2045

CLAY COUNTY
COMPREHENSIVE PLAN

May 2022

The preparation of this document was funded in part by the United States Department of Transportation with funding administered through the North Dakota Department of Transportation, the Federal Highway Administration, and the Federal Transit Administration. Additional funding was provided by the Minnesota Department of Transportation and through local contributions from the governments of Fargo, West Fargo, Horace, and Cass County in North Dakota; and Moorhead, Dilworth, and Clay County in Minnesota. The United States Government and the States of North Dakota and Minnesota assume no liability for the contents or use thereof.

ACKNOWLEDGMENTS

CLAY COUNTY BOARD OF COMMISSIONERS

Jenna Kahly, District 1
Frank Gross, District 2
Jenny Mongeau, District 3
Kevin Campbell, District 4
David Ebinger, District 5

CLAY COUNTY PLANNING COMMISSION

William Davis, Chair
Ezra Baer, Vice Chair
Steve Mortensen, Secretary
Joel Hildebrandt
Laura Johnson
Mark Klevgaard
Andrea Koczur
Steve Lindaas
Jenny Mongeau
Kurt Skjerven
Curt Stubstad

CLAY COUNTY ADMINISTRATION

Stephen Larson, County Administrator
Matthew Jacobson, Planning Director
Erika Franck, Planning and Zoning Technician
Rita Rueckert, Administrative Assistant

DOCUMENT PREPARED BY

Fargo-Moorhead Metropolitan Council of Governments

828690
Certified, Filed and/or Recorded on:
05/24/2022 02:21:15 PM

DocId:8042757
Tx:4033558

CLAY COUNTY, MINNESOTA

Kimberly S. Savageau, Recorder
Office Of County Recorder
Clay County, MN

Ordinance NO. 2022-2

An Ordinance Adopting
The 2045 Clay County Comprehensive and Transportation Plan

WHEREAS, the County of Clay, State of Minnesota ("County") is a statutory County duly organized and existing under Article XII of the Minnesota Constitution; and

WHEREAS, pursuant to Minnesota Statute Chapter 394 and specifically § 394.21, the County has the power and authority to conduct and implement planning activities; and

WHEREAS, pursuant to Minnesota Statute Chapter 394 and specifically § 394.23, the County has the power and authority to prepare and adopt by ordinance, a comprehensive plan to promote the health, safety, morals and general welfare of the County; and

WHEREAS, development of the comprehensive plan was drafted in partnership with the Fargo-Moorhead Metropolitan Council of Governments with the input and direction of the Study Review Committee and the Clay County Planning Commission; and

WHEREAS, the comprehensive planning process included significant opportunity for public input through surveys, public meetings, and focus group meetings; and

WHEREAS, the Clay County Planning Commission recommended the 2045 Clay County Comprehensive and Transportation Plan to the County Board of Commissioners for approval on March, 15th, 2022;

NOW, THEREFORE BE IT RESOLVED, THAT THE BOARD OF COMMISSIONERS OF THE COUNTY OF CLAY, STATE OF MINNESOTA HEREBY ADOPTS THE 2045 CLAY COUNTY COMPREHENSIVE AND TRANSPORTATION PLAN TO SERVE AS A GUIDE FOR FUTURE DEVELOPMENT AND AS THE BASIS FOR ESTABLISHING OFFICIAL CONTROLS IN CLAY COUNTY.

ADOPTED BY THE CLAY COUNTY BOARD OF COMMISSIONERS ON MAY 17th, 2022.

JENNY MONGEAU, CLAY COUNTY BOARD OF COMMISSIONERS

ATTEST:
STEPHEN LARSON, CLAY COUNTY ADMINISTRATOR

CONTENTS

CHAPTER 1
INTRODUCTION

Setting

Located on the western edge of Minnesota, Clay County is an area known for its natural beauty, vibrant communities, and fertile plains. The county has historically played a diverse role in the Fargo-Moorhead metropolitan area, serving the region with commercial, industrial, community, natural, and agricultural resources. From the wheat fields of Ulen Township to the suburban developments of Moorhead; the lively rail yards of Dilworth to the natural splendor of the tallgrass prairies found in Buffalo River State Park; the growing cities along Highway 10 and I-94 to the serene lakeland communities of Eglon and Parke Township, each area plays a distinct role in the county and the region.

Clay County covers 1,053 square miles, measuring 36 miles from north to south and approximately 30 miles from east to west. The county contains 11 cities and 30 townships. The western boundary of the county abuts the eastern boundary line of North Dakota along the Red River. The Buffalo River flows west-northwesterly through the center of the county, joined by the South Branch Buffalo River west of Glyndon, before discharging into the Red River near Georgetown. The terrain of Clay County consists of flat, rich agricultural land in its western portion to rolling hills, dotted with lakes and ponds in the east.

Purpose and Scope

The 2045 Clay County Comprehensive Plan describes the analysis, future projections, goals and objectives that the county has developed for how decisions will be made over the next 25 years. The 2045 Clay County Comprehensive Plan is an official document adopted by the Board of Commissioners as a guide for decisions about the physical development of the county. The plan sets broad approaches to direct the future growth and development in the areas of land use, transportation, natural resources, housing, and economic competitiveness. For each topic, the plan sets goals, establishes objectives to achieve those goals, and identifies strategies and actions needed for implementation.

County Role

Clay County, like the other 86 Minnesota counties, provides a variety of essential services to foster vibrant, healthy, and safe communities. The role that the county government plays supplements the efforts completed at the federal, state, and local level. Counties support and maintain public infrastructure, transportation, and economic development assets; promote public health; ensure public safety to protect its citizens; maintain public information; and implement a broad array of programs in a cost-effective and efficient manner. These efforts are coordinated with many government partners, including:

- Cities and Townships – Cities and townships provide services at the local level of government in Clay County. These local governments provide essential services similar to those provided by a county, including transportation and utility infrastructure, public safety, and public administration.
- State Agencies – Clay County coordinates with a variety of agencies on different planning efforts. These include agencies such as the Board of Water and Soil Resources (BWSR), Minnesota Department of Health (MDH), Minnesota Pollution Control Agency (MPCA), Minnesota Department of Transportation (MnDOT) and the Minnesota Department of Natural Resources (MnDNR). In addition to these, Clay County is a partner in Comprehensive Watershed Management Plans for both the Buffalo-Red River and Wild Rice Watershed Districts. The Clay Soil and Water Conservation District (SWCD) also serves the role of the County Ag Inspector, Feedlot Officer, and Wetlands Conservation Act Coordinator. These agencies deliver programs and services in accordance with Minnesota Rules and Statutes.

Spring Prairie Township

Plan Overview

Demographic Forecasts

Every five years, the Fargo-Moorhead Metropolitan Council of Governments develops demographic forecast projections for the Fargo-Moorhead metropolitan area. These population, household, and employment projections are used primarily for the allocation of transportation funding in the region but also assist in both city and county planning efforts.

By 2045, it is projected that Clay County will add 25,102 new residents, a 38.4 percent increase compared to the total population in 2020. During this same 25-year period, it is expected that the county will add 9,674 households and 7,569 new job opportunities. Compared to 2020 numbers, this is an increase of 38.2 and 30.0 percent respectively.

Plan Intent

Building upon demographic forecasts and community input, the intent of the comprehensive plan is a statement meant to reflect the community's desire to maintain its important rural and natural character.

To accommodate the needs and services of a projected growth of 25,102 new county residents between 2020 and 2045, while preserving vital agricultural and natural characteristics of the county.

City of Barnesville

Planning Principles

Clay County strives to maintain a high level of satisfaction from citizens through its quality of services, knowledge, courteousness, and responsiveness. The county is aware that this will be especially important in the future as it preserves the right balance of services, be it transportation, housing, health and human services, corrections services, public safety, housing, and other public services.

The county is also committed to the stewardship of natural resources including soil health, water quality, aggregate resources, open space, and native habitats. In addition, Clay County support historical and cultural amenities such as libraries, arts institutions, and interpretative sites.

Clay County endeavors to support a robust and competitive business climate by providing well-planned, essential infrastructure, maintaining a low tax rate, and assisting in the training and education of skilled individuals.

With regard to growth and land development in the county, Clay County sought to better understand the costs and benefits of different alternatives. These alternatives include the following:

Alternative 1 - Pursue a Restrictive Growth/ Land Use Pattern

This alternative would define tight growth boundaries and require all non-farm development to occur within cities, prohibiting these types of uses within rural areas of the county.

Pros:

- Offers maximum protection for agricultural lands
- 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
- Limits land use conflicts between non-farm residents and agricultural operations in terms of noise, dust, and odor

Cons:

- Doesn't provide landowners, developers, and others many development options
- Most restrictive on economic growth and employment opportunities
- Restrictive growth policies are often cited for inflated land values

Parke Township

Alternative 2 - Pursue a Balanced Growth/ Land Use Pattern (PREFERRED)

This alternative would define modest, flexible growth boundaries and allow for non-farm residential, commercial, and industrial development to occur within planned growth areas outside cities, so long as it follows planned development patterns. This alternative would also allow for some non-farm development outside of the planned growth areas with adequate infrastructure, but limit residential densities and direct commercial and industrial growth to areas with adequate infrastructure so as to minimize land use conflicts.

Pros:

- Provides for planned urban expansion
- Provides for orderly and efficient growth
- Provides for agricultural protection
- Provides for landowner and developer flexibility
- Allows for broad economic growth opportunities, while directing it towards desired areas

Cons:

- Doesn't entirely prevent development that may hinder future urbanization
- Since it allows for limited, non-farm residential development in rural areas, some conflicts may still arise between residents and agricultural operations in terms of noise, dust, and odors
- Still places some restrictions on developer and landowner options

Alternative 3 - Pursue a Unrestricted Growth/Land Use Pattern

This alternative would not define growth areas and would allow for non-farm development to occur throughout the county without restriction. This alternative would also set no density limits for residential developments.

Pros:

- Affords landowners, developers the greatest flexibility
- Provides for the greatest economic growth opportunities

Cons:

- Has highest potential for land use conflicts between farm and non-farm uses as well as between residential and commercial/industrial uses
- May reduce protection of agricultural land
- May result in development patterns outside of cities that may hinder their orderly growth
- May result in development patterns where it is difficult or costly to provide water, sewer, and other services in the future

By examining these alternatives, Clay County understands that **Alternative 2** best fits the needs and requirements of the people and communities in which it serves.

Clay County will pursue balanced, sensible growth and land use patterns that allow for modest, flexible growth boundaries along planned development patterns.

Buffalo River at Buffalo River State Park

Plan Elements

The 2045 Comprehensive Plan contains seven chapters that are guided by the county's values, goals, vision, planning principles, and community engagement findings. Some plan elements remain consistent from the previous 2002 comprehensive plan. However, there are new elements and strategies that address land use regulations, transportation corridors, natural resources, and economic resilience. The plan also includes new goals and objectives to address growing issues such as emergency preparedness, healthy communities, and rural transportation options. Below is a summary of each chapter of the plan.

Community Profile

This chapter provides a detailed analysis of Clay County's residents, economy, and important trends that the county will need to consider in upcoming years. It contains key data that lays the framework for the comprehensive plan.

Vision

This chapter outlines the overarching vision for the 2045 Clay County Comprehensive Plan based on outreach efforts with community members and strategic partners.

Land Use

The land use chapter describes physical characteristics of the county as well as measures and methods Clay County uses to maintain land use authority. This section provides guidance for balanced and logical development patterns that preserve existing natural resources, retain the rural character of the county, and provide a high quality of life for residents.

Transportation

A key function of Clay County is to provide a robust transportation system for all users. The transportation system supports the county's land use and development plans, while minimizing the impact on the county's natural resources. This chapter provides policies and strategies that keep the transportation system functioning safely and efficiently across all modes of transportation.

Goals and Objectives

This chapter includes goals and objectives that reflect current issues and opportunities that the county has identified, as well as guidance for how those can be addressed as part of the comprehensive plan.

Implementation

This chapter outlines the tools, funding mechanisms, ordinances, and other plans available to the county that can be utilized to carry out and achieve the goals and objectives for the 2045 Clay County Comprehensive Plan.

CHAPTER 2
COMMUNITY PROFILE

COMMUNITY PROFILE 2045

SNAPSHOT AT A GLANCE

Demographics

Population
65,318

Median age	65 and over	Foreign born	
32.6	**13.4%**	**4.8%**	Clay County
(38.0)	(17.0%)	(8.5%)	Minnesota
People per household	Non-white (including Hispanic)	Speaks a language other than English at home	
2.46	**15.9%**	**6.9%**	Clay County
(2.49)	(20.9%)	(11.7%)	Minnesota

Employment

Unemployment rate	Household income	Poverty rate	
1.6%	**$74,266**	**12.3%**	Clay County
(3.3%)	($71,306)	(9.0%)	Minnesota

Housing

Median house price	Median rent price	Owner-occupied rate	
$252k	**$843**	**67.5%**	Clay County
($311k)	($1,043)	(66.1%)	Minnesota

Education

High school graduate	Bachelor's degree	Commute time	
94.9%	**34.2%**	**20.2 min**	Clay County
(83.8%)	(36.1%)	(23.7min)	Minnesota

Buffalo River State Park

Demographics

Demographics are an important contributing factor to development patterns. Significant increases or decreases in the number of inhabitants, along with population characteristics such as income, education, and age have impacts on housing, economic development, land use, transportation, and utility and recreational needs. Examining past changes and present population characteristics enhance a community's ability to prepare for the future.

An analysis of the demographic trends in Clay County helps identify factors of change and reveals a trend in the economic characteristics of the county. These characteristics will assist the county in determining future land use and other development activities.

This plan utilizes information from the U.S. Census, the American Community Survey, and the Minnesota State Demographer's office.

The demographic information provided includes population information, age and diversity distributions, household information, income and poverty levels, employment statistics, education levels, and health and wellness information.

As growth, development, and demographic changes continue, the county will need to consider the potential implications to the programs and services it provides.

Population

Clay County has seen steady and continuous growth every decade since its formation in 1862. In 2020, Clay County had an estimated population of 65,318, an increase of over 6,300 new residents compared to 2010. Over the coming years, the Fargo-Moorhead Metropolitan Council of Governments projects that Clay County's population will reach 90,420 in 2045.

In 2020, approximately 87.4 percent of Clay County's population lived in one of eleven cities in the county. The remaining population were residents of the county's 30 townships.

Cities that saw the fastest population growth between 2010 and 2020 include: Sabin (18.6 percent), Moorhead (16.9 percent), Dilworth (14.6 percent), and Barnesville (7.6 percent).

Fourteen of the county's 30 townships also experienced population growth between 2010 and 2020 including: Eglon (39.4 percent), Spring Prairie (37.5 percent), Barnesville (23.1 percent), Flowing (15.6 percent), and Goose Prairie (14.3 percent).

On the whole, cities saw a 14.6 percent increase in population growth while townships saw a 10.4 percent decrease. Part of this decline is due to Moorhead annexing portions of Oakport Township in 2015 as part of an orderly annexation agreement. The population within Oakport Township fell from 1,818 to 445, with the remaining residents becoming part of Moorhead. However, the population rose to 506 in 2020.

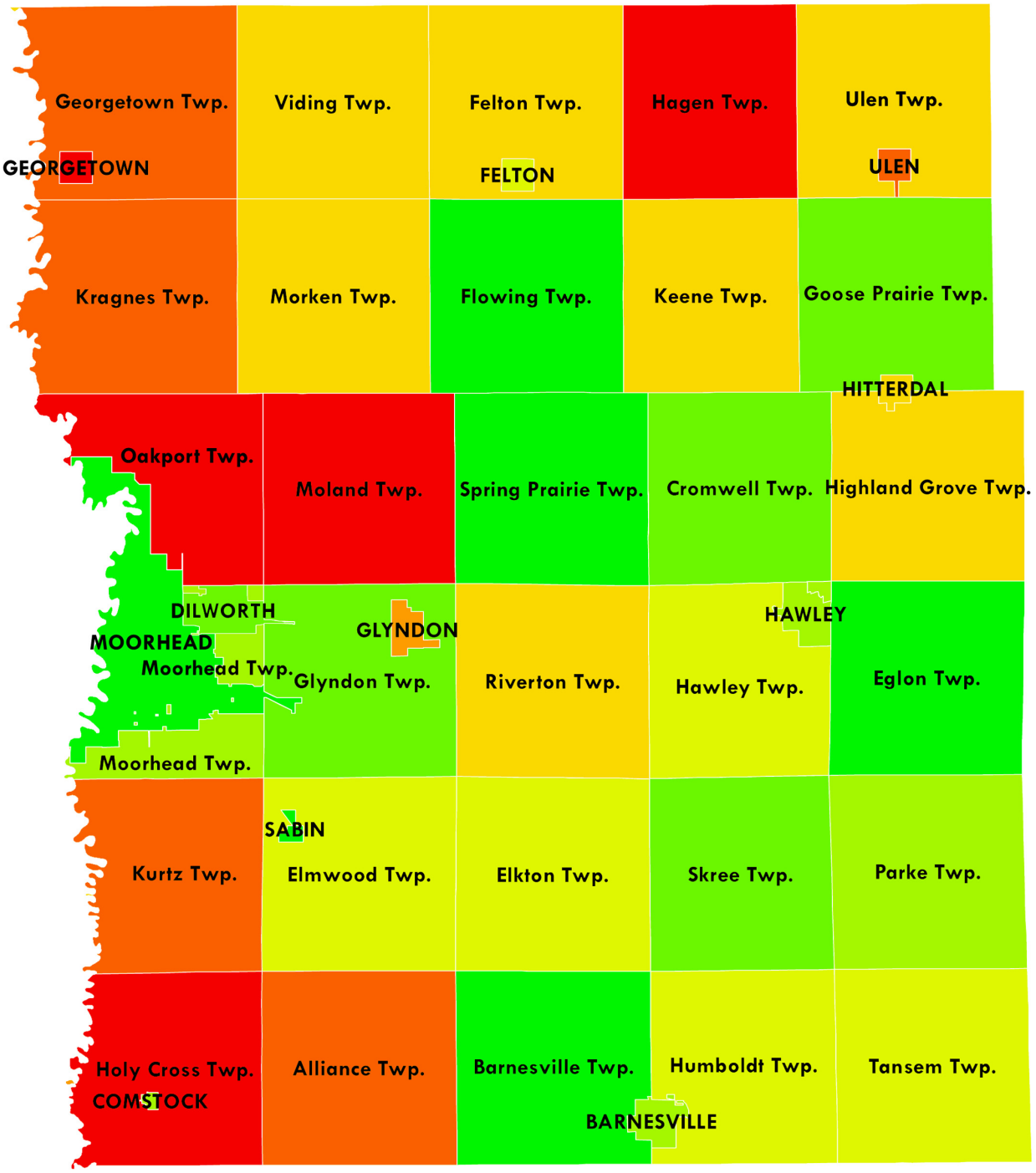
Table 3.1 – Clay County Population, 2000 to 2020

Population	2000	2010	2020	% Change 2010-2020
Clay County	51,229	58,999	65,318	10.7%
Barnesville	2,173	2,563	2,759	7.6%
Comstock	123	93	100	7.5%
Dilworth	3,001	4,024	4,612	14.6%
Felton	216	177	177	0.0%
Georgetown	125	129	86	-33.3%
Glyndon	1,049	1,394	1,306	-6.3%
Hawley	1,882	2,067	2,219	7.4%
Hitterdal	201	201	199	-1.0%
Moorhead	32,177	38,065	44,505	16.9%
Sabin	421	522	619	18.6%
Ulen	532	547	476	-13.0%
TOTAL	**41,900**	**49,782**	**57,058**	**14.6%**
Townships	9,329	9,217	8,260	-10.4%
FM Metro Area	141,632	175,898	216,818	23.3%

Table 3.2 – Clay County Township Population, 2000 to 2020*

Population (Townships)	2000	2010	2020	% Change 2010-2020
Alliance	246	235	203	-13.6%
Barnesville	149	147	181	23.1%
Cromwell	323	345	388	12.5%
Eglon	440	508	708	39.4%
Elkton	283	308	317	2.9%
Elmwood	371	415	415	0.0%
Felton	108	86	83	-3.5%
Flowing	97	77	89	15.6%
Georgetown	188	156	135	-13.5%
Glyndon	281	278	317	14.0%
Goose Prairie	199	175	200	14.3%
Hagen	153	154	128	-16.9%
Hawley	459	474	491	3.6%
Highland Grove	304	288	274	-4.9%
Holy Cross	129	140	113	-19.3%
Humboldt	239	275	280	1.8%
Keene	128	155	153	-1.3%
Kragnes	319	293	255	-13.0%
Kurtz	288	293	253	-13.7%
Moland	340	299	252	-15.7%
Moorhead	442	169	184	8.9%
Morken	203	156	151	-3.2%
Oakport*	1,689	1,797	506	-71.8%
Parke	450	485	526	8.5%
Riverton	462	446	435	-2.5%
Skree	166	159	177	11.3%
Spring Prairie	364	368	506	37.5%
Tansem	222	259	269	3.9%
Ulen	163	174	173	-0.6%
Viding	124	103	98	-4.9%
TOTAL	**9,329**	**9,217**	**8,260**	**-10.4%**

* In 2015, the City of Moorhead annexed portions of Oakport Township as part of an orderly annexation agreement. The population of Oakport Township decreased from 1,818 to 445, with the remaining residents becoming part of Moorhead.

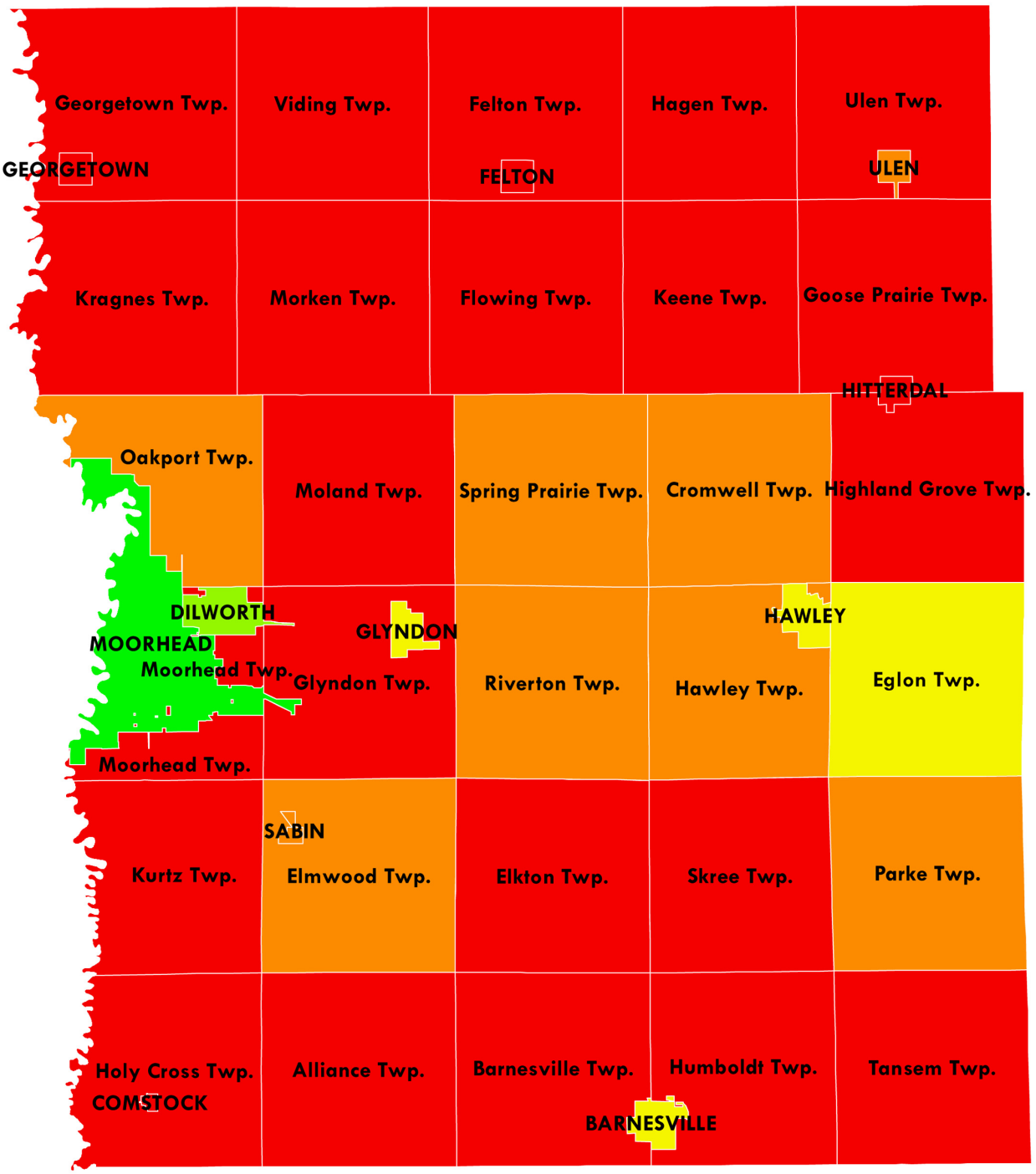


CLAY COUNTY
COMPREHENSIVE PLAN

Map 3.1 - Clay County Population Growth, 2000 to 2020

Less than -15%	-10% to -5%	0% to 5%	10% to 15%
-15% to -10%	-5% to 0%	5% to 10%	More than 15%

N

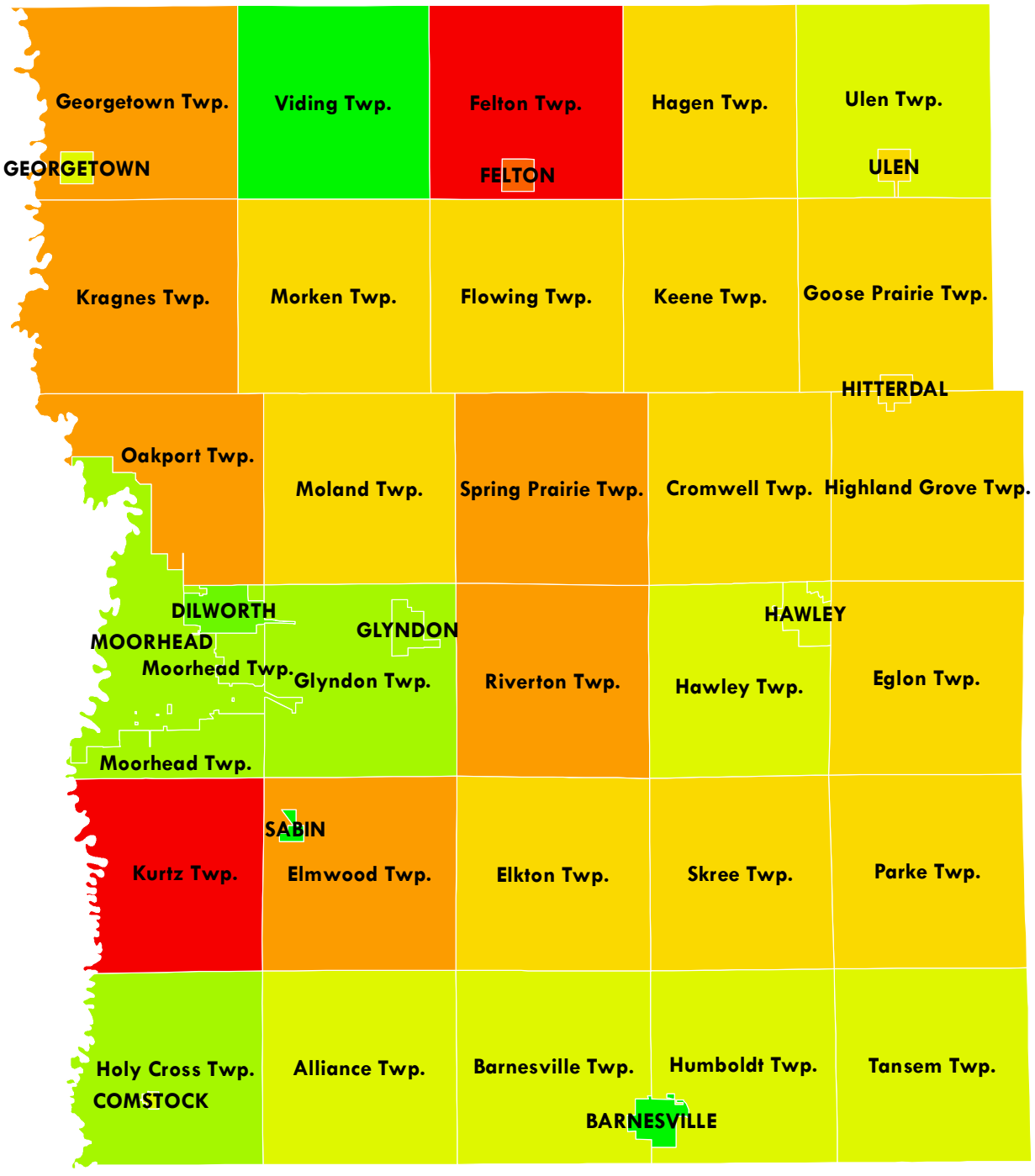


CLAY COUNTY
COMPREHENSIVE PLAN

Map 3.2 - Percent of Total Population in Clay County, 2020

Less than 0.5%
0.5% to 1%
1% to 5%
5% to 10%
More than 10%

N

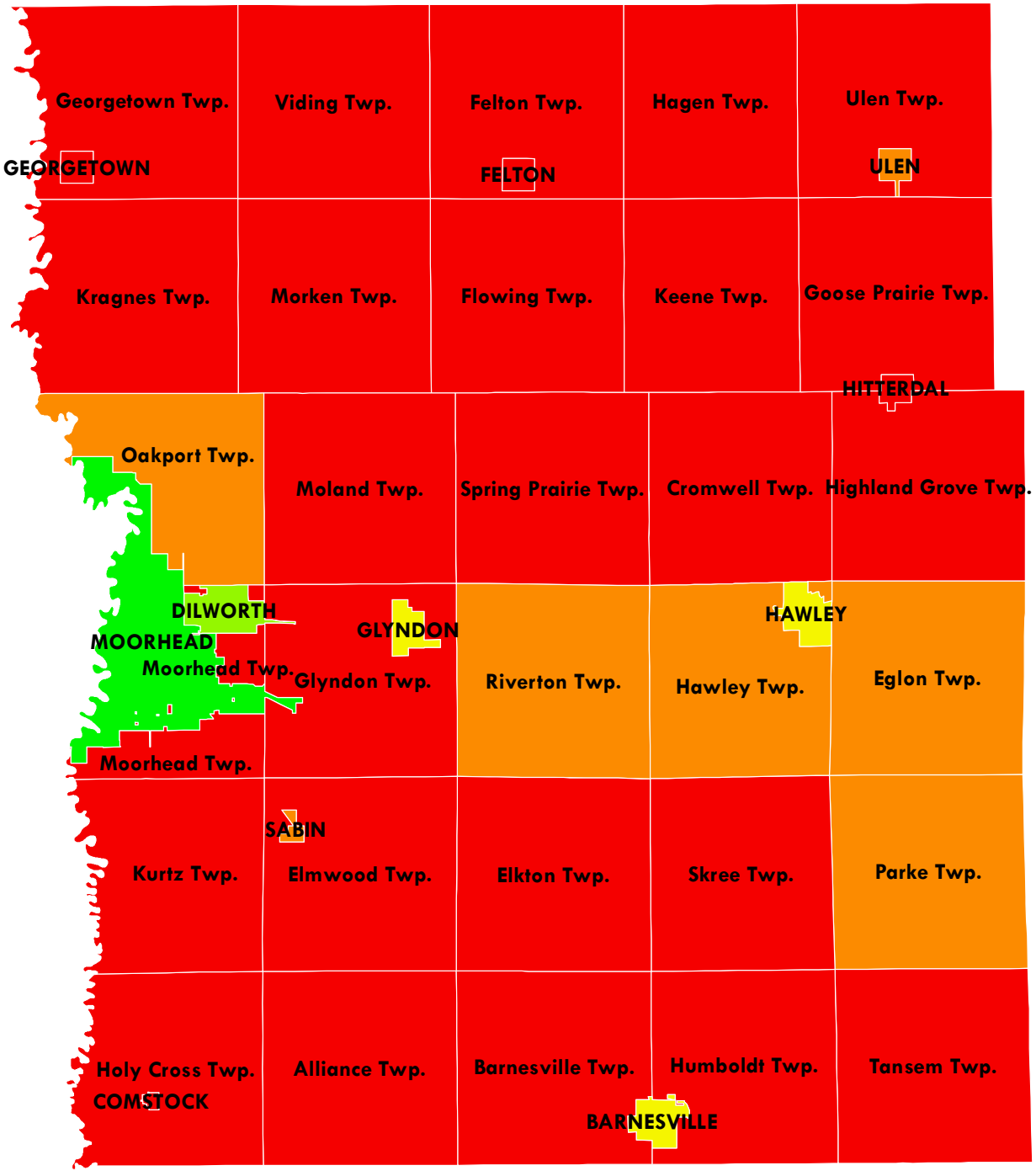


CLAY COUNTY
COMPREHENSIVE PLAN

Map 3.3 – Clay County Projected Population Growth, 2020 to 2045

Less than -5%	0% to 10%	20% to 30%	40% to 50%
-5% to 0%	10% to 20%	30% to 40%	More than 50%

N



CLAY COUNTY
COMPREHENSIVE PLAN

Map 3.4 – Percent of Total Population in Clay County, 2045

Less than 0.5%
0.5% to 1%
1% to 5%
5% to 10%
More than 10%

N

Age and Diversity

Clay County's population is aging overall, mirroring both state and national trends. In 2010, the median age in Clay County was 31.6; by 2019 the median age had increased 3.2 percent to 32.6. However, the median age of Clay County is much lower than the statewide averages of 37.4 in 2010 and 38.3 in 2019.

As with many communities across the United States, Clay County's population will see a higher percentage of seniors over the coming years. This will likely have several impacts on the county from housing choice to transportation to healthcare services.

Though Clay County's racial make-up is predominantly white (89.8 percent), the population has become more diverse over the years, including both native and foreign-born residents. From 2010 to 2019, the Black or African American population increased from 1.5 percent to 4.4 percent of the population. The Hispanic or Latino population increased from 3.5 percent of the total population in 2010 to 4.7 percent in 2019. The American Indian population also increased from 1.4 percent to 1.8 percent of the entire population. This trend is likely to continue, and the county can expect to become more diverse in the years ahead.

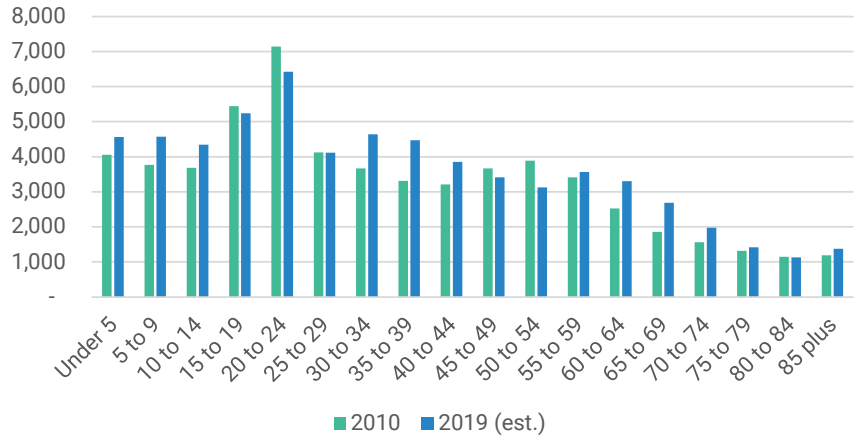


Figure 3.1 – Age Distribution in Clay County

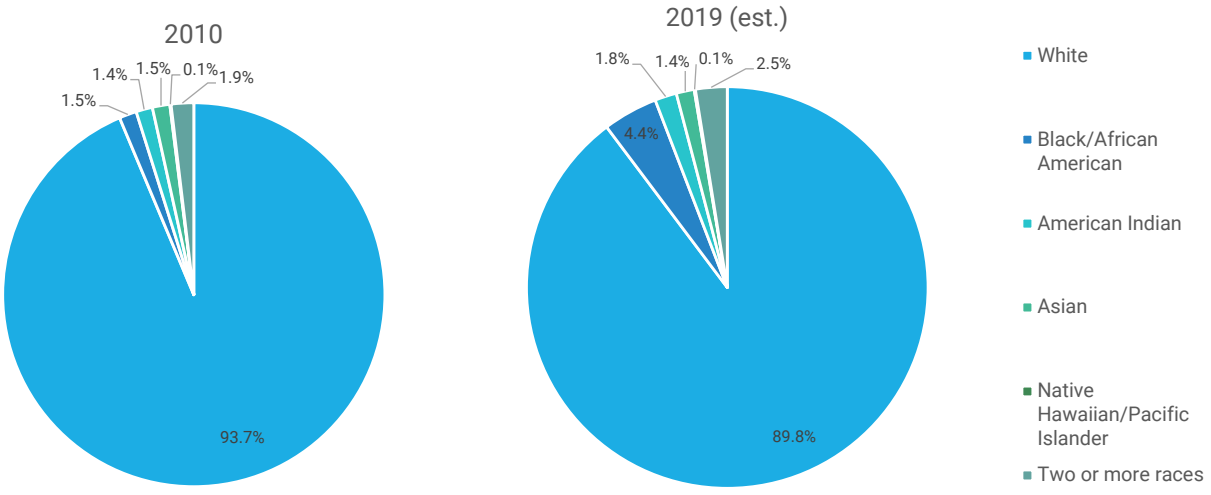


Figure 3.2 – Racial Distribution in Clay County, 2010 to 2019

Ethnoreligious Communities

In addition to city and township divisions, Clay County is home to the Spring Prairie Hutterite Colony - one of ten such colonies in Minnesota. Founded in 1979, the colony had over 180 individuals and 45 households in 2020. Approximately 4,200 acres are collectively owned by the Spring Prairie Hutterite Colony in Spring Prairie Township.

Hutterite colonies consist of clustered housing with onsite amenities such as schools, churches, clinics, community centers, and childcare facilities. Colonies are supported by agriculture, processing facilities, or other industries that may utilize both labor from colony members as well as employ others in the community.

The Spring Prairie Hutterite Colony is home to Taracon Precast, which manufactures precast concrete structures for buildings and infrastructure projects in the region. To support this industry, the colony operates its own trucking company and motor and engine repair shop. The colony also has 500 dairy cows with robotic milking stations operating 24 hours a day. Additional colony operations include swine, beef cattle, chicken, turkeys, fruit orchards, and a printing shop.

Taracon Precast - Spring Prairie Hutterite Colony

Taracon Precast - Spring Prairie Hutterite Colony

Households

In 2019, Clay County had an estimated 25,296 households, a 13.5 percent increase from the number of households in 2010. Changes in household composition continue to follow trends of the past few decades: younger and older single-person households increased while married couple households with children decreased. Changes in household growth do not always parallel population growth because average household size of Clay County has continued to decline, from 2.52 in 2000 to 2.44 in 2019.

Changes in household composition have implications for housing preferences and markets. On the whole, as single-person households increase, demand for more multifamily housing is likely to rise. Housing accessibility becomes more important as the senior population continues to increase. As family sizes decline, school enrollments can be affected. However, both the total population of the county and the number of school age children are expected to gradually increase through 2045.

Table 3.3 – Households by Type, 2019

Households by Type	2019 (est.)	
Family households	16,002	63.3%
With children under 18 years	8,222	32.5%
Married-couple family households	13,048	51.6%
With children under 18 years	6,051	23.9%
Single-person family households	2,954	11.7%
With children under 18 years	2,171	8.6%
Nonfamily households	9,294	36.7%
Householder living alone	7,349	29.1%
65 years and over	2,581	10.2%
Households with one or more children under 18 years	8,277	32.7%
Households with one or more people 65 years and over	5,793	22.9%

Oakport Township

Table 3.4 – Households in Clay County, 2000 to 2019

Households	2000	2010	2019 (est.)
Clay County	18,670	22,279	25,296
Barnesville	865	1,013	1,065
Comstock	47	38	39
Dilworth	1,160	1,595	1,818
Felton	91	78	76
Georgetown	50	48	34
Glyndon	359	464	472
Hawley	744	854	944
Hitterdal	86	89	90
Moorhead	11,660	14,304	17,342
Sabin	152	180	192
Ulen	203	234	241
TOTAL	**15,417**	**18,897**	**22,313**
Townships	3,253	3,382	2,983

Table 3.5 – Persons per Household, 2000 to 2019

Persons per Household	2000	2010	2019 (est.)
Clay County	2.52	2.48	2.44
Barnesville	2.42	2.50	2.48
Comstock	2.61	2.45	2.33
Dilworth	2.58	2.52	2.49
Felton	2.37	2.27	2.22
Georgetown	2.5	2.69	2.38
Glyndon	2.92	3.00	2.98
Hawley	2.45	2.42	2.37
Hitterdal	2.33	2.26	2.23
Moorhead	2.43	2.41	2.38
Sabin	2.76	2.90	2.87
Ulen	2.24	2.16	2.12
Townships	2.87	2.73	2.66
Minnesota	2.52	2.48	2.47

Income and Poverty

Household income is the amount of money people earn in a year and is a good measure of an area's vitality. Measuring household income is an important indicator of the quality of life residents enjoy and is also important for attracting new businesses and development.

Clay County's median household income in 2019 is estimated to be $65,269, meaning that half of households earned more than that amount and half earned less. The median household income for county households increased by 34.9 percent between 2010 and 2019, however this does not account for inflation.

Clay County's median household income in 2019 is 8.5 percent less than the statewide average. However, compared to some parts of the state, Clay County has seen a decrease in income disparity: the percentage of low-earning households has decreased by 14.9 percent while middle-earning households have increased by 29.3 percent. Clay County's poverty rate has continued to decrease from 12.0 percent in 2010 to 11.2 percent in 2019.

Table 3.6 – Median Household Income, 2010 to 2019

Median Household Income	2010	2019 (est.)
Clay County	$48,395	$65,269
Minnesota	$52,321	$71,306

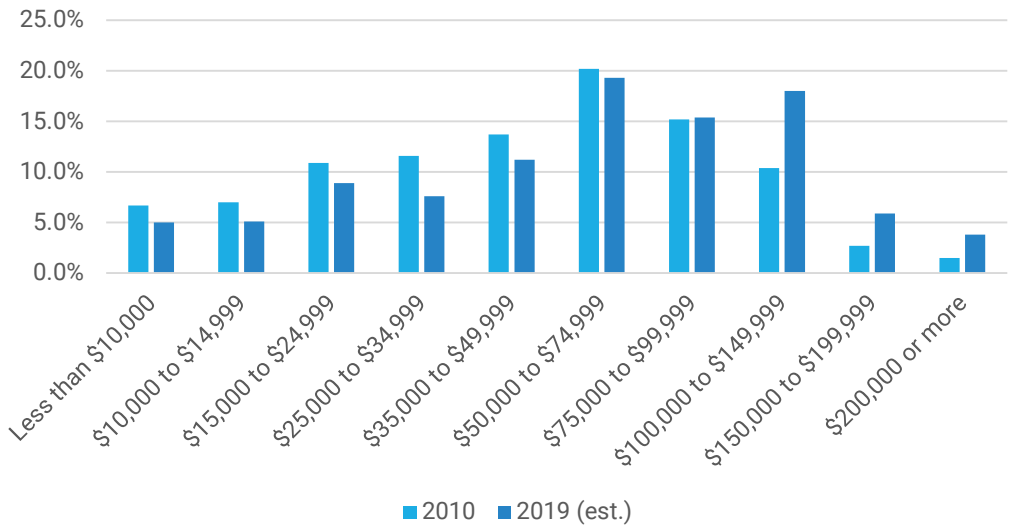


Figure 3.3 – Household Income in Clay County, 2010 to 2019

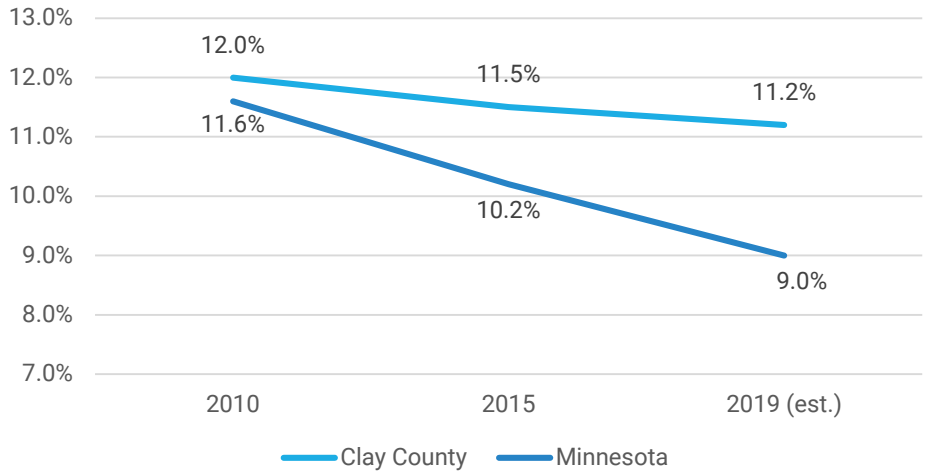


Figure 3.4– Poverty Rate in Clay County, 2010 to 2019

Labor Force

The size of the labor force has consistently grown in Clay County, mirroring population growth.

Clay County saw an 11.4 percent increase in the number of jobs between 2010 and 2019. In 2019, education, health care, and social assistance held the highest number of jobs and accounted for nearly a third of the labor force in the county. This is followed by retail trade, manufacturing, and construction. It is important to note that the Census measures employment through surveys of "covered" industries (i.e. industries that pay unemployment insurance), which typically excludes farmers and self-employed individuals.

The Minnesota Department of Employment and Economic Development projects professions in healthcare and social assistance will see the highest rates of growth in the coming years. This is likely an effect of an aging population across the state as well as the fact that people are living longer.

Overall, Clay County has seen positive growth in the number of new jobs between 2010 and 2019. However, it is projected that the region will begin to see a decline in the labor force as the population becomes older.

Unemployment

Clay County benefits from the broad, diverse, and stable economy of the Fargo-Moorhead metropolitan area. Because of this, the county has consistently had lower unemployment rates compared to the Minnesota statewide average. The 2019, the unemployment rate was 3.0 percent.

Figure 3.5– Labor Force and Class of Worker in Clay County, 2019

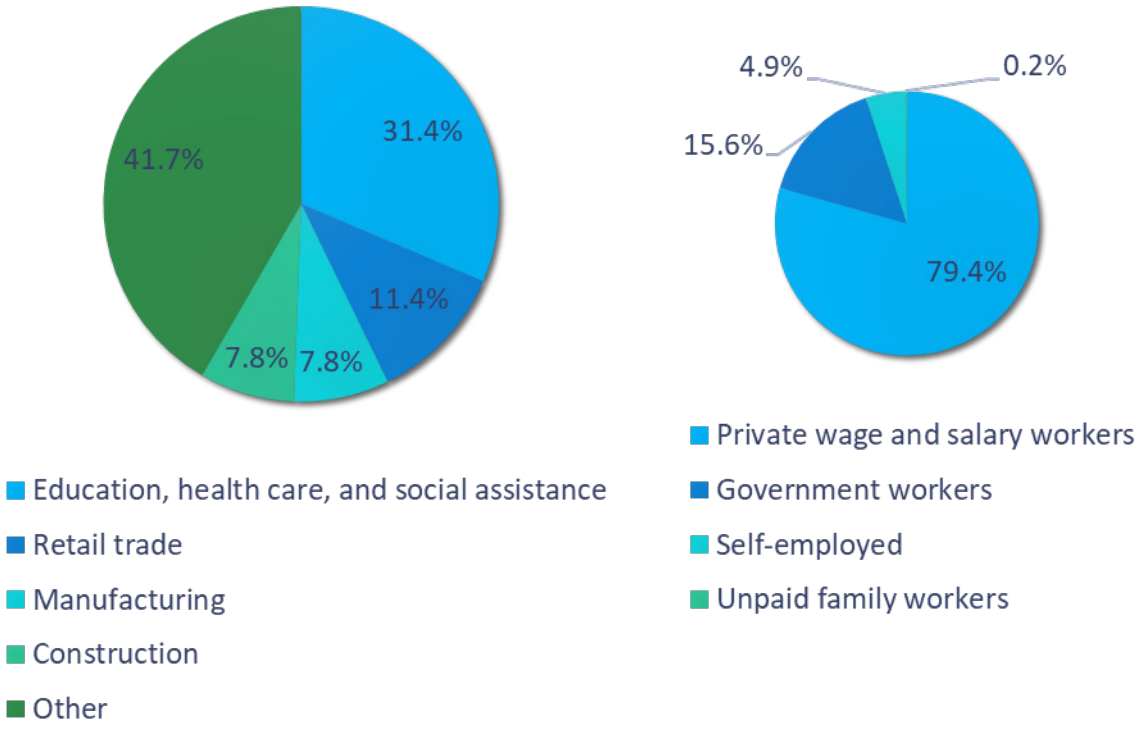
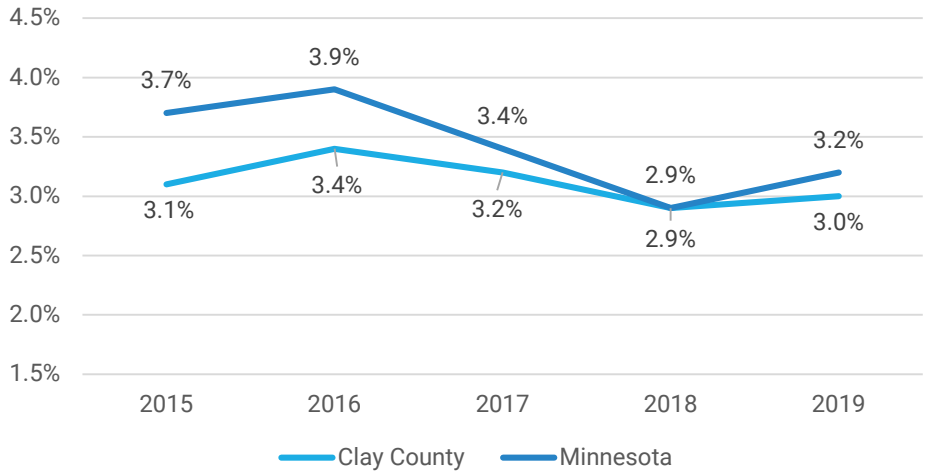


Figure 3.6– Unemployment Rate in Clay County, 2015 to 2019



Education

Educational attainment is an indicator of future economic success in the trained workforce of local jurisdictions. Students who do not complete high school are more likely to live in poverty, earn less over a lifetime, and experience longer and/or more frequent periods of unemployment.

The estimated percentage of the county population with an associate's degree or higher rose from 42.9 percent in 2010 to 49 percent in 2019. These are both slightly higher than statewide averages for both years. The rest of the county's educational attainment in 2019 is broken down by the following: 5.1 percent have less than a high school education, 23.7 percent are high school graduates or equivalent, and 22.2 percent have some college but no degree. 2019 (est.)

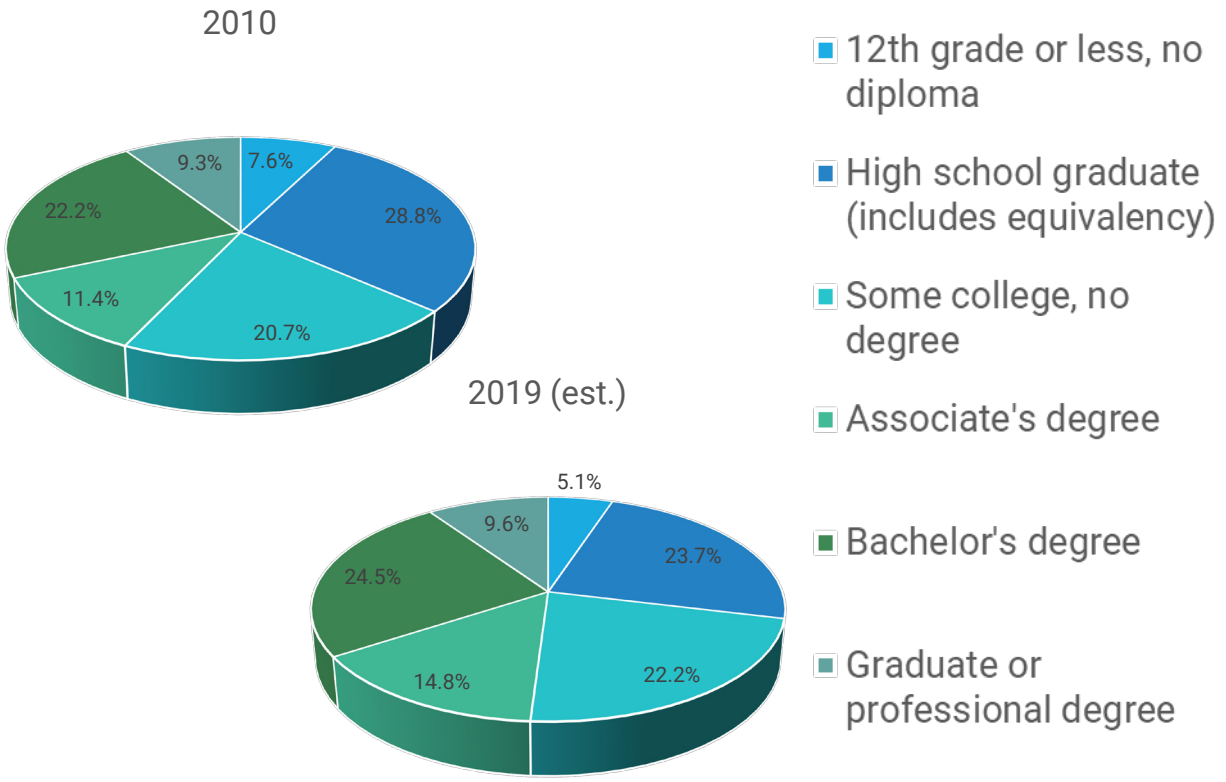


Figure 3.7 – Educational Attainment in Clay County, 2010 to 2019

Table 3.7 – Percent Population 25 Years and Over with an Associate's Degree or Higher, 2010 to 2019

	2010	2019 (est.)
Clay County	42.9%	49.0%
Minnesota	41.1%	47.6%

School Enrollment

School enrollment forecasting requires analysis of multiple data sources including, but not limited to, birth rates, historical enrollment trends, local and regional economic and housing trends, program and boundary changes, and an empirical understanding of individual communities. School population projections tend to be more reliable when enrollment is projected for a larger geographic area.

There are five primary school districts located in Clay County, with an additional four districts that have partial boundaries in the county. From 2015 to 2019, an additional 791 students were enrolled in schools throughout the county, with the Moorhead Area Public School district accounting for most new enrollments. However, at the start of the 2020-2021 school year during the unprecedented Covid-19 health emergency, enrollments decreased 2.1 percent from 10,942 to 10,716.

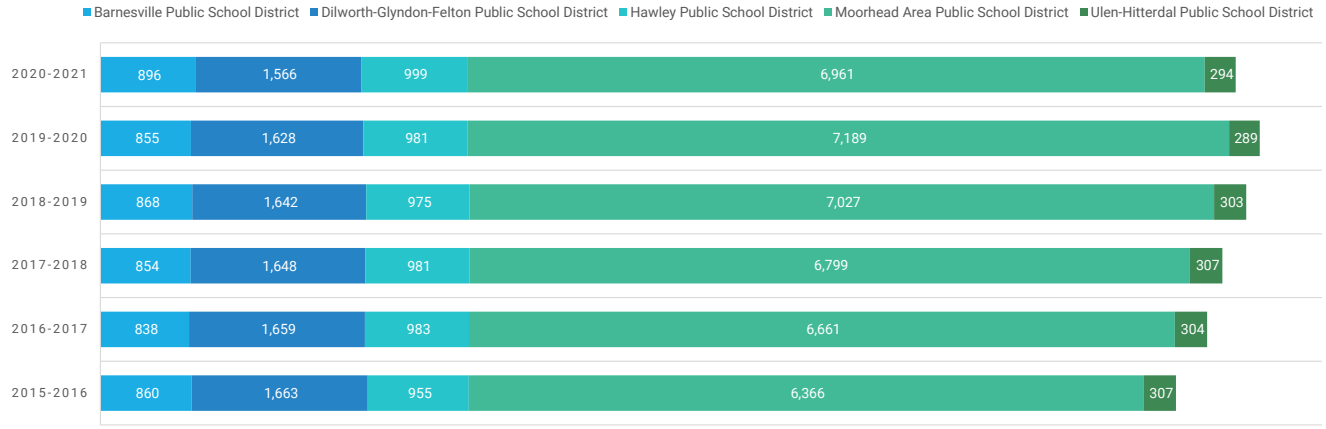
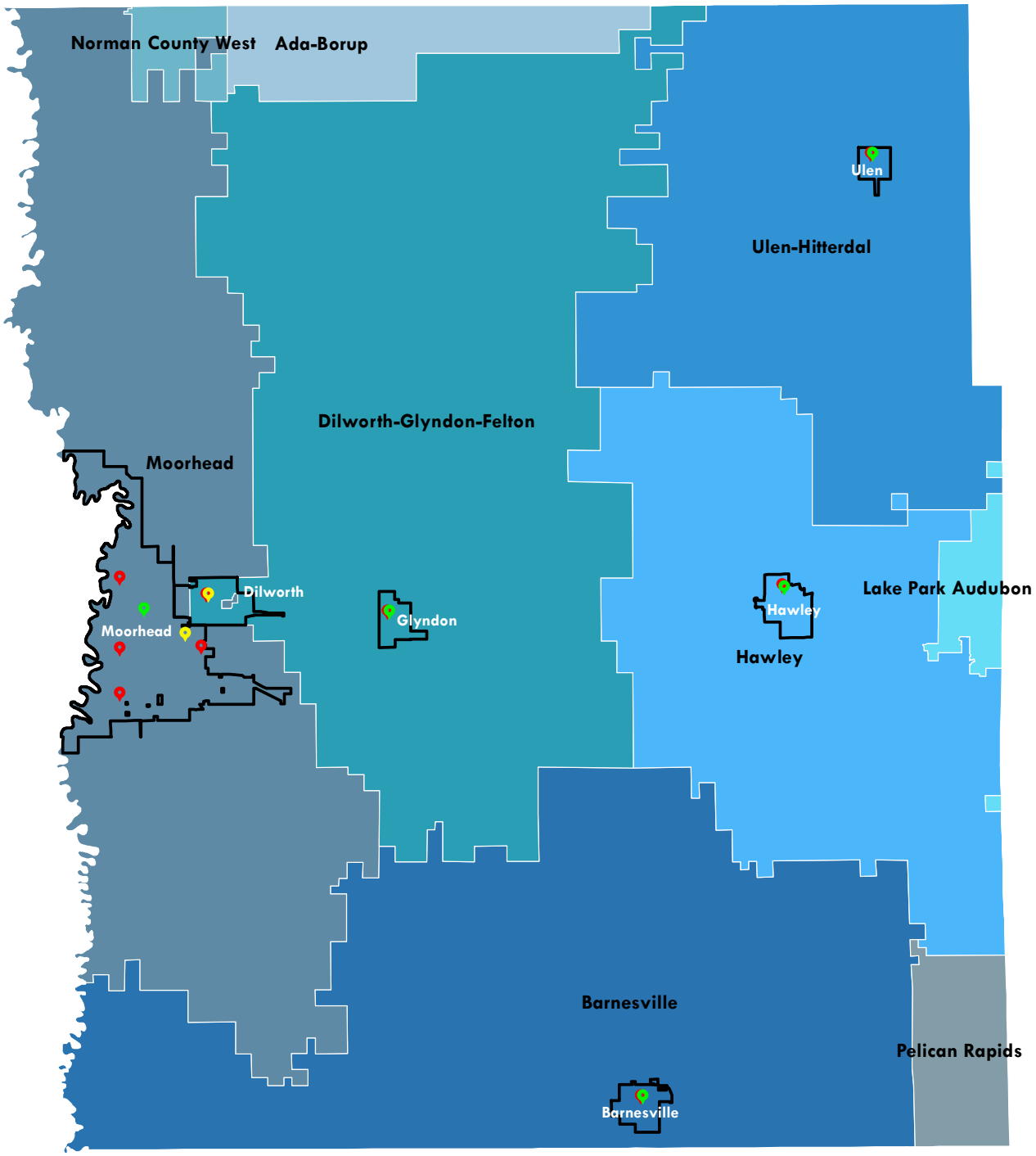


Figure 3.8 – School Enrollment Information in Clay County, 2015-2016 to 2020-2021

Ulen-Hitterdal Public School



CLAY COUNTY
COMPREHENSIVE PLAN

Map 3.5 – School Districts in Clay County

School District
School City Location
Elementary School
Middle School
High School

N

Health and Wellness

Comprehensive plans are increasingly addressing public health as part of the larger planning process. Building health considerations into comprehensive planning can help improve general health and wellbeing, as well as promote individual and community resilience. The following indicators begin to identify the general health and wellness of residents in Clay County.

Like much of the rest of the nation, Clay County residents face public health challenges including chronic disease, diabetes, and obesity. According to a community health needs assessment completed in 2016, it was estimated that 61.3 percent of Clay County adults were overweight or obese and that 6.4 percent of adults had been diagnosed with diabetes. However, these are lower instances than both the statewide and national averages.

Specific behaviors like physical activity, fruit and vegetable consumption, and drinking and smoking habits contribute to overall wellbeing.

In Clay County, 17 percent of adults are not physically active, which is in line with the statewide average but lower than the nation as a whole. Just 20 percent of Clay County residents consume at least three of the recommended five servings of fruits and vegetables each day, which is lower than both the statewide and national average. Smoking prevalence among Clay County residents is on par with what is seen in Minnesota and the United States, but binge drinking behaviors are noticeably higher in Clay County than in the rest of the state and the nation.

Access to health care includes both transportation and provider availability. In 2016, Clay County residents had better access to primary care physicians, dentists, and mental health providers than Minnesota and the United States. Clay County also has fewer preventable hospital stays and uninsured residents than the state and national averages. In addition to these indicators, approximately 7.7 percent of Clay County households received Supplemental Nutrition Assistance Program (SNAP) benefits in 2019.

Table 3.8 – Residential Health and Wellness in Clay County, 2016

Residential Health and Wellness	Overweight	Obese	Diabetes
Clay County	31.7%	29.6%	6.4%
Minnesota	36.7%	27.8%	8.4%
United States	32.8%	37.9%	10.0%

Table 3.9 – Residential Health and Wellness in Clay County (cont.), 2016

Residential Health and Wellness (cont.)	Clay County	Minnesota	United States
Adults who are not physically active	17%	18%	23%
Adults who consume at least three or more servings of fruits and vegetables each day	20%	25%	23%
Adults who smoke	17%	16%	17%
Adults who binge drink	23%	19%	17%

Table 3.10 – Access to Health Care and Uninsured Rate in Clay County, 2016

Access and Uninsured Rate	Clay County	Minnesota	United States
Primary care physician ratio	1,045:1	1,113:1	1,330:1
Dentists ratio	1,377:1	1,404:1	1,520:1
Mental health provider ratio	386:1	529:1	500:1
Preventable hospital stays per 1,000 medicare enrollees	39	45	59
Uninsured rate	5.3%	6.1%	8.8%

Food Access Trends

In 2016, nearly 900,000 Minnesota residents lived in communities with insufficient grocery store access. This grocery gap is the fourth worst in the country and disproportionately affects Minnesotans living in rural communities. Ensuring access to a healthy, sustainable food system is key to establishing and maintaining a high quality of life. The ability to easily access basic needs and services influences a person's social, economic, physical, and mental well-being. Planning for future development requires integrated thinking about transportation and land use, including considerations about where and how people will obtain food. Long-range planning must support a balanced retail environment, including a fair distribution of food outlets, and a diversity of options to purchase healthy food.

Access to healthy foods can reduce the rates of preventable diseases, improve the county's overall health, aid in community and economic development initiatives, and promote a fair share for all residents.

Access to healthy food is a challenge, particularly in rural communities. Long drives to healthy food sources, and associated transportation costs, are a deterrent to obtaining healthy foods and maintaining a nutritious diet. Distance is compounded for households that lack a personal vehicle or the ability to drive one. Rural poverty also means that more low-income households are located in communities where transit service is limited or nonexistent.

Housing

A critical component to a healthy and vibrant community is a diverse and balanced housing supply in good physical condition that includes a variety of price levels, housing types, and sizes. A mix of housing tenures, types, and rent and sales prices provides residents with a range of choices so that they can continue living in their community as their housing needs change through their lifetimes.

The affordability of housing is especially important for all residents because it provides a stable foundation on which to build one's life. A diverse housing supply can also better adapt to future environmental, social, and economic changes than one that is largely based on just one of these types. A full range of housing options also enables communities to address the housing needs of employers and a diverse workforce.

In 2020, the existing housing market of Clay County consisted of approximately 26,844 units. The number of households, a direct reflection of the number of housing units, is forecasted to increase from 25,296 households in 2019 to 34,970 households by 2045. The private market will likely build housing stock to accommodate a majority of this anticipated growth. The production of affordable, special needs, and senior housing, however, will require assistance from Clay County and the Housing and Redevelopment Authority (HRA), as well as other public funding partners.

Clay County encourages housing choices that provide residents the opportunity to remain a part of the community while moving through their stages of life. A variety of housing ensures single-family homes and multifamily homes, and senior living developments are available in all price ranges throughout the county. Residents at the low end of the income spectrum are not easily serviced by the conventional housing market. Clay County and HRA programs are aimed at helping housing providers to develop new and preserve existing housing, thus creating diverse housing choices in all communities. Funding from these programs can create opportunities for providers to develop diverse housing choices in all communities.

Cities in Clay County are seeing growth, and there is continuing demand for more residential options at the edges of these cities. A number of townships are also seeing demand for traditional large-lot rural residential developments.

Table 3.11 – Housing Units in Clay County, 2020

Housing Units	2020	%
Total housing units	26,844	100%

Owned and Rental Housing	2020	%
Vacant housing units (including seasonal units)	1,913	7.1%
Occupied housing units	24,931	92.9%
Average household size	2.5	
Owner-occupied	16,829	62.7%
Average household size	2.6	
Renter-occupied	8,102	30.2%
Average household size	2.1	

Housing Needs

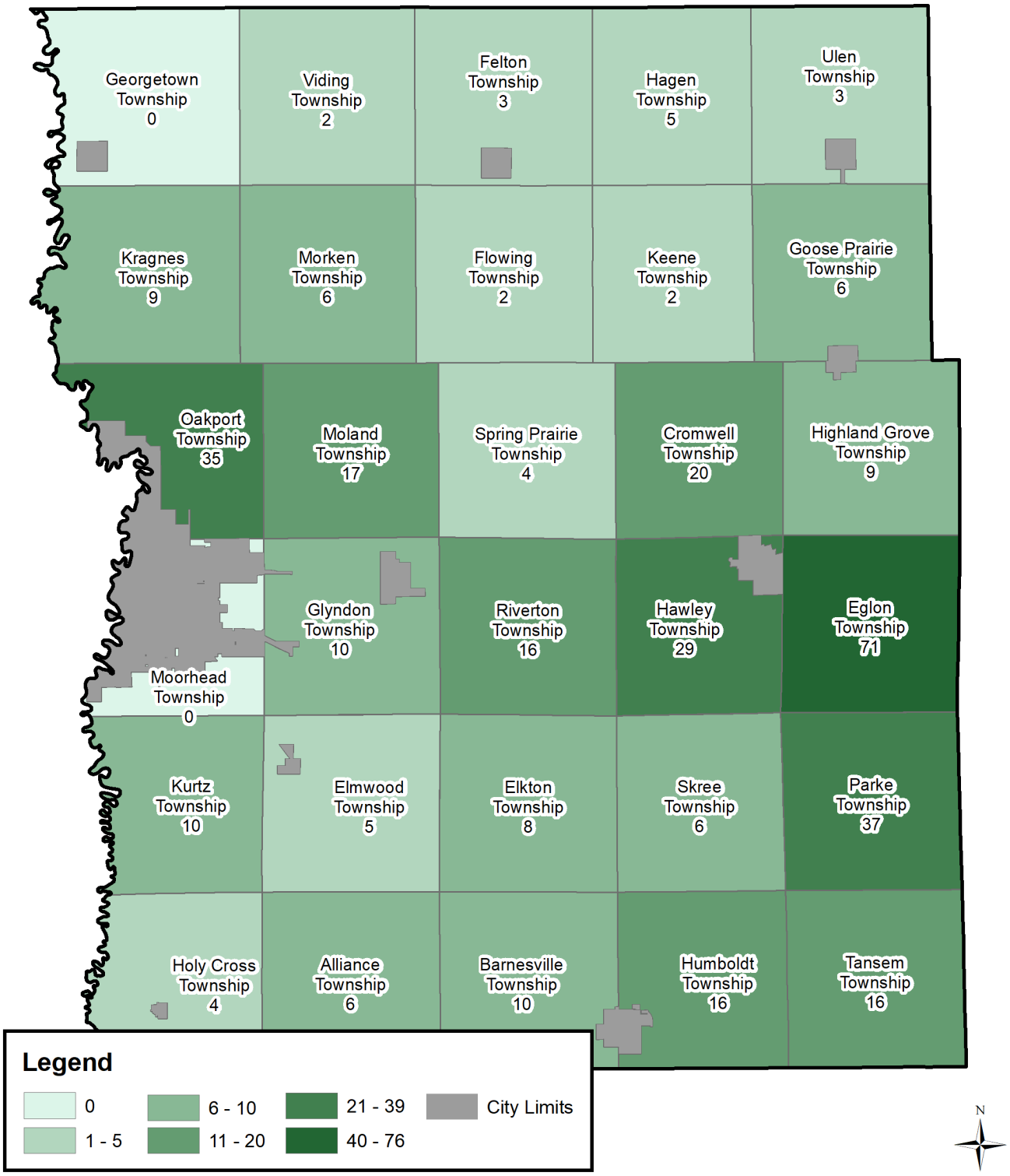
The existing housing market of Clay County consists of approximately 26,844 units, according to 2020 U.S. Census. Clay County has a diverse housing stock with a good mix of owner-occupied and rental units. Housing units are more concentrated in the western half of the county due to growth and development patterns in the Fargo-Moorhead metropolitan area. An unmet need exists for greater affordability in home prices and rents to ease the housing needs of people who work in the county. This is a result of home and apartment prices increasing faster than incomes.

Housing Tenure

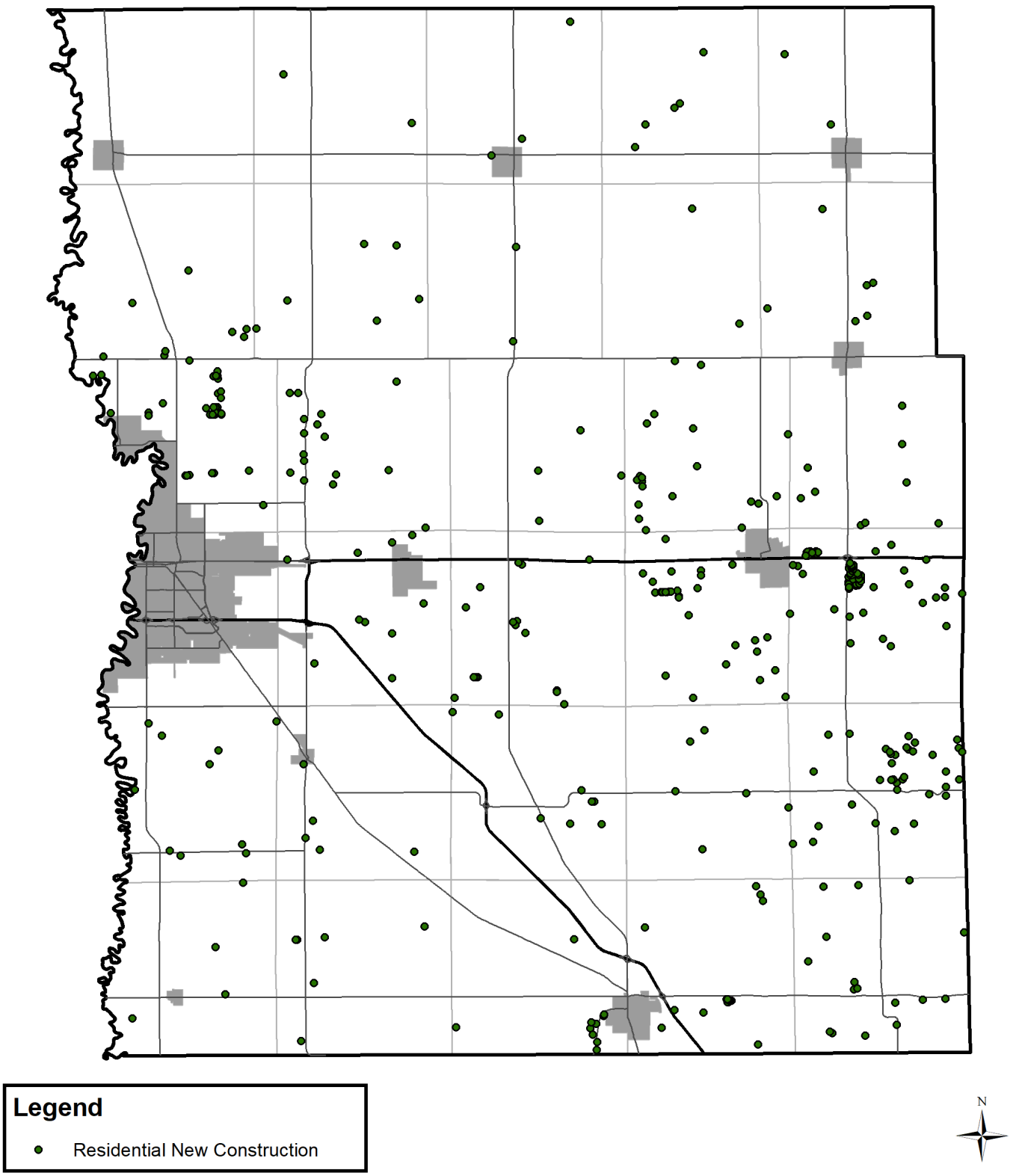
With a rate of 67.5 percent, Clay County's 2020 homeownership rate is slightly less than the Minnesota average of 71.6 percent. Of all households, approximately 16,829 owned and occupied their home and 8,102 rented. The homeownership rate in Clay County decreased slightly from 71.2 percent in 2010. The county's portion of rental housing increased from 28.8 percent in 2010 to 32.5 percent in 2020.

New Housing Construction

From 2010 to 2020, Clay County saw a total of 370 new home starts outside of current city boundaries. Eglon Township saw the most new home construction with 71 homes, followed by Parke Township (37), Oakport Township (35), and Hawley Township (29).



Map 3.6 – New Single Family Residence Construction by Township, 2010 to 2020



Map 3.7 – New Single Family Residence Construction by Location, 2010 to 2020

New Housing Value

Of newly constructed houses located outside city boundaries, average home value has increased noticeably in the past decade. The average value of new homes has risen by nearly 46.6 percent over the past 10 years, increasing from $206,000 in 2010 to $302,086 in 2020.

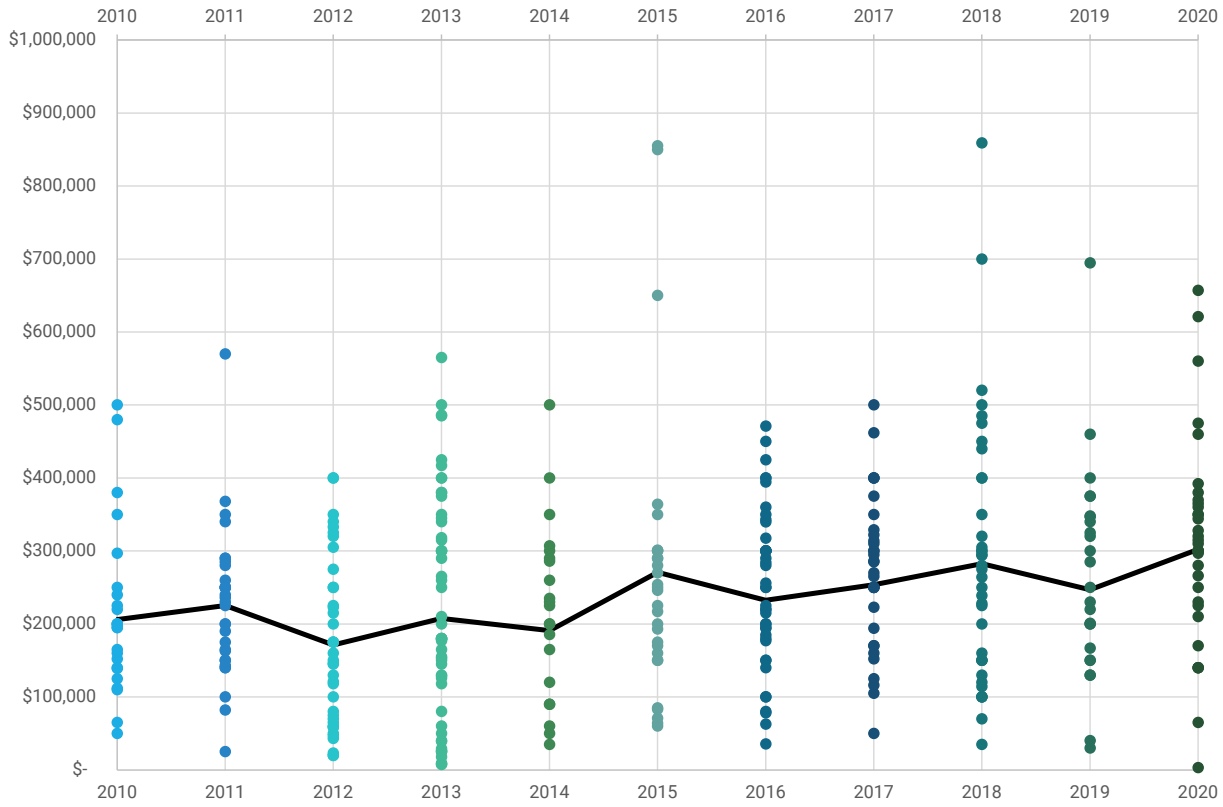


Figure 3.9 – Average Residence Value of New Single Family Construction, 2010 to 2020

Housing Type

Clay County's housing stock is primarily comprised of single family homes. Multifamily units, both owner-occupied and rental, account for nearly 25.5 percent of the county's housing stock. There are nine manufactured home parks located in Clay County, with three in Moorhead, three in Dilworth, two in Glyndon, and one in Hawley.

The economic life of housing when not maintained or renovated is typically 45 to 60 years. Approximately 63.6 percent of the county's housing stock was built prior to 1970, and those units that have not been maintained or renovated will be reaching the end of their economic life. As homes age, investments to retain quality, update amenities, and maintain market viability are needed.

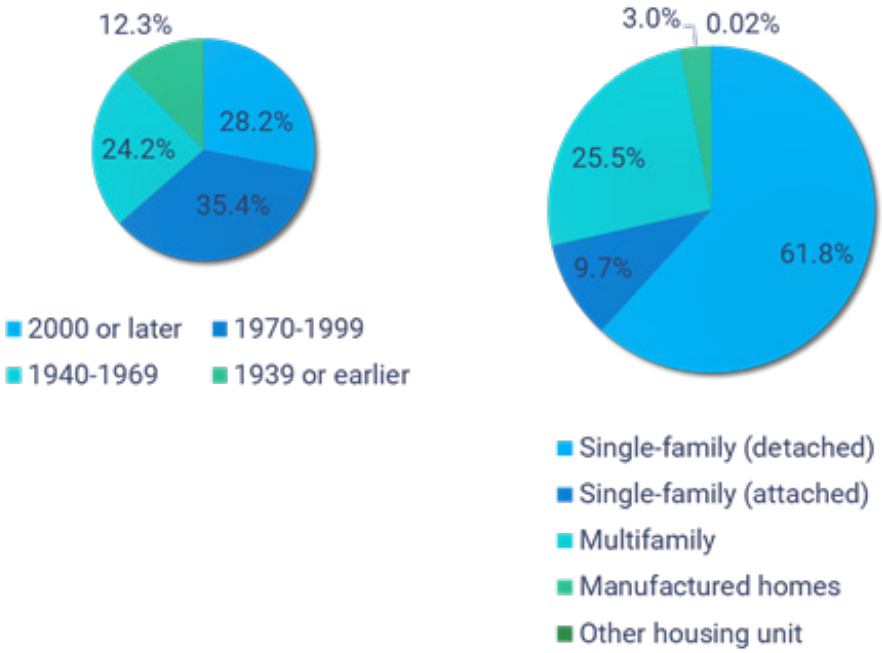


Figure 3.10 – Housing Units by Year Built and Type in Clay County

Housing Trends

According to a 2017 study prepared by the Urban Institute, the nation can expect the following housing trends in rural America:

- Rural areas will see slower growth rates.
- Rural Americans are aging faster than Americans in metropolitan areas.
- Rural households will become as racially diverse by 2030 as the nation was in 1990.
- Demand for housing in rural areas will increase.
- The housing needs of rural seniors will require urgent attention.
- A growing share of working-age rural Americans may need housing assistance, even if they do not qualify.

However, there are early indications that Covid-19 may lead to a modest, permanent rise in those able to work remotely. With this, rural areas may see modest to higher growth rates than what would have been predicted prior to the pandemic.

Lifecycle Housing and Affordability

A major component of a healthy housing market is the availability of lifecycle and affordable housing. Lifecycle housing entails an array of housing options that meet people's preferences and circumstances for all of life's stages.

With lifecycle housing, not only are single-family homes in all price ranges available, but townhomes, apartment buildings, and senior living complexes are all located within the same community. This provides residents the opportunity to remain a part of the community while moving throughout different stages of life. It also offers housing options for young adults and seniors that want to remain close to their families.

Affordable housing is a vital part of lifecycle housing as it allows for these family members to afford living in different housing choices that the community offers. Housing affordability is measured by dividing a household's housing costs by its gross income. If housing costs are 30 percent or less than a household's income, the housing is considered affordable and not cost burdened. Housing costs include mortgage or rent payments, utilities, homeowners or renters insurance, and other fees.

In Clay County, it is estimated that nearly 28.6 percent of households are cost-burdened, meaning that they are paying more than 30 percent of their household income on housing needs. Split between owners and renters, 16.6 percent of home owners are cost burdened and over half (55.4 percent) of renters are cost burdened.

Table 3.12 – Cost-Burdened Households in Clay County, 2019

Cost-Burdened Households	2019 (est.)	
All households for which cost burden is calculated	24,668	100.0%
Cost-burdened households	7,054	28.6%
Owner households for which cost burden is calculated	17,063	100.0%
Cost-burdened owner households	2,840	16.6%
Renter household for which cost burden is calculated	7,605	100.0%
Cost-burdened renter households	4,214	55.4%

Senior Housing and Group Quarters

As a subset of the housing market, group quarters are a unique market and separate from general occupancy rental and owner-occupied housing markets. This type of housing is defined as places where people live or stay in shared living arrangements owned or managed by an entity that provides housing and services for residents. This typically includes nursing and assisted living facilities, dormitories, and correctional or rehabilitation facilities.

In 2020, there were 3,133 people that lived in group housing quarters in Clay County, with approximately 397 people in nursing or skilled-nursing facilities.

Clay County Housing and Redevelopment Authority

The Clay County Housing and Redevelopment Authority (HRA) offers a number of services to assist in the creation and preservation of affordable housing. The Clay County HRA partners with local communities to develop and manage housing choices for seniors, low-income families, and households caring for an individual with mental health concerns.

Apartment and townhome units are offered at seven locations in Moorhead, Dilworth, Hawley, and Ulen. Additional programs, such as Housing Choice Vouchers (Section 8), are utilized to maintain affordability in existing housing stock in communities in Clay County. The HRA also manages housing stabilization services for adults with disabilities who are homeless or at risk of homelessness. It also offers two separate programs for home improvements including an owner-occupied rehabilitation program and rehabilitation loan program.

Clay County encourages HRA projects and partnerships with local communities to provide lifecycle and affordable housing in its communities.

Resilience and Economic Competitiveness

A diverse housing supply that includes a variety of single family homes, townhomes, apartments, and other types of housing can better adapt to future environmental, social, and economic changes than one that is based solely on one of these housing types. It provides local governments with a broad tax base that can withstand these changes to minimize dramatic impacts on government budgets and services.

A mix of housing at various price points specifically helps to address the needs of local workers and employers. Typically, workers want to live close to where they work while employers want housing options that attract and retain the best qualified talent at all wage levels with a variety of home preferences. A full range of housing options enables communities to match the housing needs of a diverse workforce.

Vibrant and growing communities have a diverse range of jobs at a variety of wage rates as well as a housing supply that caters to all income levels so those who work in the county can also call it home. This will help ensure that businesses that want to grow and expand will have a reliable labor force to fuel it. Available affordable housing is critical to that effort to attract and retain a talented workforce.

Economic Development

Economic development involves anticipating change, diversifying industries, and redefining opportunities and challenges. It is an outcome of the direct actions of elected and appointed officials in concert with the private sector aimed at promoting the quality of life and economic vitality of the community. These actions involve interdependent variables such as regional competitiveness, human capital, environmental sustainability, workforce development, education, social services, tax base retention and expansion, physical infrastructure, and health and safety.

Regional Market Trends

Economic development is used to describe the growth of a local or larger scale economy. This growth can be experienced in both residential and commercial sectors of an economy. It can be achieved through the new construction of homes or businesses and/or through the redevelopment of existing residential or commercial structures. Byproducts of this growth are the creation of jobs and tax revenues. Economic development in rural Clay County will occur through new subdivisions, aggregate operations, ag-supported industries, and infill and redevelopment opportunities.

It is important for cities and counties to have a healthy ratio of residential to commercial uses to create a balanced relationship between commercial and residential revenues and expenditures. This balance is important to accommodate fluctuations in the real estate market and related revenue generated within office, retail, and residential sectors. A certain amount of residential development is desirable for a jurisdiction to create a thriving retail atmosphere.

Tax Increment Financing and Tax Abatement

The Clay County Board of Commissioners serves as the Clay County Economic Development Authority (EDA) in the county. The EDA implements the Clay County Business Subsidy Policy by offering tax abatement and tax increment financing (TIF) programs to potential businesses seeking to locate or expand in Clay County. These programs are for businesses that are outside current city boundaries or existing EDA's in the county.

The purpose of these business subsidies include:

- To retain local jobs and increase the number and diversity of jobs that offer stable employment and attractive wages and benefits;
- To enhance and diversify Clay County's tax base;
- To encourage additional unsubsidized private development in the area, either directly or indirectly through "spin off' development;
- To achieve development on sites which would not be developed without business subsidy assistance;
- To remove blight and/or encourage development of commercial and industrial areas in the County that result in higher quality development or redevelopment and private investment; and
- To offset increased costs of development of specific properties when the unique physical characteristics of the site may otherwise preclude private investment.

Economic Development Partnerships

Clay County partners with the Greater Fargo-Moorhead Economic Development Corporation (GFMEDC) for help establish primary sector industries in Clay County and the greater Fargo-Moorhead area.

Economic development programs are available through West Central Initiative (WCI), a public foundation serving counties in west central Minnesota, including Clay County. The maximum total of loans to any one business is $300,000. For retail or local service businesses, the maximum loan amount is $35,000. In most cases, private investment and/or private financing is required, in addition to WCI loan funds.

The Clay County Loan Fund (CCLF) is a WCI component fund established by the county to provide additional job opportunities outside the Moorhead area. The CCLF Revolving Loan Fund is designed for:

- Business start-ups and expansion;
- Succession or preservation of businesses;
- Tourism;
- Childcare;
- Job creation and retention; and
- Other economic development activities that benefit people in Clay County.

The Fargo Moorhead West Fargo Chamber of Commerce (the Chamber) is a bi-state, regional federation of over 2,100 private, public, and nonprofit member firms representing more than 109,000 people. The largest local chamber in Minnesota, the Chamber advocates for a strong metropolitan community and supports the interests of its members located in Clay County and beyond.

Borders-Cities Enterprise Zone Program

The Border-Cities Enterprise Zone Program provides business tax credits (property tax credits, debt financing credit on new construction, sales tax credit on construction equipment and materials, and new or existing employee credits) to qualifying businesses that are the source of investment, development, and job creation or retention in the Border-Cities Enterprise Zone cities, including Dilworth and Moorhead.

Businesses locating or existing in those cities are eligible, excluding a recreation or entertainment facility, one owned by a fraternal or veteran's organization, one owned by a public utility, one used in operation of a financial institution, or one owned by a retail food or beverage service business operating under a franchise.

Minnesota Department of Employment and Economic Development

The Minnesota Department of Employment and Economic Development (DEED) is the state's principal economic development agency. DEED programs promote business recruitment, expansion, and retention; international trade; workforce development; and community development.

The Minnesota Department of Employment and Economic Development offers a number of grants and business financing programs to help companies and communities retain existing jobs and create new high quality jobs.

Agriculture and Natural Resources

Agriculture

Agriculture continues to be an important economic activity in Clay County. There have been significant changes in how farms are owned and operated at both the state and national level. After being relatively stable from 1997 to 2007, Clay County has seen a decrease in the number of farming operations between 2007 and 2017. At the same time, the amount of land being farmed has increased. This finding suggests smaller farms are removing their land from production or selling to larger operations or corporations, which mirrors national trends.

According to the 2017 Census of Agriculture, there were 694 farms in Clay County, averaging 831 acres in size. Compared to 2007, this represents a decrease of 227 farms in the county, with the average acreage per farm increasing by 165 acres.

The Census of Agriculture shows the total acreage of land being used for farming decreasing from 613,819 acres in 2007 to 576,646 in 2017 a net change of 37,173 acres.

The decrease of land in farms could be attributed to a variety of reasons such as conversion of farmland into conservation land, change in use or development of land, or temporarily taken out of production. As the size of the farming operation increases and the number of farms decrease, homes that were once associated with a farming operation are sold to nonfarm residents and are no longer included in the farming acreage. This acreage attributes to approximately 24 percent of the loss of land in farm acreage.

Moland Township

The land in farms acreage is comprised of four categories: total cropland, total woodland, permanent pasture and rangeland, and land in farmsteads.

Cropland, not for pasture, acreage saw an increase between 2007 and 2017 by 530,824 and 536,924 acres, respectively. 2007 marked a record number of acres enrolled in conservation practices at 60,722 acres. This number dropped to 22,271 acres in 2017. Pastureland and woodland both saw decreases in acreage, with woodland not pastured decreasing from 11,441 in 2007 to 5,516 in 2017 and pastureland, all types decreasing from 47,518 acres in 2007 to 19,042 in 2017. Considering the loss in acreage of land enrolled in conservation practice, pastureland and woodland and the increase of cropland, it is likely acreage that once was pastureland was converted to cropland. Additionally, conservation land could of transferred ownership to a conservation focused group that does not report to the Census of Agriculture. It is likely over the next decade that the total cropland acreage will continue to decline due with an increase in conservation easements,

Table 3.13 – Land in Farms According to Use

	2007	2017	Net Change	Proportion of Net Change
Total Cropland	549,592	538,136	-11,456	30.8%
Total Woodland	15,723	9,369	-6,354	17.1%
Permanent Pasture and Rangeland	24,468	13,977	-10,491	28.2%
Land in Farmsteads	24,036	15,164	-8,872	23.9%

Table 3.14 – Cropland Not Used for Pastureland

	2007	2017	Net Change
Harvested Cropland	478,701	507,417	+28,716
Other Cropland	52,123	29,507	-22,616

Table 3.15 – Pastureland Acreage Within Each Use

	2007	2017	Net Change	Proportion of Net Change
Pastureland, All Types	**47,518**	**19,042**	**-28,476**	**100%**
Cropland used only for pasture or grazing	18,768	1,212	-17,556	61.7%
Woodland pastured	4,282	3,853	-429	1.5%
Permanent pasture & rangeland	24,468	13,977	-10,491	36.8%

Hawley Township

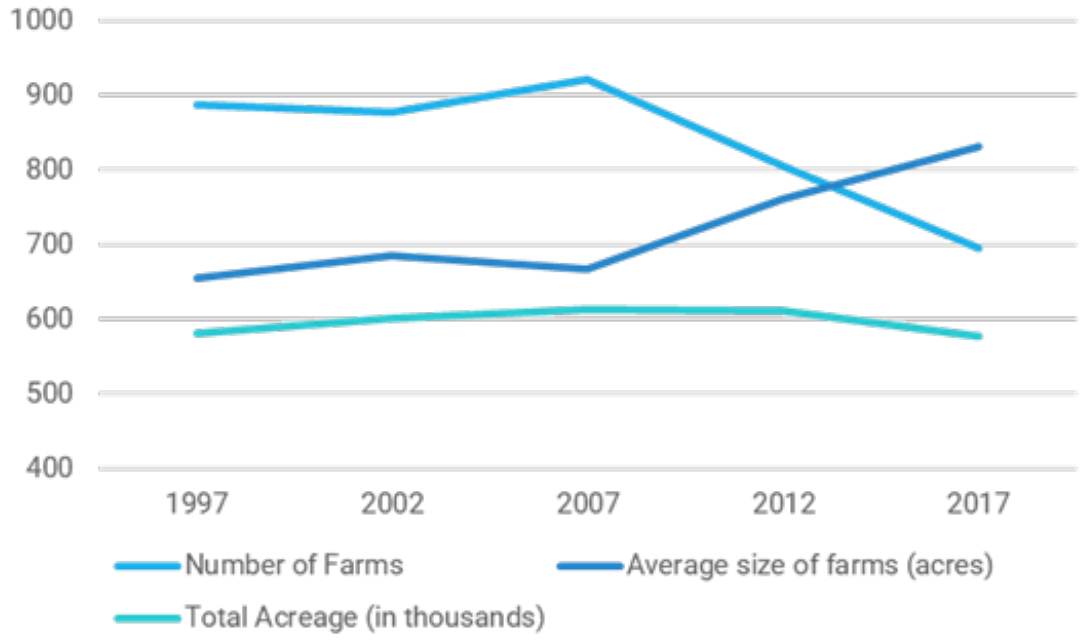


Figure 3.11 – Farms in Clay County, 1997 to 2017

The estimated market value of Clay County's agriculture products sold in 2017 totaled $277,750,000. This value includes both crops (including nursery and greenhouse crops) as well as livestock, poultry, and other products such as dairy and eggs. This is down from a high of nearly $400,000,000 of agricultural products sold in 2012. The average market per farm was $400,216, down from almost $500,000 five years prior in 2012.

Approximately four percent of farms sold directly to consumers in 2017, whether through farmers markets, community supporter agriculture (CSA) programs, or other direct methods.

Table 3.16 – Market Value of Agricultural Products in Clay County, 2007 to 2017

Market Value	2007	2012	2017
Market value of agricultural products sold (in thousands)	$201,781	$398,075	$277,750
Average per farm	$219,089	$495,118	$400,216
Crops, including nursery and greenhouse crops (in thousands)	$170,059	$359,311	$240,202
Livestock, poultry, and their products (in thousands)	$31,722	$38,764	$37,549

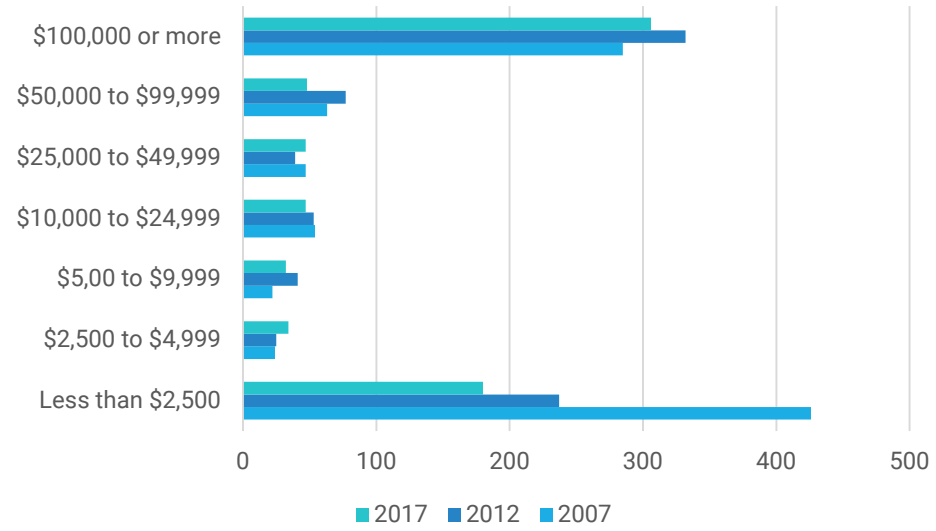


Figure 3.12 – Farms by Value of Sales, 2007 to 2017

In addition to the direct income from agriculture, many other firms are supported locally through sales to farms or by adding value to farm commodities, although that economic activity in not usually reported among the agricultural statistics.


Parke Township

In terms of acreage, the top five crops grown in Clay County in 2017 were: soybeans (210,459 acres), corn for grain (159,122 acres), wheat (70,262 acres), sugarbeets (40,195 acres), and hay and grass silage (16,780 acres). Together, these account for over 98 percent of all crop acreage in the county. Compared with 2007, the acreage for corn for grain and soybeans has risen by 87.4 and 24.7 percent respectively, while wheat, sugarbeets, and forage have declined 47.3 percent, 29.1 percent, and 13.0 percent respectively.

Livestock and poultry farms also play an important role in the agriculture economy. Beef cows made up the bulk of the county's farm inventory with 123 farms spread throughout the county, followed by 48 poultry farms. Since 2007, poultry farms have seen the highest growth while hog and sheep farms have both seen declines.

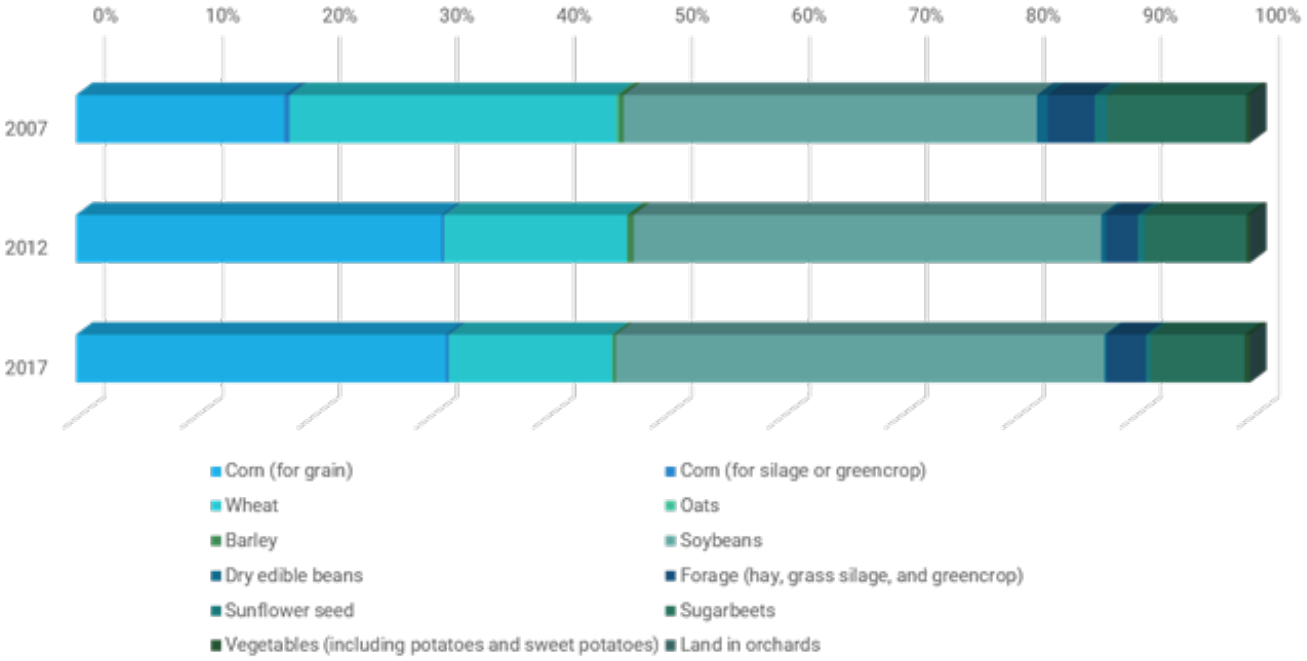


Figure 3.13 – Crops Grown in Clay County, 2007 to 2017

Table 3.17 – Number of Livestock and Poultry Farms in Clay County, 2007 to 2017

Livestock and Poultry	2007	2012	2017
Cattle and calves	151	155	167
Beef cows	108	123	123
Milk Cows	16	11	23
Hogs and pigs	32	17	23
Sheep and lambs	11	9	5
Poultry	18	27	48

Organic Agriculture

Organic agriculture is one of the most rapidly growing sectors in the food industry. There are more than 700 certified organic farms and more than 230 certified organic food processors in Minnesota.

In 2017, there were 12 organic farms certified by the USDA National Organic Program in Clay County. An additional four farms were identified as having acreage that was transitioning to organic production. Total sales from organic products was $2,790,000 in 2017, down from $5,045,000 in 2012 according to the Census of Agriculture.

Table 3.18 – Organic Production in Clay County, 2007 to 2017

Organic Agriculture	2007	2012	2017
USDA National Organic Program certified farms	5	8	12
Farms transitioning to organic production		2	4
Total organic product sales (in thousands)	$1,143	$5,045	$2,790

Eglon Township

Producer Demographics and Statewide Trends

According to the 2017 Census of Agriculture, there were 1,094 total producers in Clay County. Of these 73.9 percent were male and 26.1 percent were female. Nearly 61 percent were between the ages of 35 and 64, with over a quarter of producers 65 and older. A sizable percentage (21.5 percent) were identified as new or beginning farmers.

In 2017, the vast majority of farms in Clay County (97 percent) were family farms, with many being handed down from one generation to another. Approximately 37 percent of farms in the county had assistance from hired farm labor, including migrant and seasonal farmworkers.

Minnesota has the fifth largest agricultural economy in the country, contributing to the state's ranking as the eighth best in the nation for business. In Clay County, farmland acreage remained at 576,646 acres in 2017. This amounts to roughly 80.4 percent of the land area of the county. As new markets emerge or expand, Clay County can position itself as one of Minnesota's leading counties for business by capitalizing on new developments tied to farming.

Clay County should consider emerging markets when establishing economic initiatives that support local agriculture and farming businesses. Clay County should also be aware of the following trends that could impact the local economy positively or negatively:

- Minnesota agriculture will likely stay strong for the foreseeable future. Competition between different agriculture niches such as vegetable and grain crops and dairy have increased competition for farmland.
- National policies on tariffs continue to change, which may play a role in regional and local commodity prices, as well as the exporting of goods.
- Livestock farms (dairy and hogs) have grown in size creating concerns over manure management, noise, smells, water quality, and water quantity.
- Many farmers lack adequate physical and financial infrastructure on their farm and in their region for harvesting, processing, storing, and distributing food to nearby markets.

Table 3.19 – Additional Farm Statistics, 2017

Percentage of Farms That:	
Have internet access	85%
Sell directly to consumers	4%
Hire farm labor	37%
Are family farms	97%

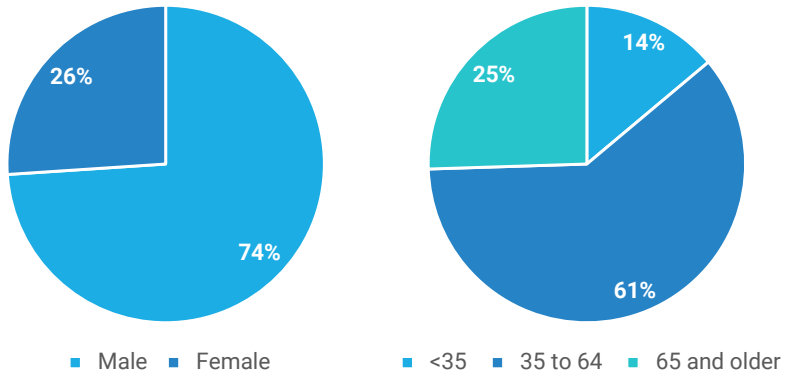


Figure 3.14 – Producer Demographics, 2017

Goose Prairie Township

Surface Water

Surface water includes rivers, streams, lakes, and wetlands throughout the county. Rivers in Clay County include the Red River of the North, the North and South Branches of the Buffalo River, and the South Branch of the Wild Rice River. Additional surface waters include several small, shallow lakes and 37,000 acres of scattered wetlands. Several lakes in the county include Turtle Lake, Lee Lake, and Lake Fifteen, each have a public access and a degree of recreational development around them. These three lakes, along with Silver Lake, have also seen moderate to extensive development.

Clay County is a partner in two Comprehensive Watershed Management Plans: The Buffalo-Red River Watershed and Wild Rice - Marsh River Watershed plans. Counties are encouraged to develop and implement a local water management plan under MN Statute 103B.311. Local government units, including counties, can participate collaboratively with SWCDs and Watershed Districts in comprehensive watershed management planning as defined in MN Statute 103B.801.

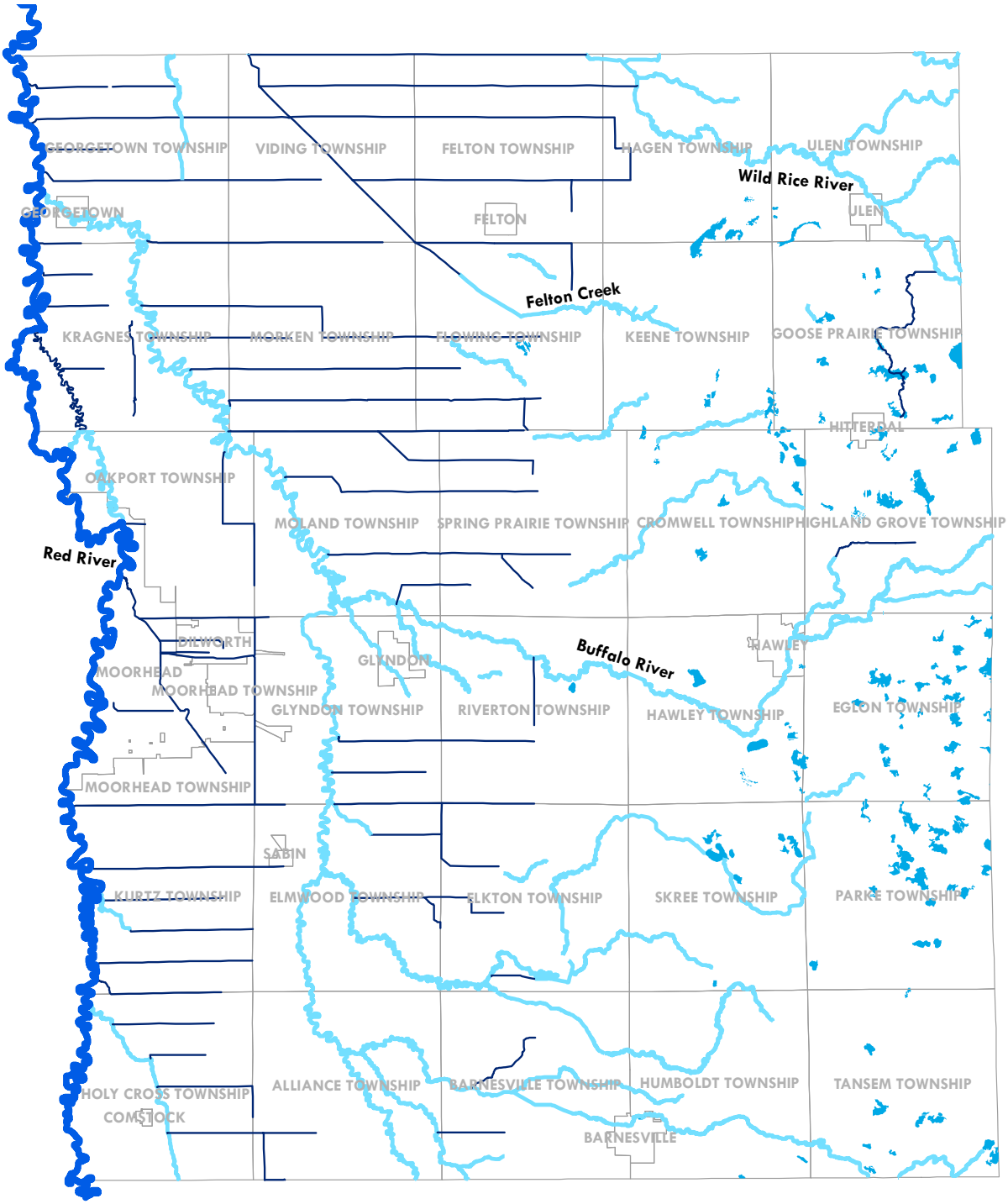
Most surface waters in Clay County are degraded, and several are listed as impaired waters according to the Minnesota Pollution Control Agency. As such, these waters do not meet water quality standards designed to protect human health and biological functions and, thus, must be restored to meet their intended use via locally developed Total Maximum Daily Load (TMDL) Plans. Groundwater quality and quantity are also of utmost importance to ensure clean, safe drinking water as well as adequate supply for agricultural and industrial uses.

Specifically, the Buffalo Aquifer, the emergency water supply source for over 70 percent of the county's population, is vulnerable to contamination from surface water (the South Branch of the Buffalo River and gravel pits exposing the water table), land use activities, abandoned wells and leaking storage tanks. In addition, the geology of the middle portion of the county causes the underlying groundwater resources to be very highly susceptible to contamination. As such, it is critical that future land uses be carefully considered to further protect the county's groundwater resources.

Watersheds

Two primary watersheds, the Buffalo River watershed and the Wild Rice River watershed divide Clay County. Three smaller, secondary watersheds, the Upper Red River of the North watershed, the Otter Tail River watershed, and the Red River of the North - Marsh River watershed, drain smaller portions of the county to the west, east and north respectively. In terms of water management, the Upper Red River of the North and Otter Tail River watersheds are managed by the Buffalo-Red River Watershed District. The Wild Rice River and the Red River of the North - Marsh River are managed by the Wild Rice River Watershed District.

Watershed district boundaries do not always mirror true hydrologic watershed boundaries. Organization boundaries determine the tax base for administration and activities for each organization, though hydrologic and management issues may cross organizational boundaries.



CLAY COUNTY
COMPREHENSIVE PLAN

Map 3.8 – Waterways in Clay County

Red River
Public Ditches
Public Waters
Lakes

N

The BRRWD encompasses a land area of 1,785 square miles. Approximately 75 percent of the geographic area of Clay County is in the BRRWD, which translates to 44 percent of the watershed area. The Buffalo River originates in Becker County, but transects Clay County where it enters the Red River of the North northwest of Georgetown. The main tributaries to the main branch of the Buffalo River include Hay Creek (originating in Becker County) and the South Branch of the Buffalo River. Several drainage ditches also contribute to this branch of the Buffalo River. Major tributaries of the South Branch of the Buffalo River include Hay Creek, Stony Creek, Spring Creek, Whisky Creek, and several drainage ditches. Wolverton Creek/ Comstock Coulee, although a direct tributary of the Red River, is also included in this watershed.

The WRWD encompasses a land area of 2,080 square miles. Approximately 25 percent of the geographic area of Clay County is in the WRWD, which translates to 12 percent of the watershed area. The South Branch of the Wild Rice River runs across the northeast corner of Clay County from east to west with its headwaters located in Becker County and its terminus in Norman County. Other surface waters in Clay County include Stiner Creek, Felton Ditch, Dalen Coulee and several drainage ditches that are tributaries of the Wild Rice River, or the Red River of the North.

Wetlands

Wetlands are formed when hydric soils, hydrophytes (water-loving vegetation), and wetland hydrology are present. All three factors must be established to define an area as a wetland. Wetland benefits include:

- Storage for excess water during flooding;
- Filtering sediments and nutrients before they enter rivers, streams, and lakes;
- Fish and wildlife habitat; and
- Public recreation

Nearly 98 percent of Clay County's original wetlands have been drained or filled. The presence of hydric soils often indicates where wetlands used to exist. Many areas with hydric soils no longer support wetlands. According to the Minnesota Wetlands Conservation Plan, restoration and maintenance of existing high quality wetlands should be the two primary wetland strategies for counties in Minnesota.

Calcareous Fens

Calcareous fens are rare and distinctive peat-accumulating wetlands that have been in Clay County and other parts of western Minnesota for 4,000 years. These environments support highly diverse and unique rare plants that tolerate low oxygen conditions, calcium carbonate deposits, low nutrient availability, and relatively cold organic soils (peat).

Calcareous fens typically occur on slopes where groundwater rises to the surface and saturates the peat before draining away, causing the area to be spongy and wet. Fens are connected to the larger groundwater system and are good indicators of groundwater sustainability, water quality, and ecological diversity.

Fens are extremely fragile and highly susceptible to disturbance by humans, livestock, groundwater supplies, flooding, invasive species, and land use conversions. They have special protection in Minnesota to prevent further loss (MN Statutes 103G.223).

Floodplains

A major physiographic feature making up the western half of Clay County is the Red River Valley. One of the main rivers in Clay County is the Red River of the North which flows northward along the county's western border. The Red River eventually empties into Lake Winnipeg in Canada, whose waters join the Nelson River and ultimately flow into Hudson Bay.

As one of the flattest regions on the planet, the plain of Lake Agassiz has a northward slope of 1.5 feet per mile and an westward slope ranging from two feet per mile near the Red River to 20 feet per mile farther east. The Buffalo River and Wild Rice River in Clay County both form its major surface drainage system. They are supplemented by county and judicial drainage ditches which move significant amounts of runoff into the rivers.

Flooding during the spring thaw is a common occurrence. The Red River's northerly flow and a spring thaw that progresses northward along the valley results in the southern valleys snow melt merging with fresh runoff as it moves north, increasing the total amount of water in the river. Furthermore, the river's inconsistent thaw can cause ice jams as large broken pieces of ice moves north reaching impassable frozen sections of the river creating ice dams retaining the water upstream. Additionally, as the river moves north, its gradient decreases causing the river to pool upstream.

The geological formations of the Red River Valley and its potential for flooding cannot be changed. With significant investments, flooding on already established neighborhoods and developments can be lessened, if just slightly. However, with a proactive approach, it is possible to lessen the damage of floods for new developments. This will not fix past mistakes, but can help to eliminate or lessen burdens created by flooding for future development. Allowing development in flood prone areas by adding fill or diking puts structures at risk of unanticipated flooding levels, and also reduces the natural storage area and creates bottlenecks in the flow of the river. Restricting growth in these naturally low-lying areas allows the storage areas to hold flood waters and helps lower the peak of the flood elevation.

The Red River has exceeded the National Weather Service flood stage of 18 feet in 52 of the past 114 years, and every year from 1993 through 2011. Flooding typically occurs in late March and early April. The flood of record in Fargo-Moorhead was the 2009 spring flood with a stage of 40.8 feet on the Fargo gage. With an estimated peak flow of 29,200 cubic feet per second (cfs), the 2009 flood was approximately a two percent chance (50-year) event.

Water Quality

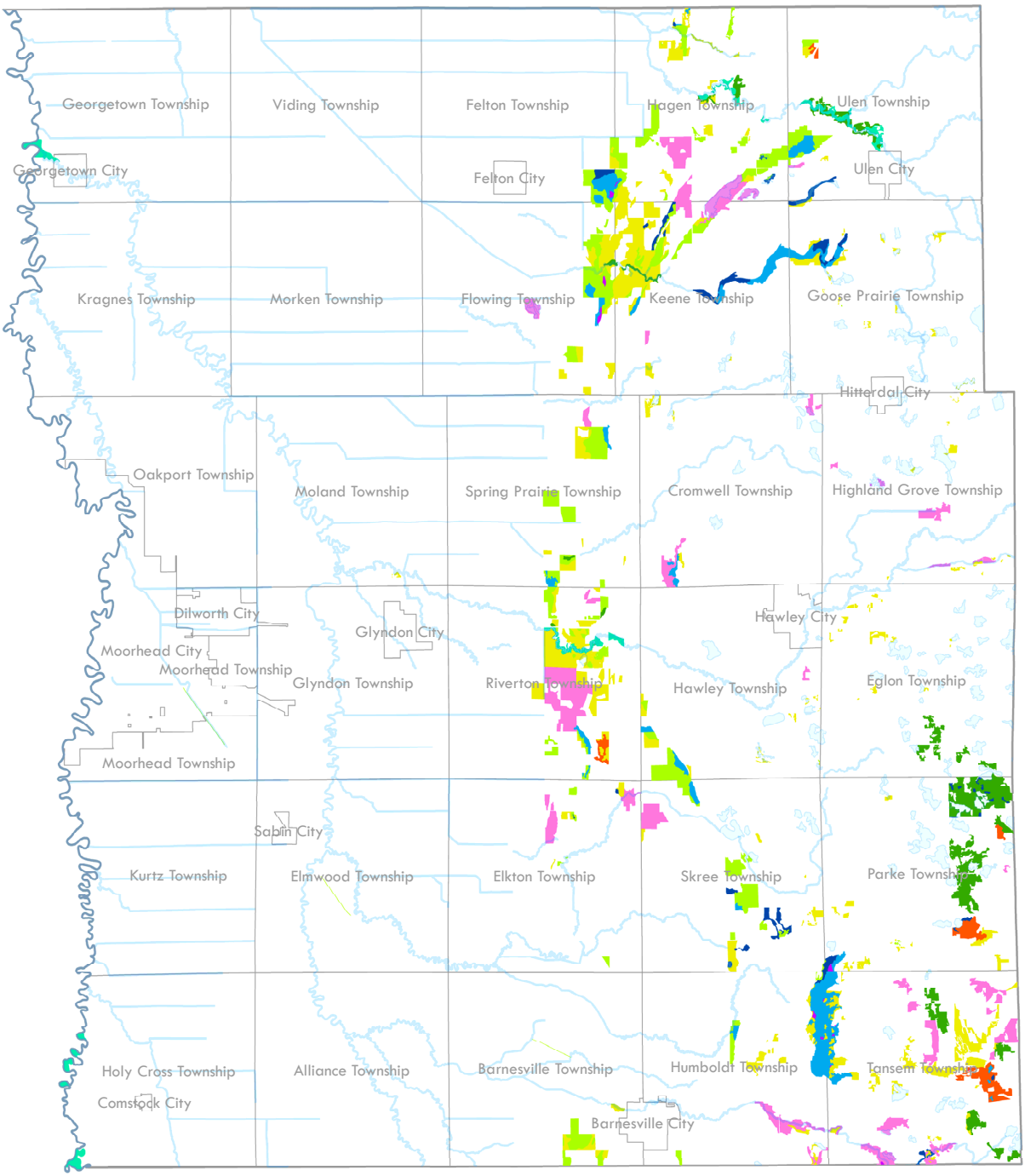
The Federal Clean Water Act requires states to adopt water quality standards that define pollutant quantities that can be present in surface water and/or groundwater, while still allowing the water to meet its designated uses (drinking water, fishing, swimming, irrigation, or industrial purposes). Every two years, the Minnesota Pollution Control Agency (MPCA) creates a list of impaired waters that do not meet water quality standards. The 2020 Impaired Waters List by the MPCA uses water sampling data to show exceedances of water quality standards in Minnesota and, more locally, the Red River Basin.

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 include sediment, fertilizers, and pesticides. Industrial uses such as gravel extraction also have the potential to impact water quality in the county. Possible contaminations include sediment, toxic-waste spill and discharge of contamination to water sources. Urban areas 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 also 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.

Each watershed district, as well as soil and water conservation districts, work to prevent and control water-related problems. Each district monitors the water quality within ditches, rivers, streams, creeks and lakes. Some projects the districts handle include: administration of public drainage systems, water quality improvement programs, and regulatory controls to protect water resources.

Hagen Township



CLAY COUNTY
COMPREHENSIVE PLAN

Map 3.9 – Native Plant Communities in Clay County

- Complex Community
- Fire-Dependent Forest
- Floodplain Forest
- Marsh
- Mesic Hardwood Forest
- Open Rich Peatland
- Wet Meadow
- Wetland Prairie

N

Native Plant Communities

A native plant community is a group of native plants that interact with each other and with their environment in ways not greatly altered by modern human activity or by introduced organisms. These groups of native plant species form recognizable units, such as prairies, savannas, woodlands, and wetlands, that tend to repeat over space and time. Native plant communities are classified and described by considering vegetation, hydrology, landforms, soils, and natural disturbance regimes. Examples of natural disturbances include severe droughts, windstorms, floods, and wildfires. High-quality examples can still be found throughout the state in every county, including Clay County, but in most areas they comprise just a small proportion of the total landscape. The Minnesota Biological Survey (MBS) systematically collects, interprets, monitors and delivers data on plant and animal distribution as well as the ecology of native plant communities and functional landscapes.

Prairie resources in Clay 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 percent of the entire prairie remaining in Minnesota.

Some of the best prairie in the county is protected by designation as Scientific and Natural Areas (SNA's), Wildlife Management Areas (WMA's), Waterfowl Protection Areas (WPA's), State Parks, 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 remnants are in private ownership.

It should be noted that not all native plant communities have been mapped in Clay County. Unplowed pastures and other undisturbed areas have the potential to contain native prairie remnants or other rare native plant communities. When identified, the county should work to ensure that these areas are not disturbed and share updated mapping or parcel information with the DNR.

Spring Prairie Township

Spring Prairie Preserve

Three main concentrations of prairie found in Clay County are the Felton Prairie, Bluestem Prairie, and Blanket Flower Prairie. The Felton Prairie SNA is the most important dry-gravel prairie complex in Minnesota, its five units associated with beach ridges (former shorelines) of glacial Lake Agassiz. Mesic blacksoil prairie predominates, with gravel prairie on the ridges and wet black soil prairie occupying the swales. Among its rare features are a calcareous seepage fen, western prairie fringed orchids, Assiniboia and Dakota skippers, chestnut-collared longspurs, marbled godwits and loggerhead shrikes. The site is part of a designed Audubon Important Bird Area (IBA) and has long been a magnet for birders.

Bluestem Prairie SNA is located south of TH 10 near Buffalo River State Park and is one of the most significant northern tallgrass prairie sites in the nation. The 1,310-acre SNA lies within the 6,078 acre Bluestem Preserve owned by The Nature Conservancy, itself within a 23,600 acre critical core area identified in the state's Prairie Conservation Plan. Uplands in the area host mesic tallgrass prairie, while low swales contain wet black-soil prairie with sedge meadow and calcareous fen. Calcareous fens are a unique type of wetland that is protected by the Minnesota Wetlands Conservation Act (WCA). Rare species include the small white lady's-slipper, regal frittilary butterfly, prairie vole, and plains pocket mouse. Among more than 115 bird species are Wilson's Phalarope, Henslow's sparrow, marbled godwit and loggerhead shrike.

A third SNA is found in the southeastern corner of the county and is known as the Blanket Flower Prairie. Blanket Flower Prairie straddles the ecotone between the prairies to the west and the eastern deciduous forest. Hill's thistle (Minnesota species of special concern) and sky-blue aster are found here at the western edge of their range, while Hooker's oat-grass and blanket flower (both listed as Minnesota species of special concerns) are at their eastern most distribution. Dry prairie dominates the upper slopes of the rolling hills with mesic prairie in low areas interspersed with small groves of aspen. As the growing season unfolds, the slopes host pasqueflowers, purple prairie clover, dotted blazing star and silky aster among the native grasses with their own distinctive forms: prairie dropseed, blue grama grass, porcupine grass. The Minnesota Dragonfly Society has used the site to engage citizen scientists in surveys of Minnesota's dragonfly and damselfly populations; and students from the Natural Resources Management Club at North Dakota State University volunteer their time as site stewards. Ongoing management focuses on reconstruction of old fields to prairie vegetation with native seed collected from within the site.

Threatened and Endangered Species

The purpose of the Endangered Species Act (ESA) is to protect and recover imperiled species and the ecosystems upon which they depend. Threatened species are plants and animals that are likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Endangered species are those plants and animals that have become so rare they are in danger of becoming extinct.

There are four federally–listed threatened and endangered species in Clay County. These include:

- Northern long-eared bat: The northern long-eared bat is a medium-sized bat with a body length of 3 to 3.7 inches but a wingspan of 9 to 10 inches. During the summer, northern long-eared bats roost singly or in colonies underneath bark, in cavities or in crevices of both live trees and snags (dead trees). The northern long-eared bat is one of the species of bats most impacted by the disease known as white-nose syndrome. Due to declines caused by white-nose syndrome and continued spread of the disease, the northern long-eared bat was listed as threatened under the ESA in 2015.
- Dakota skipper: The Dakota skipper is a small butterfly that lives in high-quality mixed and tallgrass prairie. It has been extirpated from Illinois and Iowa and now occurs in remnants of native mixed and tallgrass prairie in Minnesota, the Dakotas and southern Canada. The Dakota skipper is listed as threatened under the ESA and critical habitat has been designated in a number of locations, including Clay County.
- Poweshiek skipperling: Poweshiek skipperlings are small butterflies most often found in remnants of native prairie in Iowa, Minnesota, North Dakota, South Dakota, and Wisconsin and in fens in Michigan. However, this skipperling may have been extirpated from the Dakotas, Minnesota and Iowa within the last 10 years – an area that, until recently, contained the vast majority of the surviving populations. Many conservation partners are now working together to prevent extinction of the Poweshiek skipperling. They are focusing on the few remaining sites in Michigan and Manitoba, Canada where the Poweshiek can still be observed in the wild. Several zoos, including the Minnesota Zoo, are developing rearing strategies to bolster existing populations for both the Poweshiek skipperling and Dakota skipper.
- Western prairie fringed orchid: The western prairie fringed orchid is a federally threatened prairie wildflower. The heart of its historic range was the Red River Valley of Manitoba, Minnesota, and North Dakota, extending southeastward to Iowa and Missouri and westward to northeastern Oklahoma, eastern Kansas, central Nebraska and eastern South Dakota. The western prairie fringed orchid occurs most often in remnant native prairies and meadows. In the southern part of its range it is more likely to be found in mesic upland prairies and in the north more frequently in wet prairies and sedge meadows. It is also known from prairies and swales in sand dune complexes that are fed by shallow underground water.

Mineral Extraction

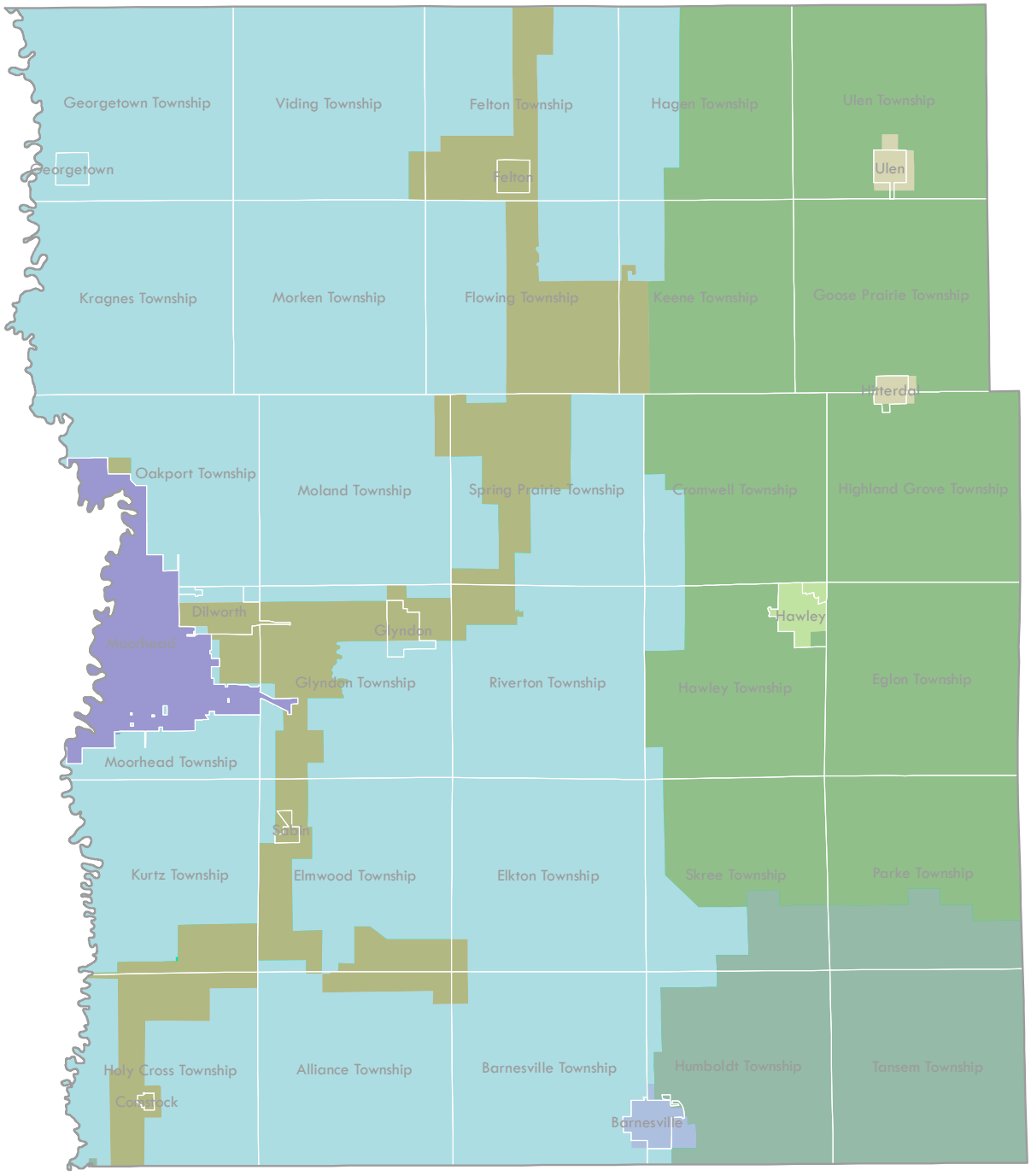
The extraction of natural resources such as aggregate is an important part of Clay County's economy. Locally extracted aggregate keeps costs of new roads and building foundations lower and aides in more cost efficient development in both Clay County and the greater Fargo-Moorhead metropolitan area.

Large portions of aggregate resources can be found in eastern parts of Clay County where glacial Lake Agassiz formed beach ridges and wave-cut scarps. In some of these places, waves and shoreline currents deposited sand and gravel in beach ridges, and in other places eroded preexisting sediments into scarps. The physical properties of the back sediments are dependent upon the type of previously deposited sediments upon which the waves and currents were striking. In general, these beach deposits have a low percentage of coarse gravel and limited overburden.

Another geological factor contributing to the characteristics of aggregate deposits in Clay County is the original source of the rock materials eroded by the glaciers. During the last Ice Age, western Minnesota was covered at different times by glaciers originating in areas to the northwest and in areas to the northeast.

The glacial advances from the northeast occurred earlier. Northeastern-source sediments contain a suite of durable rocks derived from the Canadian Shield in northeastern Minnesota and adjacent Ontario in addition to appreciable amounts of carbonate rocks (limestone and dolomite). This factor is important to aggregate producers, because the northeastern-source aggregate deposits yield products with low percentages of deleterious rock fragments. Aggregates with low percentages of deleterious rock fragments are required in the production of concrete products. Furthermore, these northeastern-source sediments locally contain abundant gravel-sized rock fragments, another desirable property of aggregate deposits.

Hawley Township



CLAY COUNTY COMPREHENSIVE PLAN

Map 3.10 – Energy Service Areas

- Xcel
- Red River Valley Coop
- Moorhead Public Service
- Barnesville Municipal Utility
- Hawley Public Utilities
- Otter Tail Power Company
- Wild Rice Electric Coop
- Lake Region Electric Coop

N

Energy

Clay County is committed to promoting and expanding the use of renewable energy resources and energy efficient practices by reducing energy consumption and increasing the use of clean energy resources.

Energy Use

The electricity and natural gas needs of most rural residents and a majority of cities are served by two main providers: Xcel Energy and Red River Valley Cooperative. In addition, there are three municipal service providers including: Moorhead Public Service, Barnesville Municipal Electric Utility, and Hawley Public Utilities.

Moorhead Public Service (MPS) is a consumer-owned electric and water utility, serving more than 13,000 customers. Nearly $8 million in utility revenues are transferred each year to the City of Moorhead's general, capital improvement, and economic development funds. MPS is overseen by the Moorhead Public Service Commission, comprised of five customer-owners appointed by the Moorhead City Council. The Moorhead Public Service Commission approves the utility budget and establishes water and electric rates for consumers. MPS uses 100 percent renewable energy.

Barnesville Municipal Electric Utility serves approximately 1,050 residential customers and 125 commercial and large power customers. Barnesville's power supply is provided by the Western Area Power Administration (WAPA) under a fixed contract rate for delivery, and its supplemental power supply needs are provided by Missouri River Energy Services (MRES).

The charges for services are based on the utility's operating costs and not based on profit expectations. With this, net income is reinvested into infrastructure and equipment upgrades or placed into reserves for future expenditures.

Hawley Public Utilities is one of 12 participants in the Northern Municipal Power Agency (NMPA), a wholesale energy supplier for municipal utilities in western Minnesota and eastern North Dakota. NMPA is also a member of the Minnkota Power Cooperative joint system.

Transportation Energy Use

Transportation energy use in Clay County is almost exclusively attributable to car and truck travel, and is estimated by vehicle miles traveled (VMT) within a county's boundaries, regardless of through traffic or with an origin or destination in the county. VMT includes commercial and freight vehicles, personal cars, and transit vehicles. VMT does not capture energy attributable to rail and airplanes, but those are generally a tiny portion of transportation energy use.

Minnesota Department of Transportation (MnDOT) data show 795,215,011 vehicle miles traveled annually in Clay County in 2018. This is a 55 percent increase from 1992 to 2018, ranking it amongst one the highest county VMT growth rates in Minnesota. The greenhouse gas emissions associated with this travel are approximately 355,064 tonnes of CO2.Transportation fuels also represent a significant portion of total energy expenditures in the county and could provide an opportunity for cost-savings through efficiency and fuel-switching to less expensive or cost-volatile fuels.

Spring Prairie Township

Renewable Energy Resources

Renewable energy technologies are having an increasingly prominent role in energy systems in both Minnesota and Clay County. Utility-scale wind power is the cheapest form of electric generation in the world and the cost continues to go down. The cost of solar is expected to achieve parity with wind in the next couple of years. More projects will come to Clay County in the future and the county will continue to consider compatible land uses and community benefits as they do. The addition of renewable energy production technologies to a farmer/landowner's property as an accessory use can add value to the production of the property and make agricultural uses more feasible.

A good wind energy site needs to meet a number of characteristics, the most important of which is a good wind resource. Other characteristics include soils that can support the weight of the turbine; a site large enough to accommodate safety setbacks from neighboring properties, structures, or other uses; and surrounding land uses for which the visual impact and potential nuisances will not create a conflict, as well as natural resource considerations.

There are a number of state and national resources describing best practices for wind energy. One such resource is the U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines, which includes design considerations and best management practices for site construction and potential remediation of wildlife and habitat impacts.

Tansem Township

Solar is also beginning to become more common as a reliable renewable energy resource in Clay County. One megawatt of energy can be produced on as little as seven acres of land. Because of its relatively small footprint, solar has the potential to offer consistent, drought-resistant income for farmers who agree to have installations constructed on their property. As of 2021, solar costs $31-$42/MWh, making it a least-cost source of generating electricity in the Midwest. Solar is competitive with wind energy ($26-$54/MWh) and natural gas ($44-$73/MWh).

Clay County has seen an increase in one megawatt Community Solar Gardens (CSGs) in the county. CSGs are a subscription based program through Xcel Energy.

Clay County is part of SolSmart, a national designation program that recognizes cities, counties, and regional organizations for making it faster, easier, and more affordable to go solar. The county currently has a SolSmart Silver designation and is working towards a gold designation.

As the county continues to view these renewable energy systems as a benefit to the environment and its residents, it is also important to note that not all residents view these systems as positive additions to the area. Some residents may not view the addition of a large solar energy system or large wind turbines as aesthetically pleasing and may not want to live near them. It is important for the county to continue to provide an avenue for its residents and businesses to use renewable energy. However, it is also important that the county continually reviews its performance standards and their impacts to neighboring property owners.

Although wind and solar are currently the predominant sources for renewable energy in Clay County, as technological advances are achieved, it is possible that other renewable energy opportunities may be developed. The county should monitor and research these opportunities as they become available.

Cultural Resources

Clay County's history has evolved through many eras including Native American habitation, early European exploration, riverboat trade, territorial government and settlement, early agricultural expansion, and today's urbanization. A number of properties, buildings, and landscapes from these years remain today, and the county has been subject to a number of pre-settlement and archaeological surveys.

Historic properties are properties with features such as an archaeological site, standing structures, a site, district, or other property that are listed in the National Register of Historic Places or the State Register of Historic Places, locally designated as a historic site, or are determined to meet the criteria for eligibility.

Seventeen properties and one district within Clay County are listed on the National Register of Historic Places. In addition, 257 archaeological sites are protected by the Office of the State Archaeologist.

Clay County does not have a formal historic preservation commission or historic preservation ordinance that regulates historic structures, sites, or districts. However, the Historical and Cultural Society of Clay County is a nonprofit dedicated to promoting local history in Clay County, through its museum, archives, and programming located at Moorhead's Hjemkomst Center. The Historical and Cultural Society also manage historic sites throughout Clay County, including the Comstock House and the Bergquist Cabin.

Buffalo River State Park Historic District

Parke Township

Utilities and Community Facilities

Water Supply and Treatment

Groundwater supplies drinking water for a majority of residents and businesses in Clay County. The exception is residents living in the area of Moorhead, where the Moorhead Public Water System obtains its water supply from a blend of sources: surface water from the Red River and groundwater from seven wells that draw from aquifers.

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 in the aquifer.

Historically, the county's aquifers have had abundant water to serve the population. However, the amount of water available in the future may be limited even if aquifers are not completely depleted. Several factors affecting groundwater abundance are:

- The volume of replenishment to or recharge of aquifers from rainfall or snow melt;
- The volume of groundwater pumped out of aquifers; and
- The volume of groundwater naturally discharged to rivers, streams, wetlands, and lakes.

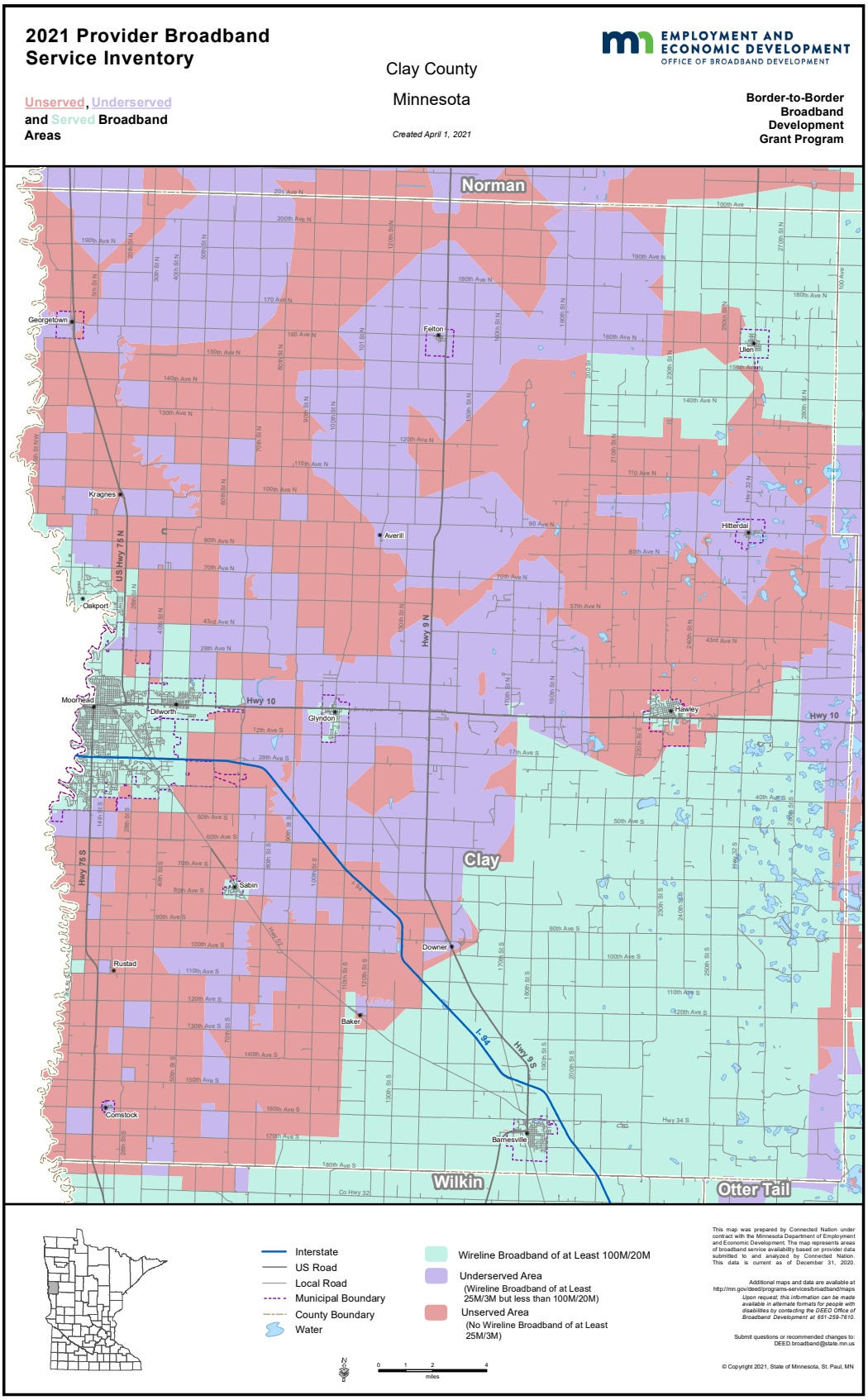
Wastewater and Treatment

In Clay County, wastewater is disposed of by two broad methods: municipal sewer systems or private on-site sewage treatment systems. Most of the county's population is located within cities and is served by a municipal sewer system. Most homes and businesses in the county's townships are served by a private on-site system. The more traditional, big-pipe public sewer service does not exist in the townships primarily due to the low density of homes. In the townships, there is generally sufficient lot area (one acre of non-hydric soil or larger) for an individual sewage treatment system and an average sized house.

Clay County Environmental Health inspects rural and urban septic systems, and issues permits and certifications.

Public Safety

The Clay County Sherriff's Office is the chief law enforcement agency in the county. The Sheriff's Office provides policing services to 30 townships and six incorporated cities. The Sheriff's Office responsibilities include: protecting life and property and preserving peace through programs designed to enforce laws, prevent crimes, and provide an efficient level of response to both emergency and non-emergency requests for law enforcement services; providing a secure and safe correctional facility; promoting coordinated and diverse programs, activities and services with other law enforcement agencies; and developing an effective, motivated workforce through education, training, and career opportunities.



Map 3.10 – Broadband Service Inventory Clay County

Communications

Reliable and affordable wireless and broadband internet plays a fundamental role in education and economic activity. Access to high-speed internet is vital for attracting businesses and helps support workers and students who telecommute or attend classes from home.

In late 2020, Clay County became one of just six test sites in the United States for Starlink, a satellite-based internet service. Starlink's network being currently developed by SpaceX aims to provide low-cost internet service to remote locations across the world. Starlink service is currently available in the eastern communities of Hitterdal and Hawley.

The Minnesota Department of Employment and Economic Development (DEED) reports on the number of households in counties across Minnesota that have access to broadband service. In Clay County:

- 95.7 percent of households are served by 25 megabytes per second (Mbps) download / 3 Mbps upload speeds
- 89.1 percent of households are served by at least 100 Mbps download / 20 Mbps upload speeds

The National Telecommunications and Information Administration (NTIA) also reports on key indicators of broadband access across the country, including U.S. Census information, speed test data, and environmental justice communities.

Higher Education

Clay County is home to three institutions of higher learning: Minnesota State University Moorhead (MSUM), Concordia College, and Minnesota State Community and Technical College (M State). All three institutions are located in Moorhead.

Minnesota State University Moorhead is a public university in Moorhead. The school had an enrollment of 7,534 students in 2019 and 266 full-time faculty members. MSUM is a part of the Minnesota State Colleges and Universities system and offers 76 undergraduate majors with 99 emphases and 114 graduate degree programs.

Concordia College is a private college founded in 1891 and offers 61 majors and 12 pre-professional programs. The college had 2,042 enrolled students in 2019.

Minnesota State Community and Technical College (M State) in Moorhead is a comprehensive community college offering both technical and career options and a full transfer degree program.

Ulen Township

Outdoor Recreation

State Parks

The State of Minnesota operates parks, management areas, and special recreational destinations throughout the state, with a mission of preserving natural areas and providing natural resource-based educational and recreational opportunities. Buffalo River State Park is characterized by large swathes of northern tall grasslands bisected by the wooded banks of the Buffalo River. Together with the adjacent Bluestem Prairie Scientific and Natural area owned by The Nature Conservancy, it protects one of the largest and highest-quality prairie remnants in Minnesota.

Buffalo River State Park was established in 1937 and developed by the Works Progress Administration (WPA). Three buildings and three structures built in the Natural Park Service rustic style were added to the National Register of Historic Places in 1989. The park was originally focused on providing outdoor recreation amenities like swimming. The park was expanded beginning in the 1960's as the quality and rarity of the surrounding prairie was recognized. The 6,078 acre Scientific and Natural Area (SNA) section is used for environmental education by local schools and regional colleges and universities including Minnesota State University Moorhead. The area is also a destination for viewing the spring courtship ritual of the greater prairie chicken.

Wildlife Management Areas

Wildlife management areas (WMAs) are part of Minnesota's outdoor recreation system and are established to protect those lands and waters that have a high potential for wildlife production, public hunting, trapping, fishing, and other compatible recreational uses. They are the backbone to DNR's wildlife management efforts in Minnesota and are key to:

- Protecting wildlife habitat for future generations;
- Providing citizens with opportunities for hunting, fishing, and wildlife watching; and
- Promoting important wildlife-based tourism in the state.

In 2021, there were 19 WMAs in Clay County.

Intergovernmental Coordination

Intergovernmental coordination may be defined as any arrangement through which two or more jurisdictions communicate visions and coordinate plans, policies, and programs to address and resolve issues of mutual interest. It can include sharing information, facilities, and equipment, or involve entering into formal intergovernmental agreements.

Minnesota Department of Health

The MDH has strong partnerships with a range of organizations, tribal governments, and local health agencies such as Clay County Public Health. The department's mission is to protect, maintain, and improve the health of all Minnesotans.

Minnesota Pollution Control Agency

The MPCA issues industrial stormwater permits, water permits, air emissions permits, and solid waste permits. The landfill and future Resource Recovery Campus are permitted by the MPCA. The MPCA also issues water quality permits for nonmetallic mining and associated activities. This permit is required at facilities that mine construction sand and gravel, operate hot mix asphalt production areas, and/or produce ready-mix concrete.

The Clay County Household Waste (HHW) Program operates with a permit from the MPCA. It is permitted to accept waste from Clay County households only and not from businesses, nonprofits, or institutions. Large feedlots, those requiring federal permits, are also regulated by the MPCA.

The MPCA also regulates construction site stormwater permits. These are required for projects disturbing one acre or more of soil, or where the MPCA determines that certain construction activities pose a risk to water resources.

Fargo-Moorhead Metropolitan Council of Governments

The Fargo-Moorhead Metropolitan Council of Governments (Metro COG) is the metropolitan planning organization (MPO) for Dilworth, Moorhead, Fargo, West Fargo, Horace, and parts of Clay County and Cass County.

Metro COG is governed by its Policy Board composed of local and state officials. In addition to a biannual Unified Planning Work Program (UPWP) providing descriptions of projects and studies the organization will pursue, the two main products of Metro COG are the Metropolitan Transportation Plan (MTP) and the short range plan, the Transportation Improvement Program (TIP). The MTP sets a long-term vision for transportation improvements in the metropolitan area. The four-year TIP serves to prioritize those improvements and sets more specific timelines for their implementation. Both plans are regularly reviewed and updated (MTP every five years; TIP every year).

Metro COG is an important partner when it comes to soliciting federal funding for local planning projects in Clay County. In many instances, Metro COG is able to provide up to 80 percent on local or regional studies impacting transportation and land use. As the community grows and as needs arise, Clay County should continue to partner with Metro COG on future planning studies.

West Central Initiative

West Central Initiative (WCI) is a regional community foundation that serves nine counties in west central Minnesota, including Clay County. WCI helps leverage resources in west central Minnesota communities by working with communities, assisting with funding and economic development tools for business development and early childhood initiatives, providing regional planning services for transportation and economic development planning, and offering a wide range of donor services and stewardship programs.

State Agencies

Clay County works with a number of state agencies such as the Minnesota Department of Transportation (MnDOT), Minnesota Department of Natural Resources (DNR), and the Minnesota Board of Water and Soil Resources (BWSR).

Clay Soil and Water Conservation District

A partner in education and conservation, the Clay Soil and Water Conservation District (SWCD) coordinates with several county departments to deliver conversation programs to protect and enhance the county's natural resources. The SWCD is the Wetland Conservation Act Coordinator and Agricultural Inspector for the Clay County. The SWCD also assists feedlot operators with registration, questions pertaining to feedlot regulations, and compliance checks.

Watershed Districts

Watershed districts are special purpose units of local government that have been created to solve water resource issues on a watershed basis. Clay County includes two primary watersheds and three smaller, secondary watersheds, all organized under two organized watershed districts – the Buffalo-Red River Watershed District and the Wild Rice Watershed District.

The county works with these districts to implement water quality improvement projects, as specified in local water management plans. Both the Buffalo-Red River Watershed Comprehensive Watershed Management Plan and the Wild Rice – Marsh River Watershed Plan were completed in 2020. The primary focus of these plans is to reduce erosion and flood damage in the watershed by retaining water, reducing runoff, and managing the land, with the secondary focus to enhance agricultural productivity and natural habitats. Both plans identify and prioritize issues and establish measurable short- and long-term goals.

CHAPTER 3
VISION

Formation of County Vision

Clay County held a number of community engagement events, meetings, focus groups, and other outreach efforts throughout the planning process of the comprehensive plan. These efforts were intended to elicit views on strengths, challenges, issues, and opportunities in the county, as well as to help formulate a new vision, goals, and objectives for the county to rely on. Key responses from each of these efforts and engagement events are summarized in this section. A comprehensive listing of all issues raised throughout the County is provided in an appendix to this plan.

City of Comstock


Parke Township

WHY I LOVE IT HERE ♥

What do you love about Clay County today?

CLAY COUNTY
COMPREHENSIVE PLAN

Small town feel

small town feel, larger metro

the people

THE PEOPLE!

changing topography!

Hills / topography!

Great access to good medical facilities

close access to health care systems

Welcoming small town atmospheres

small town atmosphere - big city amenities

Community events

Longest table event in 2019 was great

Barnesville Potato Days

City events, Ulen BBQ, Sabin Days, fun events to visit

Blue Eagle in Barnesville and the Clay County Fair, Steam Threshers, Hawley Rodeo, great local festivals

Close access to great healthcare systems

Emerging diversity

our diversity

Great hunting and fishing opportunities on lakes, rivers and wildlife management area

family recreational facilities such as Blue Eagle in Barnesville

Parks in Moorhead and trail running along the river is a big win for the City

Prairie chickens, scientific and natural areas, wide open spaces

Seasons - changing of seasons

Libraries

Wildlife, deer, prairie chickens

connection to natural places, Buffalo River State Park, trails along rivers and other natural places

Buffalo River State Park and Natural Areas

Buffalo River State Park and the Grasslands

strong library system

services provided

strong relationship with the State to provide public services - works well

Clay County & MN values the people

Community support for small businesses during the COVID-19 pandemic

Easy access to business in Clay County via Bicycle

City restaurants and support for them in smaller communities throughout Clay County

Employment opportunities

Businesses like Stoneridge Software in Barnesville

High value placed on preservation of farmland

Collaboration between gov't entities and school districts across the County

County employees and elected officials make themselves accessible and show up at events

Growth opportunities

Everest Tikka House!

Lots of local businesses and support for them

Everest Tikka House!

beautiful farmland great County Highways

Lower special assessments and great schools

Larger residential lot sizes compared to neighboring Cass County

Great mix of Urban and rural landscape

Rural character - easy to get 'out of town' (into nature, etc.)

Lake Country begins in Eastern Clay County

Easy access to other amenities across the region (e.g. lakes, trails, etc.)

Fargo is next door

Historical and Cultural Society of Clay County

Clay County and Unique History - places to see/ learn about that

Rush hours is only 5 minutes

Museum - Hjemkomst. Clay County Historical Society and their exhibits. High quality experience

Hjemkomst is unique

educational opportunities

Proximity to 3 universities and 2 tech schools

strong arts, starts in the schools

K-12 education is 2nd-to-none

Embracing the history while looking ahead to the future

Lakes, City amenities, spanish immersion education for my children

The three colleges are a great asset, with events hosted there, after pandemic is done

Bluestem Arts is an amazing amenity

College students as an asset and opportunity

good support for families

safe, welcoming place to live, family friendly

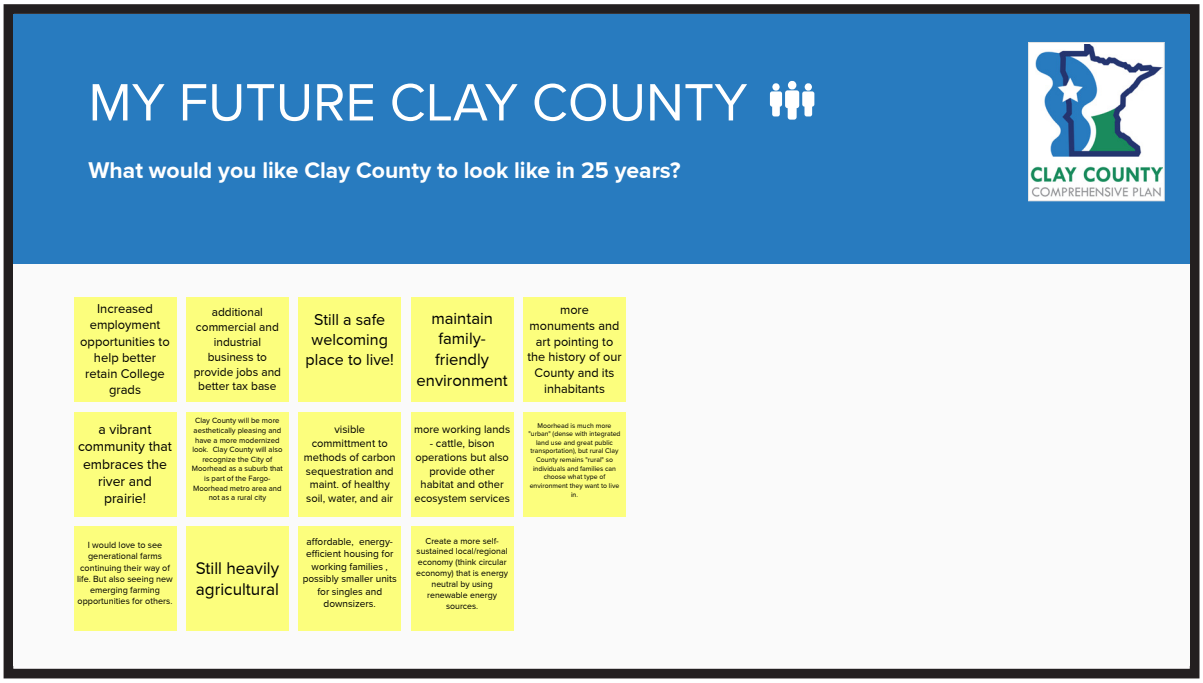
we are a welcoming community

People whom have moved here from different parts of the country feel very safe compared to where they may have came from

Virtual Community Engagement

Clay County held its virtual community engagement meetings on March 23, 2021, which focused on listening to the community about potential issues and opportunities on a host of topics. As part of the virtual engagement activities, participants were asked to provide comments on what they liked about Clay County and what they hoped to see in the next 25 years. Participants were then asked to provide their views on eight themes: housing, businesses, agriculture/food systems, transportation, telecommunication, natural resources, recreation, and government services. A total of 66 residents participated in the virtual meetings.

Responses to themes were recorded as an issue, one that community members saw potential unmet needs, or an opportunity, one that the county could strive to achieve in the future.



ISSUES AND OPPORTUNITIES

Key: ISSUES | OPPORT-UNITIES

CLAY COUNTY COMPREHENSIVE PLAN

HOUSING

- affordable housing is limited
- don't see a lot of investment or upkeep of homes in my neighborhood makes me nervous about the investment
- how development should be managed how we should grow
- smaller communities need more rental housing
- senior housing is quite expensive
- rising rates of homelessness in our senior population
- limited options for first time homeowners ins single-family dwellings and limited in location as well
- building codes do not address future energy realities - need to insulate better
- affordable senior living
- unbalanced tax structure with ND neighbor
- shortage of variety of housing available in smaller communities
- tax burden on senior residents whom may be on a fixed income - explore working with State
- prime farmland being converted to residential housing spaces. Long term plan might consider if prime ag land should have higher density housing - take less ag out of production
- the need to address housing options such as accessory dwelling units

- diversity of senior housing choice
- housing is located on higher elevation when compared to across the river and surprisingly is cheaper. not always the case across the US
- one-level houses for aging population looking to downsize
- more unique types of homes (e.g. shop houses, tiny homes, modular homes)
- Variety of size and pricing of housing.
- tiny house communities could be explored for affordable housing?
- need more options for new home buyers and retiring (down sizing) residents
- work with HRA to access other funding opportunities for remodeling or new affordable housing
- housing is affordable when compared to med income here
- Support of 2 year property tax rebate for new residential homes

BUSINESSES

- Very different business climate than neighboring ND makes it challenging to recruit and retain businesses
- better job of telling our story - programs are out there and need to be marketed better
- better parking (on street) in downtown Moorhead. Traffic needs to slow down so they see the business.
- ND v MN taxes for businesses

- Clay County Revolving Loan Fund to help businesses start and expand
- great community support for our local businesses
- small businesses development center at Concordia!
- lets get some Clay County businesses to apply for the Bicycle-Friendly Business designation by the League of American Bicyclists
- leverage local industry sectors and ecosystems, ag tech, med device, manufact. software, etc.
- development patterns with greater density patterns in strategic locations are needed to support an over saturated retail business environment
- I-94 running through
- need to make policies to help foster investment
- more mixed use housing with business on street-level
- Continue pushing for leveling playing field for new businesses so fewer go to ND
- proximity to higher pop. metro area
- proximity to Lakes Country draws in visitors
- access to capital - entrepeneurs, startups, expansion
- working with townships and smaller cities to welcome business, even if it means changing prior future growth ideas

AGRICULTURE / FOOD SYSTEMS

- Chinese tariff on soybeans reduces buyers
- Co-ops (vegetables other farm fresh ingredients)
- interest in food trucks - regulations can cause a challenge
- addressing cottage food laws and border issues related
- soil erosion issues, sustainable practices needed
- cost of services for farmland
- lack of transportation for rural citizens to food pantry
- lack of grocery stores in rural areas such as Ulen and Felton

- Collaborating with American Crystal and Busch
- resource to link food production with farm to table opportunities
- Conservation Reserve Program (CRP) opportunities
- backyard POULTRY
- SWCD has low interest loan program available to rural landowners for ag BMPs
- amazing farmland, streams and lakes, wetlands, clean air
- more food truck options
- more permissive of food options and full-suite of urban gardening options
- connect locally grown and produced food to locals
- seeing more industrial hemp production in the County - lack of infrastructure for processing and sale
- expanded community gardens
- Permanent food truck park?
- community gardens - more development in food deserts
- backyard chickens
- prepare for autonomous food delivery options
- promote no till operations to reduce soil erosion
- utilize food waste for ag purposes
- find ways to encourage new farmers
- extension services are great for both rural and urban residents
- some of the best soil in the world

ISSUES AND OPPORTUNITIES

CLAY COUNTY COMPREHENSIVE PLAN

Key: ISSUES | OPPORT-UNITIES

TRANSPORTATION

- Address bike friendly roads. More walking/ biking paths throughout the county
- horrendous transit - routes, stop amenities, and how fares are administered
- aging population in both metro and rural could use more public transportation options
- cities and counties have no electric vehicle fleets
- improve 3rd St S from 60th Ave S to 50th Ave S by bluestem
- Better connections that don't bring you back to the downtown Fargo Ground Transportation Center (MATBUS)
- impacts of increased commodity/freight traffic on township and county roads
- better speed transitions from entry little to no entry
- 11th St S between Main and 12th Ave is abysmal
- 7th Ave S in Moorhead, by the river... road is awful needs improvement
- Moorhead roads overbuilt, not aethetically pleasing and have weird route patterns.
- last mile connections (MATBUS)
- small town access to multimodal options
- make roads more bike friendly
- commodities impact on roadways and strain moving forward
- Railroad barriers in Moorhead
- Main avenue traffic control (Moorhead) is frustrating
- more active transportation opportunities especially outside of Moorhead

- fast electric vehicle charging stations
- Senior Center transit route to and from local senior centers - that may run on specific days
- partnered senior center and childcare center facilities
- future bypass? Possible interstate route around the Metro?
- dedicated bike path through the middle of Moorhead
- Great County Highways
- All Aboard MN - 2nd train (daytime) between fargo/ moorhead and the twin cities
- more train options
- transit and weather impacts - planning public transit with seniors in mind
- locate funding to bring back Clay County Rural Transit
- future Heartland Trail connection
- Heartland Trail!
- public transportation options with autonomous vehicle service
- Complete streets policy - highlight in plan somehow
- do more for volunteers as part of the volunteer driver program
- Heartland Trail!
- better link to Cass and Clay bike routes
- expand on shared use path network
- bicycle access or canoe access to Bluestem

TELECOMMUNICATIONS

- telemedicine is only possible from homes that have broadband access
- lack of broadband in rural areas
- increased fiberoptic lines along County Highways
- cell service deadspots in Rural areas

- broadband in Moorhead is amazing, very good
- Starlink coming soon to the Hitterdal area!
- telecom..wired internet solution to replace wireless
- options for tele-commun-ications / internet
- tele-commun-ications
- broadband

NATURAL RESOURCES

- balancing protection of natural areas with aggregate resouces

- urban forests and prairie spaces
- the Dakota Skipper and birding
- Great water need to protect aquifers
- parks with surfaces, equipment and design to be inclusive for children with disabilities
- county could reduce carbon emissions through energy generation that does not emit CO2 and electric vehicle fleet
- More urban prairie pockets throughout the urban areas
- access to natrual resources
- Felton Prairie, Healthy Groundwater (aquifer), State Park and Trails

ISSUES AND OPPORTUNITIES

Key: ISSUES | OPPORT-UNITIES

CLAY COUNTY COMPREHENSIVE PLAN

RECREATION

- indoor play spaces for young families
- identification of all public accesses for rivers and lakes
- indoor activities for teens as well including skateboarding

- more regional trails with better crossings
- Heartland Trail
- Indoor playground
- Inclusive parks and playgrounds
- more trails
- more walking bridges across the river
- Riverkeepers is great - expand canoeing and kayaking
- County-owned land provides good outdoor rec opportunities
- more skiing, walking, biking trails
- heartland trail
- Cross-country skiing, fat bike trails, snow shoe trails!
- complete Heartland Trail

GOVERNMENT SERVICES / OTHER

- Tax burdens continue to go up - need to balance wants and needs is very important
- MPS should proactively work to avoid black outs now that we are tied into a national system
- additional meeting room space for community groups

- more centrally located more access online to items
- Address new resident needs - especially New Americans
- Coffee shops at bus stops to make waiting for the bus more pleasant

Community Input Survey

A community input survey was developed and shared with the community from February 19 to April 23. The survey had 35 unique questions the gauged general feelings towards the county and issues related to housing, economic development, agriculture, mobility, and other topics. The survey had 319 respondents, with about 90 percent from residents in cities and urban areas and 10 percent from townships and rural areas. The majority of responses fell into six broader themes and issues:

Community

The most common responses to what respondents enjoy about Clay County were related to the community, through family and friend networks. Responses suggest that this sense of community is protected by maintaining a perceived high "quality of life" and low crime rates.
"Safe, people, community"
"People care for other people"
"FRIENDLY COMMUNITIES"

Rural/small town feel

Respondents showed concern for preserving the existing small town atmosphere of its cities and the rural character of the county as a whole. One of the top future challenges identified by respondents was traffic congestion, which would disrupt the county's rural feel.
"Small town living"
"Rural communities with amenities nearby"
"Quietness"

Natural environment

Many respondents valued easy access to nature within the county including river trails, parks and outdoor recreational activities. One of the biggest future fears is the loss of natural areas and open space.
"Biking the river corridor"
"Parks, paths, and recreation."
"Preserving and improving green spaces and protecting clean water is vital to our community."

Economic development

According to respondents, the top strength of living and working in Clay County is its proximity to the FM metropolitan area and other regional destinations. There is strong backing for local businesses and more employment opportunities.
"Location – next to Fargo."
"Staying competitive… attracting people and businesses"
"Lack of new businesses, restaurants and retail"

Education

A strong economy is supported by a high-quality education system which was also identified by almost half of respondents as a top strength.
"Access to schools"
"Public schools have been improved"
"Education opportunities is huge in my book."

Affordability

Among those surveyed, the number one challenge to the quality of life in Clay County in the next 25 years is a "higher cost of living". Furthermore, respondents were also concerned about a lack of housing choices.
"AFFORDABLE Senior living."
"Housing is getting to be overpriced"
"… we need our lower income families to be able to afford decent housing"

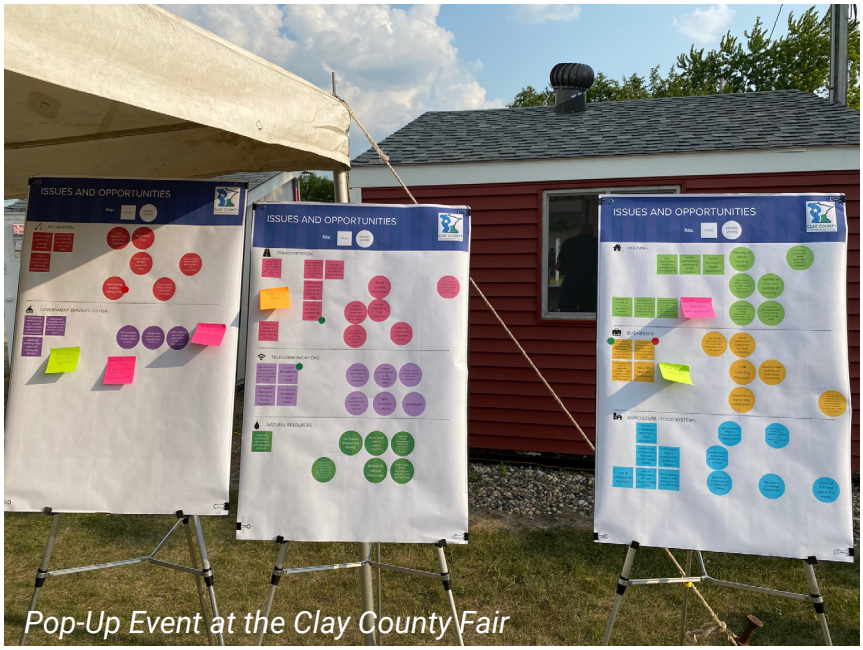
A full listing of survey responses can be found in the appendix.

Pop-Up Events and Additional Community Engagement Events

On July 15 and 16, 2021, Clay County hosted community pop-up events at the Clay County Fair in Barnesville. At these events, county staff and elected officials were present to answer questions and listen to ideas and concerns from community residents. Display board were used to solicit feedback on topics discussed at the March virtual meetings, as well as allow for new comments and observations.

Some of the comments received include the following:
"Innovative solutions to affordable home ownership"
"More shopping opportunities"
"Childcare is a pressing issue; difficult to find childcare in smaller cities"
"More recycling options"
"Desire for multicultural childcare/community center"
"Some township roads can be tough to travel on, especially in winter"

Clay County hosted two in-person public input meetings for the comprehensive plan on July 26 and 27, 2021. The first meeting was at the Hitterdal Community Hall and the second meeting was at the Buffalo-Red River Watershed District Office in Barnesville.



Pop-Up Event at the Clay County Fair

City and Township Feedback

Clay County reached out to each city and township in Clay County to solicit feedback on three open-ended questions: what are current challenges, what are current strengths, and what topics should be addressed in the comprehensive plan. The county received responses from seven townships and five cities.

City Challenges:

- Current shortage of labor
- Higher income tax and business restrictions in comparison to neighbors in North Dakota
- Childcare
- Affordable housing
- Activities for community members of all ages to engage in year round
- Roadway and infrastructure funding
- Lack of land for city expansion or future development
- Budget constraints and bond balances
- Traffic from County Roads through cities
- Recycling
- Ordinance enforcement

City Strengths:

- Location - access to jobs and shopping in the FM area
- K-12 Education with expansion of the curriculum
- New trade school in Moorhead and school additions in Glyndon.
- Students have the opportunity to attend two universities and a community college in Clay County
- Youth sports, arts, and theater opportunities
- Increase in tax base with commercial and housing developments
- Development in downtown areas
- Development of more community gardens and fruit orchards
- Full-time and part-time employment opportunities
- Great park and athletic facilities
- Expenses for utilities are generally minimal
- Comradery - knowing neighbors and neighbors who care

City of Hitterdal

Township Challenges

- Road maintenance (including snow removal, dust control, and blading), especially for corridors that see heavy agriculture and industrial traffic
- Flooding concerns, including flooding from waterways and retention ponds
- Slow or limited broadband service
- Garbage and illegal dumping
- Developers using phase subdivisions to circumvent size limitations for number of housing units
- Lack of defined requirements that developers need to meet in applying for a subdivision (including agriculture use value and proof of well and septic compliance)
- Expansion of conservation areas that impact taxable parcels

Township Strengths

- Strong agriculture and mining activity
- Quality schools and school districts
- Proximity and access to the FM area
- Having access to both state and federal highways
- Taracon, located within the Spring Prairie Hutterite Colony, is a vital employer in rural Clay County
- Quiet lifestyle
- Strong work ethic

Moland Township

Riverton Township

Buffalo River State Park

State Agency Responses

- Clay County asked several state agencies for input and to get a sense of which issues, either broad or specific, that they see as important in the county. Of the six that Clay County reached out to, the county heard back from four: Minnesota Board of Water and Soil Resources (BWSR), Minnesota Department of Natural Resources (DNR), Minnesota Department of Health (MDH), and the Minnesota Pollution Control Agency (MPCA).

Detailed issues brought forth by state agencies include the following:

- Erosion and sediment control on agricultural land are concerns. Sedimentation in rivers, streams, and ditches has been a continuing concern due to altered farm practices and an increase in precipitation and frequency of major precipitative events. In particular, the portion of Clay County below the beach ridge area, erosion has caused sediment to build in surface water which affects both the hydrology and aquatic life habitat.
- Flood damage reduction and natural resource enhancement are important issues within the Buffalo-Red and Wild Rice Watershed District areas. As recently as 2009 Clay County has experienced major flooding events as part of the Red River Valley, not only from spring melts but major summer storm events as well.
- Collaborate with neighboring entities to reduce stormwater pollutant loading. Although the majority of Clay County is agricultural land, it is also home to a portion of a large metropolitan area in Fargo-Moorhead. An increased effort to work with neighboring Cass County in North Dakota, as well as the cities in the Fargo-Moorhead metropolitan area, to educate the public and promote urban BMP adoption such as rain gardens, stormwater utility credits, and other stormwater mitigation practices is recommended. The County should also include a discussion on climate change and how that may influence water management within the County.
- Collaboration and communication between agencies are priority issues. Maintain an open communication channel between the state agencies and county to utilize the expertise of both offices.
- Environmentally sensitive resources should be considered for future long-range land use planning and used to identify environmentally sensitive areas, including calcareous fens.
- Several additional species have been added to Minnesota's list of Endangered, Threatened, and Special Concern Species list since the comprehensive plan was last updated. Clay County should apply for an NHIS data license to have access to updated information and to conduct initial screens for rare species to incorporate into permitting processes.
- The plan should include solar as a potential source of energy along with wind energy.

- One item that should be added as a goal throughout the document is mitigation and adaptation to the changing climate. With changing temperatures, rainfall patterns, and increased drought and storm events, planning for climate resilience takes intentional and significant effort.
- Surface water-based drinking water systems are highly susceptible to potential contaminants entering the public water supply at a level that may result in an adverse human health impact. Based on a comparison of the sensitivity of the surface water intake to the presence of potential contaminant sources, the susceptibility of the city of Moorhead is considered to be high for a surface water based public water supply system.
- Drinking Water Supply Management Area (DWSMA) boundaries establish a protection area through an extensive evaluation that determines the contribution area of a public water supply well, aquifer vulnerability and provide an opportunity to prioritize specific geographic areas for drinking water protection purposes. DWSMA boundaries often extend beyond city jurisdictional limits or are established in Wellhead Protection (WHP) Action Plans for non-municipal public water supplies, like mobile home parks which rely on local government partners for land use controls, can be a special focus for the county in prioritizing drinking water protection activities.
- Land use planning/zoning and coordination of city, township, and county ordinances can be used to address risks both from groundwater overuse and from the introduction of pollutants. Land use management should target the prevention of conflict in groundwater sensitive areas and regions of limited water supply. Voluntary practices such as conservation programs, best management practice implementation, and use of emerging conservation technology should also be encouraged in addition to regulation at the most local government level.
- Unused, unsealed wells can provide a conduit for contaminants from the land surface to reach the sources of drinking water. This activity is particularly important for abandoned wells that penetrate a confining layer above a source aquifer.
- Many residents of Clay County rely on a private well for the water they drink. However, no public entity is responsible for water testing or management of a private well after drilling is completed. Local governments are best equipped to assist private landowners through land use management and ordinance development, which can have the greatest impact on protecting private wells. Other suggested activities include hosting well testing or screening clinics, providing water testing kits, working with landowners to better manage nutrient loss, promoting household hazardous waste collection, managing storm water runoff, managing septic systems, and providing best practices information to private well owners.

- Consider designing transportation infrastructure to deal with increasing and more extreme precipitation events due to changes in climate. We expect that in parts of the state the stormwater infrastructure will need to be able to absorb more rainfall and deal with more frequent flooding through use of larger conveyance systems and redundant stormwater controls. Managing stormwater can also be increased by maintaining natural systems, including preservation of open space, use of vegetated infiltration swales using native vegetation and multiple small vegetated basins along roadways.
- To improve the water quality of the County's water resources, consider making minimization of erosion and stormwater runoff in the County a priority. This can be accomplished by inspecting and maintaining existing stormwater systems, promoting low-impact development and green infrastructure for newly developed and redeveloped properties, encouraging agricultural best practices, requiring wetland protection and restoration, and supporting innovative stormwater management practices.
- To improve overall water quality, consider efforts to restore impaired waterbodies or protect waterbodies at risk of impairment in the County. Impaired waters are those that fail to meet applicable water quality standards for aquatic life, aquatic recreation, and/or aquatic consumption.
- Watershed Restoration and Protection Strategy (WRAPS) reports identify potential strategies or best management practices that can be implemented to restore or protect waters, and Total Maximum Daily Load (TMDL) reports identify necessary pollutant reductions for impaired waterbodies to be restored and meet standards. Potential strategies might include nutrient management, cover crops, vegetative buffers, lakeshore and streambank riparian vegetation management, and septic system maintenance and upgrades.
- Restoration of impaired waters and protection of waters at risk of impairment may require significant effort, but benefits of those efforts can be seen not only locally but also downstream. Minnesota's Nutrient Reduction Strategy calls for significant nutrient reductions in major rivers, including the Red River, by 2025 with additional reductions by 2040.

Personnel Meetings

A series of 10 personnel meetings were held with Clay County staff from April 21 to May 4, 2021. These meetings were a way to learn more about the different programs and services the county offers and whether county staff saw any potential issues or emerging needs.

Emerging needs and comments from personnel meetings include the following:
"Accommodating residential growth in rural areas"
"Business recruitment and retention"
"Agriculture will continue to be the backbone of Clay County"
"Educating residents about potential programs for property tax relief"
"Mental health needs have increased, especially with student and elderly populations"
"Additional staffing – recruitment has been challenging"
"Space needs – as county population grows, need for more employees grows"
"Emergency management needs have grown"
"Emphasize health in all policies"
"Lack of transportation is a chronic issue – impacts access to food, healthcare, childcare"
"Affordable housing is an issue"
"More regional cooperation; shared facilities"

Focus Groups and Targeted Outreach

Clay County also conducted a series of focus groups and targeted outreach with individuals representing important areas in the county. This included virtual or in-person meetings with aggregate producers, agricultural producers, and individuals and specialists in natural resources and economic development. Additional outreach occurred with public safety and emergency response officials and the five main public school districts in the county.

The following represent a sample of some of the issues brought forth:

Aggregate Producers

"Hardest part – permitting; seven permits between county/township/state"
"Hauls getting longer…efficiencies haven't led to cost reductions"
"FM Diversion will soon play a huge part in aggregate demand"
"Finding truck drivers is going to become even more of an issue"

Agricultural Producers

"Right to Farm – continue to minimize conflicts between agricultural and nearby non-farm residential use"
"Where do we house migrant workers? How can you house them on a property?"
"Producers are open to sustainability practices and many of us have experimented with cover crops, though with mixed results"
"Don't feel that we have much of a voice on roadway improvements"
"Get landowners on the Heartland Trail Committee"
"Border Cities Enterprise Zone – can this be made county-wide?"

Natural Resources

"Grassland birds are in steep decline due to habitat loss and degradation"
"Continue to enhance water quality of streams and rivers for benefit of groundwater quality"
"Extension of Heartland Trail, Red River water trails, access to Buffalo River for canoeing and kayaking"
"Engage community in citizen science activities"

Economic Development

"Mass resignation – the pandemic has accelerated this, which is even more of a concern in rural areas"
"Resources for ownership transition and helping business owners exit"
"Beneficial for the county to have clear information about the development process; can be just as powerful as incentives"
"County needs to share its success stories"
"Remote working, childcare, and housing are all issues that we are beginning to focus on more and more"

Public Safety and Emergency Response

"Lack of membership and ability to have (volunteer) responders during working hours"
"Often, smaller towns have not prepared and/or do not have the ability to properly fund a fire department"
"Like the idea of a county-wide fire department…combination paid/paid per call department with current volunteers of each town providing personnel"

School Districts

"More funding for student mental health services in out-lying communities"
"Better coordination between rural schools and snowplowing schedules; this creates huge issues in determining to call off school or have late starts"

Tansem Township

Clay County Vision

Based on a culmination of input received during the community engagement process and an examination of recurring themes, the following has been put forth to describe the future vision for Clay County through 2045:

Clay County values its existing rural and agricultural character while ensuring a thoughtful, balanced approach to growth and development in the years to come. Clay County is committed to the principles of equity, inclusion, and service by providing quality services and facilities for all citizens and future residents. Clay County recognizes the importance of its agricultural and natural resources while looking for new opportunities to support economic vitality. Clay County will promote sound planning principles that foster economic, environmental, and community resiliency to ensure that Clay County thrives into 2045 and beyond.

CHAPTER 4
LAND USE

Guiding Principles for Land Use

The 2045 Clay County Comprehensive Plan has established five guiding principles for land use in the county. These principals are based on feedback from residents as well as other community stakeholders.

Balance

People live and work in a friendly, safe, and healthy communities across the county. Development occurs at a rate in which does not place an undue burden on the environmental, economic, and social needs of current and future residents. Land is used efficiently, preserving agricultural and natural resources.

Collaboration

Clay County works collaboratively with cities, townships, public agencies, and the private sector towards shared land use and economic development goals. Transportation corridors and employment areas are planned across jurisdictional boundaries with regional interests in mind.

Fostering

An assortment of housing choices and jobs exist to meet the needs of people of all ages, abilities, incomes, and backgrounds. Land use patterns provide opportunities for people to live healthy, stimulating, and fulfilling lives.

Economic Resilience

Opportunities for economic growth are cultivated by attracting a well-trained, diverse, and educated labor force. Land uses are planned to accommodate high-paying employers in growth industries that help the region compete nationally and internationally. Inter-relationships among transportation investments, telecommunication systems, and other public infrastructure are recognized and coordinated with economic development goals.

Connection

Land use patterns allow people to move easily between cities and communities, provide jobs near housing, convenient shopping, and services, and recognize the importance of natural systems.

Parke Township

Physical Setting

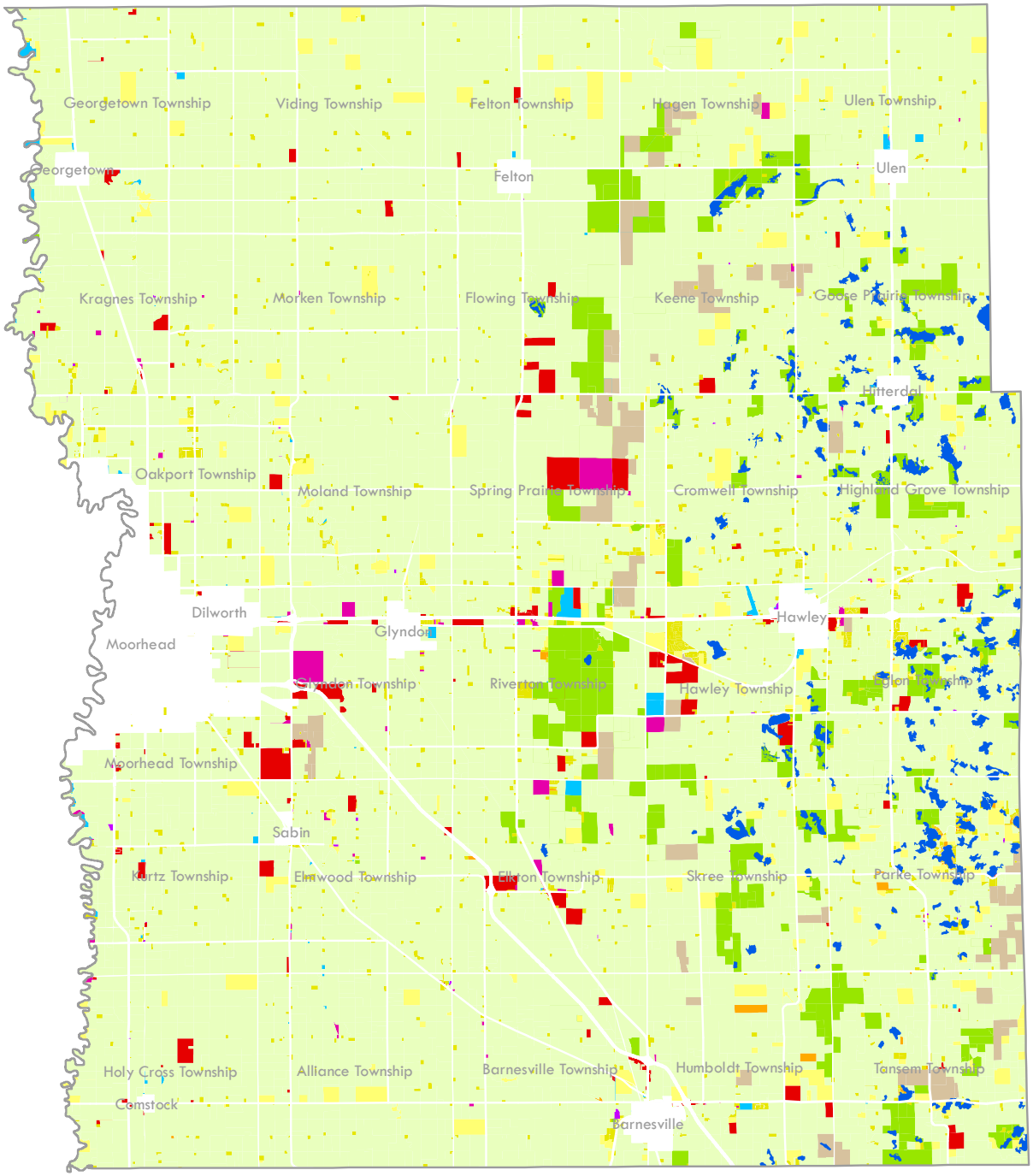
Clay County covers 1,053 square miles, measuring 36 miles from north to south and approximately 30 miles from east to west. The western boundary of the county abuts the eastern boundary line of North Dakota along the Red River. The Buffalo River flows west-northwesterly through the center of the county, joined by the South Branch Buffalo River west of Glyndon, before discharging into the Red River near Georgetown.

Clay County can be split into three distinct regions, each with its unique qualities and characteristics. Western Clay County is one of the youngest major landscapes in the United States and consists of flat, rich agriculture land. Though it is called the Red River Valley, this landscape is not technically a valley but rather the lake bed of ancient glacial Lake Agassiz which drained approximately 9,500 years ago. The tallgrass prairies that took hold after the disappearance of Lake Agassiz helped create the fertile soil that farmers enjoy today, producing high yields of corn, soybeans, wheat, sugarbeets, and other crops.

Running roughly along the middle of the county from north to south are a series of linear beach ridges from glacial Lake Agassiz. These ridges are comprised of sand and gravel, highly valuable resources and the primary source of construction aggregate for Clay County and the greater Fargo-Moorhead metropolitan area. Just as significant, these ridges support some of the largest and best remnants of native prairie left in Minnesota, providing vital habitats for numerous species of wildlife.

Eastern Clay County is characterized by gently rolling hills dotted with a number of lakes, sloughs, and other wetlands. It is the fastest growing region of rural Clay County, with a number of new homes and seasonal residences constructed in recent years.

Alliance Township



CLAY COUNTY
COMPREHENSIVE PLAN

Map 4.1 – Land Use in Clay County

- Residential-Farm
- Residential-Seasonal
- Commercial/Industrial
- Conservation/Public Lands
- Government/Public Services
- Residential-Nonfarm
- Agricultural
- Mixed Use
- Industrial-Extraction
- Semipublic

N

Existing Conditions

Clay County's diverse land use patterns include small cities, exurban residential communities, and growing suburban communities in the Fargo-Moorhead metropolitan area. These areas are interspersed with natural areas, wetlands, lakes, and agricultural areas. The variety of developed and open space areas provides a mixture of visual landscapes unique to Clay County.

Existing Land Use

An accurate depiction of Clay County's existing land use pattern is an important step in planning for a desired future land use pattern in the county, especially near adjacent urban areas. With future growth inevitable and with the county's desire to pursue a balanced land use pattern, a future land use plan will help Clay County carefully consider development decisions.
Land use is different from zoning in that it reflects the desired future development outcomes for a given area. Zoning districts define and regulate which kinds of uses are allowed on specific parcels and outline design and development requirements and guidelines.

Land use in Clay County can be divided into 10 categories:

Residential – Farm land use includes farmsteads and other residences with live farm operations.

Residential – Nonfarm land use includes residences with no or very limited farms uses associated with them. Many of these residences are newer constructions.

Residential – Seasonal land use includes seasonal lakeshore and other vacation units, many of which are located in the southeast corner of the county.

Agricultural land use includes parcels in which the primary activity is agriculture, whether that be row crops, feed lots, or other farming uses.

Commercial/Industrial land use includes parcels which are associated with business enterprises or industrial operations throughout the county.

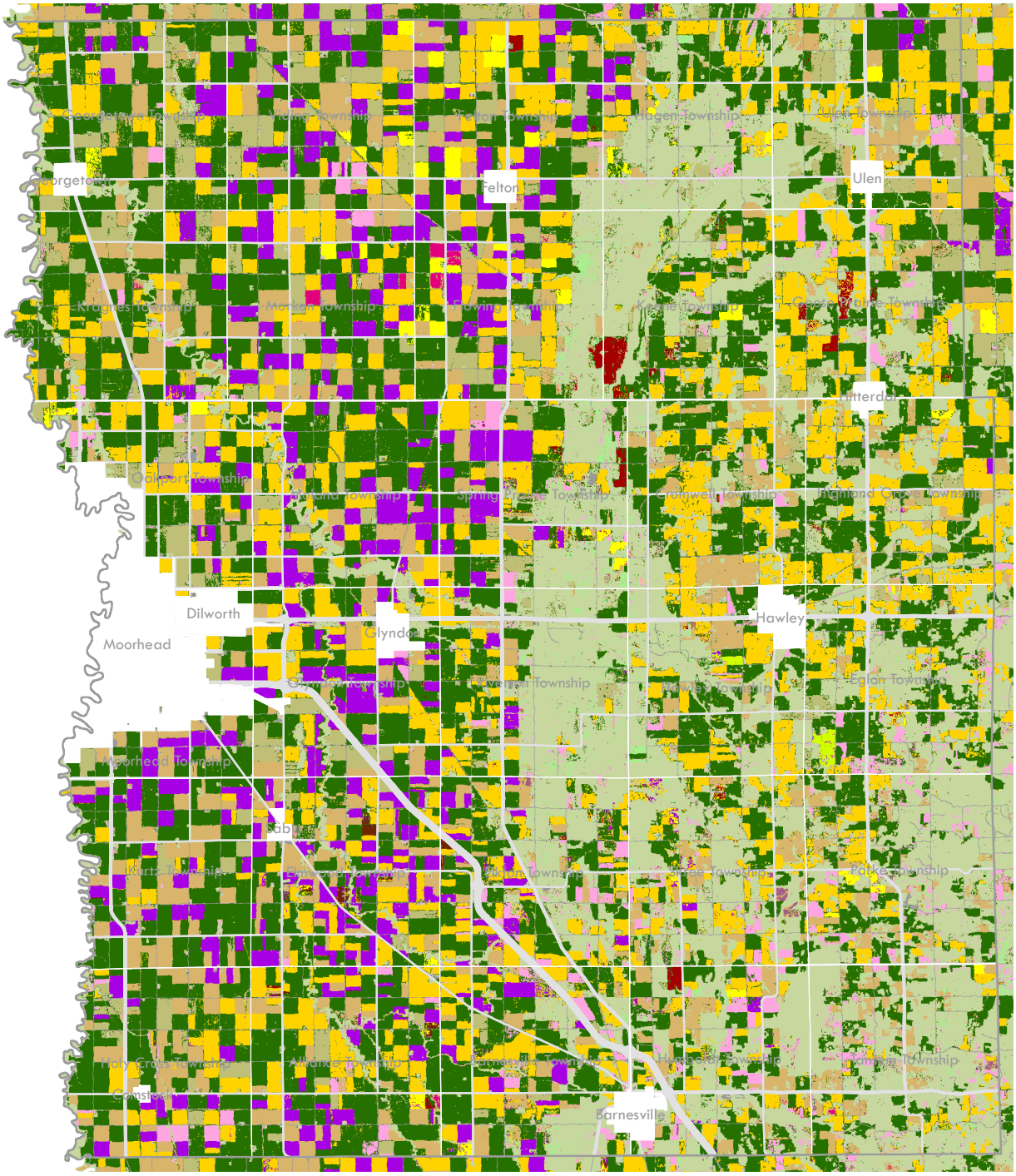
Mixed Use land use includes several parcels located throughout the county which include a mix of residential with commercial and/or industrial uses.

Conservation/Public Lands land use includes a number of different uses such as natural prairies, wetlands, managed forest lands, open space, and other parcels currently in conservation.

Industrial - Extraction land use includes aggregate extraction activities in the county.

Government/Public Services land use included county-owned facilities as well as airports, lagoons, utilities, and other municipal needs.

Semipublic land use includes places of worship and cemeteries.



CLAY COUNTY
COMPREHENSIVE PLAN

Map 4.2 – Crop Cover in Clay County

- Soybeans
- Corn
- Spring Wheat
- Sugarbeets
- Sunflower
- Barley
- Dry Beans
- Winter Wheat
- Alfalfa
- Canola
- Other/Non-Cropland

N

Crop Cover

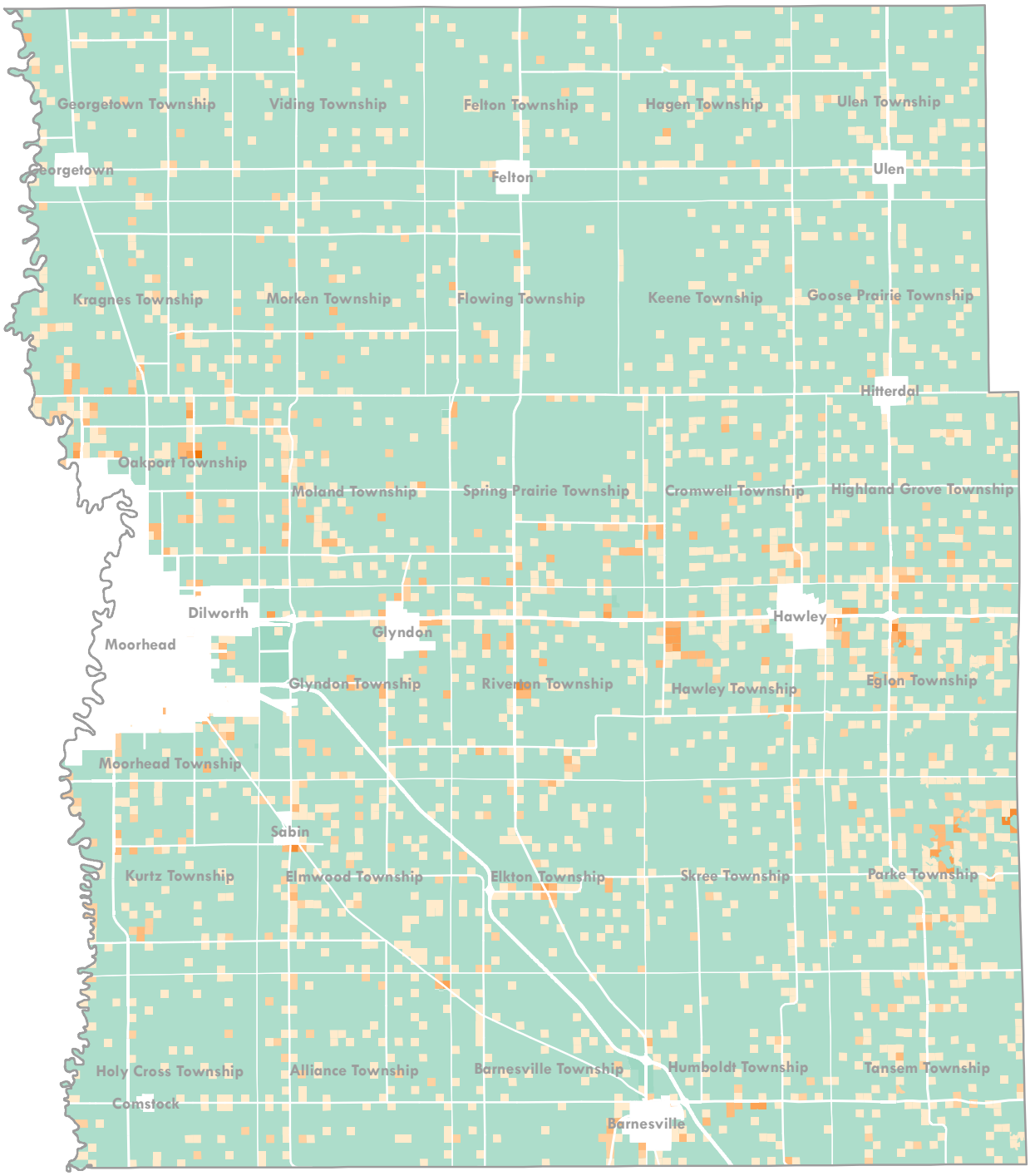
Agriculture continues to be an important economic activity in Clay County. The soils left by receding glacial Lake Agassiz in the Red River Valley allow for very high levels of agricultural productivity in the county and surrounding region. According to the 2017 Census of Agriculture, there were 576,646 acres of cropland in Clay County. Notable crops grown in the county include soybeans, corn, wheat, and sugarbeets.

Residential Density

There are nearly 3,000 households in rural Clay County, with a population of 8,260 in 2020. Townships with noticeable concentrations of density include Eglon, Hawley, Parke, Oakport, and Riverton.

Oakport Township

Humboldt Township

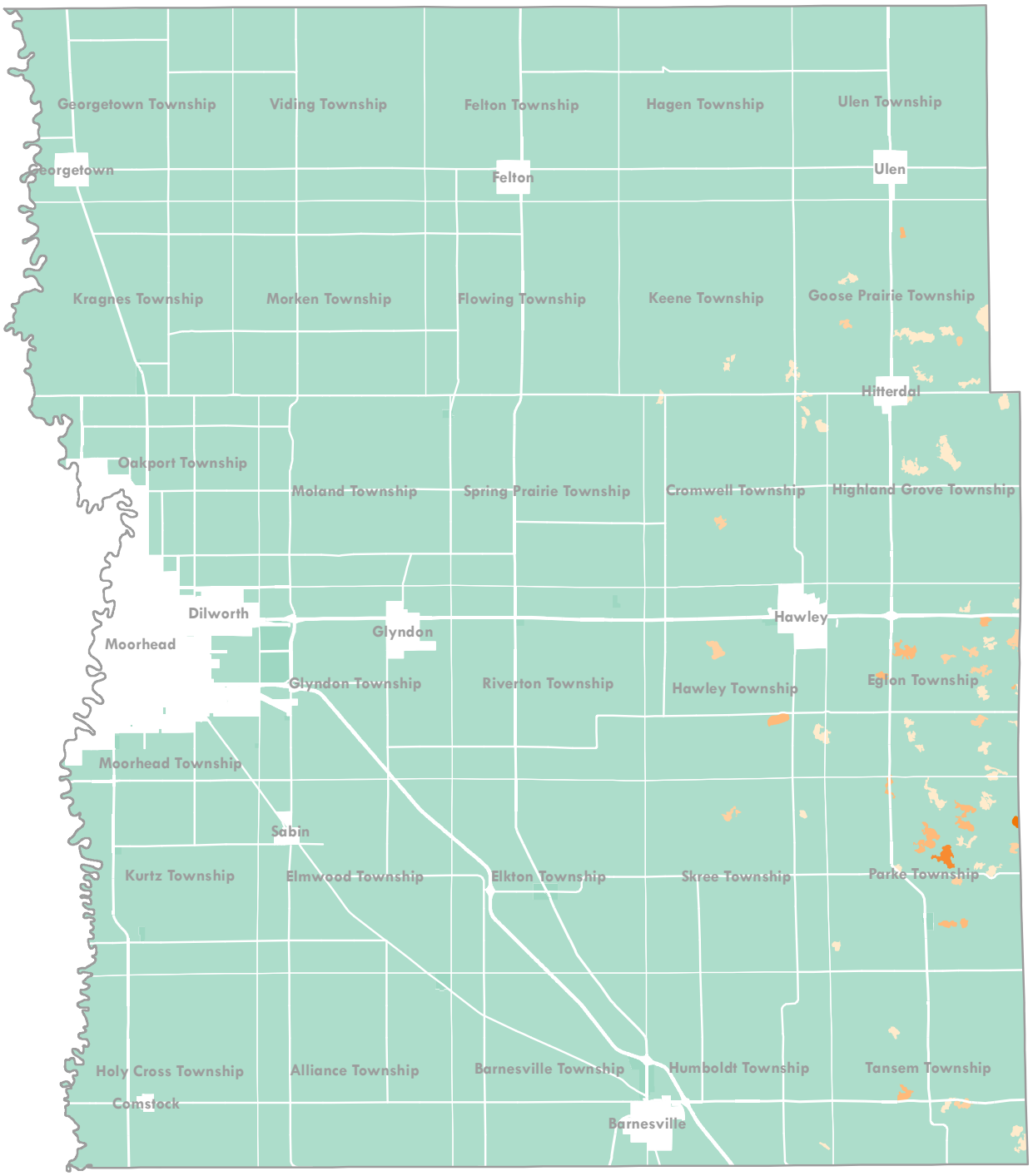


CLAY COUNTY
COMPREHENSIVE PLAN

Map 4.3 – Residential Density in Clay County

1 unit/acre
2 units/acre
3-8 units/acre
9-16 units/acre
17-24 units/acre
25-48 units/acre

N

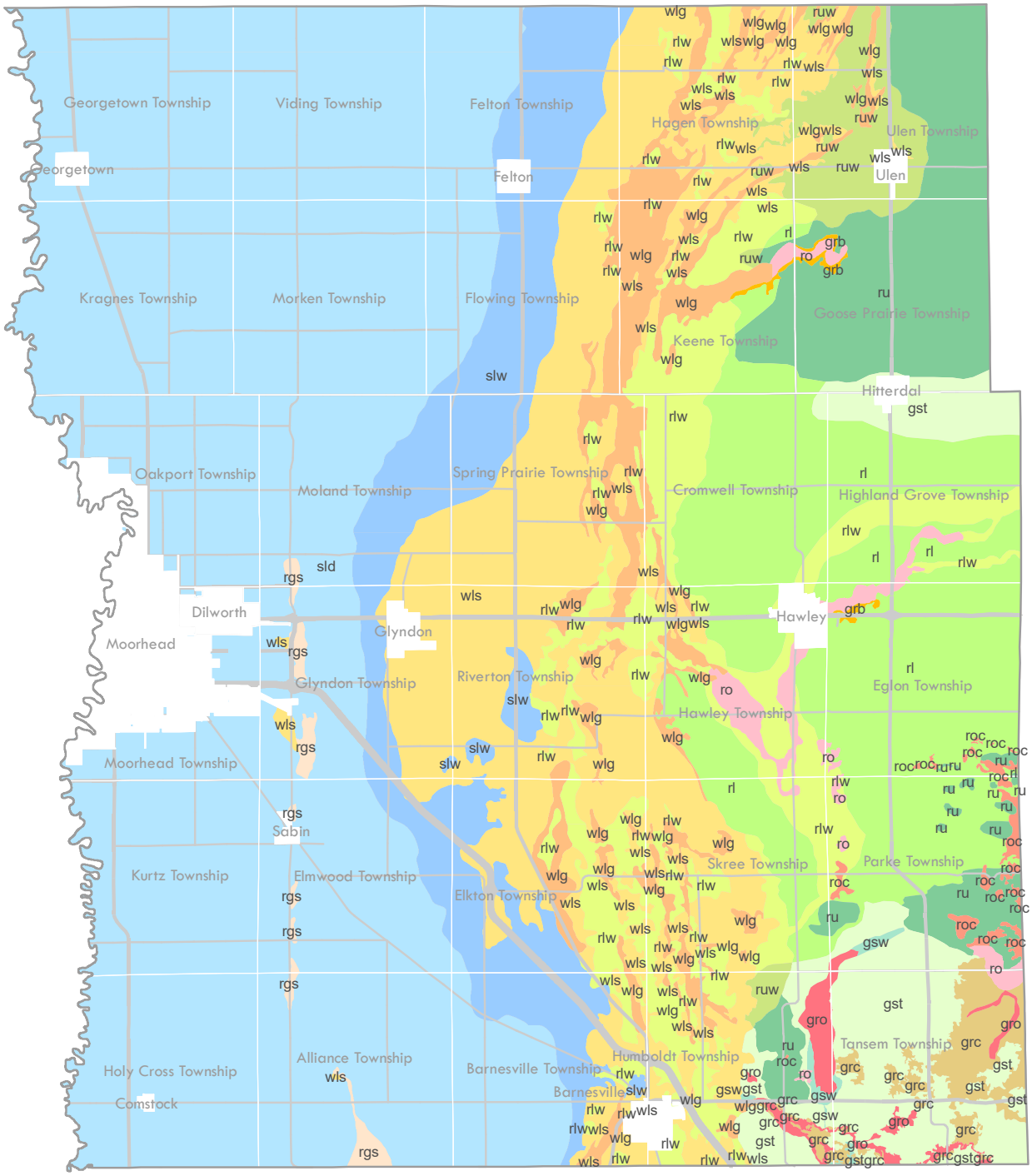


CLAY COUNTY COMPREHENSIVE PLAN

Map 4.4 – Shoreland Density in Clay County

1 unit/mile
2 units/mile
3-8 units/mile
9-16 units/mile
17-24 units/mile
25-48 units/mile

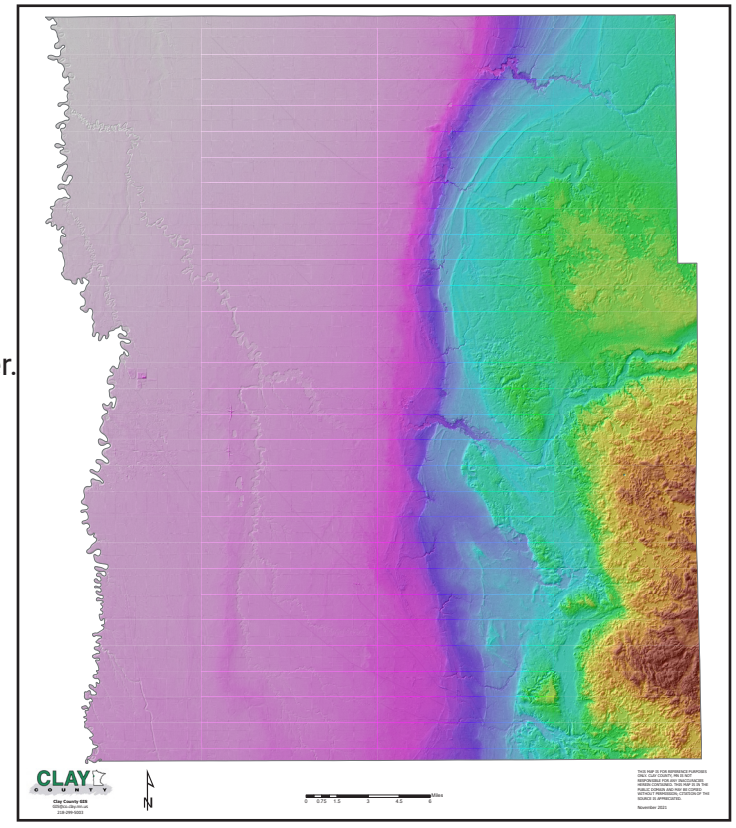
N



Map 4.5 – Surface Geology of Clay County

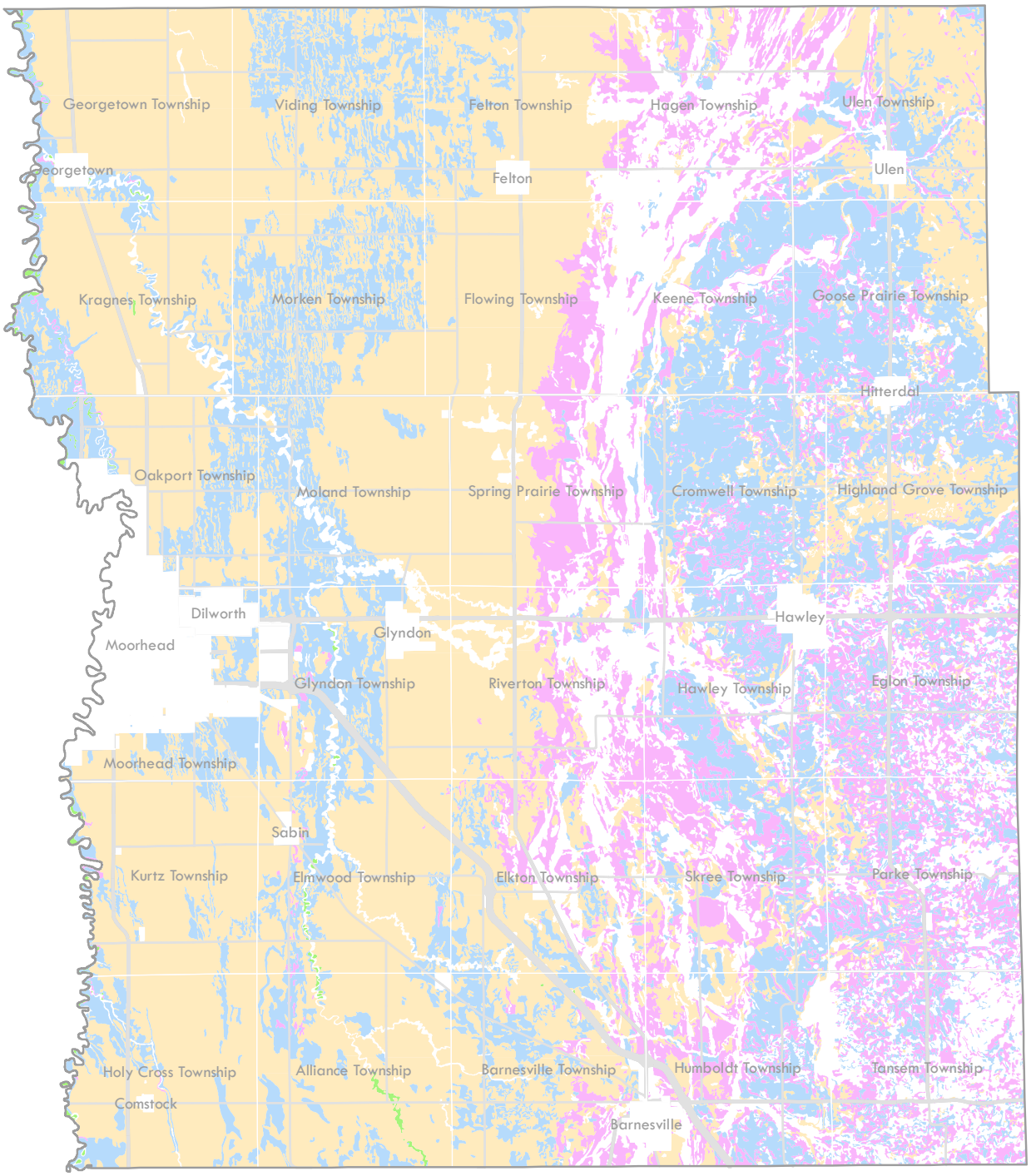
Terrain

The land surface, or surface geology of Clay County is characterized by deep-water glacial Lake Agassiz sediment, shoreline sediment, and a mix of outwash and till from previous glacial advances. Outwash is material, chiefly gravel and sand, that is carried away by glacier meltwater while till is a mix of clay, sand, gravel, and boulders deposited directly by or underneath a glacier. Two glacial phases are associated with the surface geology of Clay County, the Red Lake Falls Formation (Upper and Lower Member) about 11,450 years ago and the older Goose River Formation (St. Hilaire Member) which occurred around 11,700 years ago.



Map 4.6 – Topography of Clay County

Cromwell Township



CLAY COUNTY
COMPREHENSIVE PLAN

Map 4.7 – Prime Farmland and Farmland of Statewide Importance

- All Areas of Prime Farmland
- Farmland of Statewide Importance
- Prime Farmland if Protected from Flooding
- Prime Farmland if Drained

N

Soil Suitability and Prime Farmland

The soils left by receding glacial Lake Agassiz in the Red River Valley are among the most productive in the world. Many of the soils in Clay County are characterized by a thick, black organic topsoil and limey subsoil, with very high levels of agricultural productivity. General soil types include loam, clay loams, sandy loams, and clay.

Farmland soils can be used to identify the location and extent of those lands that are the most suitable land for producing food, feed, fiber, forage, and oilseed crops. Of these, two definitions are important in Clay County – prime farmland and farmland of statewide importance.

Prime farmland is of major importance in meeting the nation's short- and long-range needs for food and other agricultural goods. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of local and state government, as well as individuals, should encourage and facilitate the wise use of prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food and other crops and is available for these uses. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks.

Prime farmland can be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or land under current bodies of water. Prime farmland is not excessively erodible or saturated with water for long periods, and it is either not frequently flooded during the growing season or is protected from flooding. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied.

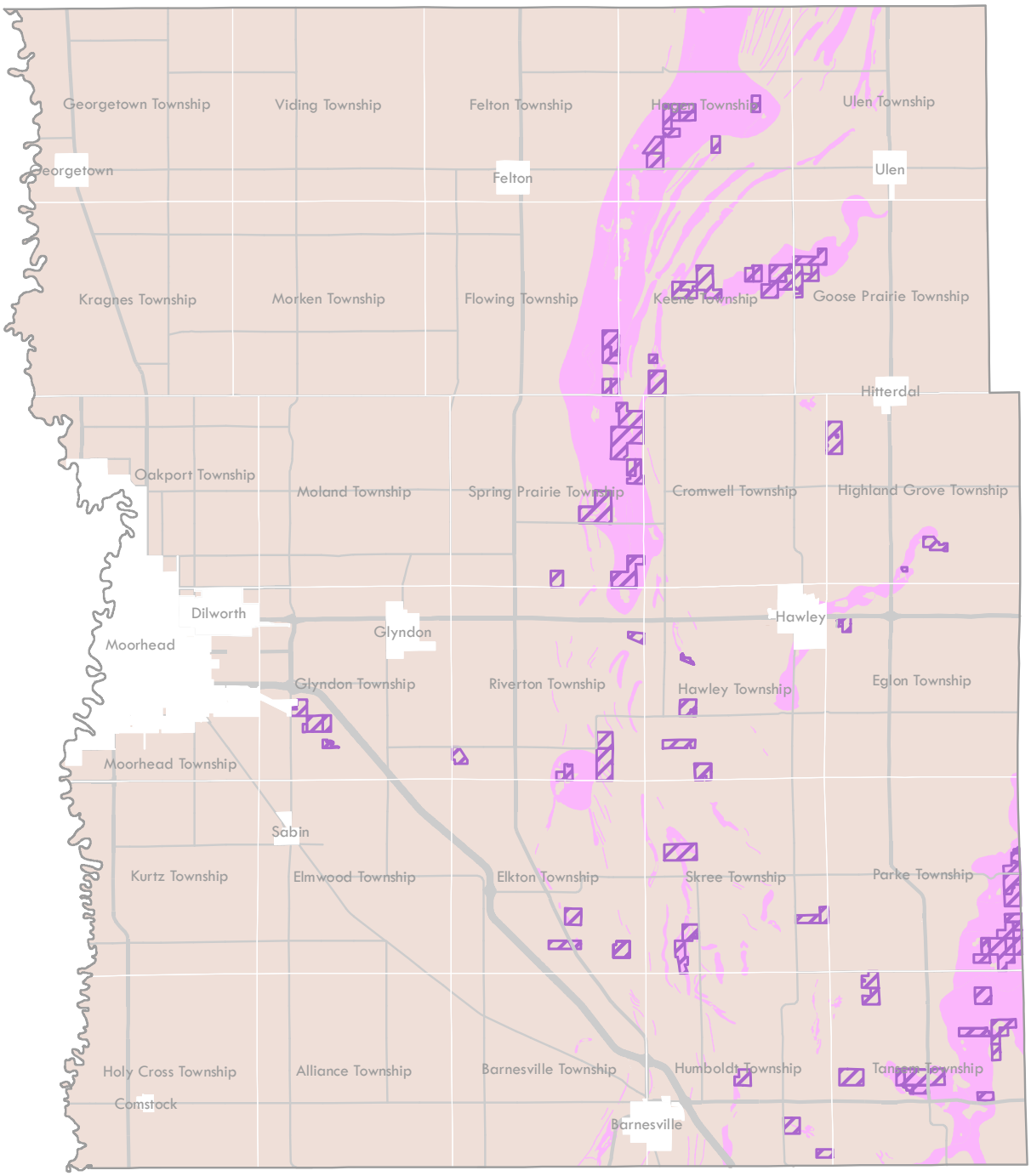
There are 241 sq. miles of prime farmland in Clay County.

Farmland of statewide importance are soils that fail to meet one or more of the requirements of prime farmland, but are important for the production of food and other crops. They include those soils that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods.

Farmland of statewide importance accounts for 137 sq. miles in the county.

For some of the soils identified as prime farmland, there are measures that are needed to overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. These encompass areas in Clay County where land would be considered prime farmland if drained or protected from flooding.

There are 465 sq. miles of prime farmland if drained in Clay County. Prime farmland if protected from flooding accounts for approximately two sq. miles.



Map 4.8 – Aggregate Potential and Gravel Pits in Clay County

Significant Potential for Sand and Gravel Resources

Gravel Pit Permits

CLAY COUNTY COMPREHENSIVE PLAN

N

Aggregate Potential

Aggregate in the form of sand, gravel and crushed rock, is used to construct roads, trails, foundations, buildings, and many other structures. These materials can come from quarries on both public and private land. The availability of aggregate sources in Clay County is critical to building and maintaining the region's infrastructure, and in controlling costs of construction projects. Therefore, there is an economic advantage to communities that have readily available local sources of aggregate for present and future needs.

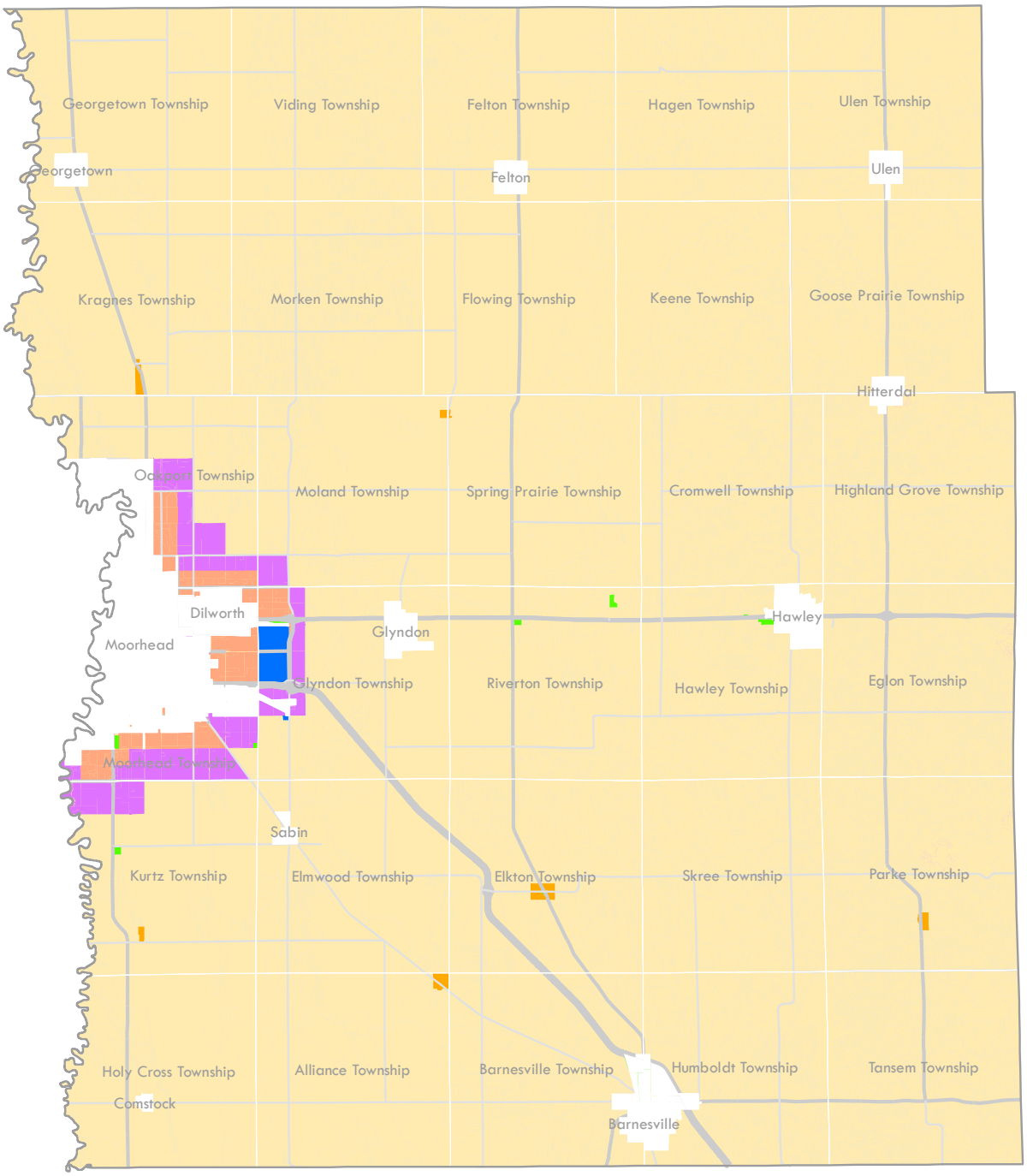
Statewide, up to 50 percent of aggregate utilization contributes to publicly funded infrastructure projects. The 1984 Minnesota legislature passed a law (M.S. 84.94, Aggregate Planning and Protection) which mandates that the DNR provide information about potential aggregate resources to local government to aid in land use decisions. The DNR provides field-researched information that helps local governments and other stakeholders balance stewardship of mineral resources, the environment, and local economies.

By knowing the location of aggregate, as well as having conversations about the importance of aggregate, local and state governments can do a better job preserving and conserving natural resources.

The extraction of natural resources such as aggregate is an important part of Clay County's economy. Locally extracted aggregate keeps costs of new roads and building foundations lower and aides in more cost efficient development in both Clay County and the greater Fargo-Moorhead metropolitan area.

Though not an issue for Clay County in the immediate near-term, aggregate is a finite resource. In some parts of the United States, secondary and recycled aggregates have helped reduce the rate at which primary aggregate resources are depleted or where sources may be further afield. Since the mid-2000's, recycled and secondary aggregate products have grown from low performance fills to landfill capping and roadway pavement subbase layers. Investment by recycled aggregate producers is further increasing the product range into materials for concrete and decorative aggregates.

Spring Prairie Township



CLAY COUNTY COMPREHENSIVE PLAN

Map 4.9 – Zoning Districts in Clay County

- Agriculture General
- Agriculture Service Center
- Highway Commercial
- Limited Highway Commercial
- Urban Expansion Tier 1
- Urban Expansion Tier 2

N

Land Use Controls

Clay County, like the other 86 counties in Minnesota, employs land use controls to promote the health, safety and general welfare of the public. The regulation of land use through zoning is derived from the police power delegated by the state to local governments to regulate individual conduct for the common welfare of the community. The power for counties to zone is established in Minnesota Statutes Chapter 394. The police power is the authority of state governments to impose restrictions on private rights in the interest of the general security, health, safety, morals and welfare of the public. This includes uses of private property. There are limitations of land use controls like zoning to protect individual and property rights. However, zoning is a tool commonly used and upheld by the legal system as a means to promote healthy, safe and vibrant communities.

Zoning Districts

Clay County currently administers countywide zoning, which guides the use of property within the unincorporated portions of the county. The zoning ordinance establishes five base zoning districts and five shoreland districts to meet the county's public health, safety, and general welfare needs. The county also administers a subdivision ordinance that regulates the division of property.

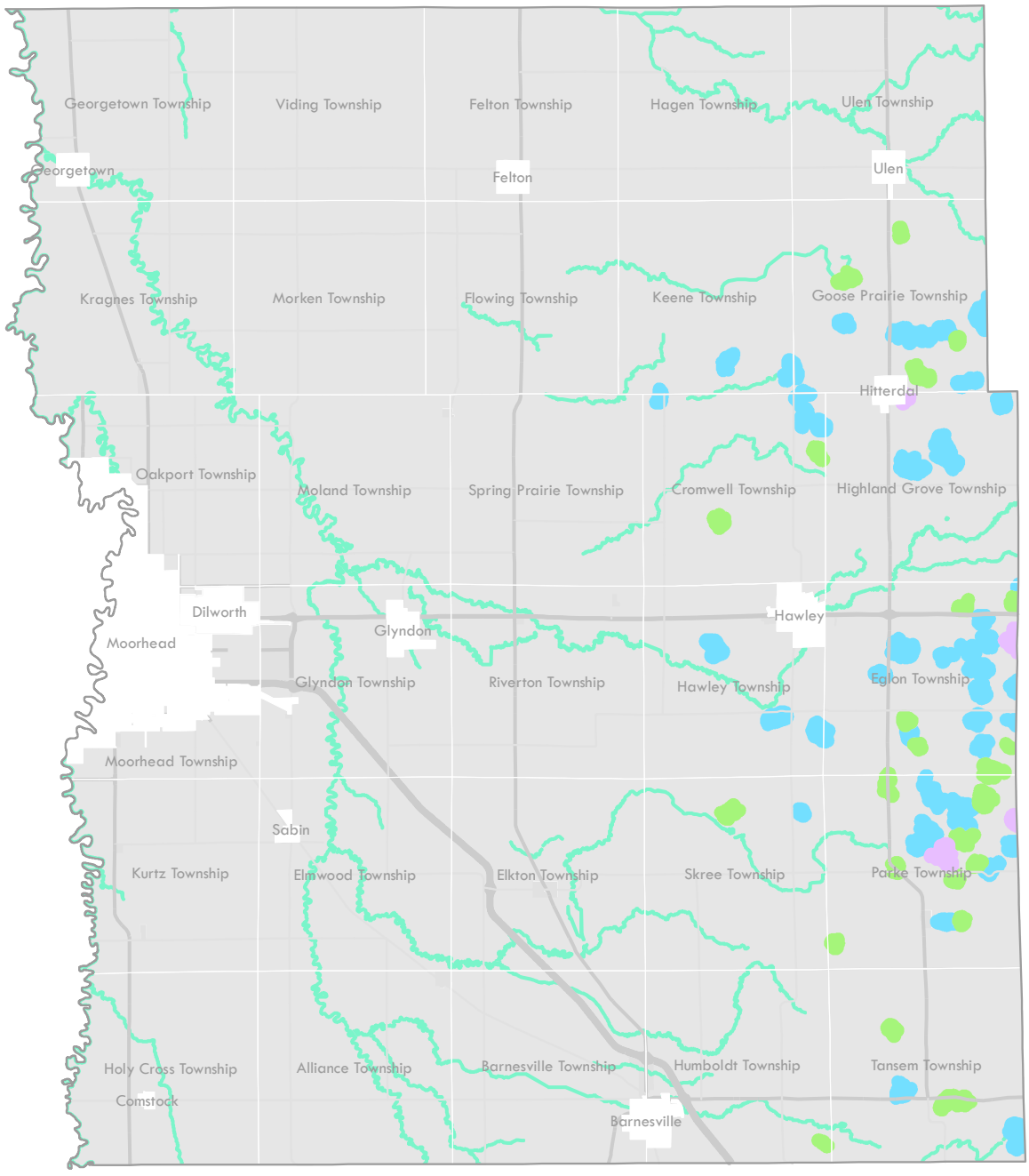
Clay County's **Agricultural General Zoning District** encompasses most of the County's rural area. The allowable land uses are geared towards protecting the agricultural character of the County.

The **Agricultural Service Center Zoning District** is mainly comprised of small unincorporated communities throughout the county. The purpose of this district is to support rural residential, commercial, industrial, and agricultural industry to supplement the agricultural economy of the county.

Property zoned in Clay County's **Highway Commercial Zoning District** is mainly used for commercial and industrial development outside of incorporated cities in the county. The purpose of this district is to ensure that commercial and industrial development does not cause adverse impacts on residential areas and the environment.

The purpose of Clay County's **Limited Highway Commercial Zoning District** is to allow for highway-oriented businesses in the Buffalo Aquifer recharge area or other environmentally sensitive areas in the county in close proximity to federal, state or county highways. This district is comprised of specific areas that are located in areas that would benefit from commercial and industrial development, but where such development may also pose a threat to groundwater contamination.

Clay County's **Urban Expansion Zoning District** is divided into two tiers which represent primary and secondary growth areas. The intent of the Urban Expansion District is to ensure that land development is compatible with the Future Land Use plans of Dilworth and Moorhead. Land use is most restrictive in the Urban Expansion District Tier 1 and less so in Tier 2. Land within Urban Expansion District Tier 1 will ultimately be annexed into Dilworth and Moorhead within the next five to 20 years.



CLAY COUNTY COMPREHENSIVE PLAN

Map 4.10 – Shoreland Districts in Clay County

- Shoreland Special Protection
- Shoreland Special Protection-Low Development
- Shoreland Residential Development
- Shoreland Special Protection-Rivers and Streams

N

Shoreland Districts

Clay County's shoreland districts include the Special Protection District, the Residential Development District, the Special Protection-Low Development, the Special Protection-River and Streams District, and Shoreland – General Use. The purpose of these districts is to preserve high quality natural resources in the county and protect public waterways in the state. All of Clay County's rules and regulations pertaining to the Shoreland Districts, as well as all lake and river classifications, are determined by the State of Minnesota Department of Natural Resources.

Clay County regulates both riparian and non-riparian lots that lay in the shoreland of any of the above zoning districts. This means that, even without shoreline, land within any shoreland district is subject to shoreland rules and regulations.

The **Shoreland Special Protection District** is an area within 1,000 feet of specified Natural Environment Lakes. The State of Minnesota Department of Natural Resources defines a Natural Environment Lake as usually having less than 150 total acres, less than 60 acres per mile of shoreline, and less than three dwellings per mile of shoreline. These lakes may also have shallow, swampy shoreline; and are less than 15 feet deep. Despite their name, there are no limitations to motor boats, hunting, or fishing.

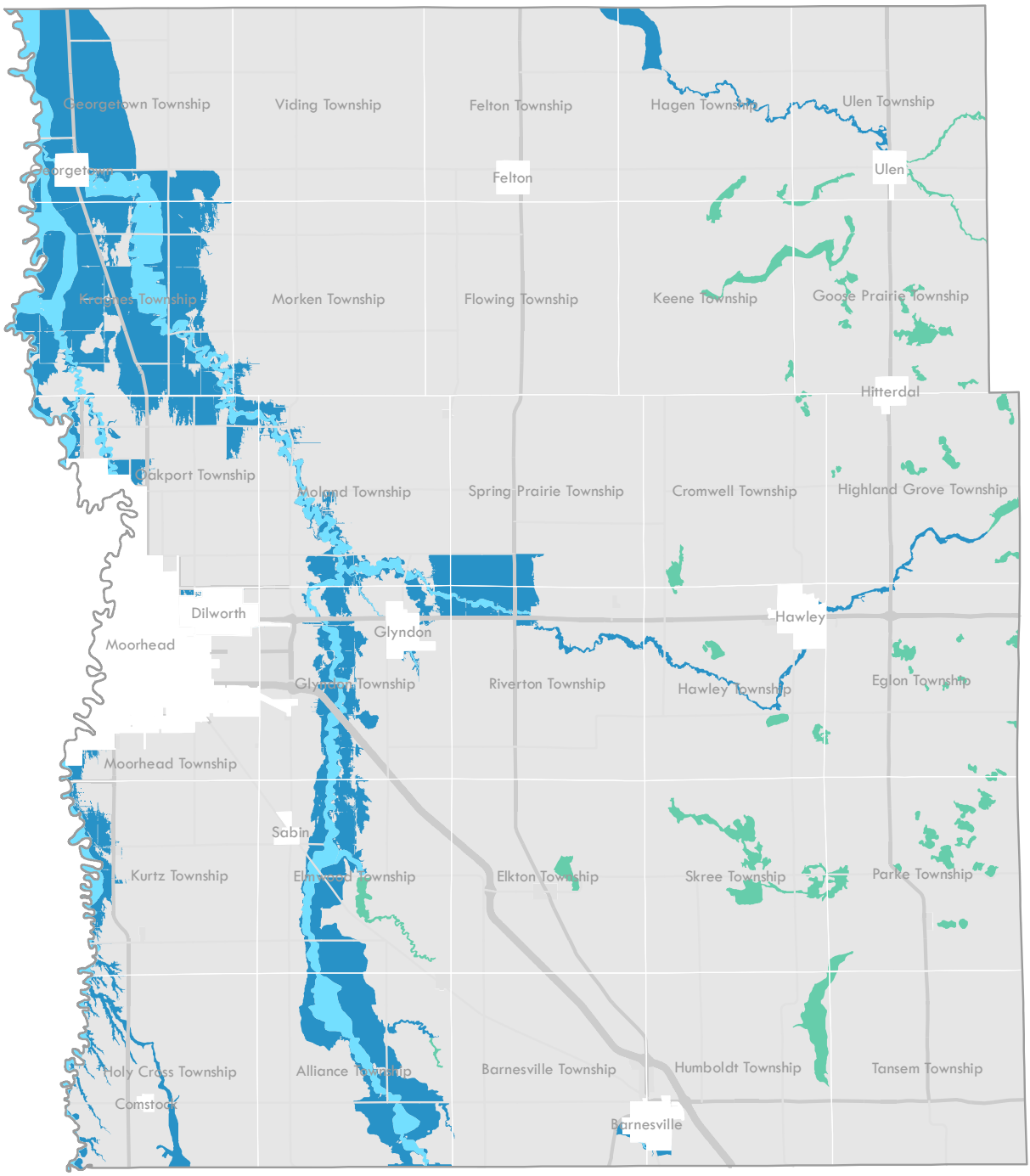
The **Shoreland – General Use District** is modeled after the Department of Natural Resources Shoreland Model Ordinance which permits forest management and allows commercial and public, semipublic uses with a conditional use permit. There is currently only one property zoned this in Parke Township.

The **Shoreland Residential Development District** is the area within 1,000 feet of specified Recreational Development Lakes, General Development Lakes, and Lake 15. The State of Minnesota Department of Natural Resources defines a Recreational Development Lake as usually having between 60 and 225 acres of water per mile of shoreline, between three and 25 dwellings per mile of shoreline, and are more than 15 feet deep. General Development Lakes usually have more than 225 acres of water per mile of shoreline and 25 dwellings per mile of shoreline, and are more than 15 feet deep.

The **Shoreland Special Protection-Low Development District** is the area within 1,000 feet of specified Natural Environment Lakes and designated protected wetlands. This district protects lakes and large wetlands that are particularly vulnerable to development. This district is similar to the Shoreland Special Protection District.

The **Shoreland Special Protection-Rivers and Streams District** is the area within 300 feet of all public waters classified as transitional rivers, agricultural rivers, urban rivers, and tributary streams. The State of Minnesota Department of Natural Resources defines these public waters with the following characteristics:

- Transition rivers are in a mixture of cultivated, pasture, and forested lands.
- Agriculture rivers are in intensively cultivated areas, mainly southern and western areas of the state.
- Urban rivers are in high-density residential, commercial, and industrial development areas.
- Tributary streams are all other rivers in the Protected (Public) Waters Inventory not classified above.



CLAY COUNTY
COMPREHENSIVE PLAN

Map 4.11 – Flood Plain Overlay Districts in Clay County

Floodway
Flood Fringe
General Flood Plain

N

Overlay Districts

In addition to the base districts, Clay County also has several overlay districts. These districts are meant to provide additional regulations to protect special circumstances and unique property from undue developmental harm. Clay County has three categories of overlay districts:

- Flood plain;
- Resource protection; and
- Airplane landing field.

The requirements of the overlay districts apply to structures and the use of land, in addition to the regulations of the base zoning districts. When the requirements of an overlay district (or multiple overlays) impose greater restrictions than the base zoning district or a second overlay district, the more restrictive provisions apply.

Flood Plain Overlay Districts

Clay County's Floodplain Districts include the Floodway District, the Flood Fringe District, and the General Flood Plain District. The purpose of each of these zones is to mitigate any risk associated with periodic flooding. All of Clay County's rules and regulations pertaining to these district are in place to maintain eligibility in the National Flood Insurance Program.

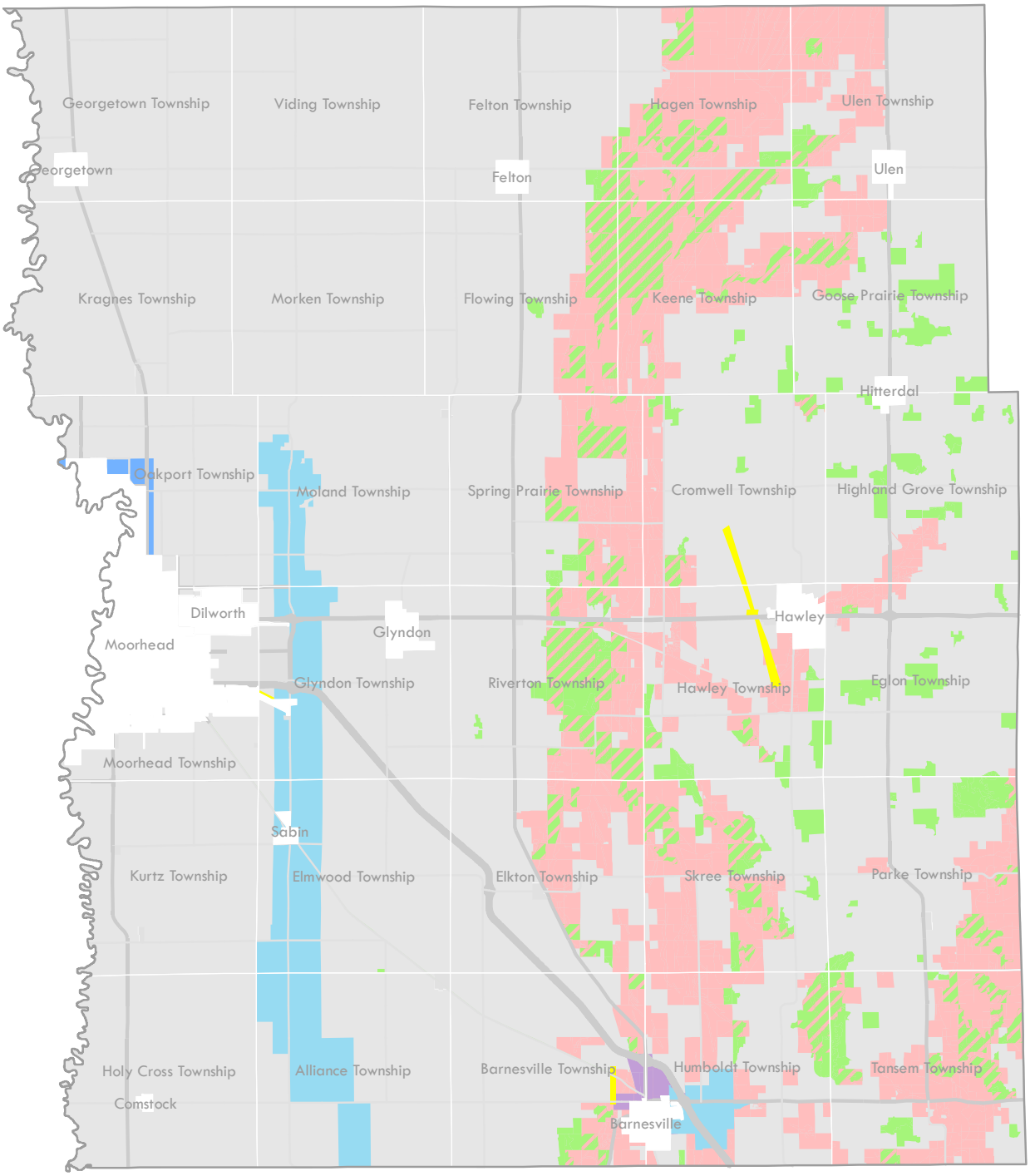
All district boundaries are derived directly from FEMA and are recommended to Clay County by the State of Minnesota.

The **Floodway Overlay District** is generally considered to be land that immediately joins the water course. This district is designated on rivers, lakes, wetlands, and other basins. Because of the high potential of flooding in this district, permitted uses are very limited.

Most uses allowed in the Floodway Overlay District are only permitted if they do not obstruct flood flows or increase flood elevations. This district must remain unobstructed so that flood water can flow through uninhibited. Generally, no structures, use of fill, obstructions, excavations or storage of materials/equipment are permitted in this district

The **Flood Fringe Overlay District** is comprised of areas that are in the 100 year flood plain, with a one percent chance of annual flood. As with the Floodway District, the Flood Fringe District can be designated on rivers, lakes, wetlands, and other basins.

The **General Flood Plain Overlay District** is an area designated in the 100-year or 500-year flood plain, without a delineated floodway on the Flood Insurance Rate Map.



CLAY COUNTY
COMPREHENSIVE PLAN

Map 4.12 – Additional Overlay Districts and Joint Powers Areas

- Wellhead Protection
- Aggregate Resources
- Oakport Joint Powers Area
- Biologically Significant Areas
- Airport Landing Field
- Barnesville Joint Powers Area

N

Resource Protection Overlay Districts

The purpose of Clay County's Resource Protection Overly districts are to protect natural resources and water resources in the county. There are three districts that each address a specific resource protection need:

- Wellhead protection;
- Biologically significant areas; and
- Aggregate resources.

The three Resource Protection districts apply to structures and the use of land, in addition to the regulations of the base zoning districts. When the requirements of an overlay district impose greater restrictions than the base zoning district, the more restrictive provisions shall apply. Two overlay districts may also occur in the same area and the most restrictive provisions shall apply.

The **Resource Protection Wellhead Protection Overlay District** is intended to protect the City of Moorhead Wellhead Protection Area/Drinking Water Supply Management Area (DWSMA), including sensitive areas above the Buffalo Aquifer, as well as the Barnesville DWSMA.

The **Resource Protection Biologically Significant Areas Overlay District** is intended to protect areas with biologically significant habitat as determined by the Minnesota Department of Natural Resources County Biological Survey. Many of these areas are under public ownership.

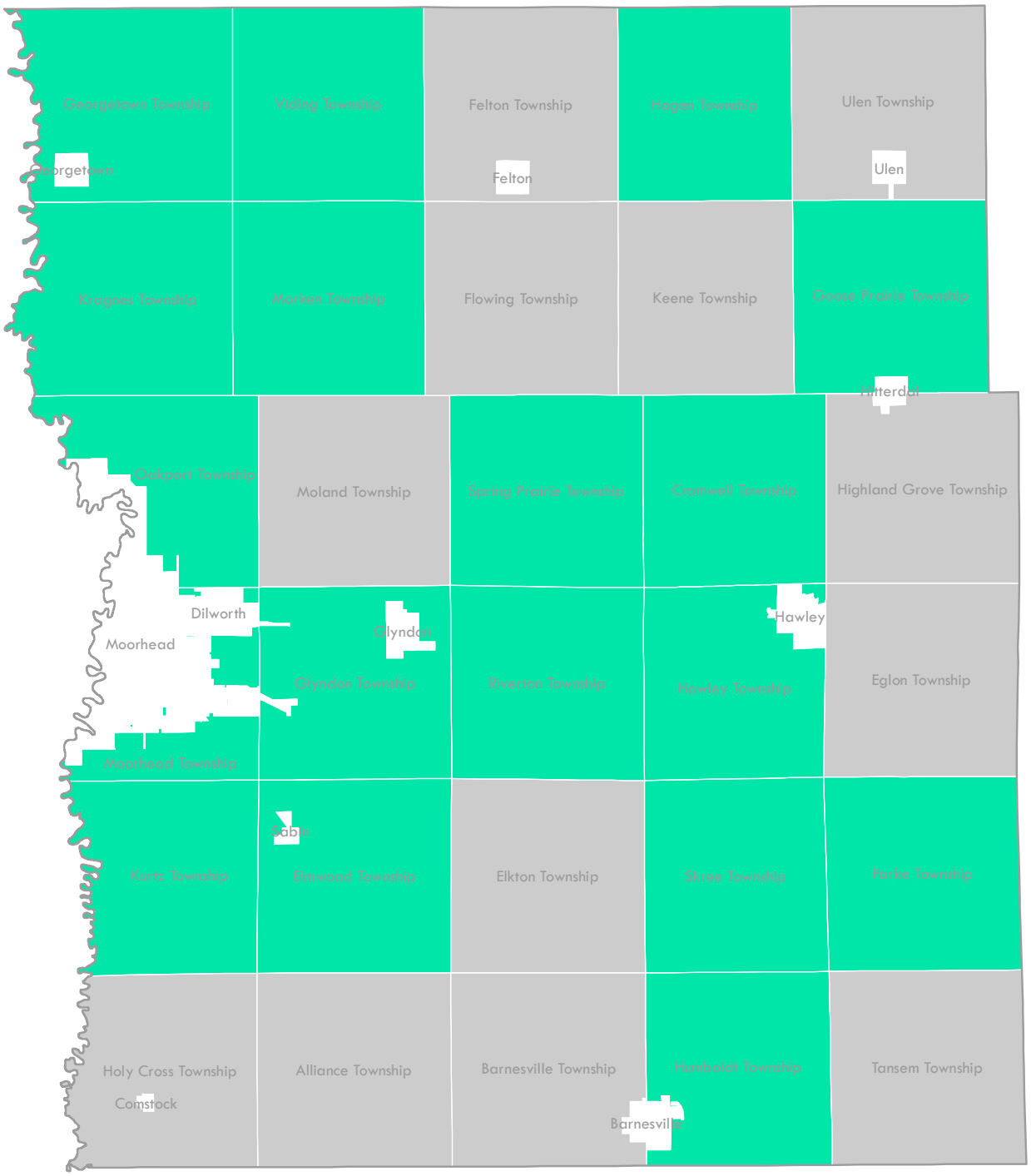
The **Resource Protection Aggregate Resources Overlay District** is intended to protect areas with existing significant aggregate resources as shown in the Clay County Aggregate Resources Inventory.

Airport Landing Field Overlay District

The **Airport 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.

Joint Powers Areas

There are two joint powers areas in Clay County – the Oakport Joint Powers Area north of Moorhead and the Barnesville Joint Powers Area. The goal of these areas is to create a framework for cooperative land use planning adjacent or in close proximity to city limits.



CLAY COUNTY
COMPREHENSIVE PLAN

Map 4.13 – Townships with Zoning Ordinances

Townships with Zoning Regulations

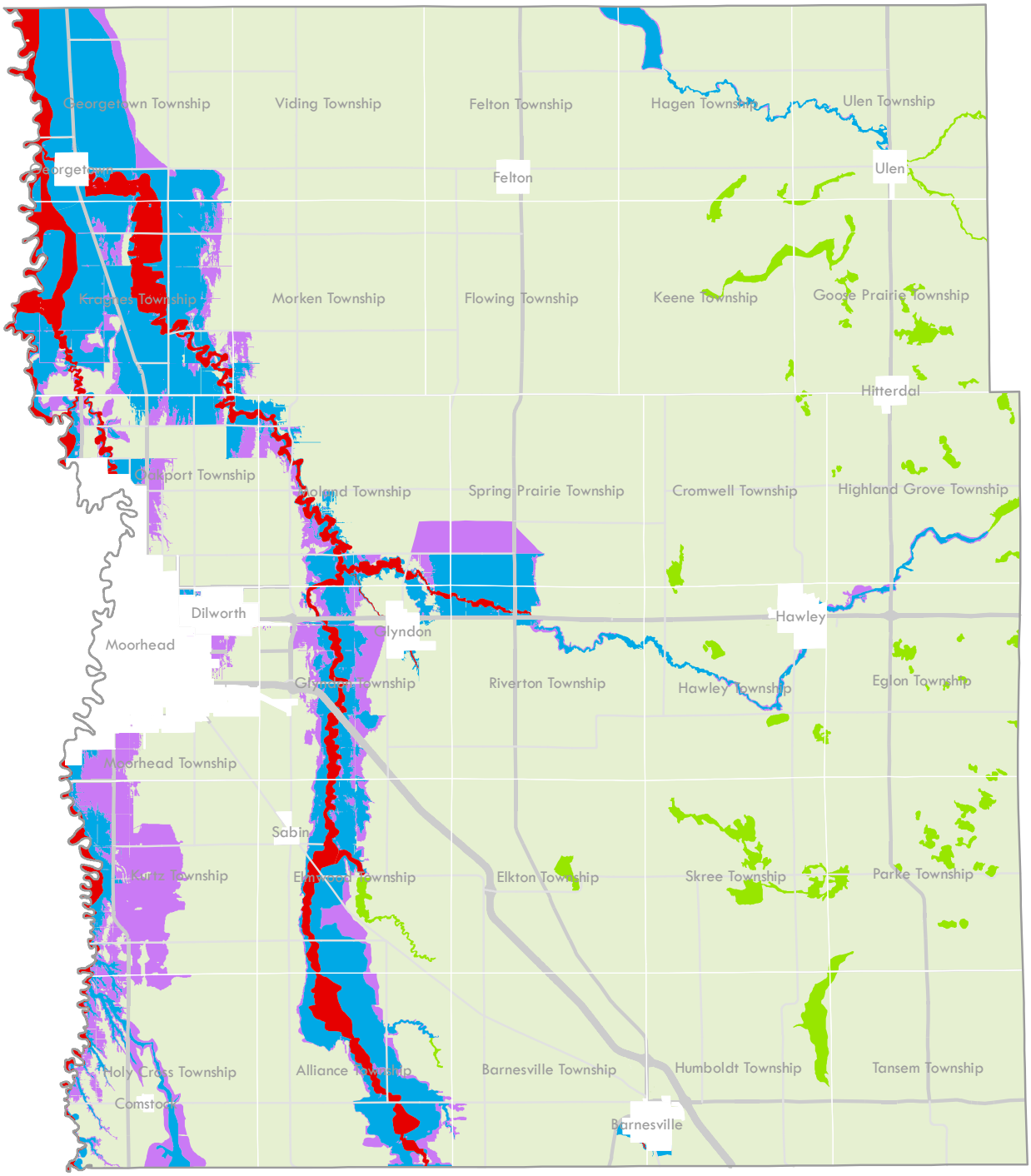
Townships without Zoning Regulations

N

Township Zoning Ordinances

Eighteen townships in Clay County have adopted their own zoning ordinances to regulate development requests within their borders. When applying for conditional use permits, variances, or other zoning requests in the county, applicants must also obtain approval from township officials in townships with zoning ordinances.

Hawley Township



Map 4.14 – Flood Zones in Clay County

- Floodway
- AE=1% Annual Chance Flood Hazard
- A=1% Annual Chance Flood Hazard
- 0.2% Annual Chance Flood Hazard

CLAY COUNTY
COMPREHENSIVE PLAN

Ordinances under Clay County Jurisdiction

Land Development Ordinance

Shorelands

The uncontrolled use of shorelands in Clay County affects the public health, safety, and general welfare by contributing to pollution of public waters, and potentially decreasing property value. All lands within the designated shoreland areas of lakes and rivers in the unincorporated areas of the county are governed by the Clay County Land Development Ordinance.

Through the ordinance, the county regulates the subdivision, use, and development of shorelands of public waters in order to preserve and enhance the quality of surface waters, conserve the economic and natural environmental values of the shorelands, and provide for wise use of waters and related land resources. Public waters are designated as natural environment or recreational development, tributaries, transition rivers, and streams.

Floodplain Hazard Areas

Clay County regulates flood hazard areas within those unincorporated areas that are subject to periodic inundation. The Clay County Land Development Ordinance regulates new development as well as the extension, conversion, or structural alteration of buildings in the floodway, flood fringe, or general floodplain districts. These regulations prevent or limit building or expanding structures in floodplains in order to ensure public safety and enhance natural resources by preserving the capacity of floodplains to carry and discharge regional floods.

Clay County participates in the Flood Insurance Program. The Federal Emergency Management Agency Flood Insurance Rate Maps were updated for townships in Clay County in 2012. These maps are used by insurance companies and mortgage companies to determine the need for flood insurance on properties.

The county uses its land development ordinance to reduce the severity and extent of flooding by controlling new development as well as the extension, conversion, or structural alteration of existing structures in the Floodway, Flood Fringe, or General Floodplain Districts.

Wild Rice River

Flora Lake

Subdivision

In addition to zoning, Clay County oversees review processes and review standards for subdivision in rural Clay County outside of the extraterritorial jurisdiction of cities. Subdivision controls regulate the subdivision and development of land and the provision of public facilities within the community. 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 an established community.

Stormwater Management Systems Ordinance

Clay County has set regulations to ensure that land development activities do not interfere with stormwater management practices or lead to incidences of flooding in urbanized areas of unincorporated Clay County. These regulations are in place to protect water quality and environmentally sensitive lands, control overland runoff, minimize erosion of natural drainage routes and river banks, and allow for natural drainage.

For some development activities, Clay County requires a stormwater management plan that will, among other things, minimize point and nonpoint sources of pollution and require stormwater runoff to be treated to remove pollutants before entering surface waters. Wetlands or other natural features which would reduce the need for stormwater management systems may be considered.

Subsurface Sewage Treatment System (SSTS) Ordinance

This ordinance regulates the design, installation, use, and maintenance of subsurface sewage treatment systems to provide for orderly development of areas of the county that are not serviced by central public wastewater systems.

Renewable Energy Ordinance

The Renewable Energy Ordinance, in addition to the Clay County Wind Energy Ordinance, regulates the design, installation, and permitting of large and small solar energy systems as well as wind energy conversion systems that are less than 25,000 kW.

Official Map Ordinance

Currently, Clay County does not have an official map ordinance. This type of ordinance allows the county to designate land needed for future public purposes such as roads, parks, trails, and other land use.

Buffer Law

In 2015, Minnesota enacted a state law aimed at enhancing the protection of Minnesota's waters. The law is an initiative to implement an important conservation practice called a "buffer" – also known as riparian filter strips, or vegetated land adjacent to a stream, lake, or wetland. These strips of land help keep water clean by filtering out phosphorous, nitrogen, and sediment. Buffer protection maps were completed by the Minnesota Department of Natural Resources in 2016, and show all waters in the state that are subject to the new requirements.

Landowners with property within a protected area are expected to comply with the new standards, and work with local soil and water conservation districts for technical assistance, financial assistance options, or development of alternative practices for water protection on their property.
The new law specifies that buffers must be in place on all public waters by November 1, 2017, and on all public drainage systems by November 1, 2018. The Minnesota Board of Water and Soil Resources oversees the new law, but the Clay Soil and Water Conservation District is the first point of contact for information about the law, or when noncompliance is identified. If a landowner fails to install buffers on identified waters, penalties may include a fine.

Aggregate Resources

Mining is an important industry for Clay County due to the abundance of minable sand and gravel deposits. Current permitting processes in the county have been able to satisfy the demand during past high-production years, and Clay County is committed to working with the industry to maintain appropriate regulation to meet future growth needs.

The Minnesota Legislature has directed local governments to address issues related to aggregate when such resources are present in the community.

Presently, Clay County regulates mining operations in 18 townships. Materials mined in the county include gravel, sand, and rock. Activities include, but are not limited to: the recycling of used concrete, asphalt, soil, and aggregate; hot mix asphalt production; and the stockpiling and crushing of aggregate.

There is a need to provide for the economic viability of the removal and processing of sand, gravel, rock, soil, and other aggregate materials vital to the economic well-being of the region – while protecting adjacent land uses and natural resources against adverse impacts. The county works with land owners and local communities to reserve enough potentially productive aggregate areas from development to meet long-term regional needs. All mining is conducted in accordance with the provisions of the Clay County Land Development Ordinance to provide for the orderly, economic, and safe removal and processing of sand, gravel, rock, and soil, including the reclamation of mined sites.

Assessment Data Analysis

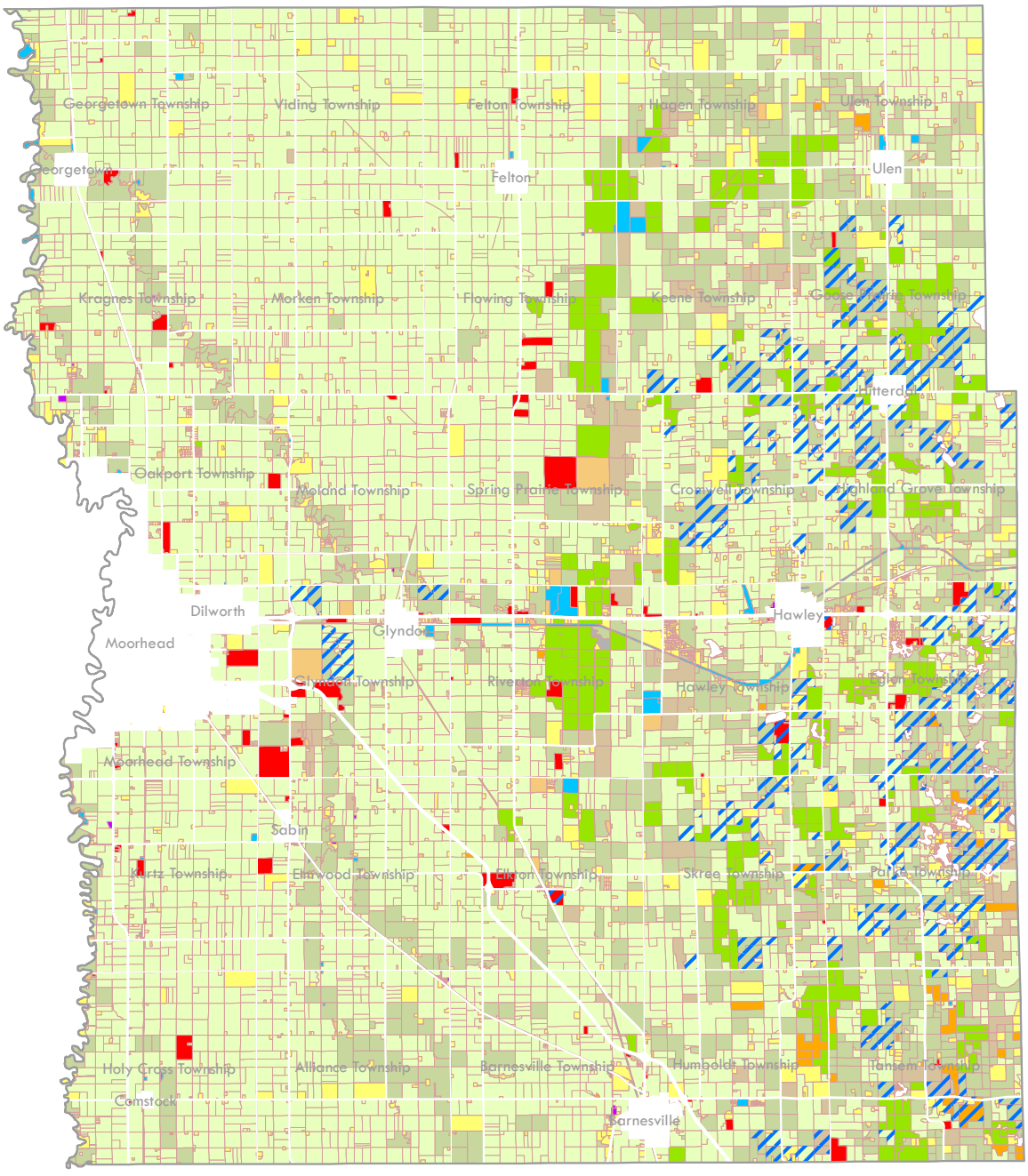
In 2021, Clay County conducted an assessment data analysis to understand how current land uses have shifted over the previous decade. This assessment was done by the number of parcels associated with a specific land use and tax class within unincorporated areas of Clay County. The data was broken down into number of parcels for each land assessment class, the percent of Rural Clay County with that category (parcel count divided by the total of rural Clay Co. parcels), and the percent of that tax class in the county being within rural areas (rural Clay Co. tax parcel count divided by Clay Co. total tax parcel count).

Land uses associated with this data that saw a rise between 2010 and 2021 were mixed use, commercial/industrial, wetlands, and conservation lands. Agricultural land also saw a slight increase. Land uses that saw declines include rural vacant land, seasonal recreation, and government owned lands. Residential land use in rural Clay County saw a decrease as well.
This analysis was conducted on the parcels within the unincorporated portion of the County. The total parcel count is shown to be decreasing between 2010 and 2021, while the parcel count within the county has increased from 28,874 in 2010 to 30,929 in 2021. Fourteen annexation agreements have been made between January 2010 and August 2021. Cities that have made these agreements during this time period were City of Moorhead, City of Barnesville, City of Hawley, City of Glyndon and City of Hitterdal. Most notable of these annexations was the Annexation of Oakport Tract 2 on January 1st, 2015, which included 360 developed lots.

Removing those 360 developed Oakport residential parcels from the 2010 assessment would show that the rural residential has increased from 2,676 in 2010 to 2,837 in 2021. This is in line with the residential trends of rural Clay County noted previously. Residential land assessment has continued to be approximately 30% of parcels in rural Clay County over the past decade.

All lands assessed as seasonal recreation – residential within the county are rurally located. These lands tend to be properties around lakes or wetlands that are used for seasonal purposes and not lived in greater than 250 days of the year. Seasonal recreation land assessment has also seen a decrease. In recent years, there has been a trend towards property owners permanently moving to dwellings that once were only seasonally used causing a decrease in this land use.

As population in the county continues to grow so do the need for commercial and industrial uses. Commercial and industrial land uses have increased over the last decade many being agricultural service establishments, new or expanding aggregate mines and commercial storage facilities. Mixed use being residential with a commercial or industrial use occurring on the same parcel has also seen an increase over the past decade. Residents are choosing to locate their businesses on the same parcel they reside on due to many factors most often cost of land and ease of accessibility.



CLAY COUNTY
COMPREHENSIVE PLAN

Map 4.15 – Land Use Based on Assessment Data Analysis

- Residential
- Home Occupation
- Commercial
- Conservation/ Public Lands
- Rural Vacant
- Seasonal
- Agricultural
- Industrial
- Government/ Public Utility
- Wetlands

N

Land Assessment Class	2010			2021		
	Parcels	% of Rural Clay County	% of Tax Class in Rural Clay County	Parcels	% of Rural Clay County	% of Tax Class in Rural Clay County
Residential	3,036	32.1%	15.5%	2,837	30.7%	14.1%
Seasonal Recreation - Residential	284	3.0%	100.0%	128	1.4%	100.0%
Mixed Use – Residential/Commercial/Industrial	28	0.3%	43.1%	71	0.8%	74.7%
Commercial/Industrial	212	2.2%	35.5%	272	2.9%	61.2%
Agricultural	5,399	57.1%	94.1%	5,336	57.7%	94.8%
Rural Vacant Land	2,595	27.5%	99.7%	1,448	15.7%	98.6%
Wetlands/Water	229	2.4%	99.1%	347	3.8%	95.9%
Conservation Lands	216	2.3%	96.9%	299	3.2%	98.7%
Government Public Services	376	4.0%	32.4%	260	2.8%	15.4%
Charitable Institution/Community Service	2	0.0%	5.4%	6	0.1%	8.6%
Places of Worship & Burial	49	0.5%	32.7%	54	0.6%	36.0%
Total Parcels	9,453			9,243		

Table 4.1 – Land Assessment Data Classifications, 2010 and 2021

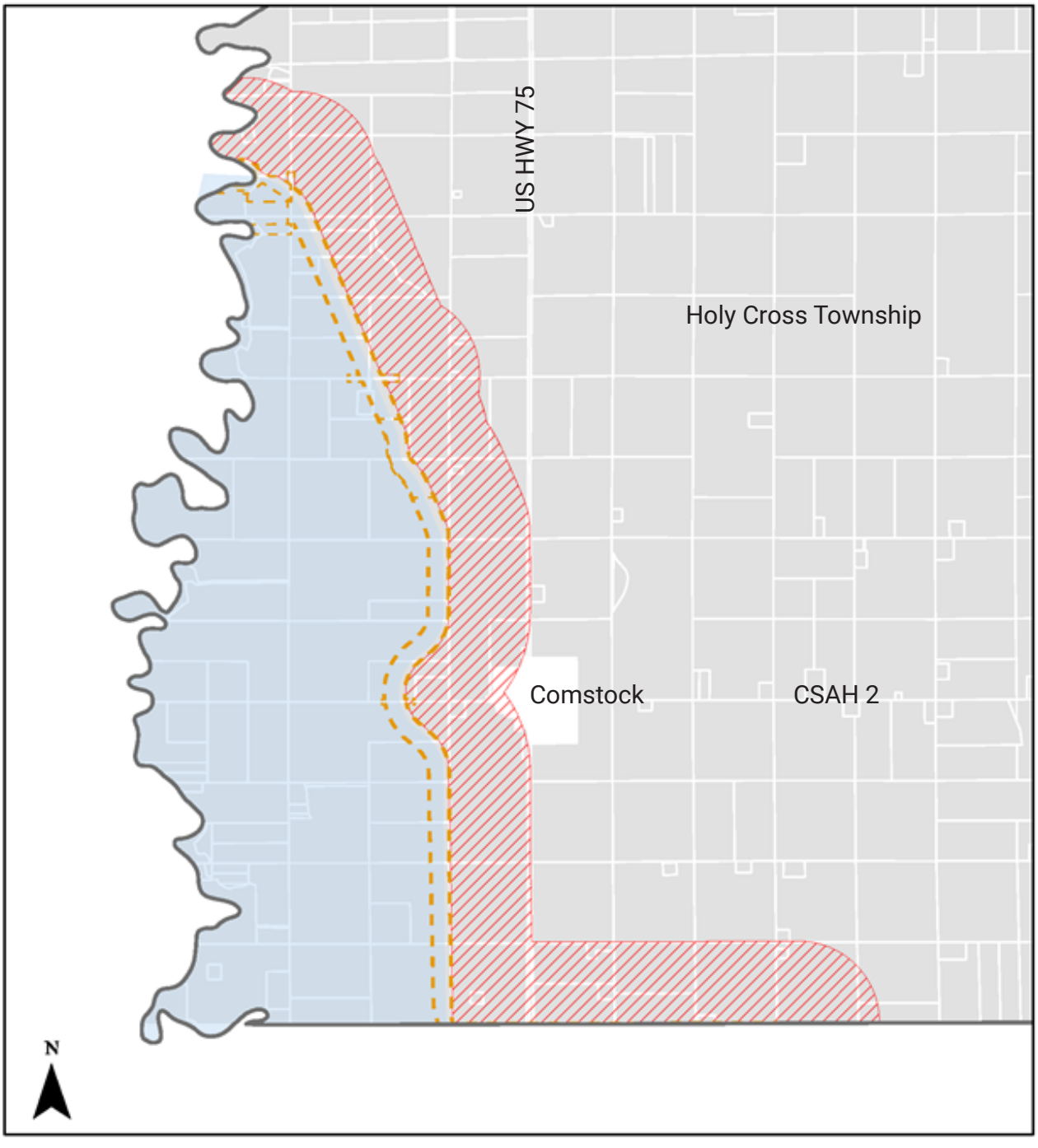
Additional Planning and Land Use Issues in Clay County

Fargo-Moorhead Area Diversion Project - Southern Embankment

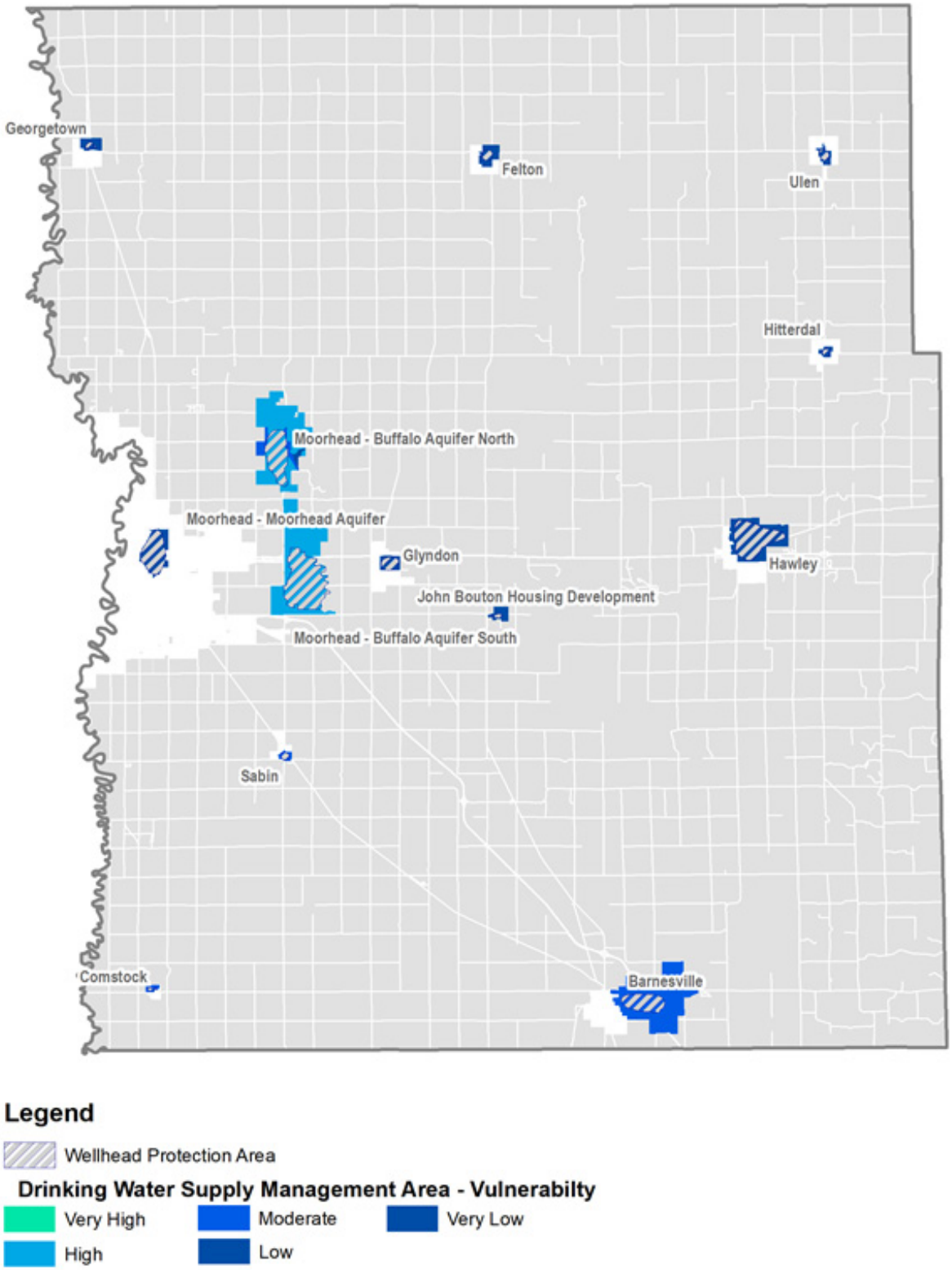
The Fargo-Moorhead Area Diversion Project is a flood control project on the Red River that borders North Dakota to the west and Minnesota to the east. It was developed by the U.S. Army Corps of Engineers and the Metro Flood Diversion Authority. The project includes two major components: a 30-mile Diversion Channel that starts south of Horace, ND; and the Southern Embankment located south of the FM metropolitan area

The Southern Embankment is a 20-mile levee that temporarily stores floodwaters upstream and directs floodwaters to the Fargo-Moorhead Diversion inlet structure in Cass County, ND. Approximately eight miles of the Southern Embankment runs east to west along the Clay-Wilkin County line, then northwesterly along US Hwy. 75 west of Comstock, MN. Construction on the Clay County portion of the Southern Embankment is anticipated to begin in 2024 and end in 2026. Impacts to properties in the upstream storage area will be mitigated by flowage easements. These easements compensate landowners for the right to temporarily store floodwaters behind the Southern Embankment. The flowage easements will be categorized by zones and development rights will vary between the different zones.

Along the dry side of the Southern Embankment, the State of Minnesota Department of Natural Resources recommends a half-mile land use restriction for residential development and uses to mitigate against potential damages from levee failure. Clay County should consider regulating new residential uses in the half-mile outside of the Southern Embankment and all development within flowage easement zones as more information becomes available.



Map 4.16 – Southern Embankment Alignment in Clay County

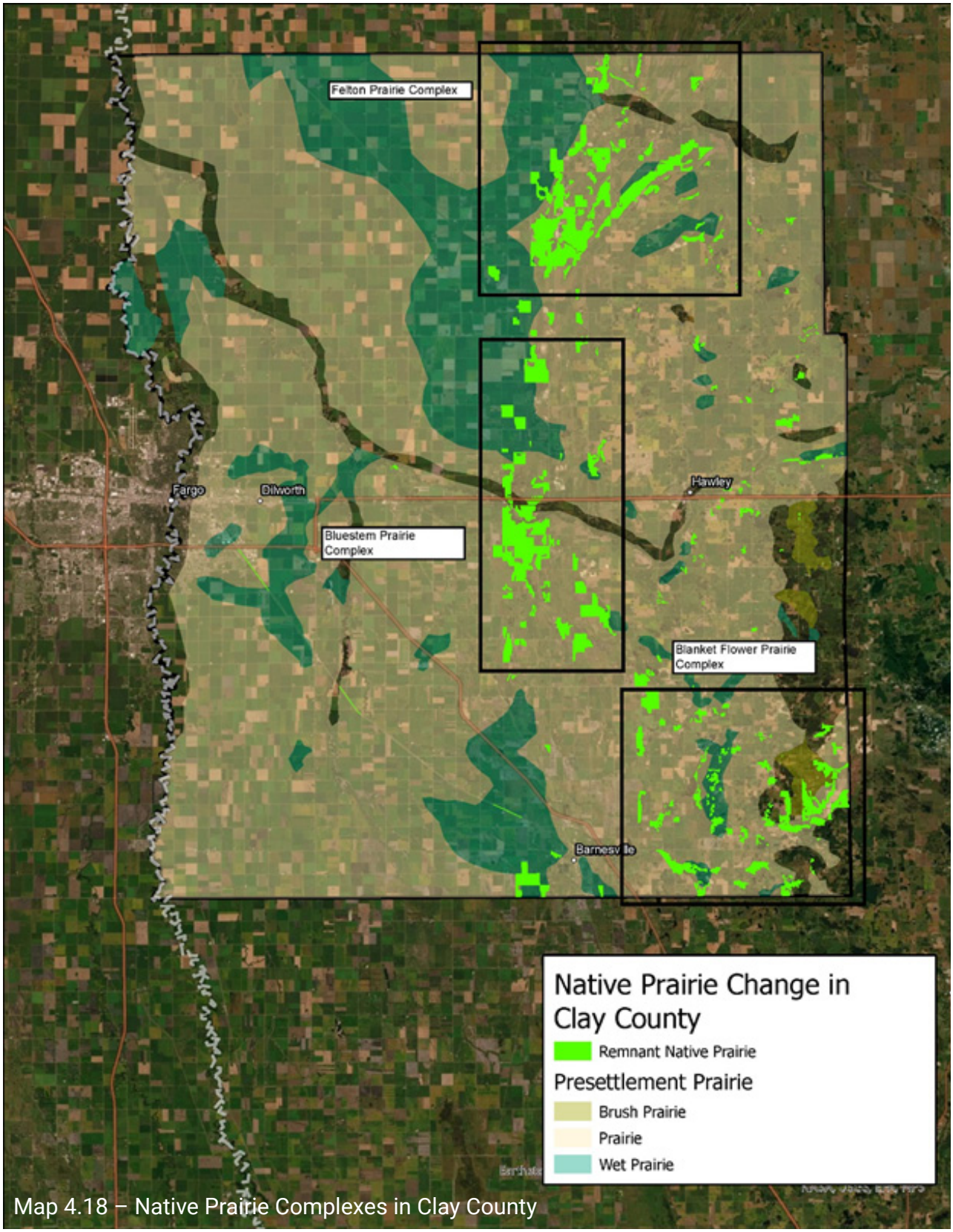


Map 4.17 – Wellhead Protection Areas and DWSMAs in Clay County

Wellhead Protection Areas and Drinking Water Supply Management Area Vulnerability

There are 13 Drinking Water Supply Management Areas and Wellhead Protection Areas in Clay County. These areas are important components of the State of Minnesota Department of Health (MDH) Source Water Protection Program. The purpose of the Source Water Protection Program is to prevent threats to public drinking water supplies from becoming public health risks and to ensure safe, clean drinking water for all. Wellhead Protection Areas (WHPAs) surround public water supply wells that contribute groundwater to the wells. Contamination in these areas on the land surface or in water can impact the drinking water supply. Drinking Water Supply Management Areas (DWSMAs) contain the wellhead protection area and defined by clear boundaries, like roads or property lines. Activities within DWSMAs can impact WHPAs. It is recommended by the MDH to encourage land uses within DWSMAs that are low risk to the drinking water supply.

Clay County regulates land uses in the Moorhead and Barnesville DWSMAs through zoning. Other communities such as Sabin and Ulen have requested to receive notice for any proposed land uses and subdivisions within two-miles of their municipal boundaries. Clay County should consider working with communities who have DWSMAs to develop land use controls that mitigate against impacts to public drinking water supplies.



Map 4.18 – Native Prairie Complexes in Clay County

Native Prairie Conservation

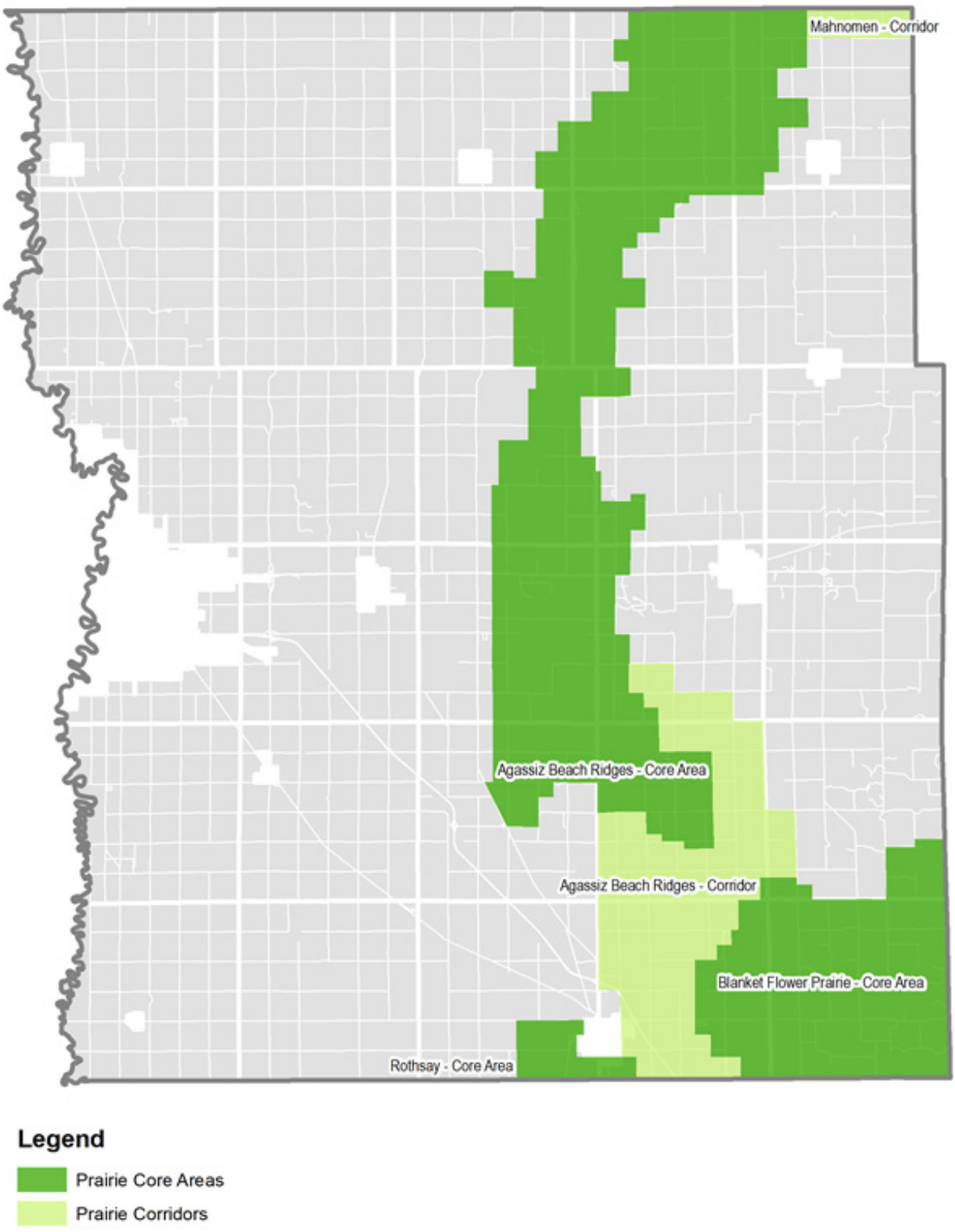
Clay County is rich with prairie resources that provide multiple ecosystems services to the County. These services include erosion control, flood mitigation, grazing and pastureland, hunting and recreation opportunities, and wildlife habitat. Prior to European settlement, Clay County had approximately 620,158 acres of prairie. Today, approximately 20,598 acres (three percent) remains.

The Felton Prairie Stewardship Plan was adopted in 2002 with site-specific stewardship for 2,900 acres of public land within the Felton Prairie Complex. The plan addresses how resources, both mineral and biological, can be managed or balanced for the long-term benefit of citizens in Clay County. Among its recommendations for areas within a portion of the Felton Prairie Complex were: management coordination for both aggregate and rare species, preferred alternative properties for aggregate mining, continued education and research, and passive recreation. Since the plan's adoption, prairie vegetation has been restored in several areas and interpretative signage for native prairie, gravel mining, and the reclamation process have been installed in public areas.

In addition, the State of Minnesota has a Minnesota Prairie Conservation Plan, which outlines goals and strategies for the preservation of native prairies and wetlands as well as restoration of grasslands across the state. The plan emphasizes practices that promote multifunctional landscapes, which provide environmental and economic benefits. The three major prairie complexes in Clay County are identified in this plan, though Bluestem and Felton prairies are also described as one large prairie core, Agassiz Beach Ridges. These core areas retain some features of a large-scale functioning prairie habitat and are the focus of conservation efforts. The core areas are connected by prairie corridors, six-mile-wide linear stretches of habitat that function as dispersal corridors for wildlife.

Clay County should consider the goals and strategies of the Minnesota Prairie Conservation Plan to preserve remaining native prairie and promote multifunctional landscapes that provide economic and environmental resilience for people and prairies alike.

Reclaimed Mine in the Felton Prairie Complex



Map 4.19 – Prairie Core Areas and Corridors in Clay County

Expanded Runway Zones

The Moorhead Municipal Airport, Clay County's largest airport, has an Airport Layout Plan (ALP) showing future expansion of the airport. The ALP includes a proposed expansion of the existing runway and a new north-south crosswind runway. The projects require the City of Moorhead expand the airport safety zones, delineated by the Federal Aviation Administration (FAA) and the Minnesota Department of Transportation (MnDOT) Aeronautics.

Land use controls are most restrictive in Safety Zone A and B and least restrictive in Safety Zone C. Clay County will need to coordinate with the City of Moorhead, the FAA, and MnDOT Aeronautics to modify land use controls in the safety zones in areas that fall under County zoning jurisdiction. Clay County should also consider a review of current land use controls around other county public and private airports to ensure congruity with FAA and MnDOT Aeronautics regulations.

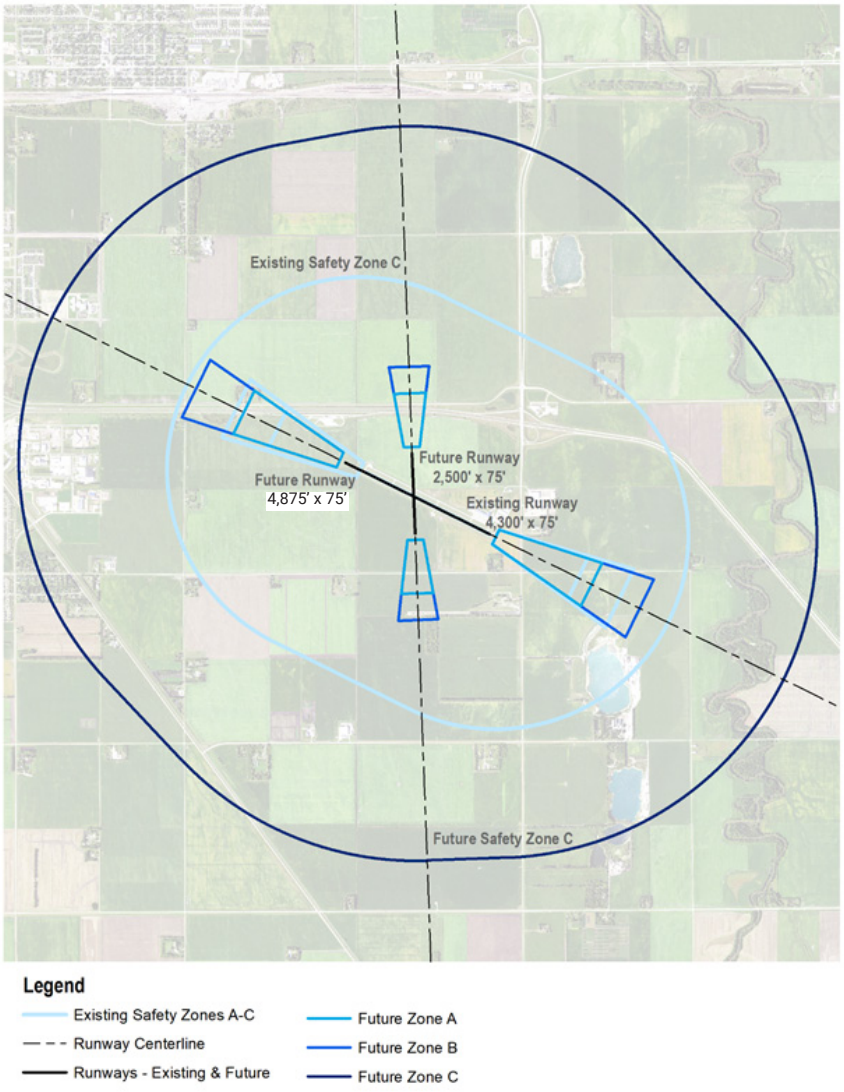


Figure 4.1 – Aeronautical Safety Zones at Moorhead Municipal Airport

Planned Unit Developments

A Planned Unit Development (PUD) is a special type of zoning in which the proposed land uses, transportation elements, building densities, arrangements, and types are set out in a unified plan. A planned unit development may consist of mixed residential, commercial, industrial, and public land uses or a single use development which can be made appropriately as part of a planned unit development. As of 2021, Clay County does not allow for such developments.

PUDs are used as an alternate development tool for those developments that propose a creative and innovative development whose layout may be difficult by the standards under which a property is currently zoned. In some ways, PUDs are similar to overlay districts or other special zoning districts. Ownership of PUDs may be either public or private.

The State of Minnesota has developed criteria for PUDs in communities that permit them. If cities or counties allow PUDs, designation of PUD districts are based on the following criteria:

- Existing recreational use of the surface waters (if applicable) and likely increases in use associated with planned unit developments;
- Physical and aesthetic impacts of increased density;
- Suitability of lands for the planned unit development approach;
- Level of current development in the area; and
- Amounts and types of ownership of undeveloped lands.

In Minnesota, PUDs must be connected to publicly owned water supply and sewer systems, if available. Minnesota has also set density and design standards for residential and commercial planned unit developments.

PUDs are a tool the county should consider adopting as part of future land use and zoning regulations. PUD districts may especially be beneficial in future development or expansion of the Spring Prairie Hutterite Colony or other mixed use developments in Clay County.

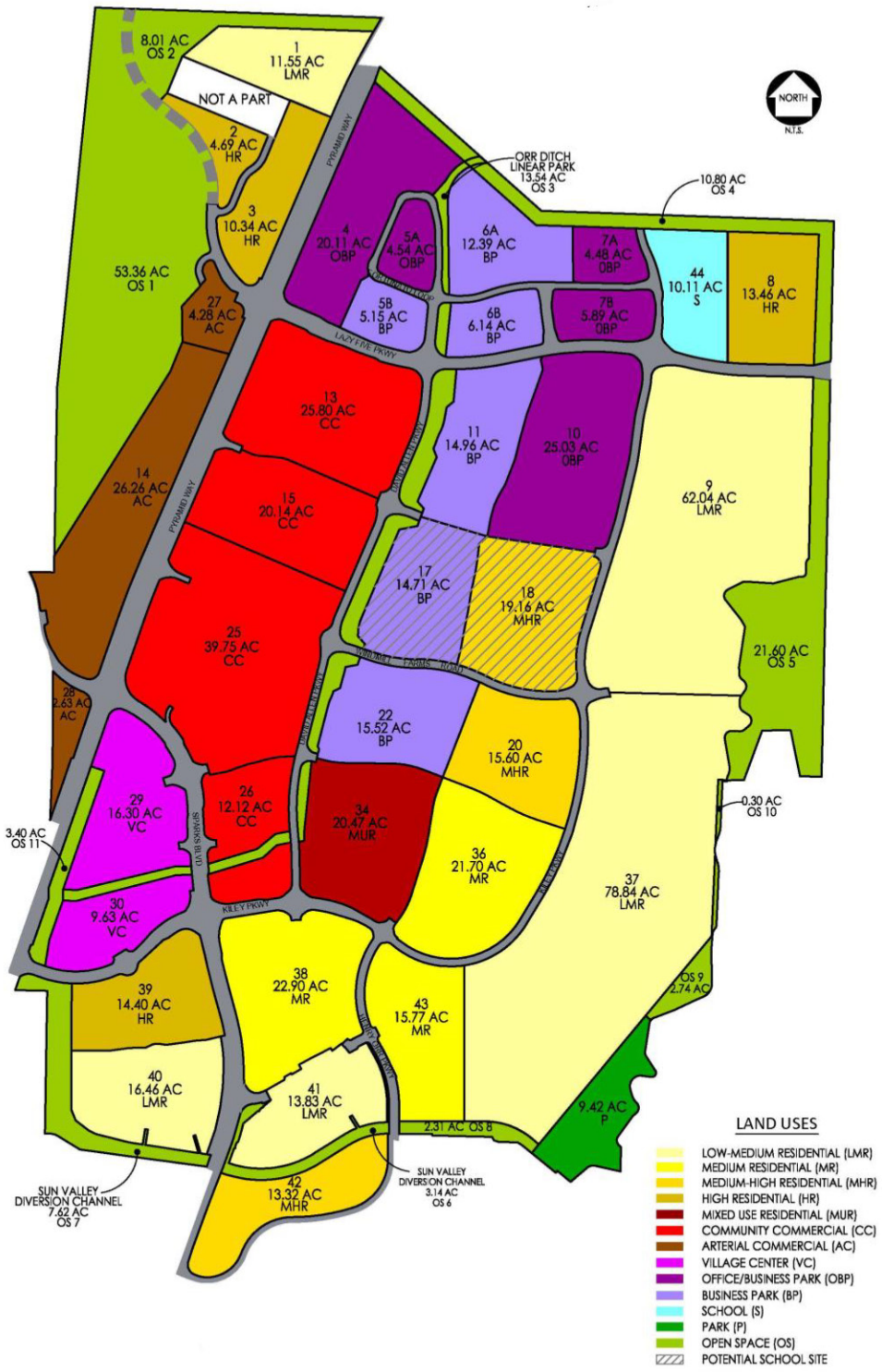


Figure 4.2 – Example of a Planned Unit Development Master Plan

Future Land Use Decisions

City and Township Land Use Plans

In order to make informed decisions on future land use, Clay County will consult individual comprehensive plans and future land use plans developed by cities for extraterritorial areas, as well as plans development by townships in the county. By closely examining these plans, Clay County will be better able to look at the collective impact of these individual planning processes, and evaluate if how they may affect the delivery of county services and infrastructure, or their effect on other county planning documents.

Growth Area Plans and Subarea Analyses

In addition to comprehensive plans, Clay County will consult growth area plans and subarea analyses developed by cities for extraterritorial areas in the county. These efforts will help the county get a clearer of potential land uses, infrastructure needs, and other related decisions.

Growth and Land Use Planning Principle

In addition to the guiding principles as presented at the beginning of this chapter, Clay County will pursue balanced, sensible growth and land use patterns that allow for modest, flexible growth boundaries along planned development patterns. Before settling on this principle, Clay County sought to better understand the costs and benefits of different alternatives. These alternatives include the following:

Alternative 1 - Pursue a Restrictive Growth/ Land Use Pattern

This alternative would define tight growth boundaries and require all non-farm development to occur within cities, prohibiting these types of uses within rural areas of the county.

Pros:

- Offers maximum protection for agricultural lands
- 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
- Limits land use conflicts between non-farm residents and agricultural operations in terms of noise, dust, and odor

Cons:

- Doesn't provide landowners, developers, and others many development options
- Most restrictive on economic growth and employment opportunities
- Restrictive growth policies are often cited for inflated land values

Alternative 2 - Pursue a Balanced Growth/ Land Use Pattern (PREFERRED)

This alternative would define modest, flexible growth boundaries and allow for non-farm residential, commercial, and industrial development to occur within planned growth areas outside cities, so long as it follows planned development patterns. The alternative would also allow for some non-farm development outside of the planned growth areas with adequate infrastructure, but limit residential densities and direct commercial and industrial growth to areas with adequate infrastructure so as to minimize land use conflicts.

Pros:

- Provides for planned urban expansion
- Provides for orderly and efficient growth
- Provides for agricultural protection
- Provides for landowner and developer flexibility
- Allows for broad economic growth opportunities, while directing it towards desired areas

Cons:

- Doesn't entirely prevent development that may hinder future urbanization
- Since it allows for limited, non-farm residential development in rural areas, some conflicts may still arise between residents and agricultural operations in terms of noise, dust, and odors
- Still places some restrictions on developer and landowner options

Alternative 3 - Pursue a Unrestricted Growth/Land Use Pattern

This alternative would not define growth areas and would allow for non-farm development to occur throughout the county without restriction. The alternative would also set no density limits for residential developments.

Pros:

- Affords landowners, developers the greatest flexibility
- Provides for the greatest economic growth opportunities

Cons:

- Has highest potential for land use conflicts between farm and non-farm uses as well as between residential and commercial/industrial uses
- May result in development patterns outside of cities that may hinder their orderly growth
- May result in development patterns where it is difficult or costly to provide water, sewer, and other services in the future

CHAPTER 5
TRANSPORTATION

GUIDING PRINCIPLES FOR TRANSPORTATION

Network

Virtually every resident of Clay County is impacted by transportation. The County's transportation network reaches every corner of its boundary and helps connect people to their homes, jobs, natural and cultural resources, recreation, and other important places. Clay County's transportation network is an essential service and should be planned accordingly to maintain and promote the health, safety, and welfare of not only County residents, but other local communities. The transportation network should work harmoniously to provide for safe, efficient, and reliable multi-modal travel of people, goods, and services across Clay County.

Safety

Safety is one of the core foundations of Clay County's transportation system. As an inherent component of services the County provides, safety should have a very strong focus when planning for future transportation infrastructure, or analyzing current transportation infrastructure performance. Residents of Clay County should be able to go about their daily lives in a safe manner and the transportation system is essential in providing safe mobility, wherever and however people choose to travel along County roadways.

Character

The transportation system should compliment and may be challenged by Clay County's rural character. The rural character and charm of the County is cherished by residents therefore, the management of the transportation system can help preserve and sustain that character in the long-term. The transportation system and rural character of Clay County may be challenged by urban development and the juxtaposition to rural areas, and the transition in between those areas. Opportunities and challenges are growing in the transitional areas in between urban and rural areas of the County, including small towns within Clay County. The County's reputable character can be preserved through thoughtful consideration of transportation system management and operational tactics that preserve this character.

Multi-modal

Multiple modes of transportation, referred to as multi-modal transportation, is another essential element of Clay County's transportation system. People expect to get to where they need, however they want to get there, whether by car, truck, motorcycle, bus, tractor, semi-truck, horse, foot, bicycle, or other means across Clay County. This is not to say that every roadway in the County needs to or is expected to accommodate every single mode of travel as most roadways need to prioritize certain modes of travel. However, multi-modal consideration should be given to every aspect of the transportation system to look for ways to enhance mobility, safety, and reliability for all potential users of the roadway network.

INTRODUCTION

The Transportation Chapter of the *Clay County Comprehensive and Transportation Plan* should be used by the County, cognizant partners, and residents as a guide to maintain and improve Clay County's transportation system through 2045 and to support not only land use goals and objectives but other goals and objectives as found in different chapters throughout the plan. Also referred to as the Clay County Transportation Plan, the Transportation Chapter exists in the framework of regional, state, and national transportation planning policies and guidelines. The Transportation Plan is part of Clay County's Comprehensive Plan update, and responds to guidance and direction provided by the Fargo-Moorhead Metropolitan Council of Governments to all jurisdictions within the Fargo-Moorhead Metropolitan Planning Area (MPA) through the policy direction of the 2045 Metropolitan Transportation Plan (MTP), *Metro Grow*.

The Transportation Plan provides the vision for the future transportation system in Clay County, supports comprehensive plan goals and objectives, and documents the County's transportation policies and strategies. The Plan identifies major transportation system investment needs and guides prioritization of those needs.

The purpose of the transportation system in Clay County is to move people and goods in the safest and most efficient manner possible across the County. The Clay County Board of Comissioners understands the transportation system is a critical element of the quality of life for citizens.

Transportation systems, both highway and transit, must safely, efficiently, and effectively allow citizens to travel where they need to throughout their daily personal lives. Clay County's transportation system must further provide for the efficient movement of goods to markets to support economic vitality. Multiple transportation options should work in coordination to increase the efficiency and safety of the entire system. Additionally, transportation decisions should carefully consider and reflect environmental and community concerns.

EXISTING CONDITIONS

To accurately identify transportation needs and prepare a plan to meet those needs, Clay County studied the existing conditions of transportation resources and travel behavior of current users. This analysis includes examination of traffic volumes, pavement, functional classification, safety, bridges, railroads, and airports.

Traffic Volumes

Average daily traffic volumes show how many vehicles travel on a road in an average day. Outside of the urban and small town areas of Clay County, traffic volumes are quite low. The highest volumes are along roadways with good connectivity to major economic centers. Metro COG collected traffic volume data for Clay County in 2015 and the Minnesota Department of Transportation (MnDOT) collected traffic volume data in 2017 and 2019. Metro COG is in the process of collecting traffic counts in 2021, with some locations in Clay County already being counted.

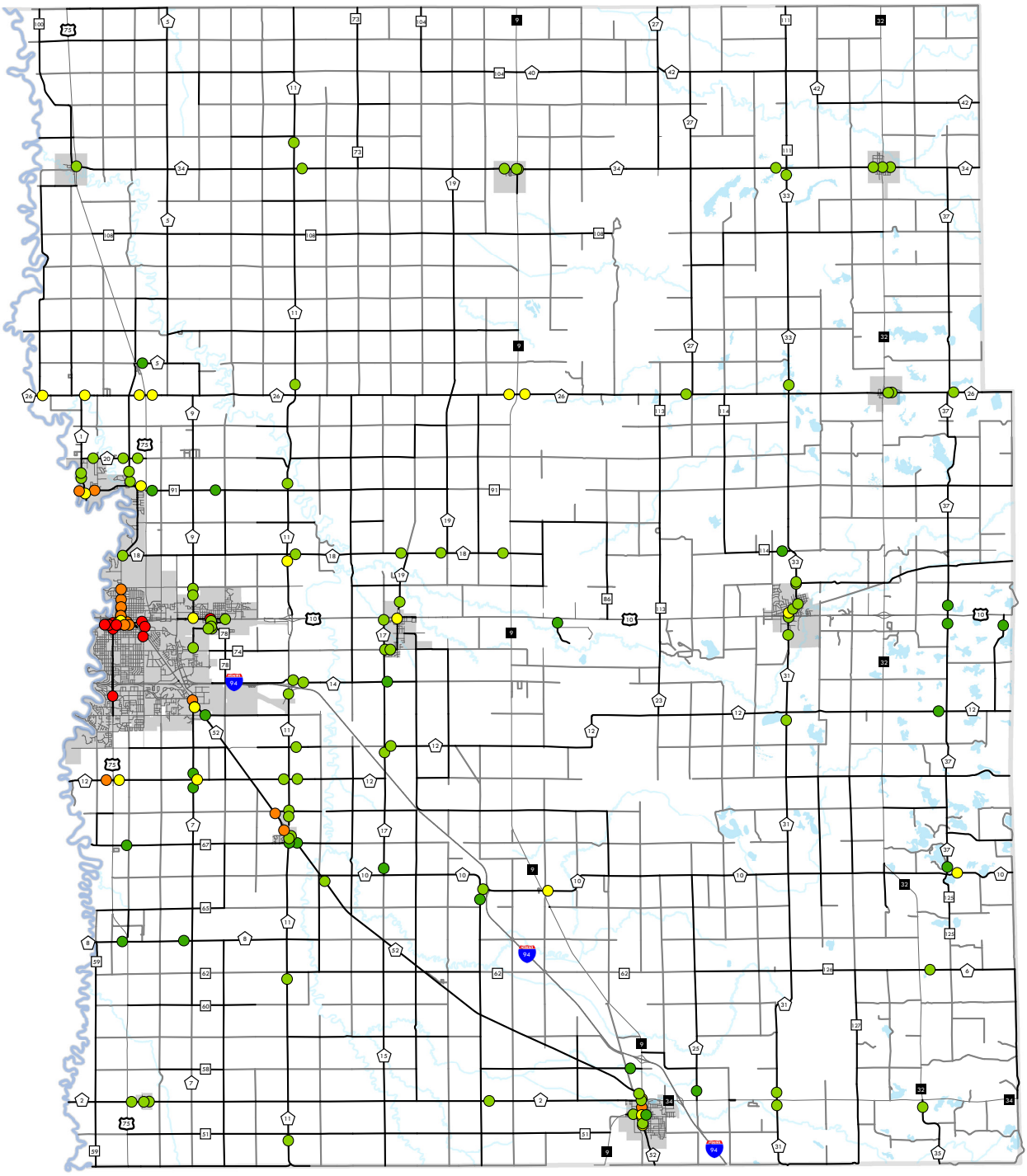


Figure 5.01- Traffic Volumes

Source: Metro COG (2015) & MnDOT (2019)

Average Annualized Daily Traffic (AADT)
- 0-250
- 251-1500
- 1501-4000
- 4001-10000
- 10001-19000

- County Roadway
- Township Roadway
- Local or State Roadway
- 86 CR
- 34 MN Hwy
- 52 CSAH
- 75 US Hwy
- 94 Interstate

N

CLAY COUNTY COMPREHENSIVE PLAN

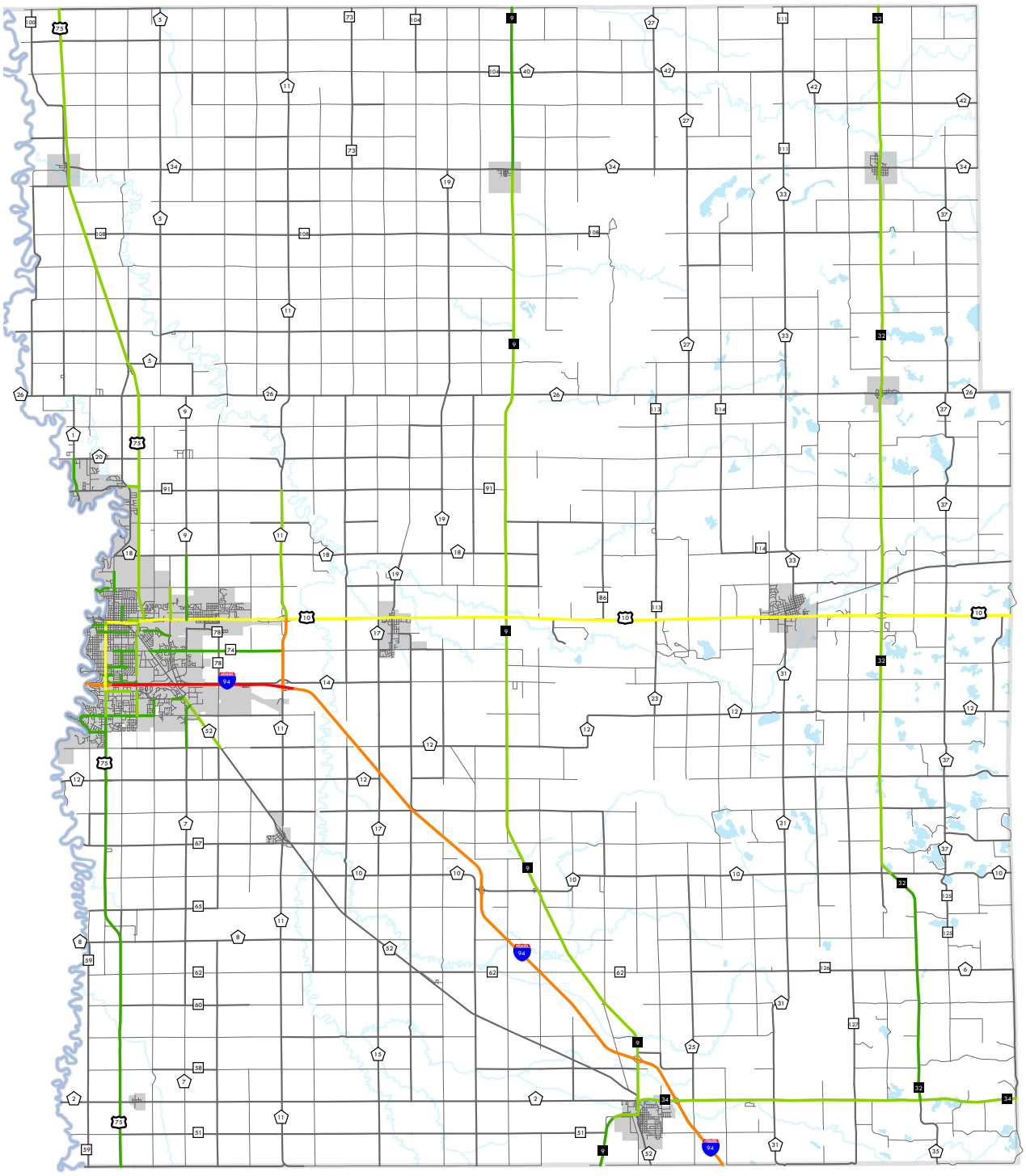


Figure 5.02 - Truck Traffic

Source: MnDOT (2020)

Heavy Commercial Average Annualized Daily Traffic (HCAADT)

- 0-200
- 201-600
- 601-1300
- 1301-5000
- 5001-8000
- County Roadway
- Township Roadway
- Local or State Roadway
- 75 US Hwy
- 86 CR
- 52 CSAH
- 34 MN Hwy
- 94 Interstate

N

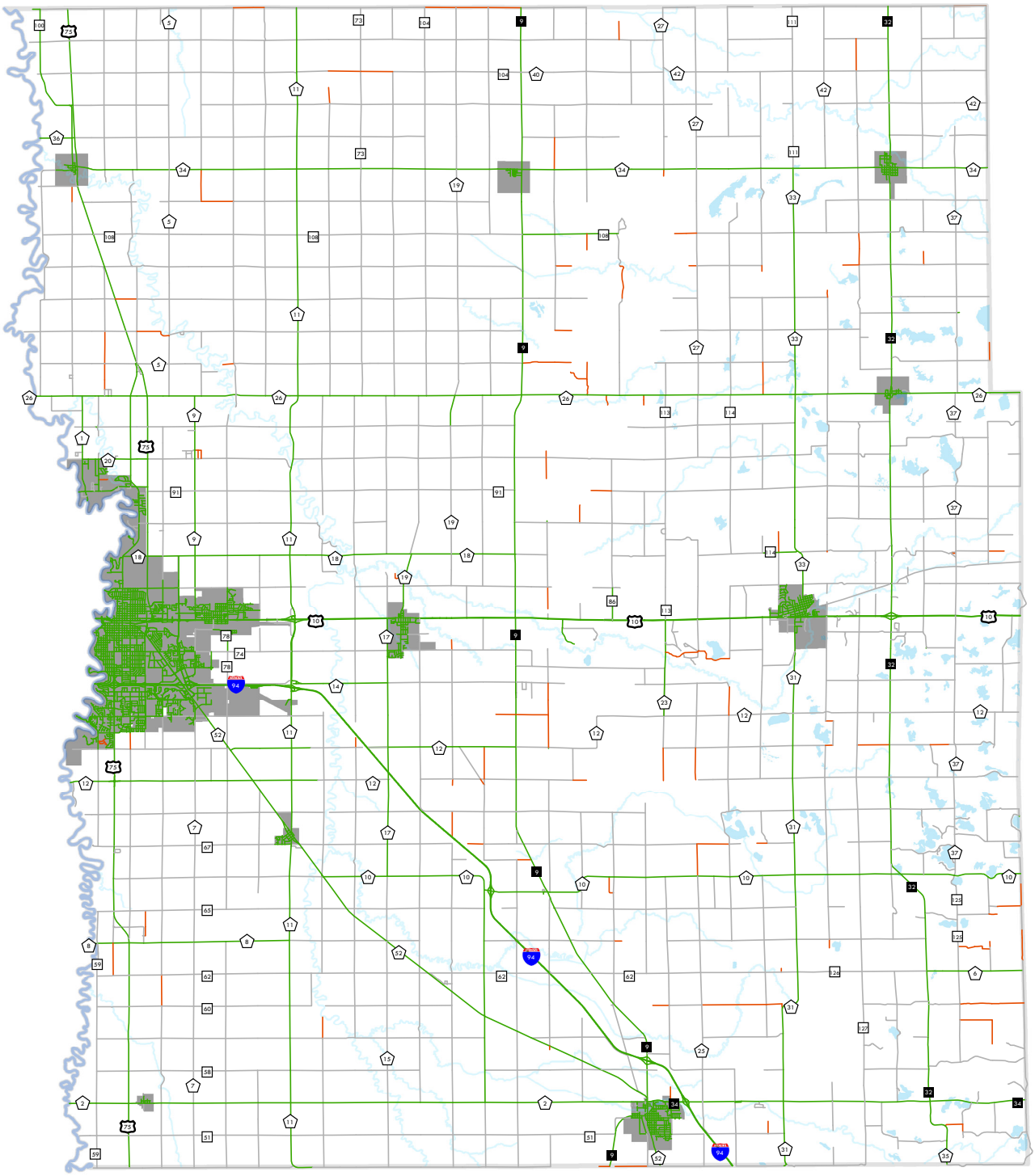
CLAY COUNTY COMPREHENSIVE PLAN

The most recent traffic counts included truck counts. Truck traffic ranges from one percent of total traffic to 10 percent on Clay County Roadways. Despite these high truck percentages, the actual truck counts are quite low.

Metro COG conducts traffic counts for the Clay County Highway Department upon request and has utilized tube counters and video recording devices to collect traffic data. Traffic data was collected at the following areas in the time since official count data was collected in 2015:

- 11th St just N of MB Johnson Park Entrance (Moorhead)
- (2) 15th Ave N between 34th and 40th St (Oakport Twp.)
- CR 2 between Hwy 75 and Comstock (Holy Cross Twp.)
- CR 9 between 15th Ave N and CR 18 (Oakport Twp.)
- CR 9 between 15th Ave N and Kroshus Dr (Oakport Twp.)
- 12th Ave S at Buffalo River (Glyndon Twp.)
- 70th Ave N between US 75 and 28th St (Oakport Twp.)
- 225th St between 15th Ave N and Meadow Ln (Hawley)
- 225th St just N of Hartford St (Hawley)
- 3rd St between CSAH 12 and 50th Ave (Moorhead Twp.)
- CSAH 1 between CSAH 20 and CSAH 26 (Moorhead)
- 15th Ave N between 34th St and CR 9 (Oakport Twp.)
- 15th Ave N between CR 9 and CR 90 (Oakport Twp.)
- 70th Ave N between US 75 and 28th St (Oakport Twp.)
- 70th Ave N between US 75 and Oakport St (Oakport Twp.)
- CSAH 1 between 80th Ave N and 85th Ave N (Oakport Twp.)
- CSAH 1 between RR and CR 22 (Moorhead)
- Broadway St just S of 70th Ave N (Moorhead)
- CR 3 just N of 43rd Ave N (Moorhead)
- CR 9 between 43rd Ave N and CR 22 (Oakport Twp.)
- CR 9 just S of CR 26 (Oakport Twp.)
- CR 20 just W of Oakport St (Moorhead)
- CR 22 between US 75 and CR 13 (Oakport Twp.)
- CR 22 just E of 2nd St (Moorhead)
- CR 26 between CR 98 and CR 100 (Oakport Twp.)
- CR 26 between US 75 and Oakport St (Oakport Twp.)
- CR 96 just N of CR 26 (Kragnes Twp.)
- Oakport St between CR 20 and CR 22 (Moorhead)
- Oakport St just S of CR 26 (Oakport Twp.)

County Road 18 in Moland Township



CLAY COUNTY
COMPREHENSIVE PLAN

Figure 5.03 - Roadway Surface

Paving Type

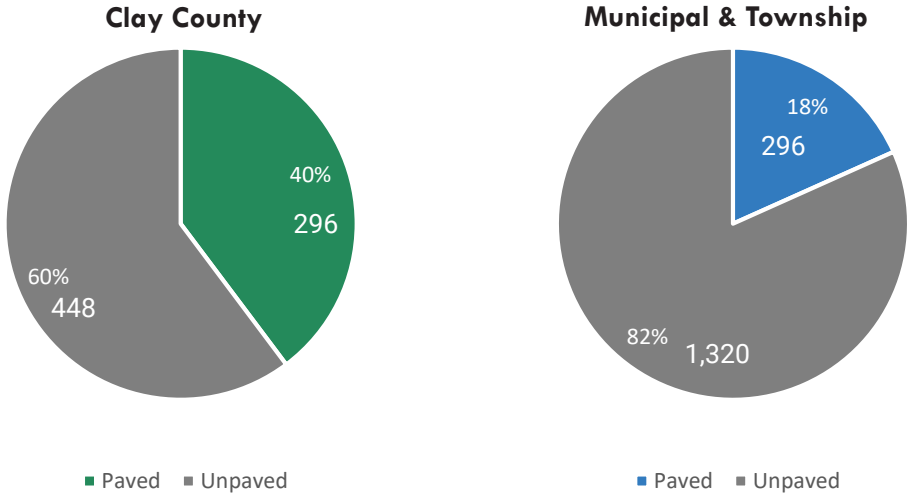
- Paved (Asphalt, brick, concrete)
- Gravel
- Other (dirt, uninproved)

- 86 CR
- 52 CSAH
- 34 MN Hwy
- 75 US Hwy
- 94 Interstate

Source: Clay County (2021)

N

Figure 5.04 - Roadway Surfacing By Jurisdictional Owner (source: Metro COG)



Pavement

The 743 miles of County roadways (excluding State, Township, and Municipal roadways) are split 40-percent and 60-percent between paved (all pavement types) and gravel or unpaved surfaces, respectively. Paved roadways are typically found on higher traffic corridors or corridors with good connectivity to economic centers throughout Clay County. Gravel and unpaved roadways are typically found on low volume corridors.

Most traffic volumes may not justify investing in paving all roadways throughout the County however, consistent monitoring of traffic volumes is important to determine if paving may be more financially sustainable.

Pavement Management

The quality of Clay County's roads can be attributed to a high quality Pavement Management System.

Pavement Conditions

Through the Pavement Management System, the County monitors the condition of the highway surface of every segment of Clay County's roadways.

Table 5.1 - Average Pavement Condition Rating (source: Clay County)

Average Clay County Pavement Condition Rating			
Year	Ride Quality Index (RQI)	Surface Rating (SR)	Pavement Quality Index (PQI)
2011 - 2012	2.70	3.30	2.90
2012 - 2013	2.57	3.43	2.93
2013 - 2014	2.24	3.33	2.64
2014 - 2015	2.09	3.28	2.44
2015 - 2016	2.00	3.20	2.52
2016 - 2017	1.90	3.00	2.29
2017 - 2018	2.80	3.60	3.20
2018 - 2019	2.70	3.50	3.10
2019 - 2020	2.50	3.20	2.80

Table 5.2 - Pavement Condition Index Rating Scales (source: Clay County)

MnDOT Pavement Condition Indices		
Index Name	Pavement Attribute Measured by Index	Rating Scale
Ride Quality Index (RQI)	Pavement Roughness	0.0 - 5.0
Surface Rating (SR)	Pavement Distress	0.0 - 4.0
Pavement Quality Index (PQI)	Overall Pavement Quality	0.0 - 4.5

The Pavement Quality Index (PQI) is a composite index equal to the square root of the product of the pavement Surface Rating (SR) and the Ride Quality Index (RQI). PQI provides a more customer satisfaction approach to pavement management in Clay County. PQI is measured on a scale from 0 to 4.5 with 4.5 being high quality pavement and 0 being low quality pavement. See Table 5A for the average PQI ratings for Clay County since 2011. PQI is different than the Pavement Condition Index (PCI) which uses a 0 to 100-point scale with 100 being the smoothest pavement.

In the last several years, the PCI has been replaced by PQI because PQI is a more comprehensive approach to pavement management and applicable performance measure standards. However, PQI is based on data that Clay County and MnDOT were already collecting. Table 5B shows the pavement condition indices utilized by Clay County and MnDOT.

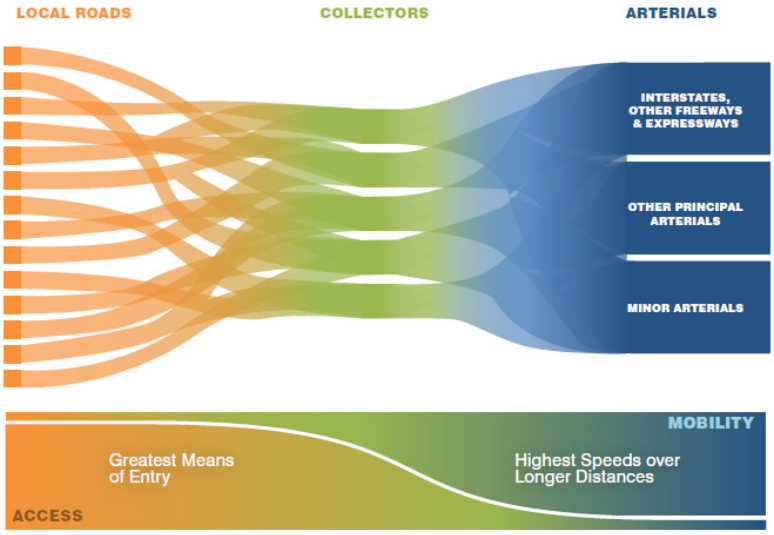
Pavement quality is widely recognized as important for a traveler's satisfaction and the long-term performance of the roadway, and can also affect road noise. A smoother pavement surface provides a more comfortable ride for the traveler. A highway free of cracks and potholes also requires less ongoing maintenance and a longer lifecycle.

Clay County is currently in the process of adopting a pavement management plan which will set a formal PQI threshold for the County.

The formal PQI threshold will establish a performance measure standard that can be used to help prioritize investments on the Clay County transportation system and identify short- to long-term investment strategies.

Developing and adopting a Pavement Management Plan is a very important short-term implementation step for Clay County. The Pavement Management Plan should be used to identify roadway rehabilitation and reconstruction projects for inclusion into the County's Capital Improvement Program (CIP) and help achieve the County's goal of providing a high quality transportation system.

Figure 5.05 - Roadway Functional Classification Relationship (source FHWA)



Functional Classification

The functional classification defines a roadway's purpose, use, and the attributes necessary to provide for the safe and efficient movement of vehicles. Metro COG's MTP, *Metro Grow*, lays the groundwork for a functional classification system for roadways based on the transportation service provided (e.g. degree of mobility) and the relationship to adjacent land uses (e.g. degree of access). The system creates a hierarchy of roadways that provide direct access to local streets, collect traffic from local streets, and distribute traffic to the regional highway system.

Each roadway type is critical to providing a roadway network that meets the needs of all users. For example, if an area lacks a robust collector roadway system, then the principal and minor arterial roadway system will not only need to provide mobility for those moving through the area but will also need to provide direct access to adjacent land uses. This may result in roadways that serve too many functions leading to safety and capacity problems.

The general description of each of the four classifications in the Functional Classification System may be found on the following pages.

Table 5.3 - Roadway Functional Classification Mileage (source: Clay County & MnDOT)

FEDERAL FUNCTIONAL CLASSIFICATION MILEAGE			
	Clay County	**Townships**	**Local/State/County Total***
Interstate	0	0	**27**
Principal Arterial	9	0	**33**
Minor Arterial	15	2	**142**
Major Collector	387	23	**221**
Minor Collector			**195**
Local	332	847	**1505**
*Includes all of Clay County including Municipalities			
Source: MnDOT			

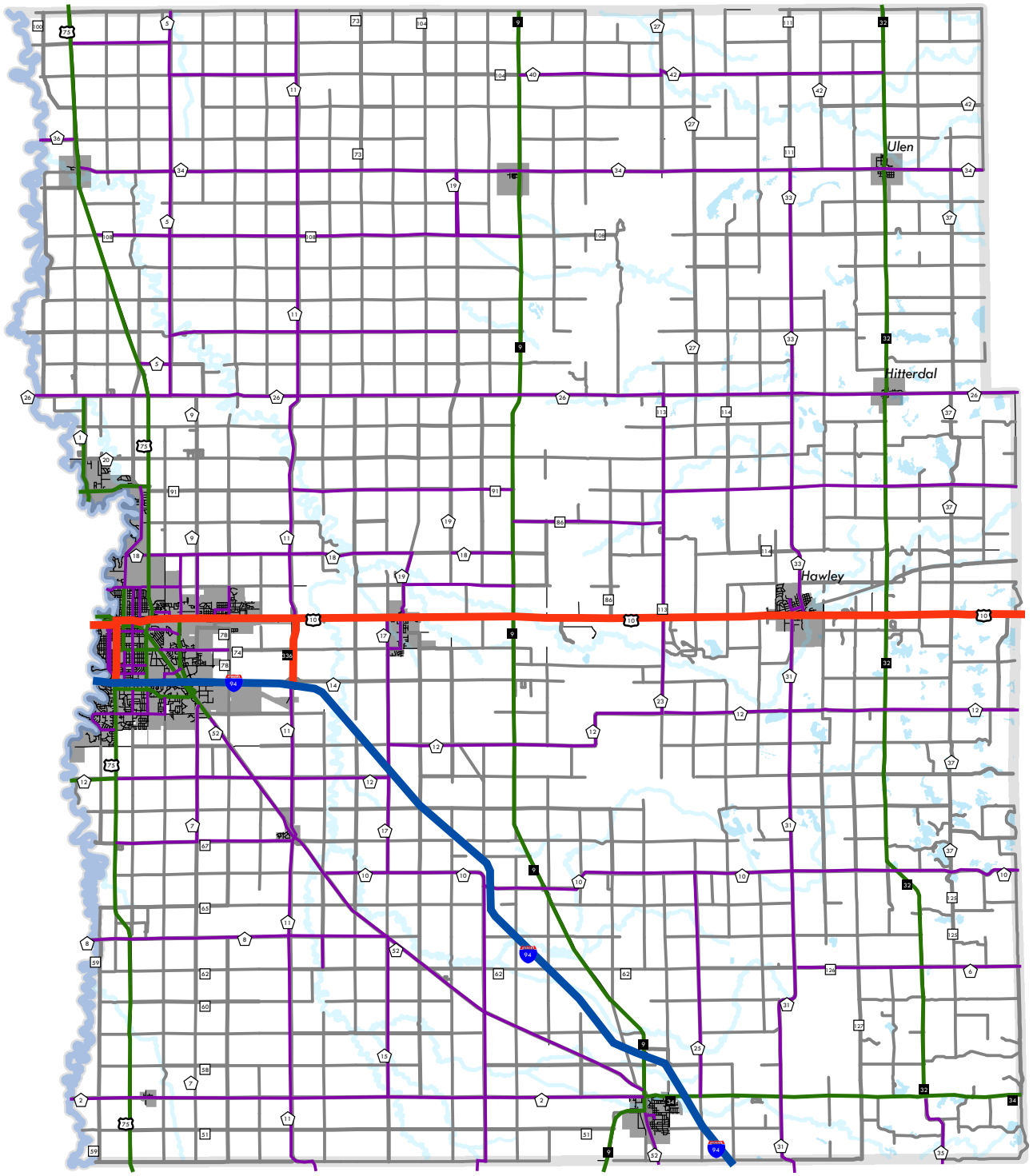


Figure 5.06 - Federal Functional Classification (FFC)

Source: Clay County (2021)

Federal Functional Classification

- Interstate
- Principal Arterial
- Minor Arterial
- Collector
- Local

- 86 CR
- 52 CSAH
- 34 MN Hwy
- 75 US Hwy
- 94 Interstate

N

CLAY COUNTY COMPREHENSIVE PLAN

Principal Arterials

Principal arterials typically have the highest traffic volumes and are considered part of the National Highway System (NHS). These highways are intended to connect economic centers of regional importance with one another, including major business concentrations, important transportation terminals, and large institutional facilities to provide greater regional mobility. The principal arterials in Clay County are all owned and operated by MnDOT. They include Interstate 94 (I-94), United States Highway 10 (US 10), US 75, and Minnesota Highway 336 (MN 336). Future improvements along US 10, US 75, MN 336, and parts of the I-94 corridor through Clay County will provide safer and more efficient operations of principal arterials as part of the NHS.

Minor Arterials

Minor arterials place a priority on mobility and higher average travel speeds, while providing managed access to the local system. These roadways connect important locations within the County to the FM Area and other regional destinations. In addition, minor arterials connect locations within the urbanized area to cities and towns outside of the metropolitan region and connect freestanding small towns to each other.

Minor arterials are spaced at least 15 miles apart across rural Clay County however, the spacing is less near the urbanized portions of the FM Area. Within the County, minor arterials are mostly owned and operated by MnDOT as US Highways or by the County as County State Aid Highways (CSAH) Examples of these highways in Clay County include portions of US 75, MN 9, MN 34, and Broadway Street NW or CSAH 1.

Collectors

Collectors serve shorter trips and allow more direct access from local streets and driveways. These roadways collect and distribute traffic to the arterial system from rural areas across Clay County including commercial and industrial areas in the FM Area.

Collectors are spaced about four miles apart across Clay County however, the spacing is less near the urbanized portion of the FM Area. The collectors in Clay County are owned and operated by the County, Cities, and Townships. Examples of collectors are CSAH 52, 160th Avenue S or CSAH 2, 230th Street S or CSAH 31, 90th Avenue S or CSAH 10, 70th Street N or CSAH 11, and 90th Avenue N or CSAH 26.

Local Roadways

Local streets connect to the most rural areas of the County where people may live, conduct business, or go about their daily lives. Local roadways typically prioritize lower speeds and higher access ahead of mobility. These roadways are typically spaced about one mile apart in a majority of Clay County however, in developed pockets of the County, local roadways occur every block.

Local streets are owned and operated by the County, Cities, or Townships depending on the location.

Safety

A comprehensive, system wide, and data-driven analysis was conducted for crashes occurring from 2016-2020 within Clay County. Specifically, Metro COG analyzed crashes that occurred within 100-feet of Clay County maintained or township maintained roadways or those roadways not maintained by a local municipality or the State. While the total number of severe crashes may be significant, the actual number of severe crashes occurring at any given location is very low.

Crash Analysis

Between 2016 and 2020 there were 26 severe (fatal and incapacitating injury) crashes on all roadways owned and operated by Clay County or a Township (6 fatal and 20 incapacitating injury crashes).

- 11 crashes were single vehicle run off road crashes including overturn/rollover crashes and utility/light pole crashes
- 7 crashes were intersection-related crashes including angle crashes
- 3 crashes were front to front or head on crashes
- 2 crashes were front to rear or rear end crashes
- 2 crashes were listed as single vehicle other crashes
- 1 crash was listed as a pedestrian crash

The *Clay County Roadway Safety Plan* was adopted in 2008. The Highway Department has completed a considerable number of projects identified in the 2008 Safety Plan and still utilizes the plan to pursue federal Highway Safety Improvement Program (HSIP) dollars.

Clay County, in partnership with MnDOT, is currently undergoing a process to update the 2008 plan. The new County Roadway Safety Plan has a tentative completion date of December 2022. Safety remains one of the highest priority goals and objectives of the Transportation Plan and will be guided by the *Minnesota Strategic Highway Safety Plan* (2020) which is an integral part of Minnesota's Toward Zero Deaths program. The Toward Zero Deaths program will also be a cornerstone in the development of the *Clay County Roadway Safety Plan* update (in progress). The Transportation Plan should reference the future goals, policies, and implementation priorities that come out of the updated safety plan.

The ongoing update of the Clay County Roadway Safety Plan is of utmost importance in the short-term for Clay County. The plan should be used to identify safety projects at existing unsafe locations and proactively identify unsafe locations for inclusion into the County's Capital Improvement Program (CIP). The plan is critical for achieving the County's goal of providing a safe transportation system. The plan will also be critical to pursue Highway State Improvement Program (HSIP) funds.

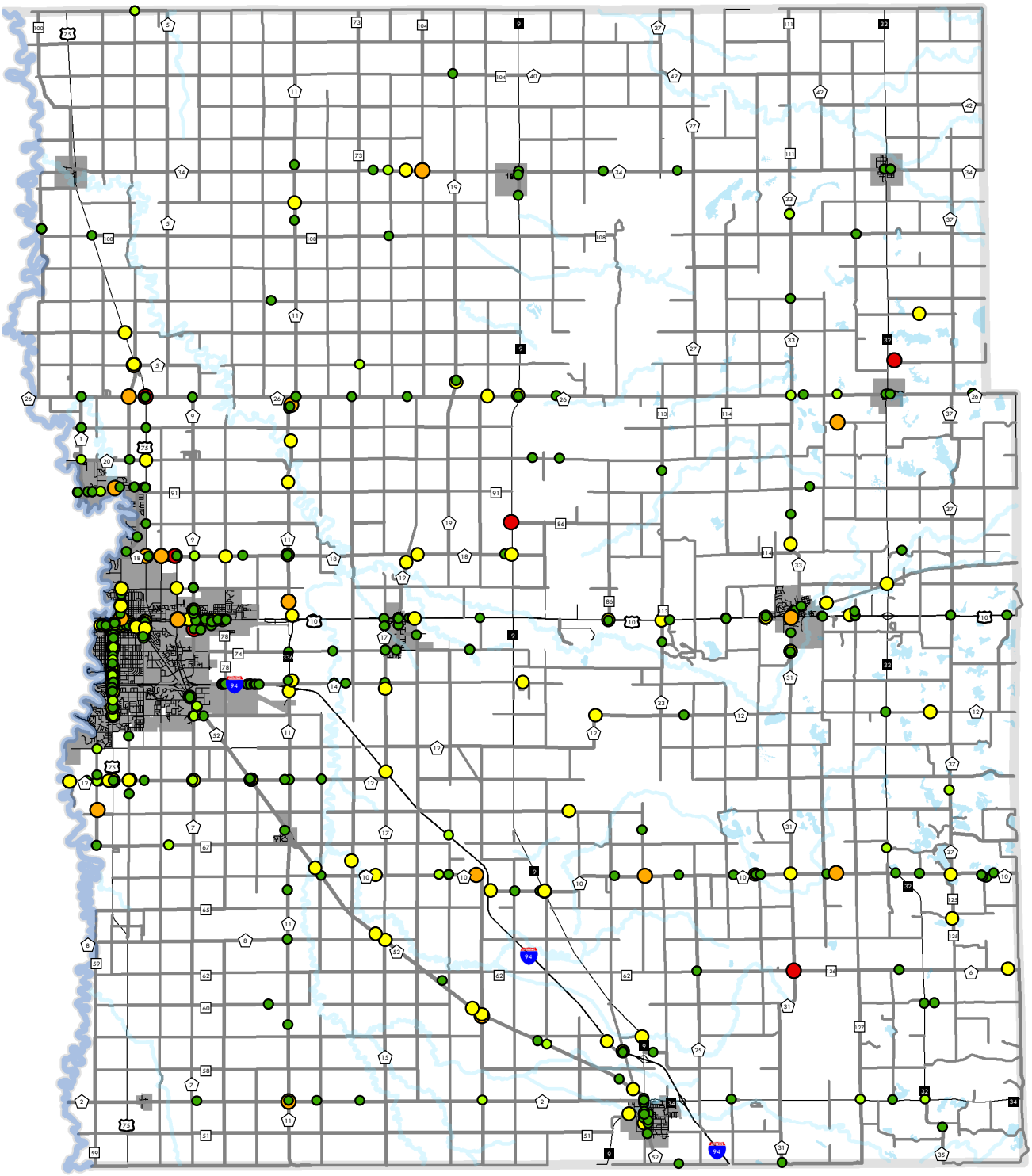


Figure 5.07 - Crashes within 100' of Clay County or Township Road

Crash Severity

- Fatal
- Serious Injury
- Minor Injury
- Possible Injury
- Property Damage Only

Source: MnDOT (2021)

86 CR | 52 CSAH | 34 MN Hwy | 75 US Hwy | 94 Interstate

Maintained by Clay County or Township

Maintained by Other Jurisdiction

N

CLAY COUNTY COMPREHENSIVE PLAN

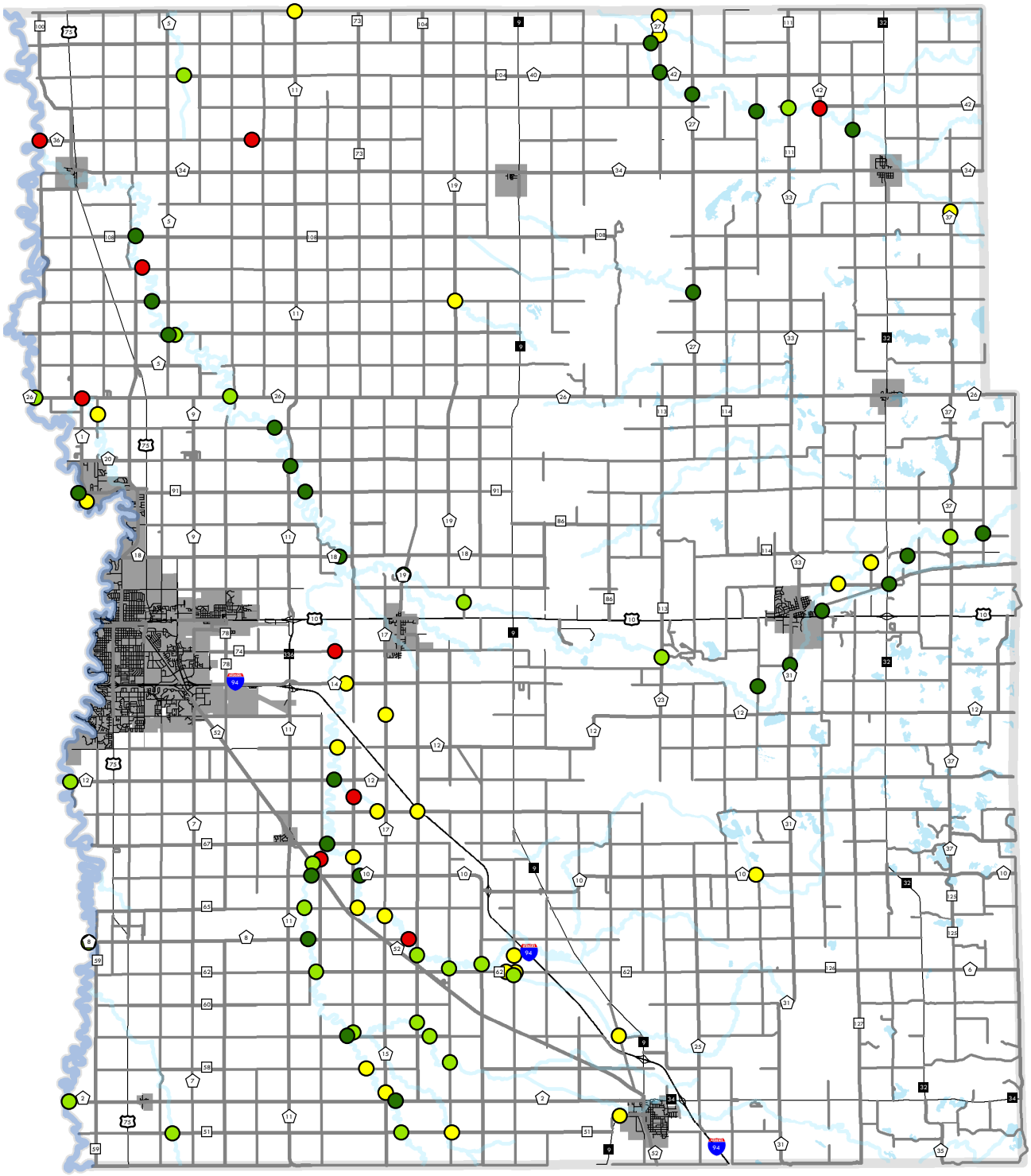


Figure 5.08 - Bridge Sufficiency Rating

Source: Metro COG (2021)

Bridge Sufficiency

- Less than 50
- 50 to 74
- 75 to 89
- 90+

86 CR 52 CSAH 34 MN Hwy 75 US Hwy Interstate

Maintained by Clay County or Township

Maintained by Other Jurisdiction

N

CLAY COUNTY COMPREHENSIVE PLAN

Bridges

Clay County maintains 55 bridge structures, 49 bridges span more than 20 feet. Of these structures, nearly 11-percent were built before 1960. Bridges built prior to 1960 are often functionally obsolete due to width, height, and weight restrictions however, this is not the case in Clay County as two of the ten bridges built before 1960 are Structurally Deficient and the remaining are Adequate.

Of the 49 bridges greater than 20 feet, 67-percent have a sufficiency rating of 80 or greater with another 31-percent having a sufficiency rating between 50 and 80. Just 1 bridge (2-percent) has a sufficiency rating below 50.

Bridge Evaluation and Prioritization

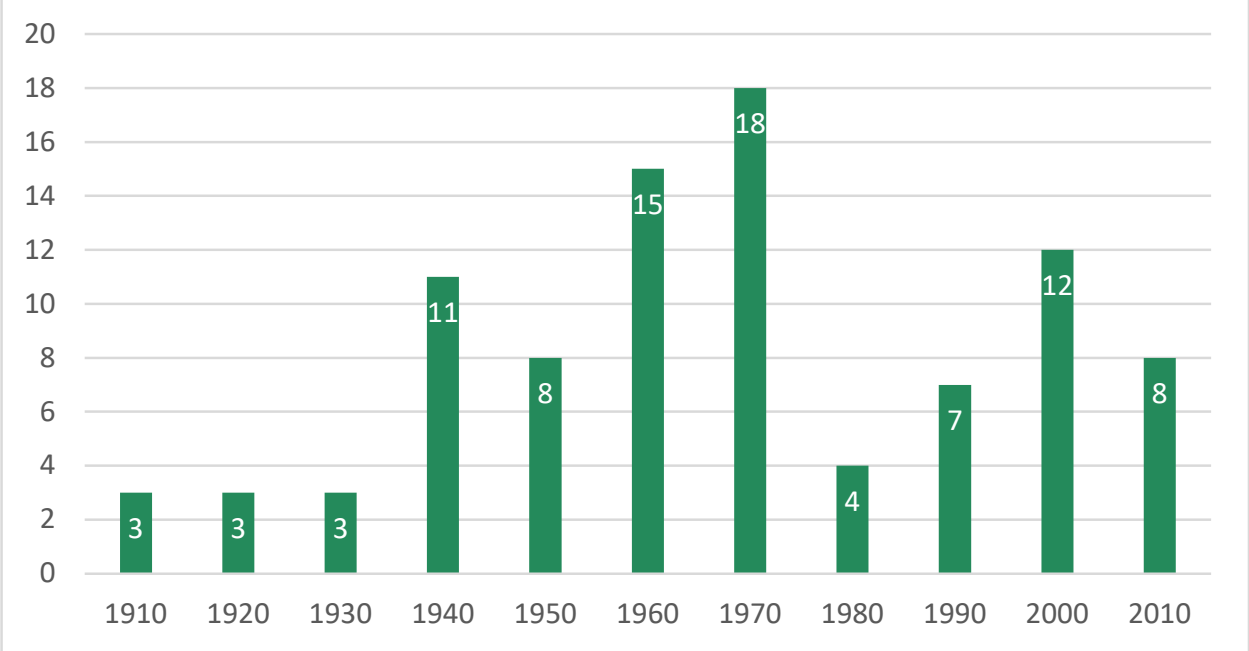
A County bridge prioritization was performed based upon existing inventory of structures from the most recent National Bridge Inventory (NBI) inspection reports for Clay County. The analysis assumes that existing bridges in the 2021-2025 Clay County Capital Improvement Plan will remain the highest priorities for future investment. Clay county also maintains a bridge prioritization list of 17 structurally deficient bridges that the County intends to replace, rehabilitate, or remove as soon as possible when funds are available.

Beyond the top 22 structures (those in the CIP and prioritization list), the analysis flagged two other bridges that are structurally deficient and four which are functionally obsolete.

Bridges are prioritized based upon sufficiency rating, posting limit, and average structure condition.

- First, bridges were categorized into sufficiency categories by sufficiency rating: bridges less than 50, those between 50 and 74, those between 75 and 89, and those 90 and above.

Figure 5.09 - Bridges Built by Decade (source: Clay County)



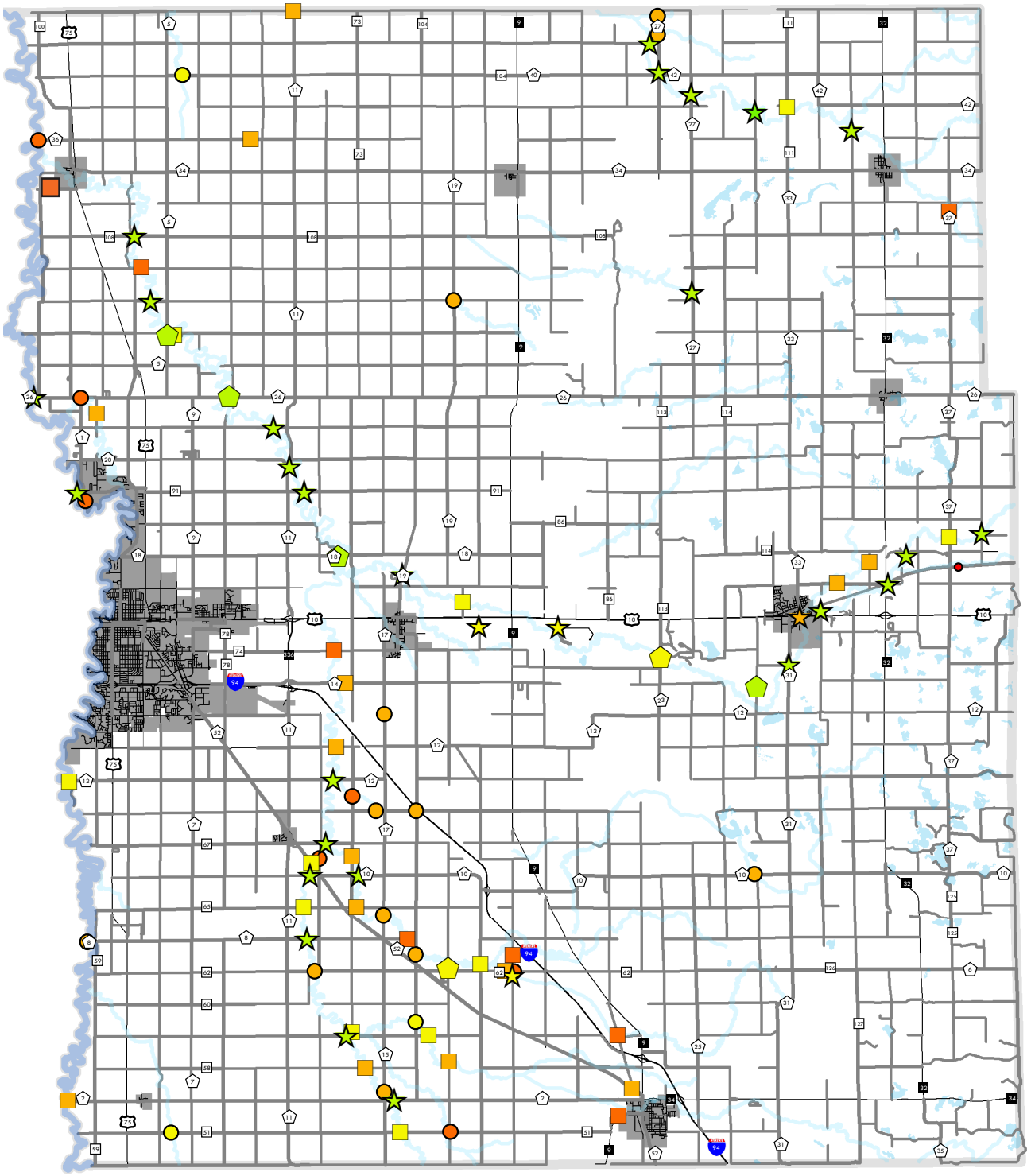


Figure 5.10 - Bridge Average Condition and Prioritization

Source: Metro COG (2021)

Average Condition
- 4.0 - 5.0
- 5.1 - 6.0
- 6.1 - 7.0
- 7.1 - 8.0
- 8.1 - 9.0

Priority Timeframe
- Programmed
- 2026-2030
- 2031-2035
- 2036+

86 CR
75 US Hwy
52 CSAH
94 Interstate
34 MN Hwy

N

CLAY COUNTY COMPREHENSIVE PLAN


State Highway 32 near Ulen

► After categorized into sufficiency categories, bridges were prioritized based upon three planning-level criteria: sufficiency rating, deficiency status, bridge status, and average structure condition. Structure condition is based upon the average rating of the superstructure, substructure, and deck rating.

► Analysis and prioritization within each sufficiency bin was completed based upon deficiency status (i.e. structurally deficient, functionally obsolete, adequate), bridge status (i.e. open, closed, load posted), and the average structure condition. This method was used to sort the remaining 71 bridges after the 22 programmed and priority bridges as previously mentioned. The prioritization is more useful to identify bridges prioritized between 23 and 61, as these structures will certainly need more investment and evaluation over the comprehensive planning process (2045).

Planning-Level Cost Assumptions

Planning-level cost assumptions were developed for bridge replacements. Bridge cost was developed using the following:

► National Bridge Inventory information regarding length and deck width.

► Deck width for bridges was only adjusted with direction from the Clay County Highway Department or if deck width seemed inadequate for the existing roadway.

Table 5D - Estimated Bridge Replacement Cost by Timeframe (source: Metro COG)

Bridge Ranks	Timeframe	Estimated Replacement Cost (2021 $)
1-22	Programmed	$ 17,493,121.64
23-55	2026-2030	$ 11,937,203.41
56-62	2031-2035	$ 14,115,263.66
62-93	>2035	$ 43,919,008.28

► Planning-level costs are based upon the *2019 Calendar Year - Bridge Cost Report* published by MnDOT's State Aid Bridge Office. The 2019 costs as found in the bridge cost report were inflated to 2021 dollars by assuming a four percent inflationary rate per year to estimate 2021 dollar amounts.

Bridge replacement costs are used only to signify structural investments and define the value of major infrastructure on the current system. The tool should be used to identify and prioritize bridge or structure rehabilitation in the short-, mid-, and long-term for Clay County and is not a policy direction to replace every bridge in the given timeframes. The prioritization list of bridges is subject to change as bridge inspections or other variables may change outside of Clay County's control.

Culverts

Clay County inspects 246 culvert structures. Metro COG has excluded these from the bridge inventory analysis because the culverts cost much less than bridges and are highly rated from a sufficiency rating standpoint.

Metro COG did not find any structurally deficient culvert structures outside of what Clay County already has programmed in the 2021-2025 construction program and found only one culvert that was load posted, that may need priority replacement in future construction improvement programs (CIP).

Airports

There are nine airports in Clay County including two general aviation airports (Hawley Municipal and Moorhead Municipal Airports) and six private airports (includes Barnesville Municipal Airport, which is publicly owned).

The Hawley Municipal Airport has one asphalt runway and is located two miles west of the City of Hawley. Based upon Federal Aviation Administration (FAA) data for a 12-month period ending June 30, 2019, there are 33 aircraft based on the field including 32 single-engine airplanes and one helicopter. Operations include approximately 24 aircraft a day on average with 53-percent of flights considered local and 47-percent of flights considered transient.

Cropdusting Operations Caption in Felton Township

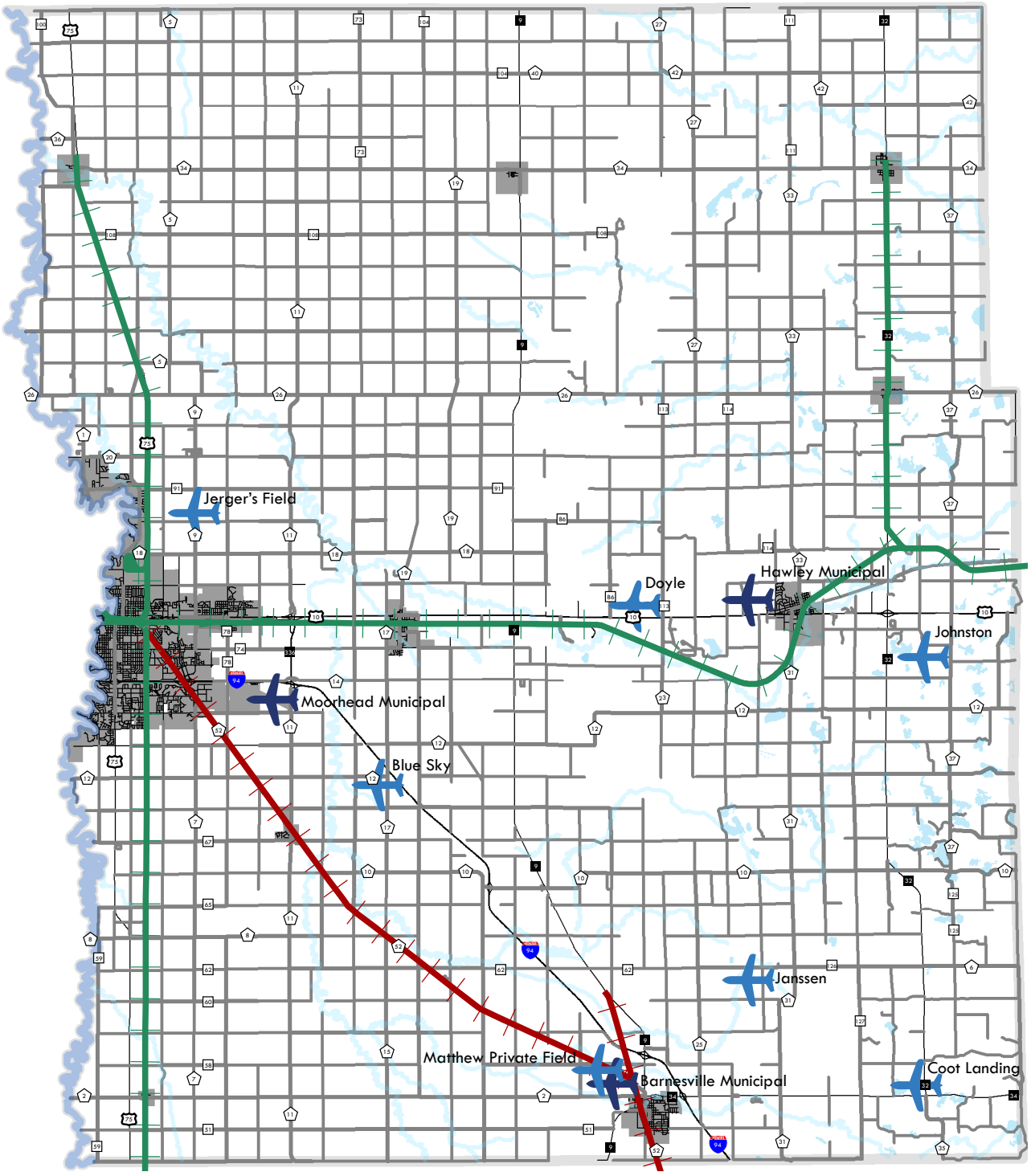


Figure 5.11 - Airports and Railroads

Railroads
- Burlington Northern Santa Fe
- Ottertail Valley

Airport Ownership
- Private
- Public

Source: MnDOT (2021)

86 CR
75 US Hwy
52 CSAH
94 Interstate
34 MN Hwy

N

CLAY COUNTY COMPREHENSIVE PLAN

The Moorhead Municipal Airport has one asphalt runway and is located two miles east of the City of Moorhead. Based on FAA data for a 12-month period ending May 31, 2018, there are 47 aircraft based on the field including 42 single-engine airplanes and five multiple-engine airplanes. Operations include approximately 25 aircraft a day on average with 67-percent of flights considered local and 33-percent of flights considered transient.

The Barnesville Municipal Airport has one grass runway and is located one mile northwest of the City of Barnesville. Based on FAA data for a 12-month period ending May 30, 2001 there are no aircraft based on the field and operations include approximately 200 transient flights a year.

Virtually all commercial flights in the region come in out of Hector International Airport, which is a civil and military airport that serves the Fargo Air National Guard, commercial passenger airlines (Allegiant Air, American Airlines, Delta Airlines, and United Airlines), and cargo carriers (Alpine Air Express, Encore Air Cargo, FedEx, Martinaire, and UPS Airlines). In 2019, which was the busiest year on record for the airport, Hector International Airport served more than 930,000 passengers, an 11-percent increase from 2018's 843,000 passengers. 2019 was also a record year for air cargo, with 6,203 aircraft landing with a weight of 391,019,295 pounds of cargo as compared to 4,607 aircraft landing with a weight of 275,305,359 pounds of cargo in 2018.

With the continued growth and air-traffic at Hector International, the demand for smaller general aviation airports is expected to continue to grow and may contribute to the surrounding local economy of Clay County.

Management Tools

The following tools will help provide safe and efficient operation of existing roadways and tools on how to expand, preserve, realign, maintain, and/or operate the roadway network throughout Clay County. The management tools also need to respond to the rural and urban character of the county to preserve different corridors for different types of character. The rural nature of Clay County is an important feature to residents, which makes the juxtaposition and transition of rural areas to urban areas all the more critical when analyzing the management strategies for corridors, including where the rural character should be preserved and how transportation management tools may assist in that.

Access Management

Access management guidelines are used to enhance safety and maintain the capacity and mobility of important transportation corridors. The guidelines balance these needs with ability to access private property. Standardized guidelines communicate the expectations of the permitting agencies to the developer, landowner, or organization that may request access to the County roadway network. The guidelines promote responsible access practices such as:

- Using existing access points
  - Providing adequate spacing to separate and reduce conflicts.
  - Supporting indirect access rather than direct access on arterial routes.
  - Aligning operations with the functional classification.

Table 5E - Access Spacing Standards (source Clay County)

Road Classification	Spacing Between Roadways (ft)		Spacing between Driveways (ft)		
	Full Access	Limited Access	Posted Speed Limit		
			< 35 MPH	35 - 45 MPH	> 45 MPH
Major Arterial	NA	NA	Not Permitted		
Minor Arterial	1320	660	330	660	660
Collector	660	330	160	330	330
Local Road	330	120	50	160	160

Clay County's access spacing guidelines conform to the MnDOT access management standards and such applicable standards developed for the FM Area through Metro COG's regional transportation planning process. These guidelines inform decisions about the proper location and type of access to County roadways as development or redevelopment occurs adjacent to County roadways or when county roadways are expanded or reconstructed. The County regulates access management through the Clay County Development Code and guidance from the Access Management Policy which was adopted in 2012.

► Applicability: Pursuant to Minnesota State Statute §160.02, §160.08, and §160.18 the County Board under the auspices of the statutorily defined "road authority" has the ability to designate, locate, improve, and maintain controlled-access highways for public use as deemed appropriate. Further, the road authority has the ability to design, regulate, restrict or prohibit access pursuant to terms and conditions as specified by the County. As noted in §160.02, this authorization applies to all "highways" under the County's purview, inclusive of County Highways, County State-Aid Highways, and township roads.

Specific Clay County standards, as found in the County's code or regulations, related to traffic control and access management include the following:

► District highway engineer or county highway engineer must approve the location and specifications of access points.

► Access points from state and county roads, streets, or highways may not be wider than 35-feet.

► Access points and internal subdivision roadway design shall conform with the standards of the MnDOT access management requirements and such applicable standards as developed for the FM Area through Metro COG.

► 4 of the 9 zoning districts in Clay County have prescribed standards for access point spacing that varies by functional classification.

► Access management plans are required for any commercial and industrial use in the County through all conditional use, rezoning, platting or subdivision requests adjacent to I-94, US 10, US 75, MN 336, MN 9, MN 32, or MN 34. Access management plans shall highlight the following:

- Locations and widths of proposed vehicular access drives
- Locations and widths of any internal roadways
- Locations and dimensions of parking and loading areas

- New subdivisions may not have direct access to an arterial roadway

Clay County Highway and Planning Departments may work together to update the access management policy and other regulatory code language. For example, the 35-foot access point maximum width listed previously, is greater than the maximum standard which the Highway Department has for access points (32-feet).

Clay County has built-in flexibility to review and approve access based upon the latest guidance from the Highway Department, Metro COG, and MnDOT technical staff. Highway Department staff are involved in decisions as part of official development procedures within the County which provides numerous touch-points at various stages of the development process to make recommendations and discretionary decisions about access management. This also allows the County to more easily update standards outside of the official code of regulations, which is a quicker and more efficient process than the process required to amend the County's regulatory language.

Highway Department and Planning staff indicated that the ordinance language and access management policy has been working well in recent years but also had a couple areas of concern. For example, the current access management guidance is not friendly to higher density or urban developments, contains ambiguous language in areas, and may not respond to farmers' exact want or need for field access.

The County should also consider minimizing unnecessary access to roadways and consolidating, as applicable, locations where improvements such as turn lanes, traffic signals, and roundabouts may mitigate traffic conflicts. In addition to spacing and dimensional standards, other principles of access management may be employed for example, Clay County may:

- Require a permit for change in use of an existing access

- Limit highway or roadway access to one access per parcel, property, or operation
- Require a shared access point with an adjacent parcel

- Stipulate that parcel access must occur at a particular location where sight distance is optimal

- As a condition of access permit approval, require removal of other pre-existing access points and may require the applicant to mitigate the traffic safety and operational impacts of the proposed new access through the installation of various roadway improvements including but not limited to turn lanes, traffic signals, or roundabouts.

Right-Of-Way Acquisition Strategies

When future expansion or realignment of a roadway is proposed, but not immediately programmed, Clay County should consider right-of-way acquisition strategies to reduce costs and maintain the feasibility of the proposed improvement. The most common strategies used to preserve right-of-way for future construction include advance purchase, eminent domain, planning and zoning, and official mapping. Before implementing any right-of-way preservation programs, the county should weigh the risks of proceeding without environmental documentation prior to purchase. If environmental documentation has not been completed, agencies risk preserving a corridor or parcel that has associated environmental issues.

Advance Purchase

One of the best ways to preserve right-of-way is to purchase it. Unfortunately, Clay County may not have an abundance of funds to purchase right-of-way in advance, and the public benefit of purchasing right-of-way is not realized until the roadway or transportation facility is built. Typically, local jurisdictions including Clay County use other corridor acquisition methods prior to roadway construction and then purchase the right-of-way at the time of design and construction however, if there is confidence about roadway expansion or preservation of right-of-way, advance purchase can save money on right-of-way acquisition costs in the long-term.

Eminent Domain

The county can also acquire lands by eminent domain, including quick-take and condemnation actions, if good faith negotiations are not successful.

The use of eminent domain is used only when other negotiations to acquire property have failed, and is guided by Minnesota Session Laws - 2006, Regular Session, Chapter 214 - S.F.No. 2750.

Planning and Zoning

Through Clay County's zoning authority there are a number of tools for preserving right-of-way for transportation projects. These tools include:

- Zoning - If the property is in a very low-density area (e.g., agricultural district), the County should try to maintain the existing zoning classification. A lower zoning classification limits the risk for significant development to occur before funding becomes available for roadway construction.

- Platting and Subdivision Regulations - Local platting and subdivision regulations give Clay County the authority to consider future roadway alignments during the platting process. The County currently uses the official land development processes to influence plat configuration and the location of proposed roadways. In most instances, planning and highway staff work with developers to configure a plat that accommodates the landowners' and developers' desires and conform to the long-term community vision and applicable plans, such as the Clay County Comprehensive Plan. Clay county requires right-of-way dedication as part of the platting and subdivision process.

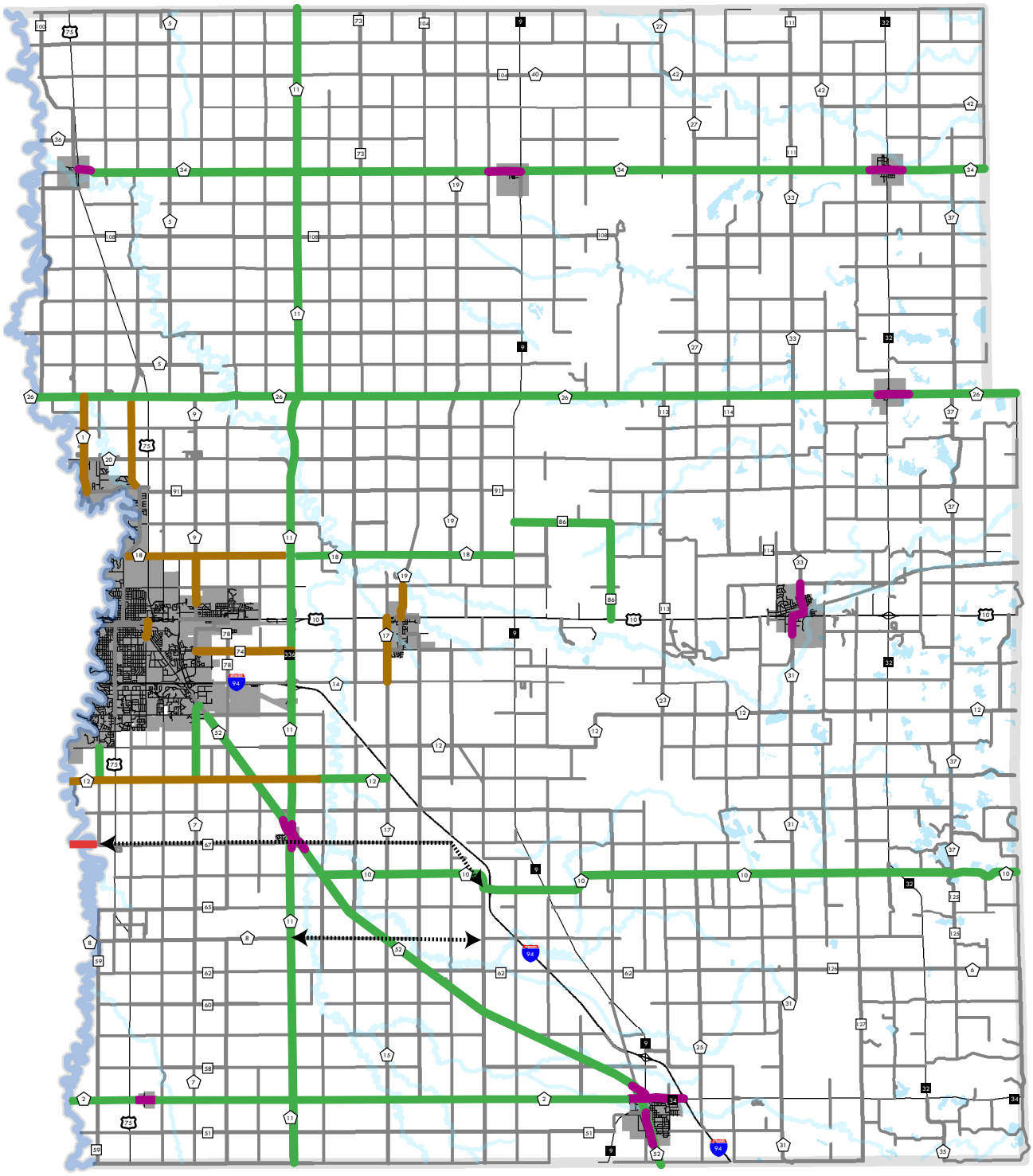


Figure 5.12 - Corridor Management

Corridor Typologies

- Rural Preservation
- Urbanizing
- Small Town
- Future Arterial Bridge Crossing
- Corridor Preservation

Source: Metro COG (2021)

- 86 CR
- 75 US Hwy
- 52 CSAH
- 94 Interstate
- 34 MN Hwy

N

CLAY COUNTY COMPREHENSIVE PLAN

- Transfer of Development Rights - The county may consider using this tactic to give developers certain flexibility beyond the standard requirements of the development code if the developer transfers right-of-way to Clay County for the future roadway(s) or infrastructure needed by the development. This incentivizes the developer to dedicate necessary right-of-way that the County may require.

Official Mapping

Clay County can adopt an Official Map, as defined by MN State Statute §432.352, that identifies existing County roads and County state-aid highways, proposed future County roads and highways, the area needed for widening existing county roads and highways, and existing and future state trunk highway rights-of-way. An Official Map may also show the location of existing public land and facilities and other land needed for future public purposes, including public facilities such as parks, playgrounds, schools, and other public buildings, civic centers, airports, and travel service facilities. After a public hearing and official adoption process, the jurisdiction can incorporate the Official Map into the County development code.

The official mapping process allows public agencies to have finer control over proposed development within an identified area that may influence development on adjacent parcels. This process also protects the County from paying for unpermitted structures that may be located within future identified public facilities.

The official mapping process should only be used for preserving key corridors in areas with significant growth pressures. In some cases, official mapping of key parcels/ corridors may increase the agency's ability to find sources of funds to purchase at-risk parcels.

Right-of-way acquisition is typical for major transportation projects and Clay County should employ strategies to prepare for major construction projects. In the short-term for example, right-of-way acquisition strategies should be pursued for the 80th Ave S/CR 67 Red River bridge crossing, Heartland Trail, and identified future arterial corridors.

Corridor Management Strategies

Transportation from a Countywide perspective is critical to connecting communities and supporting economic development. Three corridor management strategies are provided below and take into consideration the juxtaposition of the rural character of Clay County and the nearby urban FM Area. It is important to Clay County residents that the rural character is preserved and any transition of corridors to become urbanized should be strategically considered and analyzed. Figure 5.12 shows which roadways have been identified by Clay County and Metro COG for special roadway management considerations in the future.

Rural Preservation Corridors

Rural corridors are evaluated for a series of issues focusing most specifically on surface and pavement management. This analysis provides recommendations and considerations for potential pavement management strategies as well as possible considerations for conversion of various roads from township to county jurisdiction, or vice versa.

Management strategies for rural corridors are very different than the considerations of urbanizing corridors in Clay County. The County will be responsible for these rural corridors well beyond the planning horizon of the transportation plan and will need to develop a fiscally sustainable plan to ensure proper operations and maintenance. A key consideration will be surface recommendations based upon daily traffic, heavy vehicle usage, current pavement condition, and regional significance.

CR 86 - from US 10 to 43rd Ave N and to MN 9

CR 86 is a gravel roadway which connects to 43rd Ave N and also carries a lot of truck freight traffic to and from aggregate mining operations and Taracon Precast. Freight traffic generated near this segment tends to travel south toward US 10 but may also travel west toward MN 9.

CR 86 is a gravel roadway from MN 9 to 170th St N and 43rd Ave N to 15th Ave N, south of 15th Ave N is paved.

Between 15th Ave N and US 10, Clay County maintains CR 86 as an asphalt 2-lane with paved shoulders. At the intersection with US 10, CR 86 has a right turn lane for southbound freight traffic to turn west on US 10.

US 10 also has a 1,500-foot acceleration lane to accommodate westbound freight vehicles turning west on US 10.

- **Issues**
  - Gravel roadways in Clay County have a 5-ton per axle weight restriction in the spring.
  - Growing freight traffic in this area may increase maintenance and other infrastructure projects in the area.
  - Left-hand turns for southbound traffic to turn east on US 10 are significantly more challenging, as vehicles including commercial freight vehicles must cross a median and then turn left onto US 10, merging into the 'fast' travel lane on US 10 which has a speed limit of 65 MPH.

- **Opportunities**
  - Continue to monitor freight traffic and related maintenance and lifecycle costs on this roadway segment. The County should analyze if and when it may ever be more cost effective to pave part or all of CR 86, likely when freight traffic or other industrial operations grow to a point where it makes more fiscal sense to pave.
  - Partner with MnDOT to implement a project at the CR 86 and US 10 intersection, especially for left turns onto eastbound US 10, to increase multi-modal safety of freight and other modes of traffic.
  - Partner with MnDOT to implement a project at the CR 86 and MN 9 intersection to increase multi-modal safety of freight and other modes of traffic.

CSAH 10 - from CSAH 52 to Becker County

CSAH 10 is an asphalt roadway which connects CSAH 52 to I-94, where there is an existing interchange, and extends eastward into Becker County. CSAH 10 provides a critical and popular east-west route across Clay County.

The paved 2-lane collector roadway also has paved shoulders which vary in width from 4-feet wide to 8-feet wide. The interchange at I-94 and the east-west connection to popular lake destinations in eastern Clay and western Becker Counties makes CSAH 10 an important multi-modal corridor that accommodates freight, agricultural, and passenger vehicles.

- **Issues**
  - Clay County Highway Department is aware of some excessive speeds on CSAH 10, especially for eastbound vehicles during the summer months.
  - There have been three (3) serious injury crashes and numerous other less severe crashes on CSAH 10 that occurred between 2016 and 2020.
  - There are skewed intersections at major roadways including CSAH 52, MN 9, and MN 32 which may contribute to higher crash rates.
- **Opportunities**
  - As a collector roadway, Clay County should continue to regulate driveway access spacing pursuant to the Development Code. The balance between access and mobility should probably lean more towards mobility on CSAH 10.
  - The interchange with I-94 and continuity from the eastern boundary of Clay County to CSAH 52 provides a critical east-west route for residents, freight, and movement of agricultural equipment.
  - 8-foot paved shoulders should be implemented and maintained in future paving projects on CSAH 10. The corridor has also been identified as a priority investment route for bicyclists in the *State Bicycle System Plan*.
  - Safety improvements should be considered at skewed intersections and to address speeds along the corridor. Sightlines, signage, and stopping distances may be utilized to proactively identify locations for safety improvements along CSAH 10.
  - Preserve and prepare CSAH 10 for a future arterial roadway and bridge crossing of the Red River which may be located on the CR 67/80th Ave S alignment.

3rd St S - from CSAH 12 to CR 75

3rd St S is a gravel roadway just east of the Bluestem Amphitheater, just south of Moorhead's southern municipal boundary.

There is virtually no development or access points along the roadway with the exception of field access for agricultural land on either side of the corridor.

3rd St S is a popular route for traffic to and from the Bluestem Amphitheater, especially for people coming and going from CSAH 12. The roadway may also be used for Moorhead neighborhoods directly north of CR 75/50th Ave S.

► **Issues**

• Event traffic from Bluestem amphitheater may be causing excessive speeds and more general maintenance than would otherwise be necessary for this Clay County maintained gravel road. Depending upon the event, the traffic volumes (AADT) can triple on days where there is an event at the Bluestem Amphitheater.

• This area will likely experience long-term development pressure from the City of Moorhead.

► **Opportunities**

• Continue to monitor event traffic and related maintenance and lifecycle costs on this roadway segment. The County should analyze if and when it may be more cost effective to pave part or all of this portion of 3rd St S, likely when safety concerns, traffic volumes or development grows to a point where it makes more fiscal sense to pave.

• Clay County should proactively address safety concerns and potential intersection improvements at 3rd St S and CSAH 12.

• If and when paving or development occurs, Clay County should collaborate with Moorhead to turnover jurisdictional ownership to the City.

CSAH 7 - from CSAH 12 to CSAH 52

CSAH 7 is a paved 2-lane roadway with wide shoulders from CSAH 52 to just south of 41st Ave S. There is a mix of single-family residential development and agricultural land in this portion of CSAH 7 which creates a lot of multi-modal usage of the corridor from agricultural and passenger vehicles.

From just south of 41st Ave S to CSAH 12, CSAH 7 is a gravel roadway with very few access points aside from farmsteads and agricultural fields.

► **Issues and Opportunities**

• CSAH 7 is an interesting corridor in that it does have a mix of urban residential and agricultural land uses but is not located in Moorhead's immediate growth area.

• Clay County should continue to consider and preserve the agricultural character and multi-modal aspects of CSAH 7 until such time when Moorhead's urban area begins to grow southeast, which may be further away than the planning horizon of this plan (2045).

CSAH 12 - from CR 63 to CSAH 17

CSAH 12 is a critical east-west corridor near the urban FM Area, from CSAH 17 on the east, to the CSAH 12/52nd Ave S bridge over the Red River on the west. The surrounding land use is all agricultural however, the roadway provides a critical connection for multi-modal traffic including commuting passenger, agricultural, and freight vehicles.

► **Issues and Opportunities**

• CSAH 12 is unpaved from CR 63 to CSAH 17 but was prepared for paving several years ago before the project fell through. By paving the last segment of CSAH 12 and considering access management standards pursuant to the Development Code, CSAH 12 would increase multi-modal mobility between CSAH 17, a major north-south corridor, across the Red River, and into the urban FM Area.

• The agricultural character of CSAH 12 should be preserved.

• Provides a great option for Clay County residents traveling to and from the urban FM area, as bridge crossings of the Red River are few and far between.

CSAH 26 - from Red River to Becker County

CSAH 26 is a paved 2-lane roadway with paved shoulders that runs across the entirety of Clay County from and across the Red River on the west to Becker County on the east. CSAH 26 accommodates a lot of multi-modal agricultural, freight, and passenger vehicle traffic and provides mobility across the entire County. Seasonally, lake related traffic can be seen going to and from eastern Clay County and western Becker County on CSAH 26.

CSAH 26 goes through the City of Hitterdal on the eastern side of the County and different strategies should be applied. CSAH 26 - Hitterdal information can be found in the Small Town Corridors subsection.

► **Issues**

• Clay County Highway Department is aware of some excessive speeds on CSAH 26, especially for eastbound vehicles during the summer months.

• There have been two (2) severe crashes, one of which was a fatal accident, and numerous other less severe crashes on CSAH 26 that occurred between 2016 and 2020.

• Freight traffic may continue to grow, especially as FM Diversion construction activities continue to increase.

► **Opportunities**

• As a collector roadway, Clay County should continue to regulate driveway access spacing pursuant to the Development Code. The balance between access and mobility should lean more towards mobility on CSAH 26 as it provides a critical east-west connection across the entire County.

• 8-foot paved shoulders should be implemented and maintained in future paving projects on CSAH 26. The corridor has also been identified as a priority investment route for bicyclists in the *State Bicycle System Plan*.

• Safety improvements should be considered at any skewed intersections, to address speeds along the corridor, and consider multi-modal safety and mobility including freight and agricultural equipment. Sightlines, signage, and stopping distances may be reassessed to proactively identify locations for safety improvements along CSAH 26.

CSAH 52 - from Moorhead to Wilkin County

CSAH 52 is a paved 2-lane roadway with paved shoulders that runs diagonally across Clay County from Moorhead southern city limits and Wilkin County. CSAH 52 accommodates a lot of multi-modal agricultural, freight, and passenger vehicle traffic and provides mobility across the entire southern portion of the County.

CSAH 52 goes through the Cities of Sabin and Barnesville, providing a critical connection to the urban FM Area however, different strategies should be applied to the portions of CSAH 52 that run through small towns. CSAH 52 - Sabin and Barnesville information can be found in the Small Town Corridors subsection.

- **Issues**
  - Given the proximity to the Ottertail Valley Railroad, CSAH 52 runs diagonally across Clay County, creating numerous skewed intersections. Roads intersecting CSAH 52 have at-grade railroad crossings just to the east of the roadway.
  - CSAH 52 is also a very popular bicycle route because of the wide paved shoulders and small town destinations in Sabin and Barnesville.
  - Given the proximity to Moorhead, Sabin, and Barnesville, there may be growth and development near CSAH 52 in City growth areas
- **Opportunities**
  - As a collector roadway, Clay County should continue to regulate driveway access spacing pursuant to the Development Code.
  - The balance between access and mobility should lean more towards mobility on CSAH 52 as the roadway provides a critical connection between the FM urban area, small towns, and rural Clay County.
  - Wide paved shoulders should be maintained on CSAH 52 to promote multi-modal safety and contribute to safety of bicyclists on the roadway. Other bicycle safety enhancements may also be considered including, wider pavement striping, intersection improvements, lighting, and/or separate bicycle facility.
  - Safety improvements should be considered at skewed intersections with higher cross-traffic volumes. Any improvements should consider multi-modal safety and mobility including freight, agricultural equipment, bicyclists, and passenger vehicles.
  - Coordinate with Moorhead, Sabin, and Barnesville on CSAH 52's transition in growth areas to address not only access management and preserve the roadway as a collector roadway but to also address speeding and other safety concerns along CSAH 52 as it enters municipal boundaries.

CSAH 34 - from US 75 to Becker County

CSAH 34 is a paved 2-lane roadway with paved shoulders that runs across the entirety of Clay County from Georgetown on the west to Becker County on the east. CSAH 34 accommodates a lot of multi-modal agricultural, freight, and passenger vehicle traffic and provides mobility across the entire County.

CSAH 34 goes through the Cities of Georgetown, Felton, and Ulen, providing a critical east-west connection from small towns and other rural parts of Clay County however, different strategies should be applied to the portions of CSAH 34 that run through small towns. CSAH 34 - Georgetown, Felton, and Ulen information can be found in the Small Town Corridors subsection.

► **Issues and Opportunities**

• Freight traffic may continue to grow, especially as FM Diversion construction activities continue to grow.

• Multi-modal improvements may increase safety of agricultural, freight, passenger, and bicycle traffic on CSAH 34.

• As a collector roadway, Clay County should continue to regulate driveway access spacing pursuant to the Development Code. The balance between access and mobility should lean more towards mobility on CSAH 34 as the roadway provides a critical connection across northern Clay County.

• Coordinate with Georgetown, Felton, and Ulen on CSAH 34's transition near City limits to address not only access management and preserve the roadway as a collector roadway but to also address speeding and other safety concerns along CSAH 34 as it enters municipal boundaries.

CSAH 11 - from Wilkin County to Norman County

CSAH 11 is a paved 2-lane roadway with paved shoulders that runs across the entirety of Clay County from Wilkin County on the south to Norman County on the North. Portions of the roadway have paved shoulders wider than 4-feet but not all shoulders are considered bicycle-friendly as some sections of CSAH 11 have shoulders less than 4-feet wide. The roadway provides critical north-south mobility across the entire County.

Between I-94 and US 10, CSAH 11 becomes MN 336 and has interchanges at said principal arterial roadways.

► **Issues and Opportunities**

• Multi-modal improvements including wider paved shoulders may increase safety of agricultural, freight, passenger, and bicycle traffic on CSAH 11.

• As a collector roadway, Clay County should continue to regulate driveway access spacing pursuant to the Development Code. The balance between access and mobility should lean more towards mobility on CSAH 11 as the roadway provides a critical connection across the entirety of Clay County.

• Clay County should continue to monitor future arterial roadway routes or alignments and how those may impact traffic to and from any proposed arterial alignment and MN 336/CSAH 11.

CSAH 18 - from CSAH 11 to MN 9

CSAH 18 is a paved 2-lane roadway with paved shoulders that runs from CSAH 3 on the west to MN 9 on the east. The paved shoulders are wider than 4-feet. The roadway provides east-west mobility to and from rural areas of the County and north Moorhead.

East of CSAH 11, rural preservation tactics should be applied to CSAH 18.

- **Issues and Opportunities**
  - Pavement management strategies should continue to be maintained and an assessed to improve the overall quality of Clay County's roadway transportation system.
  - As a collector roadway, Clay County should continue to regulate driveway access spacing pursuant to the Development Code. The balance between access and mobility should lean more towards mobility on CSAH 18 as the roadway provides a critical connection across the entirety of Clay County.
  - Field access management and rural intersection safety strategies should balance agricultural operations, safety, and mobility on this segment of CSAH 18.
  - Clay County should continue to monitor future MN 336/CSAH 11 improvements and how that may impact traffic volumes on CSAH 18.

CSAH 2 - from Red River to Barnesville

CSAH 2 is a paved 2-lane roadway with paved shoulders that runs across the entirety of Clay County from and across the Red River on the west to Becker County on the east. However, east of Barnesville CSAH 2 becomes MN 34. CSAH 2 accommodates multi-modal agricultural, freight, and passenger vehicle traffic and provides mobility across the entire County. Seasonally, lake related traffic may be seen going to and from eastern Clay County and western Becker County on CSAH 2.

CSAH 2 goes through the City of Comstock in the southeast corner of the County and different strategies should be applied. CSAH 2 - Comstock information can be found in the Small Town Corridors subsection.

- **Issues**
  - Because of the mobility CSAH 2 provides across the County, some excessive speeds may be occurring on CSAH 2.
  - There was one severe crash at the intersection of CSAH 2 and CSAH 11, and a few other less severe crashes on CSAH 2 that occurred between 2016 and 2020.
  - Freight traffic may continue to grow, especially as FM Diversion construction activities ramp up.
  - Pavement management strategies should continue to be employed and an assessment of the overall quality of Clay County's roadway transportation system.

► **Opportunities**

• As a collector roadway, Clay County should continue to regulate driveway access spacing pursuant to the Development Code. The balance between access and mobility should lean more towards mobility on CSAH 2 as it provides a critical east-west connection across the entire County.

• Safety improvements may be considered at the intersection of CSAH 2 and CSAH 11 and other strategies may be implemented to address speeds along the corridor, and consider multi-modal safety and mobility including freight and agricultural equipment. Sightlines, signage, and stopping distances may be reassessed to proactively identify locations for safety improvements along CSAH 2.

• Field access management and rural intersection safety strategies should balance agricultural operations, safety, and mobility on this segment of CSAH 18.

• Pavement management strategies should continue to be employed and an assessment of the overall quality of Clay County's roadway transportation system.

Urbanizing Corridors

Urbanizing corridors are evaluated based on a series of transportation needs and factors such as development pressure, connectivity, and proximity to the FM Area or other cities within Clay County.

Urbanizing corridors are analyzed in terms of strategic development to ensure a smooth transition of these corridors from a rural to urban context. The analysis of these urbanizing corridors considers future roadway improvements and considerations for potential turnback of these corridors to adjacent urban communities. As will be shown, Clay County is likely facing several significant investment decisions in urbanizing corridors some of which should consider the rural character of the county and some of which should consider the urban fabric of the FM Area. Urbanizing corridors are those nearest to the cities of Moorhead and Dilworth in the Fargo-Moorhead Urbanized Area.

Some urbanizing corridors are candidates for turn back to a city road based on urban growth. In a typical turn back process, the County pays to improve the roadway to County standards or contributes that value to the City as part of a larger urban scale reconstruction if the roadway is to be improved beyond County standards (i.e. curb and gutter, sidewalks). After said improvements, the County gives jurisdictional authority including ownership and maintenance responsibility to the urban community. In this case, urban communities refers to Moorhead but is likely to include Dilworth when it's population exceeds 5,000. However, in the case of Dilworth, there may be instances where major scale investments are made on various County roads without the turnback of those corridors to the City.

Since 2004, Clay County has turned over 7.27 miles of roadway to the City of Moorhead. Over the life of this plan, there are likely to be multiple segments of County roads that will require significant investment and consideration for turning those corridors back to an adjacent city. Based on guidance from the County, a prioritized list of urbanizing corridors was evaluated regarding future potential investment needs and consideration for future turnback to a city.

The following list of roadways are those which the County should coordinate very closely (Planning and Highway Departments) to get a sense of development pressure and adjacent City or County growth.

CSAH 1 - from CSAH 22 to CSAH 26

Clay County is repaving CSAH 1 from CSAH 20 to CSAH 26 in 2022 and 2023. As a popular bicycle route, wider paved shoulders should be considered to enhance safety on CSAH 1. Part of the roadway is within Moorhead City limits and development pressure in the area is higher than other areas of Clay County. The City should continue to monitor access management and multi-modal safety, including bicycle and pedestrian infrastructure to accommodate residents in this area and provide greater mobility between the FM urban area and this part of Clay County.

The County should continue monitoring subdivisions and development near CSAH 1 and collaborate with City of Moorhead regarding when roadway urbanization and jurisdictional turnover may occur.

CSAH 9 - from Dilworth to CSAH 18

Although not in Dilworth's short-term growth area, CSAH 9 will likely see development pressure long-term due to it's proximity to Dilworth's residential and commercial growth areas.

The County should continue monitoring subdivisions and development near CSAH 9 and collaborate with the City of Dilworth regarding when roadway urbanization and jurisdictional turnover may occur.

12th Ave S/CR 74 - from 40th St S to MN 336

12th Ave S runs directly through Moorhead's growth area where there is a lot of current development pressure. Being on the edge of the urban area, 12th Ave S will likely continue to see urban development that will transition the character from agricultural to single- or multiple-family land use. East of CR 78, 12th Ave S becomes a low maintenance field access road. However, it does have access onto MN 336.

12th Ave S right-of-way should be preserved for a future Minor Arterial or collector roadway. Long-term, the roadway will enhance mobility through Moorhead, Dilworth (long-term growth area), and even Glyndon (short-term growth area) east of MN 336, providing another option to getting into and out of the FM Area.

The County should continue to monitor traffic volumes and growth near 12th Ave S, preserve right-of-way as necessary for future projects, and continue to regulate access management with a priority on mobility.

The County should continue to collaborate with City of Moorhead, Dilworth, and Glyndon regarding when roadway urbanization and jurisdictional turnover may need to occur but may consider paving the roadway sooner rather than later as a strategic roadway providing mobility to and from the Minnesota-side of the urban FM area and rural Clay County.

CSAH 17 - from CSAH 14 to US 10

CSAH 17 runs adjacent to the City of Glyndon's current growth area south of US 10. CSAH 17 ultimately provides mobility to Clay County residents between Glyndon/US 10, I-94, and CSAH 52.

The County should continue to collaborate with the City of Glyndon regarding access management and prioritize mobility along CSAH 17.

CSAH 19 - from US 10 to CR 84

CSAH 19 runs north of Glyndon and may experience some development pressures in the long-term.

Clay County should continue to collaborate with the City of Glyndon on access management and any development that may occur near CSAH 19 in the long-term.

CR 82 - from Main Ave SE to US 10

CR 82, from Main Ave SE to US 10 is a fully urbanized roadway that the County owns however, it is not clear why the County still has jurisdictional ownership of the roadway.

Clay County should coordinate with the City of Moorhead about how to turnover ownership of the roadway to the City. This stretch is also part of the 20th/21st St grade separation project and it is unclear as to why jurisdictional turnover has not happened yet. Figuring out this turnover should be a priority for the County.

CSAH 12 - from Red River to 1 Mile east of CSAH 11

CSAH 12 is a paved 2-lane roadway with paved shoulders that runs across Clay County from the Red River (connects to 52nd Ave S in Fargo's urban area) on the west to Becker County on the east; however, between 1 mile east of CSAH 11 and CSAH 17, CSAH 12 is a gravel road. From the Red River to 1 mile east of CSAH 11, CSAH 12 accommodates multi-modal agricultural, freight, and passenger vehicle traffic and provides mobility across the entire County.

CSAH 12 has a bridge crossing of the Red River, west of which becomes 52nd Ave S in Fargo. Rapid growth in Fargo north and south of 52nd Ave S has increased traffic along CSAH 12 from the Red River to CSAH 11. CSAH 12 is also in close proximity to Moorhead's long-term growth area which means the roadway will likely see development pressure as time goes on.

Between the Red River and US 75, CSAH 12 is classified as a minor arterial; otherwise the roadway is classified as a collector.

- **Issues**
  - Because of the mobility CSAH 12 provides across the County and to and from the FM urban area, growing traffic volumes are contributing to multi-modal safety concerns.
  - There have been numerous minor crashes on CSAH 12 that have occurred between 2016 and 2020.

- Freight traffic may also continue to grow, especially as FM Diversion construction activities ramp up.

- Development pressure will continue to mount as Moorhead takes steps to develop the southerly growth area however, this should be considered a long-term possibility that may not occur within the planning horizon of this plan (2045).

► **Opportunities**

- As a minor arterial and collector roadway, Clay County should continue to strictly regulate driveway access spacing pursuant to the Development Code. The balance between access and mobility should lean more towards mobility on CSAH 12 even as development pressure mounts as it provides a critical east-west connection across the entire County and Red River bridge crossing.

- Safety improvements may be considered at other major intersections of CSAH 12, and other strategies may be implemented to address speeds along the corridor, and consider multi-modal safety and mobility including freight and agricultural equipment. Sightlines, signage, and stopping distances may be reassessed to proactively identify locations for safety improvements along CSAH 2.

- Field access management and rural intersection safety strategies should balance agricultural operations, safety, and mobility on this segment of CSAH 12.

- Given the close proximity to the FM urban area and wide paved shoulders on CSAH 12, the roadway is popular among bicyclists traveling to and from the FM urban area and rural Clay County. The County may consider strategies that enhance bicycle and pedestrian safety along the roadway, especially in future projects.

Clay County should continue to collaborate with the City of Moorhead on access management and any development that may occur near CSAH 12 in the long-term.

CR 96 - from CSAH 22 to CSAH 26

CR 96 runs near the City of Moorhead's short- to mid-term growth area north of CSAH 22 and west of US 75. CR 96 is classified as a local roadway and provides less mobility to and from popular destinations across Clay County.

Clay County should continue to regulate driveway access spacing pursuant to the Development Code. The balance between access and mobility may lean more towards access on CR 96 as development pressure may increase sooner here than other locations in the County.

Given the close proximity to the FM urban area, CR 96 is popular among bicyclists traveling to and from the FM urban area and rural Clay County. The County may consider strategies that enhance bicycle and pedestrian safety along the roadway as there is currently no paved shoulder just north of CSAH 22.

The County should continue to collaborate with the City of Moorhead regarding access management and future development along CR 96.

CSAH 18 - from CSAH 3 to CSAH 11

CSAH 18, from CSAH 3 to CSAH 11, runs adjacent to the City of Moorhead and Dilworth's short- to mid-term growth areas. This segment of CSAH 18 is classified as a collector roadway and provides less mobility to and from popular destinations in the FM urban area.

Clay County should continue to regulate driveway access spacing pursuant to the Development Code. The balance between access and mobility may lean more towards access on CSAH 18 as development pressure is likely to increase sooner here than other locations in the County. The balance between access and mobility may be tricky for example, because CSAH 18 does provide strategic mobility from northern growth areas of Moorhead and Dilworth to CSAH 11/MN 336.

Safety also appears to be a concern, with three (3) severe crashes including one (1) fatality between 2016 and 2020. Multi-modal safety strategies should be strongly considered on this roadway.

Given the close proximity to the FM urban area and paved shoulders on CSAH 18, the roadway is popular among bicyclists traveling to and from the FM urban area and rural Clay County. The County may consider strategies that enhance bicycle and pedestrian safety along the roadway, especially in future projects.

The County should continue to collaborate with the City of Moorhead and Dilworth regarding access management and future development near CSAH 18.

Small Town Corridors

Similar to urbanizing corridors however, at a smaller scale and with rural or small town character preservation in mind. These critical corridors are those which run through incorporated areas of Clay County outside of the urbanized FM Area. Context sensitive solutions should be pursued with cooperation and collaboration from applicable small town jurisdictions when considering transportation projects in these places to help improve the health, safety, and welfare of rural communities in the County. Transportation projects through small communities of Clay County may need to respond to multi-modal users, efficiency and mobility, safety, land use, and economic development. Some of the smaller communities have identifiable downtown commercial districts, historical areas, and/or commercial or agricultural operations (i.e. grain elevator) that may be more susceptible to impacts of transportation projects.

Small town corridors are evaluated for a series of issues focusing most specifically those aforementioned considerations listed in the paragraph above. This analysis provides additional basic considerations for projects on County-owned roadways in small town jurisdictions.

CSAH 34 Georgetown

- Freight (elevator)
- Agriculture
- Access Management

CSAH 34 Felton

- Freight (elevator)
- Agriculture
- Access Management
- Speed (transition)
- Safety (MN 9 intersection)

CSAH 34 Ulen

- School Safety (Ulen-Hitterdal School District)
- Downtown Commercial District
- Freight (elevator)
- Access Management
- Agriculture
- Bike and Pedestrian Facilities
- Speed (transition into City limits)
- Safety (MN 32 intersection, at-grade railroad crossing, multi-modal considerations)

CSAH 26 Hitterdal

- Freight (elevator)
- Agriculture
- Access Management
- Bike and Pedestrian Facilities (State priority route shown on CSAH 26)
- Speed (transition into City limits)
- Safety (MN 32 intersection, at-grade railroad crossing, multi-modal considerations)

CSAH 31 Hawley

- Freight (commercial/industrial land uses)
- Access Management
- Speed (transition into City limits)
- Safety (multi-modal considerations)

CSAH 33 Hawley

- Clay County recently completed a project here in collaboration with the City of Hawley to add some context sensitive design considerations in the City's downtown commercial district.

CSAH 52 Barnesville

- Downtown Commercial District
- Freight (commercial/industrial land uses)
- Access Management
- Agriculture
- Bike and Pedestrian Facilities
- Speed (transition into City limits)
- Safety (skewed intersections, MN 9 intersection, multi-modal considerations)

CSAH 2 Barnesville

- Freight (commercial/industrial land uses)
- Access Management
- Agriculture
- Bike and Pedestrian Facilities
- Speed (transition into City limits)
- Safety (multi-modal considerations)

CSAH 2 Comstock

- Freight (elevator)
- Access Management
- Agriculture
- Bike and Pedestrian Facilities
- Speed (transition into City limits)
- Safety (At-grade railroad crossing, multi-modal considerations)

CSAH 52 Sabin

- Downtown Commercial District
- Freight (elevator, commercial/industrial land uses)
- Access Management
- Agriculture
- Bike and Pedestrian Facilities
- Speed (transition into City limits)
- Safety (multi-modal considerations)

The list of roadways identified in the corridor management strategies section is not exhaustive however, these are roadways Clay County should continue to closely monitor over time to ensure successful operations and maintenance of a high quality transportation system, and preserve the County's rural character.

CSAH 11 Sabin

- Downtown Commercial District
- Freight (elevator, commercial/industrial land uses)
- Access Management
- Agriculture
- Bike and Pedestrian Facilities
- Speed (transition into City limits)
- Safety (at-grade railroad crossing)

Future Arterial Bridge Crossing (80th Ave S/CR 67)

As Clay County and the FM Area have grown, numerous studies and discussions about a future bridge over the Red River south of I-94 have occurred.

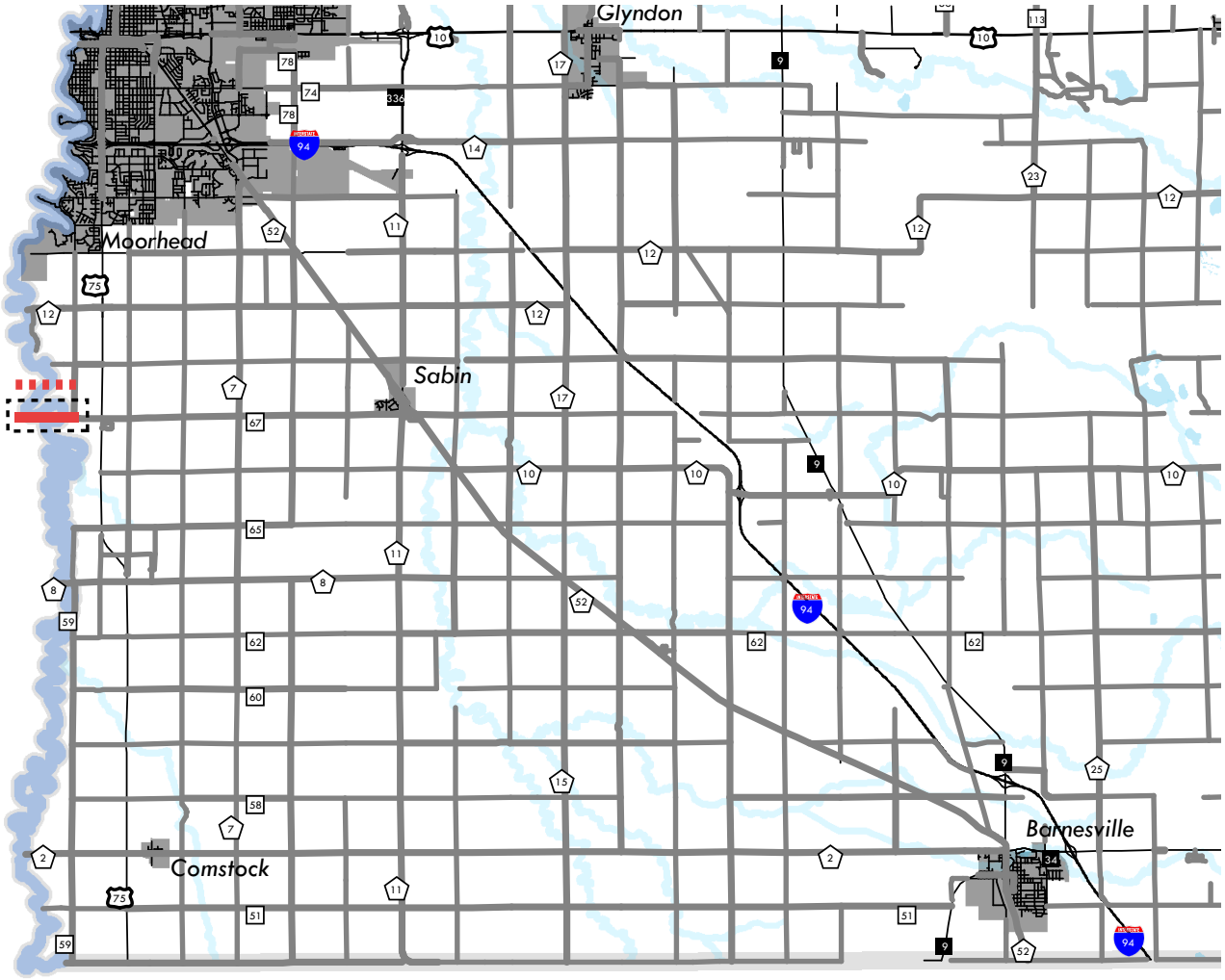


Figure 5.13 - Future Arterial Bridge Alignment

Recommended Locations (Various Planning Studies)

South Side Red River Bridge and Corridor Study (2001)
Priority
Alt. Priority

Metro 2040: Mobility for the Future (MTP, 2014)
New Bridge
Alt. Location

Metro Grow (MTP, 2019)
Preserve ROW

76th Ave S Corridor Study (2020)
Preserve ROW

Source: Clay County (2021)
86 CR
75 US Hwy
52 CSAH
Interstate
34 MN Hwy

N

CLAY COUNTY COMPREHENSIVE PLAN

The future bridge crossing would carry an arterial roadway that would enhance mobility not only to Clay County, but the region as a whole. Discussions on the future bridge alignments date back decades but are critical to plan for in the region given the natural occurring conditions of the Red River including but not limited to flooding, soil properties, and rapid growth which have impeded the process.

Currently, Clay County has a bridge on CSAH 12, a minor arterial, 3-miles south of I-94, and the nearest Red River bridge crossing for many residents of Moorhead living in the southern growth area of the City. Further south, Clay County has a bridge on CSAH 8, a major collector, 5-miles south of CSAH 12. Clay County has been involved in numerous discussions about a future arterial bridge to increase mobility across the region, especially between I-94 and I-29.

Clay County's preferred alignment for a new arterial bridge crossing is 80th Ave S/ CR 67, 2-miles south of the CSAH 12 bridge and 3-miles north of the CSAH 8 bridge. Strategically, an 80th Ave S bridge would greatly increase mobility to and from Sabin, CSAH 52, and is 1-mile north of the CSAH 10 interchange with I-94. West of the Red River, 80th Ave S aligns with 76th Ave S, a future arterial roadway that is also expected to have an interchange with I-29 and is conceptually planned to cross the Red River Diversion Channel.

Figure 5.13 shows proposed alignments from previous planning efforts for a future arterial bridge crossing and the priority location from Clay County's perspective. Property acquisition and right-of-way preservation should occur in the short-term by utilizing strategies outlined in the right-of-way acquisition strategies of this chapter. Coordination should occur through Metro COG's Metropolitan Planning process to drive the planning, design, and programming of this important project. Clay County should prioritize right-of-way preservation in advance of anticipated development and plan future development accordingly.

Freight

Historically, the County's economy has been tied to trade. In the 1870s, the Northern Pacific Railway began laying track across Clay County connecting the area to Duluth, MN on the east and Puget Sound, WA on the west. Today the county is served by an extensive multi-modal freight network that supports the local and national economy. In terms of employment, freight-related industries (agriculture, manufacturing, wholesale trade, transportation, warehousing, and utilities) provide over 18 percent of jobs in Clay County.

Trucking

Commercial trucking is a primary mode of transportation for the movement of goods within and through the County. Clay County highways are designated trucking routes, designed, and constructed to accommodate and support the transport of freight by truck.

- Freight Generators
  - Taracon Precast
  - American Crystal Sugar (multiple sites)
  - Elevators/Grain Elevators
  - Aggregate Mines (sand/gravel pits)
  - Manufacturing
  - Transportation
  - Warehousing
  - Wholesale Trade
  - Waste Management

Figure 5.14 was created by utilizing Clay County tax parcel information and may not reflect existing or future freight generators. For example, Taracon Precast tax owner has multiple parcels across Clay County, but the freight generating operation is located as indicated on the map. Related tax owner parcels are included in the map for informational purposes, as these may be places where expansion of freight generating operations could occur.

Similarly, sand and gravel pits and sand and gravel pit potential may not be representative of the exact location of existing freight generation however, provide a general idea of where operations and future operations of sand and gravel pits, and related activity could generate freight traffic.

Agricultural Goods

The movement of agricultural goods across Clay County roadways is another very important consideration of the transportation plan. This includes both trucks and other farm implements such as tractors and implements pulled by tractors including plows, cultivators, etc.

The County should continue to develop strategies to accommodate the movement of agricultural goods throughout Clay County to not only support the economic back-bone of the region but to enhance safety on County roadways for multi-modal traffic including agricultural related equipment.

Freight improvement strategies may include:

- Paving critical County roadways along agricultural movement routes
- Improving intersections to enhance safety, sight lines, etc.
- Consider paving wider shoulders where possible to accommodate trucks, farm implements, and provide the ability for other vehicles to safely pass slower moving equipment.

Weight Restrictions

Clay County enacts weight restrictions during the Spring, when roadways in the area are most susceptible to damage. There are two frost zones in Clay County as defined by MnDOT which have slightly different load restriction timeframes which vary by year. The weight restriction timeframes from 2021 include:

- North-Central Zone (north of US 10)
  - Start Date - Monday, March 8, 2021 at 12:01 AM
  - End Date - Monday, May 3, 2021 at

BNSF Railroad Terminus in Ulen

12:01 AM

- Central Zone (south of US 10)
  - Start Date - Friday, March 5, 2021 at 12:01 AM
  - End Date - Monday, April 12, 2021 at 12:01 AM

The majority of Clay County roadways have weight restrictions between 7 and 10 tons. There are a few County Roadways with 5 ton weight restriction:

- All gravel roads
- County Road (CR) 100 between CR 102 and the north city limits of Georgetown
- CSAH 19 between CSAH 26 and the south limits of unincorporated Averill

Roadways without restrictions serve as primary thoroughfares through the county. Examples are I-94, TH 10, TH 75, MN 9, and MN 32. Figure 5.15 shows seasonal weight restrictions and frost zones in Clay County.

Railroads

Railroads are a significant element in America's transportation system, moving freight to and between ports, agricultural areas, and urban areas. Railroads have a significant impact on land use, the physical and social environment, and other components of the transportation system. Figure 5.11 shows the location of the two railroads that operate in Clay County, which are Burlington Northern Santa Fe (BNSF) and Ottertail Valley Railroad (OTVR). Clay County is in close proximity to other railroad facilities in Fargo and West Fargo on the BNSF and Red River Valley and Western Railroad. These facilities connect Clay County and the Fargo-Moorhead Area with national and international markets.

Freight Facilities

Intermodal freight facilities are locations where bulk commodities are transferred from rail to other modes of transportation. BNSF operates a regional freight intermodal facility at the Dilworth Rail Yard. Approximately 120 trains pass along tracks adjacent to the facility each day. The facility is located on a seven acre parcel and up until 2008, container lifts were performed on-site.

Recent information suggests this facility continues to be marketed as an intermodal facility; however, containers are trucked to the St. Paul terminal where they are loaded on trains. In effect, the Dilworth facility is not being utilized as a transfer facility or true intermodal yard. In order for the facility to be successful, according to BNSF, it must provide the following: (a) traffic

Agricultural Operations in Hawley Township

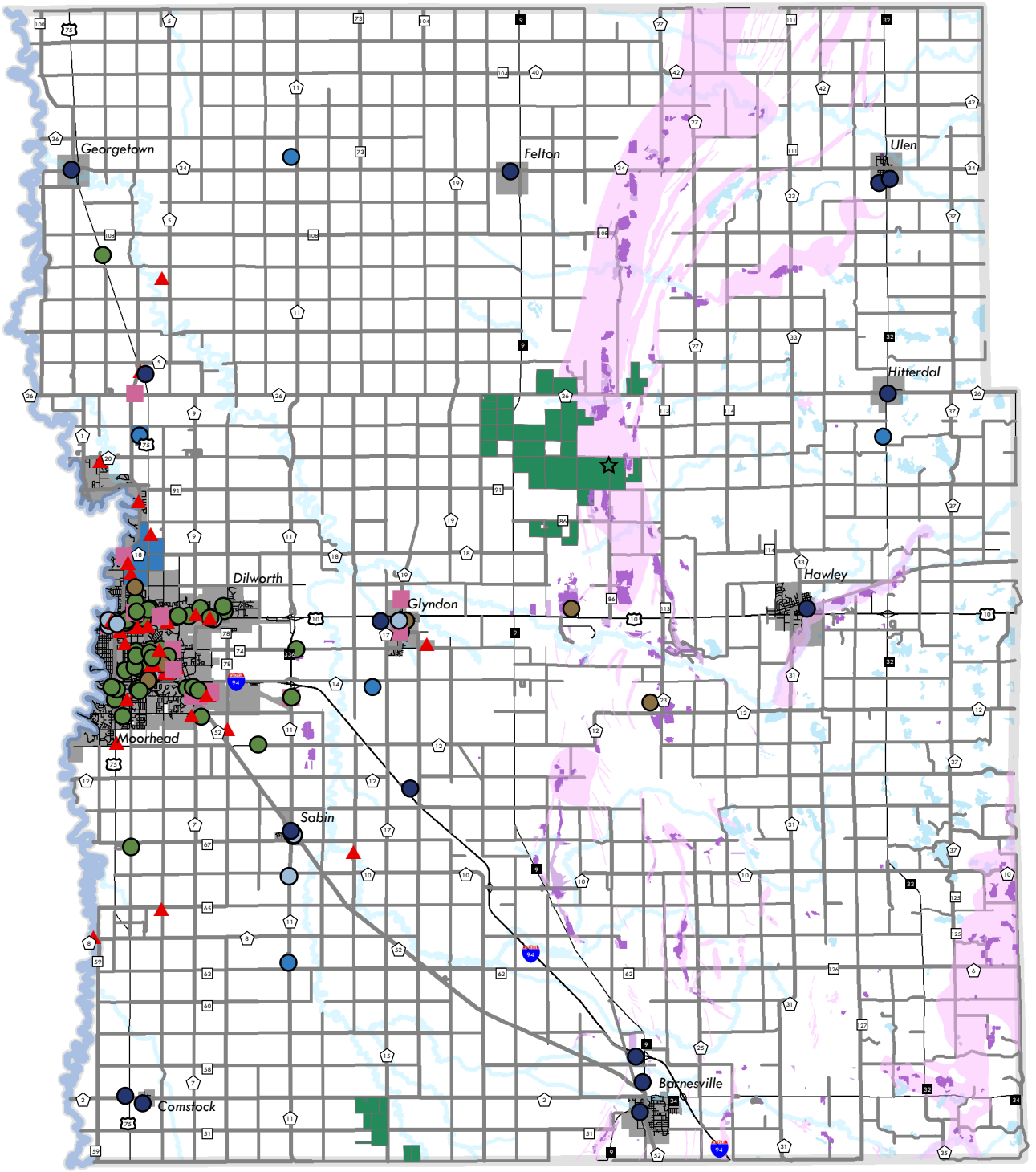


Figure 5.14 - Freight Generators

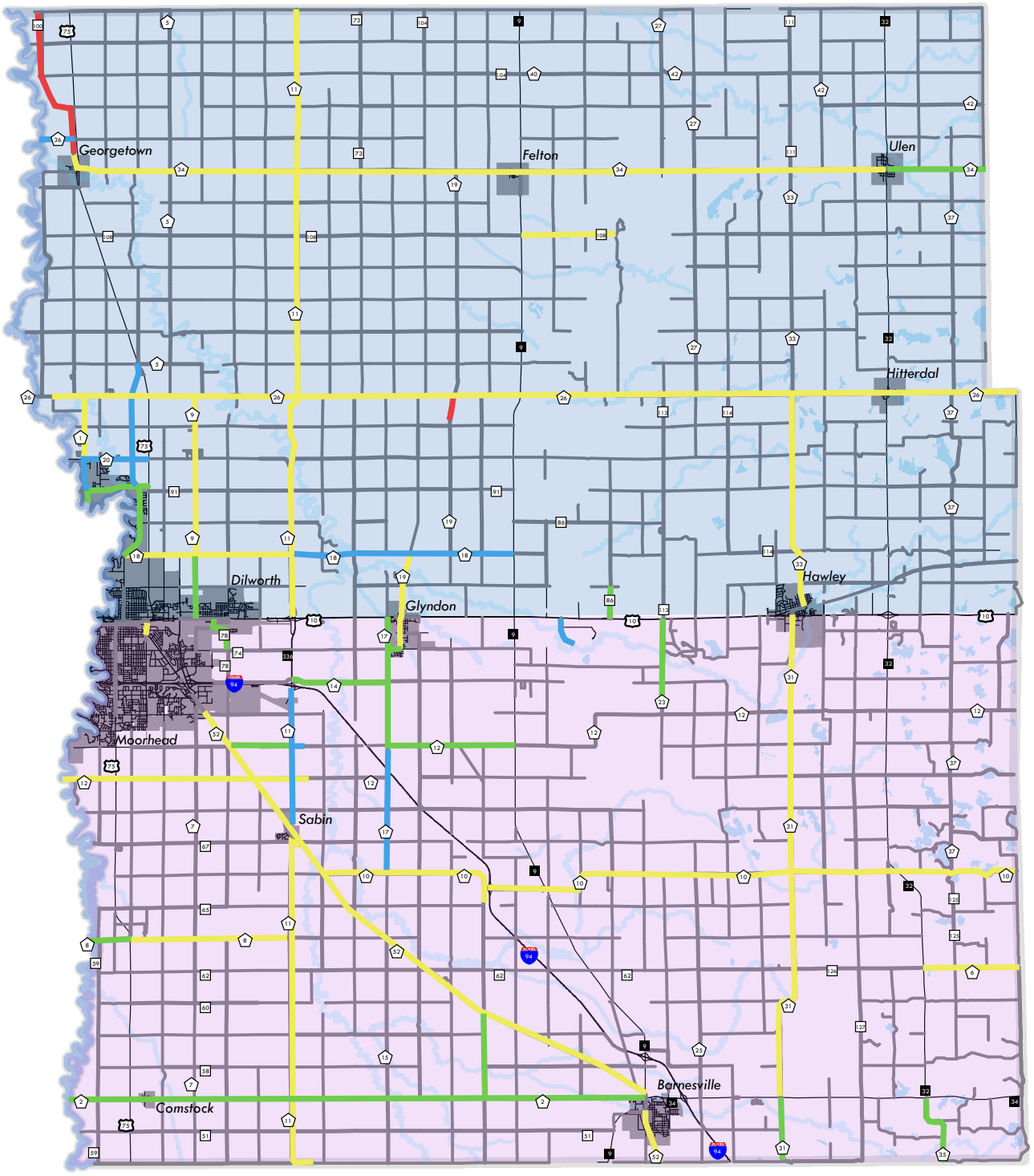
Source: Clay County (2021)

Corridor Typologies

- Taracon Precast (Tax Owner)
- Taracon Precast Operations
- Elevator/Co-op (Tax Owner)
- American Crystal Sugar
- Sand/Gravel Pit
- Manufacturing
- Transportation
- Sand/Gravel Potential
- Warehousing
- Wholesale Trade
- Waste MGMT

N

CLAY COUNTY COMPREHENSIVE PLAN



*CSAH 1 between CSAH 20 and CSAH 26 is currently a 5 ton roadway however, there is a project in the Clay County CIP to reconstruct the roadway to a 10 ton roadway in 2023.

Figure 5.15 - Weight Restricted Roadways

Rating

10 Ton
9 Ton
7 Ton
5 Ton
North Central Frost Zone
Central Frost Zone

Source: Clay County (2021)

86 CR
52 CSAH
34 MN Hwy
75 US Hwy
94 Interstate

N

CLAY COUNTY
COMPREHENSIVE PLAN

volume large enough to generate efficient shipment sizes to final destinations without being consolidated with other intermodal freight, (b) must have ancillary services available to the railroad that would give it a reason to stop and receive extra cars, (c) service to a market area that does not overlap with an existing intermodal facility, (d) weekly minimum volumes that allow trainload volumes and economic efficiencies, (e) in-bound/out-bound balance, and (f) sustainable growth forecasts over a long term planning horizon. Metro COG's Metropolitan Transportation Plan (MTP), Metro Grow, continues to support the development and identification of intermodal facilities for the Metropolitan Area.

Although the Dilworth Rail Yard facility is not a true intermodal facility in the traditional sense, it nonetheless still serves an important transportation function and is an influential employer in Clay County.

FM Diversion and Freight Impacts

The FM Area Diversion is currently being constructed to provide permanent flood protection to over 235,000 FM Area residents. The project is being constructed jointly by the U.S. Army Corps of Engineers and the Metro Flood Diversion Authority and includes 19 new bridges, 30 miles of diversion channel, and 20 miles of southern embankment. As shown in Figure 5.16, there are also numerous structures associated with the operation of the diversion channel. Resources to construct the diversion and related structures may come from local and regional sources, likely traveling across Clay County Roadways, increasing freight traffic volumes region wide.

The diversion will not only have a large economic impact by creating jobs (estimated to be 7,000 full-time equivalent jobs over the six-year construction timeline) and permanent flood protection but there will also be major impacts to the transportation system during the project's construction. Construction of the project is anticipated to take six years from 2021 to 2026 working north to south.

The natural geographic features of Clay County provide numerous aggregate resources. The County currently has aggregate mining operations including sand and gravel. The FM Diversion project is expected to cause higher demand for said resources including expansion of aggregate mining operations in existing and new locations across Clay County.

Freight traffic is expected to increase to and from aggregate operations including concrete batch plants and other related facilities.

Clay County should work with partner agencies including local jurisdictions, the State of MN, and Metro COG to monitor where freight traffic is occurring and prepare for increased maintenance of roadways along high-traffic freight routes. Aside from principal arterials and interstates owned by the State, it is likely some percentage of freight movement related to the diversion will occur across Clay County owned roadways and certainly from Clay County owned roadways to State owned roadways. In the short-term, construction will start on the southern embankment and associated structures, while the diversion channel itself will begin construction on the north end of the project area and move southward over the next six years. The largest structures

related to the FM Diversion project are located along the Southern Embankment and includes the Red River Control Structure, Wild Rice River Control Structure, and Diversion Channel Inlet Control Structure. Freight traffic on County roadways may be funneled to CSAH 2 or CSAH 8 to cross the Red River. CSAH 12 could also see freight traffic however, it is further from the Southern Embankment structures than CSAH 2 and CSAH 8.

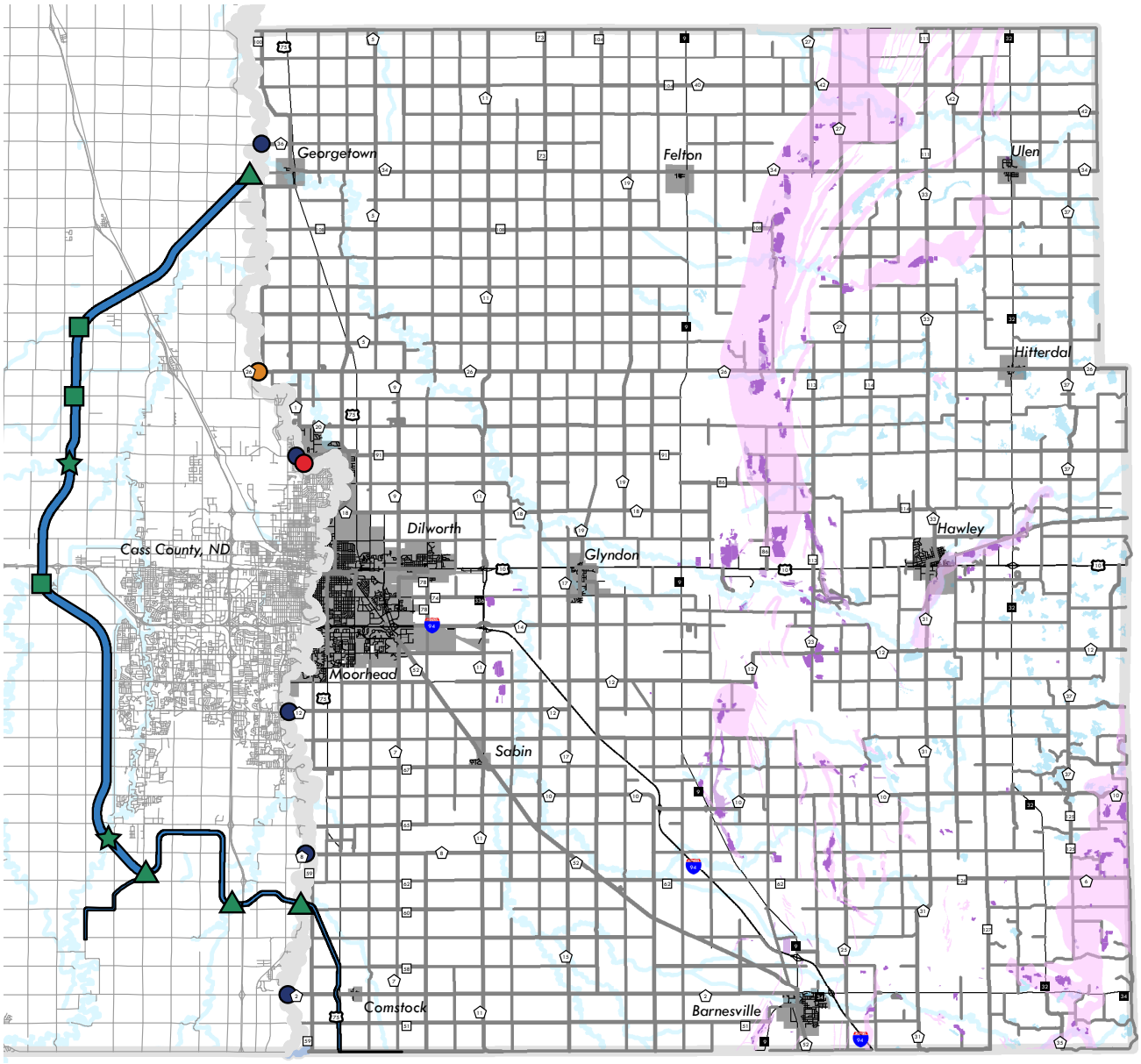


Figure 5.16 - FM Diversion and Infrastructure

Diversion Infrastructure
- Diversion Channel
- Southern Embankment

Major Structures
- Inlet Structures
- Aqueduct Structures

Clay County Bridge Status
- Open
- Closed
- Load Posted

Source: Metro COG (2021)

CR CSAH MN Hwy US Hwy Interstate

- Aggregate Operations
- Aggregate Potential

N

CLAY COUNTY COMPREHENSIVE PLAN

On the northern end of the project, freight traffic across County roadways may have to filter through CSAH 36 which is load posted, CSAH 26, or CSAH 22 to cross the Red River. CSAH 36 has a bridge sufficiency rating of 40 and is posted with load limits however, the bridge is not currently in the programmed or 2021 to 2025 construction program. Clay County will need to monitor any freight traffic crossing the bridge and may need to prioritize a rehabilitation or reconstruction project as soon as funding becomes available.

As construction ramps up on the FM Diversion project, Clay County should be aware of where freight is likely to travel on the County system and monitor infrastructure conditions closely. As more information is released about the FM Diversion construction process and timeline, Clay County will be updated on when and where major construction will be taking place to better prepare for impacts to roadways and bridges.

Pipelines

Given Clay County's geographical location and relative proximity to oil producing regions of North Dakota and Canada, there are a few existing pipelines that run through the County with potential for expansion based on need. Pipelines, although controversial provide one of the most efficient and safe modes to move petroleum and other petroleum products from production areas to refineries.

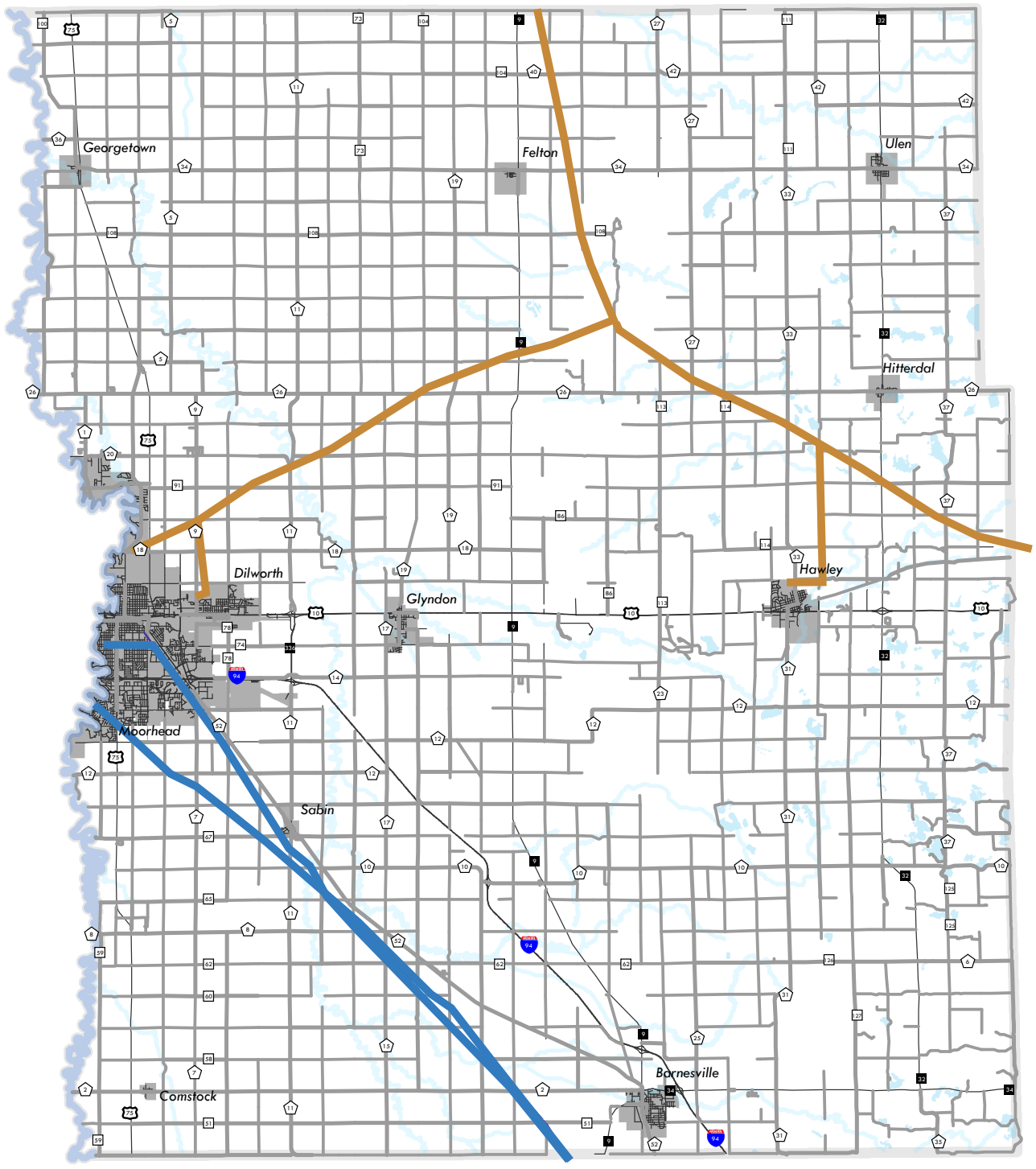
Transit

Meeting the transportation needs of Clay County residents requires a complete transportation system incorporating a variety of transportation modes. Affordable and convenient transit is an essential characteristic of urban and suburban communities. The growing demand and opportunity for convenient and reliable transit service is fueled not only by the aging of the County's population but also by its increasing diversity, growth, and densification. Providing convenient, reliable, and robust transit service can play a vital role in supporting mobility, access, and economic development.

Fixed Route

MATBUS provides fixed-route service within the Cities of Moorhead and Dilworth in Clay County. In Moorhead and Dilworth, fixed-route service is available through seven routes from Monday to Friday from approximately 6:15 a.m. to 11:15 p.m. and 7:15 a.m. to 11:15 p.m. on Saturday. MATBUS does not provide service on Sundays however, Sunday service was a high priority goal of the 2021-2025 Transit Development Plan.

The basic adult fare is $1.50 per trip, though discounts are available based on age or disabled status. Discounted unlimited ride passes are also available. Transfers are free. College students enrolled at Concordia College, Minnesota State University Moorhead (MSUM), and Minnesota State Community and Technical College (M | State) pay for service through student fees as part of the U-Pass program.



CLAY COUNTY
COMPREHENSIVE PLAN

Figure 5.17 - Pipelines

Pipelines
- Natural Gas Pipeline
- Petroleum Product Pipeline

Source: US Energy Information Administration (2016)

86 CR
75 US Hwy
52 CSAH
94 Interstate
34 MN Hwy

N

Paratransit

MATBUS also offers door-to-door paratransit service to complement fixed-route service. MAT Paratransit operates in accordance with the Americans with Disabilities Act (ADA) for people with disabilities who have obtained a Special User Card from the City Transit Offices of Fargo or Moorhead. The ADA requires that all areas within three-quarters of a mile from fixed routes receive demand-response service. MAT Paratransit exceeds the minimum service area standards by offering service everywhere within the city limits of Fargo, West Fargo, Moorhead, and Dilworth. MAT Paratransit operates as a shared ride service so vehicles often pick up multiple passengers traveling to different destinations at the same time.

The cost of each ride is $3.00 per passenger, though personal attendants and children under the age of seven can ride for free if accompanying an eligible passenger. Service is available from Monday to Friday from 6:15 a.m. to 11:15 p.m., 7:15 a.m. to 11:15 p.m. on Saturday, and 7:00 a.m. to 5:00 p.m. on Sunday.

Rural Transit

Productive Alternatives

Productive Alternatives is a nonprofit human services organization whose Transportation Alternatives program provides transit service from rural Clay County to various destinations in Moorhead, the Ground Transportation Center in Fargo, and Walmart in Dilworth. The service operates wheel-chair accessible vehicles. The demand response system requests reservations be made 48-hours in advance of the trip.

Transit Alternatives provides service between the Fargo-Moorhead metropolitan area and Fergus Falls via I-94 on a daily basis, Monday through Friday, leaving Fergus Falls at 5:45 AM and arriving in Fargo-Moorhead just before 7:00 AM. Passengers are then served by the MATBUS system until the return vehicle leaves just after 5:00 PM. This route was suspended during the ongoing COVID-19 health crisis.

Transit Alternatives also provides service between the FM Area and Detroit Lakes via US 10 on a daily basis, Monday through

Transit Vehicle for The Otter Express

Friday, leaving Detroit Lakes at 6:00 AM and arriving in Fargo-Moorhead just after 7:00 AM. Passengers are then served by the MATBUS system until the return vehicle leaves just before 5:00 PM. The route was suspended during the ongoing COVID-19 health crisis.

Region 4 Rural Transportation Coordinating Council (R4RTCC)

The Regional Transportation Coordinating Council (RTCC) in MnDOT District 4 is a relatively new program from the Departments of Transportation and Department of Human Services.

The aforementioned state departments are working with local governments and organizations to create RTCCs as appropriate throughout Greater Minnesota. Coordination between transportation providers, service agents, and the private sector is a goal to fill transportation gaps, streamline access to transportation and provide individuals more options of where and when to travel. The State of Minnesota provides Federal funding for eligible RTCCs.

- ► What is a Rural Transportation Coordinating Council?
  - RTCCs consist of stakeholders interested in improving mobility for "transportation disadvantaged" people such as: older adults, individuals with disabilities, individuals with low incomes, and/or military veterans. The RTCC for District 4, which includes Clay County is West Central Minnesota Communities Action, Inc. (WCMCA).

- ► West Central Minnesota Communities Action
  - West Central Minnesota Communities Action, Inc. (WCMCA) is located in Elbow Lake, MN and has been in existence since 1965, serving low income households primarily in Douglas, Grant, Pope, Stevens, and Traverse counties in West Central Minnesota. In the fall of 2017, MnDOT solicited RFPs for RTCC Organizational grants and WCMCA was awarded the RTCC grant in the summer of 2018. WCMCA's implementation of the Ready Ride Senior Transportation Program through the Live Well at Home Grant provided a solid foundation for building the Region 4 Rural Transportation Coordinating Council (R4RTCC). The RTCC organizational development plan is to serve all nine counties within the Region 4 planning area. WCMCA has an RTCC board which includes representatives from Region 4's social services departments, Area Agencies on Aging, Workforce Development, transportation providers, human service agencies, veteran's organizations, Continuum of Care Coordinators, Independent Living facilities, and public and private funders of transportation. The primary role of the RTCC is to provide mobility management services which promote transportation services to members and eligible citizens of the Region 4 area, including residents of Clay County.

Driving Program for Older Adults

The Rural Enrichment And Counseling Headquarters (REACH) is a multi-agency human service center serving primarily individuals and families in rural Clay, Becker, and Norman Counties in Minnesota. Their office is located in Hawley, MN

REACH's Driving Program for Older Adults can be used for medical appointments locally and in the Fargo-Moorhead or Detroit Lakes Areas. A suggested donation of $20 for each out-of-town trip and $5 for each in-town trip is encouraged and appreciated however, no rider will be denied due to inability to donate. The program is volunteer based and REACH does not guarantee a driver will be available for every ride request.

The rider eligibility requirements are as follows:

- 60 years of age and older
- Physically and mentally independent
- Lives in the Hawley, Hitterdal, Ulen, Felton, or Glyndon areas
- Must be pre-registered for the program to request a ride

Transit was brought up as a concern from Clay County residents in several public engagement events held during the development of the Comprehensive and Transportation Plan. Clay County should continue to monitor and provide resources accessible to residents about transit services that already exist across the County.

Park-and-Ride

Clay County has only one park-and-ride facility just east of Hawley on the north side of the MN Highway 32 and US Hwy 10 interchange. The facility is paved with 21 automobile parking spots and a parking lane for trucks. There is no transit service currently serving this park-and-ride facility.

Railroad Transit

Currently, one passenger train route services the Fargo-Moorhead Metropolitan area: the Empire Builder line which runs from Chicago, IL to Seattle, WA. There are no Empire Builder train stations located in Clay County, though there are stations in the nearby cities of Fargo, ND and Detroit Lakes, MN. The route offers nighttime public transit to Minneapolis-St. Paul, MN which draws in both urban and rural travelers from Clay County. Coach seats are priced around $40 one way (as of January 2022).

In the coming years, new passenger railway lines may be added as groups such as All Aboard Minnesota and the Greater Northwest Working Group advocate for new passenger railroad connections throughout Minnesota and the Northwest, including the Fargo-Moorhead region and Clay County. Proposed destinations for the new passenger rail routes include Bismarck, ND; Sioux Falls, SD; Winnipeg, MB, CA; and Des Moines, IA. The Greater Northwest Working Group is proposing a route from Fargo-Moorhead to Seattle, WA through Bismarck, ND; Billings, MT; and Helena, MT. This proposed rail line is similar to the North Coast Hiawatha Amtrak route which operated from 1971 until 1978. All Aboard Minnesota is proposing this route as well as several other routes throughout Minnesota and a daytime rail service from Fargo to Minneapolis.

Clay County should pay close attention to the efforts as these proposed passenger rail routes could provide new and efficient transit service to several popular destinations for Clay County residents and could bring more people to Clay County and the Fargo-Moorhead area while maintaining the rural character of Clay County.

Bicycle and Pedestrian Network

Pedestrian and bicyclists share the transportation system with motorists. Many rural destinations in Clay County are on the County highway system, including but not limited to commercial areas, schools, employment centers, parks, open spaces, and natural areas. The County highway system is in many cases the only option for pedestrians and bicyclists. Some rural communities of Clay County lack a connected road and sidewalk network that would allow pedestrians and bicyclists to travel off the County system, making the County highway system the only choice. This is also the case for pedestrians and bicyclists traveling outside of the urban FM area. Pedestrians and bicyclists frequently interact with vehicle traffic on County highways when not only traveling along, but also when crossing these corridors. As bicycling and walking become more and more popular across Clay County, multi-modal safety may also grow in priority, especially along critical bicycle and pedestrian routes within rural communities. Bicycle and pedestrian facilities are an important element of a safe and efficient transportation system to serve all modes and users. Basic provision and improvement needs include continuous facilities that allow for safe and convenient use. Bicycling and pedestrian transportation planning provides multiple benefits to the County including environmental sustainability, safe routes for users, active living and improved health, improved transportation options, quality of life, and safety.

MnDOT District 4 Bicycle Plan

MnDOT completed a *Statewide Bicycle System Plan* (SBSP) in 2016 which includes goals, strategies, and actions for bicycling in Minnesota. One of the SBSP's goals is to develop a connected network of state bicycle routes with partners across the state. The SBSP identifies corridors for a state priority bicycle network. The *District 4 Bicycle Plan* builds on the SBSP by identifying specific Bicycle Investment

State Highway 32 near Rollag in Parke Township

Routes within the state priority bicycle network. Bicycle Investment Routes are planning tools that should guide future investments in bicycle facilities across the district and are not intended to be used as navigational tools. The District 4 bicycle planning process builds on the work from the SBSP and includes five major components:

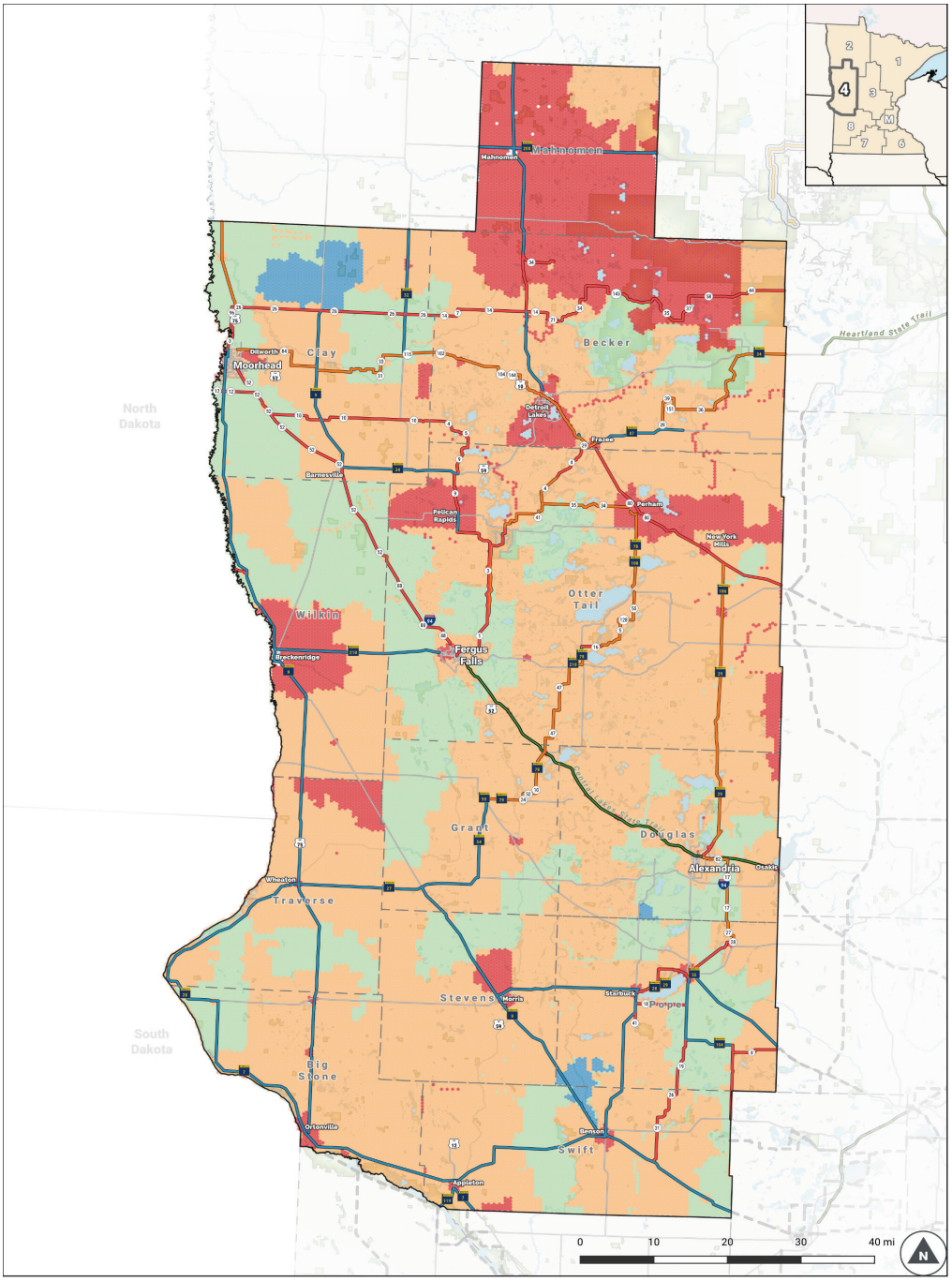
- ► 1. Identifying state bicycle route network priority corridors (completed in the SBSP)
  - • High Priority - Detroit Lakes to Moorhead
  - • Low Priority - Fergus Falls to Moorhead, Wahpeton to Moorhead, and Moorhead to East Grand Forks.
- ► 2. Identifying district regional priority corridors (completed in the SBSP)
- ► 3. Analyzing bicycling suitability on all roadways across the state
- ► 4. Identifying Bicycle Investment Routes
- ► 5. Developing a prioritization framework to help MnDOT prioritize bicycle investments

Clay County should continue to support bicycle mobility across the County. Paving shoulders wider than 4-feet may increase mobility and safety in numerous ways including but not limited to: wider paved shoulders provide more space for bicyclists and agricultural equipment alike, highlighting the importance of providing multi-modal transportation infrastructure.

The State Bicycle Route Network is defined in the SBSP as a network of envisioned connections that link destinations throughout the state by bicycle. The SBSP priority corridors reflect public preferences expressed during SBSP outreach, the potential for connectivity to the U.S. Bicycle Route System (USBRS), potential connectivity to other bicycle route corridors, potential for designation as a U.S. Bicycle Route, and continuity across the state. The connections are presented in the SBSP as corridors between two points which are 10-miles wide instead of specific route alignments. Identifying more refined route alignments in coordination with local stakeholders for the SBSP corridors was a primary objective of the district bicycle planning process. Said corridors identified through the *District 4 Bicycle Plan* are referred to as "Bicycle Investment Routes."

Bicycle Investment Routes

Bicycle Investment Routes were identified through a bicycle planning process that included a bicycling suitability analysis of all roadways in Minnesota. A bicycle suitability analysis uses measurable attributes of the roadway to approximate how it may accommodate people traveling by bicycle. The SBSP found a strong preference from bicyclists for low-stress environments (e.g. low traffic speeds and/or traffic volumes). With this being said, the District 4 Bicycle Plan only recognizes low-stress roadways and shared use paths as preferred bicycling options.



DEPARTMENT OF TRANSPORTATION TOOLE DESIGN

Figure 5.18 - Bicycle Investment Routes and Prioritization

This map comes directly from the *District 4 Bicycle Plan.*

Source: MnDOT (2019)

N

CLAY COUNTY COMPREHENSIVE PLAN

Utilizing the bicycling suitability analysis, Bicycle Investment Routes were identified within the priority corridors of the SBSP. The Bicycle Investment Routes are planning tools that will guide future investments in bicycle facilities across Clay County and are not designated bicycle routes to be used for current bicycle navigation. The Bicycle Investment Routes will guide MnDOT's investments on the state highway network in Clay County.

Another important consideration of the *District 4 Bicycle Plan* is to support local and regional bicycling networks. During the SBSP planning process, participants prioritized investments that supported local travel two to three times more important than investments for statewide bicycle travel. Many of the Bicycle Investment Routes on state highways may serve local trip purposes when connecting to other or planned local bicycle routes therefore, it is important for Clay County to remain an active partner in the statewide bicycle planning process.

Prioritization

The Bicycle Investment Route prioritization framework evaluates each Bicycle Investment Route based upon several scoring criteria including the following categories:

- Local Connections
- Population and Equity
- Activity Generators
- Network
- Plan Consistency
- Safety

Based upon said categories, scores were assigned to various areas across Minnesota and a prioritization visualization was created. The prioritization scores were sorted into five tiers; red hues represent areas with the highest prioritization scoring results, and the blue and green hues represent areas with the lowest prioritization scoring results.

Clay County should utilize the *District 4 Bicycle Plan* to help prioritize local connections to the statewide and regional network of planned bicycle facilities.

United State Bike Route 20 (USBR 20)

The U.S. Bicycle Route System (USBRS) is developing a national network of bicycle routes connecting urban and rural communities via signed roads and trails. Created with public input, U.S. Bicycle Routes direct bicyclists to a preferred route through a city, county, or state; creating safer opportunities for people everywhere, including portions of rural Clay County, to bicycle for travel, transportation, and recreation.

Nearly 18,000 miles are currently established in 31 states and Washington, D.C. and many routes are signed.

There are two existing U.S. Bicycle Routes in Minnesota including:

- Designated in 2013, USBR 45 (Mississippi River Trail) which follows the Mississippi River from its headwaters in Itasca State Park, to the Iowa border.

- Designated in 2016, USBR 41 (North Star Bicycle Route) which runs from St. Paul, MN, to the Canadian Border.

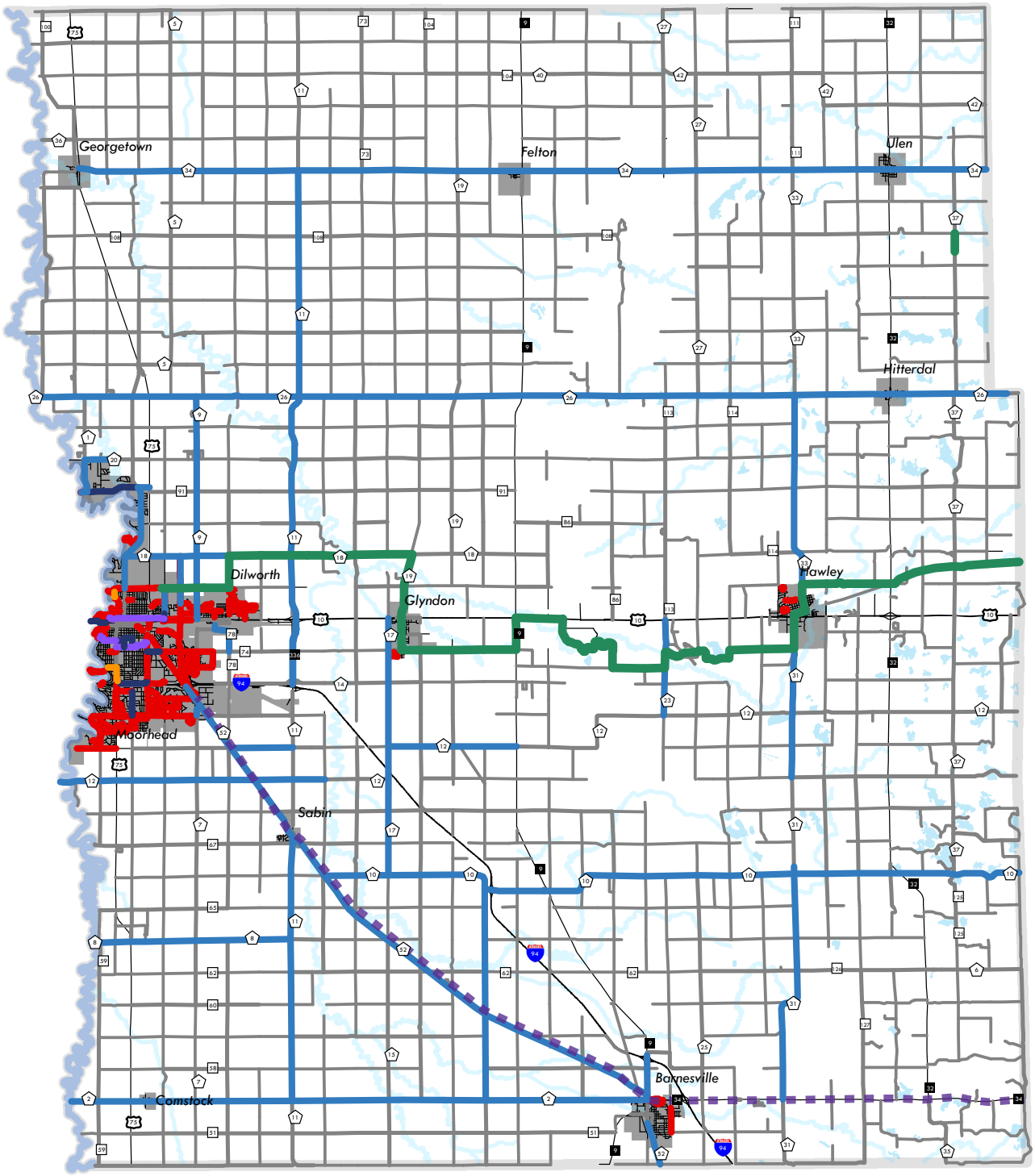


Figure 5.19 - Existing and Future Bike and Ped Network

Source: Metro COG (2021)

Bike/Ped Facility Type

- Future Heartland Trail
- Paved shoulder > 4'
- Shared Use Path
- Bike Lanes
- Sharrows
- Signed Only
- USBR 20 (Preliminary)

86 CR | 75 US Hwy | 52 CSAH | Interstate | 34 MN Hwy

N

CLAY COUNTY COMPREHENSIVE PLAN

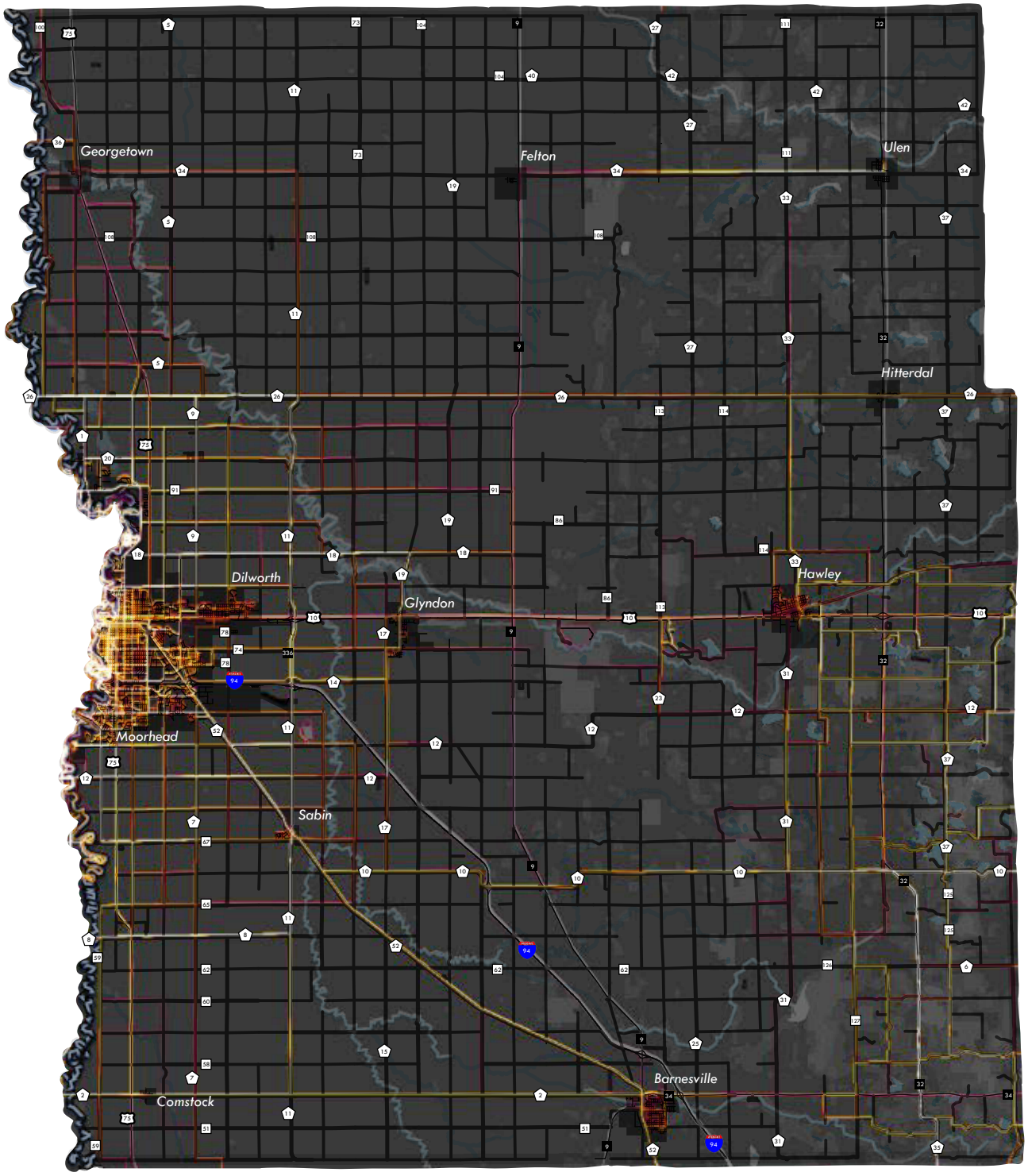


Figure 5.20 - Strava Heat Map

Bike Activity

Low — High

Source: Strava (2021)

86 CR
75 US Hwy
52 CSAH
94 Interstate
34 MN Hwy

N

CLAY COUNTY COMPREHENSIVE PLAN

U.S. Bicycle Route 20 (USBR 20) is the most recently proposed U.S. Bicycle Route, and would be the third in the State of Minnesota, connecting St. Cloud, MN to Moorhead, MN. The preliminary route through Clay County, would put USBR 20 on MN 34 and CSAH 52; it should be noted that this alignment has not yet been finalized. The route can be seen on Figure 5.19.

Clay County should continue to work with MnDOT to designate USBR 20 through the County and prioritize multi-modal improvements along MN 34 and CSAH 52.

Pedestrian Travel

To better develop opportunities for county residents to walk and bike for transportation and recreation, the County will need to work closely with local communities to improve conditions. The following should be considered when addressing pedestrian travel needs:

- Destinations - such as small towns, parks, schools, activity centers, natural areas, and trails.
- Networks - connections free of barriers such as railroads, busy roads, water bodies, hills, and isolated areas.
- Density - non-motorized transportation becomes less efficient in rural areas with less population densities.
- Safety - consider safety in infrastructure decisions.

Because of the rural character of Clay County, pedestrian needs are not as prevalent throughout a majority of the county. However, the County should consider shared use trails along County Highways where there may be high pedestrian and bicycle demand.

Also due to the rural character of Clay County, recreational and local pedestrian trips may be more likely so a pedestrian facility along the entire Clay County Highway system should not be prioritized but rather, the county should prioritize facilities that connect with local destinations or improve safety in areas with more pedestrian activity.

Non-Motorized Travel Along Highways

Bicyclists and pedestrians use different facilities based on ability and type of movement. There are three distinguishable types of bicycle riders based upon bicycling experience and comfort level: Type A, Type B, and Type C riders. Type A riders travel over 15 mph and should operate in travel lanes and shoulders to improve safety for all users. Type B riders have less experience and generally are recreational riders who operate safely on roadside trails. Type C riders are children, who are safest on the trail network. Similarly to Type C riders, pedestrians require well-maintained multiuse trails and safe road crossings. Shared use trails provide for bicycle travel in the urban FM area but are not as common in rural portions, or a majority of Clay County. Paved shoulders successfully support bicycling throughout Clay County and provide for popular routes among experienced and confident recreational bicyclists. Due to the nature of these on-street facilities, less experienced bicycle riders, pedestrians, and children may be considered less safe utilizing said on-street facilities. Figure 5.19 depicts the existing and planned bicycle network.

Strava Heat Map

Strava is a mobile internet application that provides people tracking for human exercise and incorporates social network features.

The application is used primarily for cycling and running using GPS data, to track activity.

Planning agencies such as Clay County and Metro COG may request access to anonymized Strava data which can help get a glimpse of activity of bicyclists and pedestrians across the County. By looking at Strava heat map data, it is clear to see that there are many popular routes across Clay County. The heat map in Figure 5.20 shows where the most activity is located in the County and where there may be gaps.

County roadways near the FM urban area have much more bicycle traffic according to the Strava heat map. Similarly, closer to the "lakes region" or southeast Clay County, there appears to be higher bike activity too. There appear to be other popular routes across rural or small town areas of the County including:

- CSAH 26 across the entire County
- CSAH 34 between Felton and Ulen
- CSAH 33 between Hawley and CSAH 26
- CSAH 31 between CSAH 10 and CSAH 12
- CSAH 52 from Moorhead to Wilkin County
- CSAH 10 from CSAH 52 to Becker County
- CSAH 2 from the Red River to Barnesville
- CSAH 17 between CSAH 12 and Glyndon

Heartland Trail

A State multi-use trail, the Heartland Trail, runs between Park Rapids and Cass Lake, going through Walker. The State Trail also provides a connection to another well known State trail, the Paul Bunyan Trail, which runs between Bemidji and Brainerd.

- Heartland State Trail
  - 50+ miles of paved multi-use trail
  - Planned extension of 90+ paved miles from Park Rapids to Moorhead
- Paul Bunyan State Trail
  - 123 miles of paved multi-use trail

Group Bicycle Ride in Rural Clay County

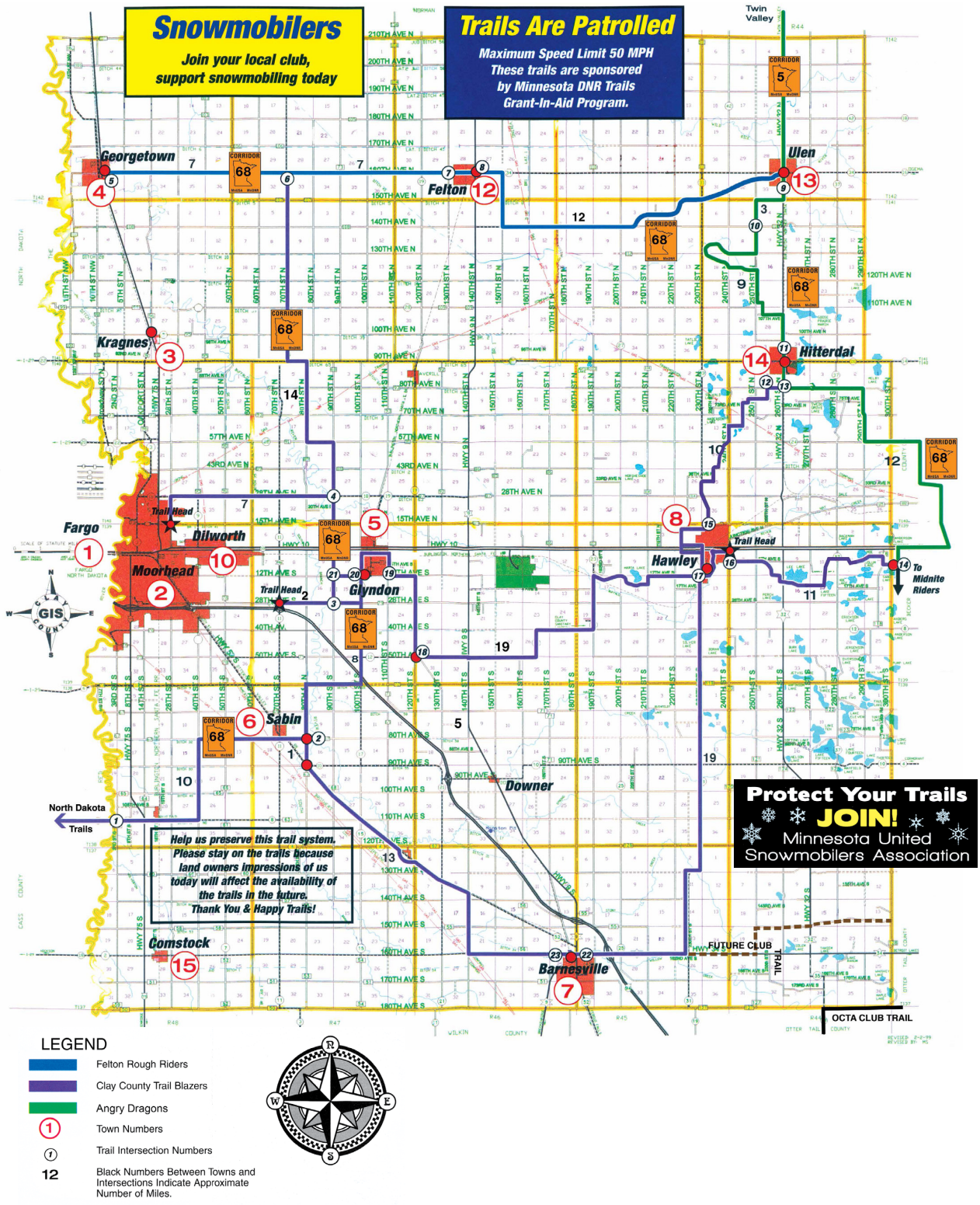


Figure 5.21 - Snowmobile Trails

This map comes directly from the *Clay County Trail Blazers Snowmobile Club.*

Source: Clay County Trail Blazers (2019)

CLAY COUNTY COMPREHENSIVE PLAN

Heartland Trail Extension

In 2014 Metro COG helped initiate the Clay County Heartland Trail Task Force to help guide the planning of the Heartland Trail extension through Clay County. Since its inception, the Task Force has met regularly to discuss trail funding, issues, needs, and trail alignment options. The Task Force came up with three trail alignments which were brought to the public in January 2015. Two public involvement meetings were held in January 2015 and provided the public with an opportunity to learn about the project and provide feedback on the trail and trail alignments. The public was also given an opportunity to propose other alignment alternatives. After gathering the results of the public meetings, Alternative 2 was the most popular of the three alternatives. Several members of the public also provided trail alignment alternatives which were unique to the three alternatives developed by the Task Force.

It has been the consensus of the Clay County Heartland Trail Task Force to pursue the planning of the Clay County Heartland Trail in the following priorities:

- Priority 1 - Buffalo River State Park to Hawley
- Priority 2 - Moorhead to Buffalo River State Park
- Priority 3 - Hawley to Becker County

The Heartland Trail extension through Clay County should be a high priority. The trail will likely have numerous positive impacts to the character of the County and quality of life for residents. Collaboration at a local, regional, and statewide level will be required and efforts should be made to move the project closer to reality.

Off-Highway Vehicles

Off-Highway Vehicles (OHVs) have gained popularity across the region and are a popular outdoor recreation activity. The Minnesota Department of Natural Resources regulates OHVs by type and age of operator. Information about regulations may be found on the following webpage:

- www.dnr.state.mn.us/regulations/ohv/index.html

OHVs may also be used in conjunction with hunting activities across Clay County however, the Minnesota DNR provides separate regulations for operation while hunting. OHVs require registration through the Clay County Department of Motor Vehicles.

With the growing popularity of OHVs in Clay County, the County may consider partnering with the Minnesota DNR to provide as many resources as possible for current and future operators including:

- Information on regulations
- Information on safe operation of OHVs
- Information on where to ride and designated routes
- Information on how to register OHVs

There is a separate snowmobile registration for vehicles designed for travel on snow or ice and steered by skis or runners. OHVs are still regulated and registered separately from snowmobiles.

Snowmobiles

Clay County has approximately 200 miles of snowmobile trails. A majority of trails are maintained by the Clay County Trail Blazers Snowmobile Club, other segments are maintained by the Felton Rough Riders, and Angry Dragons Snowmobile Clubs.

Agassiz Recreational Trail

One of the only separated trails that accommodates OHVs, class II All Terrain Vehicles (ATVs) only, is the Agassiz Recreational Trail. The Agassiz Recreational Trail is a 52-mile natural-surface trail that runs along an abandoned railroad grade and runs from Ulen in the northeast corner of Clay County, north through Norman County along the east side of MN 32. The trail crosses MN 32 near Fertile in Polk County, then cuts toward and ends just south of Crookston in Polk County.

Aside from ATVs, the trail is also used by hikers, bicyclists, and horseback riders.

Future Trends

An important element of the Clay County Transportation Plan is looking beyond what is currently happening, and anticipating emerging mobility issues and opportunities. New development and land use growth will lead to new travel demands on the County's multi-modal system. Metro COG did a comprehensive evaluation of future growth trends at the outset of the Clay County Comprehensive Plan update, based on demographic evaluations and review of jurisdictional land use plans.

County Growth

As shown in the "Community Profile" Chapter, Clay County has seen a sustained rate of growth over the past several decades. The backdrop of steady population, housing, and job growth, in addition to a detailed analysis of regional demographics, is the basis for estimating how the region, including Clay County, may grow through 2045. It should be noted that the future land use estimates as part of this Plan are not an indication of zoning regulations or how development is likely to be phased. Rather this data is for travel estimation and infrastructure planning purposes. Households and employment are the primary factors used to explain travel in Clay County.

Multi-Modal Opportunities

The development patterns and growth predicted for Clay County show that future housing and job growth will be a mixture of new development on the current urban fringe and in small outlying communities,

Agassiz Recreational Trail near Ulen

and infill development that adds more density into existing urban areas. If this is the case, there will likely be more demand for longer auto trips from small communities within the County and new opportunities for transit, bicycling, and walking trips from Clay County's most likely growth areas. However, this is all compounded by the recent COVID-19 pandemic which has permanently changed the manner in which people get to work for a variety of different job sectors, through telecommuting or working from home.

Specific opportunities that are presented from the development concept include:

Increased Demand for Telecommuting Options

Telecommuting from small towns or rural areas of Clay County will likely become a highly desirable feature and driver of growth in these areas. Telecommuting may allow County residents to avoid longer commutes to physical offices however, may also increase the demand for recreational bicycle and pedestrian trips, which was a common data trend analyzed throughout the COVID-19 pandemic. Access, or lack thereof, to broadband or other forms of high-speed internet may increase the demand for people to live and work in small towns or rural areas, which were identified as strengths and opportunities of the County based on public feedback. Telecommuting can also have a major impact on rural transit service, especially any rural transit that is fixed route and or fixed schedule, as it may be hard to predict when and where people may be telecommuting.

Increased Demand for Transit in Existing Service Areas

The new development anticipated for small towns within the county will create more trips to and from the urban FM Area. Rural transit service including park-and-ride policies should be evaluated during the life of the Clay County Comprehensive Plan to track how small towns are growing and if there are reasons to adjust transit services to meet new service demands. Demand for rural transit may also be exacerbated by the infill development that will simultaneously be occurring in the urban portions of Clay County.

Increased Demand for Walking and Biking

Along with spurring an enhanced environment for rural transit ridership, the new development in small towns, new development on the fringe of the urban FM Area, and infill development in the FM Area will increase the demand for walking and biking in Clay County. Clay County is in a good position to highlight and prioritize bicycle and pedestrian connections from the charming rural character of the County and small towns, to the urban FM Area. The growth will make it more critical for the county to coordinate and provide local connections that link residential, commercial, and rural areas through the bicycle and pedestrian network. The increased demand may be exacerbated by telecommuting prevalence.

Increased Viability of Express Transit Services

Express bus and rural commuter transit services are offered in many counties with urban areas to provide a peak transit option for commuters.

These are often offered on longer transit routes between small communities and major employment centers, with limited stops to make the travel time lower. Park-and-ride options are often offered with the express service. Two development trends will make express transit service potentially more attractive in the future:

- Longer Average Commute Trips - as more housing development occurs on the urban fringe and in small communities across Clay County, travel distances get longer. The longer commutes predicted for Clay County will make express / rural commuter transit service a more viable rural transit option.

- More Centralized Employment - as more employment occurs in one location, such as the central business districts of Fargo-Moorhead, express bus transit becomes a more viable option. The densification of employment in key areas of Clay County will increase the viability of express / commuter transit as a transportation option in the future. However, that is likely a long-term option and dependent on how many people are telecommuting instead of physically going into an office.

Emerging Technologies

The regional transportation system and travel options are in a time of flux. Several emerging trends and technologies have the potential to impact how people travel. The opportunities and disruption to existing travel options presented by these new transportation approaches are anticipated to accelerate over the life of the Clay County Transportation Plan. This section discusses how these trends and technologies could potentially impact the transportation system in local communities, and potential policies and planning activities for Metro COG and Clay County to consider. There are generally two categories of these trends and technologies that are re-shaping our transportation options: new "shared mobility" options and emerging transportation technologies. The remainder of this chapter describes these technologies and their potential impacts.

New Shared Mobility Options

New technologies have enabled several transportation trends to emerge that are changing how people travel. The emergence of smart phones for example, has allowed some existing technologies to provide new types of flexible, on-demand shared mobility services that were not previously available. These new shared mobility options include ride-hailing services, microtransit, and micromobility services.

Ride-Hailing Services

The emergence of smart phones has allowed transportation network companies (TNCs) such as Uber or Lyft to offer private, for-profit personal transportation via ride-hailing apps. Typically these services are offered by private citizens in their own personal vehicles.

The most recent survey of Americans which was published in 2019, asked respondents if they had ever used a ride-hailing service. The results showed that ride-hailing services grew from 15% in 2015 to 36% in 2018. Ride-hailing services have become a significant form of travel in many different types of urban areas and in both suburban and central urban contexts and has been available in the FM Area since 2015.

Although bigger ride-hailing companies such as Uber and Lyft are focused in urban areas, there are several examples of rural ride-hailing providers from across the United States, which is something Clay County may want to follow closely, especially as demand continues to increase. Rural ride-hailing may also increase the feasibility of aging-in-place which may help preserve the rural character Clay County.

Microtransit

Microtransit includes shared transportation systems that can offer fixed routes and schedules as well as flexible routes and on-demand scheduling. Microtransit is ideally suited for paratransit and door-to-door services. Companies such as Via, Lyft, and others are private microtransit operators. MATBUS has started to offer a similar service called TapRide, that provides on-demand service during the week on the NDSU campus. TapRide can be accessed via the smartphone app.

Microtransit is a relatively new endeavor for public transit agencies, with trials of microtransit occurring within the past five years and now exploding into some of the most efficient and popular service transit agencies offer. In many microtransit deployments, public funds subsidize the use of private operators.

Incorporating microtransit services into a region-wide application software tool allows for greater access by users. Investments in microtransit by a region often mirror those of ride-hailing. Similar to ride-hailing in rural areas, Clay County should keep an eye out for rural microtransit applications.

Micromobility Services

Micromobility is unlikely to impact Clay County due to the county's rural character however, it will be important for county staff to have a general understanding about what micromobility services are, especially as they become more prevalent in the region or as more rural applications begin.

Micromobility is a group of shared transportation modes, including bicycles and e-bicycles (bike share), mopeds and e-mopeds, and e-scooters that are paid for through an app. These transport devices can be used throughout a city/town, and are often an effective means of providing a first/last-mile function for transit lines.
Great Rides Bike Share is a bike share service that operates in the region, but does not currently work via app.

Companies such as Bird, Lime, Uber and Lyft are offering traditional and electric-assist bicycles and e-scooters through both docking and dockless systems. The rental of these devices occurs through a phone app. These privately-sourced services have emerged in hundreds of urban areas around the country in the last few years. Hundreds of these vehicles can show up in a city, virtually overnight, creating issues with the new mobility options they bring.

Metro COG has researched best practices and lessons learned from communities that have dockless bikeshare and/or e-scooter share programs. Metro COG developed guidelines for local jurisdictions based on best practices from across the U.S. and is currently working with Fargo, Moorhead, and West Fargo on the anticipated deployment of e-scooters within the FM Area.

Mobility as a Service

Mobility-as-a-service (MaaS) is the concept of a seamless system of transportation options that a person can access and pay for on demand through use of smartphone technology. Users do not need to own a personal vehicle, or know the bus schedule to travel. They can open and app and tell it where they want to go, and the MaaS provides them a menu of modal options, travel times, and costs from which they can select. Often these apps provide a single payment account that allows a seamless transaction for both traveler and provider. The apps can offer a range of ride-hailing, microtransit, micromobility, traditional public transit, and bike sharing options. MaaS is typically used in urban areas but could greatly benefit rural Clay County residents. Clay County and Metro COG should continue to collaborate in a future deployment of MaaS to provide services that share transportation data for users to access and does not exclude rural mobility options.

Implications of Shared Mobility Options

There are potential transportation system impacts that are predicted to accompany the shift to these new mobility options. In some cases, these impacts are being seen in some metropolitan areas of the U.S. These secondary impacts are summarized later in this section.

Evolving Technologies

In addition to these new trends in transportation, there are several transportation technologies that have continued to develop and have the potential to radically change how people in Clay County travel and live. These technologies include: Connected and Autonomous, electric vehicles, and smart cities.

Connected and Autonomous Vehicles

Connected vehicles are technology-enabled automobiles, trucks, and buses that can communicate with each other and infrastructure.

MaaS Interface (source: cityinnovatorsforum.com)

Automated vehicles are technology-enabled automobiles, trucks and buses where at least some vehicle movement and guidance functions are completed by the vehicle without human input.

Connected and Autonomous Vehicles (CAV), or Automated Vehicles, have received extensive attention, investment, and have gone through rigorous testing by private companies in the last several years. CAV represents a confluence of technology innovations and a conglomerate of industries. Industries considered separate in the past – the automotive and high-tech industries – are now blurring into a booming automotive tech industry.

Vehicle Fleet Electrification

As the price of batteries drops and technology and performance of batteries increases, electric vehicles are becoming more price and performance competitive with traditional combustion-engine (gasoline-powered) vehicles. There are estimates that the cost of an electric passenger car's battery will drop quickly, from 57% of the vehicle cost in 2015 to 20% of vehicle cost in 2025. That same report indicates that the life-cycle cost of owning an electric vehicle and a combustion engine vehicle will be equivalent in 2022 for larger commercial vehicles. During the planning horizon of the Clay County Comprehensive Plan, it is anticipated that electric vehicles will become a much larger percentage of the vehicle mix.

There will be benefits to this transformation, particularly for the environment as fewer overall greenhouse gas emissions, and other regulated air pollutants, are emitted with the conversion to electric-powered vehicles. One of the challenges of wider vehicle fleet electrification is the development of an effective charging network. Public and private entities will need to evolve and provide the infrastructure required to support these wide spread charging needs. As of June, 2021, there is only one public electric vehicle charging location available in Clay County. The charging station is located near the northeast side of the junction between I-94 and US 75 (8th St S) in Moorhead.

Another challenge the state and Federal governments will need to respond to in the near future is how this shift will affect transportation funding. Federal and state gas taxes pay for the majority of current transportation funding. If transportation transitions from motor fuel to electricity, new and different fees will need to be collected from the users of the transportation system.

Waymo Level 4, Driverless CAV (source: waymo.com)

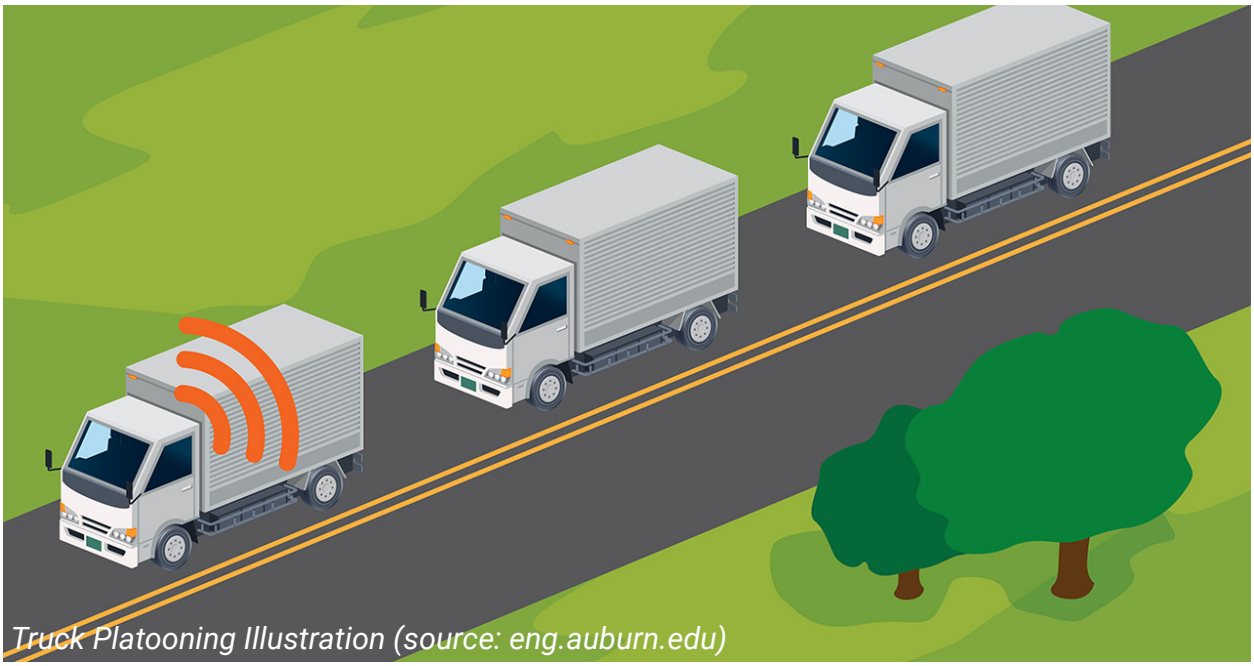
Autonomous Freight

CAVs are not only predicted to impact the way individuals move through cities, but this technology is expected to change the way we move goods as well. With several companies testing freight CAV pilots, many believe that these vehicles could be operating on highways and in cities within the short- and mid-term (2021-2030). As of 2021 there are several autonomous freight pilot programs happening in areas across the U.S.

Along with CAVs, safety is touted as the main benefit of freight CAVs. An additional business advantage of autonomous freight vehicles is what is driving the development of this transportation technology: freight CAVs might eventually not require a driver or a single "lead" driver if vehicles are "platooning". Vehicles without drivers means that the operating costs for highway freight companies could potentially be reduced and thus, the total cost of shipping goods diminishes.

Freight vehicles can "platoon" with two or more trucks coordinating cooperative adaptive cruise control, which allows for increased efficiency and fuel savings, reduced congestion as following distances between vehicles may be decreased, and improved safety as the freight vehicles are able to communicate to address potential collision risks. Lower costs could in turn induce more demand for highway freight services as shipping costs decline.

With freight automation, there are valid and real concerns that freight CAVs will negatively impact labor needs of the freight industry. As freight CAVs become viable, the need for freight operators might potentially decrease. Industry might also be more accepting of freight CAVs as there is currently a shortage of freight operators in the United States in light of increasing demand for these services. Freight CAVs will require service and maintenance, which will require some workers with different skills.



Truck Platooning Illustration (source: eng.auburn.edu)

As shipping costs decline, local retail establishments may see significant additional competition as individuals might be able to purchase an item online and have it delivered within a matter of days at cost that is comparable to visiting a retail location for the same item. Thus, future transportation networks may need to account for increased freight activities on all types of roadways.

Status of Connected and Autonomous Vehicles

The Society of Automotive Engineers has established six levels of vehicular automation, which has become the industry standard for discussing CAV technology. Levels 0, 1, and 2 are considered minimal automation and require the full engagement of the driver at all times while operating the vehicle. At Level 3, the majority of driving tasks are automated but the driver may still be required to take over in certain instances. Level 4 is considered full automation, where all driving tasks can be undertaken by the vehicle in most conditions. Finally, at Level 5, the vehicle is capable of driving everywhere in any condition without human intervention.

The most advanced CAVs currently available employ Level 2 technology that offer drivers limited automated capabilities that still require the driver's full attention. While the current CAV technology is only at Level 2, the technology is rapidly developing and much discussion regarding the timeframe of when Level 4 CAVs will be commercially available. There are a range of forecasts predicting what level of market penetration Level 4 and 5 CAVs will see in the coming years. While those predictions have a wide range, many experts predict that we will see a significant number of autonomous cars on the road by 2045.

CAVs communicate with one another, called vehicle-to-vehicle (V2V), and with surrounding infrastructure, called vehicle-to-infrastructure (V2I). Through communication with the environment around them, connected vehicles (CVs) can help address traffic safety and efficiency concerns. Adopting CVs in local transportation systems will require new infrastructure to support them. V2V communication allows vehicles to share information like speed, direction, and location directly with other vehicles operating in the roadway. This information can then be used to alert other drivers of potential collision risk while traveling. V2V communication technology is expected to be available in cars, trucks, buses, and motorcycles, and many hope it will be extended to bicyclists and pedestrians to further enhance the safety of both motorized and non-motorized road users.

Safety is the major benefit anticipated with CAVs as these vehicles could reduce instances of human error that may lead to automobile collisions by automating driving tasks and communicating with other vehicles and infrastructure. Through V2I and V2V communication, travelers would receive collision warnings instantly, while the infrastructure would help better manage traffic flows through more precise signaling and real time data collection. The National Highway Traffic Safety Association estimates that up to 80% of non-alcohol related vehicle collisions could be prevented through the application of V2V and V2I technology alone. Bicyclists and pedestrians could see a safer environment in the future, as CAVs are being designed with sensors, cameras, and other devices to aid in detecting bicyclists and pedestrians, along with the hope that mobile devices carried

by non-motorized users could alert CAVs to their location for crash avoidance.

One challenge in planning for CAVs is the uncertainty of how these vehicles will be deployed: whether as publicly available shared fleets or as privately owned vehicles similar to today's car ownership model. This uncertainty has implications for infrastructure and land use decisions as CAVs are predicted to reduce parking demand in high cost locations, and thus the amount of land allocated for this use might be reduced. Should CAVs be deployed as publicly shared fleets, the parking requirements could be drastically lower than those necessary for a private ownership model.

Impacts of Emerging Technologies

The emerging trends being seen in transportation have the potential to offer some benefits, especially for those who are currently faced with mobility challenges. An increased number of relatively inexpensive and on-demand mobility services, such as ride-hailing and microtransit, can provide increased, on-demand mobility for elderly and disabled residents who do not or cannot have access to a personal automobile. These new mobility options can help disadvantaged and underserved individuals access all the economic opportunities and amenities their community has to offer.

Land Use

There are potential land use outcomes that might arise with the adoption of these transportation technologies. There are competing market forces with these potential land use outcomes, and there are still many uncertainties for planners and communities to monitor.

- Reduced Parking Demand - The emergence of ride sharing has already been noted to reduce parking demand in some locations such as airports, universities, and entertainment districts. CAVs have the potential to alter the demand for parking across metropolitan areas. CAVs can but will not need to park; under a ride share model they would circulate via the street system to their next rider. Under a private vehicle model they could drive themselves back to the commuter's home to park rather than park in high cost areas. This shift might mean that land currently dedicated to parking could potentially be reclaimed for other residential or commercial purposes. Parking garages across the country are being designed with adaptive reuse in mind, allowing these structures to be converted to offices or living spaces once their original use is no longer needed. However, in the short term, municipalities are met with the challenge of planning capital improvements to serve their immediate growth needs in face of the looming uncertainty of if and when CAVs will begin disrupting transportation and land use systems. One method to addressing this challenge is to integrate shared mobility and establish these modes as first and last mile connectors to public transit, so that individuals are encouraged to use alternate modes of travel instead of a private vehicle.

- Land Conversion - Parking reuse and reductions cited above might also be a tool for encouraging density in urban areas. The trend to design parking garages as adaptive reuse spaces for residential use can be a mechanism for constructing multi-family housing units and mixed use developments.

- Productive Communities and Potential Impact on Sprawl - If fully deployed, CAVs will allow occupants to use their travel time for activities other than driving, such as work or leisure activities such as reading, sleeping, or using the internet. This potential outcome termed "productive commutes" can have some implications on future land use. As individuals realize the time-savings related to being disengaged from the task of driving, long commutes viewed as costly and an annoyance can now be viewed as an opportunity to be productive. This can lead to the development of a perception that longer commutes are no longer undesirable, which in turn could very likely encourage urban sprawl as individuals may elect to live further from city centers and their work places. However, shifting preferences for home locations among Americans shows that many individuals now prefer living in denser, more walkable urban centers. While the concept of productive commutes does give rise to fears of urban sprawl, communities can leverage smart growth principles and encourage alternate transportation modes to preserve denser and more walkable cities.

Travel Safety

As previously noted, removing the driver from the driving task can greatly improve roadway safety. The increased efficiency and safety of roadways due to CAV technology can ultimately deliver significant benefits to society as the high costs of both congestion and traffic collisions can be alleviated. While roadway safety is one of the most promising outcomes of integrating CAVs into transportation networks, there is a need to ensure that these vehicles will not be prioritized over pedestrians and other road users. The increased efficiency of CAVs due to their ability to communicate and coordinate with one another could see future roads as endless streams of these vehicles without adequate space for pedestrians and bicyclists. In planning for this technology, communities must prioritize the human experience by ensuring complete streets, retaining the human scale in developments, providing the appropriate amount of bicycle and pedestrian infrastructure, and revising zoning and subdivision regulations to encourage development that provides access to shared modes and public transit.

Traffic Congestion and Traffic Reliability

Increased vehicular capacity attributing to shared CAVs can reduce congestion as the number of vehicles operating in public roadways declines. Fewer crashes and reduced bottlenecks can eventually lead to significantly higher levels of travel reliability.

Emerging transportation trends should be followed carefully. Trends may be just that, a trend, and the County should conduct further analysis to determine how emerging technologies could impact the transportation system long-term before responding through major investments.

Contributing Planning Activities

Contributing planning activities include such plans that Clay County may reference to guide future transportation system decisions. The following list is included as a reference and is not intended to be a comprehensive list of transportation planning activities:

- *Metro Grow: 2045 Metropolitan Transportation Plan* (Metro COG, 2019)
- *MATBUS 2021-2025 Transit Development Plan* (Metro COG, 2021)
- *Interstate Operations Analysis* (Metro COG, Ongoing)
- *Fargo-Moorhead Metropolitan Bicycle & Pedestrian Plan Update* (Metro COG, Ongoing)
- *Fargo-Moorhead Metro Bikeways Gap Analysis* (Metro COG, 2019)
- *Minnesota GO* (MnDOT, Ongoing)
  - The Statewide Multi-modal Transportation Plan provides reference for all of Minnesota's family of statewide transportation plans
- *District 4 Freight Plan* (MnDOT, Ongoing)
- *District 4 Bicycle Plan* (MnDOT, 2019)

Clay County Financial Analysis

Funding for Clay County road projects includes Federal, State, and local funds which include County and municipal revenue sources. Metro COG analyzed Clay County construction programs between 2012-2021 to estimate future revenues for short- (2026-2030), mid- (2031-2040), and long-range (2040-2045) revenues. All implementation projects should show fiscal constraint meaning any transportation implementation projects should not exceed the estimated revenues for the given timeframes.

County Revenue Sources

State Aid - Regular (Construction)

Clay County receives an annual apportionment of State Aid funding from the State of Minnesota through MnDOT. These funds are intended for use on County state-aid highways owned and operated by Clay County. Between 2012 and 2021, the amount has grown between 1-2% annually however, decreased between 2020 and 2021. The County assumes apportionments of approximately $3,700,000 annually between 2022-2025. In accordance with Minnesota Rules, Chapter 88200.1400, Subdivisions 1 and 2, 40% of the regular allotment must be set aside for general maintenance of County state aid highways.

State Aid - Regular (Maintenance)

Clay County receives an annual apportionment of State Aid Maintenance funding from the State of Minnesota through MnDOT which must be used for maintenance of the County state aid highway system. Between 2012 and 2021, the amount has grown from $1,770,963 in 2012, to $2,417,660 in 2021. Metro COG assumes apportionments of $2,400,000 annually between 2022 and 2025.

Maintenance funds may be used to offset operations and maintenance costs incurred by Clay County and will not be used to calculate future revenues for construction.

State Aid - Municipal (Construction)

Clay County receives an annual apportionment of State Aid Municipal funding from the State of Minnesota through MnDOT for use on county state-aid highways that run through communities with strong interest on said street. The program goals are to provide safety for users, adequate mobility and structural capacity, and an integrated transportation network. Between 2012-2021, the amount has remained relatively stable, averaging about $244,000 annually. The County assumes apportionments of approximately $240,000 annually between 2022-2025. In accordance with Minnesota Rules, Chapter 88200.1400, Subdivisions 1 and 2, 40% of the regular allotment must be set aside for general maintenance of County state aid highways eligible for State Aid Municipal funding.

State Aid - Municipal (Maintenance)

Clay County receives an annual apportionment of State Aid Municipal Maintenance funding from the State of Minnesota through MnDOT which must be used for maintenance of the county state aid highway system in municipal communities. Between 2012 and 2021, the amount has grown from $156,511 in 2012, to $193,768 in 2021. Maintenance funds may be used to offset operations and maintenance costs incurred by Clay County and will not be used to calculate future revenues for construction.

County Road Mill Levy

Clay County levies taxes annually for County Road projects. The County currently levies $400,000 annually and it is assumed that it will levy $400,000 through the foreseeable future.

Wheelage Tax

The Wheelage Tax came into effect in 2014 and funds can only be used for construction or maintenance projects on Clay County roads or bridges. The County receives 70% of the Wheelage Tax assessed in the County, with 30% going to Municipalities. Between 2014 and 2021, the average amount was $368,245 annually. Clay County assumes apportionments of $372,000 annually between 2022 and 2025.

Town Bridge Funding

Clay County receives an annual apportionment of Town Bridge funding from the State of Minnesota through MnDOT which can be used for up to 100% of eligible township bridge rehabilitation, reconstruction, or other necessary township bridge projects. Between 2012-2021, the amount has grown from $241,197 in 2012, to $514,540 in 2021. Metro COG assumes apportionments of approximately $500,000 annually between 2022 and 2025.

Town Road Funding

Clay County receives an annual apportionment of Town Road funding from the State of Minnesota through MnDOT which can be used for up to 100% of eligible township road rehabilitation, reconstruction, or other necessary township road projects. Between 2012 and 2021, the average amount was $545,324 annually. Metro COG assumes apportionments of $550,000 annually between 2022 and 2025.

Discretionary County Revenue Sources

There are numerous discretionary or competitive funding sources for transportation projects in Clay County. The County has received an average of $413,376 annually in Federal Highway discretionary funds between 2012 and 2025 however, that average is based upon five projects which were eligible and received said federal funds. Federal bridge projects averaged $100,449 over the same timeframe in which Clay County received federal funding for two eligible bridge projects.

Federal Funding Sources

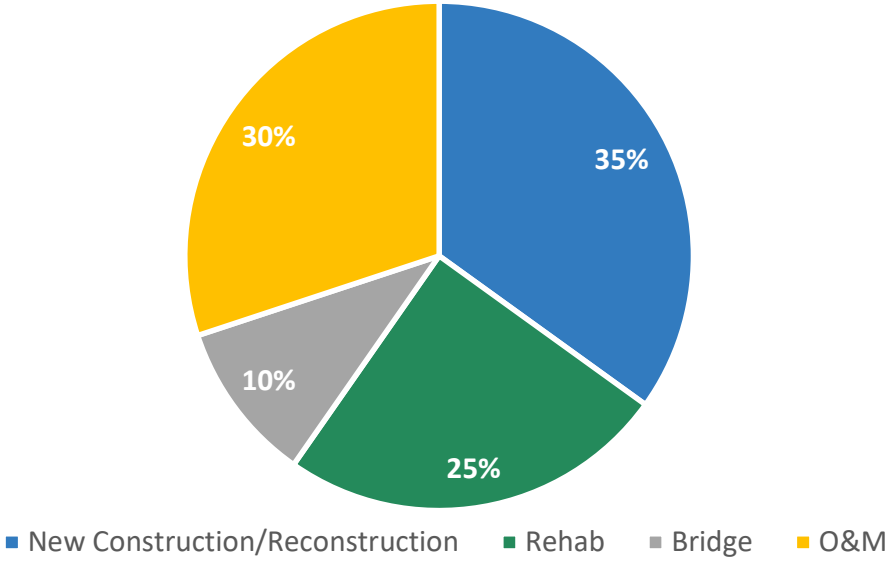
Most federal aid programs that Clay County is eligible for are outlined in Metro COG's Transportation Improvement Program (TIP). The process by which Clay County applies for federal funding is also detailed in the TIP document, which is updated on an annual basis. Federal aid programs are subject to change based upon current transportation legislation and Metro COG works closely with MnDOT to ensure the list is as current and applicable to Clay County as possible:

- Surface Transportation Block Grant Program (STBGP)
- National Highway Freight Program (NHFP)
- Highway Safety Improvement Program (HSIP)
- Transportation Alternatives (TA) Program
- Section 5310 (Transit)
- Section 5311 (Transit)

State Funding Sources

The following list of State Funding sources is not included in Metro COG's TIP; however, a quick analysis concluded that Clay County would likely be able to identify an eligible project for state funds listed. Similar to federal aid programs, state programs are subject to change based upon state legislation or state bond funding.

Figure 5.21 - 2012-2021 Transportation Spending by Typology (source: Metro COG)



- Transportation Economic Development (TED) Program
  - Proposed project must have a trunk highway purpose to improve, enhance, or modify a state trunk highway or highway right-of-way. Projects within the State's trunk highway right-of-way would be eligible.
  - Two trunk highways run through Clay County, US 10 running east-west and US 75 running north-south

- Local Partnership Program (LPP)
  - Eligible projects should provide a clear benefit to the trunk highway system (US 10 and US 75) including the local community.
  - Similar to the TED Program where work within the State's trunk highway right-of-way may be eligible for funding.

- Safe Routes to School (SRTS) Program
  - SRTS program is intended for projects that improve safety, reduce traffic, and improve air quality near schools.
  - Several state funded grant opportunities ranging from planning and engineering grants to grants for construction of eligible and selected projects.
  - County Road 34, for example, is just south of the Ulen-Hitterdal School District's K-12 building in Ulen, MN.

- Local Road Improvement Program (LRIP)
  - Intended for eligible local road construction, reconstruction, or rehabilitation as specified by the State
  - Clay County received LRIP funding in 2018.
  - LRIP has been funded through state bonding efforts dating back to 2005

Historic Spending

Figure 5.21 reflects the historic spending breakdown by project typology for all Clay County Construction Program projects between 2012 and 2021. It should also be noted that between 2012 and 2025 (last year of the construction program) the total investment in Clay County's transportation system, including operations and maintenance costs, will be approximately $130,000,000 however, a majority of funding is from the State of Minnesota and includes Federal and Municipal funds as applicable.

Operations & Maintenance

Operations and maintenance (O&M) costs were developed for Clay County as part of the 2045 Metropolitan Transportation Plan (MTP) update, the region's guiding long-range transportation plan. Although the plan was completed in 2019, O&M costs for subsequent years have been calculated assuming a 4% annual inflationary rate, unless specified otherwise by Clay County Highway Department staff. For 2021, O&M costs for the Highway Department are estimated to be $3,024,102.

O&M costs reflect the investment needed to keep the Clay County Highway Department running including but not limited to routine maintenance projects not listed in the Capital Improvement Program (CIP), staff payroll, fleet maintenance, snow removal, and other basic overhead costs that keep the Highway Department running. It is essential that O&M costs are calculated for future years to ensure financial responsibility of a safe and effective Clay County transportation system.

Future Transportation Needs

Future Spending

Clay County may consider tracking future transportation spending closely to ensure investments are forwarding the goals and objectives of the Comprehensive and Transportation Plan. By setting investment targets for projects such as safety, bicycle and pedestrian, or pavement management projects the County should start to achieve more goals and objectives as related to the plan. The tool may also be important information to update the Clay County Board of Commissioners and the general public about the progress being made on the Transportation System.

Clay County should continue to participate and collaborate with Metro COG and MnDOT to pursue discretionary funds. Competitive funding sources may help sustain the high quality transportation system of the County and supplement regular funding sources for major investments or other critical transportation projects.

County State Aid Highway 40 in Hagen Township

Agassiz Recreational Trail near Ulen

CHAPTER 6
GOALS AND OBJECTIVES

Goals and objectives are the heart of the 2045 Clay County Comprehensive Plan, expressing in detail the county's aspirations for the future. They serve to link the other chapters of this plan and describe different strategies by which Clay County hopes to implement its vision and principles.

As noted in the Vision section, Clay County held a number of community engagement events, meetings, focus groups, and other outreach efforts throughout the planning process of the comprehensive plan. These efforts were intended to elicit views on strengths, challenges, issues, and opportunities in the county to help create goals and objectives for the county to rely on.

With the adoption of the comprehensive plan, it will be important that goals and objectives are reevaluated periodically to determine if they are being fulfilled and how they may fit with changing social, economic, and environmental conditions. Through these periodic examinations, the county can be sure that the community's goals and objectives continue to communicate the aspirations of its citizens and the county will see the progress in how it is fulfilling its vision.

Community and Resilience

1. Promote personal and community health for all residents.
    a. Pursue opportunities to address barriers to mental health needs.
    b. Support individual and community health behaviors that reduce the risks of chronic disease.
    c. Encourage practices and activities to achieve healthy food access for all residents.

2. Collaborate with childcare providers to provide access to quality and affordable care.
    a. Maintain and explore opportunities to support existing and new childcare providers, including licensing assistance or the identification of space.

3. Maintain and improve community preparedness and emergency response capacity to ensure public health and safety.
    a. Promote cooperation and assistance to other emergency response agencies in Clay County.
    b. Continue to improve emergency preparedness through emergency preparedness plans, training, and facility enhancements.

Housing

1. Support additional options that give people in all life stages and of all economic means viable choices for safe, stable, and affordable homes
    a. Explore standards that promote a diversity of housing types for new housing development throughout the county.
    b. Promote local jurisdictions that have established standards and programs that promote housing diversity.
    c. Consider utilizing housing programs that support investment in and maintenance of the existing housing stock.
    d. Regularly review and update existing standards to ensure they are supporting a range of housing types.

2. Promote a diverse housing supply to provide residents with a range of housing options for those in need.

a. Provide support to homeless households and those at risk for homelessness through the County HRA.
b. Provide assistance to vulnerable and low-income populations through the County HRA.
c. Support underserved populations to be successful homebuyers and homeowners through the County HRA.

3. Safeguard the physical quality of housing to promote healthy living environments.
a. Assist lower-income homeowners with home repairs.
b. Promote the proper maintenance, repair, or replacement of residential subsurface sewage treatment systems.

Land Use

Agricultural

1. Recognize and Protect the agricultural character of Clay County.
a. Support agricultural operations against nuisance complaints when such operations are being conducted according to generally accepted farming practices through "right-to-farm" provisions.
b. Protect prime agricultural soils from commercial, industrial, and residential development.
c. Preserve large tracts of farmland while allowing farmland owners to benefit from development through the use of transfer of development rights (TDRs) for concentrated residential development.

Residential

1. Promote and encourage quality and diversified residential development in the incorporated communities of Clay County.
a. Encourage residential growth to occur in the county's incorporated communities and planned urban growth areas when public services can be provided.
b. Encourage non-farm residential development to occur in small lots around unincorporated communities.

2. Provide opportunities for quality rural residential development in Clay County.
a. Implement residential density standards that allow for rural residential development while retaining the rural character of Clay County.
b. Encourage the development of agricultural and conservation subdivisions that cluster residential development on small lots and provide for shared open spaces.
c. Permit large lot nonfarm residential development if a portion of the property is preserved or converted to a use that retains the rural character of the land.
d. Avoid or mitigate residential development on or near environmentally sensitive lands or lands with high-quality natural resources.
e. Promote the use of community or cluster wastewater systems for residential development clusters.

3. Recognize the diversity of living and working arrangements in the unincorporated areas of Clay County.
a. Allow for home occupations in unincorporated areas that are in harmony with the rural character of Clay County.
b. Recognize multi-generational and temporary agricultural worker living arrangements by permitting accessory dwelling units on properties that can adequately provide for water and sewer.

Commercial and Industrial

1. Encourage commercial and industrial development that is in harmony with the agricultural and rural character of Clay County.
    a. Promote value-added agricultural commercial and industrial development in Agricultural Service Center areas and along transportation corridors and hubs.
    b. Avoid or mitigate against commercial and industrial development in and near environmentally sensitive areas.
    c. Avoid or mitigate against commercial and industrial development that increases the potential for land use conflicts with rural residential or agricultural uses.

2. Promote the incorporated communities of Clay County as prime locations for commercial and industrial development.
    a. Encourage commercial and industrial development to locate within the incorporated communities of Clay County.
    b. Encourage commercial and industrial development that is in harmony with future land use plans or city leadership to occur in future urban growth areas of incorporated communities.

Transportation

System

1. Maintain and Operate an accessible, safe, and efficient transportation system for the movement of people and goods throughout Clay County.
    a. Continue to monitor the quality and safety of Clay County transportation infrastructure and coordinate with applicable local, state, and federal agencies to improve the transportation system across Clay County.
    b. Adopt transportation management policies that preserve the rural character and reliable transportation system for Clay County residents such as updated and clear access management guidelines, especially as they pertain to urban-type development or agriculture; implement ROW acquisition strategies on an as-needed basis; utilize the guidance of corridor management strategies to help respond to growth and development pressure but to preserve the rural and small town character Clay County is known for.
    c. Maintain and operate a transportation system that enhances the economic development objectives of the county, providing a good balance of access and mobility for people and goods to travel from farm to market.
    d. Monitor and update the Transportation Plan to identify major future transportation infrastructure and guide investment through project prioritization framework, future spending goals, and potential funding sources.
    e. Prioritize preservation and maintenance of the current transportation system over expanding the transportation system.
    f. Educate residents about existing and upcoming transportation infrastructure provided in the county by including up-to-date information on the Clay County website.
    g. Integrate multi-modal considerations into projects in order to provide a transportation system that accommodates passenger vehicles, transit, bicycles, pedestrians, freight, tractors, farm equipment, and other important modes of transportation used in Clay County.

Bicycle and Pedestrian Connectivity

1. Increase biking and walking throughout rural portions of Clay County.
    a. Consider the feasibility of bicycle and pedestrian improvements with each roadway project. Pursue discretionary or competitive funding sources for eligible bicycle and pedestrian projects to help offset costs.
    b. Consider on-street facilities such as wide paved shoulders in rural parts of the county and prioritize off-street facilities near small towns.
    c. Continue to ensure the safety and recreation of existing and future bicyclists and pedestrians across Clay County roadways or other facilities.
    d. Connect future bike and pedestrian infrastructure to other existing bike and pedestrian infrastructure.
    e. Continue to collaborate and partner with land owners and local, state, and federal agencies on the final planning and preliminary design of the Heartland Trail and other priority bike and pedestrian routes.
    f. Provide education on how walking and biking infrastructure may also enhance agriculture and farm operations in Clay County for example: wider shoulders may also improve/enhance farm equipment safety and mobility; connecting people to appreciate rural areas of the county may lead to increased preservation of the character of said areas.

Freight

1. Support the movement of freight across Clay County roadways.
    a. Coordinate with local jurisdictions and use proper planning and zoning methods to locate industrial and commercial developments on or near roadways that can handle heavy commercial truck traffic.
    b. Monitor seasonal freight traffic, commodity movement, FM Diversion construction traffic, and associated transportation infrastructure to ensure the safe and efficient operation of the system. Prepare for increased maintenance along roadways with heavy commercial truck traffic.
    c. Collaborate and Partner with Clay County Sheriff, MN State Patrol, and other applicable agencies to enforce roadway weight restrictions or other freight-related regulations, especially during periods of time when a lot of commodities or freight may be traveling from adjacent counties and states.

Transit

1. Increase opportunities for rural transit in Clay County.
    a. Educate residents about existing transit opportunities and resources that may be available to them.
    b. Increase participation and build better partnerships with existing organizations such as MATBUS, Productive Alternatives, Region 4 Rural Transportation Coordinating Council, Rural Enrichment and Counseling Headquarters, and additional partnerships to better understand and better serve Clay County residents' transit needs.
    c. Monitor evolving and new technologies and other methods that may make rural transit services even more efficient and accessible to Clay County residents.

Streetscaping and Safety

1. Enhance the character and quality of transportation infrastructure within Clay County.
    a. Coordinate with local jurisdictions to identify community interest corridors and subsequent roadway projects and partnerships that encourage local involvement to improve or upgrade streetscape elements of the roadway such as streetlights, street furniture, stamped pavement, and community branding.
    b. Explore partnerships and collaborative efforts with farmers and other stakeholders that may increase the safety and efficiency of multi-modal transportation across Clay County including: living snow fences, field access points, and paved shoulder widths.

Agriculture

1. Support the long-term protection of the County's strong and diverse agricultural economy.
    a. Maintain an environment that supports agriculture at all scales throughout the County.
    b. Recognize and support the agricultural character of the county in all planning efforts.
    c. Ensure that all new development is compatible with the character and quality of the County's agricultural areas.
    d. Promote regenerative practices, such as cover crops, reduced tillage, and livestock incorporation on cultivated cropland with the highest erosion potential to increase soil health.

Natural Resources and the Environment

Aggregate Resources

1. Recognize the importance of aggregate resources to Clay County and the region.
    a. Continue to protect quality aggregate resources from the encroachment of incompatible residential, commercial, and industrial development.
    b. Implement policies and standards to ensure sound stewardship of aggregate resources and natural biotic resources.

2. Foster a balanced approach to aggregate resource extraction that is compatible with the natural resources and the rural character of Clay County.
    a. 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.
    b. Avoid or mitigate against impacts to groundwater, surface water, native prairie, woodlands, and wetlands for new or expanding mining operations.
    c. Require phased-end reclamation plans and bonds to ensure mines are reclaimed as mining progresses.
    d. Consider the cumulative impacts of existing nearby mining operations for new or expanding operations on the environment, agricultural lands, residential areas, and transportation infrastructure.

Environmental Health

1. Ensure affordable, efficient, safe, and environmentally sound individual and community wastewater management for the benefit of Clay County property owners.
    a. Encourage the use of community or cluster wastewater treatment systems in residential subdivisions or areas with failing or potentially failing systems.
    b. Utilize soil suitability information in planning new development.
    c. Continue to monitor and Inspect residential and commercial properties with on-site sewer systems.
    d. Continue to use soil suitability data for the placement of individual or community sewer treatment systems as part of the permitting process.

2. Reduce nuisance conditions in Clay County caused by blight, pollution, and unsightly land uses and practices.
    a. Protect scenic views through regulation of billboards, signs, junkyards, and other unsightly land uses.
    b. Control negative environmental and health impacts of pollution from contaminated soils, demolished structures, illegal dumping, and other hazardous materials.
    c. Control impacts of noise pollution from non-exempt land uses and practices.

3. Protect groundwater resources in Clay County to ensure safe and clean drinking water as well as adequate supply for people and agriculture during times of drought.
    a. Continue to Implement land use controls to guide development over or near major aquifers.
    b. Recognize the impact of surface water quality on groundwater resources, particularly in the Buffalo River and Buffalo Aquifer systems.
    c. Recognize groundwater goals and implementation actions in the Buffalo-Red River and Wild Rice Watershed Districts Comprehensive Watershed Management Plans.
    d. Coordinate with municipalities and entities with Wellhead Protection Plans on land use controls and decisions.

Floodplains

1. Foster a community resilient to the impacts of flooding through targeted mitigation planning and implementation for the benefit of Clay County residents, agriculture, and industry.
    a. Discourage inappropriate development in flood hazard areas.
    b. Continue to assess flood risk by determining past and future damage potential.
    c. Coordinate with FEMA and the Minnesota Department of Natural Resources, watershed districts, and other entities on flood mitigation efforts.

Prairies and Woodlands

1. Protect and enhance remnant tracts of native prairie and forests for the benefit and enjoyment of Clay County residents and visitors.
    a. Continue to Identify major woodland and prairie tracts in Clay County for preservation.
    b. Protect native and high-quality prairie and woodland tracts from residential, commercial, and industrial development.

c. Educate and encourage private landowners to protect native prairie and woodlands through conservation easements, property tax incentives, and land acquisitions.
d. Support conservation policies and strategies that preserve the tax base of Clay County and Townships.
e. Consider adding existing right-of-way prairies into the Prairie Passage roadway corridor system to protect and restore prairie remnants.

2. Grow and restore prairie and woodland areas in Clay County for the benefit and enjoyment of Clay County businesses, residents, and visitors.
a. Encourage agricultural, commercial, industrial, and residential development to establish prairie and/or woodland areas on properties to provide ecosystem services such as erosion and flood control, through assessment, permitting, tax, and zoning programs and incentives.
b. Partner with agencies and organizations to establish native plantings on County-owned properties.

Resource Recovery and Solid Waste

1. Foster an integrated waste management system that protects the public health and environment of Clay County in a manner appropriate to the characteristics of the waste stream.
a. Continue to prioritize source reduction of waste materials.
b. Enhance and expand public outreach and education about solid waste management in Clay County, especially pertaining to waste reduction, recycling, and composting.
c. Continue to implement household hazardous waste, problem materials, recycling, and yard waste composting waste diversion programs.
d. Operate the municipal solid waste landfill and participate in the regional waste-to-energy facility in Perham.
e. Develop and identify opportunities to reuse, recover, and market waste as a resource.

Shoreland and Stormwater

1. Protect and enhance the health and vitality of Clay County surface waters including lakes, rivers, and streams for the benefit and enjoyment of Clay County residents and visitors.
a. Reduce development pressure on natural environment lakes in Clay County.
b. Maintain and enhance riparian areas of public waters, especially within shore impact zones.
c. Continue to enforce shoreland regulations on Clay County lakes, rivers, and streams.
d. Require new development to comply with applicable stormwater management regulations, plans, and policies, with an emphasis on the urbanizing areas of Clay County.
e. Recognize surface water goals and implementation actions in the Buffalo-Red River and Wild Rice Watershed Districts Comprehensive Watershed Management Plans.
f. Educate and encourage citizens to adopt stormwater mitigation practices.
g. Educate citizens on the importance of surface water quality and recreational opportunities on Clay County lakes and rivers.

Wetlands

1. Recognize the importance of wetlands for the services they provide and protect wetlands from encroachment, development, and degradation.
    a. Support Clay SWCD with the Enforcement of the Minnesota Wetland Conservation Act (WCA).
    b. Continue to incorporate wetland evaluations and studies as part of the land development permitting process.
    c. Avoid or mitigate impacts to wetlands from residential, commercial, and industrial development.

Public Open Space

1. Maintain and enhance County lands acquired through FEMA Hazard Grant Funding to serve the community and the greater region.
    a. Encourage recreational uses such as hunting, fishing, hiking, and other nature-based activities.
    b. Prioritize the establishment of native plants and prevent the establishment of noxious weeds on county-owned properties.
    c. Coordinate with local, state, and federal entities on promoting outdoor recreation and stewardship of public lands and water trails in Clay County.

Economic Development

1. Ensure a quality workforce and explore efforts to attract new and support existing businesses and industries that provide a living wage.
    a. Promote and market the quality of life, rich diversity, and assets of the County.
    b. Collaborate with public and private partners, and provide leadership where the County can make the most difference when called.
    c. Invest in high-quality education and promote opportunities for skills and training programs.
    d. Collaborate with existing businesses to understand workforce, development, and infrastructure needs.
    e. Provide resources to help entrepreneurs through all stages of business life.

Intergovernmental Coordination

1. Encourage ongoing communication, coordination, and cooperation among local and state partners.
    a. Support and continue existing joint planning ventures in the areas of watershed management, transportation planning, and other areas of multijurisdictional concern.
    b. Coordinate with partners to achieve goals included in other planning studies including the Metropolitan Transportation Plan, watershed management plans, and other studies.
    c. Maintain communications, and collaborate where appropriate, with state agencies involved in planning issues that affect the County, including the Minnesota Department of Natural Resources, Department of Transportation, Pollution Control Agency, Department of Health, and others, as well as corresponding state agencies in North Dakota when applicable.

2. Establish comprehensive growth management strategies in coordination with local jurisdictions to preserve the rural character of Clay County and encourage healthy and vital communities.

a. Coordinate with the cities and townships in Clay County to facilitate orderly growth of Planned Urban Growth Areas through the use of orderly annexation agreements.
b. Promote the use of Joint Powers Areas and Agreements to facilitate commercial and industrial growth in the Cities and Townships of Clay County.
c. Partner with cities and townships on the planning and development of Planned Urban Growth Areas.

CHAPTER 7
IMPLEMENTATION

The previous sections of the 2045 Clay County Comprehensive Plan provide goals and objectives that set a course for achieving Clay County's vision for the next 25 years. County staff, appointed and elected officials, partner agencies, and residents will work together to implement this vision. This chapter identifies available resources, tools, and certain projects that can be used during plan implementation.

The following pages provide a list of tools and resources and their purpose, and identifies partner agencies for each of the plan elements. The identified tools do not provide a holistic view of all available resources or avenues for implementation, but serve as a resource for individuals who are taking action. There are also several listed projects that Clay County has identified to assist with implementing goals and objectives. This list may be modified to respond to changes and accomplishments as needed.

In addition to the tools listed within this section, Clay County will continue to monitor the implementation of the plan, and the success of each outcome. The use of performance management tools and defined processes will aid in this process.

Community and Resilience

Plan Tool	Purpose	Partner/Agency	Timeframe
Minnesota Department of Health Grant Programs	Financial assistance programs designed to increase the health of Minnesotans	Minnesota Department of Health	Ongoing
Minnesota Department of Human Services Grant Programs	Financial assistance programs designed to help improve communities and the lives of Minnesotans	Minnesota Department of Human Services	Ongoing
Threat and Hazard Identification and Risk Assessment (THIRA)	Process to help communities understand the normal set of risks it faces and give leaders the information needed to manage and avoid future risks	Minnesota Department of Public Safety	Ongoing
Statewide Health Improvement Plan (SHIP)	SHIP is designed to help Minnesotans live longer, healthier, better lives by preventing risk factors that lead to chronic disease. It is designed to save lives by implementing interventions related to policy, system and environmental changes in schools, communities, work sites and health care organizations	Clay County Public Health, PartnerSHIP 4 Health	Ongoing
Clay County Collaborative	The Clay County Collaborative works in partnership and collaboration to empower and provide opportunities for children and families	Clay County cities, County departments, public school districts, non-profits, and other collaborative partners	Ongoing

Housing

Plan Tool	Purpose	Partner/Agency	Timeframe
Minnesota Housing Finance Agency Financing Programs – Homeownership Assistance	Financial assistance programs to assist homebuyers and homeowners	State of Minnesota	Short-, Mid-term
Minnesota Housing Finance Agency Financing Programs – Single Family Development	Financial assistance programs to develop or acquire and rehabilitate affordable owner-occupied properties	State of Minnesota	Short-, Mid-term
Minnesota Housing Finance Agency Financing Programs – Multifamily Development	Financial assistance programs to develop or acquire and rehabilitate affordable rental properties	State of Minnesota	Short-, Mid-term
Rental Assistance	The Housing Choice Voucher Program (section 8) helps households pay their rent by a direct rent subsidy, with each household paying 30 percent of their adjusted monthly income for housing costs	Clay County HRA	Ongoing
Housing Stabilization Services	Medical Assistance (MA) service for adults with disabilities who are homeless, at risk for homelessness/institutionalization, or moving out of a congregate setting	Clay County HRA	Ongoing
Rehab Program	Loans available from $1,000 to $27,000, zero percent interest for safety, livability, or energy efficiency needs	Clay County HRA	Ongoing
Home Improvement Funds	As part of the Owner Occupied Rehabilitation Program, homeowners are eligible for a total of up to $25,000 in deferred loans and other assistance	Clay County HRA	Ongoing

Land Use

Plan Tool	Purpose	Partner/Agency	Timeframe
Clay County Zoning Control	Guides the use of property within the unincorporated portions of the county	Clay County	Ongoing
Clay County Subdivision Control	Oversees review processes and standards for subdivision in rural Clay County	Clay County	Ongoing
Buffer Law	Enforce buffer along agricultural land adjacent to public water bodies	Clay Soil and Water Conservation District	Ongoing
Clay County Land Development Ordinance – Shorelands	Manage subdivision, use, and development within shoreline areas	Clay County	Ongoing
Clay County Land Development Ordinance – Floodplain Hazard Areas	Manage flood hazard areas within unincorporated portions of the county	Clay County	Ongoing
Stormwater Management Systems Ordinance	Regulations to ensure that land development activities do not interfere with stormwater management practices	Clay County	Ongoing
Subsurface Sewage Treatment System (SSTS) Ordinance	Enforce SSTS regulations	Clay County	Ongoing
Renewable Energy Ordinance/Wind Energy Ordinance	Regulates the design, installation, and permitting of solar energy systems and wind energy systems less than 25,000 kW	Clay County	Ongoing
Clay County Land Development Ordinance – Aggregate Resources	Provide for the orderly, economic, and safe removal and processing of aggregate resources	DNR, Clay County	Ongoing
Official Map	Manage land within mapped area	Clay County	Short-term
Historical and Cultural Society of Clay County	Interpret and preserve local history, historic sites, and related programming	Historical and Cultural Society of Clay County	Ongoing

Transportation

Plan Tool	Purpose	Partner/Agency	Timeframe
County Highway Safety Plan	Statewide highway safety planning process to assist counties to proactively submit low-cost systematic safety projects for MnDOT to consider for Highway Safety Improvement Program funding	State of Minnesota	Ongoing
Clay County Capital Improvement Plan (CIP)	Annual process by which Clay County sets aside funds dedicated to infrastructure improvements (e.g., roadway paving, pedestrian improvements, bicycle facilities, etc.)	Clay County, Local Jurisdictions	Ongoing
County Pavement Management Plan	County Highway planning process to monitor and manage pavements on Clay County roadways. Will be used to identify pavement improvement projects and set formal performance targets for Clay County maintained roadways.	Clay County	Short-term
Official Map	80th Ave S/CR 67 bridge right-of-way preservation	Clay County	Short-term
Official Map	Heartland Trail Alignment	Clay County, MN DNR, Metro COG, and Local Jurisdictions	Mid-term
Heartland Trail Planning Study	Collaborate with state and local partners as well as landowners in the preliminary design of the Heartland Trail	Clay County, Metro COG, and Local Jurisdictions	Short-term
Access Management	Update access management regulations and access management policy to be as clear as possible. Reevaluate against goals and objectives of the Comprehensive Plan	Clay County	Short-term

Transportation (cont.)

Plan Tool	Purpose	Partner/Agency	Timeframe
Transit Planning	Provide accessible resources regarding transit opportunities in Clay County.	Clay County	Ongoing
Transit Planning	Compile transit information about Clay County's former transit service including ridership, operational costs, revenue sources, etc.	Clay County	Short-term
Transit Planning	Reevaluate feasibility of providing on-demand rural transit service throughout Clay County.	Clay County, MnDOT	Long-term
Bicycle and Pedestrian Network Planning	Include paved shoulders wide enough to safely accommodate a bicyclist or pedestrian on roadway rehabilitation and reconstruction projects, especially said projects that have been identified as priority bicycle or pedestrian routes.	Clay County, MnDOT	Ongoing
Transportation Alternatives Program	Partner with local jurisdictions to apply for federal funding to make bicycle and pedestrian facility connections from small cities to important locations across Clay County.	Clay County, Metro COG, and Local Jurisdictions	Short-term

Natural Resources and the Environment

Plan Tool	Purpose	Partner/Agency	Timeframe
Minnesota Environment and Natural Resources Trust Fund	Financial resource for the protection, conservation, preservation, and enhancement of the state's air, water, land, fish, wildlife, and other natural resources	State of Minnesota	Ongoing
Outdoor Heritage Fund	Financial resource used to restore, protect, and enhance wetlands, prairies, forest and habitat for fish, game, and wildlife	State of Minnesota	Ongoing
Clean Water Fund	Financial resource used to protect, enhance, and restore water quality in lakes, rivers, and streams and to protect groundwater from degradation	State of Minnesota	Ongoing
One Watershed One Plan	County-wide initiative dedicated to preserving and protecting the County's water resources	Surrounding Counties, Soil and Water Conservation Districts, Watershed Districts, Minnesota Board of Soil and Water Resources.	Ongoing
Parks and Trails Fund	Financial resource used to support parks and trails of regional or statewide significance	State of Minnesota	Ongoing


CLAY
COUNTY