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

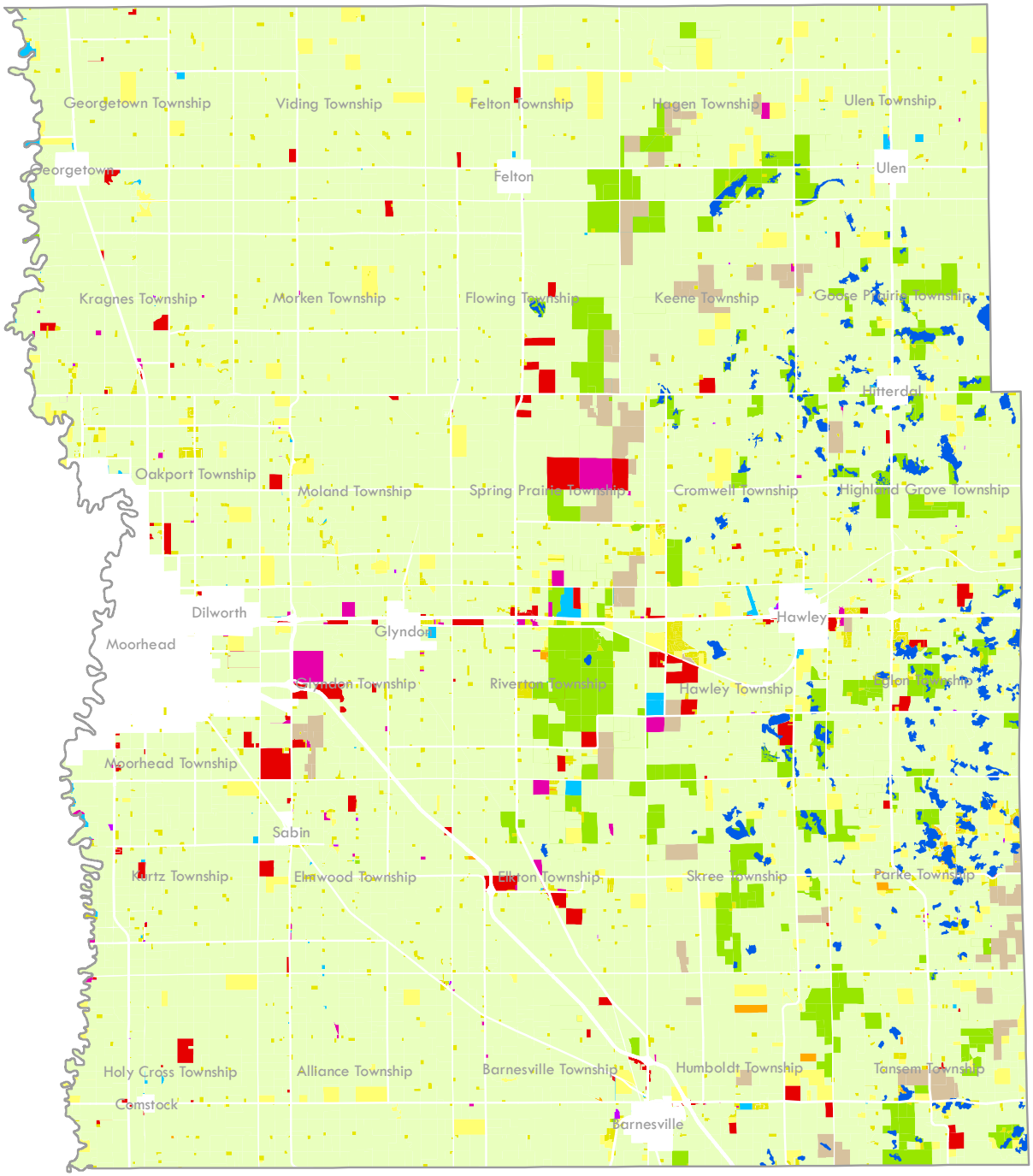
Clay County covers 1,053 square miles, measuring 36 miles from north to south and approximately 30 miles from east to west. The western boundary of the county abuts the eastern boundary line of North Dakota along the Red River. The Buffalo River flows west-northwesterly through the center of the county,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

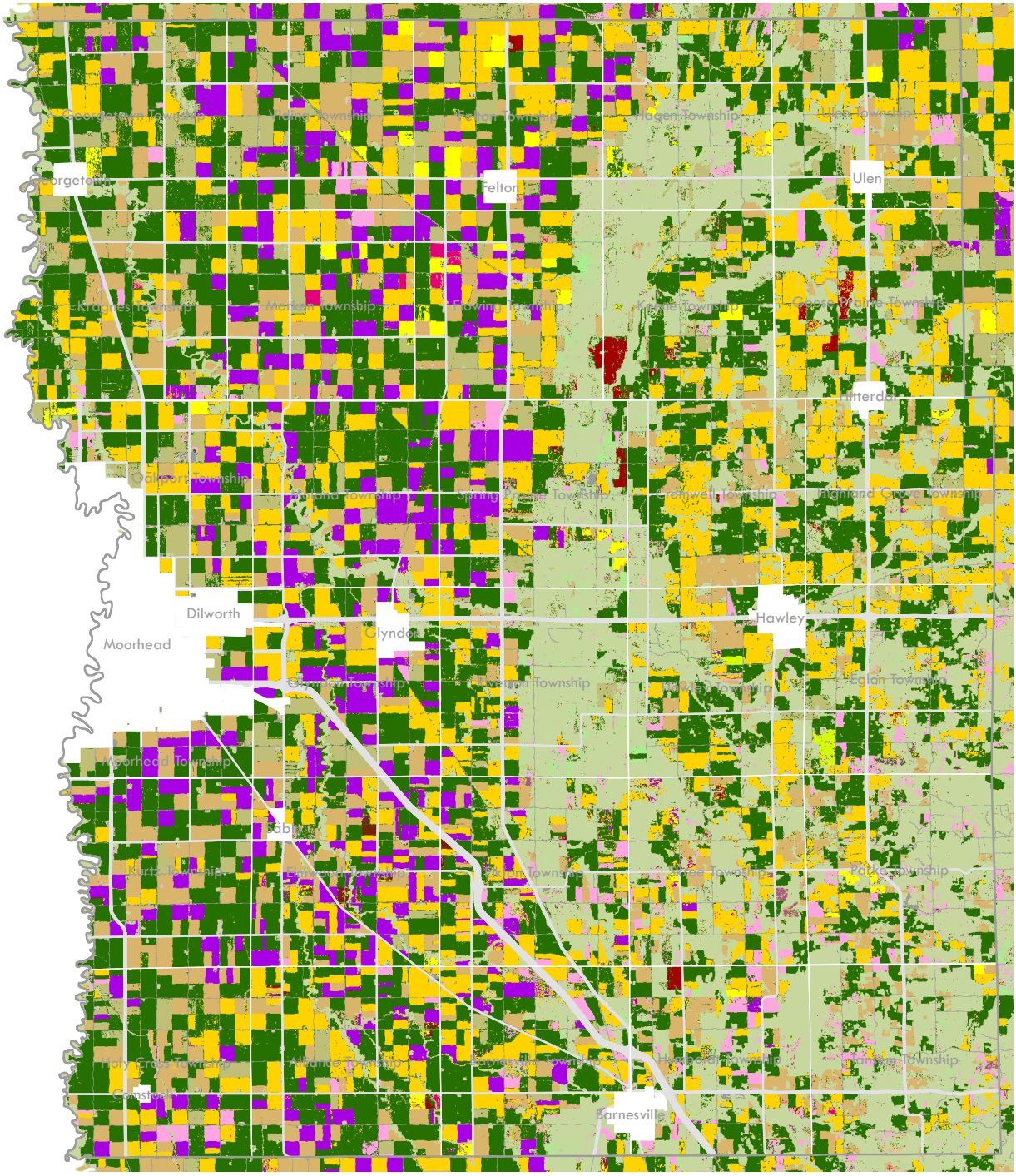
Mixed Use land use includes several parcels located throughout the county which include a mix of residential with commercial and/or industrial uses.

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

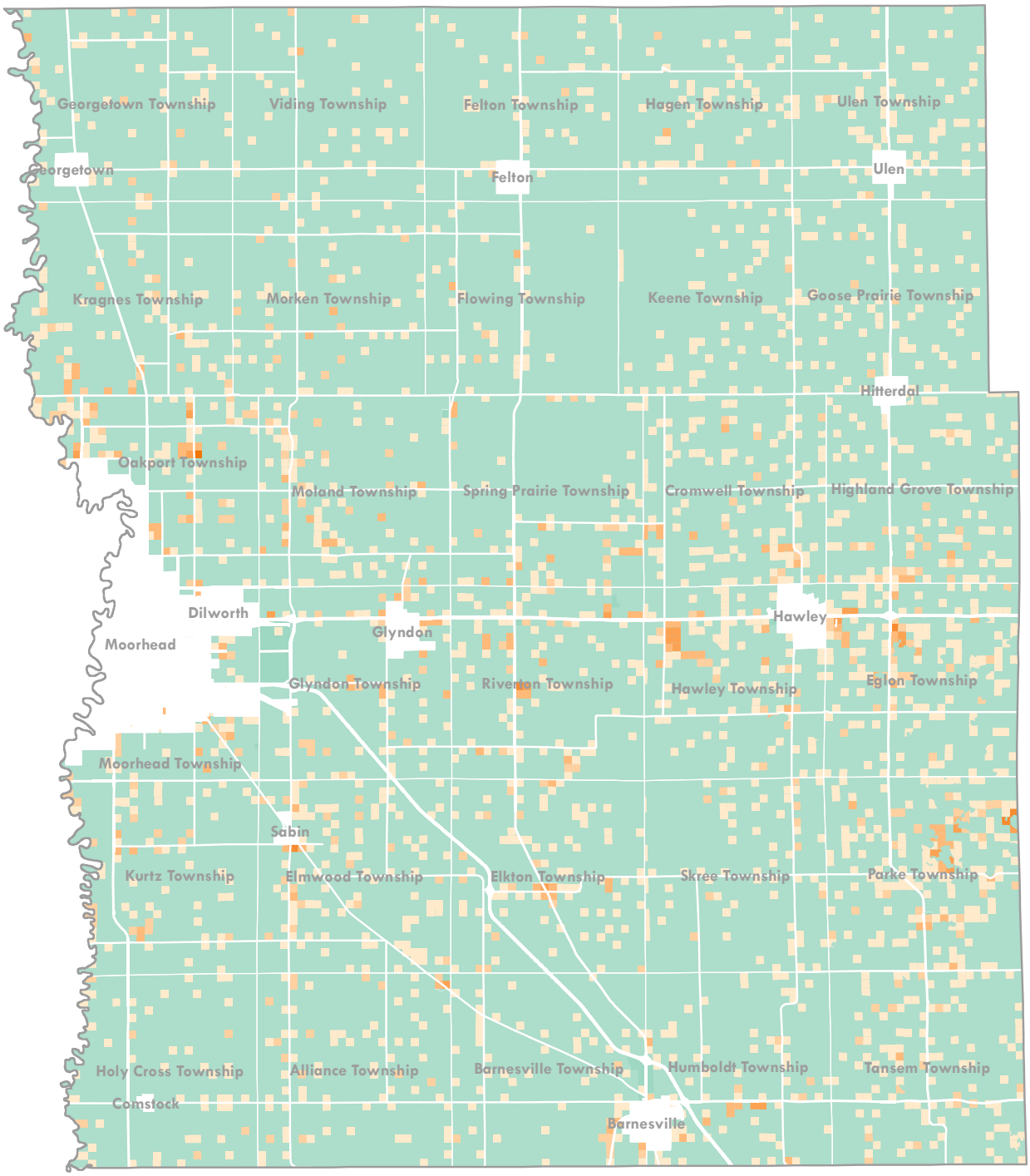
Agriculture continues to be an important economic activity in Clay County. The soils left by receding glacial Lake Agassiz in the Red River Valley allow for very high levels of agricultural productivity in the county and surrounding region. According to the 2017 Census of Agriculture, there were 576,646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

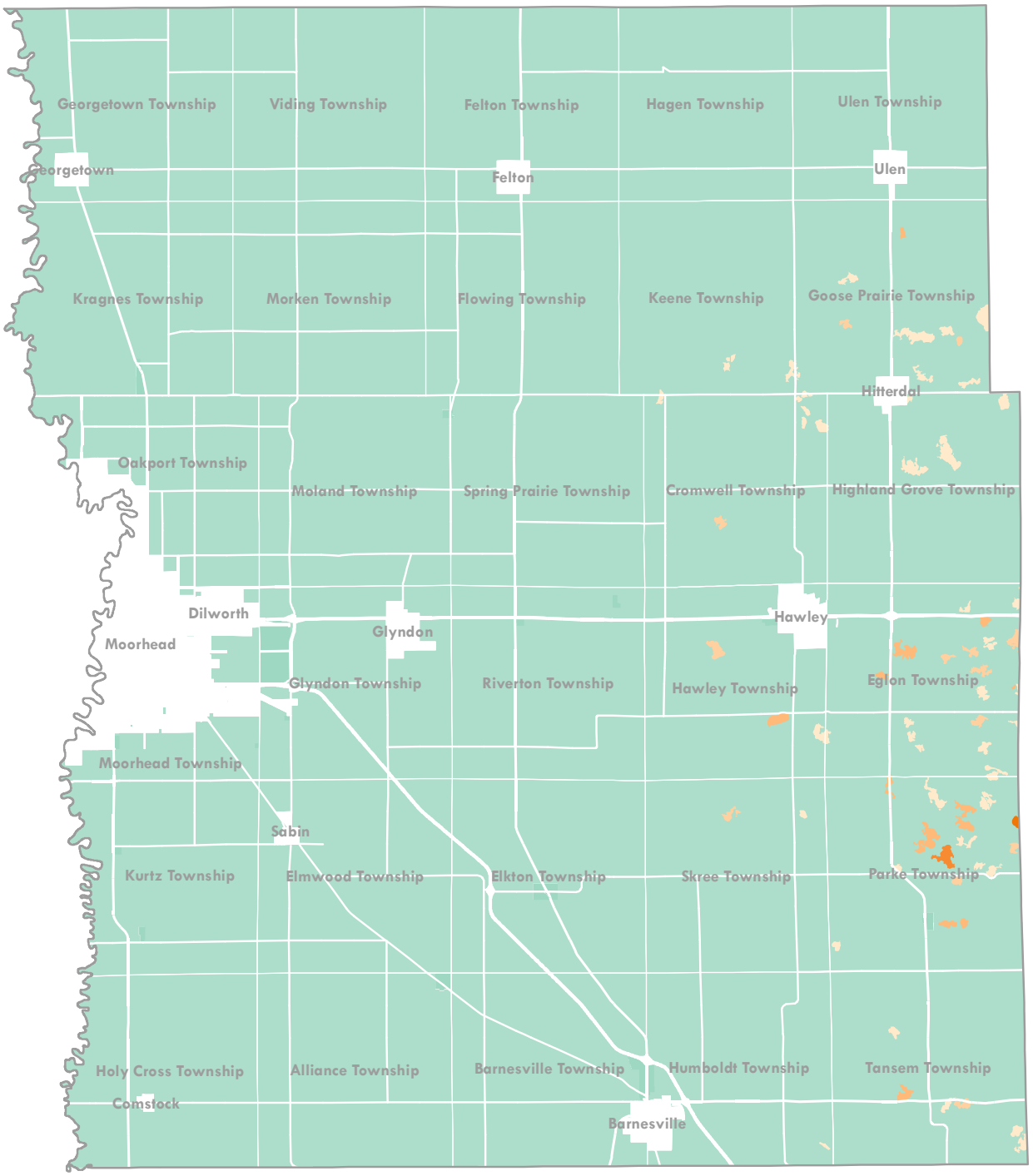


CLAY COUNTY
COMPREHENSIVE PLAN

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

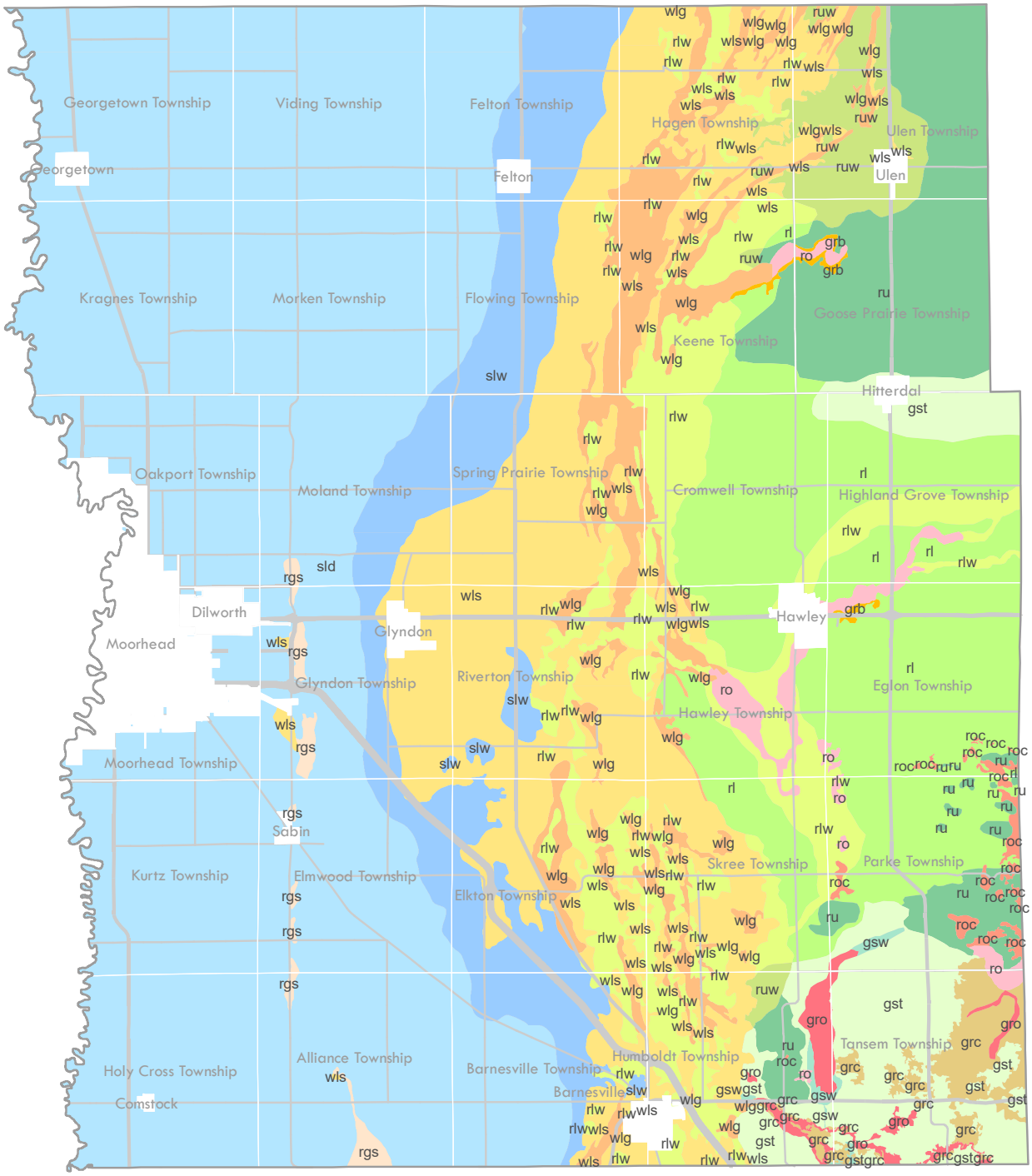


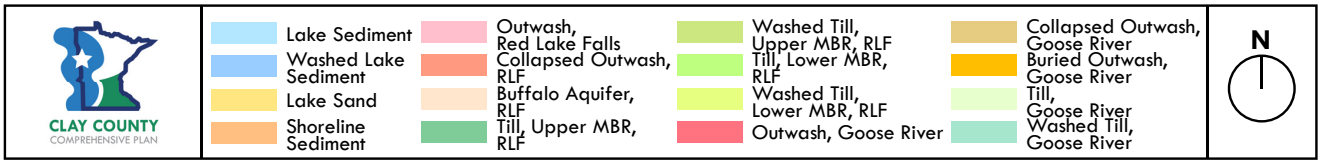
CLAY COUNTY COMPREHENSIVE PLAN

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

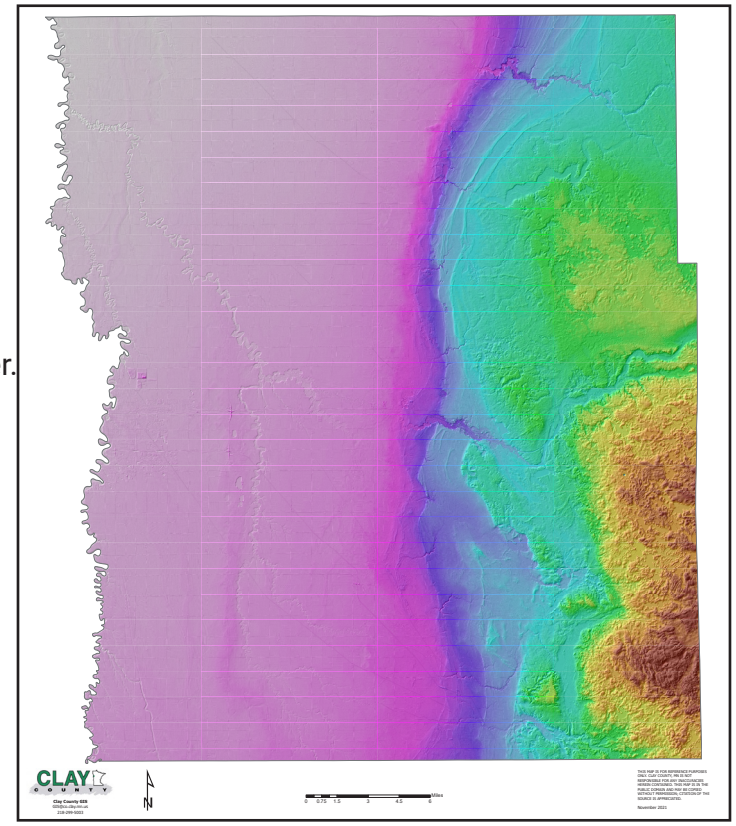




Map 4.5 – Surface Geology of Clay County

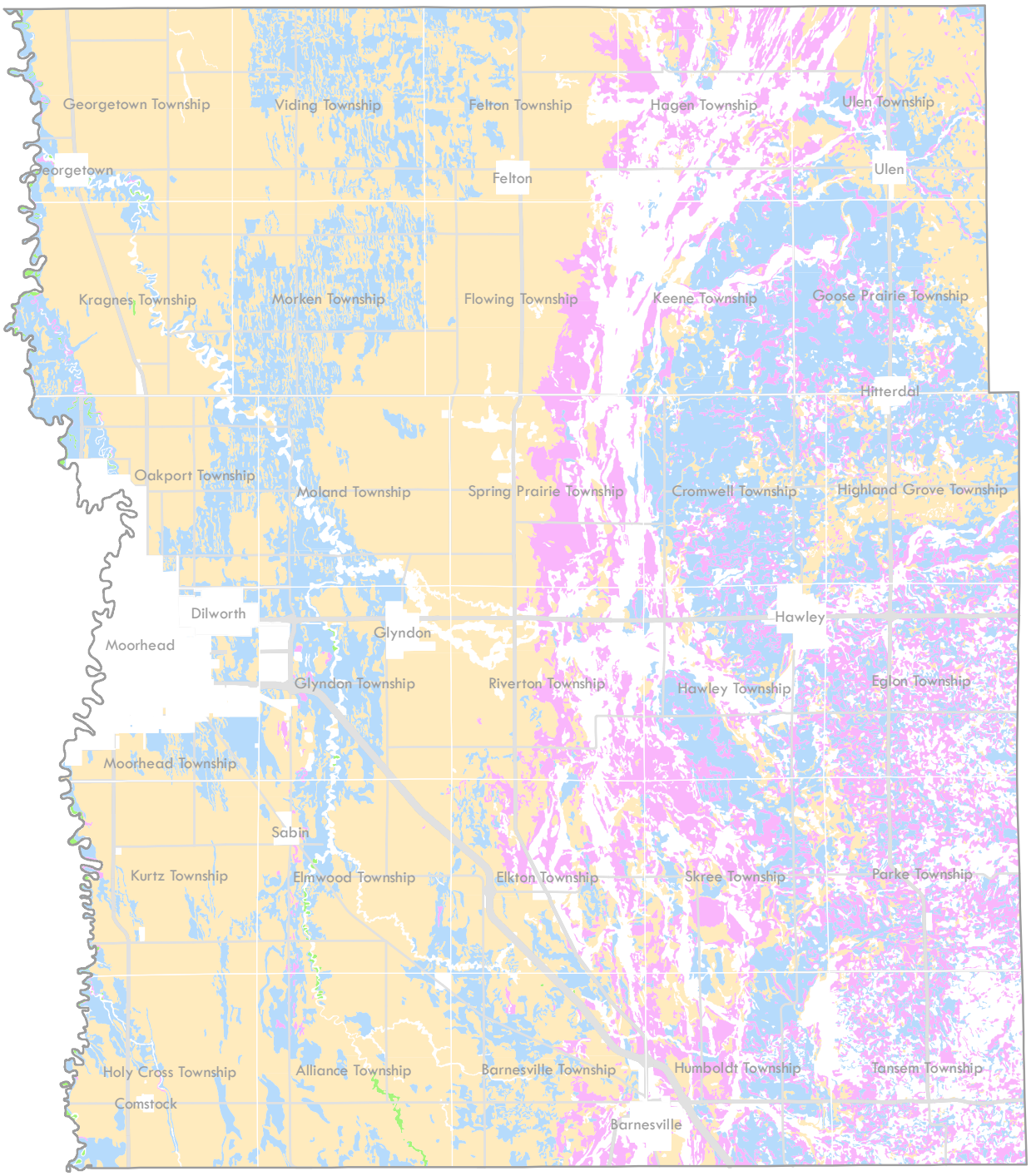
Terrain

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.

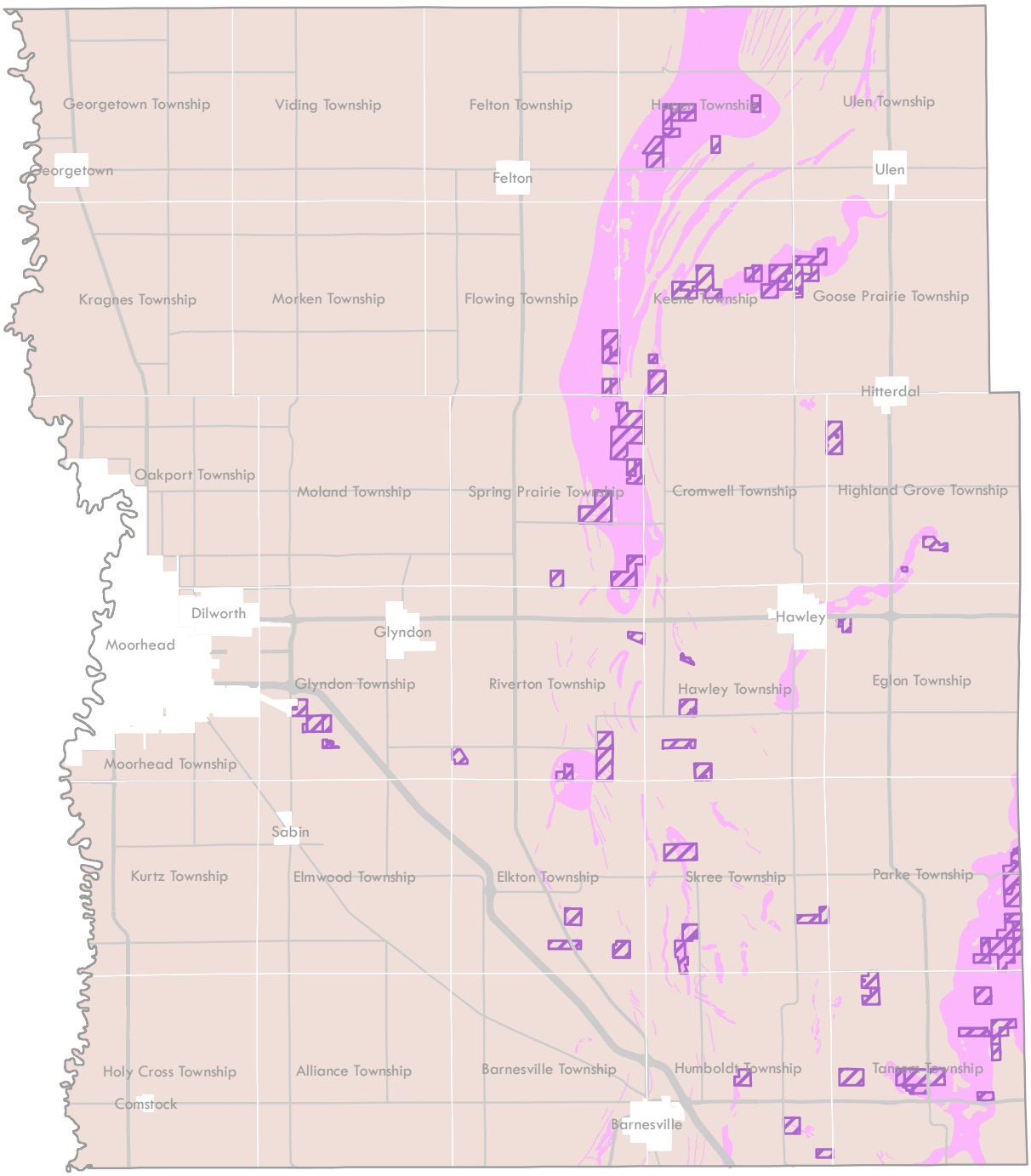
There are 241 sq. miles of prime farmland in Clay County.

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.



CLAY COUNTY
COMPREHENSIVE PLAN

Map 4.8 – Aggregate Potential and Gravel Pits in Clay County

Significant Potential for Sand and Gravel Resources

Gravel Pit Permits

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.

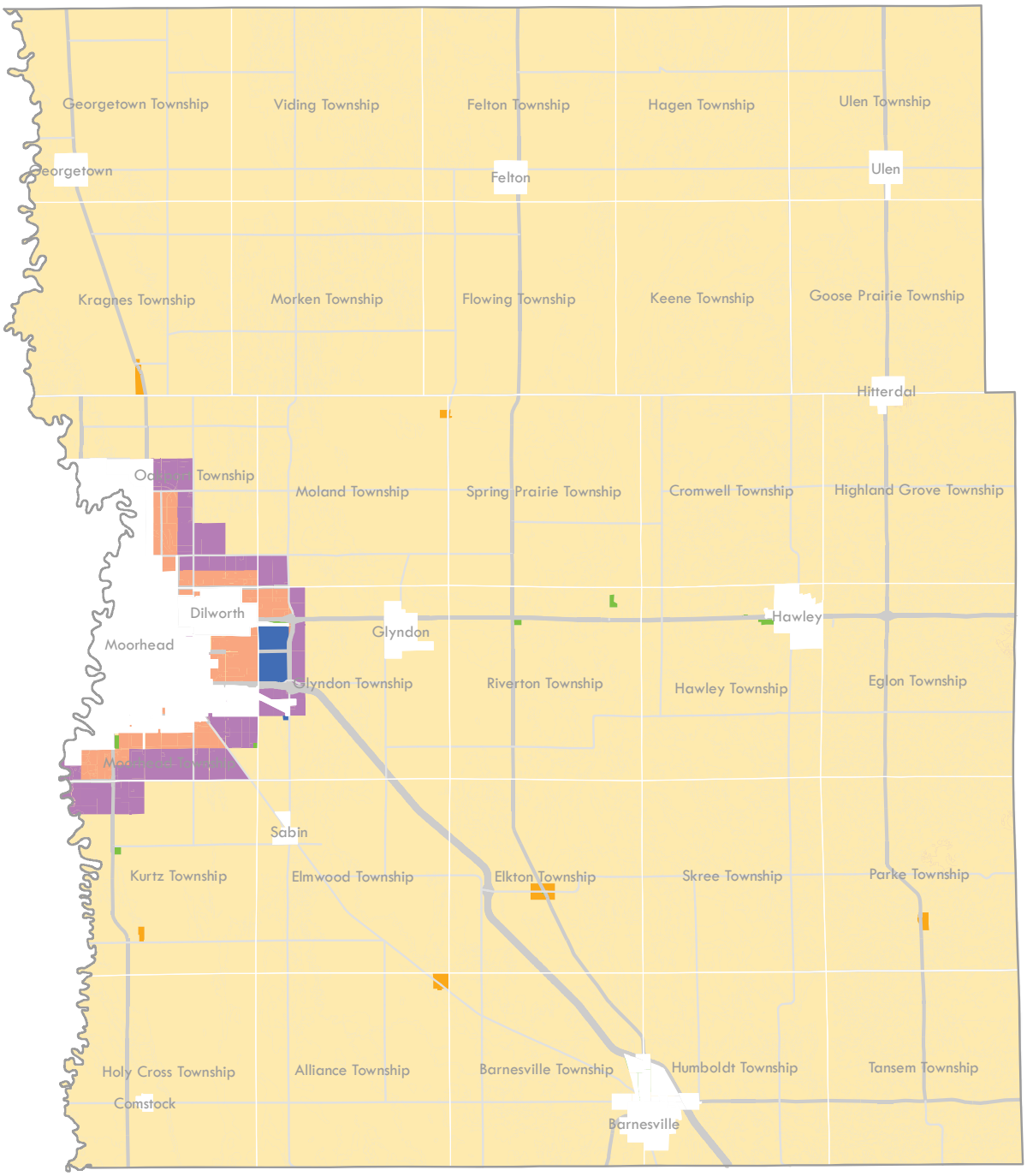
Statewide, up to 50 percent of aggregate utilization contributes to publicly funded infrastructure projects. The 1984 Minnesota legislature passed a law (M.S. 84.94, Aggregate Planning and Protection) which mandates that the DNR provide information about potential aggregate resources to local government 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.

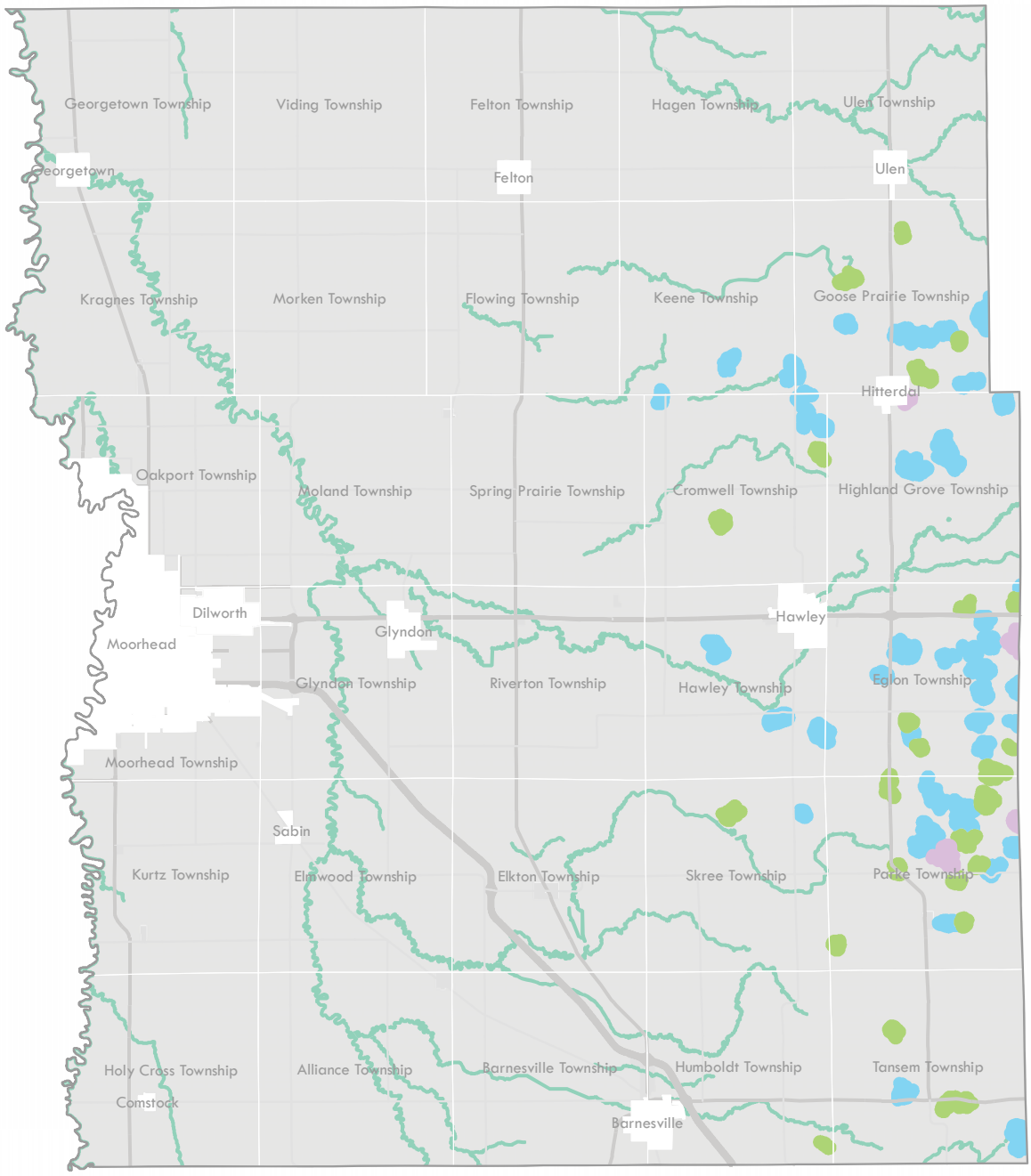
Clay County's **Agricultural General Zoning District** encompasses most of the County's rural area. The allowable land uses are geared towards protecting the agricultural character of the County.

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.



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.

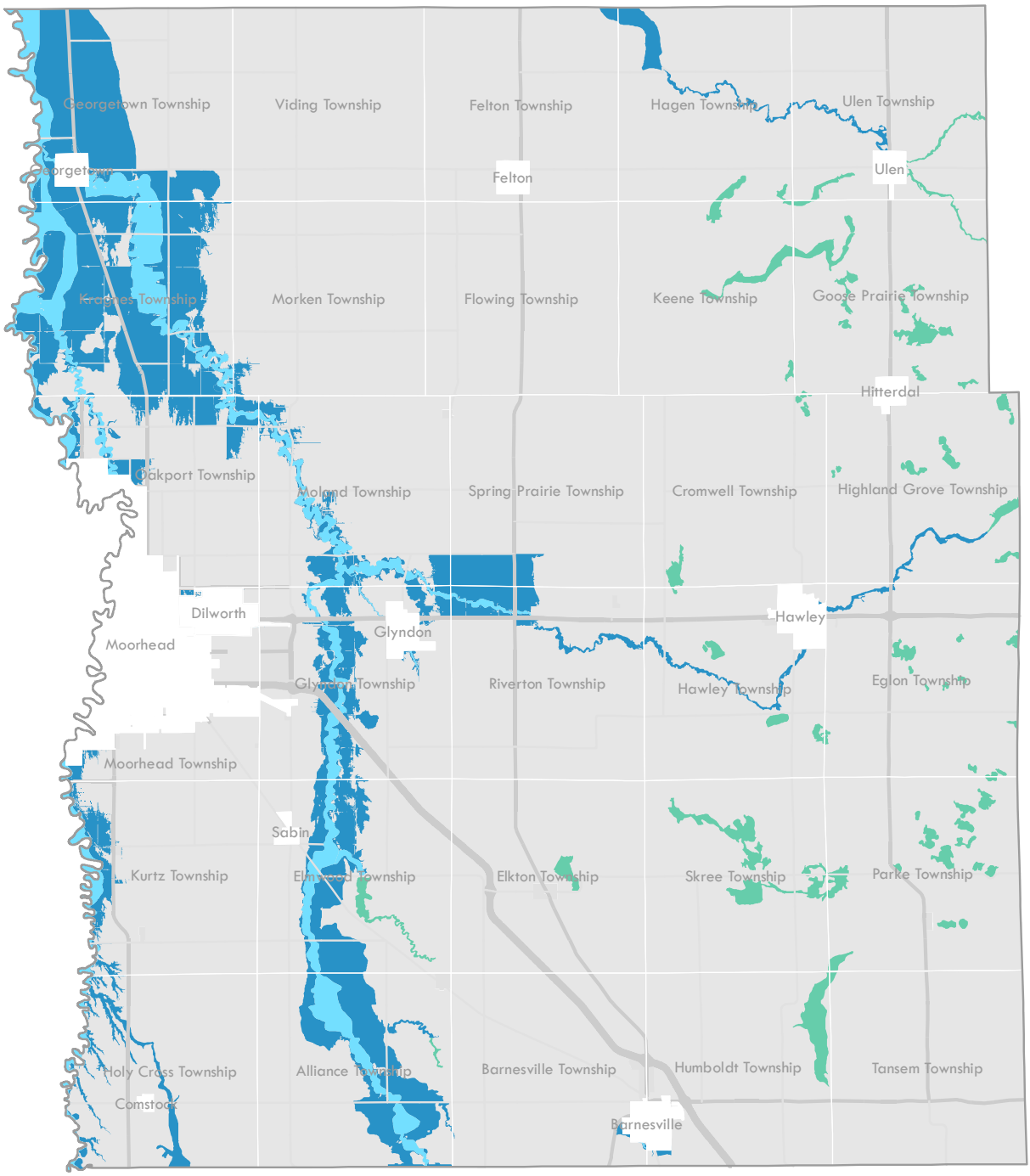
The **Shoreland – General Use District** is modeled after the Department of Natural Resources Shoreland Model Ordinance which permits forest management and allows commercial and public, semipublic uses with a conditional use permit. There is currently only one property zoned this in Parke Township.

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.

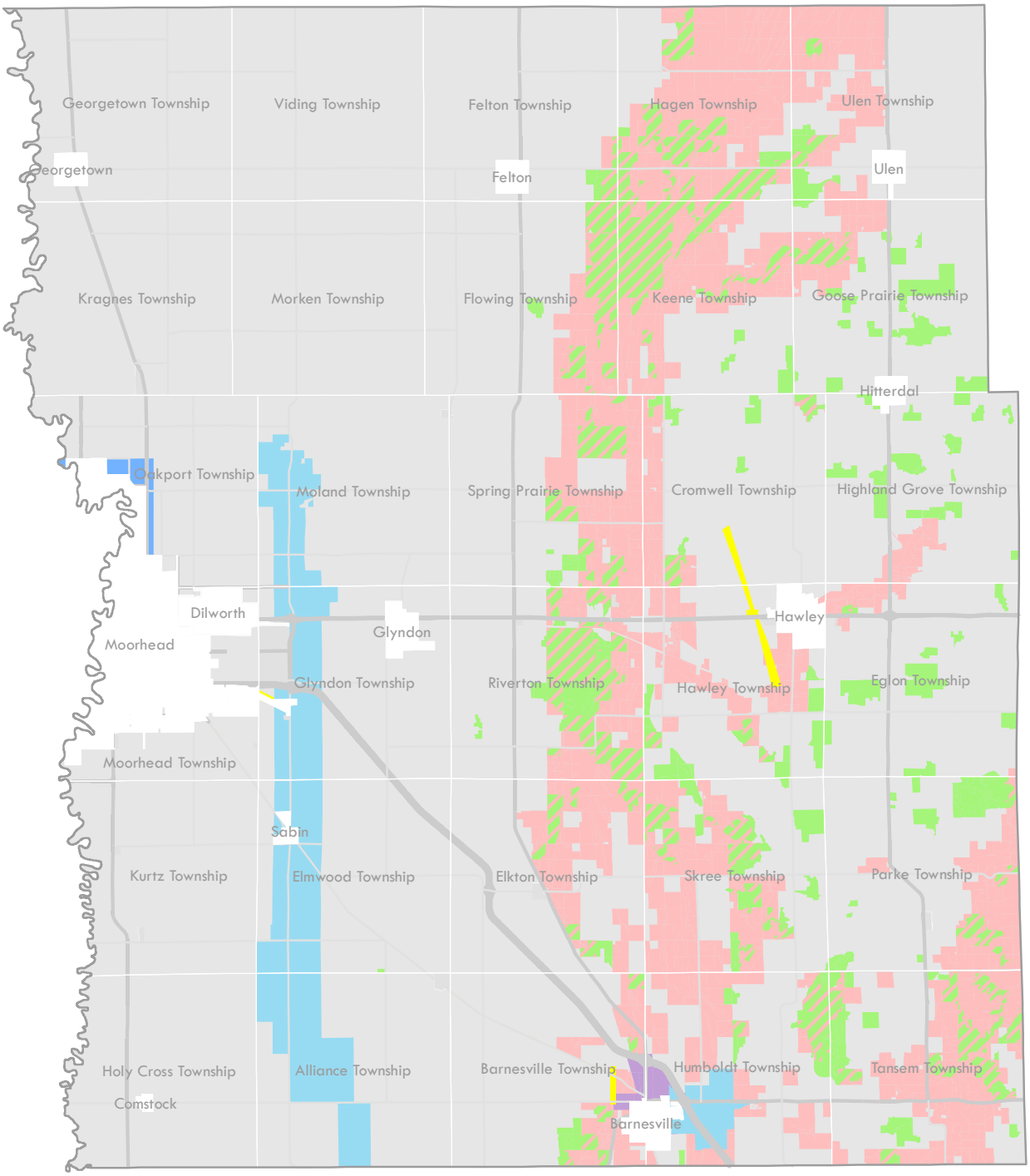
All district boundaries are derived directly from FEMA and are recommended to Clay County by the State of Minnesota.

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.

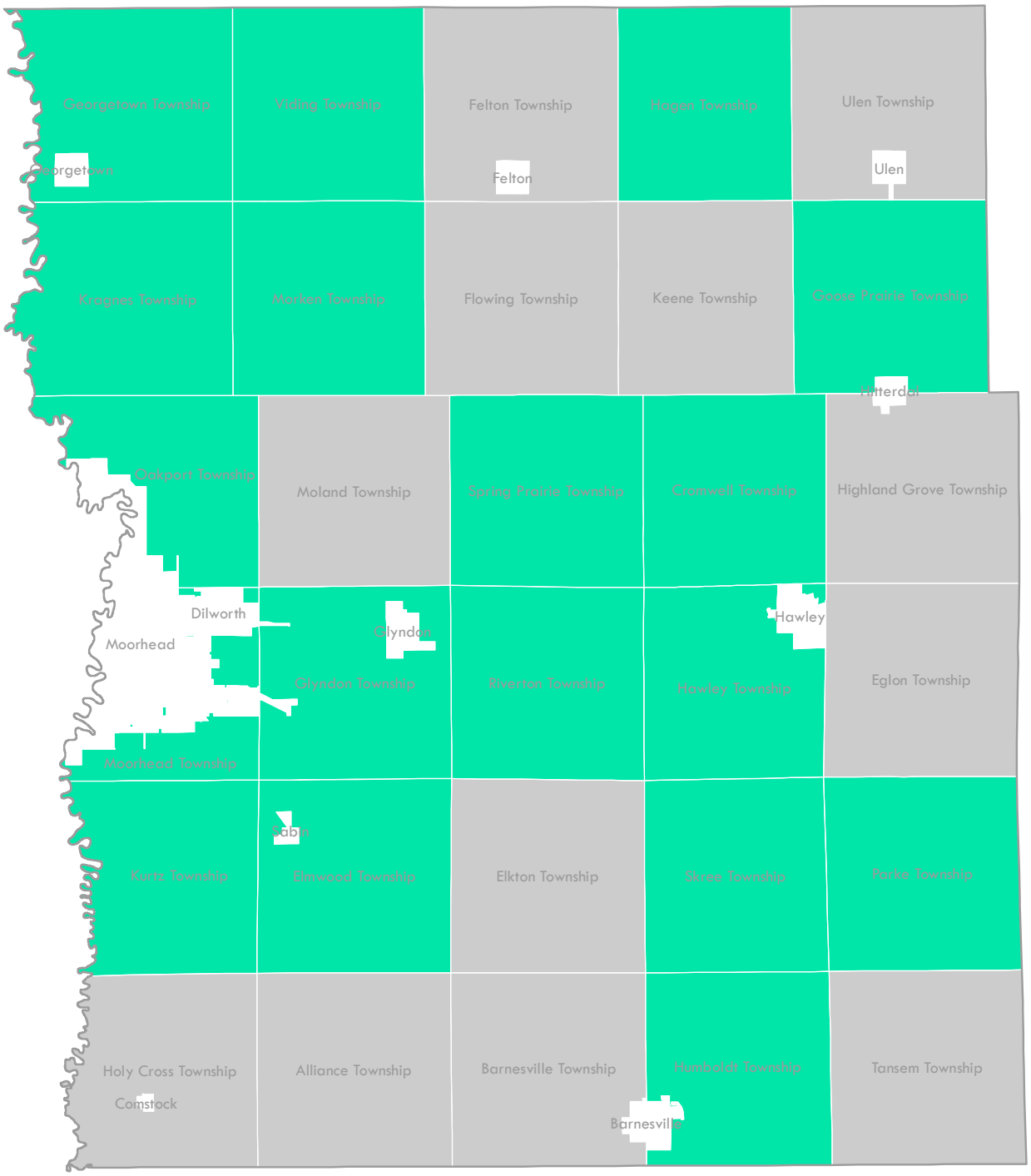
The **Resource Protection Aggregate Resources Overlay District** is intended to protect areas with existing significant aggregate resources as shown in the Clay County Aggregate Resources Inventory.

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

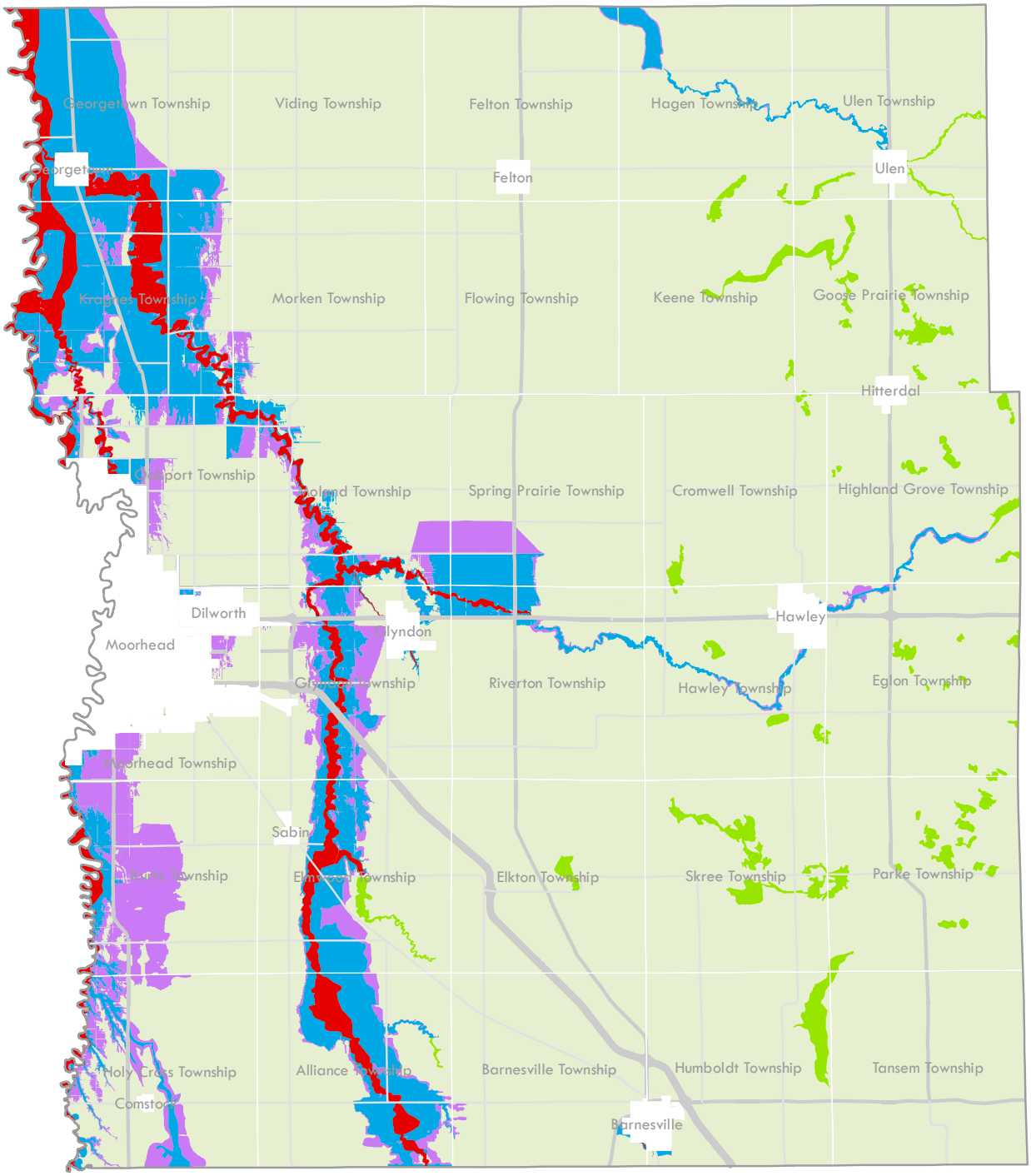
Townships without Zoning Regulations

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

N

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

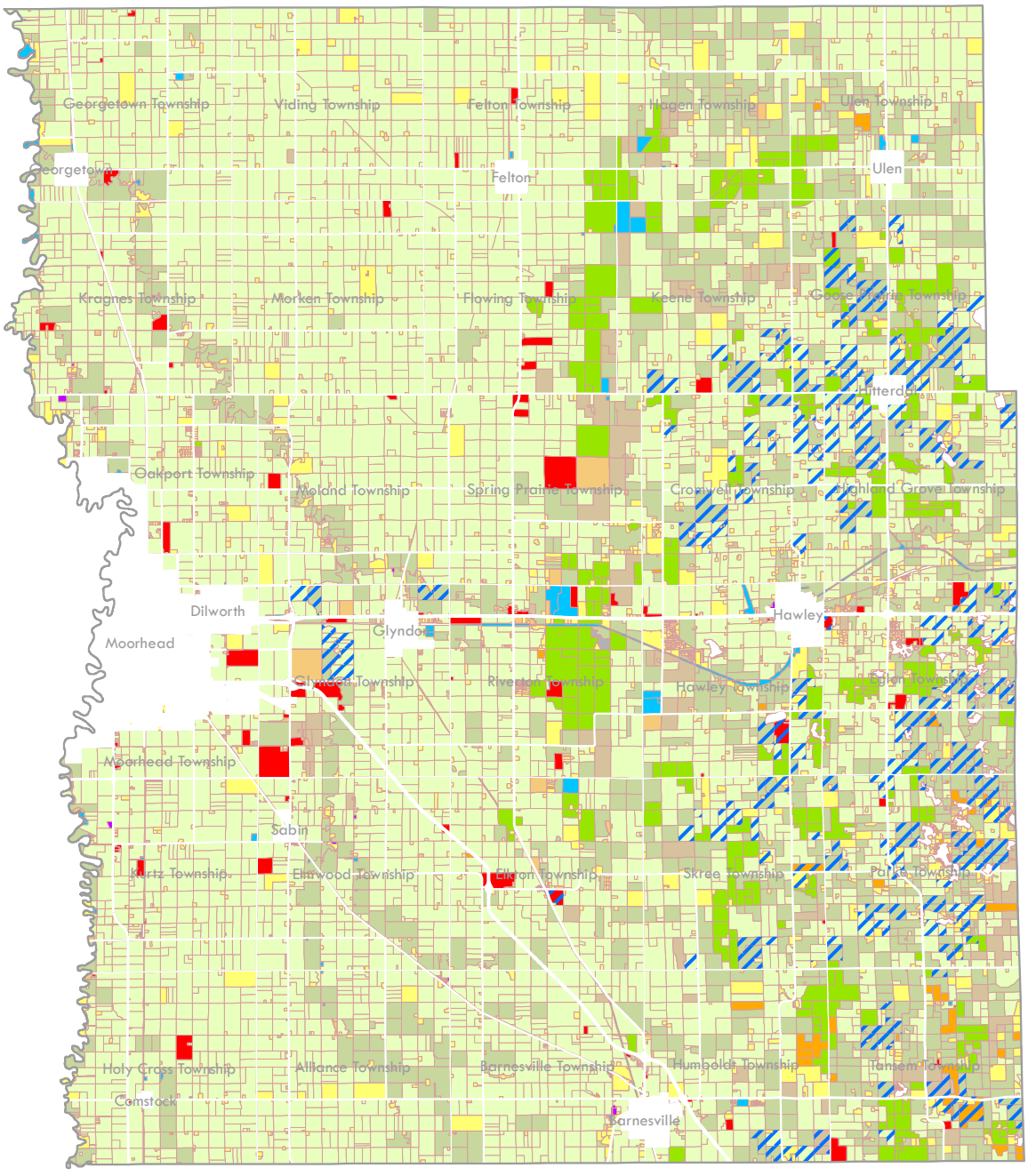
In 2021, Clay County conducted an assessment data analysis to understand how current land uses have shifted over the previous decade. This assessment was done by the number of parcels associated with a specific land use and tax class within unincorporated areas of Clay County. The data was broken down 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
- Seasonal
- Home Occupation
- Agricultural
- Commercial
- Industrial
- Conservation/ Public Lands
- Government/ Public Utility
- Rural Vacant
- 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

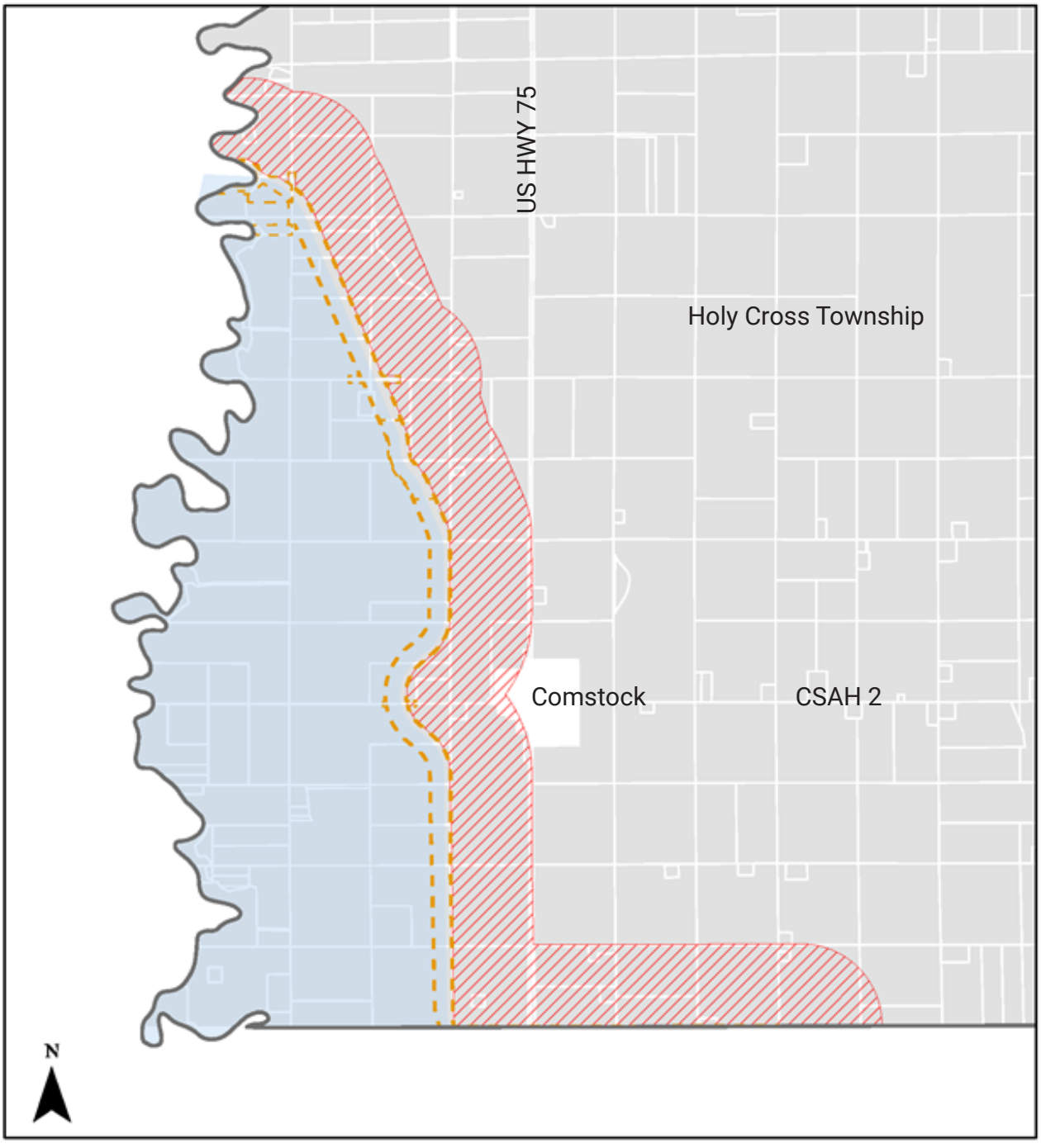
Additional Planning and Land Use Issues in Clay County

Fargo-Moorhead Area Diversion Project - Southern Embankment

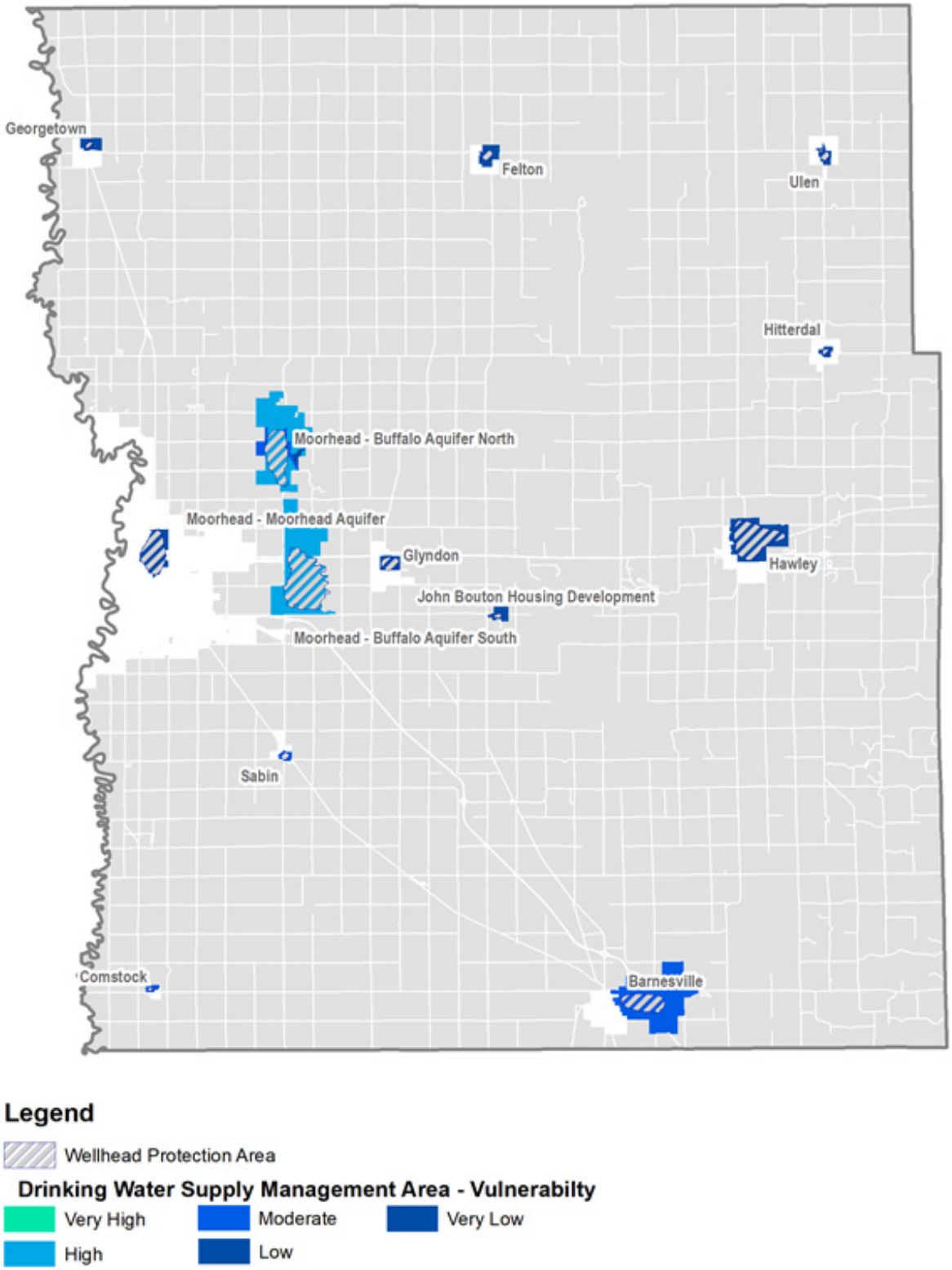
The Fargo-Moorhead Area Diversion Project is a flood control project on the Red River that borders North Dakota to the west and Minnesota to the east. It was developed by the U.S. Army Corps of Engineers and the Metro Flood Diversion Authority. The project includes two major components: a 30-mile Diversion 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

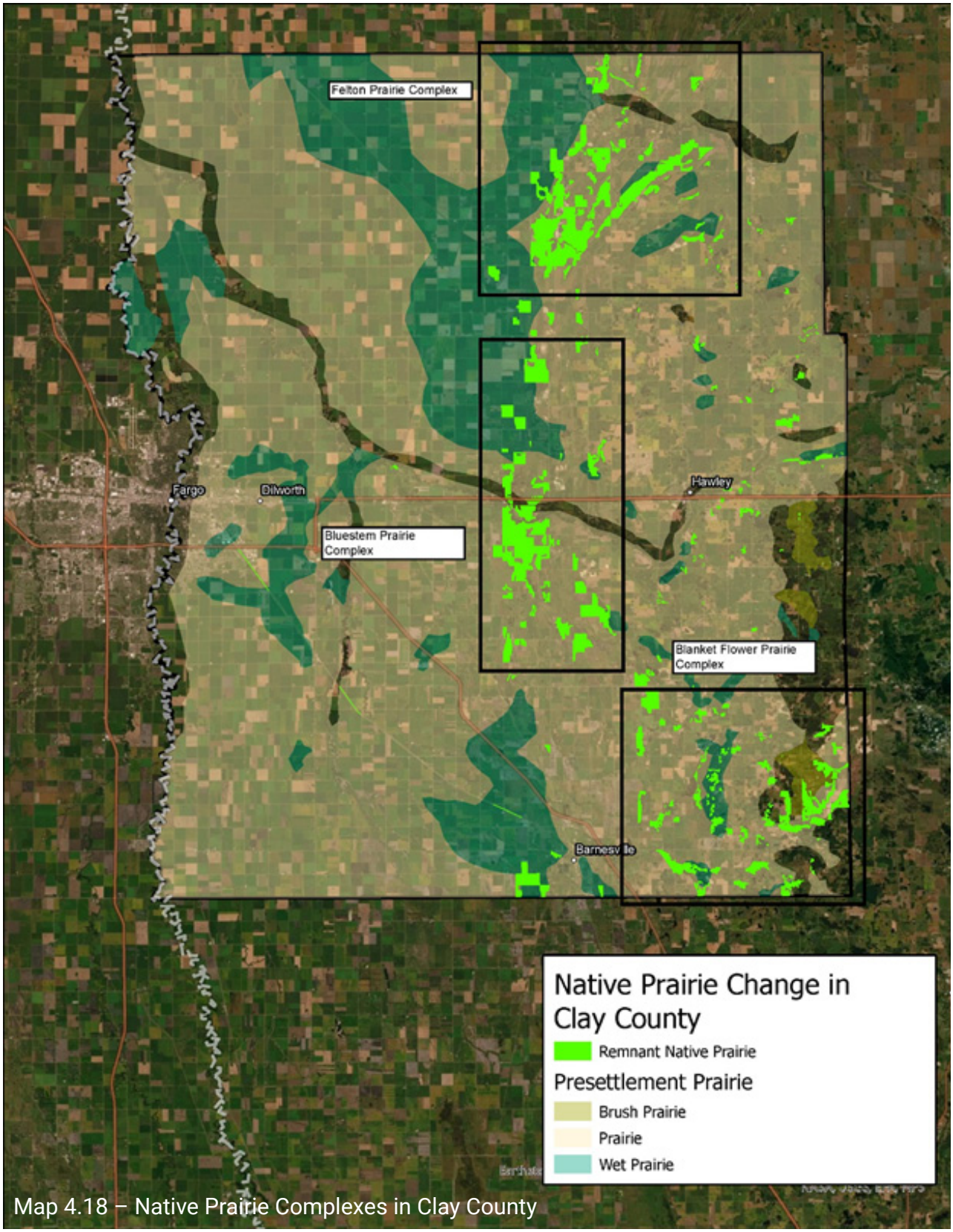


Map 4.17 – Wellhead Protection Areas and DWSMAs in Clay County

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

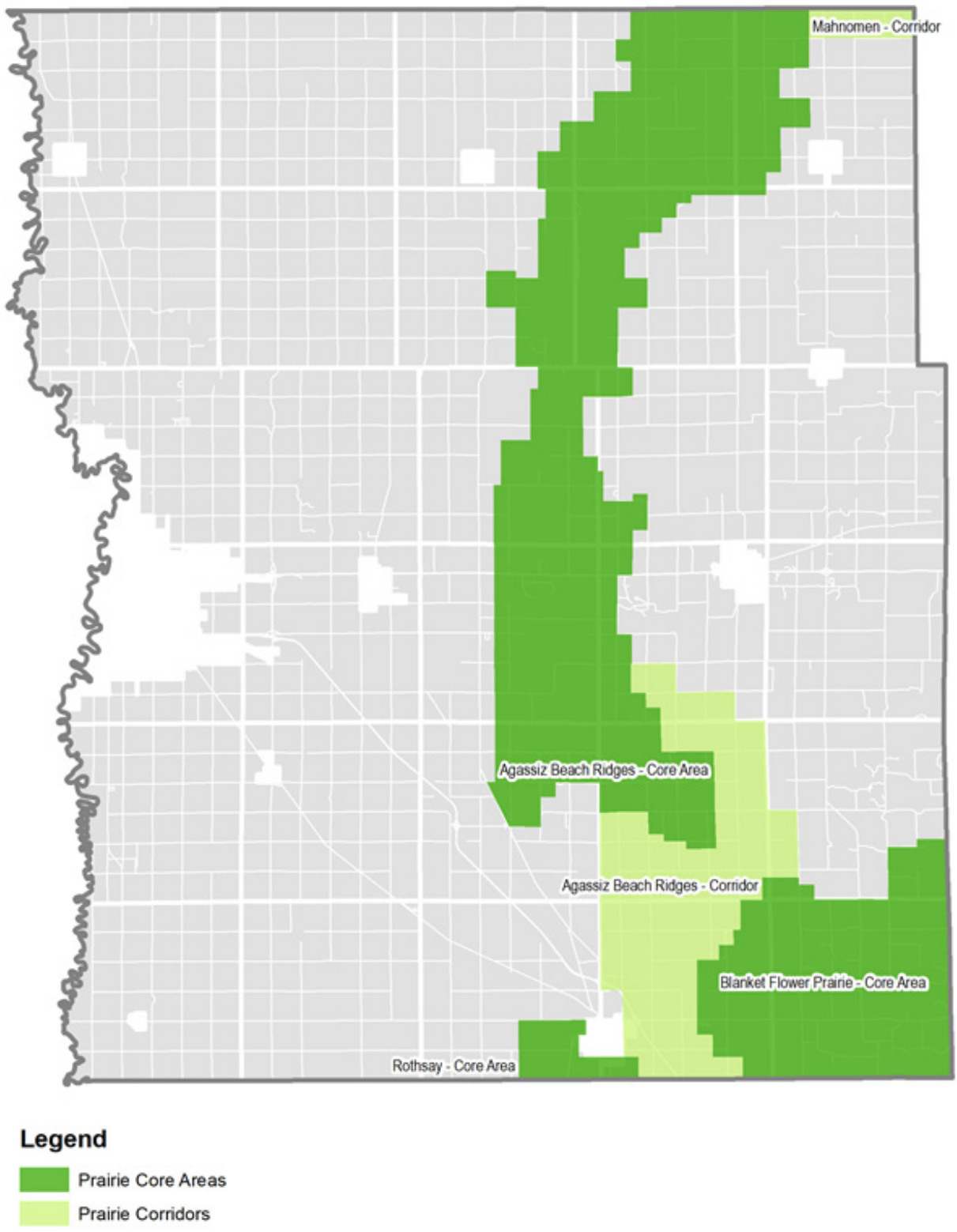
Clay County is rich with prairie resources that provide multiple ecosystems services to the County. These services include erosion control, flood mitigation, grazing and pastureland, hunting and recreation opportunities, and wildlife habitat. Prior to European settlement, Clay County had approximately 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.

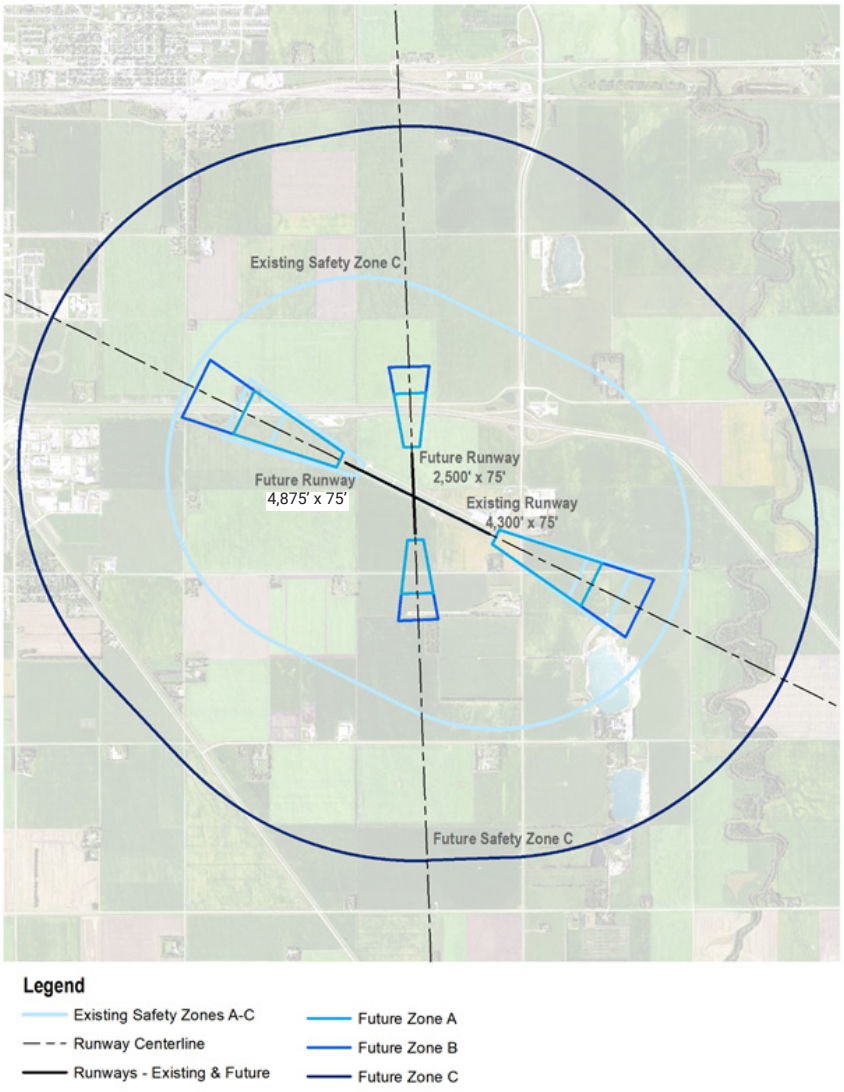


Figure 4.1 – Aeronautical Safety Zones at Moorhead Municipal Airport

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.

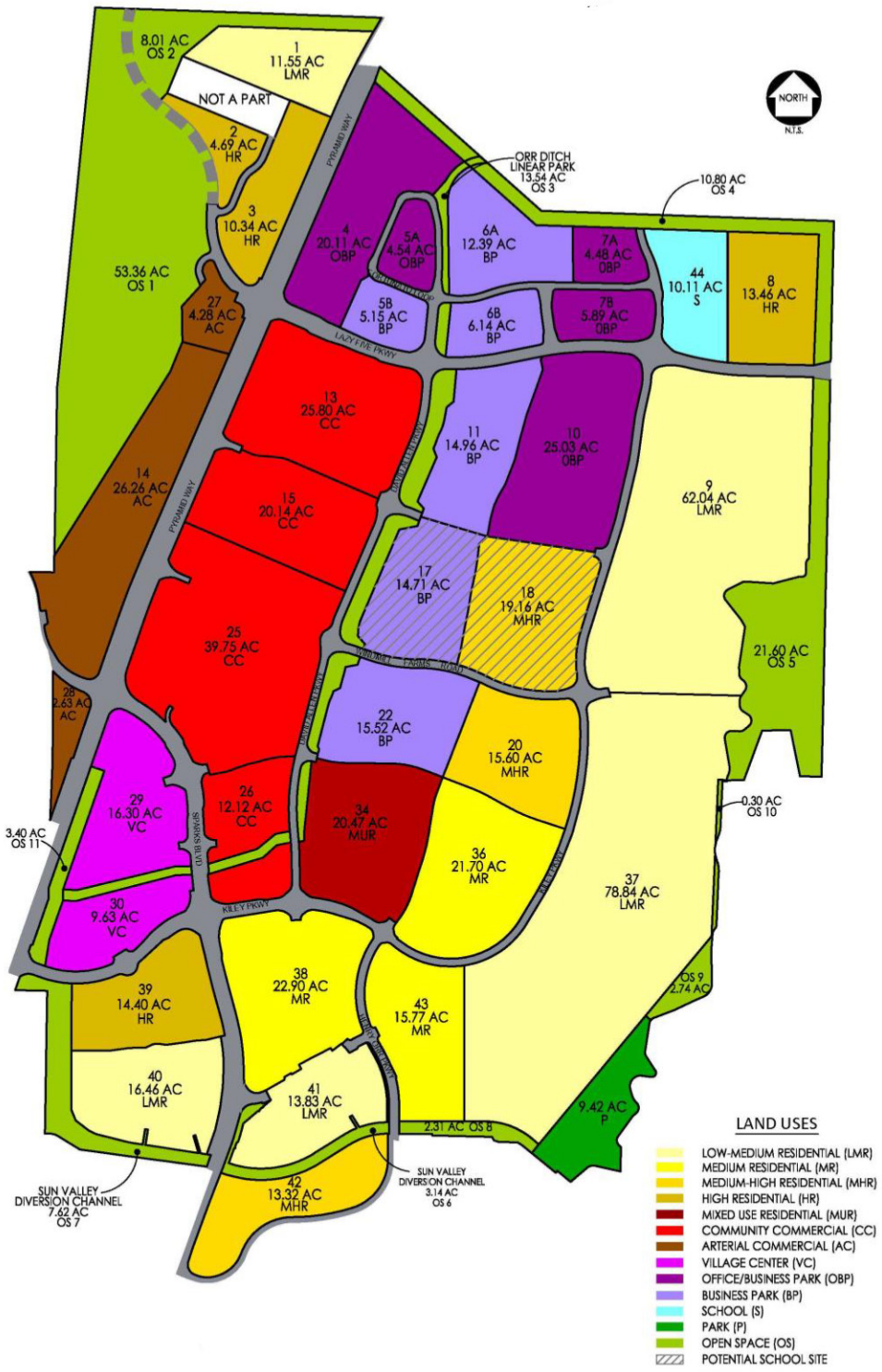


Figure 4.2 – Example of a Planned Unit Development Master Plan

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