Transportation Improvements
Clay County

STREETS AND HIGHWAYS	Status in 1993 Hwy. Plan
CSAH 7 (CSAH 12 to CSAH 52) Construct paved two lane roadway	New
12th Ave. S. (CR 81 - MN 336) Construct paved two lane road	New
Red River Bridge (Clay CSAH 22/Cass CR 20) Reconstruct bridge in cooperation with Cass County. Cost to be shared 50/50 between counties, with each county having a 20 percent local share of there 50%	New
South Side Red River Bridge and Connection to I-29 Participate with Cass County and Fargo in the construction of a four-lane Red River Bridge and connecting roadway between the Red River and I-29, and an interchange with I-29.	New
CSAH 22 (Red River to TH 75) Capacity, TSM, traffic control and pavement repair/reconstruction improvements as identified in the 1998 Air Cargo Study, and Class Class II bikeway or I.	New
BIKEWAYS	
County Road 11 (CR 18 to CR 26) Construct Class II bikeway (wide shoulder) when roadway is reconstructed	New
County Road 11 (CR 12 to Sabin) Construct Class II bikeway (wide shoulder) when roadway is reconstructed	New
TRANSIT	
Purchase mini-bus (in approx. 2007)	New
Purchase two medium buses (in approx. 2010 & 2011)	New
Purchase mini-bus (in approx. 2010)	New
Purchase/replace a mini-bus (in approx. 2013)	New
Purchase/replace two medium buses (in approx. 2016 & 2017)	New
Purchase/replace two mini-buses (in approx. 2016 & 2019)	New

Source: 1998 Fargo-Moorhead Short and Long Range Metropolitan Transportation Plan by FM-COG

The following are Minnesota Department of Transportation short and long range, potential future plans for Minnesota trunk highways and bikeways along those highways in Clay County.

Table 2-29
Short Range MnDOT Potential Future
Transportation Improvements
Clay County

STREETS AND HIGHWAYS	Status in 1993 Hwy. Plan
TH 10 (TH 75 to TH 336) T.M./T.M./ITS improvements to the TH 10 corridor	New
MN 336 at TH 10 Construct interchange at MN 336 at TH 10	New, scheduled for 2000-2001 in TIP
TH 75 Bridge over I-94 Reconstruct the TH 75 bridge over I-94 with adequate width for future widening of I-94 to six lanes	New, scheduled for 2001 in TIP
Main Avenue Bridge over the Red River Major Rehabilitation of bridge	New, tentatively programmed for 2002-2003
MN 336 (I-94 to TH 10) Reconstruct as a 4 lane roadway with turn lanes at existing and future major intersections	New
I-94 (TH 75 to MN 336) Phase I: Construct auxiliary lanes on I-94 at the interchange with MN 336 Phase 2: Reconstruct and widen to a six lane facility	New
SE Main Ave. (at I-94) (MnDOT Project) Construct street lighting at the junction of SE Main Ave. And I-94	Short Range
20th St. at I-94 Install traffic signal at south ramp when warrants are met	New
SE Main/I-94 Interchange Reconstruct and realign the interchange	Short Range
BIKEWAYS	
TH 10 (34th to Buffalo River State Park) Construct a separated bikeway facility	Short Range
Bicycle Path (TH 75 at I-94) Construct a bike path near TH 75 with a grade separation of I-94	New, future facility in Metro Bikeway Plan

Source: MnDOT

Table 2-30
Long Range Potential Future MnDOT
Transportation Improvements
Clay County

STREETS AND HIGHWAYS	Status in 1993 Hwy. Plan
20th Street at I-94 Reconstruct RR bridge to accommodate widening of I-94 to six lanes, including separated pedestrian/bike facility	New
MN 336 at I-94 Reconstruct bridge over I-94 to provide left turn lane	New
TH 75 (40th Ave. S. to CR 74) Construct separated bicycle path	New
TH 75 (40th Ave. S. to CR 74) Reconstruct roadway and widen to four lanes with turn lanes	New

Source: MnDOT

In addition to the projects identified in the tables above, MnDOT has recently begun planning for a reroute of Highway 75 around the Moorhead area. This plan would align the Highway with the current CR 74 from the existing CR 12/Highway 75-intersection east to CSAH 11. It would then follow CSAH 11 north to CSAH 26 where it would follow that alignment back west to the existing Highway 75.

The preceding tables of short and long-range future potential improvements include only the eight-township area in Clay County served by the FM Metro COG and are shown on Figure 2-19, *Planned Transportation Improvements*.

The remainder of Clay County townships is included in County Highway transportation plans from the County Engineer's office. Some of the proposed, major construction projects for 2000 to 2005 are included in Table 2-31.

Table 2-31
Highway Department Proposed Major Construction Projects
Clay County
2000-2005

Hwy	Location	Type of Construction	Miles	Year
10	T.H. 9 to Co. Rd. 71	Grading, Bridge Replacement & 10 ton paving	2.5	2000
11	So. Co. Line to CSAH 2	Grading	2.4	2000
19	Sec 5-6 Flowing	Bridge Replacement		2000
27	Sec. 15-16 Hagen	Bridge Replacement		2000
27	Sec. 15-16 Keene	Bridge Replacement		2000
34	T.H.9 to CSAH 27	10 ton paving	5.4	2000
11	So. Co. Line to CSAH 2	10 ton paving	2.4	2001
52	Sabin to I-94	Grading, edge drains & Bituminous overlay	5.5	2001
93	Sec. 8-17 Oakport	Bridge Replacement		2001
115	Sec. 33 Highland Grove	Bridge Replacement		2001
11	CSAH 28 to CSAH 34	10 ton paving	5	2002
18	Sec. 28-33 Moland	Bridge Replacement		2002
18	Sec. 28-33 Moland	Grading & 10 ton paving	1.0	2002
63	Sec. 29-33 Elmwood	Bridge Replacement		2002
78	Co. Rd. 80 No. 0.8 Mi.	9 ton paving	0.8	2002
2	Sec. 23-26 Alliance	Bridge Replacement		2003
15	Sec. 10-11 Alliance	Bridge Replacement		2003
34	CSAH 27 to 0.5 Mi. W. TH 32	Grading	5.5	2003
114	CSAH 33 W. 1.1 Mi.	9 ton paving	1.1	2003
11	CSAH2 to CSAH 4	10 ton paving	4.0	2004
34	CSAH 27 to 0.5 Mi. W. TH 32	10 ton paving	5.5	2004
7	CSAH 12 to CSAH 52	10 ton paving	2.4	2005
19	CSAH 26 So. 0.8 Mi.	10 ton paving	0.8	2005
19	0.5 Mi. N of TH.10 to CSAH 18	10 ton paving	1.5	2005
26	T.H. 32 to E. Co. Line	10 ton paving	3.5	2005

Source: Clay County Highway Department

The source of local funds used for transportation construction and reconstruction in Clay County is the County General Fund. In 1999, the initial year of the short range plans, local revenues are estimated at $250,000. These funds have been estimated to remain stable throughout the short-range years, at $250,000 per year. The County also receives state aid funds annually. The amount received in 1999 was approximately $1.7 million. This is expected to increase at a rate of approximately $100,000 every three years. Federal Transportation funds are also received on a project-by-project basis through the Area Transportation Partnership (ATP). Based on past funding it is assumed that approximately $200,000 will be available every other year through Federal funds.

According to the FM COG Metropolitan Transportation Plan study, the projects noted in the preceding tables can be feasible funded based on revenue estimates. The projects in the eight-township area of Clay County will use a reasonable proportion of the total Clay County revenues for transportation projects.

PLANNING TOOLS

The FM-COG has developed Metropolitan Right-Of-Way Standards that could be implemented Countywide in road design and development. They have also developed Access Management Guidelines for the metropolitan area that could be used throughout Clay County if approved and adopted by the County. Also, MnDOT access management standards could be considered for implementation on state roads.

Dilworth

Moorhead

N

3500 0 3500 Feet

Metro Functional Classification

Clay County, Minnesota

Local Road

Collector

Minor Arterial

Major Arterial

Municipality

Figure 2-18a

DAHLGREN SHARDLOW AND·UBAN INCORPORATED

March 29, 2002

Rural Functional Classification

Clay County, Minnesota

N

0 8500 17000 25500 Feet

Local Road

Collector

Minor Arterial

Major Arterial

Municipality

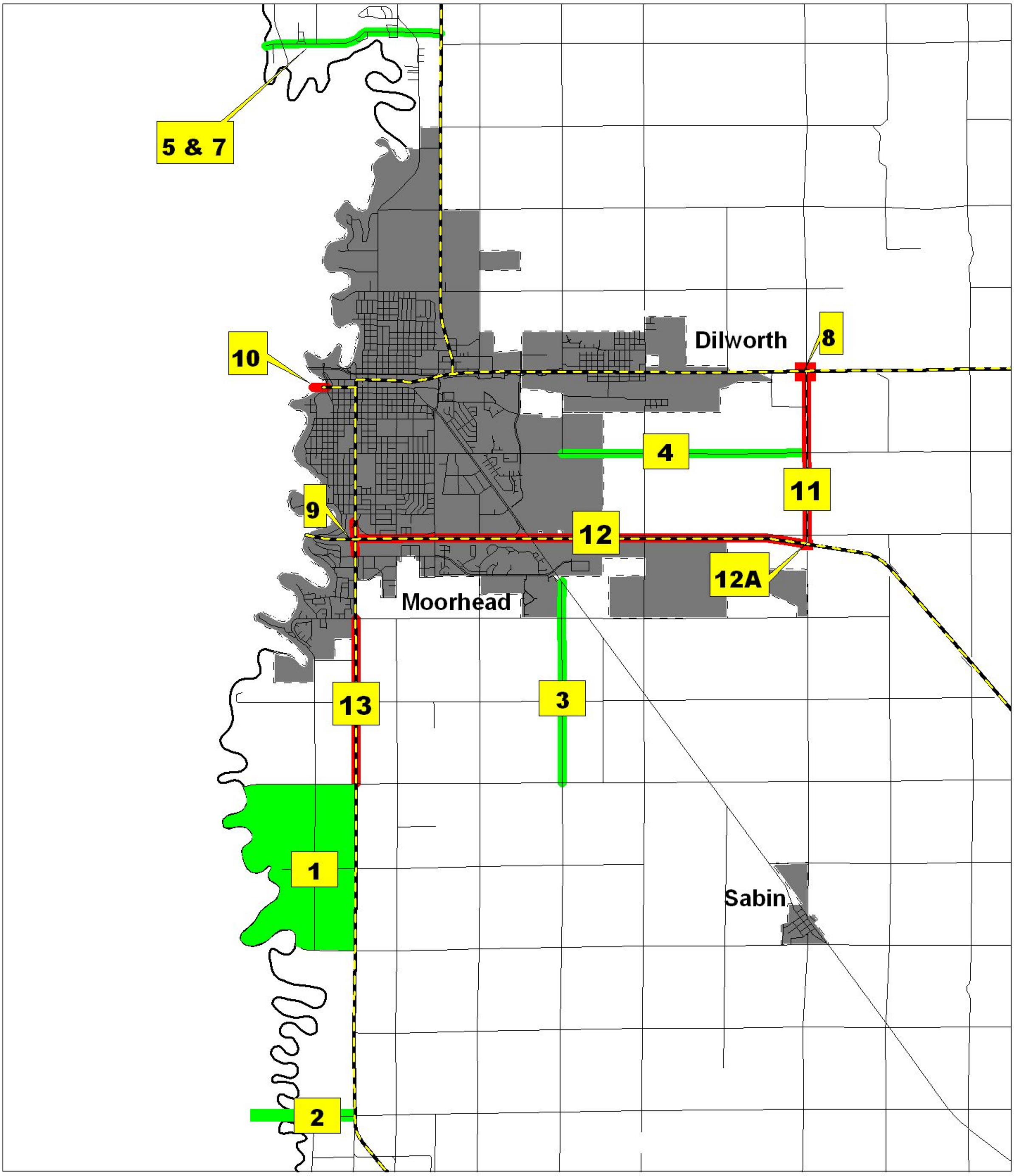
Figure 2-18b

DAHLGREN SHARDLOW AND UBAN INCORPORATED

March 29, 2002

Planned Transportation Improvements

Clay County, Minnesota



Site No.	Road/Area
1	Red Riv. Crossing (S. of CR7)
2	CR 65 Bridge Corridor
3	CSAH 7 (CSAH 12-CSAH 52)
4	12th Ave S (CR 81-MN 336)
5	Red River Bridge (Clay CSAH 22)
7	CSAH 22 (Red River-TH75)
8	MN 336 at TH 10
9	TH 75 Bridge over I-94
10	Main Ave. Bridge over Red River
11	MN 336 (I-94 to TH 10)
12	I-94 (TH 75-MN 336)
12A	MN 336 at I-94
13	TH 75 (40th Ave. S-CR 74)

Local Road

Collector

Minor Arterial

Major Arterial

Clay County Improvement Project

MNDOT Improvement Project

Municipality

N

3000 0 3000 6000 Feet

1 0 1 Mile

Figure 2-19

DAHLGREN SHARDLOW AND UBAN INCORPORATED

July 3, 2001

PLANNING FRAMEWORK

Clay County's landscape is diverse, ranging from metropolitan areas to small towns and thriving farms. Balancing the needs of each of these sectors is, and will continue to be, an important challenge for Clay County. The geographic area of Clay County encompasses approximately 1,055 square miles, or about 671,046 acres, and consists of 11 cities and 30 townships. See Figure 1-4, *Clay County Base Map*, in the Inventory and Analysis chapter. In addition, there are a number of rural service centers located throughout the County. These are locations, usually at the crossroads of two major highways or County roads, that are not incorporated but still have a commercial establishment or two, sometimes a church and a handful of residences. These areas often provide very limited but still important local goods and services.

The County is situated on Minnesota's western border with North Dakota and is part of the growing Fargo-Moorhead metropolitan area, a regional center of commerce. It is linked to the Minneapolis/St. Paul area by I-94 and US Highway 10 and I-29 interchanges in Fargo. The Red River, which forms the County's western border, provides scenic beauty.

In Clay County, continued urban growth emerging from the Fargo-Moorhead area and along major commerce routes poses many land use challenges. The strain between urbanization and the traditional agricultural character of the County is at the forefront of this struggle. As cities grow and urban land uses extend into the neighboring townships, development pressure is placed on the surrounding agricultural areas. Thus, agricultural preservation, environmental protection and annexation dynamics have become increasingly important for the County. This makes careful consideration of the County's future land use very important.

LAND USE INVENTORY

The purpose of a land use inventory is to quantify and analyze existing development within a community. An examination of current land uses should reveal development patterns, densities and other land use scenarios that can provide direction for future development and redevelopment. This inventory, combined with other background information, is used to suggest where, at what intensity and in some cases, when growth should occur. The inventory can also help to classify areas that should remain undeveloped or preserved.

Figure 2-20, *Existing Land Use, Clay County,* shows Clay County's existing land uses for the unincorporated areas of the County, while the corresponding acreages for each land use category are shown in Table 2-32. This land use inventory was developed from 2000 Assessor's information. Land use maps for some cities within Clay County are shown as well on Figures 2-21 through 2-26.
The land use maps for Barnesville, Dilworth, Glyndon, Hawley and Moorhead came from the Fargo-Moorhead Council of Governments. Felton's land use data was obtained through an inventory conducted by city staff.

Table 2-32
Existing Land Use
Unincorporated Clay County
2000

Land Use Category	Acres	Percent of Total
Agricultural	605,528	89.7%
Parks & Recreation	19,756	2.9%
Municipality	16,725	2.5%
Residential	10,503	1.6%
Public/Semi Public	5,821	0.9%
Right of Way & Other	8,656	1.3%
Water	7,113	1.1%
Commercial	990	0.1%
Industrial	147	0.02%
Total	675,240	100.0%

Source: Clay County Assessor, Dahlgren, Shardlow & Uban, Inc.

Although the County has a wide range of land uses, clearly the most predominant use of land is for agriculture. Table 2-32 illustrates that approximately 90% of the County is classified as agricultural. This includes cultivated land, grassland and transitional agriculture land. The next largest land use category is parks and recreation, which amounts to approximately 3% of the County's total area. Residential development comprises about 1.6% and includes rural non-farm residences. Public/semi-public uses amount to just less than 1% of the land use in rural Clay County. Open water including lakes, rivers and streams comprises just over 1% of the County's area. Commercial and industrial make up a very small portion, less than 1% combined.

Land within municipalities comprises approximately 16,725 acres or 2.5% of the County's total area. These land uses are urban in nature and include residential, commercial, industrial, public uses and parks and recreation.

AGRICULTURE

Since the European settlement days and the plowing under of the native prairie in the mid 1800's, agriculture has been the predominant land use in Clay County. Today, about 90%, or 675,240 acres, of the County continues to either be cultivated or used for pasture/hay lands. The land area dedicated to farming has declined in the past decades as cities have grown and the market demand for large lot residential and commercial development has increased around the population centers. Today, land use conflicts are increasing between residential and agricultural land uses.

The average farm size in 1978 was 532 acres compared to 655 acres in 1997, as shown in Table 2-33. While the size of farms is increasing, the total number of farms is decreasing, from 1,155acres in 1978 to 887 in 1997. Individual or family farms have decreased as well from 951 in 1978 to 691 in 1992. The average age of farmers has risen from 47.5 years old in 1978 to 48.6 in 1992.

Table 2-33
Agricultural Statistics
Clay County
1978 - 1997

Agricultural Statistics	1978	1982	1987	1992	1997	Percent Change 1978 - 1997
# Of Farms	1155	1103	1017	875	887	-23%
# Farm Operators	895	833	768	674	617	-31%
Average Age of Operator	47.5	46.2	48	48.6	n/a	2%
Farms under 10 acres	31	30	51	41	37	19%
Farms 10 to 49 acres	73	110	96	78	87	19%
Farms 50 to 179 acres	150	192	159	141	184	23%
Farms 180 to 499 acres	n/a	n/a	295	227	226	-23%
Farms 500 to 999 acres	286	264	229	197	163	-43%
Farms 1,000 acres or more	146	171	187	191	190	30%
Average size of farm (acres)	532	555	579	648	655	23%
Land in farms (acres)	613,945	611,849	588,808	566,981	581,226	-5%
Cropland- total	535,838	545,249	535,318	515,859	529,223	-1%
Cropland harvested (acres)	440,849	493,427	414,901	447,583	478,174	8%
Land in farms as a % of total land in County	94.5	91.2	87.7	84.8	86.6	-8%
Individual or family farms	951	939	835	691	n/a	-38%

Source: MN Department of Agriculture

Interestingly, the amount of cropland actually *harvested* has risen from 440,849 acres in 1978 to 478,174 acres in 1997, while the total acres of cropland have decreased. This may indicate a decrease in the number of acres in farm programs such as the Conservation Reserve Program (CRP), etc.

The total land in farms as a percentage of the total acreage in the County has decreased from 94.5% in 1978 to 86.6% in 1997.

The following table illustrates the different types of crops grown in Clay County. Wheat, corn, sunflower seeds, soybeans and hay/alfalfa have all increased in the number of acres grown from 1987 to 1997, while oats and barley have seen large decreases in acreage during this time period.

Table 2-34
Crops Grown
Clay County
1987 - 1997

Crop	1987	1992	1997	Percent Change 1987 - 1997
Corn for grain or seed (acres)	26,015	31,766	35,964	38%
Wheat	159,670	192,755	204,620	28%
Barley	66,279	48,050	25,420	-62%
Oats	7,873	3,692	2,374	-70%
Sunflower seeds	3,483	9,065	5,993	72%
Soybeans	67,631	78,898	104,972	55%
Hay, alfalfa,	18,977	20,084	23,652	25%
Sugar beets	n/a	65,500 *	62,400 **	-5%
Potatoes	n/a	5,500 *	4,500 **	-18%
Dry, edible beans	n/a	6,800 *	7,500 **	10%

* 1998, **1999

Source: MN Department of Agriculture & USDA

Table 2-35 below illustrates the decline in number of livestock farms from 1987 to 1997. In each animal category, a decline was seen during those years. The most drastic decline (-80%) was seen in hogs and pigs, dropping from 72 farms in 1987 to 15 farms in 1997. Dairy farms also saw a large decrease of 53% from 1987 to 1997.

Table 2-35
Number and Type of Farms
Clay County
1987 - 1997

Type of Farm	1987	1992	1997	Percent Change 1987 - 1997
Beef cows	168	143	148	-12%
Milk cows	94	84	44	-53%
Hogs and pigs	72	45	15	-79%
Sheep and lambs	32	18	21	-34%
Layers & pullets 13 weeks old and older	19	16	12	-37%
Broilers & other meat-type chickens	6	7	2	-67%

Source: MN Department of Agriculture

In 1997, crop sales accounted for 82% of the market value of agricultural products sold and livestock sales accounted for 18% of the market value. From 1992 to 1997, the average per farm market value of agricultural products sold increased 13% from $137,602 to $155,202. Table 2-36 illustrates the market value, production costs and net cash return of agricultural products.

Table 2-36
Crop Sales Information
Clay County
1987 to 1997

	1987	1992	1997
Average market value of ag products sold per farm	101,342	137,602	155,202
Average total farm production expenses per farm	82,860	110,517	n/a
Average net cash return per farm from ag sales	17,423	25,927	n/a

Source: US Census of Agriculture, USDA

The average net cash return per farm from agricultural sales rose almost 49% from 1987 to 1992 or an average of 9.8% per year.

PRIME AGRICULTURAL LANDS

The western half of the County is almost entirely prime agricultural land according to Figure 2-27, *Prime Agricultural Areas*. The eastern half of the County includes many wetlands and marginal farmland due to the sandy and rocky soils of the beach ridge area, thus prime farmland comprises a much smaller amount of the available land in this area.

Soils that constitute prime farmland in Minnesota are defined by the Soil Conservation Service as those that have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. It must be available for the following uses: cropland, pasture land, forest or some other land use that is not urban, built upon or water. Prime farmland has the soil quality, growing season, and needed moisture supply to economically produce sustained high yields of crops when treated and managed according to acceptable farming methods. To be designated as prime, land cannot be urbanized, developed or comprised largely of water areas.

Prime farmland soils must have among other things:

1. Available water capacity within a depth of 40 inches;
2. A mean annual temperature higher than 32 degrees F at a depth of 20 inches;
3. A pH that is between 4.5 and 8.4;
4. No water table or a water table that is at a sufficient depth during the growing season;
5. The conductivity of the saturation extract is less than 4 mmhos/cm and the exchangeable sodium percentage is less than 15;
6. The product of the erodibility factor and the percent slope is less than 2.0 and the product of the soil erodibility and the climactic factor does not exceed 60;
7. The permeability rate is at least 0.06 inches per hour, and;
8. Less than 10 percent of the surface layer consists of rock fragments coarser than 3 inches.

Soils of *statewide importance* include those that are not quite as productive as prime farmlands but still produce high economic yields. They usually require more intensive land management techniques to produce those yields. Much of these soils can be found running through the center of Clay County in a narrow band, from north to south.

The United States Department of Agriculture (USDA) through local Natural Resources Conservation Service (NCRS) offices performs this classification. The list of prime farmland soils reflects the most current concepts and criteria for the designation of farmland as outlined in the National Soil Survey Handbook, section 622.03.

Therefore, these soils, as indicated on Figure 2-27, may not be classified as they are in the soil survey report for a given county. The statewide important soils lists are available in the Field Office Technical Guide for each county.

RESIDENTIAL

Residential development is concentrated in the urban centers throughout the County. Most of the new residential development is occurring in the cities of Moorhead and Dilworth.

Residential development outside of city limits comprises about 1.6% of all rural land use. The following table shows a breakdown of single-family residential building permits (including mobile homes) for the unincorporated areas of the County.

Parke Township had the most new residential building permits issued during 1990-99 with 37 new, single-family homes. Riverton Township followed closely with 36 and then Hawley Township with 33 new single-family homes. All three townships showing the highest number of new, single-family homes are located in the eastern half of Clay County and contain areas of woodland and transitional agricultural land.

Both Alliance and Felton townships had no new, single-family housing during this period.

Table 2-37
Single Family Residential Building Permits by Township
Clay County
1990 - 1999

TOWNSHIP	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Alliance	--	--	--	--	--	--	--	--	--	--	0
Barnesville	2	3	--	--	--	1	--	--	1	1	8
Cromwell	2	2	2	--	2	--	3	1	3	1	16
Eglon	2	2	1	--	--	--	2	2	2	3	14
Elkton	--	--	1	--	1	--	1	2	2	3	10
Elmwood	1	--	1	1	1	2	3	1	1	4	15
Felton	--	--	--	--	--	--	--	--	--	--	0
Flowing	--	--	1	--	--	--	--	--	--	--	1
Georgetown	--	--	3	1	3	--	1	--	--	2	10
Glyndon	--	3	--	1	2	--	--	--	--	--	6
Goose Prairie	--	1	1	--	--	--	2	--	1	--	5
Hagen	--	1	--	1	2	1	2	--	1	--	8
Hawley	4	1	3	6	2	2	4	4	5	2	33
Highland Grove	--	1	--	--	--	--	2	1	1	--	5
Holy Cross	--	1	--	1	1	--	--	1	--	--	4
Humboldt	1	--	3	1	4	--	1	--	--	1	11
Keene	--	--	1		1	--	--	--	--	1	3
Kragnes	1	--	3	2	2	--	--	--	3	1	12
Kurtz	1	--	3	1	--	--	2	1	--	--	8
Moland	4	--	2	2	2	--	1	3	--	--	14
Moorhead	--	--	1	3	2	--	1	4	--	1	12
Morken	1	1	1	1	1	--	1	--	--	--	6
Oakport	--	2	1	1	1	3	2	7	--	4	21
Parke	6	2	2	8	3	5	1	2	6	2	37
Riverton	2	7	5	5	6	2	--	3	3	3	36
Skree	--	--	2	--	1	--	1	2	2	--	8
Spring Prairie	--	2	--	1	3	--	2	--	5	--	13
Tansem	--	1	--	3	1	3	--	--	4	3	15
Ulen	1	--	1	--	--	--	--	1	--	--	3
Viding	--	--	1	--	--	--	--	2	--	--	3
Totals	28	30	39	39	41	19	32	37	40	32	337

Source: Clay County Planning Department, 2000

COMMERCIAL/INDUSTRIAL

Commercial and industrial land uses make up a relatively small portion of the County's unincorporated land area. This type of development is primarily located within the urbanized cities. The commercial and industrial uses that do exist within the unincorporated areas of the County are typically located along major highways, particularly U.S. Highway #10, and around the urban centers. These developments are typically un-sewered and provide either goods or services to the agricultural community or the traveling public.

PUBLIC/SEMI-PUBLIC

Public/semi-public uses include educational, religious, health care, government, utility and other public uses. These may include such things as water treatment facilities, public buildings and utilities, churches, schools, cemeteries, town halls, etc. These uses consist of 5,821 acres or 0.9% of all land use and is scattered throughout the County, mostly around the existing cities.

PARKS/RECREATION

Park and recreation areas provide opportunities for both active and passive recreation for Clay County residents and visitors. This use consists of 19,756 acres or about 3% of the County's land area. Included in this category are golf courses, public hunting grounds, shooting preserves, state-owned lands such as nature preserves, wildlife management areas and parks, and trails. Lands included in wildlife management areas, scientific and natural areas, state parks, conservation lands owned by the nature conservancy, and WPA parks are classified as "public" parks and recreation uses on the land use map.

In summary, the County's dominant land use is agriculture, which contributes to the rural character of the County. There is some scattered residential, commercial and industrial development throughout the unincorporated areas of the county, particularly along US Highway 10 and just outside of incorporated areas. In addition, increasing development pressure is emerging from the larger cities within the County, particularly Dilworth, Hawley, Moorhead and Barnesville. There are also rural townships which contain areas of woodland and transitional agricultural land in the eastern half of the County that are beginning to experience development pressure as well.

LAND USE CONTROLS

Clay County currently administers countywide zoning, which guides the use of property within the unincorporated portions of the County. The zoning ordinance establishes nine primary categories of zoning districts to meet the County's planning, development and preservation needs. These zoning districts are shown on Figure 2-28, *Clay County Zoning*. The County also administers a subdivision ordinance that regulates the division of property.

Most of the zoning within the County is considered ***Agricultural Preservation***, which is intended to preserve and promote the use of land for agricultural purposes and to protect it from encroachment by non-agricultural development. Agricultural uses are allowed as well as farm dwellings, provided that only two farm dwellings are allowed per farm. Single-family non-farm dwellings are also allowed in this district per each quarter-quarter section on a separately surveyed and described parcel or lot. Additional non-farm dwellings are allowed if the land is wooded or unsuitable for agricultural uses because of poor soils, topography or other natural features. Higher density rural residential development is permitted in the ***Agricultural Preservation/Urban Expansion District***.

The ***Agricultural Service Center District*** applies to unincorporated rural towns or service centers. It provides for a mixture of residential and commercial development. As the name implies, the ***Highway Commercial District*** is intended to accommodate highway-oriented commercial development.

Commercial areas within the Buffalo Aquifer recharge area is zoned ***Limited Highway Commercial in Sensitive Areas***. This district places additional standards on development to reduce the potential for groundwater contamination.

The ***Landing Field Overlay District*** is intended to prevent the establishment of air space obstructions in landing field approaches through height restrictions and other developmet controls.

The County also has three shoreland-related zoning districts: ***Special Protection, Residential Lake, and Residential Lake Buffer***. The Special Protection District is a district where, due to the sensitive nature of its soils, flora, fauna or other natural features, must be protected more closely from over-development. The Residential District allows for low to medium density residential development. Areas designated "Residential Lake" are lakes around which low to medium density residential development may take place.

The County includes eleven incorporated municipalities and thirty townships within its borders. (See Figure 1-4, *Clay County Base Map*, in the Inventory and Analysis chapter) Eighteen of the townships have adopted their own zoning ordinances and six of the cities administer zoning within their boundaries. Georgetown administers a floodplain ordinance.

In addition to applying to the Clay County Planning & Zoning office for zoning requests (conditional use permits, variances, etc.), applicants from the townships with zoning ordinances must also contact township officials to obtain approval for their requests. The townships and cities that have adopted their own zoning ordinances can be found below in Table 2-38.

Table 2-38
Townships and Cities with Zoning Ordinances
Clay County

Townships	Cities
Cromwell	Moorhead
Elmwood	Hawley
Georgetown	Barnesville
Glyndon	Dilworth
Goose Prairie	Sabin
Hagen	Georgetown (floodplain only)
Hawley	Glyndon
Humboldt	
Kragnes	
Kurtz	
Moorhead	
Morken	
Oakport	
Parke	
Riverton	
Skree	
Spring Prairie	
Viding	

Source: Clay County Planning and Zoning Office, 2000

Existing Land Use

Clay County, Minnesota

Georgetown
Felton
Ulen
Hitterdal
Moorhead
Dilworth
Glyndon
Hawley
Sabin
Comstock
Barnesville Airport
Barnesville

N

0 8500 17000 25500 34000 Feet

- Agricultural
- Residential
- Park/Recreational
- Park/Recreational - Public
- Commercial
- Public/Semi-Public
- Institutional
- Other/Not Specified Land Use
- Open Water
- Municipality
- Major Pipeline
- Interstate/Highway
- Railroad

Figure 2-20

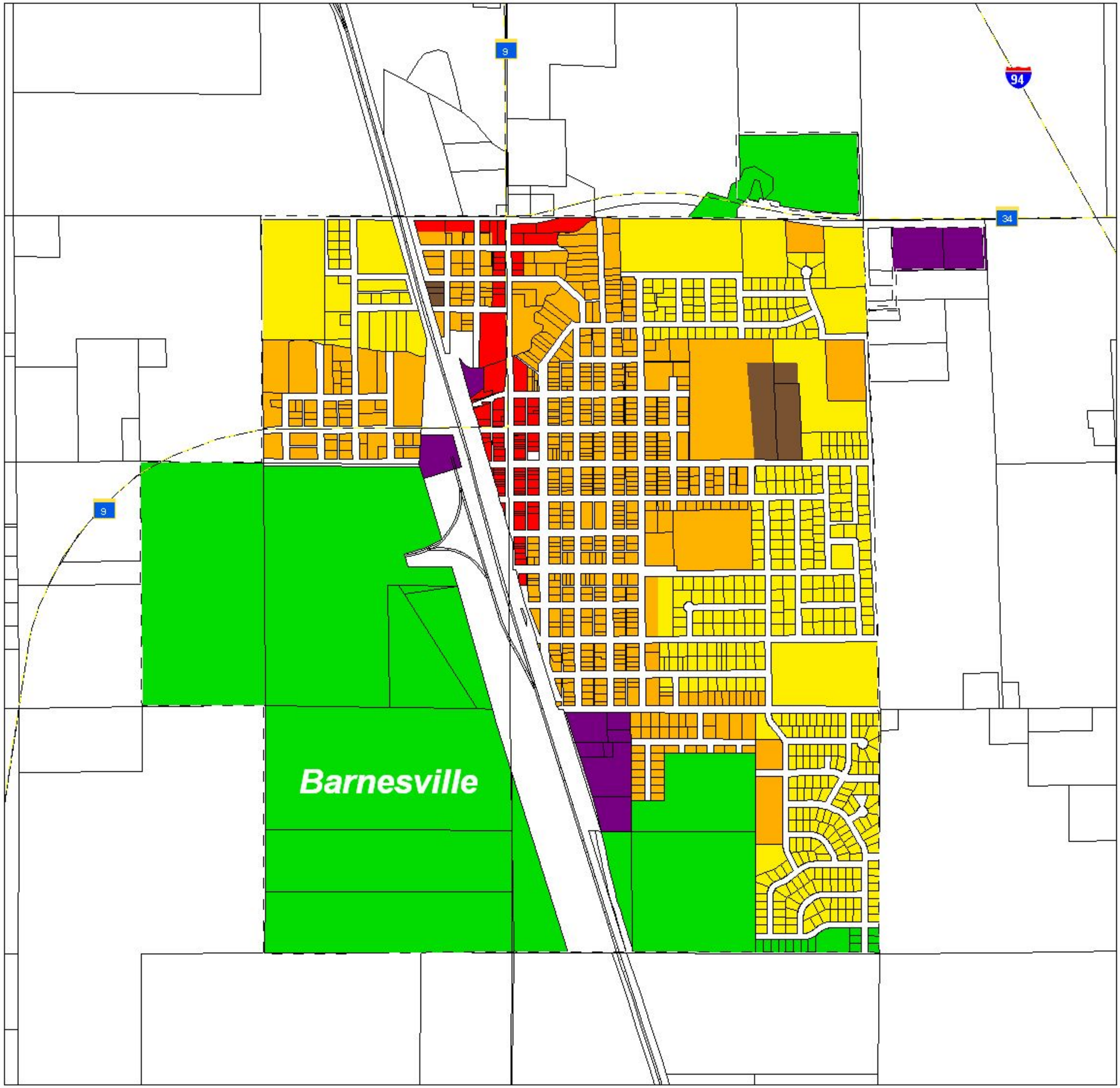
DAHLGREN SHARDLOW AND URBAN INCORPORATED

July 3, 2001

Barnesville Existing Land Use

Barnesville, Minnesota

Clay County, Minnesota



- Single Family Residential
- Multi-Family Residential
- Mobile Home Residential
- Commercial
- Public/Semi-Public/Utility
- Industrial
- Park/Recreation
- Agricultural
- Vacant
- Open Water
- Outer Township Area/Unknown
- Municipality
- Interstate/Highway
- Railroad

N

1500 0 1500 Feet

Figure 2-21

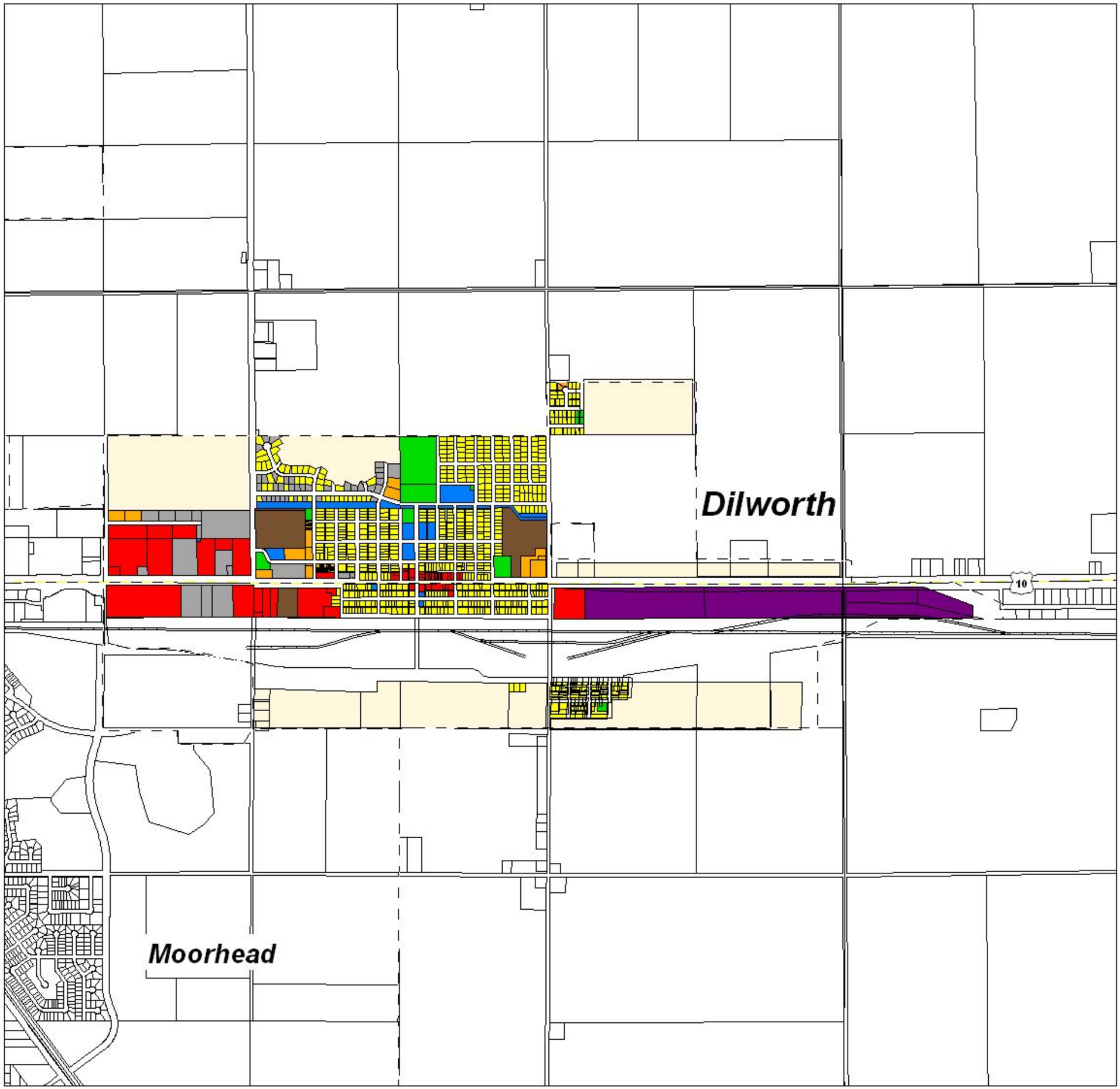
DAHLGREN SHARDLOW AND UBAN

February 20, 2001

Dilworth Existing Land Use

Dilworth, Minnesota

Clay County, Minnesota



- Single Family Residential
- Multi-Family Residential
- Mobile Home Residential
- Commercial
- Public/Semi-Public/Utility
- Industrial
- Park/Recreation
- Agricultural
- Vacant
- Open Water
- Outer Township Area/Unknown
- Municipality
- Interstate/Highway
- Rail Road

N

1000 0 1000 2000 Feet

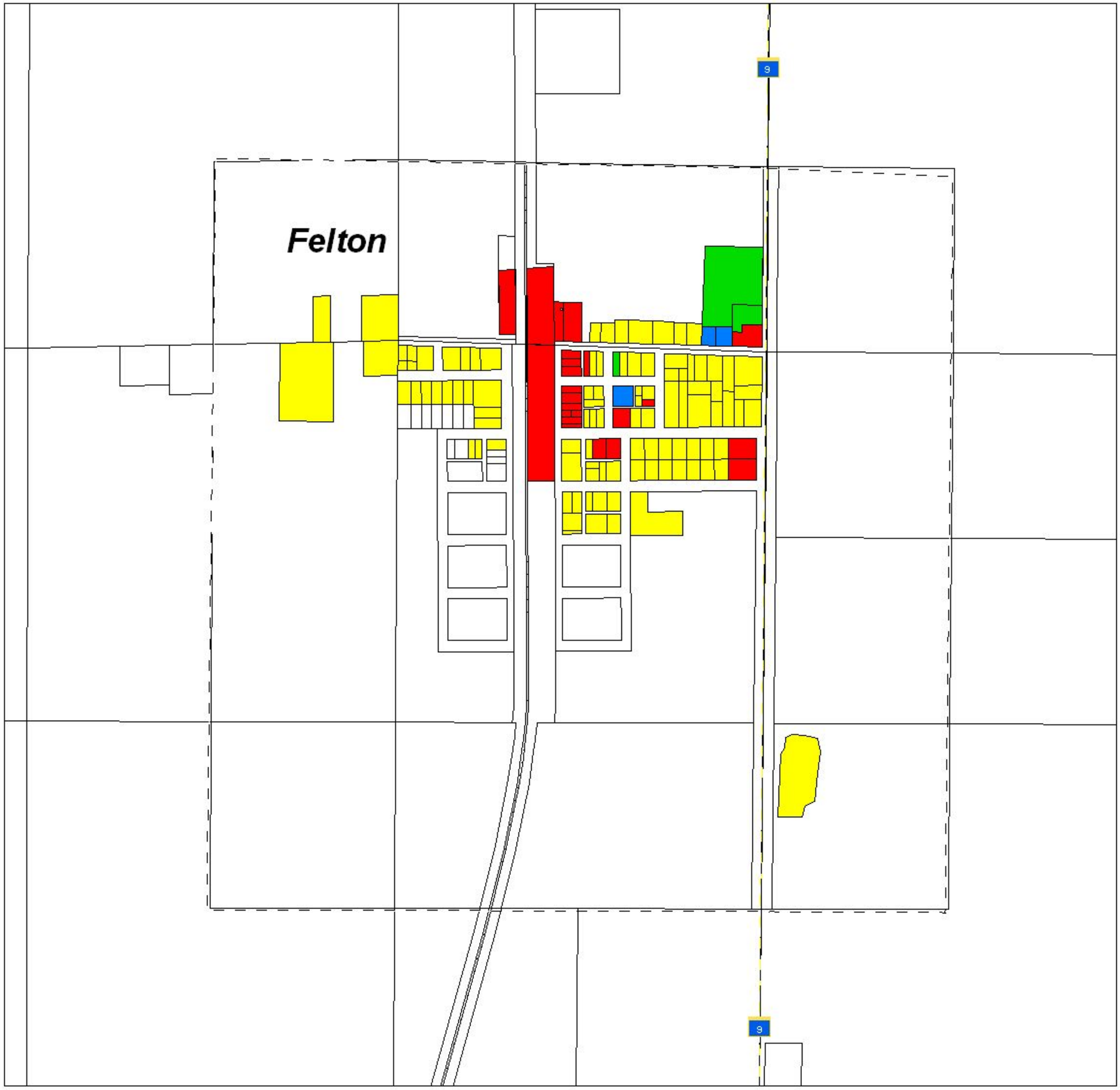
Figure 2-22

DAHLGREN SHARDLOW AND UBAN

February 20, 2001

Felton Existing Land Use

Felton, Minnesota
Clay County, Minnesota



- Single Family Residential
- Multi-Family Residential
- Mobile Home Residential
- Commercial
- Public/Semi-Public/Utility
- Industrial
- Park/Recreation
- Agricultural
- Vacant
- Open Water
- Outer Township Area/Unknown
- Municipality
- Interstate/Highway
- Railroad

N

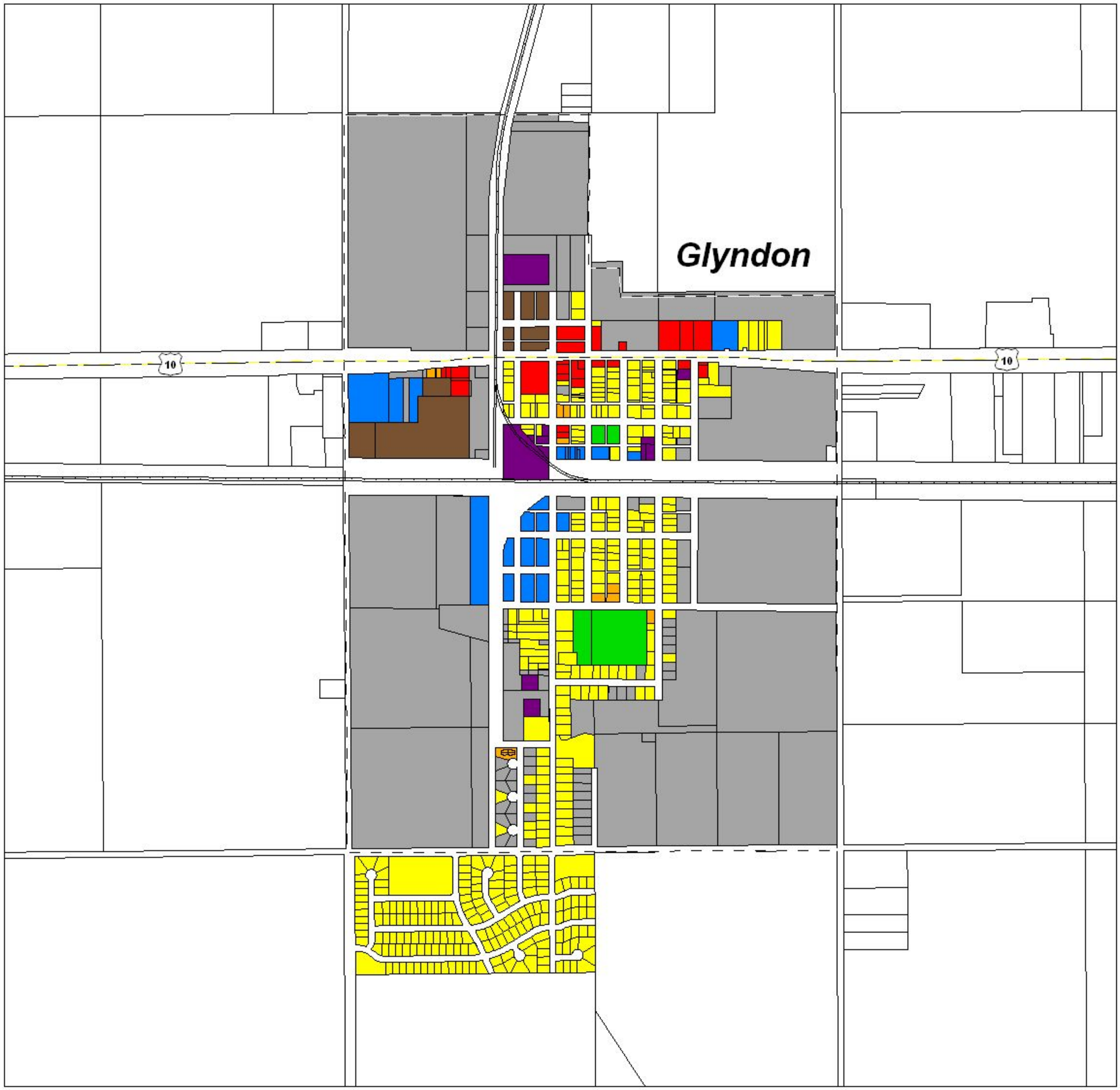
1000 0 1000 Feet

Figure 2-23

DAHLGREN SHARDLOW AND UBAN

February 20, 2001

Glyndon Existing Land Use



Glyndon, Minnesota

Clay County, Minnesota

- Single Family Residential
- Multi-Family Residential
- Mobile Home Residential
- Commercial
- Public/Semi-Public/Utility
- Industrial
- Park/Recreation
- Agricultural
- Vacant
- Open Water
- Outer Township Area/Unknown
- Municipality
- Interstate/Highway
- Rail Road

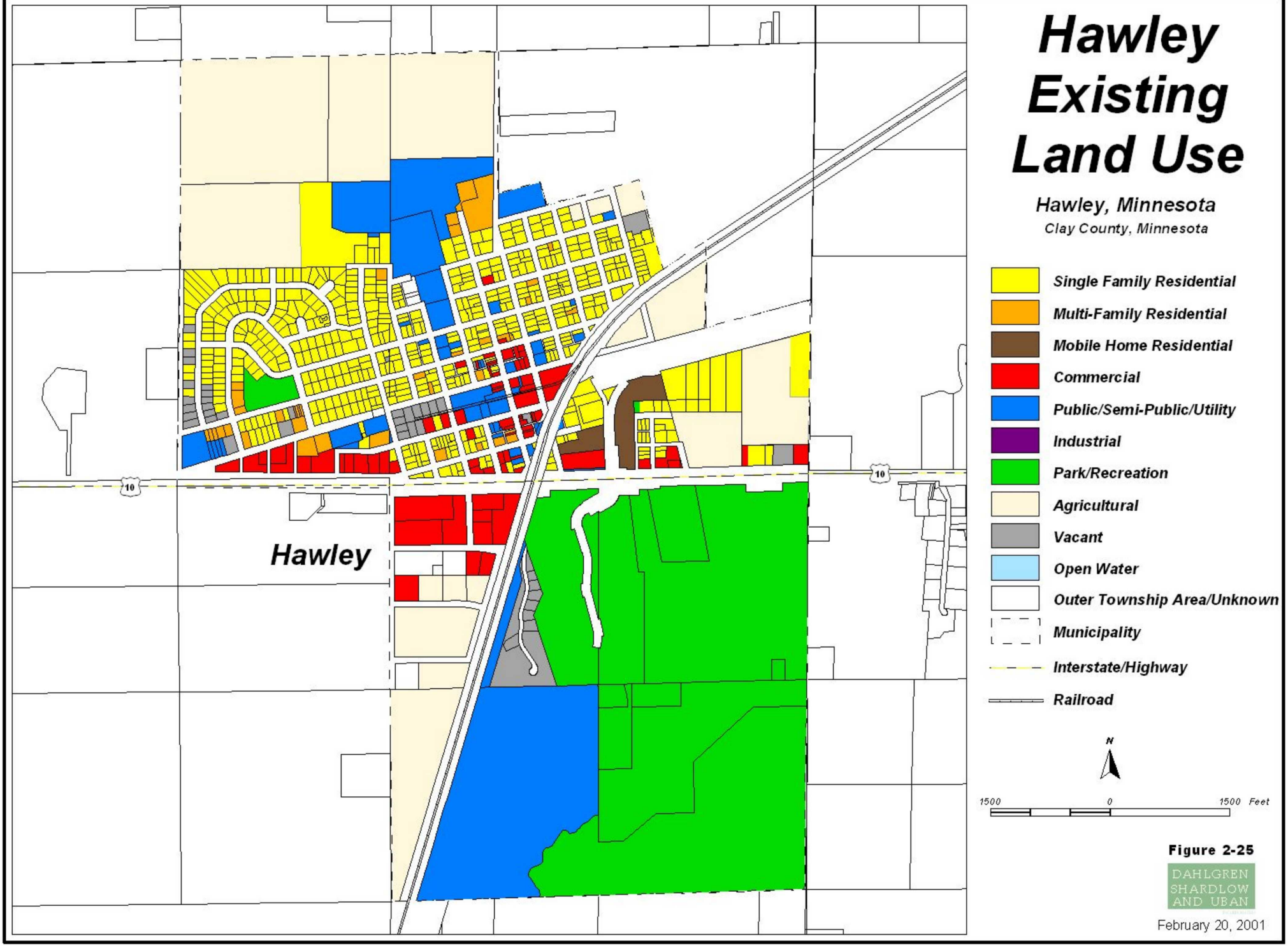
N

1500 0 1500 Feet

Figure 2-24

DAHLGREN SHARDLOW AND UBAN

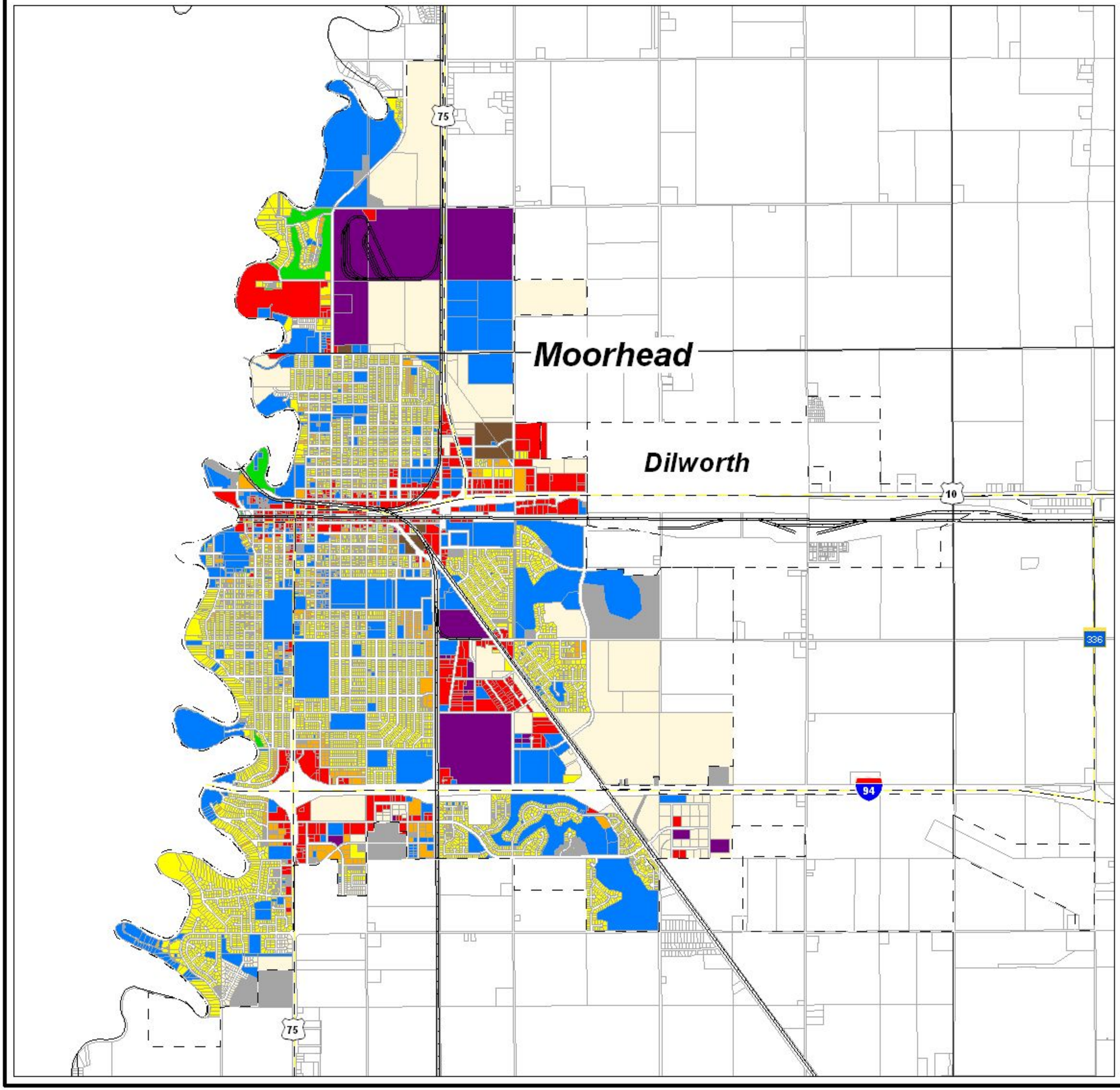
February 20, 2001


Hawley Existing Land Use
Hawley, Minnesota
Clay County, Minnesota
Single Family Residential
Multi-Family Residential
Mobile Home Residential
Commercial
Public/Semi-Public/Utility
Industrial
Park/Recreation
Agricultural
Vacant
Open Water
Outer Township Area/Unknown
Municipality
Interstate/Highway
Railroad
Hawley
10
10
N
1500
0
1500 Feet
Figure 2-25
DAHLGREN SHARDLOW AND UBAN
February 20, 2001

Moorhead Existing Land Use

Moorhead, Minnesota

Clay County, Minnesota



- Single Family Residential
- Multi-Family Residential
- Mobile Home Residential
- Commercial
- Public/Semi-Public/Utility
- Industrial
- Park/Recreation
- Agricultural
- Vacant
- Open Water
- Outer Township Area/Unknown
- Municipality
- Interstate/Highway
- Railroad

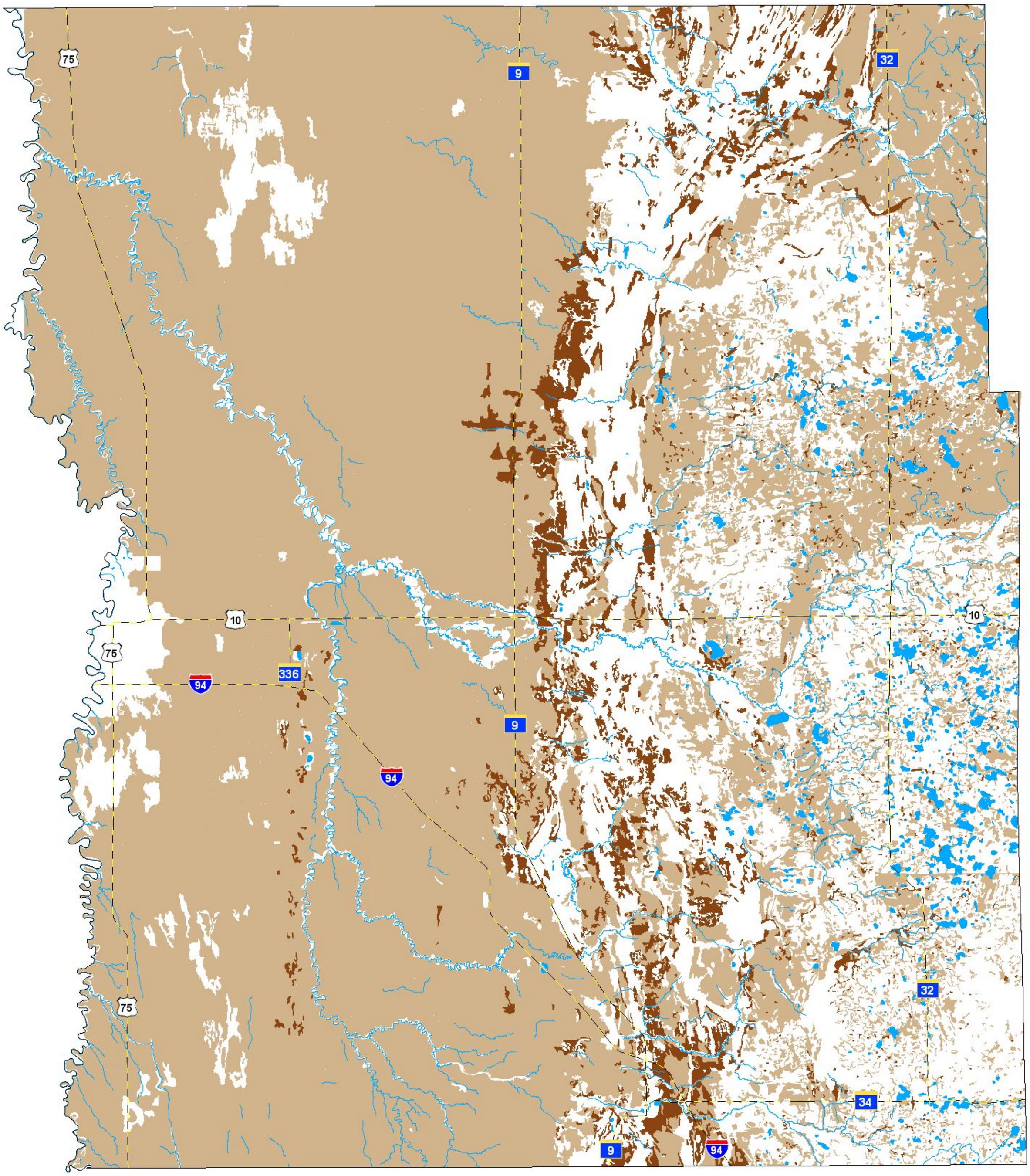
N

2500 0 2500 5000 Feet

Figure 2-26

DAHLGREN SHARDLOW AND UBAN

July 3, 2001



N

0 8500 17000 25500 Feet

Prime Agricultural Areas

Clay County, Minnesota

Prime Agricultural Land

Statewide Important Farmland Soils Area

Open Water

Interstate/Highway

Figure 2-27

DAHLGREN SHARDLOW AND UBAN

February 20, 2001

Clay County Zoning

Clay County, Minnesota

Georgetown Township
Viding Township
Felton Township
Hagen Township
Ulen Township
Georgetown
Felton
Ulen
Kragnes Township
Morken Township
Flowing Township
Keene Township
Goose Prairie Township
Hitterdal
Oakport Township
Moland Township
Spring Prairie Township
Cromwell Township
Highland Grove Township
Moorhead
Dilworth
Glyndon
Hawley
Glyndon Township
Riverton Township
Hawley Township
Egton Township
Moorhead Township
Sabin
Kurtz Township
Elmwood Township
Elkton Township
Skree Township
Parke Township
Holy Cross Township
Alliance Township
Barnesville Township
Humboldt Township
Tansem Township
Comstock
Barnesville

N

0 8500 17000 25500 Feet

- Agricultural Preservation
- Agricultural Service Center
- Agric. Preservation/Urban Expansion
- Highway Commercial
- Limited Highway Commercial in Sensitive Area
- Landing Field Overlay
- Special Protection Area
- Residential Lake
- Residential Lake Buffer Zone
- Municipality
- Township
- Interstate/Highway
- Railroad

Figure 2-28

DAHLGREN SHARDLOW AND UBAN

July 3, 2001

COMPREHENSIVE PLAN

INTRODUCTION
INVENTORY & ANALYSIS
GOALS & POLICIES
LONG RANGE PLAN
IMPLEMENTATION

GOALS & POLICIES

CLAY COUNTY COMMUNITY-BASED COMPREHENSIVE PLAN

The Goals and Policies chapter is the heart of the Comprehensive Plan, expressing in detail the County's aspirations for the future. It serves as the bridge between the background chapters, which are used in the formulation of the goals and policies, and the actual plan, which describes the County's strategy to implement those polices and thereby achieve its goals.

Experience has shown that no system of land use designation can survive strong economic pressures to change. Therefore, it is appropriate that such systems be periodically reevaluated in light of changing social and economic conditions. Consequently, it is from precisely this realization of the inevitability of changing conditions that a community's goals and policies derive their true value because it is in the goals and policies section of the Comprehensive Plan that the County has the opportunity to communicate its aspirations regarding the type of living environment that its citizens strive to achieve. Therefore, while external factors influencing land use will change, these goals and policies will continue to provide the best perspective from which to view proposed land use changes.

FORMULATION OF GOALS, POLICIES AND COUNTY VISION

To help guide the background studies and to formulate a County vision and goals and policies, the County hosted a series of workshops in March and April of 2000 to elicit resident views on issues, opportunities and threats facing the County as well as its strengths and weaknesses. In addition, a planning Task Force, formed to oversee the development of the Plan, was engaged in a visioning exercise at a project kickoff meeting in February. The ideas generated at these meetings combined with the findings of the background studies serve as the basis for the Comprehensive Plan's goals and policies.

Participants at each of the issues workshops and the project kickoff meeting listed and then ranked the issues, strengths, weaknesses, threats and opportunities facing the County in order of importance. The key responses from each meeting (those that received the highest priority by the participants) are summarized below. A comprehensive listing of all issues raised throughout the County is provided in an appendix to this report. It should be noted that the listed ideas are only the opinions and perceptions of the residents who participated in the visioning exercises.

Planning Task Force Workshop

On February 2, 2000 a project kickoff meeting was held with the Planning Task Force for the Clay County Comprehensive Plan. The issues receiving the highest priority by the Task Force are as follows:

Issues receiving the highest priority:

- Sprawl
- Support business growth in County
- Natural resource protection and preservation
- Inability to attract new industry
- Maintain strong ag. base (feedlots and ag-business)
- Solid waste disposal and new laws on recycling
- Balancing commercial/industrial growth with agricultural resources
- Planned utility corridors

Weaknesses and threats receiving the highest priority:

- Inaccurate perceptions of taxes and regulatory environment (public perception)
- Lack of higher paying jobs to retain youth
- State-funding and mandates
- Governmental focus on regulation - not cooperation
- Lack of interest from state government to Greater Minnesota

Strengths and opportunities receiving the highest priority:

- Ag land
- Ag industry - specifically Sugar beets
- People (quality)
- Educational opportunities/facilities
- Variety of geographic resources and original, native landscape
- Technology existing - human resources and potential (GIS) retain students
- I-94/I-29 corridor potential for international trade

Barnesville Workshop

On March 23, 2000 an Issues Workshop was held at the Barnesville Senior Center in Barnesville, Minnesota for the Clay County Comprehensive Plan. People attending were from Barnesville, Hawley, and surrounding townships.

Issues receiving the highest priority:

- Land-Use Conflicts
- Agricultural preservation
- Gravel mining practices
- Survival of small town businesses
- Water Quality & Conservation

Weaknesses and threats receiving the highest priority:

- Poor agricultural economy
- Lack of affordable housing
- Conflict between aggregate mining and native prairie
- Lack of interest and support from State Capitol

Strengths and opportunities receiving the highest priority:

- Natural resources variety: gravel, land & native prairie, diverse soils
- Recreation areas - County, State & Township parks
- Colleges and technical colleges
- Transportation system- railroad, airports, interstate highway
- Good work ethic

Dilworth Workshop

On March 30, 2000 an Issues Workshop was held at the Dilworth Depot in Dilworth, Minnesota for the Clay County Comprehensive Plan. People attending were from Dilworth, Moorhead, Hawley, Glyndon, and surrounding townships.

Issues receiving the highest priority:

- Recognize townships and their ordinances
- Urban sprawl
- MPCA feedlot permit rules too restrictive
- Agricultural land use conflicts (right to farm issues)
- Better distribution and representation for county decision-making

Weaknesses and threats receiving the highest priority:

- Conflict between planning and financial gain
- Inadequate land use plan
- Getting people interested in local government, not only in times of crisis
- MPCA Feedlot rules too stringent - lack of local control and voice
- Lack of concern for land owner rights & preserving property values

Strengths and opportunities receiving the highest priority:

- Law enforcement: low crime rate, safe place to live, cooperation between ND and MN
- Quality of life
- Good school system
- People
- A Republican Senator
- Lack of vacant farmsteads in Cass County, ND - MN people would move there because of lower taxes.
- Prairie resources on public and private lands including Clay County lands

Ulen Workshop

On April 4, 2000 an Issues Workshop was held at the Ulen VFW in Ulen, Minnesota for the Clay County Comprehensive Plan. People attending were from Hawley, Hitterdal, Ulen, Moorhead, and surrounding townships.

Issues receiving the highest priority:

- Public land doesn't pay taxes
- Eastern half of County doesn't get road development/maintenance equity
- Land Use conflicts: Residential vs. Feedlots
- Gravel mine reclamation
- Residential housing and other uses taking over prime ag land
- Lack of economic development in the small towns

Weaknesses and threats receiving the highest priority:

- Better plans for feedlots
- Lack of tax base because of publicly-owned land, ie. DNR, etc.
- Mining reclamation enforcement
- Need more open, honest communication with County Dept. heads
- Difficult for young people to get into farming
- Better cross-section representation of the County on committees, etc.

Strengths and opportunities receiving the highest priority:

- Law enforcement
- Clean air
- Good area to raise families
- Good agricultural land
- Close to FM area for medical, educational, manufacturing and businesses

This input combined with the background study findings and the subsequent goals and policies was used to draft a land use plan and related policies for the County.

County Vision

At all of the workshops, participants were asked to complete a vision statement. These statements were summarized into general themes that are described below:

***Strong Agricultural Base*.** Maintaining Clay County's agriculture and its attendant rural area was a common theme expressed throughout the vision surveys. An ideal Clay County twenty years hence would encourage agricultural development and diversity and its continued importance in the County's economy and way of life.

Visions included the hope that: agriculture will continue to be economically viable; the County's

farmers will continue to be able to compete in a changing and diversified farm economy; the County will have a strong agriculture/agribusiness base; the County will support continued, planned growth of its urban areas while protecting rural agricultural lands and farming operations; and programs or assistance will be provided to encourage young people to stay on the farm. Some of the respondents predicted that the number of farms would continue to decline. Protecting Clay County's rural character was also a theme among some respondents. Zoning regulations would be amended to better regulate and allow land uses that are compatible in the rural areas. Open, rural areas would be preserved and cluster development would be encouraged to maintain rural areas.

Planned, Sustainable Growth. Most of the workshop participants felt positively toward growth and development as long as it is managed, well planned and sustainable. Respondents envisioned that: the County will continue to have a strong agricultural base with increased development of existing cities; commercial and industrial growth will be concentrated in Moorhead with residential development being concentrated in "suburban" areas of Moorhead and outlying cities; employment, retail and educational facilities will be focused within urban areas with good rural to urban transportation systems; development will be well planned, especially in rural areas; and the transportation system will accommodate safe, efficient travel as the County grows. The County would also take steps now to preserve future major transportation corridors to accommodate future growth. One respondent envisioned a County with one large urban area with satellite bedroom communities in outlying areas and another foresees the majority of development occurring in the western portion of the County. Other respondents were concerned about delineation between urban and rural land uses and feel that development needs will need to be balanced with preservation of natural areas, open spaces and agricultural lands. One participant suggested utilizing cluster development as a means of preserving rural areas.

Recycling efforts would increase greatly to help decrease the land needed for landfills. Serious environmental consideration will be given when siting a new landfill for the County.

Strong Economy. It was generally felt that Clay County's need to maintain a strong economic base, including strong commercial, industrial and agricultural sectors. An ideal Clay County will have a strong workforce and full employment. The County will have jobs and businesses that provide ample opportunity for residents to live and work in Clay County and not have to move to the Twin Cities.

Jobs will be available with wages that allow families to thrive on one income. The need to maintain a strong farm economy was also noted. Other visions included the growth of businesses and industry along the Highway 10 and Interstate 94 corridors; the ability to compete with Fargo; appreciation of home values; and more development opportunities in rural areas. Some suggested strategies for economic growth included the development of a convention center, making use of the County's natural resources (such as gravel and agricultural lands), and a comprehensive redevelopment of the riverfront to include boat docks, food services, clothing shops and other retail establishments.

The community would capitalize on the educational industry that exists in the area and develop

complementary and service industries to expand opportunities related to the institutions of higher education. Some respondents said that the Fargo-Moorhead area would unite their efforts for economic growth, finding strength in working together, rather than competing.

Responsive, Cooperative Government. According to the workshop participants, Clay County needs a strong, responsive, visionary government, premised on cooperation and coordination. Some participants envisioned a County that enforces its well-planned codes and ordinances on all levels. For them, an ideal Clay County, in 20 years would: adopt County-wide zoning ordinances that, among other things, minimize aesthetic degradation; approve only a limited number of variances and conditional use permits consistent with thorough zoning standards; educate its citizens on land use and zoning principles and regulations; enforce its regulations; and make efforts to correct past land use decisions. Others felt that there should be an emphasis on cooperation rather than regulation. There would also be less competition and more cooperation and collaboration among cities and other communities within the County. Government would also provide important community services and infrastructure. Some specific visions for future County services included the development of a municipal/county water system to serve the Moorhead/Dilworth areas; the development of a transportation system around Fargo/Moorhead; and the provision of services that would allow elderly to stay in their own homes.

Preservation of Natural Resources, Open Spaces and Recreational Opportunities. Participants generally envisioned a future in which natural resources are both protected and utilized for recreational and community facilities. The desire for resource protection and the preservation of open space was reflected in respondents' desires to convert some rural lands into wild grass and prairie flowers; preserve both rural and urban open spaces; have more open space in public ownership; and balance growth and development with the need to protect natural resources and maintain opportunities for future generations. Some suggested opportunities for passive and active recreation included: fully utilizing the Buffalo River Park and Conservancy for activities such as hunting, bird watching, cross country skiing, etc.; and developing recreational areas along all of the County's rivers (not just the Red River).

High Quality of Life. Respondents expressed a desire to preserve and enhance Clay County's high quality of life. A high quality of life in Clay County 20 years from now would include: strong community pride; residential areas that are attractive, peaceful and welcoming places to live and raise families; and communities that are safe place to live, work and raise families. Many respondents also see a healthy school system as an important determinant to a high quality of life. In an ideal future schools would be community-based and increases in families would lead to increased school enrollments.

GOALS AND POLICIES

DEFINITIONS

The terms "Goal" and "Policy" are subject to a wide range of interpretation and application. Since it is desirable to have a common frame of reference, the following definitions are included:

Goal: A general statement of community aspirations and desired objectives indicating a broad social, economic, or physical state of conditions that the community officially agrees to strive to achieve in various ways, such as through the implementation of the Comprehensive Plan.

Policy: An officially adopted course or method of action intended to be followed to implement the community Goals.

The Goals and Policies spell out various roles and responsibilities for the County. To better understand the County's role for each Goal and Policy, a number of key terms are defined below with the County's corresponding responsibility:

Create: Bring about the desired goal, usually with County staff involved at all levels from planning to implementation. May involve County financial assistance.

Continue: Follow past and present procedures to maintain desired goal, usually with County staff involved at all levels from planning to implementation.

Encourage: Foster the desired goal through County policies. Could involve County financial assistance.

Endorse: Subscribe to the desired goal by supportive County policies.

Enhance: Improve current goal to a desired state through the use of policies and County staff at all levels of planning. This could include financial support.

Identify: Catalog and confirm resource or desired item(s) through the use of County staff and actions.

Maintain: Keep in good condition the desired state of affairs through the use of County policies and staff. Financial assistance should be provided if needed.

Recognize: Acknowledge the identified state of affairs and take actions or implement policies to preserve or change them.

Prevent: Stop described event through the use of appropriate County policies, staff actions, and finances, if needed.

Promote: Advance the desired state through the use of County policies and staff activity at all levels of planning. This may include financial support.

Protect: Guard against a deterioration of the desired state through the use of County policies, staff, and, if needed, financial assistance.

Provide: Take the lead role in supplying the needed financial and staff support to achieve the desired goal. The County is typically involved in all aspects from planning to implementation to maintenance.

Strengthen: Improve and reinforce the desired goal through the use of County policies, staff, and, if necessary, financial assistance.

Support: Supply the needed staff support, policies, and financial assistance at all levels to achieve the desired goal.

Sustain: Uphold the desired state through County policies, financial resources, and staff action to achieve the desired goal.

Work: Cooperate and act in a manner through the use of County staff, actions, and policies to create the desired goal.

GENERAL GOALS AND POLICIES

General Goal #1: Maximize the potential of Clay County as a thriving center for agriculture, business, and recreation, while maintaining and enhancing its livability.

Policies:

1. Promote the development and implementation of a Comprehensive Plan that effectively plans for agricultural protection, land use, transportation, housing, economic development and environmental protection for Clay County.

2. Review the Comprehensive Plan annually and amend as necessary to ensure its usefulness as a practical guide for current and future development. Adhere to this Plan, which shall guide all zoning changes, as closely as possible to ensure consistent development policies.

General Goal #2: Provide, maintain, and enforce standards for development that will enhance public health and the maintenance of a high quality standard of living.

Policies:

1. Plan for land uses that support and enhance Clay County's ability to attract and direct quality development.

2. Formulate and enforce County ordinances to ensure development in accordance with the Comprehensive Plan.

CITIZEN PARTICIPATION/PUBLIC EDUCATION GOALS AND POLICIES

Citizen Participation/Public Education Goal #1: Encourage citizen participation in all aspects of County government, planning and community life.

Policies:

1. Encourage volunteerism, participation in community activities and acceptance of community leadership positions.

2. Actively encourage and utilize resident participation in the local decision-making processes.

3. Explore the option of establishing an on-going citizen's advisory committee to oversee the implementation of this Comprehensive Plan. The committee would be "keepers of the vision" by having the responsibility for monitoring and informing the Clay County Board of Commissioners and Planning Department of the implementation progress and ongoing challenges facing the Plan.

4. Seek out creative ways to communicate this Plan's overall goals, policies and recommendations, as well as other County government activities and information, to the public through means such as newsletters, a web site and public cable access.

INTERGOVERNMENTAL COORDINATION GOALS AND POLICIES

Intergovernmental Coordination Goal #1: Encourage on-going communication, coordination and cooperation among local governments within and surrounding Clay County that balances the interests of all in the region while maintaining both the identity of individual communities and local control for local issues.

Policies:

1. Recognize the impacts surrounding jurisdictions have on planning and growth issues within Clay County, especially the Fargo-Moorhead urban area, in all County planning efforts.

2. Support and continue existing joint planning ventures in the areas of watershed management, transportation planning, libraries and other areas of multi-jurisdictional concern.

3. Pursue new collaborative planning efforts with regard to land use, education, transportation, parks, natural resources, public safety services, public facilities, sewer, water and other issues of multi-jurisdictional concern.

4. Maintain communications, and collaborate where appropriate, with state agencies involved in planning issues that affect Clay County, including the Minnesota Department of Natural Resources, Department of Transportation, Pollution Control Agency, Department of Health, and others, as well as the corresponding state agencies in North Dakota when applicable.

LAND USE GOALS AND POLICIES

Land Use Goal #1: Establish a comprehensive growth management strategy for Clay County that promotes orderly and efficient growth of residential, commercial and industrial development while preserving the County's rural character.

Policies:

1. Work with cities and Townships within Clay County to identify Planned Urban Growth Areas through this planning process around cities that have the potential to be served with an appropriate range of public services in a cost effective manner within which efficient and orderly growth can be facilitated over the next 20 years.

2. Maintain dialogue with affected local governments so that timely modifications to urban growth areas is accomplished.

3. Work with Cities and their adjacent Townships to facilitate orderly growth of the Planned Urban Growth Areas through the use of orderly annexation agreements.

4. Through this planning process, work with affected local governments to jointly identify proposed land uses in urban growth areas, and update as boundaries are modified.

5. Discourage development from occurring at unsewered urban densities outside of cities until urban services can be provided in an orderly and efficient manner.

6. Work with Cities to extend urban services to the Planned Urban Growth Areas in a timely fashion when economically feasible.

7. Work with cities within the County to create conceptual master plans for the identified Planned Urban Growth Areas that will identify, map, and preserve future transportation and utility corridors, areas for open space, and the preservation of natural resources.

Land Use Goal #2: Support the long-term protection of agriculture in the County.

Policies:

1. Recognize and support the agricultural character of the County in all planning efforts.

2. Establish clear and distinct zoning districts outside Planned Urban Growth Areas that provide for long-term agriculture and limit residential density in the agricultural areas of the County.

3. Allow and promote density transfers to permit cluster design techniques for non-farm, residential development as a means to concentrate development in less agriculturally productive areas and preserve large tracts of farmland, while still allowing farmland owners to benefit from development. (See Appendix A)

4. Explore the use of transfer of development rights, pre-mature subdivision restrictions, capital improvements planning (planning for staged, orderly urban services), conservation easements , purchase of development rights, a Land Evaluation Site Assessment (L.E.S.A.) program, and other unique zoning or other techniques outlined in the to protect the County's agricultural areas. These and other options are outlined in A handbook for Local Government and Planning for Agricultural Land Preservation in MN: A handbook for Planning Under MN Statute, Chapter 40 put out by the Minnesota Department of Agriculture.

5. Support agricultural operations against nuisance complaints when such operations are being conducted according to generally accepted farming practices through "right-to-farm" provisions, requiring setbacks for/from animal agriculture operations, and limiting non-farm residential development in agricultural areas of the County.

6. Utilize soil survey information in planning for the best use of the land in rural areas.
7. Identify prime agricultural areas and develop effective strategies to ensure their preservation and viability.

8. Encourage the enrollment of prime agricultural areas in the state's Green Acres Program, Agricultural Land Preservation Program and/or other federal, state or local conservation programs.

9. Examine tax policies and practices that keep taxes on land used for farming in line with its value for that use.

Land Use Goal #3: Plan for the orderly and efficient growth of residential development in the County.

Policies:

1. Encourage residential growth to occur in an orderly and compact manner in and around cities within the Planned Urban Growth Areas so that new developments can be effectively served by public utilities and the character and quality of the County's agricultural areas can be maintained and enhanced.

2. Require urban overlay plats to be filed along with large-lot subdivisions within the Planned Urban Growth Areas.

3. Outside of the Planned Urban Growth Areas, encourage non-farm residential development to be clustered on small-lots in and around unincorporated rural communities and in areas that are considered marginal for agricultural use.

4. Encourage the use of community wastewater treatment systems, or "package plants", for residential clusters.

Land Use Goal #4: Plan for the orderly, efficient growth of commercial and industrial development in the County through the application of appropriate zoning districts and regulation.

Policies:

1. Encourage new commercial and industrial developments that require public sewer and water to locate within the County's cities in accordance with their Comprehensive Plans.

2. Encourage commercial and industrial developments, which do not need public sewer and water, to locate within Planned Urban Growth Areas in locations with adequate road service.

3. Allow for home occupations in agricultural areas and small, community-based retail in the County's unincorporated rural communities.

4. Provide appropriate access management for commercial and industrial development along Highways 10, 336, 9, 32, 34 and Interstate 94 at areas preferably near major intersections with County Roads and each other.

5. Avoid environmentally sensitive areas and/or ensure mitigative measures are taken when siting commercial and industrial development within the County.

Land Use Goal #5: Plan land uses and implement standards to minimize land use conflicts.

Policies:

1. Prepare and adopt a land use plan that designates land use areas to ensure desirable land use patterns and minimize conflicts.

2. Require adequate transitions between different land uses through appropriate land use planning and zoning standards.

3. Require adequate buffering and landscaping for new mining operations when adjacent to existing residential areas as well as when an existing operation expands or is substantially modified and would negatively impact existing land uses in the surrounding area.

4. Require phased end-use reclamation plans as a condition for a gravel-mining permit so that areas are reclaimed as they are done being mined.

5. Protect the County's aggregate resources from encroachment of incompatible residential and urban development through appropriate zoning and buffering requirements.

6. Encourage the location of commercial and industrial development in areas that avoid adverse impacts on residential areas.

7. Locate and design industrial and commercial developments to avoid truck traffic through residential or other potentially adversely affected areas.

8. Strengthen the County's land use ordinances related to feedlots in a manner that allows these uses in the agricultural areas, while protecting groundwater and surface water resources and mitigating potential adverse effects on surrounding properties.

9. Buffer areas between agricultural uses and potentially impacted surface waters.

HOUSING GOALS AND POLICIES

Housing Goal #1: Maintain a high quality living environment in all residential areas and upgrade those in need of improvement.

Policies:

1. Encourage the development of a balance of housing types throughout the County to meet the needs of all citizens, including young adults and senior citizens.

2. Establish a housing task force to identify housing needs, issues, goals and resources.

3. Work closely with Federal, State, and local agencies and organizations that can help the County meet its housing goals.
4. Encourage public-private partnerships to expand affordable housing and housing rehabilitation opportunities in the County.

5. Provide information to residents on the "This Old House", "Habitat for Humanity" and other housing programs.

6. Develop and enforce the necessary codes to ensure the continued maintenance of the housing stock.

7. Explore expanding the role of the County HRA by allowing it to participate in housing development and redevelopment activities.

PUBLIC FACILITIES GOALS AND POLICIES

Public Facilities Goal #1: Maximize public service efficiencies both through effective planning and management practices, and by exercising sound fiscal responsibility.

Policies:

1. Continue to maintain community facilities and identify areas of improvement in a Capital Improvement Plan.

2. Promote maximum cooperation and assistance to other governmental agencies in planning and developing facilities to provide a high level of service and avoid duplication of services or facilities.

3. Continue to improve and update the County's staff capabilities through the use of training, upgraded facilities and equipment, and improved management practices.

Public Facilities Goal #2: Maintain adequate active and passive open space to meet the needs of the County.

Policies:

1. Identify and map locations within Clay County that have both natural beauty and the existence of unique environmental, plant, animal, social, or historical features and focus any future park and open space areas in those locations.

2. Develop a park and open space plan that establishes policies and strategies for the long-term protection and recreational use of the County's natural areas.

3. Continue to support and implement pertinent recommendations from the FM COG's Metropolitan Bikeway/Pedestrian Plan.

4. Explore the development of County walking, bicycle, snowmobile and other recreational activity trails.

5. Adopt official controls to ensure that appropriate open space is provided with new development.

6. Promote the sharing of recreational facilities among area communities.

7. Continue to support funding for recreational and/or community education activities.

TRANSPORTATION GOALS AND POLICIES

Transportation Goal #1: Provide and maintain a safe, convenient and efficient County transportation system for the movement of people and goods.

Policies:

1. Continue to cooperate with MnDOT, Clay County Cities, Townships, the Fargo-Moorhead Council of Governments, and other agencies involved in transportation planning, to provide the most effective transportation system for Clay County.

2. Adopt and support FM COG and MnDOT Access Management Guidelines.

3. Maintain a transportation system that reinforces economic development objectives and provides for the efficient flow of people and goods from farm to market.

4. Prepare and continually update a transportation plan that identifies and designates all future roadways within the County by their functional classification, identifies and prioritizes transportation system improvements, and identifies potential funding sources for road construction and maintenance.

5. Extend local roads in an efficient manner consistent with the County's Transportation Plan.

6. Plan for necessary access improvements in the Transportation Plan to avoid congestion in areas planned for development.

7. Maintain funding for rural, low-volume roads and bridges.

8. Continue support for rural transit programs in conjunction with the Metropolitan Area Transit system.

Transportation Goal #2: Enhance the aesthetic character and functional qualities of the transportation networks within the County.

Policies:

1. Enhance major corridors into the County by encouraging local jurisdictions to upgrade unsightly areas by adding lighting, landscaping, directional signage and community identification signage.

2. Maintain the rural character of the County's State and County highway system by minimizing commercial and industrial development along those roadways outside of Planned Urban Growth Areas.
3. Locate and design industrial and commercial developments to avoid truck traffic on roads that are insufficient to handle capacities of such traffic.

4. Explore the use of "living" snow fences as a means to improve highway safety, reduce maintenance costs and improve roadway aesthetics.

ECONOMIC DEVELOPMENT GOALS AND POLICIES

Economic Development Goal #1: Cooperatively utilize existing and new resources for economic growth in the County.

Policies:

1. Promote an on-going cooperative effort among the County, its Cities and Townships, the HRA, local Economic Development Authorities, local Chambers of Commerce, WCI, state agencies, local builders, business owners and residents to pursue a wide range of economic development opportunities.

2. Continue to support efforts to retain existing business and industry and facilitate their expansion as well as recruit additional ones.

3. Market the County aggressively to attract and expand diversified businesses.

4. Encourage value-added agricultural industries and businesses to locate in the County.

5. Encourage commercial and industrial development that is ancillary to agricultural uses and/or supports the County's agricultural economy (such as seed manufacturers, implement dealers, etc.)

6. Recognize the need to upgrade and expand existing County infrastructure to support and promote continued development.

7. Ensure that Clay County continues to have access to state-of-the-art telecommunication and essential utility infrastructure.
8. Promote the sustainability and health of small towns

9. Support small communities in retaining their local schools.

10. Continue to identify and tap into local and federal resources to enhance economic development.

11. Establish a task force to examine the County's role in economic development activities.

Economic Development Goal #2: Ensure a quality labor force and promote living wage jobs.

Policies:
1. Encourage and support training to maximize human resources and growth.

2. Encourage the availability of a range of housing types and values to accommodate and ensure an ample labor force.

3. Promote coordination of the educational system and the business community to ensure the availability of qualified workers.

4. Prioritize and match economic incentives to development commensurate with the living wage jobs and other economic benefits that it brings to the County.

NATURAL RESOURCES GOALS AND POLICIES

Natural Resources Goal #1: Identify, protect, and preserve the County's high quality natural, scenic, cultural and open space areas.

Policies:
1. Identify major woodland and prairie tracts, wetland areas, steep slopes, significant historic sites and other sensitive environmental areas within the County.

2. Develop strategies for the protection, preservation and/or acquisition of identified significant natural and historic areas where appropriate through a number of means such as conservation easements, land acquisition, grants, donations, etc.

3. Educate the public on tax incentives that are available for wetlands, prairie areas, etc..

4. Protect scenic values by controlling billboards and regulating signs, auto junkyards and other potentially unsightly land uses and practices.

5. Continue to monitor and inspect residential and commercial areas with on-site sewer systems to ensure that they function properly.

6. Continue to review and consider soil suitability for the placement of individual sewer treatment systems before the issuance of a permit.

7. Promote the utilization of private community sewer districts in areas with failing or potentially failing systems.

8. Utilize soil suitability information in planning new development.

9. Require all new development to comply with applicable storm water management plans and policies.

10. Promote the proper enforcement of wetland mitigation legislation, and support individual landowners efforts in the re-establishment of pre-existing wetlands by utilizing the wetland banking system. Replacement wetlands should be located outside of the same watershed only as a last resort.

11. Cooperate with appropriate watershed management organizations to develop strategies for the protection of the County's water resources.

12. Recognize the impact of surface water quality on groundwater resources, particularly in the Buffalo River and Buffalo Aquifer systems.

13. Continue to enforce shoreland regulations on the County's lakes, rivers and streams.

14. Continue to work with the Soil and Water Conservation District to update and implement the County Water Plan.

15. Continue to work to promote the effective management of solid waste and recycling; expand product development and markets.

16. Establish and utilize criteria for siting a new landfill that ensure any new facility has adequate access to appropriate roadway infrastructure, minimizes environmental impacts and minimizes impacts to other land uses.
17. Promote the proper use, storage, handling, recycling, disposal and application of chemicals throughout the County.

18. Discourage inappropriate development in flood-prone areas.

19. Balance the preservation of native prairie areas with mining of the County's gravel resources.

20. Evaluate fiscal impacts and long-term maintenance issues when deciding whether or not to support the acquisition of land for environmental protection purposes.

21. Enact a wetland ordinance to implement the Comprehensive Wetland Protection and Management Plan upon final review and adoption of that plan.

22. Adopt by reference the goals and policies of the County's Water Plan.

23. Coordinate and cooperate with other local units of government in developing wellhead protection plans, including identifying appropriate land use and pollution mitigation measures in wellhead protection zones.

Natural Resources Goal #2: Develop flood hazard mitigation planning and implementation steps.

Policies:

1. Identify and map flood hazard areas.

2. Determine past and future damage potential.

3. Identify all current mitigation efforts including gaps in current efforts.

4. Identify and evaluate actions that could be taken to reduce losses and eliminate hazards.

5. Coordinate with other entities and governments conducting mitigation efforts.

6. Select and prioritize actions the County should take including incorporating the hazard mitigation plan steps and strategies into the Comprehensive Plan.

7. Develop a detailed implementation strategy for hazard mitigation efforts.

Natural Resources Goal #3: Protect and Enhance the County's Rivers and Streams for Wildlife/Fish Habitat, Human Recreation, and Erosion Control.

Policies:

1. Remove or modify low head dams on the Red River and tributaries to allow for fish passage to up stream-spawning sites.

2. Maintain or establish native vegetation and riverine forests along ditch, stream and riverbanks to run-off, reduce erosion and provide wildlife cover.

3. Support the "Greenway on the Red" initiative to create greenways along the Red River.

4. Support the re-establishment of sturgeon in the Red River tributaries.

5. Increase stream fishing opportunities be developing an access plan for the Red River and its tributaries. Develop partnerships with local government to secure more bank fishing sites.

6. Establish boat accesses with paved ramps and parking areas about every twenty-river miles apart along larger rivers.

7. Build/Maintain bank fishing facilities (Piers, Modified Bridges) in areas of historic use, especially near towns and bridge crossings.

8. Establish canoeing facilities along several navigable rivers, including carry-down accesses spaced for a variety of trip length options, portage trails and warning signs around dams and other hazards and well spaced primitive campsites.

9. Develop a system of paved and unpaved trails along rivers (greenways) for a variety of recreational uses (biking, running, walking, roller-blading, x-country skiing, snowmobiling, etc.)

COMPREHENSIVE PLAN

INTRODUCTION
INVENTORY & ANALYSIS
GOALS & POLICIES
LONG RANGE PLAN
IMPLEMENTATION

FRAMEWORK

The Long Range Plan provides a general framework for Clay County's growth and development over the next 20 years. The Plan provides the policies, standards and principles to guide the County's future physical form and function and serves as the basis for updating the Zoning Ordinance and other development controls that are enforceable under the County's police powers.

The Long Range Plan illustrates general recommendations, but should always be taken in concert with the written Goals and Policies. Recommendations that are specific enough to guide day-to-day decisions yet flexible enough to allow modification and continued refinement, are provided with regard to land use and growth within the County.

The Long Range Plan accomplishes several objectives: (a) it reflects existing development and generalized land use patterns, (b) it supports the continuation of rural land uses, (c) it recognizes the natural environment, and (d) it addresses the need to plan for the orderly expansion of urban development into the neighboring rural areas. The land use and growth recommendations contained in this Plan provide for a balance between these components and were derived from careful consideration by the planning Task Force on a range of alternative approaches.

Land use and growth alternatives are many and varied, but can be summarized into the following three general categories:

- Very Restrictive
- Completely Unrestrictive
- Balanced

Under a very ***restrictive*** growth and land use plan, tight urban growth boundaries would be established and all non-farm development would be required to occur within cities, prohibiting these uses within the rural areas of the County. This option provides the highest degree of protection for agricultural lands and prevention against incompatibilities between agricultural operations and rural, non-farm residences. It also provides for planned urban expansion in the most compact, orderly fashion, which lends itself to the greatest efficiencies in the delivery of water, sewer and other public services.

However, this approach also severely limits private property rights and doesn't provide communities, landowners, developers and others very many options. It may also hinder economic growth and opportunities for the County. In addition, restrictive growth policies are often cited for inflated land values, which may contribute, among other things, to affordable housing problems.

Conversely, under a completely ***unrestrictive*** plan, no growth areas would need to be identified because all types of development would be allowed to occur throughout the county without restriction. While this approach may offer communities, landowners and developers the greatest flexibility and provide for the greatest economic growth opportunities, it may result in long-term land use problems. This approach has the highest potential for land use conflicts--between farm and non-farm uses, between residential and commercial/industrial uses, etc. It may also result in development patterns outside of cities that may hinder their orderly growth and that are difficult or costly to provide with water, sewer and other services in the future.

A ***balanced*** plan would likely define modest, flexible growth areas outside of cities. It would allow non-farm residential, commercial and industrial development to occur within planned growth areas, so long as it follows planned development patterns compatible with the adjacent city's future land use plans. Some non-farm development outside of the planned growth areas would be permitted, but limits would be placed on non-farm residential densities and commercial and industrial growth would be directed to areas with adequate infrastructure and where the potential to cause land use conflicts are minimized. It may also identify environmentally sensitive areas to be protected or for which more careful consideration/review of development should be undertaken.

A balanced approach provides simultaneously for planned urban expansion, orderly and efficient growth and agricultural protection while providing communities, landowners and developers with flexibility in land use decisions. This approach also allows for broad economic growth opportunities, while directing it towards desired areas.

Generally, a more balanced approach is preferred when planning for the long range. This was the consensus of the comprehensive planning Task Force. This Plan outlines such an approach through the delineation of modest Planned Growth Areas, the establishment of areas for long term agriculture, provisions for a variety of land uses throughout the County, and the identification of environmentally sensitive overlay areas.

FUTURE LAND USE

The Land Use Plan describes the different land use designations for the County. The designations govern zoning and the County's future land use form. The existing land use pattern (described in greater detail in the existing land use section of the Inventory and Analysis chapter) clearly reflects the prevailing directions of growth in Clay County. The County has experienced the strongest growth around the Moorhead metropolitan area and along Highway 10 and Interstate 94; with modest growth occurring in rural areas of the County, predominantly in areas with lakes and woodlands.

Six unique land use categories have been identified to guide growth in the County. Below, each land use designation category is described in detail. The acres within each land use category are included in Table 4-1 and are illustrated on Figure 4-1, *Future Land Use Plan*.

Table 4-1
Future Land Use
Unincorporated Clay County

Land Use Category	Total Acres	Percent of Total	Acres that are:				
			Wetland	Open Water	Special Concern	Floodplain	Shoreland
General Rural	633,339	95	28,689	3,540	26,395	67,106	13,264
Planned Growth Areas	7,784	1%	104	24	0	864	0
Rural Service Areas	758	0.1%	14	3	0	9	3
Public/Semi Public	5,615	1%	1,040	125	2,180	729	7
Parks/Recreation	20,631	3%	7,390	943	19,220	2,878	1,675
Special Concern Overlay	48,113	7%	16,615	1,407	-	5,736	3,424
Floodplain Overlay	74,404	11%	10,013	4,169	5,736	-	4,393
Shoreland Overlay	15,891	2%	5,946	4,076	3,424	4,393	-
Total	668,126 *	100%	69,811	14,286	56,954	81,715	22,765

Source: Dahlgren, Shardlow & Uban, Inc.

* Excluding overlay categories.

The majority of the County, 95%, is planned for General Rural use. As described below, this area is intended to remain primarily in agricultural use with limited commercial, industrial and residential development. The next largest land use category planned for the future are Parks and Recreation. Approximately 7,784 acres are planned for urban growth and development.

PLANNED GROWTH AREAS

Planned Growth Areas are those areas that lie outside of existing urbanized areas and are in the direct path of urban growth. It is expected that these areas will be largely developed within the next 20 years and must be protected against development patterns that may hinder their ultimate transition to urban use. Future development in these districts should be at urban densities and occur in as orderly and contiguous a manner as possible.

Land uses within Planned Growth Areas are generally identified in the respective city comprehensive plans. Development and land uses within these areas should be carefully coordinated with respective adjoining cities to ensure it follows planned growth patterns and is provided with the appropriate urban services.

New residential development in advance of annexation in these areas should be at densities lower than 1 unit per 20 acres to protect these areas for future urbanization. New commercial and industrial development should be consistent with the land use plan of the adjacent city. Appropriate commercial and industrial development would include those businesses not

requiring urban services. Locating any commercial or industrial development should be coordinated with the adjacent city to ensure continuity of future urban service extensions.

Some of the land within the Planned Growth Areas is already within an established orderly annexation area. Where this is not the case, cities and townships should work cooperatively to manage and service, as appropriate, the development of these areas. Orderly annexation agreements should be considered for these areas. The timing and sequencing of public services such as sewer, water and roads should be coordinated prior to or in conjunction with the development of any orderly annexation agreements.

GENERAL RURAL AREAS

These areas are primarily intended to accommodate agricultural land uses and supporting services. Low-density rural, non-farm residential development will also be accommodated in the General Rural area at densities of 1 unit per 40 acres or less. Higher densities may be accommodated on poorer farmland soils.

Commercial and industrial development should be directed to areas along arterial roadways. Appropriate industrial development for these areas would include those businesses not requiring urban services and which benefit from an isolated or spacious rural location. Appropriate commercial development would include those businesses not requiring urban services and which primarily serve a local market.

RURAL SERVICE AREAS

The Rural Service areas include established, unincorporated rural centers (such as Rustad, Baker, etc.). These areas are appropriate for additional residential development on smaller lots as well as commercial establishments that serve the local market. However, these areas should remain relatively small and low-density so that they do not require sewer service or County Road improvements beyond normal maintenance.

ENVIRONMENTALLY SENSITIVE AREAS

There are three types of environmentally sensitive areas shown on the future land use map:

- Shorelands
- Floodplains
- Special Concern Areas

Shoreland and Floodplain Areas

These areas are currently regulated under the County's shoreland and floodplain districts and regulations. The future land use plan map identifies these areas for future management consistent with those districts and regulations.

Special Concern Areas

These include areas that may not currently have special regulations placed on them through the County's zoning ordinance, but which should be examined more carefully when development or a change in land use is proposed within them. The areas include natural communities identified by the County Biological Survey, including significant natural communities, woodlands, prairie, fens and other significant natural features. Also included are important aquifer recharge areas. It will be important for the County to ensure sound land use practices in these areas to minimize potential groundwater contamination.

PUBLIC/SEMI-PUBLIC AREAS

The future land use map shows areas for continued, future public/semi public use. This category includes only those areas that are currently used for this purpose. Depicting this land use category on the map provides support for existing public/semi-public properties to continue as that use into the future. If any of these uses cease to exist, the County will need to re-examine that parcel/area and determine the most appropriate alternative use consistent with the surrounding area. Conversely, depicting a category for public/semi-public uses on the future land use map is not intended to restrict these types of uses to just those areas shown as such on the map. Various types of public and semi-public uses may be appropriate within all of the County's land use categories consistent with the zoning for that area.

Potential New Public Facilities

The potential need to locate a new County landfill has been identified. The County has secured a site for a new landfill in Section 3 of Riverton Township and will be conducting the necessary environmental, hydrologic, and geologic studies to permit the site as the new County Landfill.

In evaluating the selected site, or any future sites, the County utilize the following criteria:

A facility should:

1. Not be located within any designated conservation area.
2. Not be located in soils that have sever limitations for the facility unless environmentally sound mitigative measures are able to be employed.
3. Not be located within a designated agricultural preserve.
4. Not be located where lands have a CER greater than 60.
5. Be located no closer than one-quarter mile from a residential area.
6. Be located no closer than 1,000 feet to a State or Federal Highway.
7. Have direct access to a nine (9) ton capacity roadway.
8. Not be located on a site having significant historical value.
9. Be generally located in the western half of the County to reflect the origin of the bulk of the solid waste stream.

10. Be located where it will not have the potential to adversely impair surface groundwater resources, woodlands, native vegetation or wetlands.

PARK/RECREATION AREAS

The future land use map shows areas for continued park/recreation use. Similar to the Public/Semi Public areas, the Park/Recreation category includes only those areas that are currently used for that purpose. Lands included in wildlife management areas, scientific and natural areas, state parks, conservation lands owned by the nature conservancy, and WPA parks are classified as "public" parks and recreation uses on the land use map.

Depicting this land use category on the map provides support for existing parks/recreation areas to continue as that use into the future. If any of these uses cease to exist, the County will need to re-examine that parcel/area and determine the most appropriate alternative use consistent with the surrounding area. Conversely, depicting a category for parks/recreation on the future land use map is not intended to restrict these types of uses to just those areas shown as such on the map. Various types of park and recreation uses may be appropriate within all of the land use categories consistent with the zoning for that area.

GROWTH MANAGEMENT

Concern about Minnesota's rapid, expansive growth was one of the driving forces behind the enactment of the Community-Based Planning Act. The state's population grew faster in the first half of the 1990's than it did in the previous two decades. In Clay County, continued urban growth emerging from the Fargo-Moorhead area and along roadway corridors poses many land use challenges. The strain between urbanization and the traditional agricultural character of the County is at the forefront of this struggle. As cities grow and urban land uses extend into the neighboring townships, development pressure is placed on the surrounding agricultural areas. Thus, agricultural preservation, environmental protection and annexation dynamics have become increasingly important for the County.

As a means of addressing these difficult issues, the Community-Based Planning Act requires the establishment of growth boundaries around each city within the County that anticipates growth outside of its municipal limits within the next 20 years. This Plan responds to that requirement through the establishment of Planned Growth Areas.

Planned Growth Areas are those areas that lie outside of existing urbanized areas and are in the direct path of urban growth. It is expected that these areas will be largely developed within the next 20 years and must be protected against development patterns that may hinder their ultimate transition to urban use. Development in these districts should be at urban densities and occur in as orderly and contiguous a manner as possible. Development should be carefully coordinated with the adjacent city to ensure it follows planned growth patterns and is provided with the appropriate urban services. Land outside of the Planned Growth Areas should be developed at rural densities and uses should be compatible with existing rural uses. Of course, each situation is unique and exceptions will need to be made to account for existing development, varying geographic features and other local conditions.

Planning for future growth is neither a linear nor a static process. Even the best growth projections are merely a prediction of the future, based on past trends and current conditions. Since changes in economic and social variables greatly affect projected outcomes, it is important for communities to periodically measure actual progress against targeted growth projections and, if necessary, redirect their growth strategies. Therefore, the Planned Growth Areas illustrated in this Plan are not intended to be rigid or inflexible. They are intended to serve as a planning tool to guide future growth and minimize haphazard, leapfrog development. Each jurisdiction will be able to grow as market conditions allow, provided that it occurs in an orderly, contiguous fashion at urban densities when public infrastructure is available to the extent possible. It will be important for cities, townships and counties to continue to collaborate when modifying these boundaries in the future.

The Planned Growth Areas are based on the premises that urban growth should occur within cities; areas around cities should be identified for future growth and be protected against development patterns that may hinder this growth; and that measures should be put in place to limit density outside of cities and their planed growth areas.

Development within the Planned Growth Areas should be closely coordinated between cities, townships and the County. Orderly annexation agreements and joint powers agreements are two vehicles with which to accomplish these negotiations.

PROCESS

The Community-Based Planning Act stresses coordination and cooperation between cities and their surrounding townships when looking at growth issues. The process established for developing growth areas for this Plan drew heavily on existing planning efforts and allowed for communities, working cooperatively, to define their boundaries. It was based on the premise that cities and townships should identify those areas around cities that are going to be needed for urban development and work cooperatively to address all of the issues that arise as a result of that growth.

The goal of this process was to build capacity at the local level to enable communities to take a purposeful and planned approach to examining their growth issues. On April 4th, 2000 an informational meeting was conducted with Clay County cities and townships to:

- Give an orientation to the comprehensive planning project;
- Explain the growth boundary requirements under the Community-Based Planning Act; and
- Provide communities with a methodology for analyzing their growth potential in order to develop meaningful growth areas.

METHODOLOGY

A community should consider three essential questions when thinking about future growth:

- *How much* are we going to grow?
- *Where*, or in what direction, should we direct growth?
- How are we going to provide *services* to the growth areas?

Information and a suggested step-by-step methodology, discussed below, were provided to cities and townships at the informational meeting to address these issues. These meetings provided communities with the tools to begin the process of establishing Planned Growth Areas. Following are the steps suggested to communities in doing this.

1. Estimate Future Growth

Two primary factors, demographic growth and density, affect a community's estimation of *how much* land it will need for future urban development. Population and household growth projections prepared by the Consultant Team were provided to cities and townships at the informational meeting.

Combined with the knowledge of their own local conditions and needs, these projections could serve as a basis for communities to estimate the future demand for different types of land uses. Communities could then assess the impact of various density scenarios on the amount of land that they would need to meet this demand.

2. Identify Growth Areas

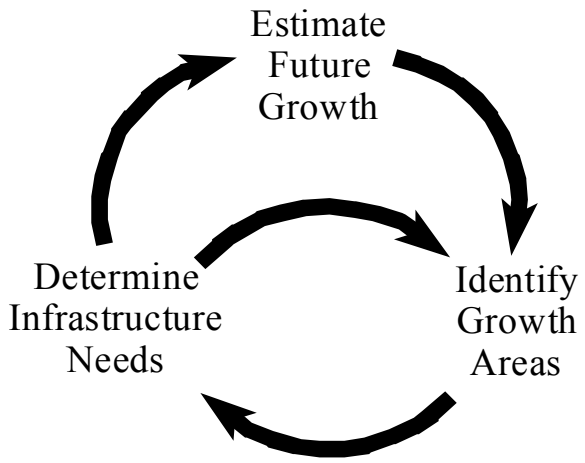
Both development constraints and land use compatibility should be considered when deciding *where* to direct growth. As a result, communities need to posses a clear sense of the land uses in and around existing urbanized areas.

To assist communities in this analysis, land use maps were distributed to each city and township. The land use data utilized in producing the maps was supplied by the County and was based on 1989 LMIC information. Due to the age and source of the data, communities were provided with a methodology to inventory and classify their current land uses. Cities and townships could use the updated information to evaluate alternative growth directions. Combined with the demographic and density analysis described above, communities could then delineate their growth areas.

3. Determine Infrastructure Needs

When exploring alternative growth directions, it is important for a city to examine whether it has the community facilities and infrastructure in place to support that growth. One such example is a city's wastewater treatment system capacity. Communities were provided with a step-by-step methodology to conduct this type of analysis, allowing cities and townships to collaboratively establish a process for allocating service to the designated growth areas.

Figure 4-2: Growth Planning Process



As Figure 4-2 illustrates, planning for future growth is a dynamic process. *Where* a city chooses to direct its growth will impact its future infrastructure needs, but a city's infrastructure capacity also impacts where it chooses to direct its growth. Over time, changes in population projections or public attitudes toward any of the essential components of demographic growth, land use and infrastructure capacity will require a community to reexamine its growth strategy.

GROWTH AREAS

Growth within Clay County stems primarily from the Fargo-Moorhead metropolitan area as well as along major transportation corridors, particularly Highway 10 and Interstate 94. Some eastern portions of the County are also experiencing an increase in non-farm residential development due largely to the presence of several lakes and woodlands in the area. Many parts of this area also have poorer agricultural soils, which make it less attractive for crop production than other areas of the County.

In addition to the generalized growth generators identified above, there are several issues in Clay County that will impact future land use and growth patterns. One of the most significant is the planned expansion of Highway 336. (This is shown on Figure 2-19, *Planned Roadway Improvements*, in the transportation section of the Inventory and Analysis chapter.) This roadway, which connects I-94 and Highway 10 about 2 ½ miles east of Moorhead and just east of Dilworth, is planned to be upgraded to a four-lane roadway. This upgrade will likely make the area attractive for commercial and/or industrial development. A special study will be completed for this corridor later in 2001 to examine issues such as access management, development and environmental protection in the corridor. This area is located above the Buffalo Aquifer and is susceptible to groundwater contamination. Thus, development in this area will need to be carefully planned so as to mitigate potential groundwater pollution.

CITIES NOT ANTICIPATING GROWTH BEYOND EXISTING LIMITS

Seven of the cities in Clay County determined that they did not expect growth beyond their existing municipal boundaries over the next 20 years: Comstock, Felton, Georgetown, Glyndon, Hitterdal, Sabin and Ulen.

There are several factors influencing the growth of these cities. First is their distance from the primary growth areas within the County, namely the Fargo-Moorhead metropolitan area, Highway 10 corridor and at some locations along Interstate 94. The further away a community is from these centers, the less likely it is to experience the growth associated with them. The second is historic population trends and projections. Population projections for this Plan were prepared using several forecasting methods. Although it is not possible to project future population with 100% accuracy using any method, past trends may provide good clues about a community's future. Finally, land use patterns and growth in a township surrounding a city may reveal a growing area, even if a city itself may not be growing.

Following is a description of the cities that do not expect growth beyond their existing boundaries in the next 20 years along with a discussion of the key growth factors influencing this expectation.

COMSTOCK

Comstock is situated in the southwestern portion of the County. It is served by Highway 75, which runs just west of the city. Land uses surrounding the city within Holy Cross Township are predominantly agricultural.

Factors Influencing Growth

The projected population estimates for the city along with the land uses surrounding the city and its distance from the primary growth areas within the County, indicate little growth within the city in the coming decades. The city had a population of 123 in 2000 and it is expected to gain just 26 persons by 2020 under even the highest growth projection prepared for this Plan and is expected to lose 8 residents under the lowest projection. This is shown in Table 4-2.

Given the average number of persons per household in Clay County in 2000 of 2.53, Comstock is only expected to gain 10 households by 2020 under the highest growth projection. In addition, the city has not gained population since the 1980's. The growth trends and projections for the city will likely not warrant the need for urban expansion within the next 20 years.

An examination of growth trends within surrounding Holy Cross Township reveal a similar conclusion. The Township steadily lost population between 1950 and 2000.

Table 4-2
Population Trends & Projections
City of Comstock
1950 - 2020

Date	Population	Decade Change *	
		Number	Percent
1950	139	n/a	n/a
1960	138	-1	-1%
1970	135	-3	-2%
1980	163	28	21%
1990	123	-40	-25%
2000	123	0	0%
2020 Straight Line Projection	115	-8	-7%
2020 Exponential Projection	116	-7	-6%
2020 Top-Down Projection	149	26	21%
2020 Demographer's Rate Projection	130	7	6%

Source: 1950 - 2000 US Census
* For 2020 projections, this represents the change over two decades

FELTON

Felton is located within Felton Township in the north-central portion of the County. The city is surrounded by almost exclusively agriculture and uses associated with the Felton prairie area. Felton is served by State Trunk Highway 9. In 2000, the city had an estimated 216 persons.

Factors Influencing Growth

According to the population projections prepared for this Plan, the city of Felton is only expected to gain 31 persons between 2000 and 2020 under even the highest growth projection as shown in Table 4-3. Given the average number of persons per household of 2.53 in the County in 2000, this translates into just 12 new households. The city does not consider this to be a significant enough increase to warrant future expansion of the city's municipal boundary. In addition, the city only gained 5 persons in the 1990's and lost population in the 1980's.

The city's distance from the primary growth areas within the County and surrounding land use patterns also indicate that the city is not likely to experience significant growth in the next 20 years. There has not been significant growth in the surrounding township either, only 2 persons since 1990. This small amount of growth is not indicative of the need for urban expansion around Felton.

Table 4-3
Population Trends & Projections
City of Felton
1950 - 2020

Date	Population	Decade Change *	
		Number	Percent
1950	258	n/a	n/a
1960	201	-57	-22%
1970	232	31	15%
1980	241	9	4%
1990	211	-30	-12%
2000	216	5	2%
2020 Straight Line Projection	205	-11	-5%
2020 Exponential Projection	206	-10	-5%
2020 Top-Down Projection	247	31	14%
2020 Demographer's Rate Projection	228	12	6%

Source: 1950 - 2000 US Census *For 2020 projections, this represents the change over two decades

GEORGETOWN

Georgetown is located in the northwest corner of the County and had a 2000 population of 125. It is served by Highway 75, which leads south into Moorhead. Georgetown is located within Georgetown Township and is surrounded predominantly by agricultural land uses.

Factors Influencing Growth

According to the population projections prepared for this Plan, Georgetown is only expected to gain 8 persons between 1990 and 2020 under the highest growth projection as shown in Table 4-4. This translates into 3 new households using the average number of persons per household in the County in 2000 of 2.53. This increase is not significant enough to warrant future expansion of the city's municipal boundary. In addition, the city only gained 18 people in the 1990's and steadily lost population since the 1950's prior to 1990. These projections along with the city's distance from the major growth areas within the County and surrounding land use patterns suggest that the city is not likely to experience significant growth in the coming decades.

There has not been significant growth in the surrounding township either, only 9 persons since 1990. This small amount of growth is not indicative of the need for urban expansion around Georgetown.

Table 4-4
Population Trends & Projections
City of Georgetown
1950 - 2020

Date	Population	Decade Change *	
		Number	Percent
1950	192	n/a	n/a
1960	178	-14	-7%
1970	141	-37	-21%
1980	111	-30	-21%
1990	107	-4	-4%
2000	125	18	17%
2020 Straight Line Projection	114	-11	-9%
2020 Exponential Projection	115	-10	-8%
2020 Top-Down Projection	133	8	6%
2020 Demographer's Rate Projection	132	7	6%

Source: 1950 - 2000 US Census
* For 2020 projections, this represents the change over two decades

GLYNDON

Glyndon is located about 4 miles east of Dilworth along Highway 10. The city had a2000 population of 1,049.

Factors Influencing Growth

According to population projections prepared for this Plan, the city is expected to lose 105 persons between 2000 and 2020 under the lowest growth scenario, but gain 360 persons under the highest scenario as shown in Table 4-5. During the 1980's the city lost population, which accounts for the City's projected population loss under the lowest growth scenario. However, this trend reversed between 1990 and 2000, and it is likely that the city will continue to grow due to its location along Highway 10 and proximity to the Fargo-Moorhead/Dilworth area.

Table 4-5
Population Trends & Projections
City of Glyndon
1950 - 2020

Date	Population	Decade Change *	
		Number	Percent
1950	411	n/a	n/a
1960	489	78	19%
1970	674	185	38%
1980	875	201	30%
1990	862	-13	-1%
2000	1,049	187	22%
2020 Straight Line Projection	1,299	250	24%
2020 Exponential Projection	1,409	360	34%
2020 Top-Down Projection	944	-105	-10%
2020 Demographer's Rate Projection	1,108	59	6%

Source: 1950 - 2000 US Census
* For 2020 projections, this represents the change over two decades

To accommodate this growth, the city annexed 80 acres of land in 1998, which is expected to accommodate 168 new residential housing units. Using the average number of persons per household in the County in 2000, the city can expect to gain between 23 and 142 households between 2000 and 2020 under the population projections predicting growth through to 2020.

Although the population declined by 33 people during the 1990's, there is an increasing emergence of development around the city in surrounding Glyndon Township. There exists an approximate 80-acre subdivision just south of the city's border and there are several businesses and residences outside the city along Highway 10.

Depending on future growth trends, the city should have enough land to accommodate its growth over the next 20 years. However, the city should closely monitor its growth and identify planned growth areas if needed. The city may also need to consider planning additional areas for future commercial development, particularly as development pressure increases along Highway 10.

HITTERDAL

Hitterdal is located in the northeast to east-central area of the County within Goose Prairie and Highland Grove Townships. It is served by Highway 32, which intersects with Highway 10 to the south. The city is surrounded largely by agricultural land uses with several scattered park/open space areas and small lakes.

Factors Influencing Growth

The city is only expected to gain 50 persons between 1990 and 2020 according to the highest population projection prepared for this Plan as shown in Table 4-56. This corresponds to approximately 19 new households using the 2000 number of persons per household in Clay County. The city does not consider this to be a significant enough increase to warrant future expansion of the city's municipal boundary. In addition, the city has been steadily losing population since the 1980's. If this trend continues, the city may not even gain the projected 19 households. Goose Prairie Township, north of the city, has also experienced slightly declining population since 1950. Although Highland Grove Township on the south also saw declining population from 1950 to 1990, population has increased slightly (by 4 persons) since 1990. Much of this growth, however, may be more associated with Hawley which is just southwest of the Township rather than Hitterdal. The city's historic population trends, surrounding land use patterns and distance from the major growth areas in the County, suggest that the city is not likely to experience significant growth within the next 20 years.

Table 4-6
Population Trends & Projections
City of Hitterdal
1950 - 2020

Date	Population	Decade Change *	
		Number	Percent
1950	262	n/a	n/a
1960	235	-27	-10%
1970	201	-34	-14%
1980	273	72	36%
1990	242	-31	-11%
2000	201	-41	-17%
2020 Straight Line Projection	201	0	0%
2020 Exponential Projection	201	0	0%
2020 Top-Down Projection	251	50	25%
2020 Demographer's Rate Projection	212	11	6%

Source: 1950 - 2000 US Census
* For 2020 projections, this represents the change over two decades

SABIN

Sabin lies approximately 7 miles southeast of the city of Moorhead along CSAH 52. The city is located in the northwest corner of Elmwood Township and had a 2000 population of 421 as shown in Table 4-7 below.

Table 4-7
Population Trends & Projections
City of Sabin
1950 - 2020

Date	Population	Decade Change *	
		Number	Percent
1950	211	n/a	n/a
1960	251	40	19%
1970	333	82	33%
1980	447	114	34%
1990	495	48	11%
2000	421	-74	-15%
2020 Straight Line Projection	480	59	14%
2020 Exponential Projection	492	71	17%
2020 Top-Down Projection	463	42	10%
2020 Demographer's Rate Projection	445	24	6%

Source: 1950 - 2000 US Census
* For 2020 projections, this represents the change over two decades

Factors Influencing Growth

According to the population projections prepared for this Plan, Sabin is expected to gain 71 residents under the highest growth scenario between 2000 and 2020. Although the city gained population every decade from 1950 to 1990, it began doing so at a decreasing rate since 1980 and has actually lost population since 1990. Based on this data alone, it is likely that the city will continue to see only modest increases in population or it may even lose population.

However, we could begin to see a reversal of this trend as the influence of growth emerging from the Moorhead area continues outward. The possible rerouting of Highway 75 and associated upgrades to the roadway could also facilitate growth in Sabin. In addition, the city may become an increasingly attractive location for those desiring to live in a rural setting close to jobs in the Fargo-Moorhead/Dilworth area.

This is consistent with statewide trends that show increased movement toward rural areas and "satellite" communities located near larger cities. Residents increasingly seek the perceived higher quality of life available in smaller communities while still enjoying the benefits of being near employment and shopping centers.

Based on the population trends of the past two decades, the city does not expect to experience significant growth in the coming decades. However, the city should carefully their future growth trends in light of the factors identified above, and plan growth areas in the future if needed.

ULEN

Ulen is located in the northeast corner of the County and had a 2000 population of 532. It is served by Highway 32, which connects to Highway 10 to the south. Ulen is located within Ulen Township and is surrounded predominantly by agricultural land uses.

Factors Influencing Growth

According to the population projections prepared for this Plan, Ulen is only expected to gain 56 persons between 2000 and 2020 under the highest growth projection as shown in Table 4-8. This translates into 22 new households using the average number of persons per household in the County in 2000 of 2.53. This increase is not significant enough to warrant future expansion of the city's municipal boundary. In addition, the city has been losing population since the 1980's. If this trend continues, the city may not even gain the projected 56 persons and may actually lose population. Surrounding Ulen Township has lost population every decade since 1970. These projections along with the city's distance from the major growth areas within the County and surrounding land use patterns suggest that the city is not likely to experience significant growth in the coming decades.

Table 4-8
Population Trends & Projections
City of Ulen
1950 - 2020

Date	Population	Decade Change *	
		Number	Percent
1950	525	n/a	n/a
1960	481	-44	-8%
1970	486	5	1%
1980	583	97	20%
1990	547	-36	-6%
2000	532	-15	-3%
2020 Straight Line Projection	563	31	6%
2020 Exponential Projection	565	33	6%
2020 Top-Down Projection	588	56	11%
2020 Demographer's Rate Projection	562	30	6%

Source: 1950 - 2000 US Census
* For 2020 projections, this represents the change over two decades

CITIES ANTICIPATING GROWTH

Four of the cities in Clay County do anticipate growth beyond their existing municipal boundaries over the next 20 years: Barnesville, Dilworth, Hawley and Moorhead.

There are several factors influencing the growth of these cities. In some cases it is their inclusion within or proximity to the Fargo-Moorhead metropolitan area. This is true for Moorhead, Dilworth and to some extent Hawley. Another important factor is the city's location along the I-94 and Highway 10 corridors. All four cities lie along these routes. Historic population trends and projections also indicate growth in these communities.

Following is a description of the cities that do anticipate growth beyond their existing boundaries in the next 20 years along with a discussion of the key growth factors influencing this expectation.

BARNESVILLE

The city of Barnesville is located at the crossroads of Highways 9 and 34 just off of Interstate 94 near the southern edge of the County. It had a2000 population of 2,173. It is located in both Barnesville and Humboldt Townships and is surrounded by agricultural uses with some scattered commercial and residential developments along the highways outside of town.

Factors Influencing Growth

The city's location at the crossroads of two state highways and proximity to Interstate 94 have and will likely continue to facilitate growth. The city is expected to gain population from 2000 to 2020 under all of the growth projections prepared for this Plan, ranging from just 54 persons to 307 as shown in Table 4-9 below. This translates into between 21 and 121 new households using the 2000 countywide average number of persons per household of 2.53. Although the city lost population from 1980 to 1990, since 1990 it has begun to regain population. In addition to household growth, the city has seen growth in commercial land uses over the past decade during which time it has annexed approximately 25 acres for commercial development.

Table 4-9
Population Trends & Projections
City of Barnesville
1950 - 2020

Date	Population	Decade Change *	
		Number	Percent
1950	1,593	n/a	n/a
1960	1,632	39	2%
1970	1,782	150	9%
1980	2,123	341	19%
1990	2,066	-57	-3%
2000	2,173	107	5%
2020 Straight Line Projection	2,434	261	12%
2020 Exponential Projection	2,480	307	14%
2020 Top-Down Projection	2,227	54	3%
2020 Demographer's Rate Projection	2,296	123	6%

Source: 1950 - 2000 US Census
* For 2020 projections, this represents the change over two decades

Planned Growth Area

The city currently works cooperatively with both of its surrounding townships to jointly plan for growth areas around the city. The city along with Humboldt and Barnesville Townships have entered into a joint powers agreement for the planning and management of growth areas around the city which extend from the current city limits to I-94 with some areas west and east of the city as well. This joint planning area serves as they city's Planned Growth Area and is shown on Figure 4-3, *Planned Growth Areas Surrounding Barnesville*. A variety of land uses are planned for this area including residential, industrial, commercial and agriculture, which are also shown on Figure 4-3 and in Table 4-10 below.

Table 4-10
Future Land Use
Planned Growth Area Surrounding Barnesville

Land Use Category	Total Acres	Percent of Total
Residential	120	7.8%
Commercial	573	37.1%
Industrial	275	17.8%
Conservation	81	5.2%
Agricultural Preservation	496	32.1%
Total	1,544	100.0%
Total acres with natural constraints:	43.16	3%

Source: Dahlgren, Shardlow & Uban, Inc.

DILWORTH

Dilworth is located just west of Moorhead along Highway 10. It is also just off of Highway 336. It had a2000 population of 3,001. The city is adjacent to both Moorhead and Glyndon Townships and is surrounded by urban land uses on the Moorhead side of the city but is still surrounded largely by agricultural uses on its other sides with some scattered residences.

Factors Influencing Growth

Although Dilworth lost population slightly between 1980 and 1990 as shown in Table 4-11. This trend has since reversed with the city gaining 439 persons between 1990 and 2000. Its location (adjacent to Moorhead, along Highway 10 and near Highway 336) serves as an impetus for growth. The city is expected to gain population from 1990 to 2020 under all of the growth projections, except the Top-Down method, prepared for this Plan, ranging from 169 to 561 persons. This translates into 67 to 222 new households using the 2000 countywide average number of persons per household of 2.53.

Table 4-11
Population Trends & Projections
City of Dilworth
1950 - 2020

Date	Population	Decade Change *	
		Number	Percent
1950	1,429	n/a	n/a
1960	2,102	673	47%
1970	1,782	-320	-15%
1980	2,575	793	45%
1990	2,562	-13	-1%
2000	3,001	439	17%
2020 Straight Line Projection	3,454	453	15%
2020 Exponential Projection	3,562	561	19%
2020 Top-Down Projection	2,860	-141	-5%
2020 Demographer's Rate Projection	3,170	169	6%

Source: 1950 - 2000 US Census
* For 2020 projections, this represents the change over two decades

Planned Growth Area

Due to the growth influences mentioned above, the city has identified the need for additional growth areas outside it current limits. The areas anticipated for growth are shown on Figure 4-4, *Planned Growth Areas Surrounding Dilworth*. The majority of this area is shown in the city's 1998 Comprehensive Plan with some additional areas along and north of Highway 10. A variety of land uses are planned for this area including residential, industrial, commercial, parks, public uses and agriculture, which are also shown on Figure 4-4 and in Table 4-12 below.

Table 4-12
Future Land Use
Planned Growth Area Surrounding Dilworth

Land Use Category	Total Acres	Percent of Total
Residential	339	45.2%
Commercial	27	3.6%
Parks and Open Space	89	11.9%
Transportation	37	4.9%
Unclassified	258	34.4%
Total	750	100%
Total acres with natural constraints:	0	0%

Source: Dahlgren, Shardlow & Uban, Inc.

HAWLEY

Hawley is located within Hawley Township but is also adjacent to Eglon, Cromwell and Highland Grove Townships. It is located along Highway 10 approximately 19 miles west of Moorhead. The city had a2000 population of 1,882. Currently, the city is surrounded largely by agricultural and scattered residential uses.

Factors Influencing Growth

Hawley has gained population every decade since 1950 as shown in Table 4-13 and is expected to continue to grow according to each of the population projections, except the Top-Down method, prepared for this Plan. The city's location along Highway 10 has likely contributed to its growth. Hawley is expected to add between 106 and 443 residents between 2000 and 2020. Considering that population has already risen 227 people between 1990 and 2000, the higher growth projections are probably more accurate. Based on the higher projections and the 2000 countywide average number of persons per household (2.53), the city may gain between 135 and 175 households between 2000 and 2000. The projections prepared for the city's comprehensive plan yield a similar result, indicating a need for an additional 110 dwelling units over the next 25 years.

Table 4-13
Population Trends & Projections
City of Hawley
1950 - 2020

Date	Population	Decade Change *	
		Number	Percent
1950	1,196	n/a	n/a
1960	1,270	74	6%
1970	1,371	101	8%
1980	1,406	35	3%
1990	1,655	249	18%
2000	1,882	227	14%
2020 Straight Line Projection	2,223	341	18%
2020 Exponential Projection	2,325	443	24%
2020 Top-Down Projection	1,724	-158	-8%
2020 Demographer's Rate Projection	1,988	106	6%

Source: 1950 - 2000 US Census
* For 2020 projections, this represents the change over two decades

Planned Growth Area

In April of 2000, Hawley adopted a Community-Based Comprehensive Plan. That plan identifies growth areas for the city, which are shown in Figure 4-5, *Planned Growth Areas Surrounding Hawley*. A portion of the city's growth area is already in an orderly annexation agreement. A variety of land uses are planned for the city's growth area including residential, commercial, industrial, parks, public uses and agriculture. These are shown on Figure 4-5 as well as in Table 4-14 below.

Table 4-14
Future Land Use
Planned Growth Area Surrounding Hawley

Land Use Category	Total Acres	Percent of Total
Residential	85	14.7%
Commercial	118	20.2%
Industrial	106	18.2%
Parks and Open Space	112	19.3%
Public/Semi-Public	0	0.0%
Agricultural	113	19.5%
Transportation	47	8.1%
Total	582	100%
Total acres with natural constraints:	11	2.0%

Source: Dahlgren, Shardlow & Uban, Inc.

MOORHEAD

Moorhead is the largest city in Clay County with an estimated 2000 population of 32,177. It is located on the eastern border of the County across the Red River from Fargo, North Dakota. Interstate 94, Highway 10 and Highway 75 all transect the city. It is bordered by Oakport and Moorhead Townships as well as the city of Dilworth.

Factors Influencing Growth

Until the 1990's, Moorhead gained population every decade since 1950 as shown in Table 4-15 below. The city's position as the center of commerce and government and its location along three major highway corridors have helped facilitate this growth. Moorhead is projected to continue growing through 2020 according to the population projections prepared for this Plan. These projections forecast an increase of 1,660 to 2,002 households between 2000 and 2020.

Table 4-15
Population Trends & Projections
City of Moorhead
1950 - 2020

Date	Population	Decade Change *	
		Number	Percent
1950	14,870	n/a	n/a
1960	22,934	8064	54%
1970	29,687	6753	29%
1980	30,641	954	3%
1990	32,295	1654	5%
2000	32,177	-118	0%
2020 Straight Line Projection	33,837	1,660	5%
2020 Exponential Projection	33,952	1,775	6%
2020 Top-Down Projection	34,179	2,002	6%
2020 Demographer's Rate Projection	33,993	1,816	6%

Source: 1950 - 2000 US Census
* For 2020 projections, this represents the change over two decades

Planned Growth Areas

Moorhead adopted a comprehensive plan in 1997 that identifies future growth areas for the city. These are shown in Figure 4-6, *Planned Growth Areas Surrounding Moorhead*. The Planned Growth Area shown in this Plan mirrors that shown in the city's 1997 Plan with the addition of a small area on the SE corner of the city adjacent to land that has recently been annexed. A variety of land uses are identified for the city's Planned Growth Area including residential, commercial, industrial, parks, public uses and agriculture as shown in Table 4-16 below and depicted on Figure 4-6.

Table 4-16
Future Land Use
Planned Growth Area Surrounding Moorhead

Land Use Category	Total Acres	Percent of Total
Residential	2,929	68.0%
Commercial	201	4.7%
Industrial	211	4.9%
Parks and Open Space	64	1.5%
Public/Institutional	57	1.3%
Agricultural	846	19.6%
Total	4,308	100%
Total acres with natural constraints:	874.47	18%

Source: Dahlgren, Shardlow & Uban, Inc.

In some parts of the growth areas, the land use designation reflects existing township or other rural development. The northern reach of the growth area contains existing denser, single-family residential development served by a central sewer and water system. This area has had frequent flooding problems. The area is under an orderly annexation agreement to become part of Moorhead. Flooding issues are being addressed through a city/county/township effort to design and install a dike system to remove the areas from the 100-year floodplain.

In addition to the areas currently contained in the city's Planned Growth Area, the city is considering annexing a large portion of land between the existing city limits and the Moorhead airport. If the annexation occurs, the city should work cooperatively Moorhead Township and the County to plan future land uses for that area.

Future Land Use Plan

Clay County, Minnesota

Georgetown
Felton
Ulen
Hitterdal
Kragnes
Averil
Moorhead
Dilworth
Glyndon
Hawley
Sabin
Downer
Rollag
Rustad
Baker
Barnesville Airport
Barnesville
Comstock

75
9
32
10
336
94
34

N

0 8500 17000 25500 34000 Feet

- General Rural Area
- Park/Recreational
- Rural Service Area
- Open Water
- Public/Semi-Public
- Municipality
- Special Concern Area
- Planned Growth Area
- Shoreland
- Interstate/Highway
- Floodplain
- Railroad
- Park/Recreational - Public

Figure 4-1

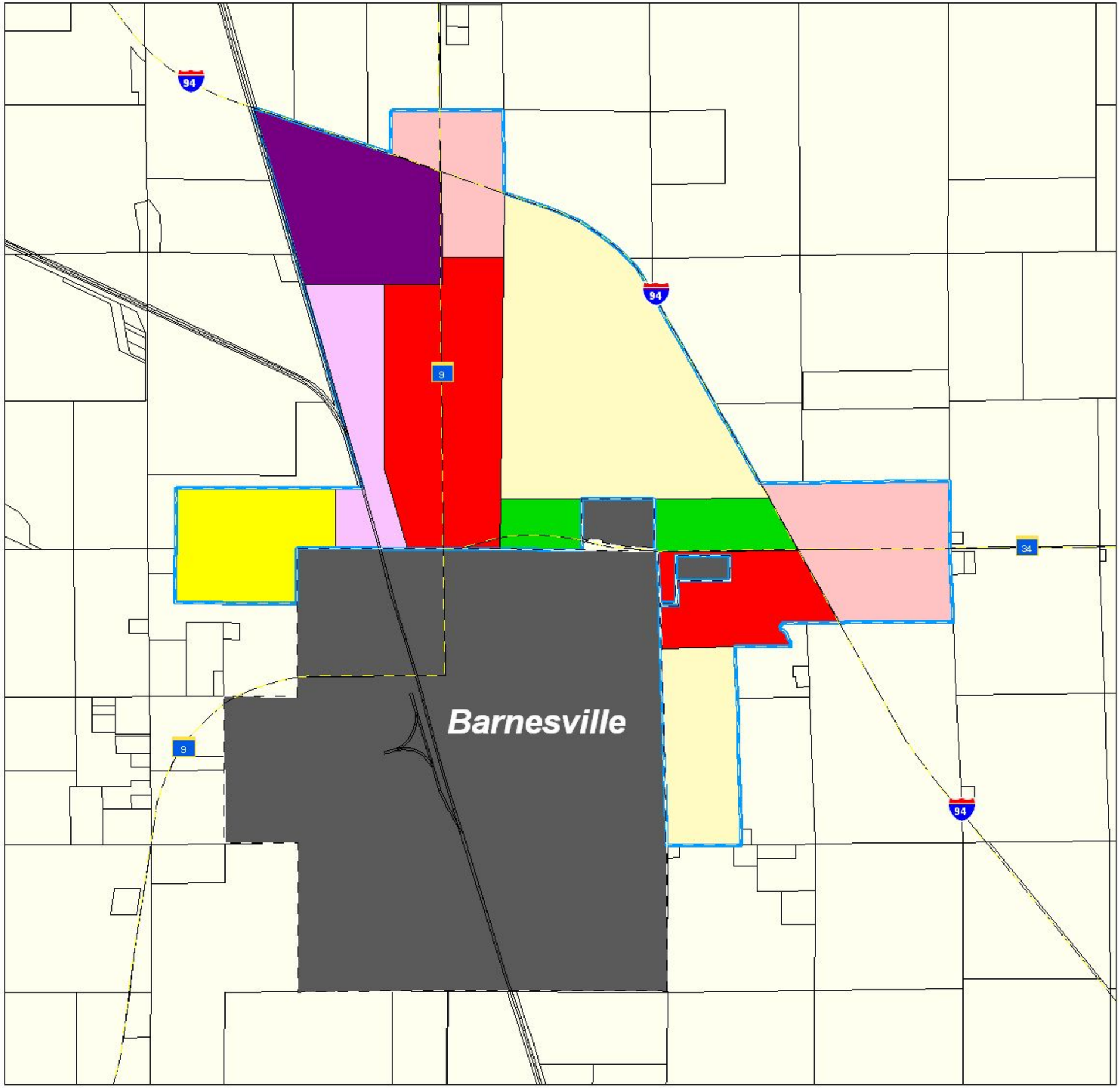
DAHLGREN SHARDLOW AND UBAN INCORPORATED

September 3, 2002

Planned Growth Areas Surrounding Barnesville

Barnesville, Minnesota

Clay County, Minnesota



- AGP-1 (Agricultural Preservation)
- R-2 (Single Family Large Lot Residential)
- C-1 (Commercial)
- C-2 (Highway Commercial)
- I-1 (Light Industrial)
- I-2 (Highway Industrial)
- SC-1 (Special Conservation)
- Growth Boundary
- Municipality
- Interstate/Highway
- Railroad

N

0 500 1000 1500 2000 2500 Feet

Figure 4-3

DAHLGREN SHARDLOW AND UBAN

February 15, 2001

Planned Growth Areas Surrounding Dilworth

Dilworth, Minnesota

Clay County, Minnesota

Dilworth

Moorhead

10

10

336

94

Single Family Residential

Multi-Family Residential

General Commercial

Park/Recreational

Growth Boundary

Municipality

Interstate/Highway

Railroad

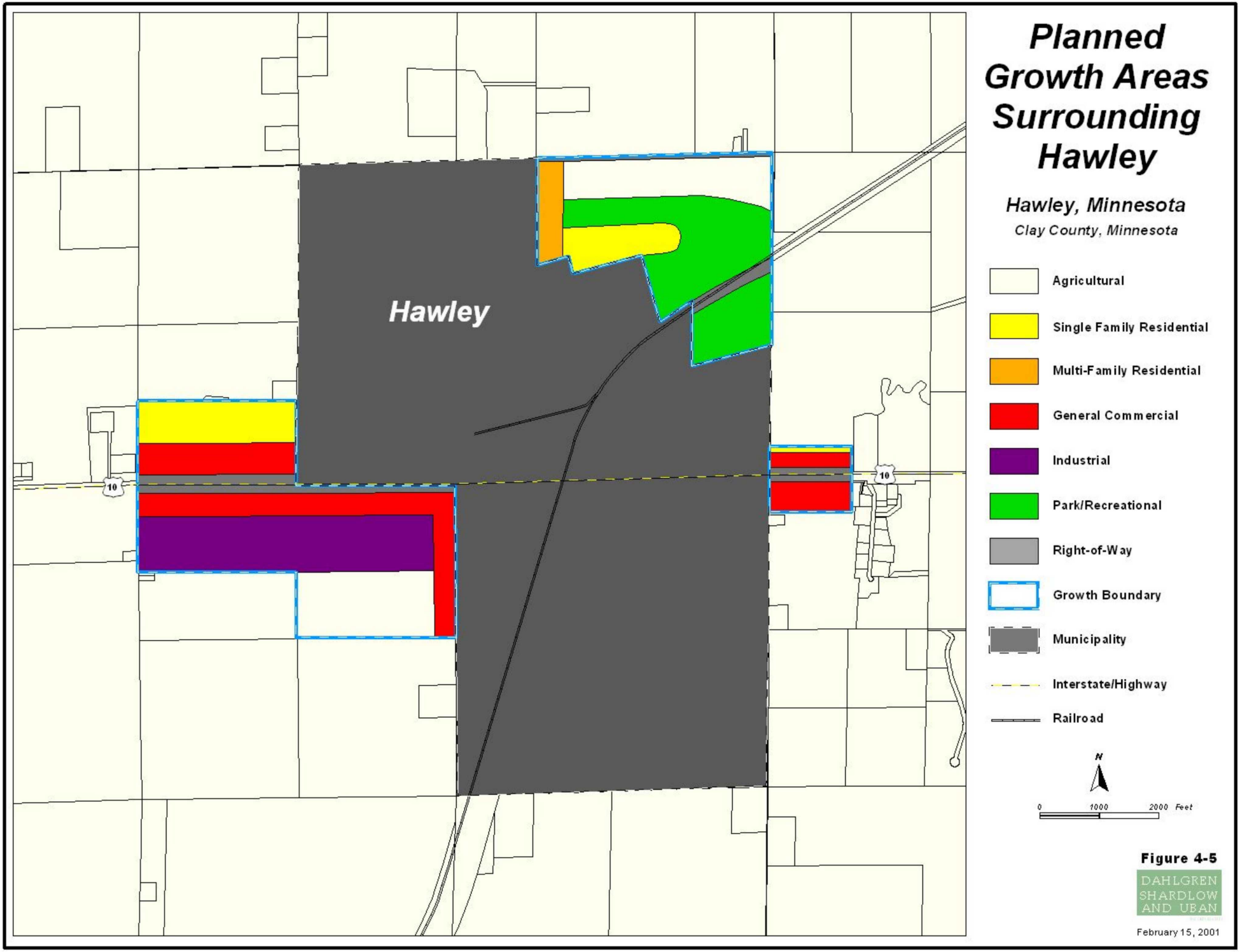
N

0 500 1000 1500 2000 2500 Feet

Figure 4-4

DAHLGREN SHARDLOW AND UBAN

July 3, 2001



Planned Growth Areas Surrounding Hawley

Hawley, Minnesota

Clay County, Minnesota

- Agricultural
- Single Family Residential
- Multi-Family Residential
- General Commercial
- Industrial
- Park/Recreational
- Right-of-Way
- Growth Boundary
- Municipality
- Interstate/Highway
- Railroad

N

0 1000 2000 Feet

Figure 4-5

DAHLGREN SHARDLOW AND UBAN

February 15, 2001

Planned Growth Areas Surrounding Moorhead

Moorhead, Minnesota

Clay County, Minnesota

Dilworth

Moorhead

- Agricultural
- Single Family Residential
- Multi-Family Residential
- High Density Residential
- General Commercial
- Institutional
- Public
- Industrial
- Park/Recreational
- Growth Boundary
- Municipality
- Interstate/Highway
- Railroad

N

0 3250 6500 Feet

Figure 4-6

DAHLGREN SHARDLOW AND UBAN

July 3, 2001

COMPREHENSIVE PLAN

INTRODUCTION
INVENTORY & ANALYSIS
GOALS & POLICIES
LONG RANGE PLAN
IMPLEMENTATION

IMPLEMENTATION

CLAY COUNTY COMMUNITY-BASED COMPREHENSIVE PLAN

In many ways, formal adoption of the Comprehensive Plan is the first step in the planning process, rather than the last, because it establishes the policy direction for the community, describing its objectives and methods to achieve them. Without continuing action to implement and update the Plan, County efforts will have little lasting impact.

To effectively implement the Comprehensive Plan, Clay County should:

- Review and revise several of its regulatory measures which can enforce the Plan's policies and recommendations, such as the Zoning Ordinance and subdivision regulations;
- Continue to utilize its Capital Improvements Program, implementing the most important public improvements on a priority system, while staying within budgetary constraints;
- Work with the cities and affected cities and townships to plan for the orderly development of the Planned Growth Areas;
- Actively involve local residents in ongoing planning discussions and decisions;
- Make continued public education efforts relating to the land use planning, sustainable development and other goals, policies and recommendations of this Plan;
- Continue ongoing planning dialogue among jurisdictions in the County as well as with surrounding jurisdictions and the State;
- Review and update the Plan itself as needed to reflect local aspirations and changing opportunities.

Each of these requirements is briefly discussed below.

ZONING REGULATIONS

Zoning is a governmental unit's primary regulatory tool for implementing planning policies. It consists of the official zoning map and the supporting ordinance text. The official map divides the community into a series of zoning districts, and the text describes regulations for the use of land within these districts, including permitted uses, lot sizes, setbacks and density standards. It can also include design and property maintenance controls.

During the Comprehensive Plan implementation, the current zoning map should be compared to the adopted Future Land Use Plan map and text in order to clearly document valid discrepancies between the two. The second step will be to review, update and refine the zoning components of the County's Land Development Ordinance to implement and enforce the guidelines of the updated Comprehensive Plan. The County should begin the process of updating its Land

Development Ordinance immediately upon adoption of the Comprehensive Plan. The process should begin late 2002 and be adopted by early 2004. The County Planning Office will take the lead, with participation of the Planning Commission and Citizen Advisory Committee.

SUBDIVISION REGULATIONS

Subdivision controls regulate the subdivision and development of land and the provision of public facilities within the community. Properly enforced subdivision regulations, coupled with zoning, can ensure proper physical development and adequate public facilities within growth areas. They normally prescribe standards for street improvements, lot setbacks and layouts, and sewer facilities. Subdivision regulations can also ensure that the costs of public improvements within growth areas are borne by the developers and the new residents as appropriate rather than by the established community. Clay County's subdivision regulations contained in its Land Development Ordinance should be reviewed against the recommendations of the new Comprehensive Plan, and revised and modified if necessary.

CAPITAL IMPROVEMENT PLAN

Another potential tool for implementation is the Capital Improvement Program, which establishes schedules and priorities typically within a five-year period. The County first prepares a list of all public improvements that will be required in the next five years, including transportation and community facilities projects. Once all projects are reviewed, priorities are assigned, cost estimates prepared, and potential funding sources identified. The County can determine which projects should be financed through annual tax receipts, which require public borrowing, and which may be eligible for outside sources of assistance.

The Capital Improvement Program allows the County to provide the most critical public improvements, yet stay within budget constraints. Some of the elements outlined in this Comprehensive Plan can be articulated in a Capital Improvements Program (CIP), particularly the planned roadway improvements identified in the Inventory and analysis chapter.

The County should continue to maintain a Capital Improvements Program that includes elements of the Comprehensive Plan. Priorities may include an adequate transportation system in the growing areas of the community and adequate and up-to-date County buildings.

PLANNED GROWTH AREAS & ANNEXATION

Several of the cities in Clay County anticipate further residential, commercial and industrial development and, in order to accommodate that growth, have designated areas outside of their current city limits as "Planned Growth Areas". For the most part, land use plans and policies have already been established for these areas either within the adjacent city's Comprehensive Plan, through joint planning agreements between cities and townships, or through orderly annexation agreements. Where this is not the case, cities should work cooperatively with the

County and surrounding township to plan the land uses for these additional areas. Even where land uses are already identified for the Planned Growth Areas, cities, townships and the County will have to continue to work cooperatively to manage growth and development in these areas and to prevent premature development so that adequate streets, infrastructure and services can be provided in a cost effective manner. The two most useful means to do this are through joint powers agreements and/or orderly annexation agreements.

To ensure that inefficient and difficult-to-serve land use patterns do not develop in the Planned Growth Areas, they should be zoned with a residential general density of 1 unit per 20 acres. New commercial and industrial development should be consistent with the land use plan of the adjacent city as shown in Figures 4-3 through 4-6 and/or in local city comprehensive plans. Properties within the Planned Growth Areas should be annexed into the adjacent city when urban development is imminent and sewer, water and other urban services can be provided in an orderly, efficient, cost effective manner.

Annexation agreements of urban expansion areas should be pursued and hopefully put into place by 2005. This process will be lead by the individual communities and townships.

CITIZEN INVOLVEMENT

This Plan was built upon a strong foundation of citizen involvement. Citizens should be involved not only in the local planning efforts undertaken to implement this Plan, but in future updates to this Plan as well. This Plan will affect everyone in the County, and everyone should have the opportunity to contribute to its future planning decisions.

To ensure active, ongoing citizen involvement, a Citizen's Advisory Board (CAB) should be established and charged with managing the Plan's progress, particularly with respect to the established Goals and Policies. The CAB would be "keepers of the vision" by having the responsibility for monitoring and informing the County of the implementation progress and ongoing challenges facing the Plan. The CAB should develop, in coordination with and approval of the County, a system to measure the Plan's success. The CAB should be composed of a mix of individuals appointed by the County Board who are representative of major stakeholders within the County similar to the composition making up the Planning Task Force for the development of this Plan. The CAB should be established immediately after the adoption of this Plan in order to be involved in the Zoning Ordinance update and other implementation measures. The CAB should undertake its first review of the Plan's implementation 3 – 5 years after its adoption. The County Planning Office will maintain and coordinate CAB functions under the direction of the County Board.

PUBLIC EDUCATION

Ongoing public education will be an important component to successfully implementing this Plan. The County and its cities and townships should seek out creative ways to communicate the Plan's overall goals, policies and recommendations to the public. It will be particularly important to express to the public the importance of planning and to educate them on the sustainable development and growth management concepts embodied in this Plan.

At a minimum the County should make copies of this Plan available for the public to review and discuss. This may include copies for review at the County Courthouse, city halls, the public library, local colleges and universities, and possibly on an appropriate Internet web site.

REVIEW AND REVISION

Comprehensive planning is a continuous process and thus the Plan should be monitored and updated when necessary. The Planning Commission and County Board should carefully review proposed changes and their implications and actively seek citizen comment on such proposals. If changes are found to be appropriate, they should be formally added to the Plan by legal amendment. In addition, every five years, the entire Comprehensive Plan should be reviewed and modified, if needed, to ensure that it is an up-to-date expression of community goals and intentions.

In addition to a wholesale review of the Plan every five years, the County should review and make updates, if needed, as things having major planning impacts occur. The following are some examples:

- Review the Comprehensive Plan after completion of the Highway 336 corridor study.
- Review the Comprehensive Plan after the next (and subsequent) updates to FM COG's transportation plan occur. (2003)

ONGOING, SHARED PLANNING

This planning effort has established a healthy dialogue among local jurisdictions within the County and between these jurisdictions and state agencies. These jurisdictions should continue this dialogue in the implementation and maintenance of this Plan; managing the Planned Growth Areas; and planning future infrastructure. The County currently provides limited technical assistance to local jurisdictions if requested, and will continue to do so to the best of it's ability in the future.

The County should also continue to work cooperatively with local jurisdictions, adjacent communities and state agencies on issues of mutual concern. These may include issues such as transportation, surface and ground water management, flooding, agricultural preservation, economic development and other issues.

COMPREHENSIVE PLAN

APPENDIX A

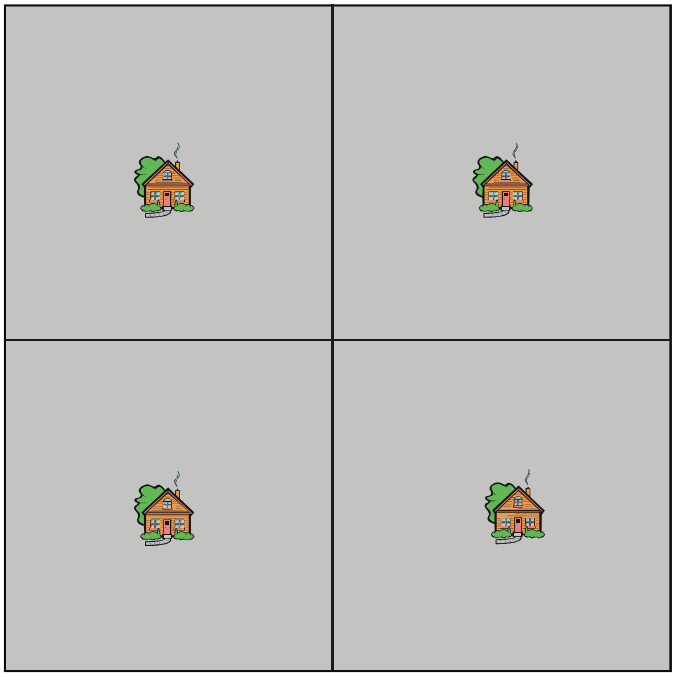
DENSITY TRANSFER

Density transfer is an approach to density zoning used primarily in rural areas. It allows all or part of the permitted density on a tract(s) of land to be located anywhere or in various locations throughout the tract(s) where the minimum lot size is less than the minimum density acreage. Typically the transfer is allowed only within a single tract or among contiguous parcels in common ownership.

For example, if a landowner has 160 acres of farmland and the permitted residential density is 1 unit per 40 acres, the landowner would be allowed to build 4 dwellings. Under conventional zoning, the 160-acre tract of farmland would be subdivided into four 40-acre residential lots with one dwelling on each. This is depicted in Example 1 on the right. Under this scenario, the dwelling may be placed anywhere within the forty-acre lot on which it is located, but none of the land is likely to remain in agricultural use unless the resident engages in a small hobby-farm type activity.

Example 1

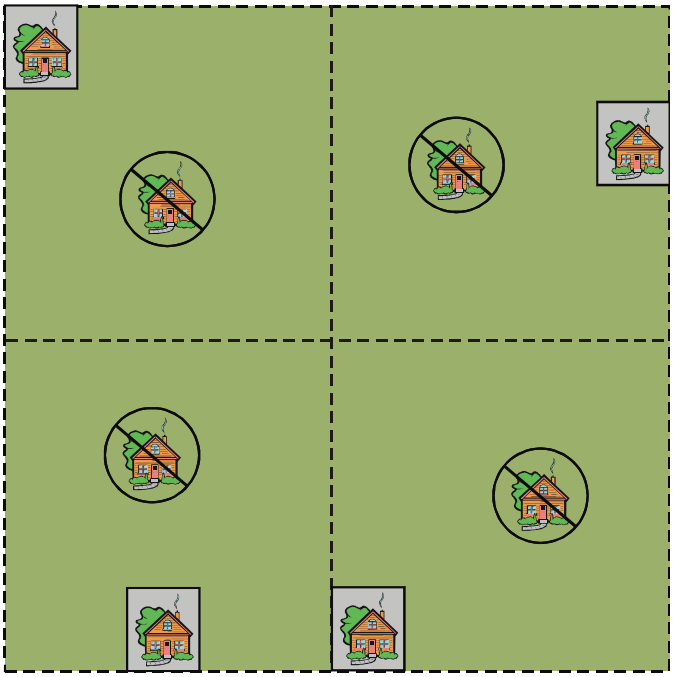
- **160 Acre Tract of Land**
- **Maximum Density of 1:40**
- **40 Acre Minimum Lot Size – Results in the Subdivision of the 160 Acres into 4 Forty-Acre Lots**
- **No Density Transfer**



In order to preserve farmland, open space or other features, the County has the option of allowing a lot size that is smaller than the permitted density. Under the example above, the landowner could divide off four one-, two-, five-, etc. acre lots and keep the rest in agricultural use. (Note, without maximum lot sizes, however, this method could still allow 20-, 30- 40- or more acre residential lots.) Dwellings would still need to be placed on the forty acres (or quarter-quarter section) from which the development right was derived. This is shown in Example 2 below.

Example 2

- **160 Acre Tract of Land**
- **Maximum Density of 1:40**
- **1, 2, 5, Etc. Acre Minimum Lot Size – Still Allows for Subdivision of 4 Residential Lots, With the Rest Remaining With the Landowner as an Outlot(s)**
- **No Density Transfer**

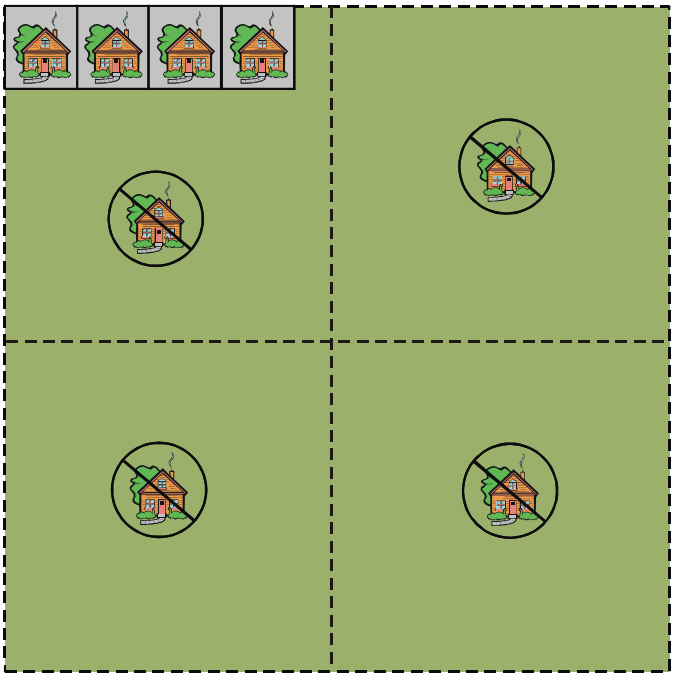


In order to further preserve the maximum contiguous open space, farmland or other features, the County can also allow the transfer of density within the development. Using the same example, the landowner could still divide off four one-, two-, five-, etc. acre lots and keep the rest in agricultural use. (Again, without maximum lot sizes, however, this method could still allow 20-, 30- 40- or more acre residential lots.) However, dwellings would not have to be placed on the forty acres (or quarter-quarter section) from which the development right was derived. They could be clustered or arranged in a number of locations anywhere throughout the 160-acre tract. One example of this arrangement is shown in Example 3 below.

Because dwellings do not need to be located on the specific 40 acres that was used to derive the development right, the County needs some sort of method to track land that has already been used in the calculation for development. The most common way to do this is to place a deed restriction on the remainder of the tract.

Example 3

- **160 Acre Tract of Land**
- **Maximum Density of 1:40**
- **1, 2, 5, Etc. Acre Minimum Lot Size – Still Allows for Subdivision of 4 Residential Lots, With the Rest Remaining With the Landowner as an Outlot(s)**
- **No Density Transfer**

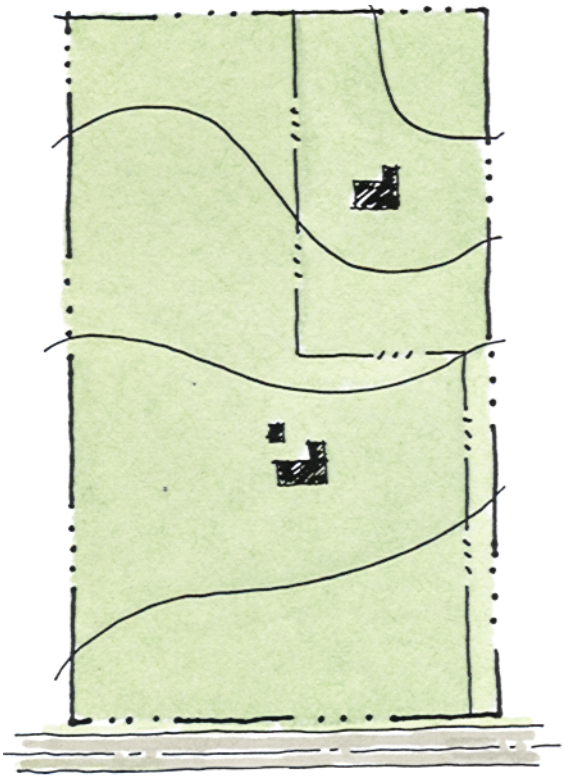


Density transfer can be used to achieve a number of objectives. It can allow for dwellings to be placed along an existing road or to share a common drive off an existing road. It can allow for the clustering of dwellings in locations with natural amenities such as woodland areas while preserving farmland. The following illustrations show development under conventional zoning for a 40-acre tract of land under conventional zoning (with varying lot sizes) and compares it to scenarios where dwellings are clustered through density transfer with minimum lot sizes of 2.5 acres to achieve a variety of objectives.

EXAMPLE 4

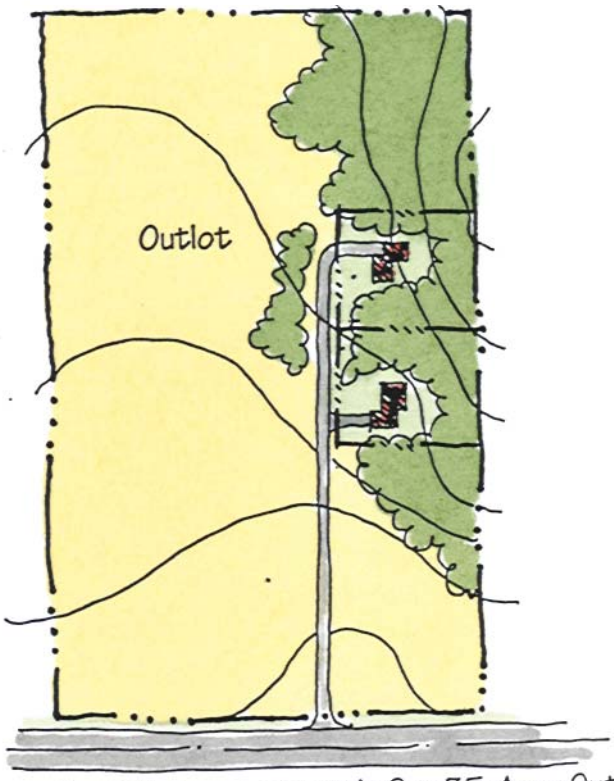
- **40 Acre Tract of Land**
- **Maximum Density of 1:20**

No Density Transfer



15 Acre Flag Lot

Utilizing Density Transfer

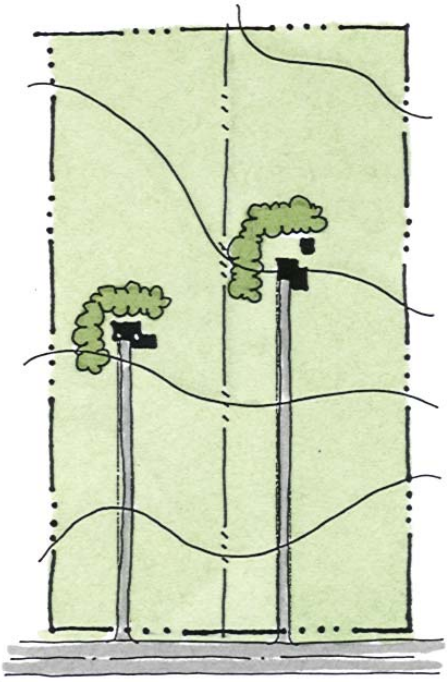


Two 2.5 Acre Lots with One 35 Acre Outlot
Utilizes Natural Features

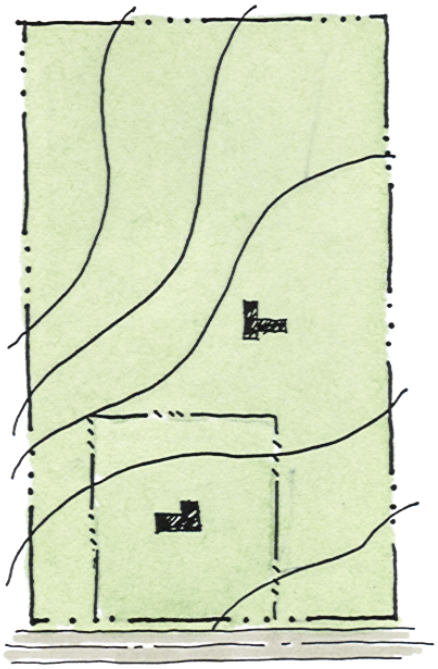
EXAMPLE 5

- **40 Acre Tract of Land**
- **Maximum Density of 1:20**

No Density Transfer

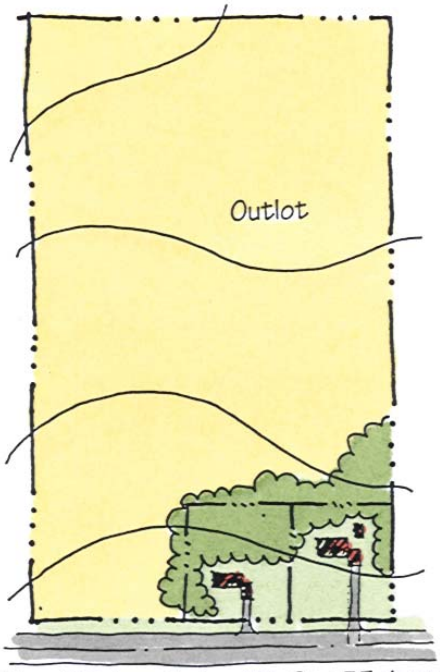


Two lot split, each 20 acres

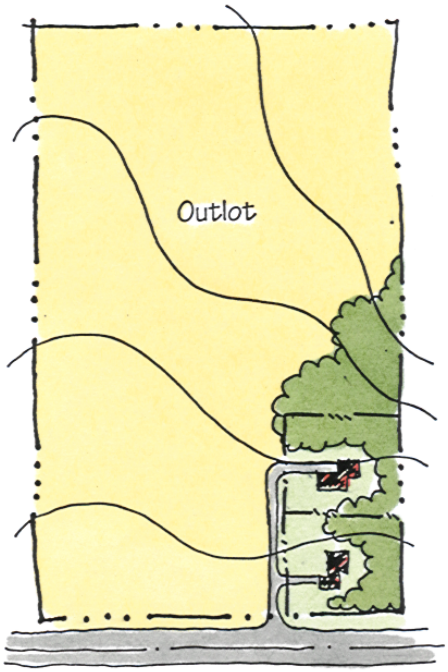


10 Acre/30 Acr

Utilizing Density Transfer



Two 2.5 Acre Lots with One 35 Acre Outlot Fronting on Road



Two 2.5 Acre Lots with One 35 Acre Outlot Fronting on Preserved Farmland