

LAND USE AND GROWTH

CLAY COUNTY COMMUNITY-BASED COMPREHENSIVE PLAN

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 1,155 acres 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
Egdon	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 development 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