





Clay County, Nebraska
Comprehensive Plan
2025

MARVIN PLANNING CONSULTANTS
Specializing in Municipal, County and Neighborhood Planning





Plan Participants

Clay County Board of Supervisors

Scott Bitterman, District 1
Jesse Mohnke, District 2
Glen Becker, District 3
Eric Samuelson, District 4
L. Wayne Johnson, District 5
James Pavelka, District 6
Richard Shaw, District 7

Clay County Joint Planning Commission

Dan Baumert
Mary Lynne Ellis
Steve Furman
Heather Wharton
Keith Johnson
Andrew Leichleiter
Robyn Von Spreckelsen
Lyn Waegli
Brett Nunnenkamp

Administration

Barb Barnett, Zoning Administrator

Planning Consultant

MARVIN PLANNING CONSULTANTS
Specializing in Municipal, County and Neighborhood Planning

Marvin Planning Consultants, David City, Nebraska

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NOTICE OF MOTION

STATE OF NEBRASKA)
ss
COUNTY OF CLAY)

I, Cassie Aksamit, County Clerk of Clay County, Nebraska, do hereby certify that the foregoing motion is a true and correct motion made by the Clay County Board of Supervisors at their regular meeting held September 16, 2025:

"Motion by Mohnike and seconded by Bitterman to open the public hearing for the updated Comprehensive Plan of Clay County, Nebraska at 10:00 a.m. Upon roll call, the vote was as follows: Aye: Bitterman, Samuelson, Becker, Pavelka, Mohnike, Shaw and Johnson; Nay: None. Motion carried.

Barb Barnett, Clay County Planning & Zoning Administrator was joined by John Shephard with Marvin Planning to discuss key notes regarding the updated Comprehensive Plan. The proposed and recommended updated Comprehensive Plan has gone through several meetings and been open for public review and comment.

There being no additional public attendance or comment regarding this public hearing, motion was made by Pavelka and seconded by Bitterman to close the public hearing at 10:09 A.M. Upon roll call, the vote was as follows: Aye: Bitterman, Samuelson, Becker, Pavelka, Mohnike, Shaw and Johnson; Nay: None. Motion carried.

Motion by Bitterman and seconded by Pavelka to pass Resolution #25-11 as the Resolution of Adoption of the new Clay County, Nebraska Comprehensive Plan as recommended by the Clay County Joint Planning and Zoning Commission. Upon roll call, the vote was as follows: Aye: Bitterman, Samuelson, Becker, Pavelka, Mohnike, Shaw and Johnson; Nay: None. Motion carried."

Witness my hand and official seal this 16th day of September 2025.

CLERK OF Seal CLAY COUNTY NE

Cassie Aksamit, County Clerk

RESOLUTION #25-11

Resolution of Adoption of the new Clay County, Nebraska Comprehensive Plan

WHEREAS, the duly elected Clay County Supervisors of Clay County, Nebraska, adopt the new Comprehensive Plan called the Clay County, Nebraska Comprehensive Plan, as recommended by the Clay County Joint Planning and Zoning Commission.

The adoption of this resolution moved by Bitterman and seconded by Pavelka, and upon a roll call vote as follows:

The motion declared passed and the resolution adopted this 16th day of September, 2025. Now, therefore be it resolved that the Clay County, Nebraska Comprehensive Plan has been adopted.

Chairman of the Board of Supervisors

ATTEST:

County Clerk

RESOLUTION # 2025-8-19

Resolution of Recommendation of Adoption of the Clay County Comprehensive Plan

WHEREAS, the duly appointed Joint Planning Commission of Clay County, Nebraska, at their Planning Commission public hearing, Tuesday, August 19, 2025 has recommended to the Clay County Board of Supervisors that the Clay County Comprehensive Plan be adopted.

See Attachment "A": Proposed Comprehensive Plan of Clay County, Nebraska.

The adoption of this resolution moved by Mary L. Ellis and seconded by Heather Wharton, and upon a roll call vote as follows:

Yes: Mary L. Ellis, Dan Baumert, Steve Furman, Heather Wharton, Keith Johnson, Brett Nunnenkamp

No: None

Absent: Lyn Waegli, Andrew Leichleiter, Robyn VonSpreckelsen

This motion declared passed and the resolution adopted this 18th day of August, 2025. Now, therefore be it resolved that the Clay County Comprehensive Plan has been *recommended* to be adopted.

ATTEST:

Chair

Zoning Administrator

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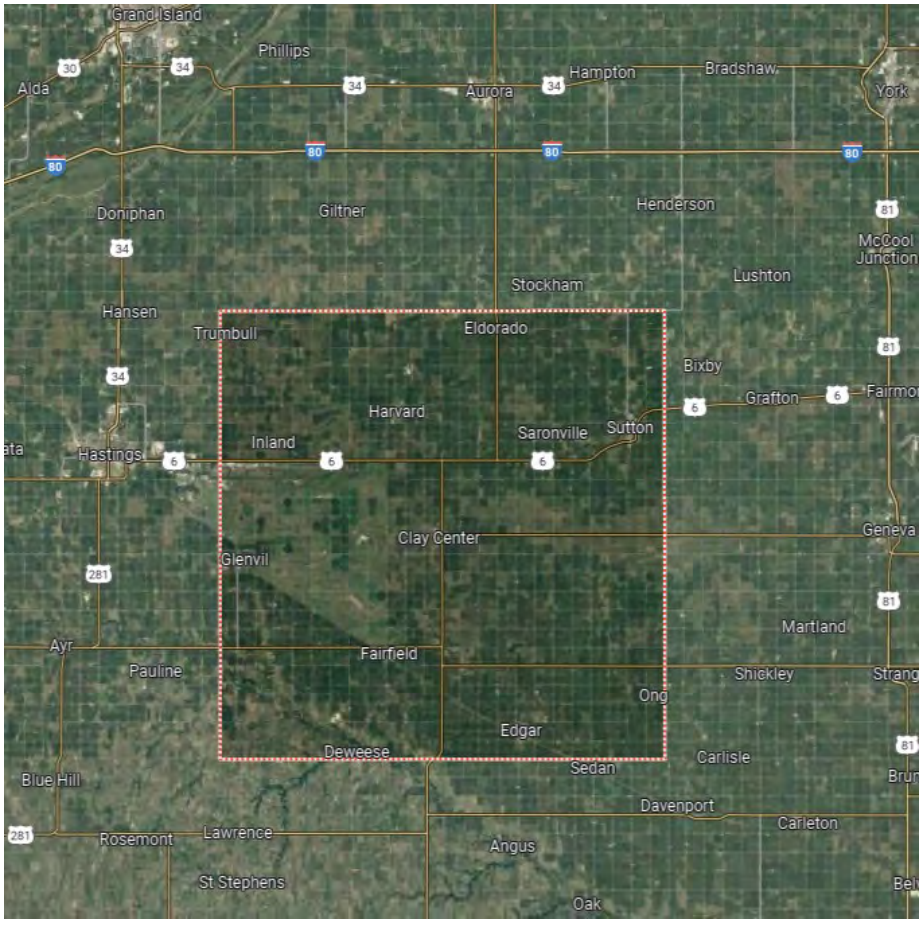
Chapter One
The Comprehensive Plan

Clay County is home to over 6,000 residents in south central Nebraska. There are 10 incorporated municipalities in the county:

- City of Clay Center (county seat)
- City of Edgar
- City of Fairfield
- City of Harvard
- City of Sutton
- Village of Deweese
- Village of Glenvil
- Village of Ong
- Village of Saronville
- Village of Trumbull

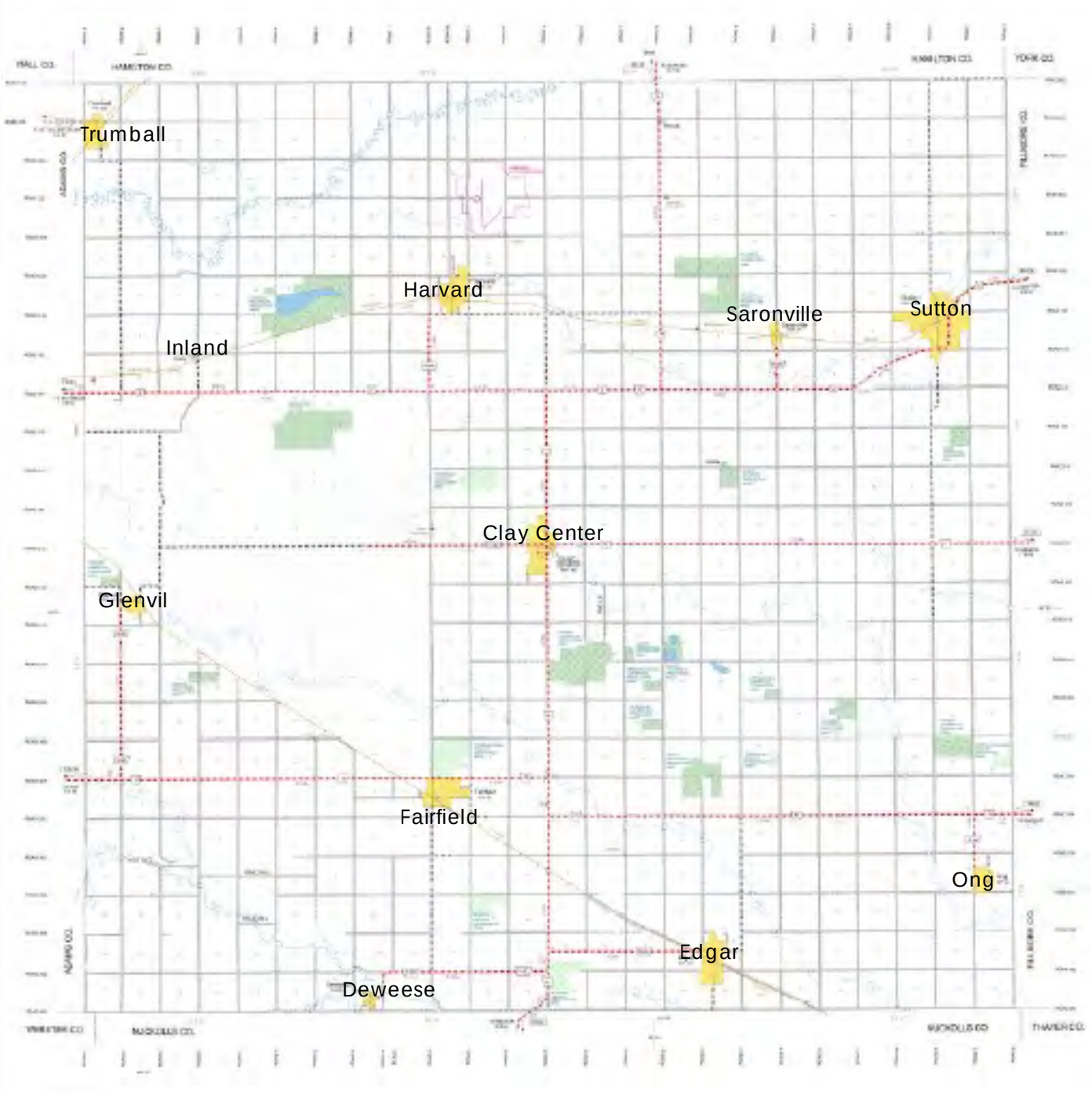
Clay County also has several unincorporated communities and townsites, including the Inland Census Designated place (CDP), Eldorado, and Verona. In 2023, the US Office of Management and Budget (OMB) made Clay County part of the Hastings Micropolitan Statistical Area, with Adams County and Webster County, due to commuting patterns.

FIGURE 1.1: CLAY COUNTY, NEBRASKA



Source: Google Maps

FIGURE 1.2: CLAY COUNTY AND MUNICIPALITIES

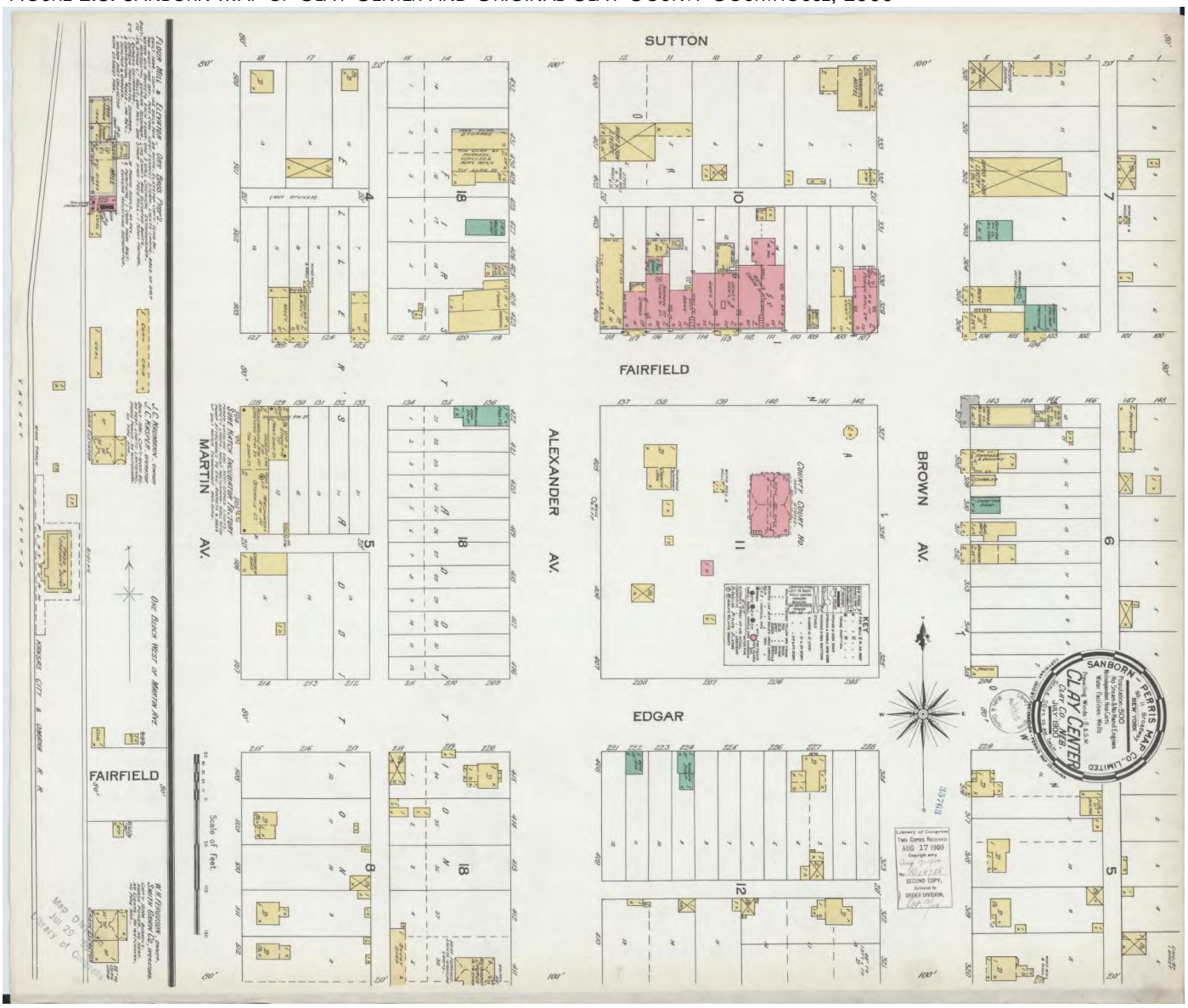


Source: Nebraska Department of Transportation

Clay County encompasses 576 square miles of land. The West Fork of the Big Blue River drains the northwest portion of the county. The Little Blue river runs across the southwest portion of the county.

Adams County (Hastings) is west of Clay County, Hall County (Grand Island) is to the northwest, Hamilton County to the north, York County to the northeast, Fillmore County to the east, and Thayer County is to the southeast, Nuckolls County to the south and Webster County to the southwest. US Highway 6 crosses the county east to west. The county is crisscrossed by multiple state highways.

FIGURE 1.3: SANBORN MAP OF CLAY CENTER AND ORIGINAL CLAY COUNTY COURTHOUSE, 1900



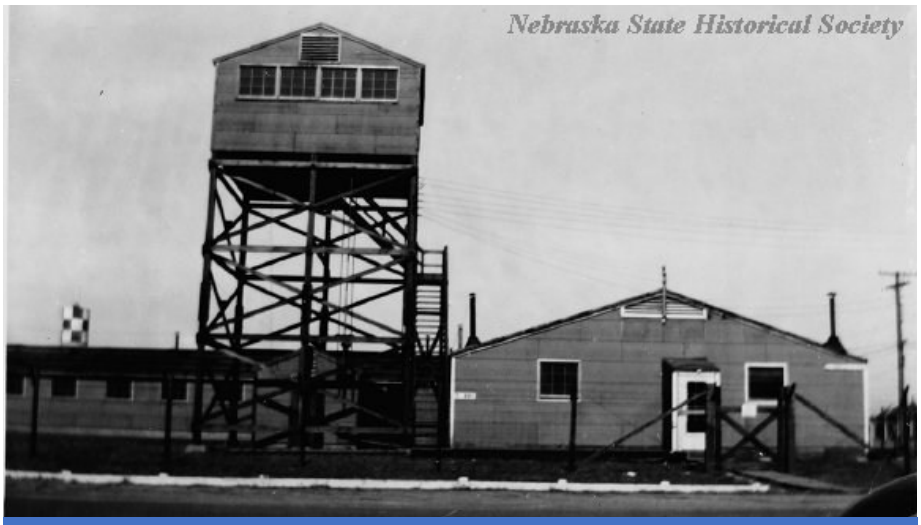
Source: Library of Congress

HISTORY

The name CLAY came from the distinguished Kentucky statesman, Henry Clay (1777-1852). The first area named Clay County was attached to the west end of Pierce County, when Pierce County was located in the southeastern part of Nebraska bordering the Missouri River. Its north boundary was Weeping Water River, its south boundary was Camp Creek and it extended west 100 miles. In the territorial laws approved February 15, 1864, the north half of Clay County was attached to Lancaster County and the south half to Gage County.

The first settler in the current area of Clay County was John B. Weston in 1857, who built a log house on the Little Blue River near Spring Ranch. The Oregon Trail, crossed the area, as did the Overland Stage Line and Pony Express, passing near Deweese on the way from St. Joseph, Missouri, to the Platte River and points west. For the later enterprises, stations were twenty-five miles apart including Liberty Farms just west of Deweese, Kiowa Ranch to the east in Thayer County, and 32 Mile Creek station about five miles southwest of Hastings.

The Territorial Legislature established the present Clay County on February 16, 1867, following the Civil War. With increased settlement, Clay



Communications School and Signal Tower, Harvard Army Air Field circa 1944
Source: Nebraska State Historical Society

County was organized by proclamation of action by Governor James September 11, 1871. Governor James ordered an election held at the dwelling of Alexander Campbell - Section 6, Township 7, Range 6. The first election was held October 14, 1871. The Burlington and Missouri River railroad, which became the Burlington Route, was built through the county in 1871-1872, with stations at Sutton and Harvard. The St. Joe & Denver, completed as the St Joseph and Western (SJ&W) railroad, also came through in 1872, with stations at Edgar, Fairfield, and Glenvil. This line is still in use by the Union Pacific railroad. The Burlington Route later extended service through Ong, Edgar, and Deweese.

From the commissioners' proceedings, November 4, 1871, the county was divided into three precincts: School Creek, the east half of the county; Harvard the northwest quarter; and Little Blue, the southwest quarter. On December 2, 1872, it was divided into four precincts of equal size; the northeast quarter named Little Blue; and the southeast quarter Big Sandy. On March 1, 1875, it was again divided into sixteen townships each having 36 sections of land.

While the County seat was first located at Sutton, Clay Center was surveyed in 1879, and became the county seat in an election that November. A courthouse was built in 1880 on the north half of the courthouse square, replaced in 1919 by the current courthouse. The St Joseph and Grand Island Railroad arrived at Clay Center in 1886.

The 1890s ended the initial agricultural boom. Rain became more sparse and drought accompanied the national panic of 1893. Nebraska recovered at the turn of the 20th century with two decades of prosperity before the Great Depression.

In 1942, the US Army built the Harvard Army Airfield, northeast of the namesake city. The airport was one of 11 army air force training fields in Nebraska during World War II. The 1,759-acre air base included runways, hangars, barracks, and fuel and munitions storage. In 1945, the facility was declared surplus and was later transferred to the State of Nebraska for use as an airfield.

Also in 1942, the US government established the Naval Ammunition Depot in western Clay County to produce bombs and shells during World War II. The Federal government took 49,000 acres and built about 2,000 buildings for the war effort. The depot was reactivated in August 1950 to supply munitions for the Korean War. Part of the property was later privatized, and a portion transferred in 1964 to the U.S. Meat Animal Research Center (USMARC).

COMPREHENSIVE PLAN

The Comprehensive Plan is Clay County's primary policy guide concerning the location, character, and type of growth and development anticipated over the next 20 years.

The Comprehensive Plan is intended to:

I. Promote orderly growth and development in the county;
II. Provide policy guidelines to enable citizens and elected officials to make better informed decisions about the future of the county;
III. Provide a guideline for the location of future development and uses within the planning jurisdiction of the County;
IV. Provide a vision and direction for the future planning period of the county, and;
V. Act as an information and management tool for County leaders to use in their decision-making process when considering future developments.



The Comprehensive Plan is not a static document; it should evolve as changes in the land use, population, or local economy occur during the planning period (2023 to 2043).

The Planning Process

The Comprehensive Plan process begins with the development of general goals and policies, based upon current and future issues faced by the County and its residents. These are intended to be practical guidelines for addressing existing conditions and guiding future growth.

In conjunction with the development of general goals and policies, a data collection phase occurs, with data providing a snapshot of the past and present conditions within the county. Analysis of data provides a basis for developing forecasts of future land use demands, as well as future needs regarding housing and facilities.

The Comprehensive Plan is a blueprint designed to identify, assess, and develop actions and policies in the areas of population, land use, transportation, housing, economic development, community facilities, communications, and utilities. The Comprehensive Plan contains recommendations which when implemented will be of value to the County and its residents. Tools, programs, and methods necessary to carry out the recommendations will be identified through the process.

Implementation of development policies of the Comprehensive Plan is dependent upon adoption of the plan by the governing body and the leadership exercised by present and future elected and appointed officials of Clay County.

Plan Preparation

This plan was prepared under the direction of Clay County Joint Planning Commission, with the assistance and participation of the Clay County Board of Supervisors, County staff, and citizens of Clay County. The Joint Planning Commission represents rural Clay County, the cities of Fairfield and Harvard, and the villages of Deweese, Glenvil, Saronville, and Trumbull.

The time period for achieving the goals, programs, and developments identified in the Clay County Comprehensive Plan is 20 years. However, the County should review the plan annually and update the document every 10 years (2035), or when major, unanticipated opportunity arises. Completing updates every ten years or so will allow the county to incorporate ideas and developments not known at the time of the present comprehensive planning process.

Plan Components

Nebraska State Statutes require the inclusion of certain elements in a Comprehensive Plan. A "Comprehensive Development Plan," as defined in Neb. Rev. Stat. §23-114.02 (Reissue 1997), "shall consist of both graphic and textual material and shall be designed to accommodate anticipated long-range future growth."

The Comprehensive Plan is comprised of the following chapters:

1. Overview
2. Community Engagement
3. Population
4. Housing
5. Economic Development
6. County Facilities
7. Parks and Recreation
8. Public Safety
9. Communications, Utilities, and Energy
10. Natural Resources and Environment
11. Hazard Mitigation
12. Land Use
13. Transportation
14. Implementation

Analyzing past and existing demographic, housing, economic and social trends permit the projection of likely conditions in the future. Projections and forecasts are useful tools in planning for the future; however, these tools are not always accurate and may change due to unforeseen factors. Also, past trends may be skewed or the data may be inaccurate, creating a distorted picture of past conditions. Therefore, it is important for Clay County to closely monitor population, housing and economic conditions which may impact the county.

Through periodic monitoring, the county can adapt and adjust to changes at the local level. Having the ability to adapt to socio-economic change allows the County to maintain an effective Comprehensive Plan for the future, to enhance the quality of life, and to raise the standard of living for all residents.

The Plan is only one of several tools within the toolbox which helps guide the community into the future.

The Comprehensive Plan records where Clay County has been, where it is now, and where it likely will be in the future. Having this record in the Comprehensive Plan will serve to inform county officials as much as possible.

The Comprehensive Plan is an information and management tool for county leaders to use in their decision-making process when considering future developments. The Comprehensive Plan is not a static document; it should evolve as changes in the land-use, population or local economy occur during the planning period. This information is the basis for Clay County's evolution as it achieves its physical, social, and economic goals.

County Jurisdiction

The Clay County Board of Supervisors, which is a board of elected officials, performs the governmental functions for the County. Each incorporated community in Clay County also has elected officials and officers overseeing their community.

The planning and zoning jurisdiction of Clay County, pursuant to Neb. Rev. Stat. §23-114 (Reissue 1997), includes all of the unincorporated portions of the county, excluding the established extraterritorial jurisdiction (ETJ) of incorporated cities and villages (Neb. Rev. Stat. §17-1001 (Reissue 1997)). The extraterritorial planning area and zoning ETJ should be as close to each other as possible. With the exception of Ong, each of the municipalities in Clay County has adopted zoning and has extended development regulations to their ETJ. Also, as a city of the first class, the City of Hastings can exercise a 2-mile ETJ which could be extended into Clay County. The Village of Ong has not adopted zoning regulations and does not have an ETJ, so County jurisdiction extends to the village limits.

Planned growth will make Clay County more effective in serving residents, more efficient in using resources, and able to meet the standard of living and quality of life every individual desires.

The Joint Planning Commission and Board of Adjustment are made up of members from Clay County and Clay Center, Harvard, Edgar, Fairfield, Saronville, Sutton, Trumbull,

PROCESS FOR ADOPTION

When it is time to adopt this Comprehensive Plan, the Board of Supervisors adopts the plan by Resolution. Adoption of the Comprehensive Plan requires both the Planning Commission and County Board to hold separate Public Hearings. After the Planning Commission Public Hearing, the Planning Commission makes a recommendation to the Board, who then holds their Public Hearing. Notice of both public hearings is required as specified in Neb. Rev. Stat. §23-164 (Reissue 1997).



Chapter Two
Community Engagement

Community engagement is critical to a successful planning effort. Not only do community members provide essential information, but also provide the plan with vision. The community will also be the ones to implement the action items which bring the plan to life.

This chapter describes the community engagement efforts of the planning process. This includes:

- Public Meetings
- Website
- Surveys

PUBLIC MEETINGS

ADVISORY COMMITTEE

The Clay County Joint Planning Commission served as the advisory committee for this project. Marvin Planning Consultants (MPC) worked with County Planning and Zoning staff and the planning commission to review and update the County Comprehensive Plan, building on their years of work reviewing and revising their development regulations.

A Kick-off Meeting was held on January 10, 2023, at the Clay County Fairgrounds in Clay Center. Staff from Marvin Planning Consultants reviewed the comprehensive planning process and received feedback on issues of importance in the local community.

On June 13, 2023, MPC staff presented information to the Commission from the community profile, including demographics, housing, and economic development statistics and trends analysis. This information is incorporated into chapters three, four, and five of this document. Planning commission members also discussed the public participation process, providing direction for a county-wide survey, public outreach, and plans for a public meeting. MPC staff worked with staff through 2024 to complete field work, data analysis and mapping, presenting a complete draft to the advisory committee late in 2024.

TOWN HALL

A Town Hall public meeting was held on Wednesday August 16, 2023, at the Clay County Fairgrounds in Clay Center. The meeting and survey (following) were advertised by mail, in the *Clay County News*, and by social media. Flyers were also placed throughout Clay County.

MPC and County staff opened the meeting with a brief overview of the Comprehensive Plan update process. The County Board Chair also welcomed participants. Staff then facilitated

FIGURE 2.1: CLAY COUNTY NEWS COVERAGE



Clay County News

Serving Clay Center, Deweese, Edgar, Fairfield, Glenvil, Grafton, Harvard, Inland, Ong, Saronville, Sutton, Trumbull and Surrounding Areas

Vol 138 • No 34 Wednesday, August 23, 2023 | Published in Sutton, Nebraska One Dollar

ASHLEY D. SWANSON | CLAY COUNTY NEWS

John Shepard kicks-off the county comprehensive plan town hall meeting Aug. 16, at the fairgrounds.

County Comprehensive Plan update in the works

BY ASHLEY D. SWANSON

More than 40 Clay County citizens attended a town hall meeting to help update the current Clay County Comprehensive Plan, which was originally made in 1975, on Wednesday, Aug. 16, at the county fair grounds in Clay Center.

"Every county is different. You are unique and we're here to talk about Clay County, Nebraska," John Shepard, Marvin Planning Consultants senior community planner and project manager, said. "What vision do you have and how can we help you achieve it?"

Shepard said MPC looks at the county's population, housing, economic trends, and how they've changed overtime.

They also look at the county's facilities and how they're used; public safety; what are the impacts of the population on police and EMS; and communication and energy.

"This is not us telling Clay County people what to do with their land, but they are looking at where trends are good," he added.

Shepard introduced several questions to attendees to answer, starting with **"Why do you choose to live or have a business in Clay County?"**

Responses included people

ASHLEY D. SWANSON | CLAY COUNTY NEWS

Elwyn Fitzke was one of more than 40 attendees of the county comprehensive plan meeting Aug. 16.

services.

Internet services are expanding in areas and there are options for pre-k through high school, as well as a newly-developed day care in Clay Center.

"What are the biggest weaknesses Clay County has right now?"

Several items were listed, including lack of good cell service and internet service in the rural areas; too much federal land; conservation easements and property valuation; needing local spending to

ing support for any potential businesses.

"What do you love about Clay County?"

This was another list that garnered several responses, including: the small-town attitude and values; neighborliness; it's not a huge population like Omaha; people are supportive of each other and local businesses; feeling safe; wide open spaces; small schools; volunteers and support from local fire departments and EMS; many community events; and a great 4-H program.

"How would you describe the ideal Clay County 20 years from now?"

Some attendees noted how they want each town to be big enough to support itself, but stay away from the big city sizes.

Others said they'd like to see towns go back to the "golden years." They've heard stories about how booming each town was, while keeping with that small-town feel. There were numerous businesses of all types, the community was active, and main street was busy each day.

They'd like to see Clay County be a place where people can age and stay at or near home, instead of having to move to a care facility outside of the county.

Additionally, keeping on a

Source: Clay County News

a discussion with a series of questions.

- Why do you choose to live or have a business in Clay County?
- What are the biggest opportunities Clay County has for the future?
- What are the biggest weaknesses Clay County has right now?
- What do you love about Clay County?
- How would you describe the ideal Clay County 20 years from now?

Participants in the Town Hall expressed their vision for Clay County, where towns were big enough to support themselves, while maintaining small town safety and quality of life. They recognize the need for growth, at a reasonable level. They also are committed to the long-term viability of agriculture in Clay County.

Detailed notes from the Town Hall meeting are included in Appendix A.

FOCUS GROUPS/ INTERVIEWS

The planning team met with community members and County staff in small groups and individually throughout the countywide planning process. The qualitative data provided contributes to all elements of this plan.

WEBSITE

A special project website (https://tinyurl.com/claycountycompplan) was established at the onset of the public planning process. The



Town Hall Meeting, Clay County Fairgrounds
Source: Clay County News

project website served as a vehicle for community input on the Comprehensive Plan project and included a link to the survey. MPC also promoted the project through social media.

SURVEY

The Clay County Comprehensive Plan Survey was developed to encourage community engagement. The survey was open and advertised through July and August 2023.

Residents were encouraged to complete the survey online on the SurveyMonkey website. Paper copies were also made available across the county and in each community.

There were 205 respondents to the survey, with 98% from Clay County. Approximately half (49%) stated they were employed full-time, 29% were retired, 15% were self-employed, and 5% employed part-time. The largest number of respondents worked in agriculture. The largest number (27%) work in Clay Center, followed by Sutton and Hastings (13% each).

SURVEY RESULTS

Respondents expressed a wide variety of opinions, including:

- Over half of respondents replied "Very high" (9%) or "High" (44%) to the question "Is Clay County a quality place to live?" while 37% replied "neither high nor low quality".
- Almost half (49%) stated they are confident in Clay County's future. Just over 1/3 (39%) replied they were not sure.
- Over half (57%) strongly agreed "The aquifer (ground water) is an important asset and should be conserved.
- Almost half (48%) strongly agreed "Retaining youth is the key to Clay County's future."
- Over 1/4 (27%) strongly agree and almost 1/2 (49%) agree creating farm-to-home operations (farmers markets, community-supported agriculture, or on-farm stores) is a good value-added strategy for Clay County.
- Almost all (95%) respondents stated water quality was an important environmental concern for the county now and in the future, followed by 94% who stated water quality was important.

A summary of survey results is included in the appendices. Results of the survey, as well as all aspects of community engagement, inform each element of this plan.

GOALS AND ACTIONS

Planning for future land use and development is an ongoing process of goal setting and problem solving aimed at creating the conditions for a better quality of life. Planning focuses on ways of solving existing problems within the county, and providing a action-oriented tool for county leaders and residents to achieve their vision for the future.

CLAY COUNTY GOALS

The goals of the *Clay County Comprehensive Plan* are intended to address existing conditions and trends, and to address issues and concerns of citizens as expressed through community engagement.

Goals for the comprehensive plan are presented throughout

the plan. Each chapter contains goals and action items to address each element.

- Goals are statements of what the citizens of Clay County want to achieve. A goal should be stated in a manner allowing it to be accomplished. Goals in this plan may include specific policies for land use and development. Goals inform policies of the County.
- Policies are included for specific use in evaluating applications for development approval, such as conditional use permits, zone map amendments, and subdivision plats.
- Action Items are specific statements in support of goals. Action items are future-focused measures, projects, plans, or activities proposed to implement the comprehensive plan in the real world.

It is important to establish goals and actions over the short-term as well as long-term. Goals and action items should be evaluated, reviewed, and updated regularly as conditions and resources change.

Tools and Strategies

There are a variety of tools and strategies lending further support to achieving the County's goals beyond specific action items identified in the comprehensive plan. These activities should be reviewed during regular plan maintenance and included in the plan if and when appropriate.

Plan Maintenance and Review

As stated in the introductory chapter, the comprehensive plan is intended to address growth and development anticipated over the next 20 years. Goals are focused on the next 10 years, with more specific action items identified for short-term and long-term implementation. As noted in the final chapter, Implementation and regular review are essential to bring this plan to life.

FIGURE 2.2: EXAMPLE OF PROMOTIONAL MATERIAL



Source: Marvin Planning Consultants



Chapter Three Population

POPULATION

Population is the basis for all aspects of a county including housing, employment, and fiscal stability, and the services required for public health, welfare and safety. The local population grows and contracts as people are born and die (natural increase), or move in and move out (migration). It is critical to understand how population trends predict potential future impacts to the area. Clay County's leaders need to understand where the county has been, where it is currently, and where it appears to be going.

Understanding current and historic population trends aids in identifying where the population may grow in the future and in determining potential impacts on demands for goods, services, public safety, education, and other needs within the county. Projections provide an estimate to base future land use and development decisions. However, it should be remembered population projections are only estimates and unforeseen factors will likely affect projections significantly.

TRENDS ANALYSIS

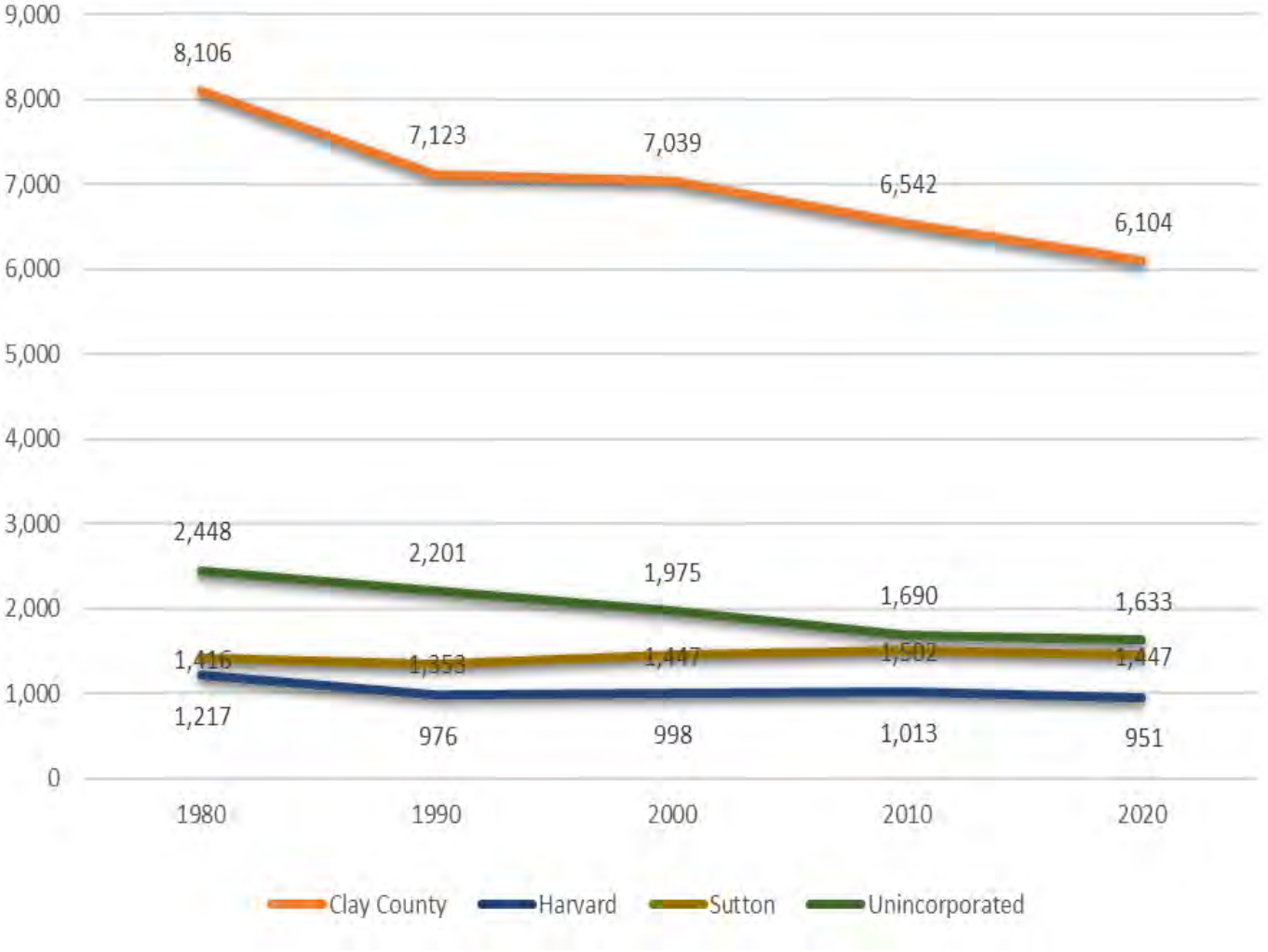
The US Census Bureau's latest estimate of Clay County's population is 6,116 residents as of mid-2023. These are the people who call Clay County home.

The US Census Bureau's official decennial population counts for 1980 through 2020 for Clay County and its municipalities are shown in Figure 3.1 and 3.1a following. This includes Clay Center, Deweese, Edgar, Fairfield, Glenvil, Harvard, Ong, Saronville, Sutton, and Trumbull, as well as the unincorporated areas of Clay County. These data

The United States Census Bureau's American Community Survey (ACS) is the primary data source for this chapter and much of this plan. The most current, publicly available data is presented as appropriate.

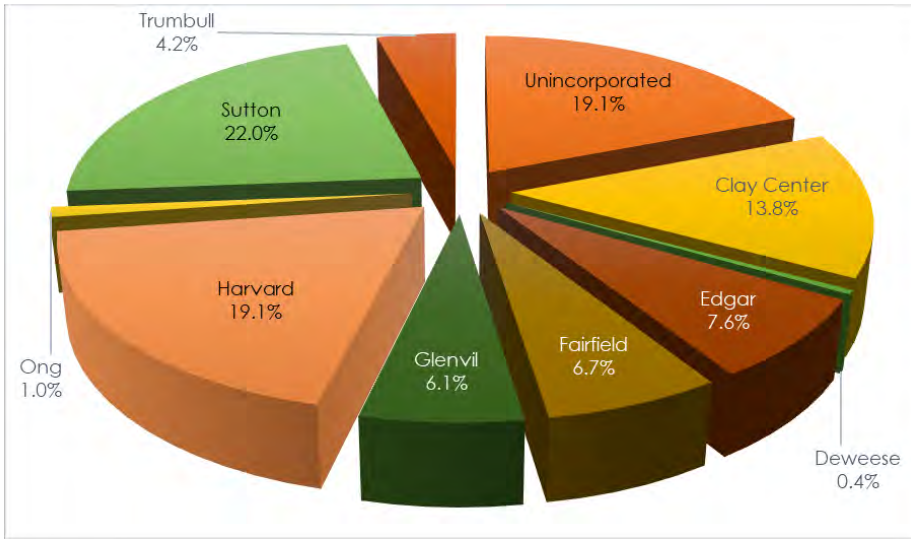
While the US Census Bureau's decennial census, which has taken place every 10 years since 1790, is well-known, difficulties with Census collection in 2020 have delayed the release of more detailed information. Analysis herein relies on ACS data which are estimates based on the US Census Bureau's five-year running survey of all Americans. The primary data sets are the 2008-2012 data series for 2012, and the 2018-2022 data series for 2022.

FIGURE 3.1: POPULATION TRENDS 1980-2020 FOR CLAY COUNTY, UNINCORPORATED AREAS, HARVARD, AND SUTTON



Source: U.S. Census Bureau 1980 - 2020.

FIGURE 3.2: POPULATION 2020 AS A PERCENTAGE OF TOTAL COUNTY POPULATION



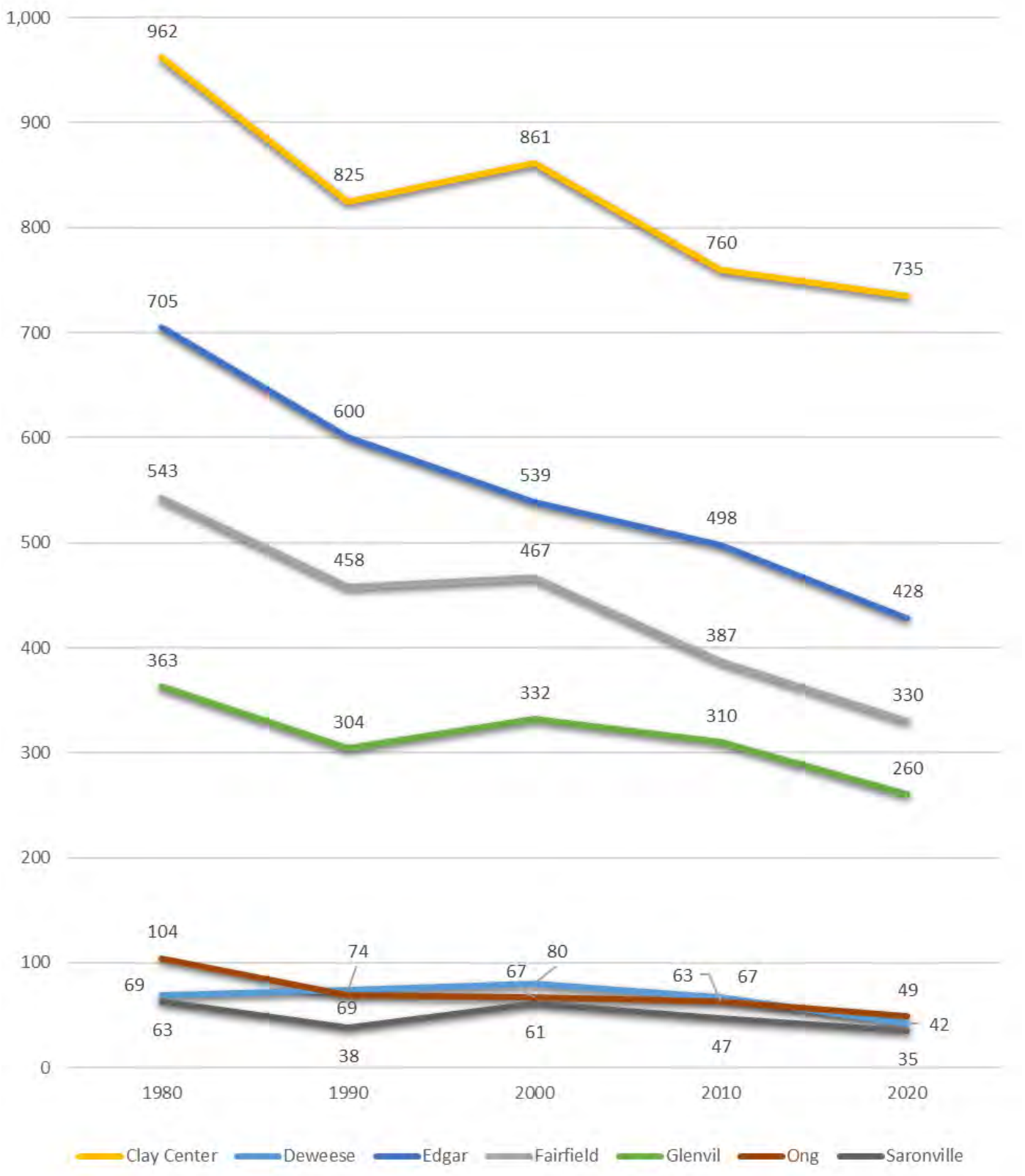
Source: U.S. Census Bureau 2020

provide a look at where the county has been and informs the projection of future population levels later in the chapter.

Overall, Clay County saw a 24.7% decline in population—a loss of 2,002 residents—from 1980 to 2020. From 2010 to 2020 alone, the population fell by 6.7%. This decrease affected both the unincorporated portions of the county and it's incorporated communities. Unincorporated portions of Clay County declined by 33.3% (815 people) from 1980 to 2020.

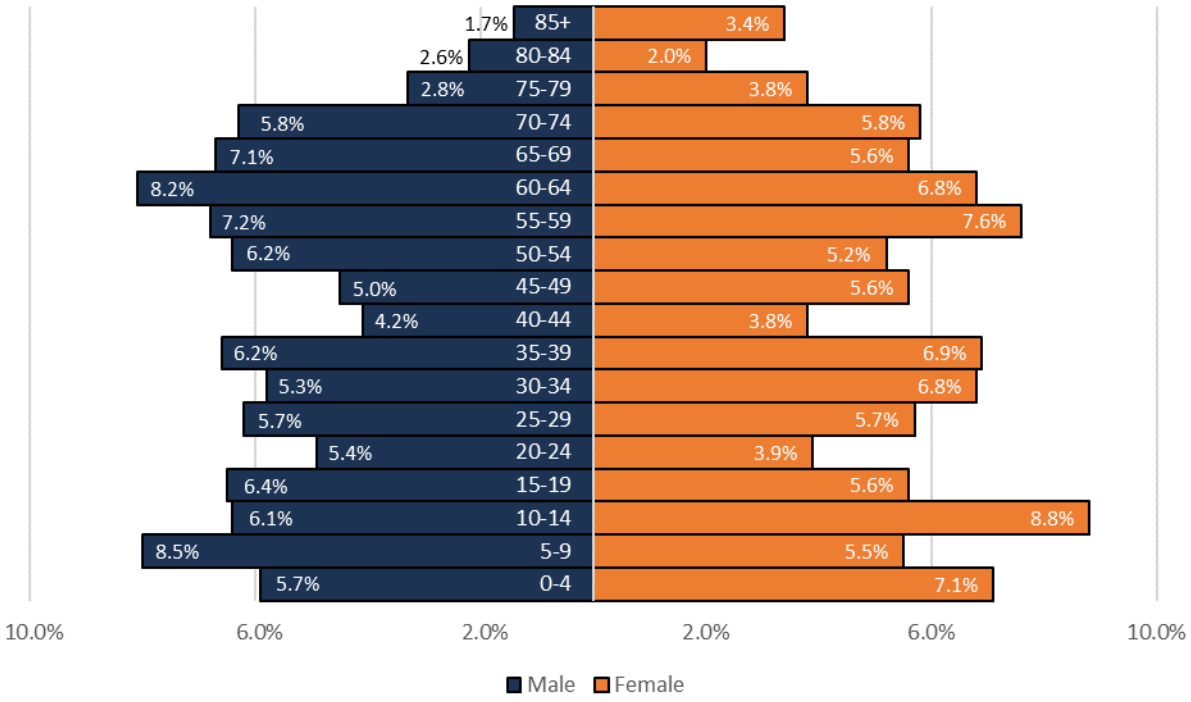
Sutton, the county's largest municipality, was the only place to gain population, with an

FIGURE 3.1A POPULATION TRENDS 1980-2020 - SMALLER COMMUNITIES



Source: U.S. Census Bureau 1980 - 2020.

FIGURE 3.3: POPULATION PYRAMID, 2022



Source: U.S. Census Bureau American Community Survey 2018-2022.

increase of 31 or 2.2% of its 1980 population. The remaining incorporated places all saw declines in population over the short- and long-term. Sutton has remained the largest community in Clay County, with approximately 22.0% of the county's residents in 2020 (Figure 3.2) Harvard had 19.1% of the population, and Clay Center, the county seat, comprised 13.8%.

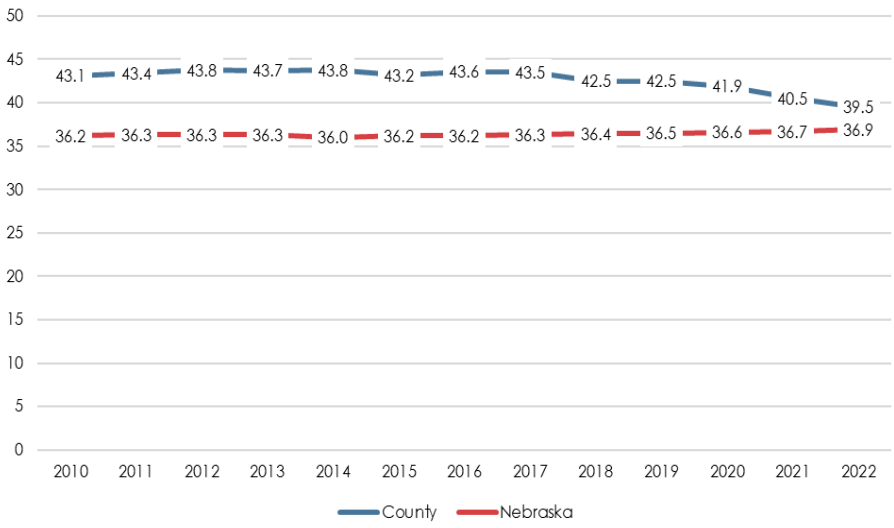
Figure 3.3 shows a population pyramid with the current age structure of the county, as reported by the American Community Survey (ACS) for 2018-2022. The largest cohort of men (8.5%) were boys aged 5-9, followed men aged 60-64 (8.2%). The largest group of women were girls aged 10-14 (8.8%), followed by women aged 55-59 (7.6%). There were also more women (3.4%) than men (1.7%) age 85 and over. Among the working age population ages 20-64, the smallest cohort was among men (4.2%) and women (3.8%) aged 40-44.

Participants in the Town Hall expressed concerns about underserved populations, especially aging and senior services.

MEDIAN AGE

The median age in Clay County increased from 43.1 years in 2010

FIGURE 3.4: MEDIAN AGE 2010-2022



Source: American Community Survey 2006-2010 through 2018-2022

Dependency Ratio

The dependency ratio examines the portion of a community's population in the workforce, who can support age groups typically and historically dependent on the incomes of others.

< 1: 1 Independent resident is able to support more than 1 Dependent resident

=1: 1 Independent resident able to support 1 Dependent resident

>1: 1 Independent resident able to support less than 1 Dependent resident

To calculate the dependency ratio, take the sum of the share18 years and younger plus the share 65 years and older, divided by share of

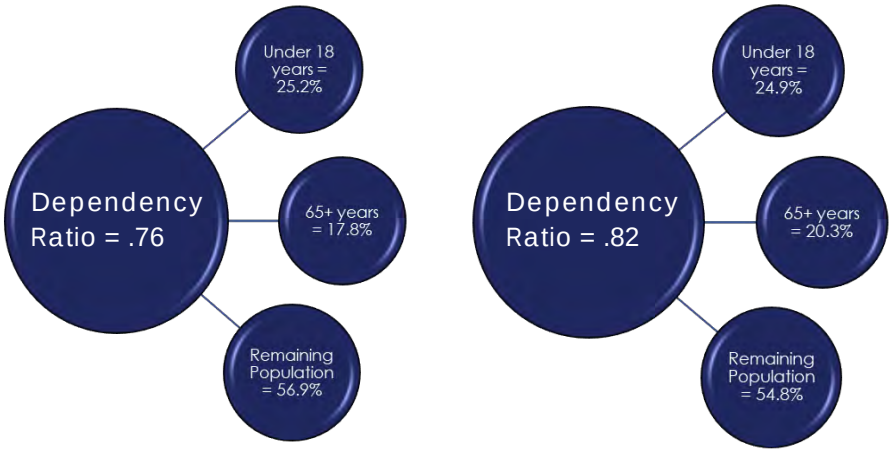
to approximately 43.6 years in 2013-2015 and back to 39.5 years in 2022 (Figure 3.4). The overall median age across Nebraska increased by about 0.7 years during the same period.

Dependency Ratio

Dependency ratios examine the portion of Clay County's population supporting the age groups historically dependent upon others, including those under 18 years and those 65 years and older. (See the box above for details on calculating the ratio.) This ratio highlights the proportion of employed persons in the county who support themselves as well as older and younger dependent populations.

Figure 3.5 presents the dependency ratios for 2012 and 2022 in Clay County. The share of persons less than 18 years of age decreased slightly and those aged 65 years and older also decreased slightly. In 2012, Clay County had a Dependency Ratio

FIGURE 3.5: DEPENDENCY RATIO 2012 AND 2022



Sources: American Community Survey 2008-2012 & 2018-2022

of 0.76; however, by 2022, the Ratio had increased to 0.82. There were fewer people of working age to support the younger and older populations.

Ethnicity

During recent years, Clay County—like much of Nebraska --has seen a shift in the race and ethnicity of residents. Race and ethnicity are self-identification terms in which residents choose how they identify themselves.

In 2022, 9.4% of Clay County residents identified as Hispanic or Latino of any race (Table 3.1). While this an increase from 2012, statewide 11.5% of all Nebraska residents identified as Hispanic in 2022.

Clay County has seen increases in population identifying as Black, Some Other Race, and

TABLE 3.1: RACE AND ETHNICITY 2012-2022

	2012*		2022*		2012-2022	
Race	Number	% of total	Number	% of total	Net Change	% change
Estimated Population	6,497	100%	6,088	100%	-409	-6.3%
White Alone	6,343	97.6%	5,584	91.7%	-759	-12.0%
Black Alone	14	0.2%	23	0.4%	9	64.3%
American Indian Alone	66	1.0%	27	0.4%	-39	-59.1%
Asian, Native Hawaiian and Oher Pacific Islander	27	0.4%	2	0.03%	-25	-92.6%
Some Other Race Alone	16	0.2%	194	3.2%	178	1112.5%
Two or More Races	31	0.5%	258	4.2%	227	732.3%
Hispanic Origin (Any Race)	486	7.5%	570	9.4%	84	17.3%

Source: American Community Survey 2008-2012 & 2018-2022. *ACS Estimate

Two or More Races. The largest increase was in the Some Other Race category, which grew by about 1,113%.

VETERANS

Among Clay County residents 18 years and over, 7.8% are veterans, compared to 7.7% of Nebraskans overall. Over 27% of veterans are age 75 years and over. The largest group served during the Vietnam era. Approximately 39% of veterans report they have a disability, compared to 16% of all residents 18 years and over.

TABLE 3.2: AGE CHARACTERISTICS 2012-2022

Male and Female Population Estimates					
Age in 2012	2012 population*	Age in 2022	2022 population*	Cohort Change	% Change
		0-4	395	-	-
		5-9	412	-	-
0-4	370	*10-14*	461	91	24.5%
5-9	416	*15-19*	369	-47	-11.3%
10-14	533	*20-24*	270	-263	-49.3%
15-19	481	*25-29*	361	-120	-24%
20-24	292	*30-34*	382	90	30.7
25-29	253	*35-39*	412	159	62.6%
30-34	305	*40-44*	240	-65	-21.4%
35-44	715	*45-54*	658	-57	-7.9%
45-54	1033	*55-64*	892	-141	-13.7%
55-64	936	*65-74*	744	-192	-20.5%
65-74	546	*75-84*	348	-198	-36.2%
75 & older	604	*85 and over*	144	-460	-76.2%
Total	6,497*		6,088*		

Source: American Community Survey 2008-2012 & 2018-2022. *ACS Estimate

COMPONENTS OF CHANGE

Population change includes both natural increase or decline (the difference between births and deaths) and migration (the difference between people moving in and out of a community). For example, many communities experience natural increase (more births than deaths) yet face a declining population due to out-migration.



Historic Downtown Clay Center
Source: City of Clay Center

AGE STRUCTURE ANALYSIS

Age structure is an important component of population analysis. By examining age structure, one can determine a key dynamic affecting population change. Each age group affects the population in several different ways. For example, the existence of large younger age groups (20-44 years) means there is typically a greater ability to sustain future population growth compared to large older age groups, since this age group tends to have children as well as participating in the workforce.

Table 3.2 presents the age group structure for Clay County in 2012 and 2022. Age structure shows where population shifts are occurring. Reviewing population in this manner permits a more detailed analysis of which specific groups are moving in and out of the county. Negative changes in a group indicate out-

migration or a combination of out-migration and deaths.

Clay County saw growth from 2012 to 2022 in three age groups—the 10-14, 30-34, and 35-39 groups (age in 2022). The 0-4 and 5-9 groups always show an increase, since these individuals were born between the two survey periods. The 30s age groups are typically of the age with young families, who may be returning to their hometown or are attracted by an opportunity to raise their families in a rural community.

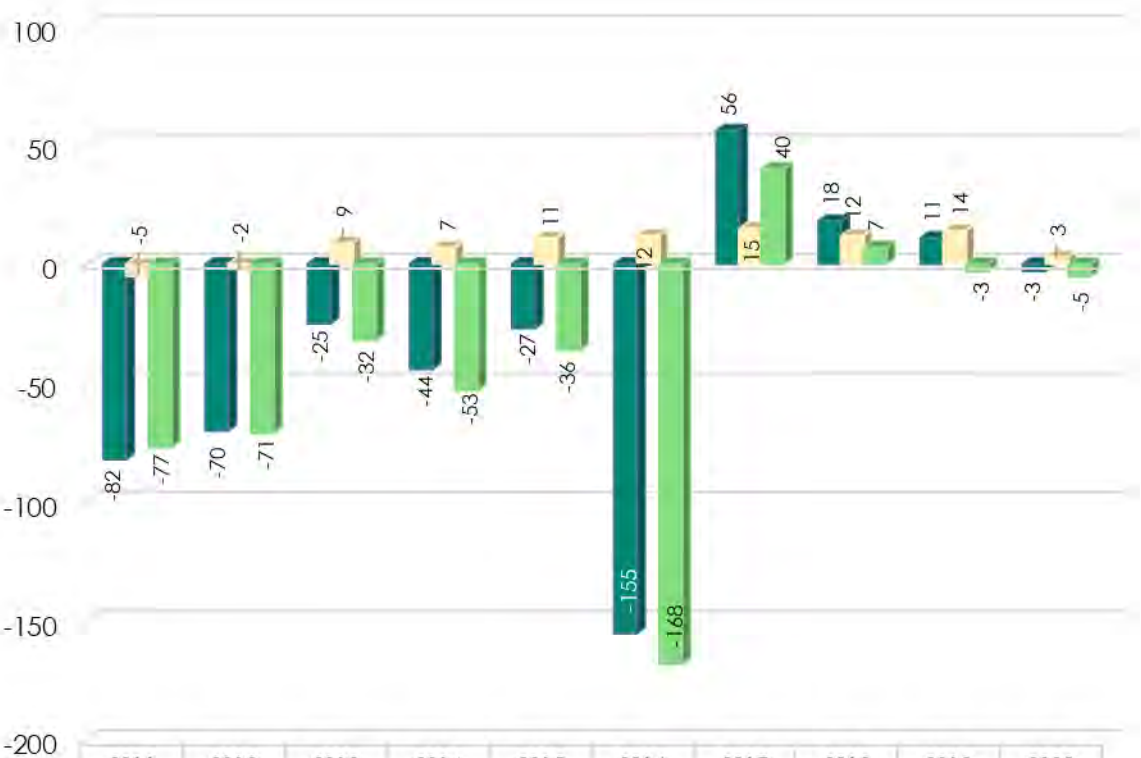
The remaining age groups were reduced from 2012 to 2022, through natural decrease (deaths) and net negative migration. As might be expected, the largest decrease was in the 85 and over age group, which typically experiences decrease through migration to specialized care facilities in other communities and amenity migration, as well as natural decrease. The next largest decrease was a 49.3% reduction in the 20-24 age group, as young people left the county for higher education and entry-level job opportunities. This reinforces the importance of being open to those young families looking for the small town lifestyle Clay County has to offer.

Migration Analysis

Migration analysis considers the dynamics of population shifts in the two key components of population change: migration and natural change (the difference between births and deaths).

Figure 3.6 indicates estimates of the components of population change countywide, including natural change and migration. From 2012 to 2022, Clay County's overall decrease in population was associated with outmigration. Births exceeded deaths after 2013, which is a good sign.

FIGURE 3.6: CLAY COUNTY POPULATION COMPONENTS OF CHANGE 2011-2020



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Change	-82	-70	-25	-44	-27	-155	56	18	11	-3
Natural Change	-5	-2	9	7	11	12	15	12	14	3
Net Migration	-77	-71	-32	-53	-36	-168	40	7	-3	-5

Source: U.S. Census Bureau

Population Projections

Population projections are future estimates based upon past and present circumstances. There are different methods commonly used to project future population, with advantages and disadvantages for smaller and larger communities. Several factors (demographics, economics, social, etc.) also affect the relationship between projections and ultimate population levels, positively or negatively.

The University of Nebraska-Omaha Center for Public Affairs Research (the State Data Center) develops official population projections for Nebraska counties, based on trends with both natural change and migration rates. The most recent report, composed after the release of the US Census 2020 complete count, projects Clay County's population will continue to decrease, from 6,104 in 2020 to:

5,484 by 2030,
4,862 by 2040,
4,291 by 2050.

Trend Line Analysis

Trend Line Analysis is a process of projecting future populations based upon the rate of change during a specified period of time. For this analysis, several different Clay County population trend lines were reviewed, including 2010 to 2020, 2000 to 2020, 1990 to 2020, and 1970 to 2020. Results for Clay County are shown in the side bar.

For the purposes of this plan, three population projections were selected to illustrate possible growth scenarios (Figure 3.7).

LOW: The State Data Center projections are the Low Series and may be considered a worst-case scenario. This is unlikely to occur yet serves as a baseline for planning purposes. If the County is prepared for population at this level, they will be prepared for more moderate population change.

MEDIUM: The long-term 50-year trend serves as the Medium Series.

HIGH: The 30-year trend was selected as the High Series. This is an optimistic scenario which can also serve as a goal—to continue the recent trend moderating the historical contraction of population and working towards growth.

Clay County Trend Line Analysis

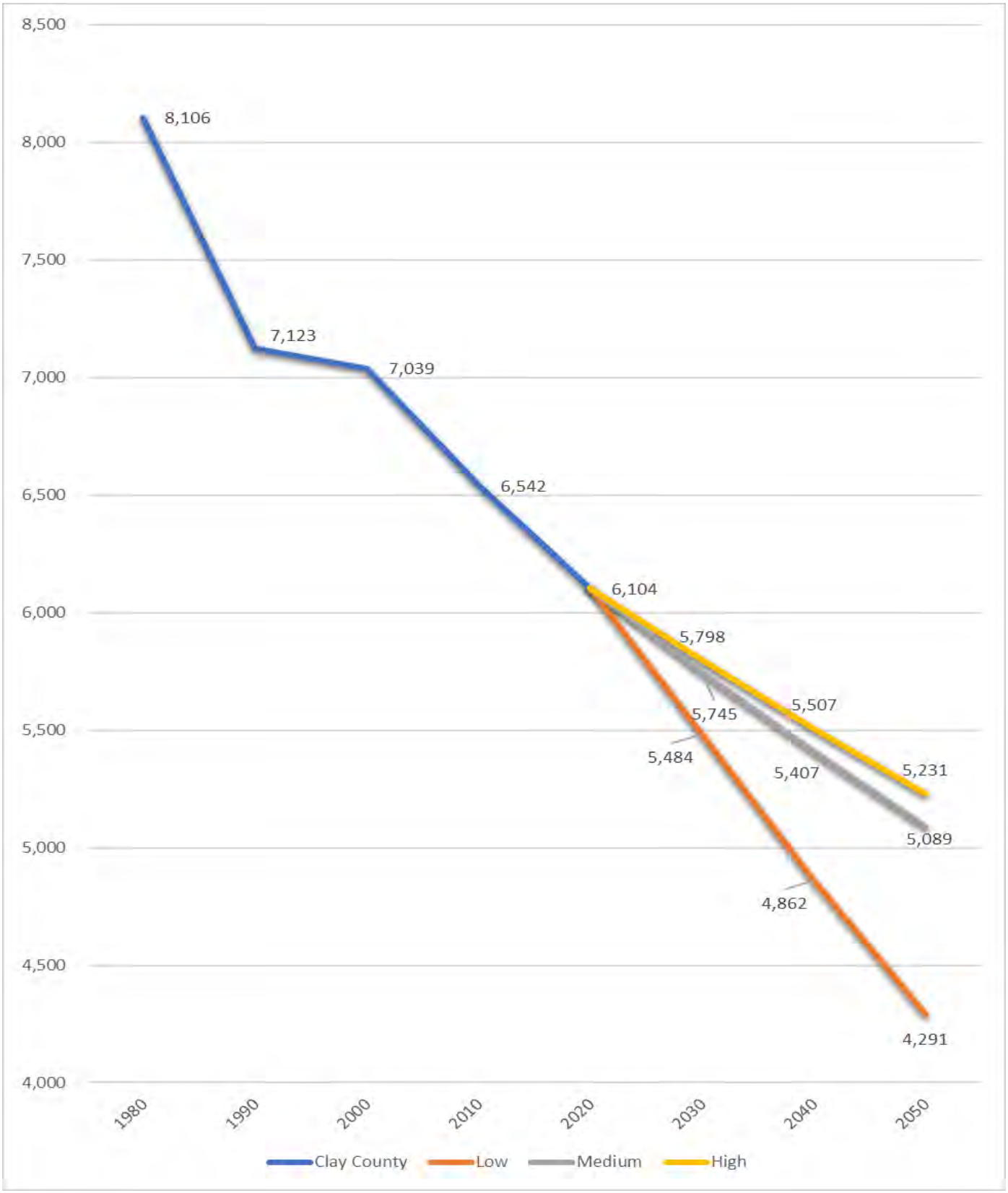
Year	Ten Year Trend
2020	6,104 persons
2030	5,695 persons
2040	5,314 persons
2050	4,958 persons

Year	Twenty Year Trend
2020	6,104 persons
2030	5,684 persons
2040	5,293 persons
2050	4,929 persons

Year	Thirty Year Trend
2020	6,104 persons
2030	5,798 persons
2040	5,507 persons
2050	5,231 persons

Year	Fifty Year Trend
2020	6,104 persons
2030	5,745 persons
2040	5,407 persons
2050	5,089 persons

FIGURE 3.7: POPULATION AND PROJECTIONS



Sources: Nebraska State Data Center, Center for Public Affairs Research, University of Nebraska at Omaha, U.S. Census Bureau 1970 - 2020, Marvin Planning Consultants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Chapter Four
Housing

INTRODUCTION

Most housing is development by the private sector. The public sector, though, has an important role is providing municipal services and infrastructure, and mitigating conflicts with industry and environmentally sensitive areas.

The housing profile presents data about past and present housing conditions, while identifying potential needs including provisions for safe, decent, sanitary, and affordable housing for every family and individual residing within the county. Participants in the Town Hall meetings remarked on the importance of affordable housing in keeping and attracting residents, in particular young families with school age children.

Projecting future housing needs requires several factors to be considered including population change, household income, employment rates, land use patterns, and residents' attitudes. The following tables and figures provide information to aid in determining future housing needs and develop policies designed to accomplish the housing goals for Clay County.

HOUSEHOLD CHARACTER

The US Census Bureau's American Community Survey (ACS) reported the total number of households in Clay County fell by approximately 6% between the surveys of 2008-2012 and 2018-2022 (Table 4.1). It should be noted the ACS is a rolling survey

TABLE 4.1: CLAY COUNTY HOUSEHOLDS 2012-2022

	2012	2022	2012-2022
Total Households	2,647	2,475	-6%
Average Household Size	2.42	2.42	-
Married-couple household	1,485	1,471	-1%
Householder living alone	732	275	-62%
Households with one or more under 18 years	823	741	-10%
Households with one or more 65 years and over	781	837	7%
Householder living alone, 65 years and over	343	103	-70%

Source: American Community Survey 2008-2012 & 2018-2022.

used to estimate totals and is subject to margins of error which are more pronounced for smaller communities.

The number of households decreased by about 6%, similar to the change in estimated population over the same time period. This resulted in a stable average household size of 2.42 persons.

The number of households with children under 18 decreased by 10%, while the number of households with residents aged 65 years or over increased by about 7%.

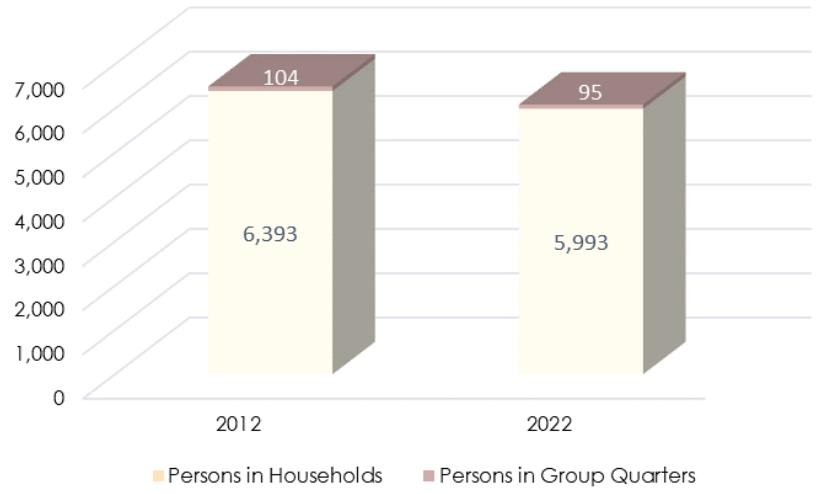
HOUSEHOLDS

In 2022, there were 400 fewer people living in households than in 2012, which represents a contraction of 6.3% (Figure 4.1). Between 2012 and 2022, the number of people living in group quarters went from 104 people in 2012 to 95 in 2022, a decrease of over 8.7%. Group quarters include such places as residential treatment centers, skilled nursing facilities, or group homes, among other places.

Figure 4.2 shows the average household size in the region. The trend nationally has been towards a declining household size. In 2022, there was an average of 2.42 persons in each household in Clay County, compared to 2.39 persons in Nebraska statewide.

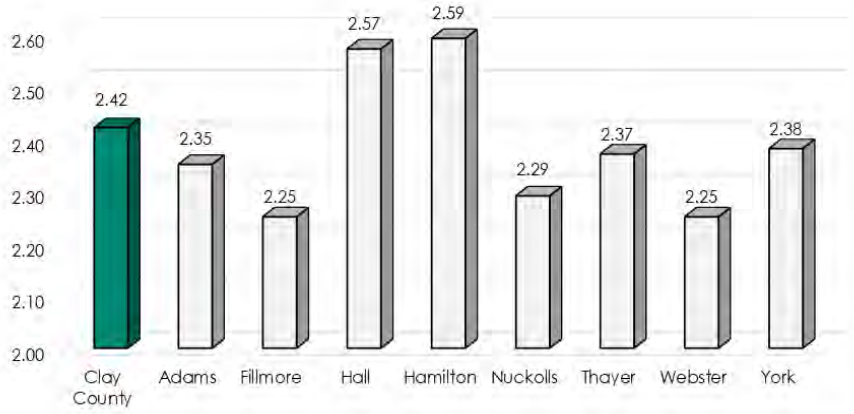
Two-person households were the largest group in owner-occupied housing in Clay County in 2022, representing 924 housing units (Figure 4.3). By comparison, the largest household size for rentals was one-person households with 204 housing units.

FIGURE 4.1: HOUSEHOLD POPULATIONS 2012-2022



Source: American Community Survey 2008-2012 & 2018-2022.

FIGURE 4.2: AVERAGE HOUSEHOLD SIZE



Source: American Community Survey 2008-2012 & 2018-2022.

FIGURE 4.3: OWNER-OCCUPIED AND RENTER-OCCUPIED HOUSEHOLDS BY SIZE

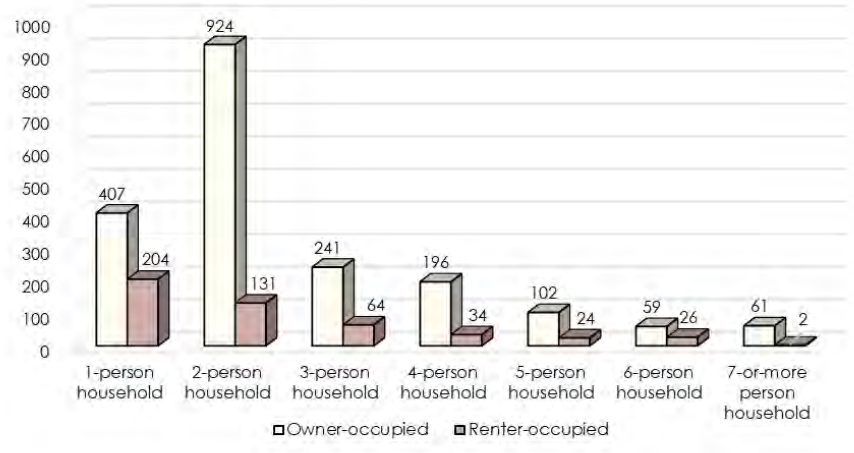
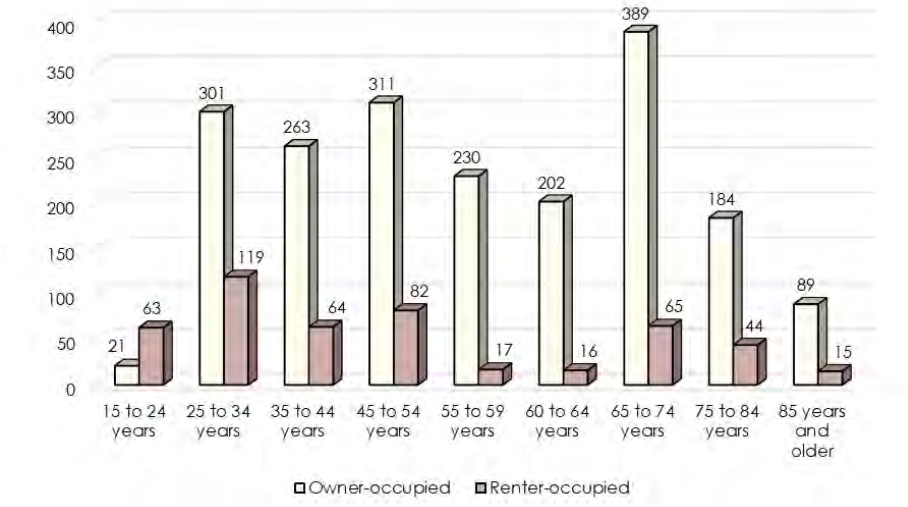


FIGURE 4.4: HOUSEHOLDER AGE BY HOUSEHOLD TYPE



Source: American Community Survey 2018-2022.

The largest home ownership age cohort consists of those 65 to 74 years old (20%) (Figure 4.4). The largest renter-occupied age cohort were those 25 to 34 years (25%).

HOUSING STOCK

An analysis of the housing stock can reveal a great deal about trends in population and economic conditions. Examining the housing stock is also important to understand the overall quality of housing in the county.

The number of housing units counted in the US Census Bureau's decennial Census declined from 3,001 in 2010 to 2,817, a contraction of -6.1% (Table 4.2). This was less than the population loss of -6.7% in the same Census count. The community of Deweese experienced the largest loss of housing units, falling approximately 30% from 37 to 26 housing units in the 2020 Census count.

It should be noted the ACS surveys for 2008-2012 reported 3,005 housing units in Clay County compared to 3,010 in the 2010 decennial Census. The ACS surveys for 2018-2022 reported there were 2,834 housing units compared to 2,817 in the 2020 decennial Census. The difference between the two data sets is the decennial count is a single point in time (April 1), while ACS is a rolling average over five years, but remains up to date between decennial census counts.



Residential Home, Clay Center
Source: Realtor.com

TABLE 4.2: CLAY COUNTY HOUSING UNITS 2010-2020

	2010	2020	Change 2010-2020
Clay County	**3,001**	**2,817**	**-6.1%**
Clay Center	360	346	-3.9%
Deweese	37	26	-29.7%
Edgar	256	217	-15.2%
Fairfield	198	182	-8.1%
Glenvil	137	125	-8.8%
Harvard	453	421	-7.1%
Ong	41	33	-19.5%
Saronville	19	19	0.0%
Sutton	666	657	-1.4%
Trumbull	83	79	-4.8%
Unincorporated	751	712	-5.2%

Source: US Census Bureau Redistricting File, 2010 & 2020.

The ACS also reports on types of housing units. In 2022, single family-detached homes accounted for 87.4% of Clay County's housing units. An additional 9.4% were single family attached while 1.3% less were two unit structures.

Age of Housing Units

Clay County's housing stock is aging. Figure 4.5 shows 1,060 homes, or 37% of the county's housing units (as covered by the ACS), were constructed prior to 1940. This statistic is county-wide, including each community, and includes older well-kept homes as well as homes likely in need of repair or demolition.

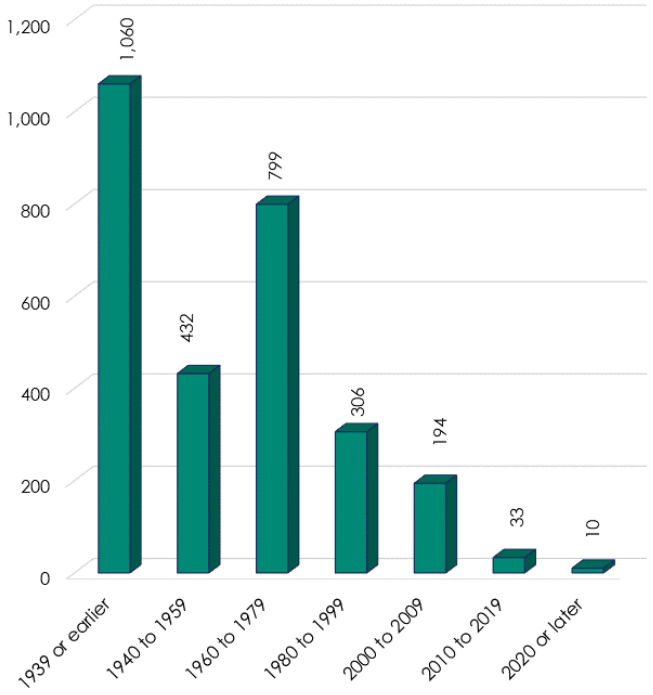
Construction activity has been cyclical since 1940, with the largest number of homes (31%) built between 1960 and 1979. These data reflect the fact the local economy was relatively prosperous during these decades. However, since 2000, the construction of new homes has slowed with approximately 8% of all homes built in the last two decades.

Due to the age of homes in the county, there may be a need for home improvement assistance. An example would be a weatherization program to bring older homes up to current energy efficiency standards.

Occupied vs. Vacant Units

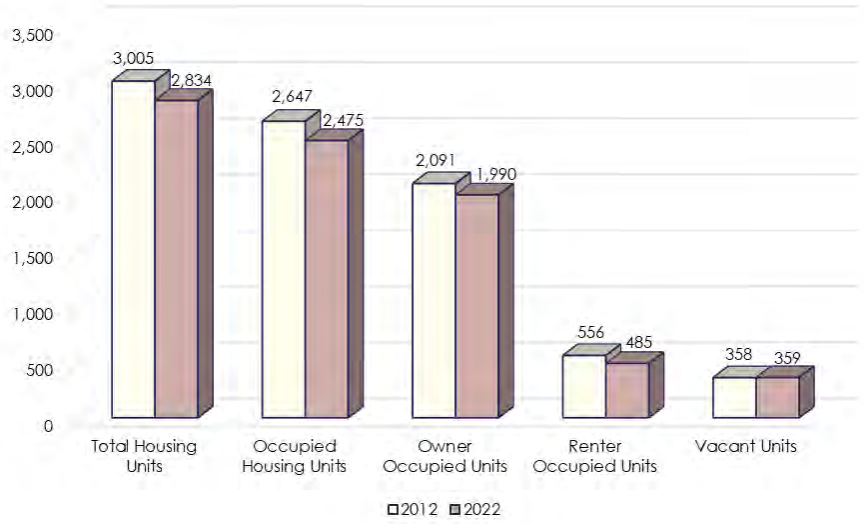
The ACS estimated the number of occupied and vacant housing units in Clay County declined from 2012 to 2022. The number of owner-occupied units decreased from 2,091 to 1,990 and the number of renter-occupied units decreased from 556 to 485 (Figure 4.6). The vacancy rate for

Figure 4.5: Age of Existing Housing Stock



Source: American Community Survey 2018-2022.

Figure 4.6: Occupied vs. Vacant Housing Units 2012-2022



Source: American Community Survey 2008-2012 & 2018-2022.

owner-occupied units decreased from 3% to 0.6%, and the vacancy rate for renter-occupied units fell from 11.7% to 5.8% (Figure 4.7).

The reasons reported to ACS for why housing was vacant included Sold (not occupied), For rent, for sale, for seasonal/ occasional use, or "other vacant" for which no reason could be determined by survey takers.

Median Value of Owner-Occupied Units

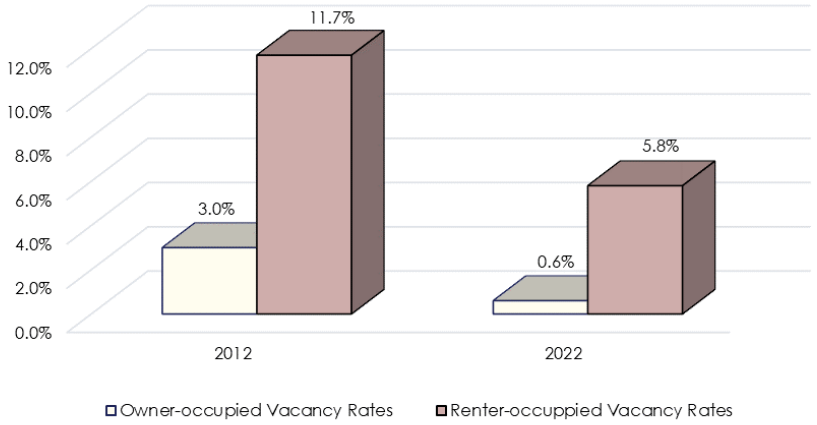
The median value of owner-occupied housing units in Clay County increased from $50,900 in 2000 to $73,700 in 2010, and by 2020 to $102,500 (Figure 4.8). Over the same time period, the State's median value had increased from $88,000 to $164,000.

Median Gross Rent

Clay County and the state of Nebraska have both seen significant growth in median gross rent since 2000. Median gross rent in the county increased from $363 in 2000 to $586 in 2020, an increase of 61% (Figure 4.9). Median gross rent in Nebraska increased by 75% to $857 by 2020. Rent in the county and state both grew faster than the Consumer Price Index, which only increased at a rate of 50.5% during the same period.

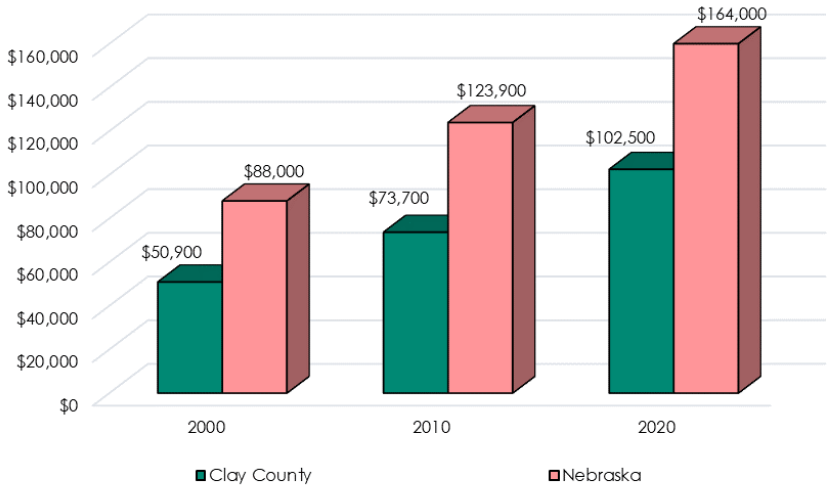


Figure 4.7: Vacancy Rates by Type of Unit 2012-2022



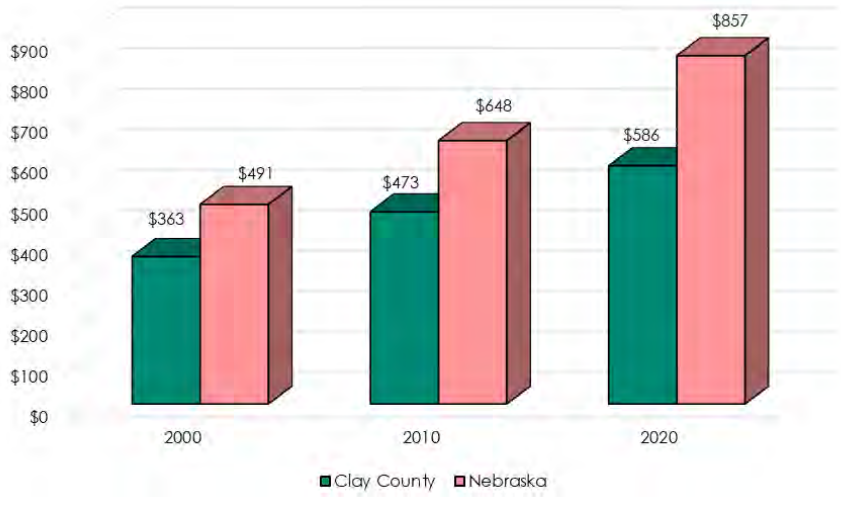
Source: American Community Survey 2008-2012 & 2018-2022.

Figure 4.8: Median Value Owner-Occupied Units 2000-2020



Source: U.S. Census Bureau 2000, American Community Survey 2006-2010 & 2016-2020.

Figure 4.9: Median Gross Rent 2000-2020



Source: U.S. Census Bureau 2000, American Community Survey 2006-2010 & 2016-2020.

Substandard Housing

According to the U.S. Department of Housing and Urban Development (HUD) guidelines, housing units lacking complete plumbing or are overcrowded are considered substandard housing units. HUD defines a complete plumbing facility as hot and cold-piped water, a bathtub or shower, and a flush toilet; overcrowding is more than one person per room. In addition, anytime there is more than one person per room, the housing unit is considered overcrowded, thus substandard.

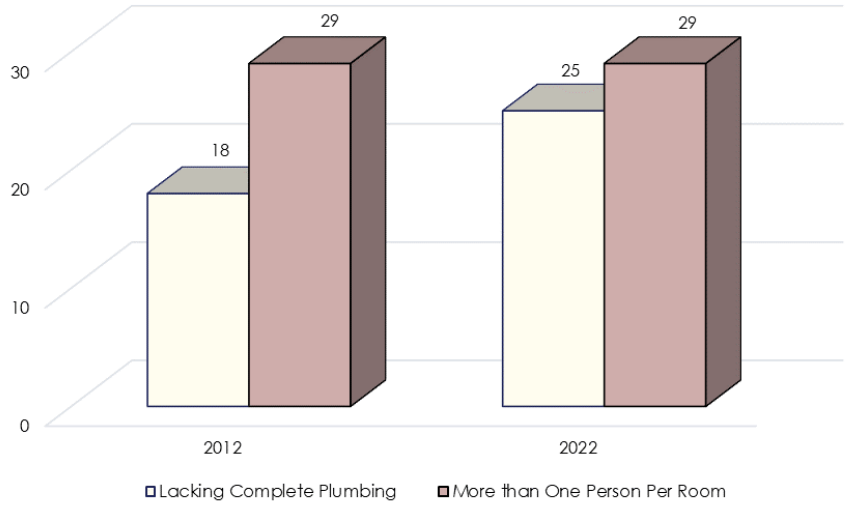
These criteria, when applied to Clay County, mean 43 units were considered substandard in 2012 and 58 units were substandard in 2022. (These data fail to consider housing units which met both criterion and may be counted twice.) Even so, it should not be assumed the number of substandard housing units are overestimated. Housing units containing major defects requiring rehabilitation or upgrades to meet building, electrical, or plumbing codes should also be included in an analysis of substandard housing.

Participants in the Town Hall expressed concerns about housing quality, as well as the availability of contractors and skilled trades to improve and repair their homes.

A comprehensive assessment of the entire housing stock should be completed every five years to determine and identify the housing units which would benefit from rehabilitation or modernization work. This process will help ensure a county maintains a high quality of life for its residents through protecting the quality and quantity of its housing stock.

An assessment process would also help housing advocates, such as a non-profit organization or allied public agency, to make funding available for property owners to improve substandard housing.

Figure 4.10: Substandard Housing Conditions 2012-2022



Source: American Community Survey 2008-2012 & 2018-2022.



Residential Home, Fairfield
Source: Realtor.com

HOUSING RESOURCES

ECONOMIC DEVELOPMENT DISTRICT

The South Central Economic Development District (SCEDD, *see Chapter Five*) offers programs and funds to provide new housing and rehab homes throughout their region. Housing assistance includes strategic planning, funding options, project planning, and housing studies. They also offer assistance with nuisance abatement and grant writing.

Source: www.scedd.us

LAND TRUSTS

A community land trust (CLT) is a nonprofit corporation that owns land on behalf of a community. CLTs use public and private investment funds to acquire land. They hold land for the benefit of the community. In some places, CLTs have developed and maintained ownership of agricultural sites or commercial spaces for needed community services; in others, CLTs have created affordable residential properties.

As a compliment to land trusts, land banks are public authorities or non-profit organizations created to acquire, hold, manage, and redevelop property. The purpose is to return these properties to productive use to meet community goals, such as increasing affordable housing or stabilizing property values.

Source: nhc.org/policy-guide/land-based-solutions/land-banks-and-community-land-trusts

MANUFACTURED AND MODULAR HOMES

Prefabricated or manufactured homes are built off-site, typically in an enclosed factory, and transported as single or multiple units to the home site. The term "manufactured home" is defined by federal law (24 CFR 3280) as built under the federal building code administered by the US Department of Housing and Urban Development—the HUD Code—which went into effect in 1976. The term "mobile home" refers to older homes, built prior to 1976 which do not meet the HUD Code. "Modular homes" are also built off-site, typically to meet the International Residential Code (IRC) the same as a site-built home.

As noted in APA's Zoning Practice (April 2024):

> *Despite the dramatic improvement in quality of construction after National Manufactured Housing Construction and Safety Standards Act of 1974 and the Manufactured Housing Improvement Act of 2000, and the more recent implementation of state energy codes mandating increase energy efficiency, the "mobile" home continues to be treated as inferior housing at best, and too often undesirable housing, to be heavily restricted if not completely zoned out of communities.*

Prefabricated housing is typically more affordable than site-built housing, and factory conditions may result in higher-quality as construction is sheltered from bad weather.

Manufactured and modular homes are often placed on a basement or permanent foundation and should be treated similarly to standard site-built construction in zoning and subdivision regulations.

Sources: www.hud.gov/OMHP and www.manufacturedhousing.org

HOUSING GOALS, POLICIES, AND ACTIONS

HOUSING GOAL 4.1

A variety of quality housing is available throughout the county.

POLICIES

4.1.1 Development projects shall follow the goals and policies of the Comprehensive Plan.

4.1.2 Clay County supports housing development in municipalities.

4.1.3 Future rural development should work toward compact and/or conservation approaches.

4.1.4 Direct residential development away from prime farmland and environmentally sensitive areas.

ACTIONS

4.1.5 Regularly review and update land use regulations (zoning and subdivision ordinances) to remove barriers to new and rehabilitated housing.

4.1.6 Encourage "Missing Middle" housing types in municipalities.

4.1.7 Work with SCEDD on a county-wide nuisance abatement program.

4.1.8 Investigate ways the County could partner with non-profits or public agencies to support home repair programs to improve the condition of substandard and deteriorated housing.

HOUSING GOAL 4.2

Clay County residents in need have access to affordable and attainable housing.

POLICIES

4.2.1 Clay County supports affirmatively furthering fair housing throughout the county.

4.2.2 Clay County supports local municipal efforts to secure funding for affordable and attainable housing.

ACTIONS

4.2.3 Develop new partnerships with public and private lending institutions to find solutions that reduce housing costs.

4.2.4 Work with affordable housing developers to create additional rental housing for very-low income families.

4.2.5 Investigate ways the County could partner with non-profits or public agencies to support workforce housing.

4.2.6 Explore creating a local Community Land Trust.



Chapter Five
Economic Development

ECONOMIC PROFILE

Economic Development is the creation of wealth from which community benefits are realized. It is more than a jobs program, it's an investment in growing the economy and enhancing the prosperity and quality of life for all residents. Economic development is a process to assist in the retention and expansion of existing businesses, encouraging new entrepreneurs, and preparation to attract new employers.

Respondents to the countywide survey were skeptical of locating new businesses along highway corridors instead of downtown. Clay County residents support new development, yet also support protecting farmland while promoting value-added ag processing.

In this section, income and employment data and trends were reviewed for Clay County and Nebraska statewide. Data sources include the US Census Bureau, US Bureau of Economic Analysis (BEA), and US Bureau of Labor Statistics.

INCOME STATISTICS

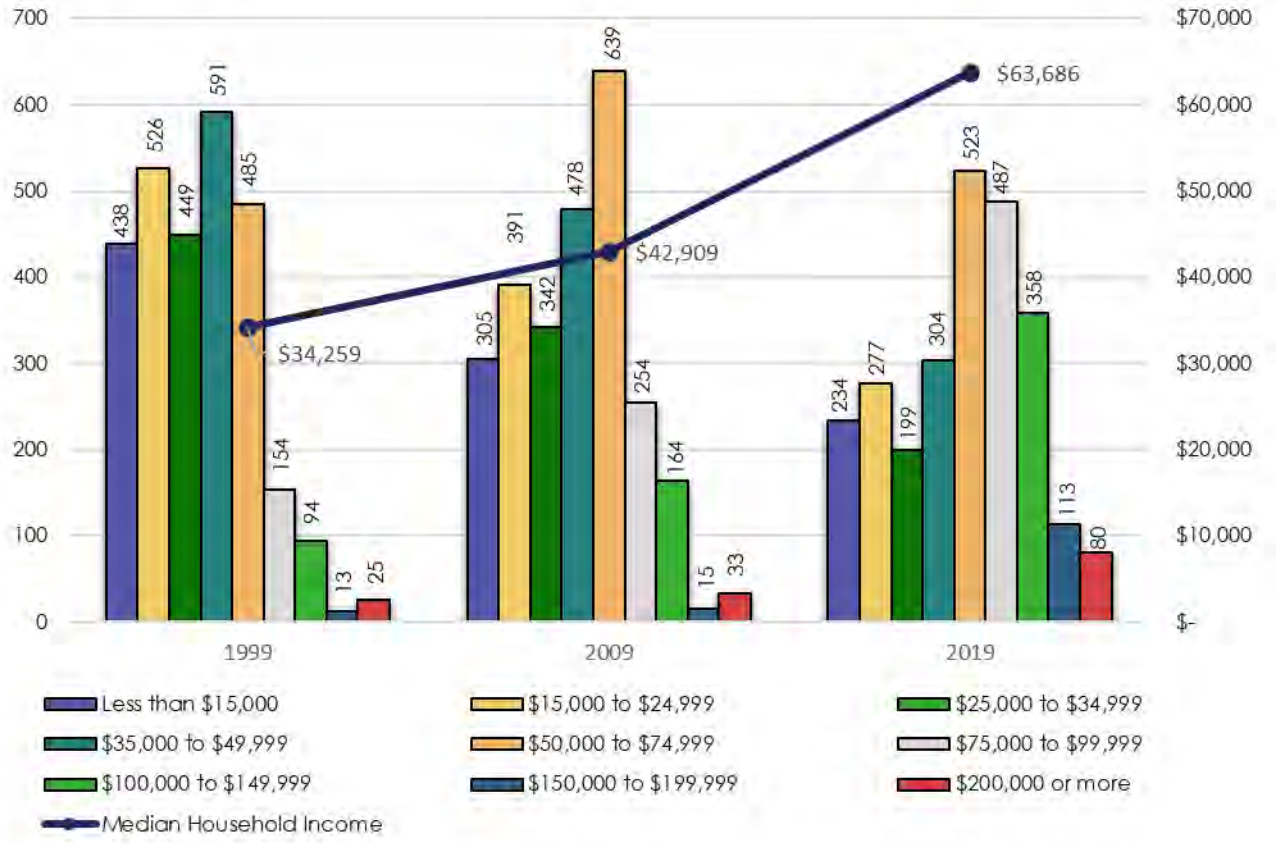
Income statistics indicate the earning power of residents. The data below show personal and household income levels for Clay County in comparison to the state. These data were reviewed to determine whether households experienced increases in income at a rate comparable to the state of Nebraska and the Consumer Price Index (CPI).

Figure 5.1 shows the number of Clay County households in different income ranges in 1999, 2009, and 2019, according to US Census surveys. In 1999, the most common income range was $35,000 to $49,999. In 2009, the most common range was $50,000 to $74,999 in the middle of the range, which remained the most common range in 2019.

The median household income for Clay County was $34,259 in 1999, which was less than the state's median income of $39,250. By 2009, the median household income increased to $42,909, which was close to the state's median household income of $49,342. Finally, in 2019, the median household income had risen to $63,686, higher than the state's median household income of $63,105.

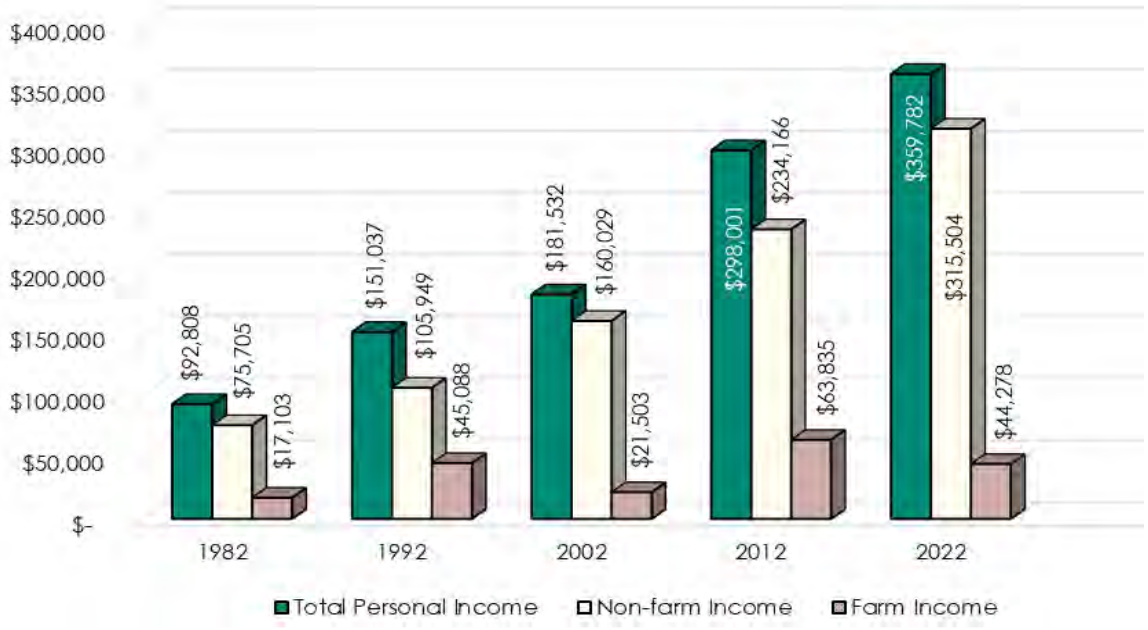
Clay's median household income grew by approximately 75% from 1999-2019, outpacing the state's median household income growth of 60%. As well, the CPI for this period increased by only 50.5%, which indicates household income growth in

FIGURE 5.1: HOUSEHOLD INCOME 1999 TO 2019



Source: U.S. Census Bureau 2000, American Community Survey 2006-2010 & 2016-2020.

FIGURE 5.2: INCOME BY SOURCE 1982 TO 2022



Source: BEA Regional Economic Accounts, 1981 - 2021

Clay County exceeded inflation. It should be noted the economic recession which occurred during the COVID pandemic starting in 2020 represented a significant disruption in long-range economic trends.

Income by Source

There are different primary sources of personal income, with the two primary categories being farm and non-farm income (Figure 5.2). Changes in these statistics can be compared to the CPI, to determine if increases are keeping pace with inflation. Between 1980 and 2020, the CPI increased by 214%. According to the US Bureau of Economic Analysis (BEA), Total Personal Income in Clay County went from $87,227,000 in 1981 to $388,477,000 in 2021. This was an increase of 345%. Total personal income in the county increased at approximately one and a half times the rate of inflation over the 40-year period.

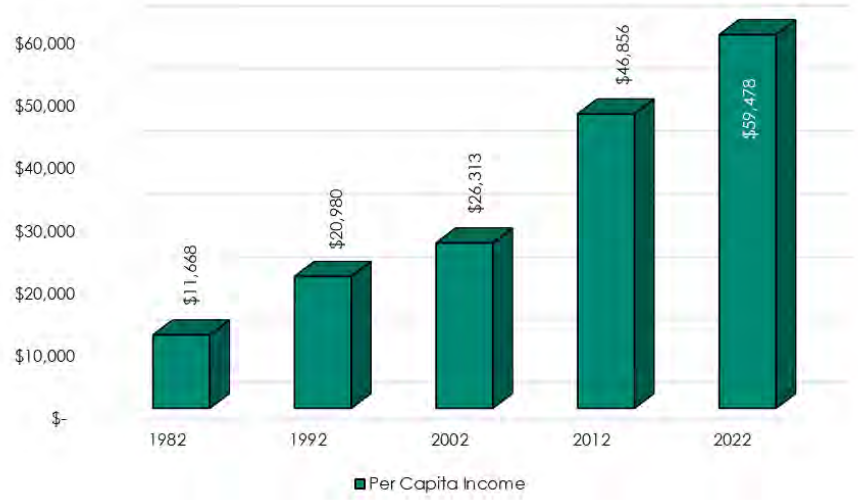
Non-farm and Farm Income

Non-farm income increased from $75,705,000 in 1982 to $315,504,000 in 2022. This was an increase of approximately 317%, which was greater than the rate of increase as the CPI. Farm income rose from $17,103,000 in 1982 to $63,835,000 by 2012, then fell to $44,278,000 in 2022.

Per Capita Income

Per Capita Income is determined by dividing total personal income, earned by all of the residents in an area, by the number of residents in an area. The per capita income in Clay County increased from $11,668 in 1982 to $59,478 in 2022, an increase of 408% (Figure 5.3). This

Figure 5.3: Per Capita Income 1982 to 2022



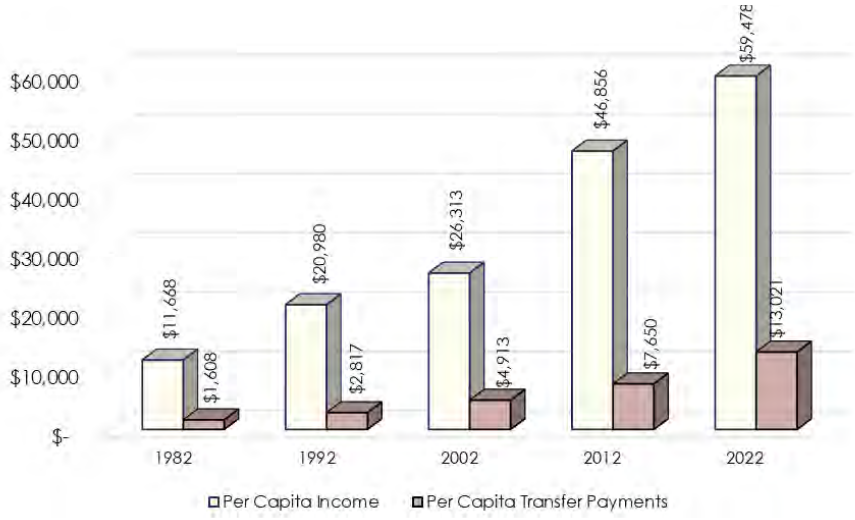
Source: BEA Regional Economic Accounts, 1982 - 2022

Figure 5.4: Transfer Payments as a Proportion of Income 1982 to 2022



Source: BEA Regional Economic Accounts, 1982 - 2022

Figure 5.5: Personal Income and Transfer Payments 1982 To 2022



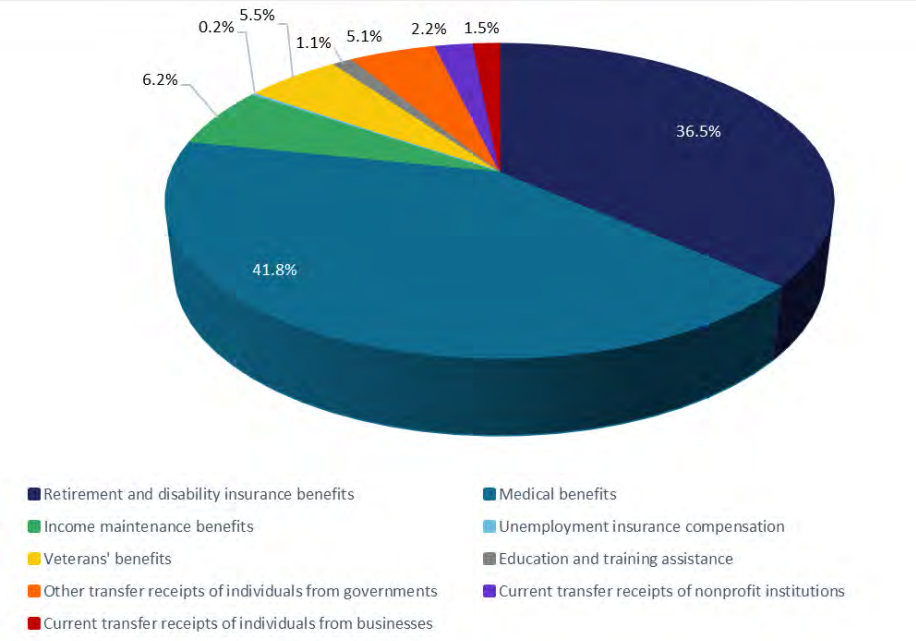
Source: BEA Regional Economic Accounts, 1982 - 2022

was significantly higher the CPI increase. Clay County's per capita income exceeded Nebraska's per capita income level of $64,263 in 2022.

Transfer Payments

Another income source deserving examination are transfer payments, which are a component of non-farm income. Transfer payments as a proportion of personal income have risen considerably over the last fifty years. In 1982, transfer payments comprised 13.8% of total personal income (Figure 5.4). In 1992, this figure was reduced to 13.4%; however, by 2022, transfer payments represented 21.9% of total personal income. Per Capita

FIGURE 5.6: TRANSFER PAYMENTS BY PERCENTAGE 2022



Source: BEA Regional Economic Accounts, 2022

Transfer Payments

Government transfer payments span a wide range of uses and organizations. The funds for these payments also come from many different sources. However, the most common form of transfer payment is retirement and disability insurance benefits. These payments are made to those who qualify for OASDI benefits, railroad retirement and disability benefits, workers compensation programs and others.

Medical benefits are the second most common form of transfer payments. These types of benefits are government payments made through intermediaries to beneficiaries of medical care. Specifically, medical benefits come from either public assistance medical care or military medical insurance benefits. Public assistance is received by low-income individuals and payments come through the federally assisted, state-run Medicaid program and the Children's Health Insurance Program (CHIP). Military insurance is provided to military personnel through the TriCare Management Program.

Unemployment insurance is perhaps the third most common type of government transfer payments. This insurance includes state unemployment, federal unemployment and other organizations of unemployment compensation. Veterans' benefits are also a fairly common form of transfer payment. Transfer payments which surround these types of benefits are made up of veterans' pension and disability benefits, veterans' life insurance benefits and other types of veterans assistance.

Finally, education and training assistance is considered a type of government transfer payment. This government assistance consists of higher education student assistance, interest payments on student loans and state educational assistance. The combination of these benefits help individuals at all levels of education afford school. They also help people from all types of backgrounds. From Individuals who may only need a loan to people who need more assistance, all people can be helped with these transfer payments.

TABLE 5.1: TRANSFER PAYMENTS 1982-2022

Description	1982	1992	2002	2012	2022	Change	Change/ Year
Personal current transfer receipts (thousands of dollars)	12,789,000	20,278,000	33,895,000	48,656,000	78,765,000	516%	12.9%
Current transfer receipts of individuals from governments	12,185,000	19,569,000	32,684,000	47,365,000	75,825,000	522%	13.1%
Retirement and disability insurance benefits	7,751,000	11,556,000	14,744,000	20,341,000	28,734,000	271%	6.8%
Social Security benefits	7,373,000	11,069,000	14,261,000	19,808,000	27,805,000	277%	6.9%
Excluding Social Security benefits 1/	378,000	487,000	483,000	533,000	929,000	146%	3.6%
Medical benefits	2,918,000	5,641,000	14,213,000	19,872,000	32,907,000	1028%	25.7%
Medicare benefits	1,873,000	3,737,000	8,422,000	13,245,000	20,530,000	996%	24.9%
Public assistance medical care benefits 2/	1,024,000	1,853,000	5,741,000	6,468,000	12,256,000	1097%	27.4%
Military medical insurance benefits 3/	21,000	51,000	50,000	159,000	121,000	476%	11.9%
Income maintenance benefits	559,000	1,287,000	1,947,000	3,370,000	4,873,000	772%	19.3%
Supplemental Security Income (SSI) benefits	85,000	282,000	167,000	484,000	425,000	400%	10.0%
Earned Income Tax Credit (EITC)	73,000	272,000	575,000	972,000	1,027,000	1307%	32.7%
Supplemental Nutrition Assistance Program (SNAP)	116,000	293,000	259,000	731,000	954,000	722%	18.1%
Other income maintenance benefits 4/	285,000	440,000	946,000	1,183,000	2,467,000	766%	19.1%
Unemployment insurance compensation	302,000	236,000	533,000	708,000	167,000	-45%	-1.1%
State unemployment insurance compensation	286,000	231,000	519,000	681,000	160,000	-44%	-1.1%
Excluding state unemployment insurance compensation	16,000	5,000	14,000	27,000	7,000	-56%	-1.4%
Veterans' benefits	478,000	644,000	937,000	2,343,000	4,303,000	800%	20.0%
Education and training assistance 5/	176,000	196,000	301,000	488,000	844,000	380%	9.5%
Other transfer receipts of individuals from governments 6/	1,000	9,000	9,000	243,000	3,997,000	-	-
Current transfer receipts of nonprofit institutions	272,000	401,000	631,000	797,000	1,724,000	534%	13.3%
Current transfer receipts of individuals from businesses 7/	332,000	308,000	580,000	494,000	1,216,000	266%	6.7%

Source: BEA, Regional Economic Information System 1982 - 2022

transfer payments rose to $13,021 by 2022 (Figure 5.5).

As seen in Figure 5.6, the majority of transfer payments are in the form of Medical Benefits and Retirement Benefits, indicating a major impact of the aging population. This may indicate an opportunity for economic development efforts to promote amenities for retiree retention and attraction, as well as balancing the demographic profile with youth retention and in-migration.

Table 5.1 enumerates different categories of transfer payments from 1982 to 2022. The largest increase in a specific category was in Supplemental Nutrition Assistance Program (SNAP) benefits with a total increase of approximately 722%. Public expenditures during the COVID pandemic likely influenced 2021 transfer payments.

EMPLOYMENT

Employment data assists in understanding the key generators of income. The U.S. Meat Animal Research Center is a major employer in Clay County, however, most other firms other than the agricultural cooperatives are local small businesses.

This section provides data on the types of jobs in Clay County and the type of employment and occupations of residents.

INDUSTRY EMPLOYMENT

As shown in Table 5.2, the total number of jobs in Clay County fell from 3,993 in 2012 to 3,597 in 2022, according to the US Bureau of Economic Analysis (BEA). This was a contraction of –11%, with farm employment fairly stable and non-farm employment decreasing by –9.0%. Statewide, total employment in Nebraska grew by 9.7% in the same decade.

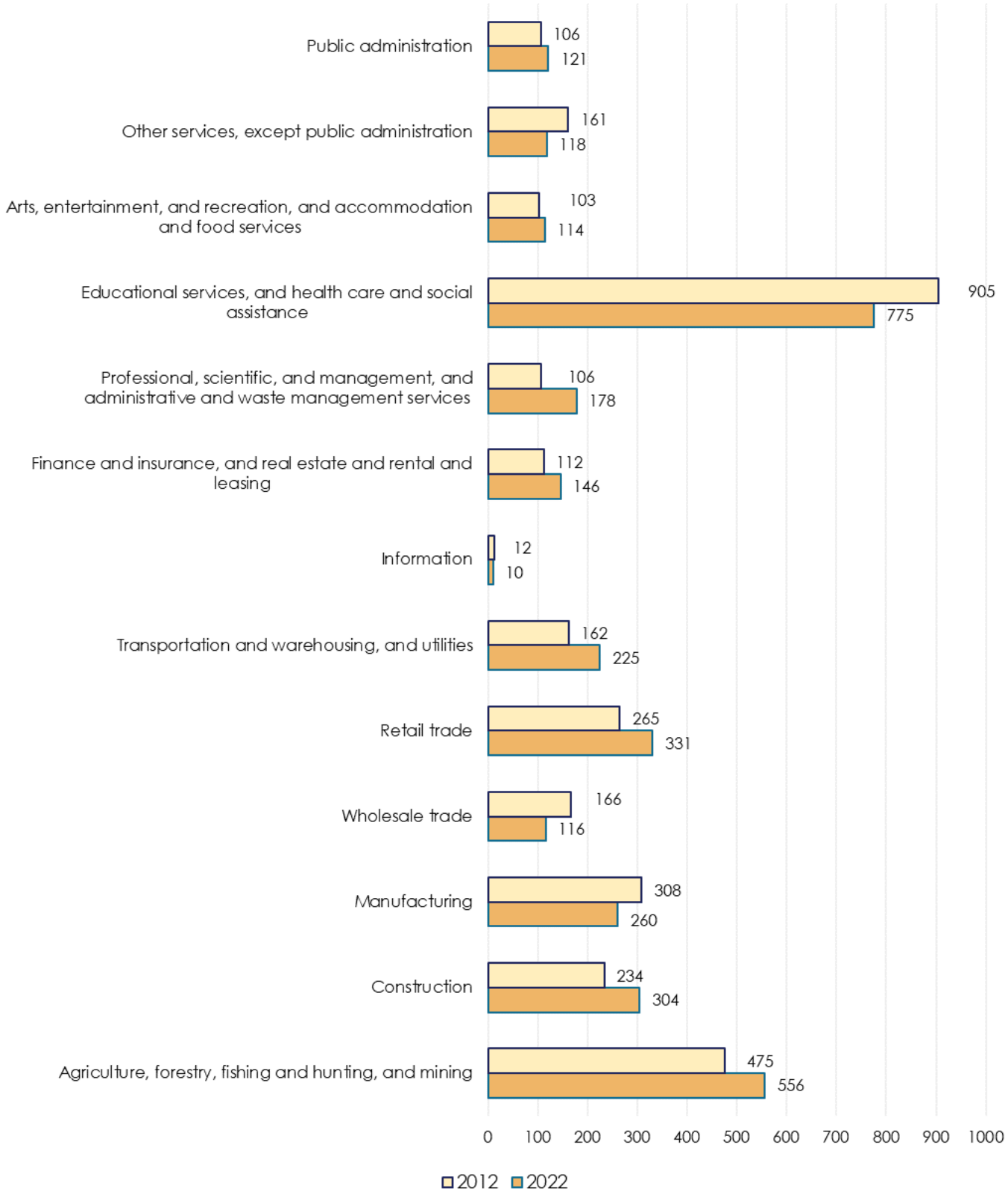
The Government sector contracted by –5.2% from 2012 to 2022, yet remained the largest reported sector with 732 jobs in Clay County. Construction was the largest private-sector industry with 302 employees, down 9.3% from 2012. Manufacturing decreased from 381 to 84 jobs in 2022, a 353% reduction. Manufacturing grew by 8.8% statewide. Even with contracting employment, Wholesale Trade represented a greater share of local employment than would be expected in Nebraska, indicating local strength in the sector.

TABLE 5.2: EMPLOYMENT IN CLAY COUNTY 2012-2022

Industry	2012	2022	Change 2012-2022
Total Employment by Place of Work	3,993	3,597	-11%
Farm Employment	549	564	2.7%
Non-Farm Employment	3,444	3,033	-9.0%
Forestry and Fishing	(D)	(D)	n/a
Mining, Quarrying, and Oil & Gas Extraction	(D)	(D)	n/a
Utilities	(D)	(D)	n/a
Construction	330	302	-9.3%
Manufacturing	381	84	-353.6
Wholesale Trade	256	218	-17.4%
Retail Trade	315	287	-9.8%
Transportation and Warehousing	(D)	(D)	n/a
Information	(D)	(D)	n/a
Finance and Insurance	(D)	(D)	n/a
Real Estate	(D)	(D)	n/a
Professional, Scientific, and Technical Services	83	91	8.8%
Management of Companies	(D)	-	-
Administrative/Support/Waste Management	(D)	(D)	n/a
Educational Services	9	8	-12.5%
Health Care and Social Assistance	308	229	
Arts, Entertainment, and Recreation	(D)	37	n/a
Accommodation and Food Services	(D)	62	n/a
Other Services (except Government)	214	192	-11.5%
Government	770	732	-5.2%

(D) Not Disclosed, n/a– Not Available
Source: BEA Regional Economic Accounts, 2012- 2022

FIGURE 5.7: RESIDENTS' EMPLOYMENT BY INDUSTRY 2012-2022



Source: American Community Survey 2008-2012 & 2018-2022.

TABLE 5.3: LABOR FORCE AND UNEMPLOYMENT RATES 2013-2023

	2013		2023	
	Labor Force	Unemployment	Labor Force	Unemployment
Clay County	**3,492**	3.4%	**3,061**	2.4%
Adams County	16,906	3.6%	17,177	2.1%
Fillmore County	3,296	2.9%	3,307	1.9%
Hall County	32,476	3.6%	33,433	2.3%
Hamilton County	4,838	3.1%	4,965	1.9%
Nuckolls County	2,450	3.1%	2,461	2.0%
Thayer County	3,048	2.7%	2,690	1.8%
Webster County	1,741	3.8%	1,661	2.5%
York County	7,481	3.5%	7,335	2.2%
Nebraska	**1,012,810**	4.0%	**1,058,934**	2.3%

Source: US Bureau of Labor Statistics, Local Area Unemployment Statistics

Health Care is the largest employment sector in Nebraska after Government jobs. In 2012, there were 308 jobs in Clay County in Health Care. That number dropped to 229, a drop of 34.5%.

The ACS estimates employment statistics for the people who live in an area. In 2012, 905 Clay County residents were employed in the Educational services, and health care and social assistances industry, the largest jobs sector (Figure 5.7). In 2022, this was still the largest sector, with 775 people reporting employment in this sector.

LABOR FORCE

According to the US Bureau of Labor Statistics, Clay County's labor force declined from 3,492 in 2013 to 3,061 in 2023, a 12.3% reduction in available labor. The labor force also declined in several adjacent counties (Table 5.3).

Clay County's unemployment rate also dropped, from 3.4% to 2.4% over the same timeframe. In comparison, the unemployment rate for the State of Nebraska decreased from 4.0% to 2.3%. All of the adjacent counties except Hall County had a lower unemployment rate than the statewide rate in 2023.

While a lower unemployment rate may imply more people are working, there are fewer people participating in Clay County's labor force than there were previously, shrinking the pool of labor available for new and expanded businesses.

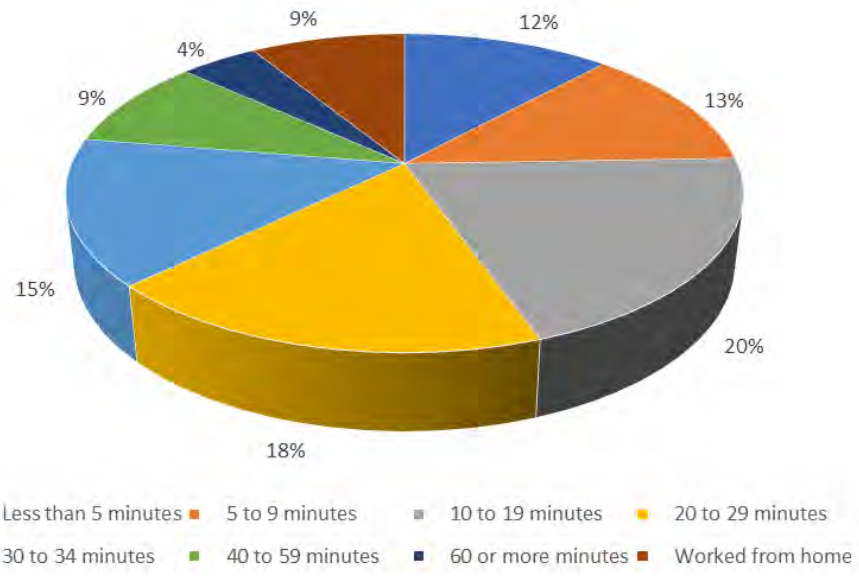
COMMUTER TRENDS

Clay County is part of a regional job market, with local residents commuting outside the county to work, while others commute into the county to work. The ACS estimates in 2021, 37.7% of Clay County residents left the county to work each day.

According to the US Census Bureau's Longitudinal Employer-Household Dynamics database, the largest number of inbound and outbound commuters drive to and from Hastings each day.

Travel time to work is a factor used to gauge if Clay County's workforce may want to find employment closer to home. The

FIGURE 5.8: CLAY COUNTY TRAVEL TIME TO WORK 2022



Source: American Community Survey 2018-2022.

TABLE 5.4: BASIC/NON-BASIC EMPLOYMENT BY OCCUPATION - 2022

Location (County)	Management business, science, and arts occupations	Service occupations	Sales and office occupations	Natural Resources, construction and maintenance occupations	Production, transportation, and material moving occupations	Base Multiplier
Clay	37.5%	14.9%	17%	15.5%	15%	11.8
Adams	31.4%	21.1%	17.5%	10.7%	19.3%	10.4
Fillmore	37.6%	14%	20.5%	13.2%	14.6%	17.2
Hall	28.7%	15.6%	20.1%	10.9%	24.7%	8.0
Hamilton	40.5%	15.5%	19.9%	12.7%	11.3%	45.4
Nuckolls	41.3%	15.9%	15.5%	11%	16.3%	20.8
Thayer	33.5%	15.3%	15.6%	19.8%	15.8%	10.2
Webster	36.6%	12.5%	17.1%	15.6%	18.2%	12.7
York	36.1%	13.1%	22.9%	12.8%	15.2%	13.7
Nebraska	40.6%	15.5%	19.8%	10.3%	13.8%	n/a

Source: American Community Survey 2018-2022.

mean travel time to work for Clay County residents in 2022 was 18.9 minutes, compared to 19.2 minutes statewide. Figure 5.8 indicates in 2022 about one-third (33.2%) of commuters were traveling 10 minutes or less to work, including 8.8% who worked from home. About one-half (46.6%) commuted 20 minutes or more to work. Those traveling 45 minutes or more only totaled 9.5%. Respondents to the Clay County Survey reported 24.4% commute less than 10 minutes.

OCCUPATIONS

Industry is the type of activity at a person's place of work. Occupation is the kind of work a person does to earn a living. The following data examine five occupational areas established by the U.S. Census Bureau to evaluate trends in employment and the area economy. The five occupational categories used in the analysis are:

- Management, business, science, and arts occupations;
- Service occupations;
- Sales and office occupations;
- Natural resources, construction, and maintenance occupations, and;
- Production, transportation, and material moving occupations

In 2021, the ACS reported the largest number of Clay County residents, 37.5%, worked in Management, business, science, and arts occupations (Table 5.4). This compares to 40.6% of Nebraska residents statewide.

ECONOMIC BASE

A community's economic base is made up of "basic sector" employers. Non-Basic employment relies on revenue brought into the area by basic sector firms.

In order to estimate the number of basic jobs in a local area, a comparative area must be selected. For purposes of this analysis, Clay County has been compared to the state of Nebraska, as well as adjacent counties. This allows the analysis to establish where Clay County is producing goods and service for export compared to the state as a whole.

BASIC EMPLOYMENT

Occupation categories are compared to the same categories for the state to determine "basic" employment.

Basic employment

Basic employment is business activity providing services primarily outside the area through the sale of goods and services, the revenues of which are directed to the local area in the form of wages and payments to local suppliers.

Non-Basic employment is business activity providing services primarily within the local area through the sale of goods and services, and the revenues of such sales re-circulate within the community in the form of wages and expenditures by local citizens.

Where the percentage of county residents in a certain occupation exceeds the state's percentage, those jobs are considered "basic" employment with exports of goods or services bringing new income into the county. Table 5.4 indicates Clay County has exports in two occupational categories:

- Natural Resources, construction and maintenance occupations;
- Production, transportation, and material moving occupations.

Basic occupation data can be compared to basic industry data for additional economic insights. Both basic and non-basic occupations could be stronger. The County should continually work on existing business retention and expansion assistance to help employers stay and grow in Clay County.

Base Multiplier

A concept directly related to the basic/non-basic analysis is the base multiplier. The base multiplier is a number which represents how many non-basic jobs are supported by each basic job. A high base multiplier means the loss of one basic job will have a potential large impact on the local economy. Behind this analysis is if basic jobs bring new money into a local economy, money becomes the wages for other workers in the economy. Therefore, more money is brought in by basic jobs creating more non-basic jobs.

The information in Table 5.4 shows Clay County has a base multiplier of 11.8, which means for every job considered to be basic, 11.8 other jobs in the county are supported and/or impacted. This indicates for every job tied to exportation of goods or services, there are almost 12 jobs created/supported by the dollars coming into the community. Therefore, if Clay County lost just one of the jobs tied to exports, then there is the potential to lose approximately 12 jobs from the non-basic employment side.

There is no magical multiplier a County should aim to achieve. Every county is different and the dynamics involved are different. The unique and ever-changing dynamics are what make a particular county's economy unique and attractive to different employers. It is critical for to determine a future vision for business and industry and work towards this end. As previously mentioned, it is also critical to diligently work towards a successful business retention and expansion program to support those employers already located in the county. Some places become too focused on attracting the next big thing and forget about opportunities existing employers can offer through expansion of their operations.

Agricultural Profile

Agriculture has provided an economic base for Clay County since the first settlers arrived in the 1800s. USDA Economic Research Service (ERS) considers Clay County as highly-dependent on farming. Participants in the Town Hall noted there are still opportunities in support of agriculture and agricultural processing.

Tables 5.5 to 5.8 examine the agricultural profile of Clay County. Table 5.5 examines the number of farms and their high-level characteristics for these farms. The data are for 1997 through 2017.

Farms

Table 5.5 indicates the number of farms within Clay County decreased from 538 in 1997 to 441 in 2017, a fall of -18.0%. A falling number of farms has been normal throughout the Great Plains region.



Farmstead and agricultural grain storage, rural Clay County
Source: Marvin Planning Consultants

TABLE 5.5: FARMS AND LAND IN FARMS 2002 - 2022

Agricultural Characteristics	2002	2007	2012	2017	2022	% Change 2002-2022
Number of farms	503	454	457	441	461	-8.3%
Land in Farms (acres)	373,994	365,099	330,534	319,009	365,518	-2.3%
Average size of farms (acres)	744	804	723	723	793	6.6%
Total area of county (acres)	364,800	364,800	364,800	364,800	364,800	-
Percentage of land in farms	102.5%	100.1%	90.6%	87.4%	100.2%	-
Total cropland (acres)	301,908	291,501	259,146	259,454	302,950	0.3%
Harvested cropland (acres)	282,152	284,483	251,080	251,763	289,842	-2.7%
Irrigated cropland (acres)	201,394	218,108	191,700	190,577	233,617	16.0%
Estimated Market Value of Land & Bldg (avg./farm)	$1,196,393	$1,841,728	$3,712,294	$3,508,217	$5,346,815	346.9%
Estimated market value of all machinery and equipment (avg./farm)	$84,944	$122,909	$176,485	$152,401	$508,433	498.6%

Source: U.S. Census Bureau ; USDA Census of Agriculture, 2002, 2007, 2012, 2017, 2022

TABLE 5.6: NUMBER OF FARMS BY SIZE

Farm Size (acres)	2002	2007	2012	2017	2022	% Change 2002-2022
1 to 9	30	31	71	62	58	93.3%
10 to 49	49	54	44	50	42	-14.3%
50 to 179	63	76	72	73	119	88.9%
180 to 499	108	72	76	85	52	-51.9%
500 to 999	115	102	91	65	63	-45.2%
1,000 or more	138	119	103	106	127	-8.0%

Source: USDA Census of Agriculture, 2002, 2007, 2012, 2017, 2022
Note: this data is self reported, and may reflect operations in more than one county.

Each farm may have multiple owners and producers. The Census of Agriculture defines "producer" as "a person who is involved in making decisions for the farm operation... The producer may be the owner, a member of the owner's household, a hired manager, a tenant, a renter, or a sharecropper."

Of the 441 farms in Clay County in 2017, 167 were operated by a full owner, 182 by a part-owner (on owned and rented ground), and 92 by a tenant farmer. There were 772 producers reported in the Census of Agriculture, including 176 with one producer and 215 with two. There were 452 producers who reported farming was their primary occupation. There were 506 operators who reported their place of residence was on the farm operated. There were 387 producers who reported they did not work off farm, and 385 producers who reported they did work off-farm at some point during the year.

From 2002 to 2022, total land in farms fell from 373,994 acres to 365,518 acres, a reduction of -2.3%. The average size of farms increased from 744 acres in 2002 to 793 acres in 2022. This trend of increasing average size has been the norm across Nebraska and the United States for the last several decades. Total cropland in Clay County increased from 301,908 acres in 2002 to 302,950 acres in 2022, which was a change of .3%. Harvested cropland only decreased by about 2.7%, while irrigated cropland increased by 16%.

LAND AND BUILDINGS

Table 5.5 also shows the estimated market values of land, buildings, and equipment. In 2002, the average market value of land and equipment per farm was $1,196,393. The average value increased through 2012 before ending at $5,346,815, an increase of 346.9%. Estimated market value of machinery and equipment increased from $84,944 in 2002 to $508,433 in 2022; an increase of approximately 498.6%. The CPI for this same period was approximately 47.0%; therefore, the average value per acre increased significantly father than the rate of inflation.

FARMS BY SIZE

In 2002, the largest number of farms (138) were 1,000 or more

acres in size (Table 5.6). In 2022, this category remained the highest (127). The number of small farms of 1 to 9 acres and slightly larger farms of 50 to179 acres in size grew over the time period.

Ag Products

Total sales of agricultural products were reported of $581,577,000 for 2022, up 63% from 2017. This was an average of $1,261,554 per farm. There were 71 farms reporting less than $2,500 in sales on the low end, and 276 farms with sales of $100,000 or more on the high end.

The number of farms with cattle and calves decreased by about -50.7% from 2002 to 2022 (Table 5.7). The number of beef cows fell from 2007 to 2012. There were 9 farms with hogs and pigs in inventory, 24 with sheep and lambs, and 30 with chickens (layers and pullets). Some data is not disclosed to avoid identifying individual producers, shown as a "(D)" in the table.

Table 5.8 reports on specific crops. Corn and soybeans have been the two most frequently raised crops in Clay County. An average of 552 acres of corn is raised per farm, and 481 acres of soybeans. The number of farms raising corn for grain, corn for silage, wheat, oats, sorghum for grain, soybeans, and hay/forage crops decreased from 1,028 to 704 between 2002 and 2022. The number of acres of each of these crops (other than soybeans) also decreased in total.

Agriculture has historically been a major part of the Clay County and Nebraska economy. Future land use policies will have a major impact on the animal and crop agriculture industry. As well, regional and national trends in agricultural production will continue to affect wholesale and value-added ag processing into the foreseeable future.

Table 5.7: Farms and Livestock by Type

Type of Livestock	2002	2007	2012	2017	2022	% Change 2002-2022
Cattle and Calves						
farms	221	157	163	122	109	-50.7%
animals	54,465	61,071	51,336	62,013	50,961	-6.4%
average per farm	246	389	315	508	468	
Beef Cows						
farms	180	142	145	108	97	-46.1%
animals	(D)	14,210	13,630	(D)	(D)	n/a
average per farm	-	100	94	-	-	
Milk Cows						
farms	1	0	3	2	2	100.0%
animals	(D)	-	45	(D)	(D)	n/a
average per farm	-	-	15	-	-	
Hogs and Pigs						
farms	25	29	16	12	9	-64.0%
animals	150,626	156,213	167,502	(D)	185,399	n/a
average per farm	6,025	5,387	10,469	-	20,600	
Sheep and Lambs						
farms	20	21	39	33	24	20.0%
animals	5,055	(D)	3,967	3770	3,241	-35.9%
average per farm	253	-	102	114	135	
Chickens (layers and pullets)						
farms	15	24	39	35	30	100.0%
animals	327	497	974	(D)	(D)	n/a
average per farm	22	21	25	-	-	

Source: U.SDA Census of Agriculture, 2002, 2007, 2012, 2017, 2022
Note: this data is self reported, and may reflect operations in more than one county.
(D) Data Disclosure - Information Withheld

Value-Added Agriculture

While much of Clay County's agricultural production is sold at wholesale and exported around the world, local products can be processed locally so value is added closer to home (generally within a 400-mile radius of the home farm). Value-added enterprises today may be large scale, such as the ethanol and bio-diesel plants which have sprung up across central Nebraska. This may be small-scale—Nebraska has been able to support vineyards and winemaking, as well as other agri-tourism enterprises.

TABLE 5.8: FARMS AND CROPS BY TYPE

Type of Crop	2002	2007	2012	2017	2022	% Change 2002 -2022
Corn for Grain						
farms	349	310	290	289	305	-12.6%
acres	154,155	185,086	159,702	155,125	168,223	9.1%
average per farm	442	597	551	537	552	
Corn for Silage						
farms	42	20	13	13	11	-73.8%
acres	6,836	4,174	3,904	3,384	562	-91.8%
average per farm	163	209	300	260	51	
Wheat						
farms	43	101	33	19	14	-67.4%
acres	2,987	15,463	2,498	1,197	586	-80.4%
average per farm	69	153	76	63	42	
Oats						
farms	11	2	1	1	2	-81.8%
acres	749	(D)	(D)	(D)	(D)	n/a
average per farm	68	-	-	-	-	
Sorghum for Grain						
farms	70	35	8	17	17	-75.7%
acres	10,403	3,728	765	1,039	1,045	-90.0%
average per farm	149	107	96	61	61	
Soybeans						
farms	329	258	243	248	236	-28.3%
acres	95,736	71,264	76,829	86,633	113,624	18.7%
average per farm	291	276	316	349	481	
Hay/Forage						
farms	184	138	223	103	119	-35.3%
acres	12,789	9,070	6,900	4,236	5,521	-56.8%
average per farm	70	66	31	41	46	

Source: U.SDA Census of Agriculture, 2002, 2007, 2012, 2017, 2022
Note: this data is self reported, and may reflect operations in more than one county.
(D) Data Disclosure - Information Withheld

Farm-to-home operations can be as diverse as farmer's markets and community-supported agriculture. Direct food and fiber sales not only diversify on-farm income, but provide the benefit of healthy produce to area residents.

Respondents to the countywide survey strongly agree (20%) or agree (42%) "Value-added strategies are needed to enhance agriculture." About 3/4 strongly agreed (27%) or agreed (49%) there is an opportunity for creation of value-added home operations, such as Farmer's Markets, community-supported agriculture, or on-farm stores.

Future regional land use policies will have impacts on animal and crop agriculture. Also, regional and national trends in agricultural production will continue to affect wholesale and value-added ag processing into the foreseeable future.

USDA US MEAT ANIMAL RESEARCH CENTER

The Roman L. Hruska U.S. Meat Animal Research Center (USMARC) occupies most of the World War II-Korea era Naval Ammunition Depot in western Clay County. Part of the property nearer to Hastings was later privatized, and approximately 5,000 acres transferred in 1964 to establish the USMARC. About 800 bunkers remain and the entire site is encumbered with pollution (soil and groundwater) from naval operations and is unsuitable for residences. The County maintains the paved extension of Spur 18D, while USMARC maintains the local section roads on the site. The Center's office complex is located west of Clay Center.

Scientists at the USMARC develop scientific information and new technology to solve high priority problems for the U.S. beef, sheep, and swine industries. Objectives are to increase efficiency of production while maintaining a lean, high quality, safe product; therefore, the research ultimately benefits the consumer as well as the production and agri-business sectors of animal agriculture. The research is directed toward problems of national concern and to meeting USDA's Action Agencies' research needs. Research approaches involve five multidisciplinary teams with emphasis on both short-term and long-term solutions to improving animal production and product quality. About 50 percent of the effort is with beef cattle, 30 percent with swine, and 20 percent with sheep. The program is cooperative with the University of Nebraska and land-grant universities across the U.S.

The USMARC conducts primary science, employing approximately 220 full-time employees and 50 part-time summer staff. About half of the staff are federal employees and

the other half employees of the University of Nebraska at Lincoln. funded by receipts of operations. Like many Nebraska employers, it is difficult to recruit new employees—local small town quality of life is a draw, but other amenities are important as well. Over Fiscal Years 2021-2023, USMARC expended $49 million in federal salaries, $23.5 million in supplies, and $20 million by UNL on salaries, for a combined fiscal impact of approximately $92.5 million in the local community.

Source: www.ars.usda.gov/plains-area/clay-center-ne/marc



U.S. Meat Animal Research Center, rural Clay County
Source: Marvin Planning Consultants

ECONOMIC DEVELOPMENT RESOURCES

LOCAL ECONOMIC DEVELOPMENT

Clay County relies on each city and village to take the lead on local economic development. Some counties in the region have a formal local economic development office or non-profit organization dedicated to improving the quality of life of their residents.

Participants in the Town Hall expressed concern regarding the need for economic development assistance county-wide. Over half of respondents to the countywide survey strongly agreed (21%) or agreed (38%) "If I had the means, I would start or invest in a small local business." The majority strongly agreed (25%) or agreed (59%) "The County should be more proactive in supporting existing business."

CITY OF SUTTON

City of Sutton staff, along with communities members, do have an organized economic development program. The City has experienced development of an industrial and business park, and a subdivision for housing development.

Source: www.cityofsutton.org/ecodevelopment.html

SOUTH CENTRAL ECONOMIC DEVELOPMENT DISTRICT

South Central Economic Development District (SCEDD) was established in 2004 and serves 13 counties in South Central Nebraska, including Clay County. They focus on community, housing, and business development. SCEDD is also active in rural broadband and digital equity planning. The SCEDD offices are in Holdrege, Nebraska.

SCEDD works with the US Economic Development Administration (EDA) to develop a regional Comprehensive Economic Development Strategy (CEDS) is a continuous regional economic development planning process for the region. The CEDS was most recently updated in 2021, with priorities in industry growth and innovation, workforce development, housing development, and community development.

Source: www.scedd.us

NEBRASKA DEPARTMENT OF ECONOMIC DEVELOPMENT

The Nebraska Department of Economic Development (DED) is focused on growing and diversifying the state's economic base, bringing new dollars, new businesses, and new people into the state. DED functions to:

- Support communities with development efforts.
- Assist with starting, retaining, and expanding businesses.
- Promote the state for business locations and expansions.

DED efforts supporting community development include the Community Development Block Grant (CDBG) program, Civic and Community Center Financing Fund (CCFF), Economic Development Certified Community (EDCC), Leadership Certified Community (LCC), Local Option Municipal Economic Development Act (LB840), Nebraska Capital Projects fund, Nebraska Rural Projects fund, Site and Building Development found, and others. DED also provides resources for grant management and technical assistance with Enterprise Zones and Opportunity Zones.

Source: opportunity.nebraska.gov

LB840

The Local Option Municipal Economic Development Act (LB840, 1991) authorized incorporated cities and villages — if approved by local voters — to collect and appropriate local tax dollars, including sales and/or property tax, for economic development purposes.

To implement an LB840 program, communities formulate a written economic development plan which, if voter-approved, becomes the foundation for the collection and expenditure of local tax revenues for economic development under which the municipality's LB840 program operates.

In Clay County, the City of Sutton has an authorized LB840 program.

ECONOMIC DEVELOPMENT GOALS, POLICIES, AND ACTIONS

ECONDEV GOAL 5.1

Clay County supports balanced local and regional economic development services.

POLICIES

5.1.1 Development projects shall follow the goals and policies of the Comprehensive Plan.

5.1.2 Direct industrial development away from prime farmland and environmentally sensitive areas.

ACTIONS

5.1.3 Regularly review and update land use regulations for commercial plan review.

5.1.4 Establish a public-private partnership in support of countywide, local economic development, in particular for retention and expansion of basic sector employers.

5.1.5 Review and improve Clay County's online presence.

ECONDEV GOAL 5.2

There are sites available for retention and expansion of commercial and industrial employers.

POLICIES

5.2.1 Buffer commercial and industrial sites from incompatible uses.

ACTIONS

5.2.2 Continue implementation of a clear and consistent development review process to ensure timely permit review.

5.2.3 Support local Tax Increment Financing (TIF) where appropriate.

5.2.4 Support municipalities extending public utilities to reduce the costs of development and encourage development in appropriate areas.

5.2.5 Work closely with South Central Economic Development District (SCEDD) to access EDA and other funding sources for development projects.

ECONDEV GOAL 5.3

Residents have options for remote work, including access to broadband.

ACTIONS

5.3.1 Promote and support the development, expansion, and accessibility of broadband and communication networks.

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Chapter Six
County Facilities

Government provides services to the people through public facilities. It is important for all levels of government to anticipate the future demand for their services if they are to remain strong and vital. This chapter reviews facilities plans, resources, and goals and policies.

In some instances, public services are provided by non-governmental, private or non-profit organizations and institutions for the community as a whole. These are important service providers and are an integral part of the community.

FACILITIES PLAN

This element of the comprehensive plan, in conjunction with other chapters, is intended to meet requirements of Neb. Rev. Stat. §23-114.02, to address community facilities, including schools, libraries, and other public buildings.

FIGURE 6.1: CLAY COUNTY COURTHOUSE SQUARE



Source: Google Maps

This chapter groups these facilities into the following categories:

- Public buildings;
- Historic sites and places;
- Education, and;
- Health care

Public Buildings

County Courthouse

The Clay County Courthouse is located at 111 W. Fairfield Street in downtown Clay Center. The classic 1919 structure is listed on the National Register of Historic Places (*see later in this chapter*).

The County Courthouse provides office and meeting space for most County Offices. Clay County is part of District 10 of the Nebraska Judicial Branch.

The Clay County Sheriff's Office is located at 104 E. Edgar Street, east of the courthouse in Clay Center. The 911 Center is located at 212 W. Fairfield Street (*see Chapter 8 Public Safety*).

County Highway Department

The Clay County Highway Department is located at 401 South Clay. The site takes up a square block between Inland Street and Division Street on Highway 14 on the east side of Clay Center.

Libraries

- Clay Center Public Library, 117 W. Edgar Street
- Fairfield Public Library, 412 North D Street (listed on National Register)
- Glenvil Brumbaugh Public Library, 202 Fink Street (limited hours)
- Harvard Public Library, 309 North Clay Avenue
- Sutton Memorial Library, 201 S. Saunders



County Highway Shop, Clay Center
Source: Marvin Planning Consultants

USDA

A USDA Farm Service Agency (FSA) Service Center Office is located in a modern building at 120 West Fairfield Street, north of the courthouse in Clay Center. The architecture of this building could do more to fit into the historic character of downtown Clay Center.

The US Meat Animal Research Center (MARC), located between Clay Center and Hastings, is part of the USDA's Agricultural Research Service, with cooperative programs with the University of Nebraska at Lincoln (see Chapter Five: Economic Development).

US Postal Service

The USPS has post offices located in each of the municipalities in Clay County except for the villages of Ong and Saronville. Post office facilities in some smaller communities remain open with limited retail hours.

Area Agency on Aging

The Clay County Senior Center is located at 202 W. Fairfield Street in Clay Center. It is operated by



USDA FSA Service Center Office, modern building on historic courthouse square
Source: Marvin Planning Consultants



County Museum, Clay Center
Source: Marvin Planning Consultants

the Midland Area Agency (AAA) on Aging, one of eight in Nebraska which help ensure older Nebraskans remain independent, healthy and safe in their homes and communities for as long as possible. Today's older adults are looking forward to longer, more active lives. To help them accomplish this, MAAA can coordinate services for people ages 60 and older to maintain the independence they desire. Most of the services are provided at a no cost basis, but a voluntary contribution is requested to help defer the total cost of provision

The AAA serves an 8-county area from their main office in Hastings. Among other services, the AAA administers Senior Centers with center and home-delivered meals, exercise, outreach, information and assistance, and transportation services. Midland Public Transit assists seniors across their service area (see Chapter 13 Transportation).

Source: www.midlandareaagencyonaging.org

Historic Sites and Places

As noted in the Introduction to this plan, Clay County, Nebraska, has a rich history. In 1991, the Nebraska Historic Buildings Survey (NEHBS) documented historic buildings and places across Clay County. At the time of the survey, 815 properties were surveyed, with 1,830 contributing buildings in municipalities and rural Clay County.

The majority of respondents to the countywide survey strongly agreed (41%) or agreed (45%) that "Clay County's history and architecture should be preserved."

County Museum and Historical Society

The Clay County Historical Society (CCHS) was begun in 1972 to draw together those interested in preserving Clay County's history. They collect, preserve, interpret, and demonstrate artifacts of social and historical importance relating specifically to Clay County.

The Clay County Museum at 316 W. Glenvil Street, Clay Center, opened on May 25, 1980, on the site of the original KMMJ radio station. Besides offering a number of rotating exhibits, the museum hosts a Quilt Show and the "Old Trusty Antique Engine and Collectors Show" on the weekend following Labor Day. On the first Sunday in December a Candlelight Christmas is also hosted by the CCHS. CCHS annually conducts a narrated bus tour of the Navy Ammunition Depot.

In addition to the museum, the nearby Heritage Park is a quarter block outdoor exhibit of agricultural equipment from the 1880s to the 1940s. A rural one-room schoolhouse and a Burlington Northern railroad caboose are part of this exhibit.

The Old Trusty Ag Hall is located across the street from Heritage Park, housing antique tractors, steam and stationary engines, buggies, cars, trucks, fire equipment and blacksmith shop. It is also home to "Big Allis", an antique Allis-Chalmers Corliss type stationary steam engine with a 14 foot diameter flywheel. "Big Allis" powered the electrical system at the Ingleside State Hospital (Hastings Regional Center).

Source: claycenterne.com/play-here/museum

Harvard Historical Society and Museum

The Harvard Historical Society promotes the preservation of historical facts and memorability for the community of Harvard, Nebraska, and Harvard High School. The Harvard Historical Society Museum Is located at 512 N. Harvard Ave.

Sutton Historical Society and Museum

The Sutton Historical Society is a non-profit 501(c)3 membership organization, with the purpose to collect and preserve the historical artifacts and information about the history of the Sutton community. The Sutton Historical Museum is located at 309 North Way Avenue in Sutton.

Source:
suttonhistoricalsociety.blogspot.com

Fallen Heroes Marsh Memorial

The Fallen Heroes Marsh memorial to Nebraskans killed in the Iraq and Afghanistan Wars, dedicated in 2009, is located at the Duck's Unlimited Verona Complex. The site is near the unincorporated community of Verona, six miles west of Sutton (south of Saronville) on Highway 6, then two miles south on gravel Road R and 1/4 mile west on Road 315.

Unincorporated Communities

There are several communities in Clay County which are not incorporated municipalities. Some have faded into history, while others remain as rural settlements. These include:



Harvard Lumber Company vehicle door
Source: Harvard Historical Society

- Inland, Established on Burlington and Missouri River Railroad, first in 1870 in Adams County, then in 1878 the townsite was moved three miles east into Clay County. Inland is a Census Designated Place (CDP) with several homes and structures still in use.
- Eldorado. In the northern part of the county on the Fremont, Elkhorn, and Missouri Valley Railroad.
- Spring Ranch. Pony Express stage stop in southwest Clay County on the banks of the Little Blue River, on the Oregon Trail.
- Verona. Originally named Sweden, Verona was located in east central Clay County between Sutton and Clay Center.



Fallen Heroes March, rural Verona
Source: Marvin Planning Consultants



Clay Center Library
Source: Marvin Planning Consultants

National Register

Clay County's history dates back to the days of the Oregon Trail and Pony Express. Several local sites have been entered on to the National Register of Historic Places.

When conducted in 1991, the Nebraska Historic Buildings Survey (NEHBS) suggested Edgar Cemetery in rural Clay County was potentially eligible for listing. Inclusion on the National Register may enable income-producing properties to qualify for tax credits for eligible rehabilitation costs.

Clay Center Library and Gymnasium

The Clay Center Library and Gymnasium is located at 117 West Edgar Street in Clay Center, south of the County Courthouse. The Clay Center Library and Gymnasium was listed on the National Register of Historic Places in 2022.



Fairfield Carnegie Library, 1914
Source: Nebraska Library Commission

Clay County Courthouse

Built in 1917-19, the Clay County Courthouse is an excellent, largely unaltered example of a Nebraska county courthouse. Identifying features include the rectangular shape, centered entrance, costly materials, distinctive ornamentation, Beaux Arts stylistic influence, provision of fireproof storage, and impression of a government building representing modernity, strength, and prosperity. The building is an exceptionally fine example of one of the ten Nebraska courthouses designed by William F. Gernandt between 1910 and 1923. The Clay County Courthouse, however, marks a departure in Genandt's designs, with elaborate terra cotta ornamentation, illustrating an evolution in courthouse design.

The Clay County Courthouse was listed on the National Register of Historic Places in 1990.

Fairfield Carnegie Library

The Carnegie Library in Fairfield is located at 412 North D Street. The library was designed in the Prairie Vernacular style by Beatrice, Nebraska, architect R.W. Grant and constructed in 1913. The building is a one-story dark brick structure with a raised basement. The bricks are slightly variegated in color, giving a lighter appearance to a building which would have otherwise had a monolithic and austere overall look. The building's roof is hipped, with prominent overhanging eaves and exposed rafters.

The building is still used as the local public library. The Fairfield Carnegie Library was listed on the National Register of Historic Places in 2001.



Glenvil Firehall and Town Jail
Source: Marvin Planning Consultants

Glenvil Firehall and Town Jail

The wooden Glenvil/Glenville Firehall was built in 1905 with a false front and attic. The Town Jail is a one-story brick building constructed in 1899. They are located on Winters Avenue in Glenvil. The Glenvil Firehall and Town Jail was listed on the National Register of Historic Places in 2022.

Glenvil School

The Glenvil/Glenville school is located in Glenvil. The two-story brick building was designed by A.W. Woods, built in 1903 with additions in 1924 and 1950. It has simple classical details and is one of the most prominent buildings in town. The building is located about three blocks west of Glenvil's downtown.

Educational use of the building ended in 1995, and it was converted to a private residence. The Glenvil School was listed on the National Register of Historic Places in 1998.

Harvard Carnegie Library

The 1915 Harvard Public Library is located at 309 North Clay Street, in Harvard, and is still in use as the community's library. Harvard's first library in 1885 was established in Church's Drugstore. In 1914, citizens pledged over $3,000 to match $6,000 from the Carnegie Foundation.

The Harvard Carnegie Library building was listed on the National Register of Historic Places in 2022.



Harvard Public Library
Source: Marvin Planning Consultants

Inland School

The Inland School is located on Road D/East Street in the unincorporated community of Inland, one mile north of US 6, just south of the BNSF railroad tracks. The school building is a 45' x 60' two-story brick structure, built in 1923-1924.

The school remained in use as a K-8 school until District 72's closure in 1999. It has been used as a post office. The Inland School was listed on the National Register of Historic Places in 2002. The lot is currently (summer 2023) owned by the Inland NE Community Foundation.

Isaac Newton Clark House

The Isaac Newton Clark house was constructed circa 1877, on a large lot in Sutton. The house is a 1-1/2 story frame vernacular Gothic Revival structure. The Gothic Revival style is rare in Nebraska. An addition was made to the rear in 1980.

Isaac Newton Clark, the original homeowner, re-platted the Sutton townsite in 1871, and was actively involved in community affairs, serving as Sutton's first mayor. The Clark House was listed on the National Register of Historic Places in 1983.



Saint Martin's Church building, rural DeWeese
Source: Wikipedia

Saint Martin's Catholic Church

St. Martin's Church, also known as the Loučky Church, is located in rural Clay County, 1/2 mile north and 2-1/2 miles west of DeWeese, near the Little Blue River. The church is a vernacular Gothic structure built in 1907-08. The one-story rectangular structure is frame construction with an entry tower dominating the east façade. The church sets on a concrete foundation. In near original condition at the time of nomination, the interior features a pressed metal ceiling and wall covering.

St. Martin's is ethnically significant for its association with Czech immigrants from Moravia. The church closed to regular worship in 1973 and was listed on the National Register of Historic Places in 1985.



Inland School building,
Source: Marvin Planning Consultants

Deering Bridge

The Deering Bridge is located on a county road over School Creek, two miles north and two miles east of Sutton. The 50-foot (15 m) concrete arch bridge was built in 1916, It is the longest and best example among the era's small-scale concrete structures remaining in the county. The bridge extends into Fillmore County.

The Deering Bridge was listed on the National Register of Historic Places in 1992, as part of a state-wide nomination of highway bridges of Nebraska.

EDUCATION

PUBLIC SCHOOLS

Harvard Public Schools

Harvard Public Schools serves north-central Clay County, including the city of Harvard, as well as an area in southern Hamilton County. The combined elementary/middle/high school facility is located at 506 East North Street in Harvard. There were 231 students and 26 teachers in the 2021-22 school year.

Source: www.harvardcardinals.org

Sandy Creek

Sandy Creek Public Schools have served the communities of Clay Center, Deweese, Edgar, Fairfield, and Glenvil, as well as much of south central Clay County and portions of Nuckolls and Adams counties, since 1966. Sandy Creek Preschool/ Elementary and Middle/High School share a campus on Nebraska Highways 14/74 six miles south of Clay Center and two miles east of Fairfield. The elementary school had 192 students and 18 teachers, the middle school reported 91 students and 8 teachers, and the high school reported 104 students and 15 teachers in the 2021-22 school year.

Sandy Creek and Lawrence-Nelson public schools, located to the south in Nuckolls County, have been operating cooperatively as the South Central Unified School District #5. After the 2023-24 school year, the individual school boards agreed to let the unification agreement expire.

Source: www.sandycreek.us

Sutton Public Schools

Sutton Public Schools serve the north-east side of Clay County, including Sutton and Saronville, as well as portions of Fillmore County ad small areas of Hamilton and York counties. The school facility is located at 1107 North Saunders Avenue in Sutton. There were 407 students and 39 teachers in the 2021-22 school year.

Source: suttonpublicschool.org

Adams Central

Adams Central Public Schools from Adams County serves an area of north-east Clay County. The Adams Central Early Childhood Center is located at Juanita, west of Hastings. The Junior/Senior High School is located on US Highway 34 at S. Adams Central Avenue west of Hastings. A new consolidated K-6 Elementary School was opened east of S. Adams Central Avenue for the 2018-29 school year.

Source: adamscentral.us

Bruning-Davenport

Several sections of land in southeast Clay County is included in the Bruning-Davenport Unified School System (BDS) from Thayer County. The Bruning School hosts pre-Kindergarten and first grade students, and grades 9-12. The Davenport School hosts grades two through eight. BDS and Shickley have a cooperative program in athletics.

Source: www.bruningdavenport.org

Shickley Public Schools

The southeast corner of Clay County, including the Village of Ong, is served by Shickley Public Schools from Fillmore County. The Shickley Elementary School and Jr-Sr High School are located at Shickley.

Source: www.shickleypublicschool.com

Doniphan-Trumbull

The northwest corner of Clay County, including the Village of Trumbull, is served by Doniphan-



Sandy Creek Public Schools campus, rural Fairfield
Source: Marvin Planning Consultants

Trumbull Public Schools. The school facility is located at 302 West Plum Street at Doniphan in Hall County.

Source: www.dtcardinals.org

TABLE 6.1: CLAY COUNTY EARLY CHILDHOOD CAPACITY

	Facilities	Capacity
Child Care Center	3	120
Family Child Care Home I	3	30
Family Child Care Home II	3	36
Preschool	1	12
School-Age-Only Center	0	0

Source: Nebraska Dept. of Health and Human Services, May 2025.

CHILD CARE

There are a number of child day care providers located throughout Clay County. In Nebraska, anyone who provides child care to four or more children from different families must be licensed as a child care provider, by the Department of Health and Human Services.

There are five license types:

- Family Child Care Home I: This type of program is in the home of the provider. The maximum capacity is eight children of mixed ages and two additional school age children during non-school hours.
- Family Child Care Home II: This type of program is in the home of the provider or at another site. The maximum capacity is twelve children with two providers.
- Child Care Center: This type of program is licensed for 13 or more children while following the staff to child ratio per the state regulations.
- School Age Only Center: This type of program is licensed for 13 or more children who are attending or have attended school.
- Preschool: This type of program provides educational services where children do not nap and are fed a meal.
- License Exempt: Home care provided outside the client's home to a maximum of six children from one family or three or fewer children from more than one family.

Source: dhhs.ne.gov/Pages/Types-of-Child-Care-in-Nebraska.aspx

HEALTH CARE

Rural medical care has been and always will be a critical part of the nation's health care delivery system. However, in recent years medical care has become less available in small towns and rural communities like Clay County.

Counties play a critical role in promoting and protecting the health of people and the communities in which they live, learn, work and play. As the National Association of Counties has stated, a robust public health system centers equity and actively promotes policies, systems and overall community conditions which drive optimal health.

COUNTY RANKINGS

Public health addresses both maintaining health of residents and provision of health care. According to research sponsored by the Robert Wood Johnson Foundation, Clay County ranks #48 (of 79 counties evaluated) in Nebraska for Health Factors, and #23 for Health Outcomes.

The Rankings consider health factors based on physical environment (air and water quality, housing and transit), social and economic factors (community safety, family and social support, income, employment, education), clinical care (access to care, quality of care), and health behaviors (alcohol and drug use, sexual activity, diet and exercise, tobacco use). Health outcomes are measured by length of life (50%) and quality of life (50%) indicators. The measurements are, of course only as good as the publicly available data sets



Clay County Health Department Building, Clay Center
Source: Marvin Planning Consultants



Memorial Community Health Clinic, Clay Center
Source: Marvin Planning Consultants

which may have large margins of error for less populated areas.

Source: www.countyhealthrankings.org

Clay County Health Department

Clay County Health Department is located at 209 W. Fairfield Street in Clay Center. Much of the responsibility for disease control and prevention falls on local health departments.

The Clay County Health Department offers home health services (Skilled nursing and aide visits under physician direction), and special clinics including community clinics throughout the county. Community members can also receive immunizations at special clinics and by appointment.

Clinics

Memorial Community Health

Memorial Community Health (MCH) is headquartered in Aurora, Nebraska, and offers residents of central Nebraska a diverse, modern health care system which includes three family medicine clinics, a critical access hospital, outpatient specialty and diagnostic services, independent and assisted living facilities and a nursing home.

MCH has two clinics. One clinic is located at 319 W. Glenvill Street in Clay Center. Another clinic is located at 203 E. Walnut Street in Harvard, both with limited hours.

Mary Lanning Health Care

MLMH (Mary Lanning Memorial Hospital) Edgar Clinic is located at 315 N. C Street. The facility provides family medicine and preventative services, with limited hours.

Nursing Homes

Harvard Rest Haven

Harvard Rest Haven is a skilled nursing home community located at 400 East 7th Street in Harvard. The city-owned facility has a capacity of 37 beds.

Sutton Community Home

The non-profit Sutton Community Home and Hillcrest View Assisted Living facilities are located in Sutton.

Sutton Community Home, located at 1106 North Saunders Ave. opened in 1964. This small facility is licensed for 31 beds. Hillcrest View Assisted Living at 205 West Alda opened in 2002 and is licensed for 20 individuals.

Regional Medical Facilities

The Mary Lanning Memorial Hospital in Hastings is the nearest Level II Trauma Center. Level I and Level II trauma centers are located in Lincoln and Omaha.



Harvard Community Medical Clinic
Source: City of Harvard



Harvard Rest Haven
Source: Marvin Planning Consultants

FACILITIES GOALS, POLICIES, AND ACTIONS

FACILITIES GOAL 6.1

Clay County provides accessible public buildings and facilities required to provide public services to the citizens of the county.

POLICIES

6.1.1 Development projects shall mitigate impacts on public facilities.

ACTIONS

6.1.2 Continue maintenance and repair of the historic Clay County Courthouse and other county-owned facilities.

6.1.3 Coordinate facility needs with municipalities and look for opportunities for shared cost-savings.

FACILITIES GOAL 6.2

Historic sites and places are protected and maintained.

POLICIES

6.2.1 Development projects shall mitigate impacts on historic sites.

ACTIONS

6.2.1 Support efforts to designate and preserve historic buildings.

6.2.3 Continue support of the local historical societies and sites.

FACILITIES GOAL 6.3

Clay County's education system serves the needs of all residents.

POLICIES

6.3.1 Include public school districts in review of large development projects.

ACTIONS

6.3.2 Continue support of K-12 education and coordination with public schools.

6.3.3 Encourage community college services in Clay County.

6.3.4 Encourage new and expanded daycare options.

FACILITIES GOAL 6.4

Clay County residents have access to modern, efficient Health care.

POLICIES

6.4.1 Consider impacts of development on healthy families and communities.

ACTIONS

6.4.2 Support local public health care services.

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RD 316
RD R

CLAY COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FIG 6.1: COUNTY FACILITIES

Hall County
Hamilton County
York County
Adams County
Fillmore County
Webster County
Nuckolls County
Thayer County

Trumbull
Harvard
Inland
Hastings
Saronville
Sutton
Glenvil
Clay Center
MARC
Fairfield
Edgar
Ong
Deweese

14
6
74
41
18D
18E
18C

LEGEND

- Public Buildings
- Highways
- Railroad
- Naval Ammunition Depot
- Clay County 1-Mile ETJs
- Hastings 2-Mile ETJ
- Municipal Limits
- County Boundaries
- Parcels
- Sections
- MARC

1: County Courthouse
2: County Highway Department
3: Clay Center Public Library
4: Fairfield Public Library
5: Glenvil Brumbaugh Public Library
6: Harvard Public Library
7: Sutton Memorial Library
8: USDA Farm Service Agency
9: Clay Center USPS
10: Edgar USPS
11: Fairfield USPS
12: Harvard USPS
13: Sutton USPS
14: Deweese USPS
15: Glenvil USPS
16: Trumbull USPS

N

MARVIN PLANNING CONSULTANTS
Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 9.16.25

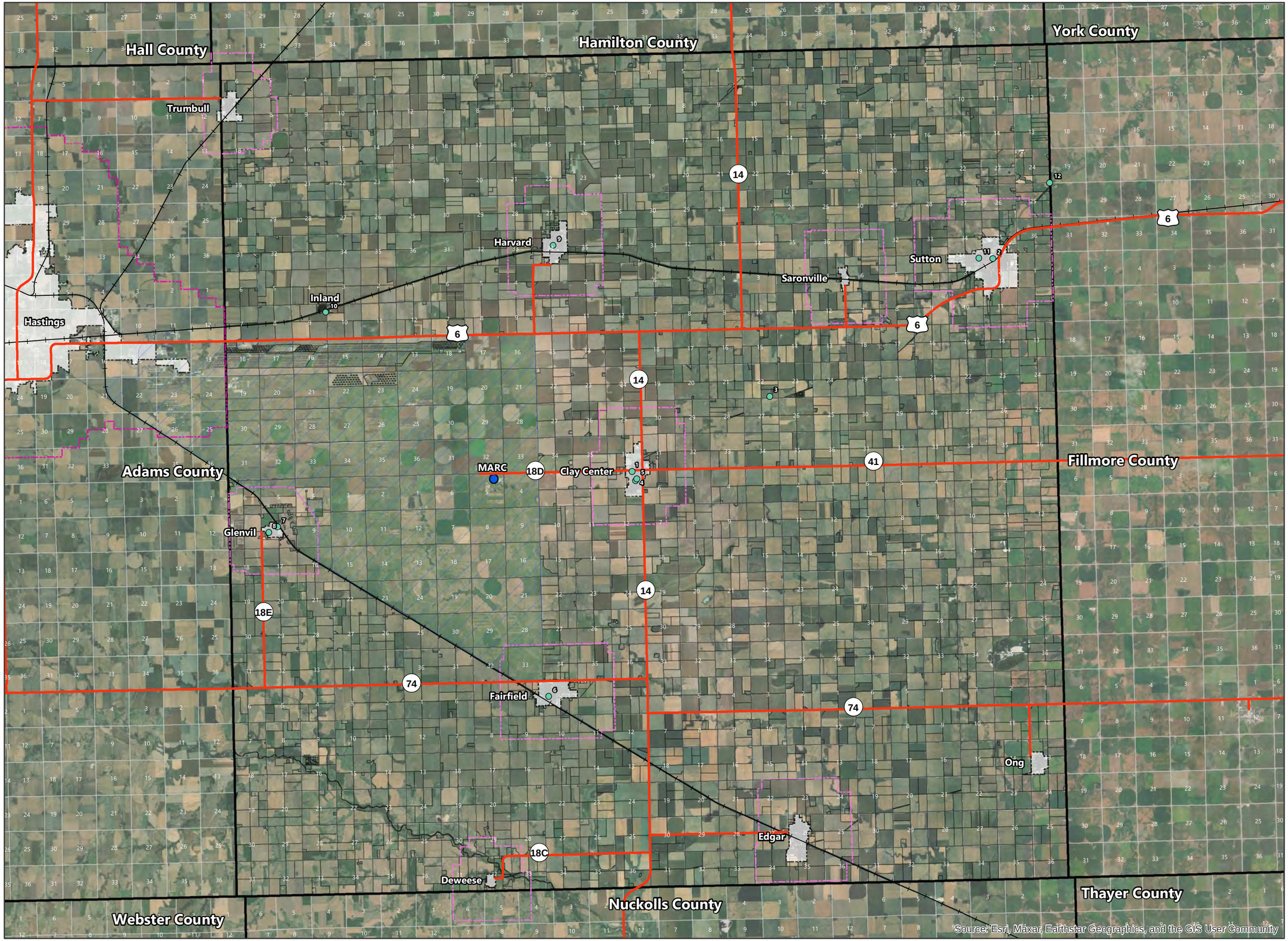
0 0.75 1.5 3 Miles

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

CLAY COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FIG 6.2: HISTORIC SITES AND BUILDINGS



LEGEND

- Historic Sites and Buildings
- Highways
- Railroad
- Naval Ammunition Depot
- Clay County 1-Mile ETJs
- Hastings 2-Mile ETJ
- Municipal Limits
- County Boundaries
- Parcels
- Sections
- MARC

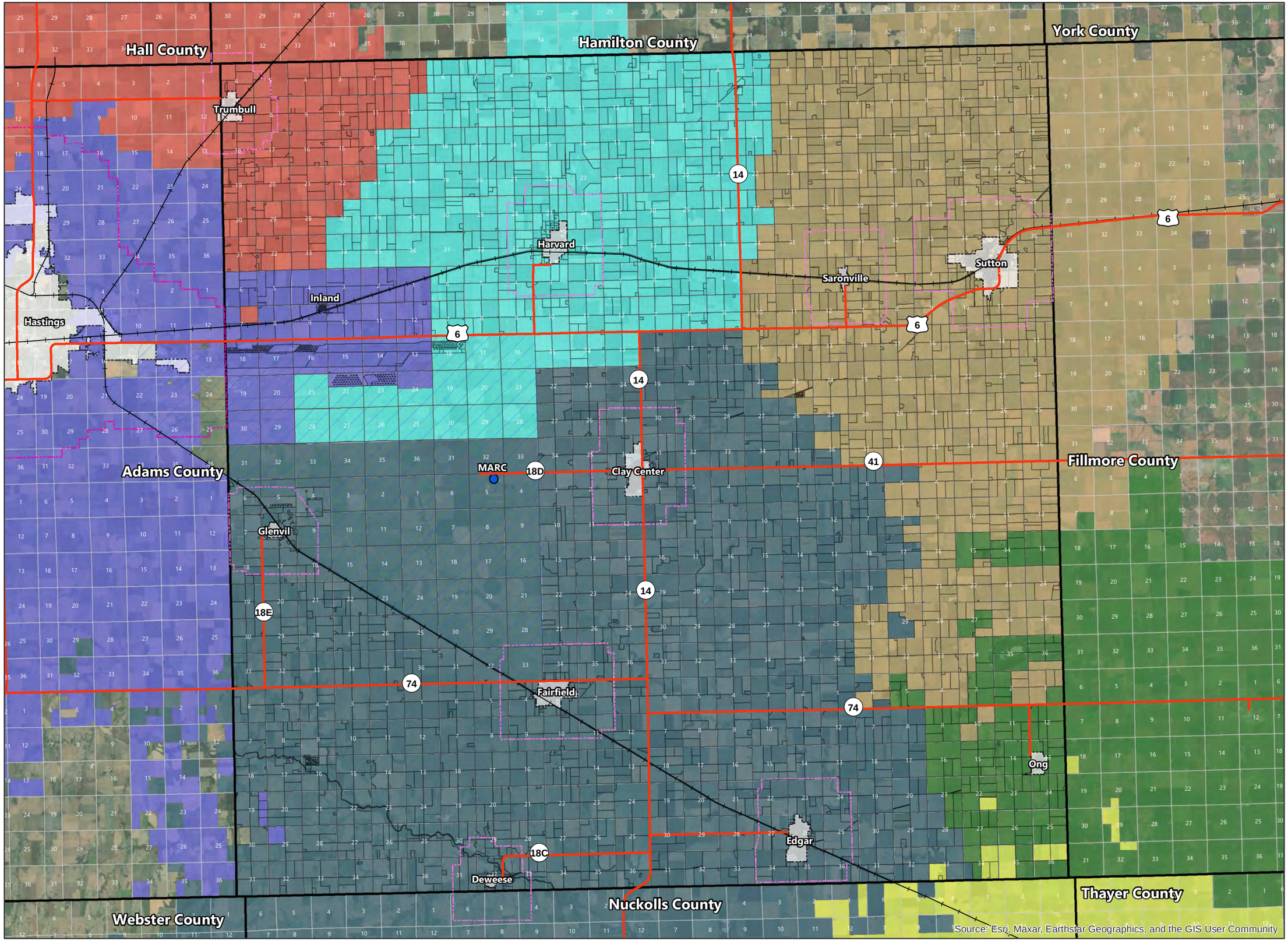
1: County Museum and Historical Society
2: Sutton Historical Society and Museum
3: Fallen Heroes Marsh Memorial
4: Clay Center Library and Gymnasium
5: County Courthouse
6: Fairfield Carnegie Library
7: Glenvil Firehall and Town Jail
8: Glenvil School
9: Harvard Carnegie Library
10: Inland School
11: Isaac Newton Clark House
12: Deering Bridge

N

MARVIN PLANNING CONSULTANTS
Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 9.16.25

0 0.75 1.5 3 Miles



CLAY COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FIG 6.3: EDUCATION

LEGEND

- Highways
- Railroad
- Naval Ammunition Depot
- Clay County 1-Mile ETJs
- Hastings 2-Mile ETJ
- Municipal Limits
- County Boundaries
- Parcels
- Sections
- MARC
- Adams Central Public Schools
- Bruning-Davenport Unified School System
- Doniphan-Trumbull Public Schools
- Harvard Public Schools
- Shickley Public Schools
- South Central Nebraska Unified School District
- Sutton Public Schools

N

MARVIN PLANNING CONSULTANTS

Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)

DATUM: NAD 83

DATE: 9.16.25

0 0.75 1.5 3 Miles

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

CLAY COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FIG 6.4: HEALTHCARE

Hall County
Hamilton County
York County
Trumbull
Harvard
Sutton
Saronville
Inland
Hastings
Adams County
MARC
Clay Center
Fillmore County
Glenvil
Fairfield
Ong
Edgar
Deweese
Nuckolls County
Thayer County
Webster County

14
6
18D
41
18E
74
18C

LEGEND

- Nursing Homes
- Clay County Health Department
- Memorial Community Health
- Highways
- Railroad
- Naval Ammunition Depot
- Clay County 1-Mile ETJs
- Hastings 2-Mile ETJ
- Municipal Limits
- County Boundaries
- Parcels
- Sections
- MARC

N

MARVIN PLANNING CONSULTANTS
Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 9.16.25

0 0.75 1.5 3 Miles

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Chapter Seven
Parks and Recreation

Parks and recreation facilities include both public and semi-public resources, all of which are used by both city and county residents and families. The importance of lifestyle amenities like parks and recreation was mentioned throughout the community engagement process.

The Parks and Recreation element includes a brief description of the facilities located throughout Clay County, including the incorporated communities. This chapter reviews the County Fairgrounds, community parks and recreation facilities, and attractions, as well as goals and action items.

Although parks are typically located within municipalities, they also serve the needs of county residents residing outside of the municipalities. Parks and recreation provide residents with a variety of social, cultural, and recreational opportunities to lead to an improved quality of life.

COUNTY FAIRGROUNDS

The Clay County Fairgrounds are located on the northwest side of the county seat in Clay Center, next to the golf course. The Clay County Activities Center is also located at the Fairgrounds and is used throughout the year.

The annual Clay County Fair is held in early July each year. Visitors can enjoy 4-H and FFA Youth Livestock and Static exhibits and shows, Open Class exhibits, and top it off with a "fair" meal at the food stand. Typical events have included grandstand entertainment, bull riding and ranch rodeo, and races.



Clay County Activities Center at Clay County Fairgrounds, Clay Center
Source: Marvin Planning Consultants

CITY PARKS

Many county residents are active participants in entertainment, indoor exercise, and swimming in one or more nearby communities. Respondents to the countywide survey strongly agreed (19%) or agree (43%) "Outdoor recreation options are limited in Clay County."

CLAY CENTER

CITY PARK

The Clay Center City Park is located on W. Glenville Street, complete with a swimming pool, playground equipment and toddler equipment, picnic tables, a shelter, grandstand ,and modern restrooms. It is a popular setting for reunions, celebrations and simple family fun.

Swimming Pool & Museum

The Clay Center Swimming Pool is located at 320 W. Glenvil Street on the west end of the Clay Center City Park. The Clay County Museum is also located in City Park.

NORTH CALVARY

On N. Calvary Street, a lighted double tennis court with basketball hoops is available. There is also a sand volleyball court with covered bleachers nearby for both areas. Just to the south is the baseball/softball and football fields. The football field is surrounded by a track for walkers and runners and a play area for kids is located in between the fields.

Source: claycenterne.com/play-here/parks-and-recreation



Clay Center City Park
Source: Marvin Planning Consultants

EDGAR

CENTENNIAL PARK

Centennial Park is located at 704 North A Street, on the northeast side of Edgar.

Swimming Pool

The Edgar swimming pool is located in Centennial Park.

SOUTH PARK

South Park is located on South C Street, between Grand and Maple streets This park has a WPA-built rock shelter constructed in 1937.

WATER TOWER PARK

Water Tower Park aka Standpipe Park is located on C Street, south of the UP railroad tracks. The water tower is located in this park.

BALLFIELD

The Edgar baseball diamonds are located at 100 North A Street, on the east side of the community north of the UP railroad.

Source: ci.edgar.ne.us/recreate.htm

HARVARD

CITY PARK

Harvard's City Park is located on a square block of land between N. Kearney and N. Adams avenues, north of E. 8th Street. The City's water tower occupies the center of this park.

POOL

Harvard's Public Pool is located on E. Walnut Street, south of the high school football field.

Source: www.harvardnebraska.com/parks-and-recreation

SUTTON

Sutton is home to several parks distributed around the community.

DLD PARK

Sutton's DLD Park is located on Ash Street, on the west side of the city. This new complex includes four ball fields. A soccer field has been added east of the parking area. It has a handicap/reserved parking area and a general parking area.



City Park, Harvard
Source: Marvin Planning Consultants

Sutton City Park

Sutton City Park is located on the corner of Saunders and Ash Street. This park has tennis courts, a large pavilion with picnic benches, a basketball court, and playground equipment, including a 5,800 square foot surfaced playground area for pre-K to 12 years of age.

Swimming Pool

The Sutton Aquatic Pool is located at Sutton City Park, north of downtown.

Industrial and RV Park

There is a small park located in the industrial and RV Park, just to the north of City Park. This park features some small playground equipment for children.

Sutton Lions Club City Park

Lions Club City Park is located on the corner of Saunders Avenue and Helen Street. It is the site of the former city water tower. This park has playground equipment and green space.

Clarks Pond

Clarks Pond is located on the corner of Cedar Street and Glen Avenue in Sutton. The water feature is a community fishing spot. The neighborhood park has playground equipment near the maintained 0.6-acre pond.

East Side Park / Pleasant Hill Children's Park

East Side Park is located on the corner of Dorr and Cedar Streets.

Source: *Sutton Comprehensive Plan 2017*.

Trumbull

Community Center and Park

Trumbull Community Center, located in a former school building, is a handicapped-accessible gathering place featuring a large gymnasium and stage area, two gathering rooms, and a spacious kitchen. Several spaces are available for rental to community members. The facility is managed and maintained by volunteers who share their time and talent to make the facility available.

A park is located next door to the community center, across from the fire hall, with play equipment, sand volleyball, and tennis courts.

Source: trumbullcommunitycenter.com

Golf

Crooked Creek Country Club

One of Marty Johnson's nine hole creations, Crooked Creek is a pleasant track located on the north edge of Clay Center adjacent to the Clay County Fairgrounds.



Sutton Aquatic Pool
Source: Marvin Planning Consultants

The course features wide landing areas and large bent grass greens which are surrounded with mounds. It is named for its most menacing hazard. The Little Sandy Creek winds its way in and out of fairways and widens into four ponds. The Little Sandy cuts across fairways 2, 8 and 9 at 200 to 240 yards from the tee. The long par 3, 3rd is the most demanding hole. It has a narrow fairway with out-of-bounds on the left and the creek on the right.

Source: claycenterne.com/play-here/golfing

Fox Hollow Golf Course

Fox Hollow Golf Course is a 9-hole public course located in Sutton, NE. The course was orchestrated in the early 1990's by the City of Sutton and the Sutton CRA and is now independently owned and operated by the stockholders. Fox Hollow is enjoyable for all golfers at any age or skill level.

In 1994, a traditional links course was designed by Dean Glorso of International Golf Course Design, which also provided additional flood protection to the community.

Source: golffoxhollow.com

WILDLIFE, HUNTING AND FISHING

There are numerous wildlife management areas (WMAs) in Clay County. These areas are popular for both experiencing nature and wildlife, as well as opportunities for hunting. Participants in the Town Hall noted that the WMAs can create value as an amenity as well as attracting revenue from hunters and bird watchers.



Ducks Unlimited Verona Complex
Source: Marvin Planning Consultants

- Alberding Lagoon National Wildlife Management Area
- Bluewing Wildlife Management Area
- Eckhardt Lagoon National Wildlife Management Area
- Green Wing State Wildlife Management Area
- Hansen Lagoon National Wildlife Management Area
- Harms Federal Waterfowl Production Area
- Hultine Federal Waterfowl Production Area
- Kissinger Basin State Wildlife Management Area
- Lange Lagoon National Wildlife Management Area
- Massie Federal Waterfowl Production Area
- Meadowlark Federal Waterfowl Production Area
- Moger Lagoon National Wildlife Management Area
- Sandpiper Federal Waterfowl Production Area
- Schuck Federal Waterfowl Production Area
- Smith Lagoon National Wildlife Management Area
- White Front Wildlife Management Area

Ducks Unlimited

Ducks Unlimited (DU) is a membership organization with a mission of habitat conservation. DU claims credit for 156,027 acres conserved in Nebraska statewide. Clay County GIS data indicates the DU holds an interest in at least 10 parcels in Clay County (summer 2023) through the Wetlands America Trust Inc. These are mostly located in the Verona area.

Harvard Rod & Gun Club

The Harvard Rod and Gun Club facility is located on about two acres on County Road 323 north of the Harvard State Airport. They have a small building and shooting range with parking on the road.

ATTRACTIONS

CAMPING

SPRING RANCH

Historic Spring Ranch was located along the Little Blue River on the Oregon Trail, and served as a way station for travelers. Spring Ranch Campground is located nearby, on Road D south of Fairfield, on 240 acres offering cabin camping as well as accommodations in Conestoga-style wagons. They also offer meal service, and fishing, swimming, and ziplining.

Source: www.springranchcampground.com

SUTTON RV PARK

The Sutton RV Park and Campground is located on north Main Street, on School Creek, north of City Park. There are camping spots with 20/30 amp electric and water hookups, and with 20/30/50 amp electric and water/sewer hookups. Check-in is at City Hall.

Source: visitnebraska.com/sutton/sutton-rv-park-and-campground

PARKS AND RECREATION GOALS, POLICIES, AND ACTIONS

PARKS GOAL 7.1

Clay County residents have access to a variety of parks and recreation facilities close to home.

POLICIES

7.1.1 Development projects are encouraged to provide parks and recreation amenities.

ACTIONS

7.1.2 Support municipalities in maintaining city and village parks.

7.1.3 Support municipalities in development and/or extending pedestrian, bike and equestrian trails systems.

PARKS GOAL 7.2

The Clay County Fairgrounds remains an active and accessible facility for county residents.

ACTIONS

7.2.1 Work with the City of Clay Center to assure the Fairgrounds meet the needs of users while minimizing impacts on neighbors.

PARKS GOAL 7.3

Public Lands are maintained for the enjoyment of local residents.

POLICIES

7.3.1 Given impacts on private working landscapes, new acreage converted to public lands should be minimized.

ACTIONS

7.3.2 Work with the State of Nebraska on local access to and maintenance of State Recreation and Wildlife areas.





Chapter Eight
Public Safety

The protection of public safety is a key duty of local government and a key component of the comprehensive plan. The pattern of growth and development can make the delivery of public safety more efficient, or can stretch resources thin. All public safety organizations are also constrained by a shrinking pool of volunteers and difficulties in recruiting employees.

Throughout the community engagement process, people spoke about how important it is they feel safe in Clay County. Their homes and communities are secure and public servants—paid and volunteer—care deeply about their neighbors. They also recognize this is a challenge with resources tight all over.

This chapter describes current Clay County law enforcement, fire protection, emergency medical services, and emergency management.

LAW ENFORCEMENT

The Clay County Sheriff's Office is located at 104 E. Edgar Street, east of the courthouse in downtown Clay Center.

It is the duty of the sheriff to serve, execute and return writs or other legal process issued by a lawful authority. The sheriff is responsible for jailing and custody of prisoners. It is the duty of the sheriff and appointed deputies to keep the peace, apprehend criminals and perform other duties as peace officer.

TABLE 8.1: SWORN OFFICERS, 2020-2022

	2020		2021		2022	
Agency	Sworn Officers	Per 1,000	Sworn Officers	Per 1,000	Sworn Officers	Per 1,000
Clay Co. Sheriff	8	2.1	7	1.9	6	1.6
Adams Co. Sheriff	18	2.7	18	2.7	16	2.4
Fillmore Co. Sheriff	6	1.1	N/A	-	6	1.1
Hall Co. Sheriff	29	2.9	30	3.0	30	3.1
Hamilton Co. Sheriff	9	1.9	N/A	-	9	1.9
Nuckolls Co. Sheriff	5	2.1	4	1.7	5	2.2
Thayer Co. Sheriff	8	1.6	N/A	-	7	1.4
York Co. Sheriff	12	2.0	14	2.4	13	2.3
State Average		3.6		3.7		3.6

Source: Nebraska Crime Commission, Commission on Law Enforcement and Criminal Justice
N/A—not available

The Clay County Sheriff's Office provides law enforcement countywide. Statewide, 31 departments have contracts with communities to provide law enforcement coverage. The Clay County Jail in Clay Center has a 12-person capacity. The Clay County Board participates in an Interlocal Agreement for Cooperative Law Enforcement Services with Adams County.

The City of Sutton has a police department with three officers on staff. The City of Harvard has two police officers on staff. The City of Clay Center has authorized one officer as has the City of Edgar. The FBI has primary law enforcement responsibility over the USMARC facility, although the Clay County Sheriff does patrol the area.

FIRE

There are several fire departments or districts providing fire protection to municipalities and rural areas of Clay County. They rely on volunteer fire fighters, which is becoming increasingly difficult with smaller working age population and increasing out-commuting.

Clay County's first responders include:

- Clay Center Fire & Rescue
- Edgar Volunteer Fire Dept. (extends to Nuckolls County)
- Fairfield Volunteer Fire (extends to Nuckolls County)
- Glenvil
- Harvard (extends to Hamilton County)
- Hastings Rural (based in Adams County)
- Lawrence (based in Nuckolls County)
- MARC Fire & EMT



Clay County 911 Center
Source: Marvin Planning Consultants

- Sutton Volunteer Fire Department
- Trumbull (extends to Adams and Hamilton counties)

State Fire Marshall

The State Fire Marshal's office conducts fire safety inspections on most properties open to the public. The Nebraska State Fire ode used in these inspections is outlined in Title 153, Chapter 1, of the Nebraska Administrative Code.

EMERGENCY MEDICAL SERVICES

Most local fire districts also provide Emergency Medical Services (EMS). EMS response areas in Clay County are the same as fire response areas, except for Trumbull and Hastings Rural which is served by Hastings Fire & Rescue Ambulance. Clay Center Fire & Rescue provides ambulance service to US MARC.

EMERGENCY MANAGEMENT

The Clay County Emergency Manager also serves as the 911 Center Director. The 911 Center is located at 212 W. Fairfield Street. Emergency communications is a combination of digital and analog service.

Emergency management involves the coordination and integration of activities necessary to build, sustain, and improve the capabilities to prepare for, respond to, recover from, or mitigate against threatened or actual disasters or emergencies, regardless of cause. This includes man-made and natural disasters. The discipline and profession of emergency management applies science, technology, planning, and management to deal with extreme events which can injure or kill large numbers of people, do extensive damage to property, and disrupt community life.



In a rural county, Emergency Management serves a variety of roles. In Clay County, the Emergency Manager has been active in public information. For example, during severe winter storms in2024, the Emergency Manager provided regular social media updates online to help the public stay safe and informed of changing winter weather conditions.

Emergency management is integrated at the local, state, and federal levels. All disasters start at the local level. When a local disaster declaration is made because local resources have been overwhelmed, a request may be made for assistance from the Nebraska Emergency Management Agency (NEMA). When state resources become overwhelmed, a state disaster may be declared and the governor can request assistance from the Federal Emergency Management Agency (FEMA). Emergency response operates within the principles of the National Incident Management System (NIMS) and the In Incident Command Systems (ICS).

Emergency Management operates within the framework within which communities reduce vulnerability to hazards and cope with disasters:

Mitigation: identify hazards and activities to prevent/ lessen the impact of a disaster on lives and property

Preparedness: assist individuals and communities take steps to be ready for a disaster

Response: support and coordinate local agency emergency response activities

Recovery: work to restore public services and return the community to normal.

PUBLIC SAFETY GOALS, POLICIES, AND ACTIONS

SAFETY GOAL 8.1

Law Enforcement services are provided throughout Clay County.

POLICIES

8.1.1 Development projects shall mitigate impacts on public safety.

ACTIONS

8.1.2 Support working cooperatively between municipalities and the County Sheriff for law enforcement.

8.1.3 Regulate and mitigate nuisance and code enforcement cases.

SAFETY GOAL 8.2

Fire Protection services are provided throughout the county.

POLICIES

8.2.1 Development projects shall minimize impacts on fire protection and response.

ACTIONS

8.1.2 Continue to support volunteer fire departments

8.1.3 Encourage job creation in local communities where first responders can be available for response.

SAFETY GOAL 8.3

Emergency Medical Services (EMS) are provided throughout the county.

ACTIONS

8.3.1 Continue support for Emergency Medical Services.

SAFETY GOAL 8.4

Emergency Management services are provided throughout the county.

ACTIONS

8.4.1 Continue support for Emergency Management Director to provide countywide services.

8.4.2 Continue to participate in emergency management programs and exercises.

CLAY COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FIG 8.1: FIRE DISTRICTS

LEGEND

- Highways
- Railroad
- Naval Ammunition Depot
- Clay County 1-Mile ETJs
- Hastings 2-Mile ETJ
- Municipal Limits
- County Boundaries
- Parcels
- Sections
- MARC

DsplayName

- Aurora
- Clay Center
- Edgar
- Fairfield
- Glenvil
- Harvard
- Hastings Rural
- Lawrence
- MARC
- Sutton
- Trumbull

N

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PROJECTION: NE State Plane (Ft.)

DATUM: NAD 83

DATE: 9.16.25

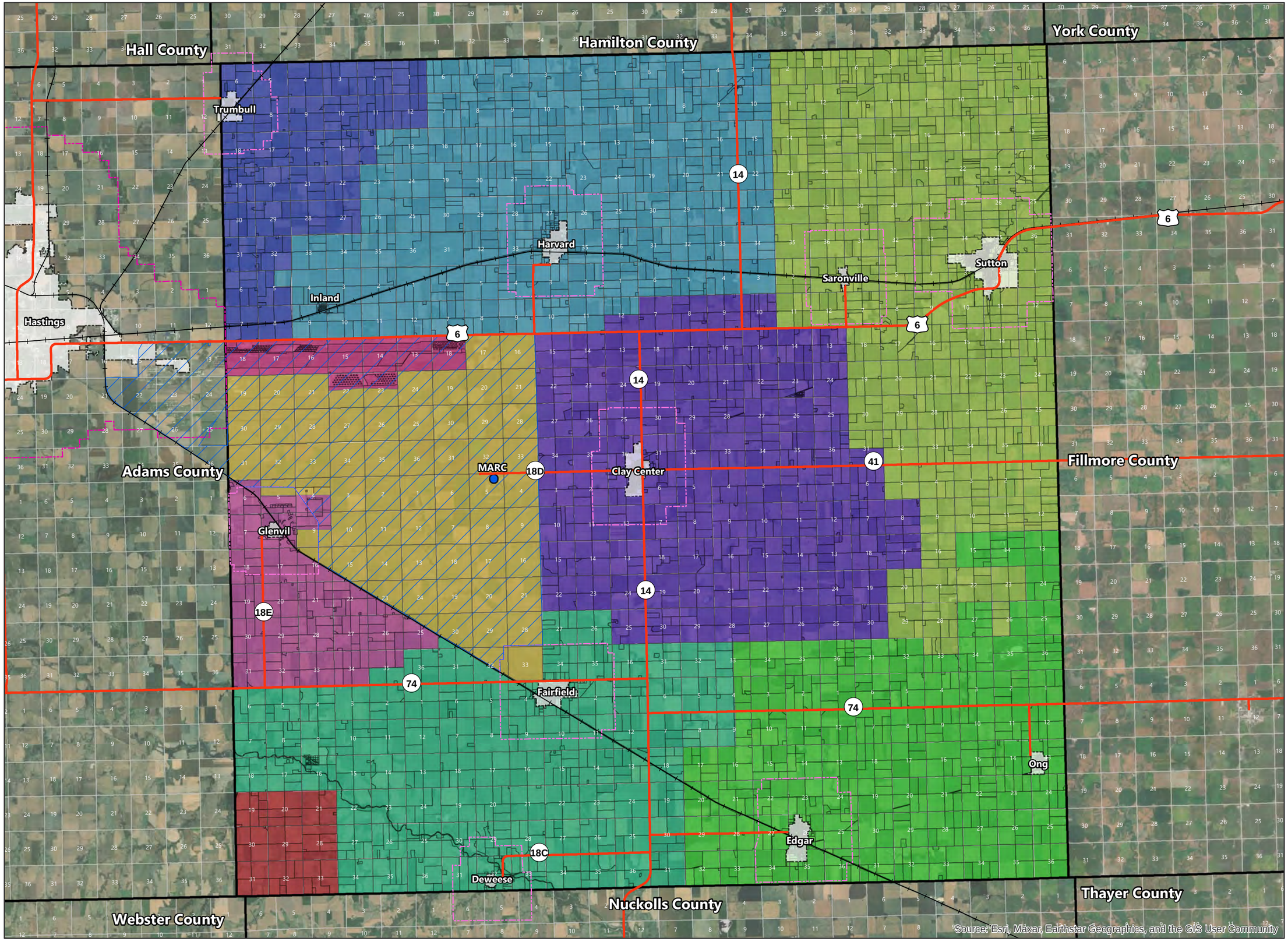
0 0.75 1.5 3 Miles

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

CLAY COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FIG 8.2: EMS RESPONSE AREAS



LEGEND

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EMS Districts

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- Fairfield
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- Sutton
- Trumbull

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0 0.75 1.5 3 Miles



Chapter Nine
Communications, Utilities, and Energy

Communications, utilities, and energy are essential elements of a county's infrastructure. Each of these components is a leg of the three-legged stool of critical infrastructure. This chapter describes these service industries as they apply to Clay County.

Communications includes traditional media such as newspapers, broadcast media, and telephone service, as well as new media including broadband internet. Utilities includes public and private services such as electricity and natural gas, water, and wastewater service. Energy includes both traditional fuels and renewable energy sources such as wind, solar, and biofuels.

COMMUNICATIONS

Communications services are changing. Print, over-the-air, and telecommunications, are vital to functioning of the community.

NEWSPAPERS

There are currently 14 newspapers publishing daily or semi-daily print editions in Nebraska. Weekly newspapers cover the heart of Nebraska.

CLAY COUNTY NEWS

The Clay County News, based in Sutton, covers the communities of Clay Center, Deweese, Edgar, Fairfield, Glenvil, Grafton, Harvard, Inland, Ong, Saronville, Sutton, Trumbull, and the



Clay County News offices, Sutton, before being hit by a tornado of July 29, 2023.
Source: Marvin Planning Consultants

FIGURE 9.1: THE SUN, CLAY CENTER, NEBRASKA, JANUARY 3, 1890



Source: Newspapers.com.

surrounding areas. The Clay County News has won the Class B Sweepstakes for Nebraska weekly newspapers of similar size.

The Clay County News is the survivor of 20 newspapers which have been published in Clay County since 1875. The first newspaper published in Clay County was the Clay County Globe established in 1875 at Sutton, and absorbed by the Sutton Register in 1880. The Clay County Sun published in Clay Center from 1884 to 1978. The Clay County News is the successor to the Register and the Sun.

On July 29, 2023, Sutton was hit by an EF-1 tornado with estimated peak winds of 110 mph. The Sutton News building was hit, toppling the parapet at the front of the façade; however, the newspaper didn't miss a press date, covering their own disaster in the next week's issue.

Clay County News is online at: www.theclaycountynews.com.

Doniphan Herald

Established in 1972, the Doniphan Herald is an award-winning weekly newspaper focused on connecting the past with the future, while preserving the present. The paper covers three central Nebraska communities - Doniphan, Trumbull, and Giltner - and offers the best in breaking news, unique features, sports, school news, business and opinion, as well as community news and local photography each week.

The newspaper operates a website at doniphanherald.com. Other optional services include text messaging of breaking news and other information. Readers also connect with the Herald and gather with others in the community on Facebook and Twitter.

Hastings Tribune

The Hastings Tribune is a six day a week newspaper covering local and national stories since the early 1900's. The Hastings Tribune covers a 10-county area in south central Nebraska and north central Kansas, 25 high schools and two colleges (Hastings College and Central Community College-Hastings). The Tribune publishes online at www.hastingstribune.com.

The FCC has licensed radio station KKOP-LP for low power transmission at 93.9FM, outside Clay Center. WCGD-LP is licensed for 90.5FM and KCGW-LP for107.1FM at Edgar. Several AM and FM radio stations are licensed to Hastings and Grand Island.

Television and Radio

For media marketing purposes, Clay County is assigned to the Southeast Nebraska region, Lincoln-Hastings-Kearney This market area includes a large portion of central Nebraska. Local channels KGIN (11-CBS) and KTVG (17-Fox)broadcast from Grand Island. Stations KHAS (5-NBC) and KHNE (29-PBS) broadcast from Hastings. KHGI (13-ABC) broadcasts from Kearney.

Telephone and Internet

According to the US Census Bureau's ACS estimates, in 2011, there were 72 of 310 housing units in Clay County with no access to a telephone. This statistic decreased to 24 of 2,832 by 2021. Participants in the Town Hall remarked that Improving internet service is an opportunity for Clay County.

Cell Towers

The major national service providers have established wireless cellular service across the county. There are still gaps in coverage in more rural areas.

New technologies, such as 5G cellular service, generally require a larger number of shorter wireless towers. Clay County, the cities, and villages, will likely be faced with an increasing number of requests to approve cellular and broadband antennae and towers. These requests must be reviewed in accordance with Federal Communications Commissions (FCC) rules and regulations, as well as the laws of the State of Nebraska. The Federal Communications Act also preempts local decisions premised directly or indirectly on the environmental effects of radio frequency (RF) emissions,



Stealth Cell Tower
Source: Marvin Planning Consultants

assuming the provider is in compliance with the Commission's RF rules.

Towers meeting certain height and location criteria must also pass Federal Aviation Administration (FAA) review. This assures safe aircraft operations.

The FCC sets a "shot clock" as a reasonable period of time within which a wireless infrastructure siting application must be acted upon. As of 2018, the FCC adopted 60 days for review of collocation of small wireless facilities and 90 days for review of attachment of small wireless facilities to a new structure. A 150-day shot clock applies for review of other new wireless facility construction.

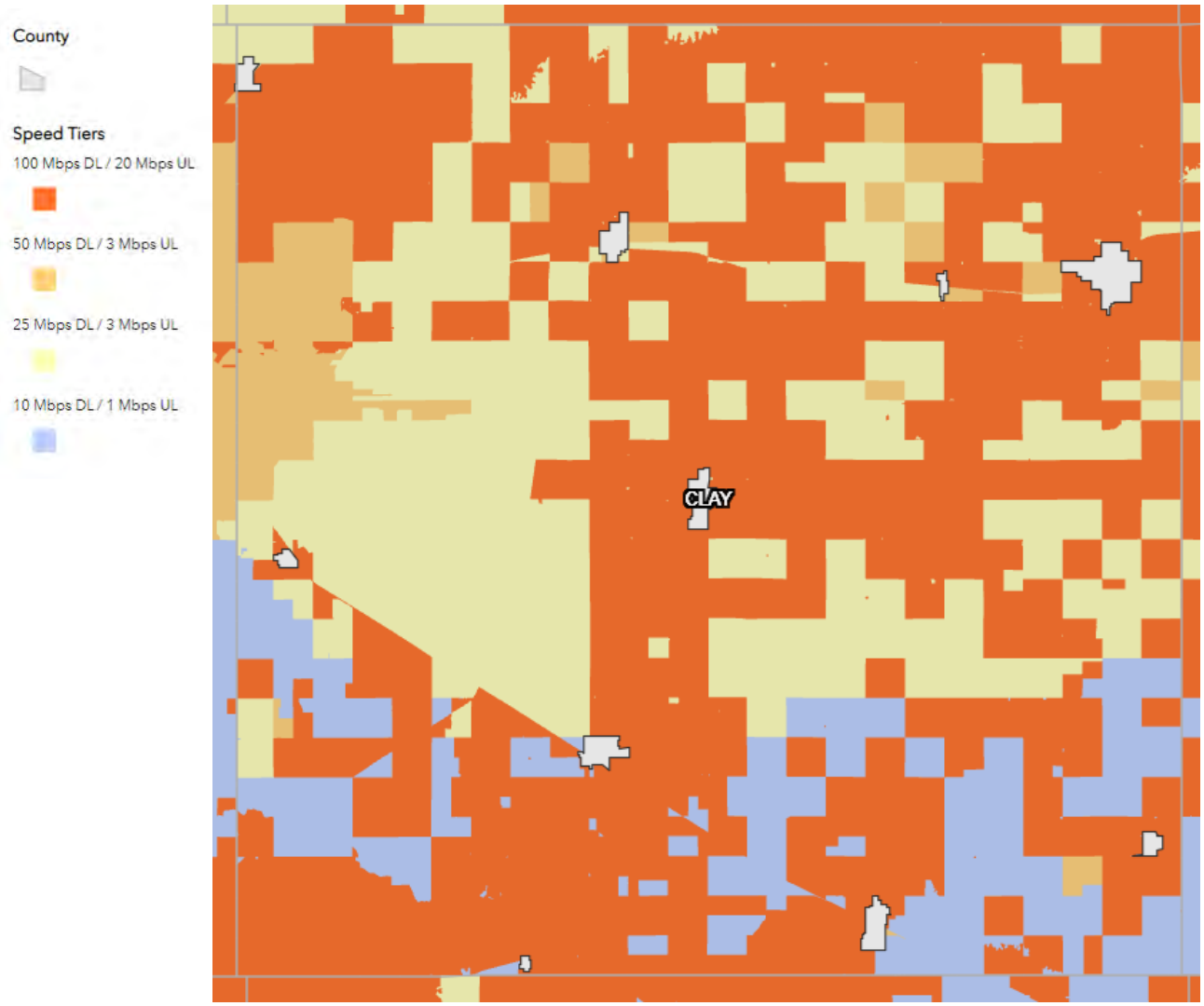
While local zoning regulations may apply standards similar to other similar structures, including aesthetics, zoning may not "materially inhibit" provision of services. Some jurisdictions even require "stealth" cell towers, which are designed to better match trees or structures such as silos, to reduce environmental impacts. Applications may be reviewed in a similar process as other projects, as long as the shot clock is maintained. Any adverse decision, however, must be accompanied by a substantial written record.

BROADBAND

The ACS reported in 2021, 84.4% of households in the county had an internet subscription, including 76.0% with a cellular data plan, 59.7% with cable, fiber optic, or DSL hardwire, and 13.1% with satellite internet service.

CenturyLink is the Incumbent Local Exchange Carrier (ILEC) for telephone service for most of the municipalities in Clay County. Hamilton Telephone Co. serves

FIGURE 9.2: BROADBAND SERVICE



Source: Nebraska Broadband Mapping Project 2023

the Trumbull exchange in northwest Clay County and the Stockham exchange which has a small area on the Hamilton county line. Windstream Nebraska is the ILEC for most of rural Clay County. Glenwood Telephone cooperative out of Blue Hill serves a small rural area in southwest Clay County.

The Nebraska Broadband Mapping Project indicates broadband service varies greatly from 10 Mbps download / 1 Mbps to 100 Mbps download / 20 Mbps upload (Figure 9.2), However, actual speeds or reliability of service is not guaranteed. In general, service declines farther off the Interstate corridor. Telecommunications service providers have also continued to construct towers to improve voice and data cellular and fixed wireless service to fill the gaps.

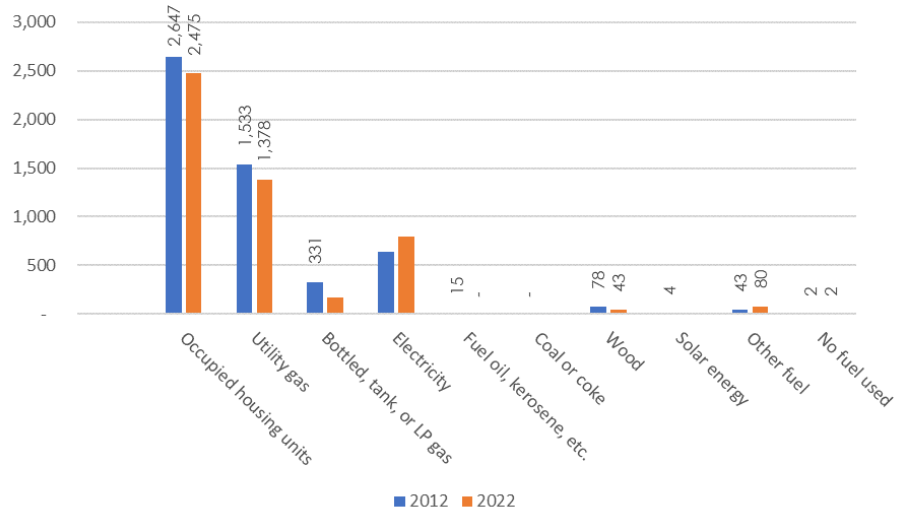
UTILITIES

Public and private utilities provide power, heat, and water to homes, businesses, and public places. They also treat wastewater, and collect solid waste and recyclables. Participants in the Town Hall expressed concern about the availability of infrastructure for business retention and expansion.

POWER

According to the US Census Bureau's ACS estimates, approximately 56% of housing units in Clay County are heated by utility gas, compared to 60% in Nebraska statewide. There was an 10% decline from 1,533 housing units using utility gas in 2012 to 1,378 units in 2022(Figure 9.3). About 32% of housing units use electricity for heating, compared to 31% statewide, as the number of homes heated with electricity expanded from 641 to 798 in 2022.

FIGURE 9.3: HOUSE HEATING FUEL, 2012-2022



Source: American Community Survey 2018-2022.

Electricity in Nebraska is supplied to consumers by customer-owned not-for-profit entities, including public power districts, cooperatives, and municipalities. The City of Sutton provides retail electric power service to residents and businesses in and around the municipal limits. The City of Edgar is now served by South Central PPD. A small area south of Trumbull, on the Adams County line, is served by Hastings.

PERENNIAL PPD

Perennial Public Power District (PPD) based in York provides electric service to a small area in the northeast corner of Clay County. Perennial PPD distributes electricity to over 8,000 customers across York and Fillmore counties, including 12 towns and villages.

Source: southernpd.com

SOUTH CENTRAL PPD

South Central Public Power District (PPD) based in Nelson, Nebraska, provides electric service across most of Clay County, as well as all or part of six other counties across a 1,750 square mile service area. South Central provides electric service to homes and businesses in 16 incorporated communities and transmits power to an additional five communities who operate their own distribution systems in addition to serving the rural areas of its service area.

The first REA loan was secured in 1946 and construction began on the first 200 miles of service lines. Today, South Central PPD serves over 8,200 meters and operates over 2,500 miles of electric power lines. A second line crew operates out of Clay Center.

Source: southcentralppd.com

Southern Public Power District

Southern Public Power District (SPPD) based Grand Island provides electric service to the northwest corner of Clay County and along much of the Adams County line. SPPD operates over 7,112 miles of distribution and sub-transmission lines served by 78 substations across the seven-county service area.

SPPD works with local economic development organizations, NPPD, and the State of Nebraska on projects which will benefit communities in their service area. In 2022, operations commenced at SPPD's 2-turbine 5.6 MW wind project near Upland, Nebraska.

Source: southernpd.com

Nebraska Public Power

Nebraska's rural electric organizations source power from the Nebraska Public Power District (NPPD), a member of the Southwest Power Pool.

Source: www.nppd.com

Data Centers

Changes in technology over the past decade have escalated development of data centers and server farms nationwide. Data centers require access to utilities, including electricity, water, and fiber-optic broadband connections. However, they also tend to produce noise and should be separated from residential areas

Domestic Water

Drinking water and irrigation water in Clay County is typically supplied by groundwater using individual or shared wells. Nebraska state laws have provided for protection of groundwater supply under a permitting system for public water suppliers and industrial water users, along with a centralized repository of information about groundwater wells. The Nebraska Department of Natural Resources' Registered Groundwater Wells Database listed 3,855 records for wells entered since 1969 in Clay County (as of 9/28/2023) aside from public water supply wells regulated by the US Environmental Protection Agency.

Source: dnr.nebraska.gov/groundwater

Each of the incorporated municipalities in Clay County, except for Saronville, provide domestic drinking water with groundwater from public water supply wells or in the case of Trumbull, purchased ground water.

According to the EPA's Safe Drinking Water Information System, there are four Non-Transient Non-Community Water Systems in Clay County permitted by the US EPA, a public water system which regularly supplies water to at least 25 of the same people at least six months per year. All use ground water:

- Clay Co SID #1, Hastings (purchased)
- Sandy Creek Public School, Fairfield
- T-L Irrigation Co., Hastings
- USDA MARC, Clay Center



Water Tower, Trumbull
Source: Marvin Planning Consultants

There is also one Transient Non-Community Water Systems in Clay County for the Military Dept. of Nebraska at their Greenlief site. This EPA permit is for a public water system which provides water in a place such where people do not remain for long periods of time.

Source: www.epa.gov/ground-water-and-drinking-water

Wastewater

Homes and businesses outside municipalities treat wastewater with individual septic systems. Onsite wastewater treatment systems (OWTS) include septic tanks, holding tanks, small lagoons, and other decentralized wastewater treatment systems.

The State of Nebraska requires any building which generates wastewater to have an OWTS system, installed by a certified professional. Prior to construction of a development area where an OWTS is proposed on any lot less than three acres in size, the owner of the property must submit an application for

CLAY COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FIG 9.4: PUBLIC POWER DISTRICTS

Hall County
Hamilton County
York County
Adams County
Fillmore County
Webster County
Nuckolls County
Thayer County

Trumbull
Harvard
Inland
Hastings
Saronville
Sutton
Glenvil
Clay Center
Fairfield
Edgar
Ong
Deweese
MARC

18D
18E
18C
6
14
41
74

LEGEND

- Highways
- Railroad
- Naval Ammunition Depot
- Clay County 1-Mile ETJs
- Hastings 2-Mile ETJ
- Municipal Limits
- County Boundaries
- Parcels
- Sections
- MARC

Power Districts

- Edgar
- Hastings
- Perennial PPD
- South Central PPD
- Southern PPD
- Sutton

N

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DATUM: NAD 83
DATE: 9.16.25

0 0.75 1.5 3 Miles

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

CLAY COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FIG 9.5: SID #1



LEGEND

- Highways
- Railroad
- County Boundaries
- Parcels
- Sections
- SID #1

N

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PROJECTION: NE State Plane (Ft.)

DATUM: NAD 83

DATE: 9.16.25

0 0.05 0.1 0.2 Miles

subdivision review to the Nebraska Department of Environment and Energy (NDEE). Standards for the size of treatment systems and required setbacks are set by Title 124 of the Nebraska Administrative Code.

Most OWTS in Nebraska are constructed under "Authorization by Rule". However, some systems do require a construction and/or operations permit as a result of the quantity or quality of wastewater generated or side conditions not meeting "Authorization by Rule" requirements.

In new development, the use of environmentally sensitive methods of wastewater treatment should be encouraged. Water conservation helps reduce impacts on surface and groundwater. Also, conservation of common open space provides greater buffers between water sources and wastewater infiltration.

SID 1 Clay County

Sanitary and Improvement District 1 Clay County, Nebraska, is located east of Hastings, Nebraska, on a portion of the old Naval Ammunition Depot. The SID was formed to provide domestic drinking water to the primarily industrial area south of US Highway 6.

The SID purchases water from the City of Hastings, and Hastings Utilities provides water meters and billing services. The SID has a contracted operator.

Sanitary waste within communities is typically addressed via community-wide collection and treatment systems. Construction permits for municipal, industrial, and commercial wastewater works are issued after NDEE engineers review and approve construction plans and specifications for the project.

Constructed Wetlands

Artificial wetlands are gaining growing acceptance for treatment of wastewater. This technique supplements rather than replaces septic treatment. The constructed wetlands provide further treatment for effluent and have been combined with aerobic treatment units (ATUs) before effluent is conducted to drainage areas.

Sanitary and Improvement Districts

Sanitary and Improvement Districts (SIDs) in Nebraska are a special authority which allows a development group and/or property owners' association to establish a special taxing district for purposes of installing or improving infrastructure such as a water system and/or a sanitary sewer collection and treatment system. SID's may also construct and/or maintain streets within such a district. The creation of an SID is controlled by the District Courts of Nebraska.

Solid Waste

There are currently no municipal solid waste landfill locations in Clay County. The Nebraska Ecology Systems, Inc. facility located near Geneva in Fillmore County, is non-operational. The York Area Solid Waste Agency operates a landfill near the York Airport. The Grand Island Solid Waste Agency operates a landfill in western Hall County.

The Land Management Division of the Nebraska Department of Environment and Energy has responsibility for waste management and remediation programs. The Division also administers the Waste Tire Management Program, and provides Waste Planning and Recycling programs.

Energy Infrastructure

This section is intended to meet the requirements for an energy element in Neb. Rev. Stat. §23-114.02, which "assesses energy infrastructure and energy use by sector, including residential, commercial, and industrial sectors; evaluates utilization of renewable energy sources; and promotes energy conservation measures that benefit the community".

Energy Use by Sector

According to Nebraska Energy Statistics, electricity use in Nebraska rose to 31,172 million kilowatthours (kWh) in 2020, an increase of 2.6 percent from 30,383 million kWh in 2019. The industrial sector used 37.1 percent, the residential sector used 33.7 percent, and the commercial sector used 29.2 percent. The use of electricity produced off-site is ultimately constrained by transmission capacity. Distributed generation of electricity (from wind farms or solar farms) is also constrained by

capacity of the regional transmission grid.

In 2020, Nebraska used 180.7 billion cubic feet of natural gas, a decrease of 2.8 percent from 2019. The industrial sector consumed 52.5 percent of total natural consumption in Nebraska in 2020. The residential sector consumed 20.5 percent, and the commercial sector consumed 17.5 percent. The electric power and transportation sectors accounted for the reminder of gas consumption.

Source: neo.ne.gov

Residential Energy Use

Energy is consumed in the residential sector primarily for space heating, water heating, air conditioning, refrigeration, cooking, clothes drying, and lighting. Fuel used for motor vehicles by household members is included in the transportation sector—electricity use will increase with increased use of electric vehicles (EVs) requiring home charging stations. Natural gas met almost one-half (47%) of residential energy needs in Nebraska in 2020, followed by electricity (42%).

As previously noted, Clay County residents primarily utilize natural gas and electricity for heating, as well as propane. The source of residential heating fuel varies greatly by location. For example, 56% of the residences in Deweese use LP gas, while nobody in Clay Center reported using LP gas in the most recent ACS.

Statewide, there were 555,618 residential natural gas customers in Nebraska in 2022, according to the US Energy Information Administration.



Solar Farm, Saronville
Source: Marvin Planning Consultants

Commercial Energy Use

Commercial uses include buildings such as retail stores, nonmanufacturing businesses, motels, health and education institutions for energy use reporting.. Government uses are included in this sector for these reports. Common uses of energy in the commercial sector include space heating, water heating, refrigeration, air conditioning, and cooking. Natural gas met almost one-half (47%) of commercial energy needs in Nebraska in 2020, followed by electricity (43%).

Statewide, there were 62,106 commercial natural gas customers in Nebraska in 2022, according to the Energy Information Administration.

Industrial Energy Use

Energy use in the industrial sector covers fuels for manufacturing, construction, mining, agriculture, and forestry. Energy to transport products is included in the transportation sector. Natural gas met 1/3 (34.6%) of industrial energy needs in Nebraska in 2020, followed by biofuels (32.7%), and electricity (13.5%).

Statewide, there were 5,624 industrial natural gas customers in Nebraska in 2022, according to the Energy Information Administration.

Energy Generation

According to the Energy Information Administration, In 2022, Nebraska obtained 49% of its total in-state electricity net generation from coal, 31% from wind, and 14% from nuclear power.

Nebraska Public Power District (NPPD), provides local PPD customers with wholesale power generated by a diverse mix of sources, including coal, nuclear, gas and oil (for peak demand), wind, hydropower, and solar. NPPD is also a member of the Southwest Power Pool (SPP), a non-profit regional transmission organization in the central part of the United States.

New Nuclear Generation

Nuclear energy has reliably powered Nebraska safely for over 50 years. The next generation of nuclear technology includes advanced Small Modular Reactors (SMRs). These modularly constructed reactors can be mass-produced and easily shipped, potentially reducing deployment costs. Many SMR designs are compact, about the size of a school bus or shipping container.

According to the US Office of Nuclear Energy, SMRs represent a variety of sizes, technology options, capabilities, and deployment scenarios. "Advanced SMRs offer many advantages, such as relatively small physical footprints, reduced capital investment, ability to be sited in locations not possible for larger nuclear plants, and provisions for incremental power additions. SMRs also offer distinct safeguards, security and nonproliferation advantages."

Source: www.energy.gov/ne/advanced-small-modular-reactors-smrs

Renewable Energy

Renewable energy is energy from naturally replenishing sources; virtually inexhaustible in duration but limited in the amount of energy available in the short-term. Statewide, Nebraska is moving towards renewable and away from legacy fuel sources. For example, while almost 75% of the state's electricity was generated by coal in 2011, only 50% came from coal in 2021. At the same time, residents are concerned about impacts of energy facilities on the landscape. A respondent to the Clay County Countywide survey explained "We have beautiful sunrises and sunsets here. Solar and wind farms will ruin the landscape and the electricity all goes into the grid..."

The major types of renewable energy sources are:

- Biomass
- Hydropower
- Geothermal
- Solar
- Wind

Respondents to the Clay County Comprehensive Plan Survey were skeptical of the benefits of renewable energy. Most disagreed (25%) or strongly disagreed (36%) with the statement "Wind farms will strengthen our economy." Slightly fewer disagreed (22%) or strongly disagreed (24%) "Solar farms will strengthen our economy."

Capacity of long-range power transmission lines can be a limiting factor for renewable energy production, since the electricity generated must be transferred into the regional or national power grid. Local, distributed power generation may be more practical in areas with limited access to the transmission grid.

Biomass

Biomass is renewable organic material coming from plants and animals. Biomass was the largest source of total annual U.S. energy consumption until the mid-1800s. The use of biomass fuels for transportation and for electricity generation is increasing.

The Biomass category of renewable energy sources includes biofuels, such as ethanal and biodiesel, along with wood waste, landfill gas, and similar fuels. Most biofuels are used as transportation fuels, but they may also be used for heating and electricity generation. In 2021, there were 6 units in Nebraska producing electricity from biomass, and 11 from landfill gas.

Nebraska is the second largest producer of ethanol for fuel in the United States, after Iowa. While there are currently no ethanol production plants in Clay County, there are several plants in the region, including Aurora, York, Fairmont, Hastings, and Wood River.

Nebraska's first biodiesel plant is under construction in Adams County, at Hastings near the Clay County line. The Heartwell Renewables plant, a joint project of Cargill and Loves Family, broke ground in late 2022 with planned completion in 2024.

Carbon Sequestration

Efforts are under way to capture and store carbon dioxide generated by Nebraska ethanol facilities. Carbon capture equipment will extract CO_2 from the ethanol production process and transfer the gas via a carbon dioxide pipeline to an underground geologic sequestration site near the plant.

It is likely carbon capture and storage (CSS) systems will continue to expand in scope and size. Most carbon pipelines are used in oil fields for enhanced oil recovery. As noted by the Congressional Research Service (June 2022), "Transporting CO_2 in pipelines is similar to transporting fuels such as natural gas and oil; it requires attention to pipeline design, protection against corrosion, monitoring for leaks, and safeguards against overpressure... [the Pipelines and Hazardous Materials Safety Administration (PHMSA)] applies safety requirements to CO_2 pipelines similar to those for pipelines carrying hazardous liquids such as crude oil and anhydrous ammonia."

The US Department of Transportation and the State of Nebraska regulate interstate gas

pipelines and hazardous liquid pipelines. As noted by the Center for Rural Affairs:

> *No legislation has been enacted that provides a permitting process at a state level in Nebraska. This leaves the responsibility of permitting to individual counties. Permits can cover everything that is not outlined in federal law, including the routing, construction mitigation, and abandoned pipelines.*
>
> *While there is no regulation for the permitting of carbon pipelines, companies are still able to secure eminent domain power for their projects.*

Biogas and Anaerobic Digestion

On-farm biogas production has a long history with recent technological innovation. A digester is a sealed vessel in which anaerobic digestion of organic matter occurs. The bacteria feed off manure and, in the process, release biogas (methane) as a by-product. Farmers can use digesters to improve the quality of manure and reduce odors, with the energy content of the methane being a by-product. Biogas generated from anaerobic digestion processes is a clean and environmentally friendly renewable fuel. There are many uses for this fuel, including use in engines, generation of electricity, heat and hot water systems, and even refrigeration.

Source: www.eia.gov/energyexplained/biomass

Hydropower

Hydropower was one of the first sources of energy used for electricity generation. Until 2019, hydropower was the largest source of total annual U.S. renewable electricity generation.

Nebraska has a long history of generating electricity with hydropower, which until recently was the largest source of renewable energy in the United States. In 2021, there were 20 units in Nebraska producing electricity with hydropower. Hydroelectric accounted for about 3% of Nebraska's annual electricity generation in 2021. There are no hydropower facilities in Clay County.

Source: www.eia.gov/energyexplained/hydropower

Geothermal

Geothermal energy is heat within the earth. Geothermal energy is a renewable energy source because heat is continuously produced inside the earth. People use geothermal heat for bathing, for heating buildings, and for generating electricity. Geothermal electricity generation requires water or steam at high temperatures(300° to 700°F). According to the U.S. Environmental Protection Agency (EPA), geothermal heat pumps are the most energy-efficient, environmentally clean, and cost-effective systems for heating and cooling buildings.

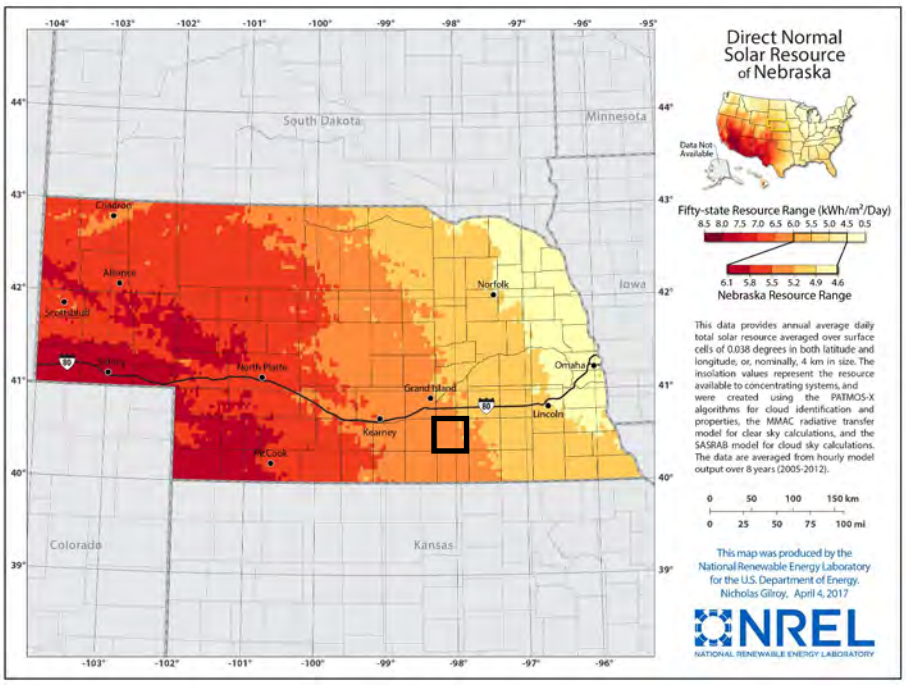
Source: www.eia.gov/energyexplained/geothermal

Solar

A photovoltaic (PV) cell, commonly called a solar cell, is a nonmechanical device which converts sunlight directly into electricity. Some PV cells can convert artificial light into electricity.

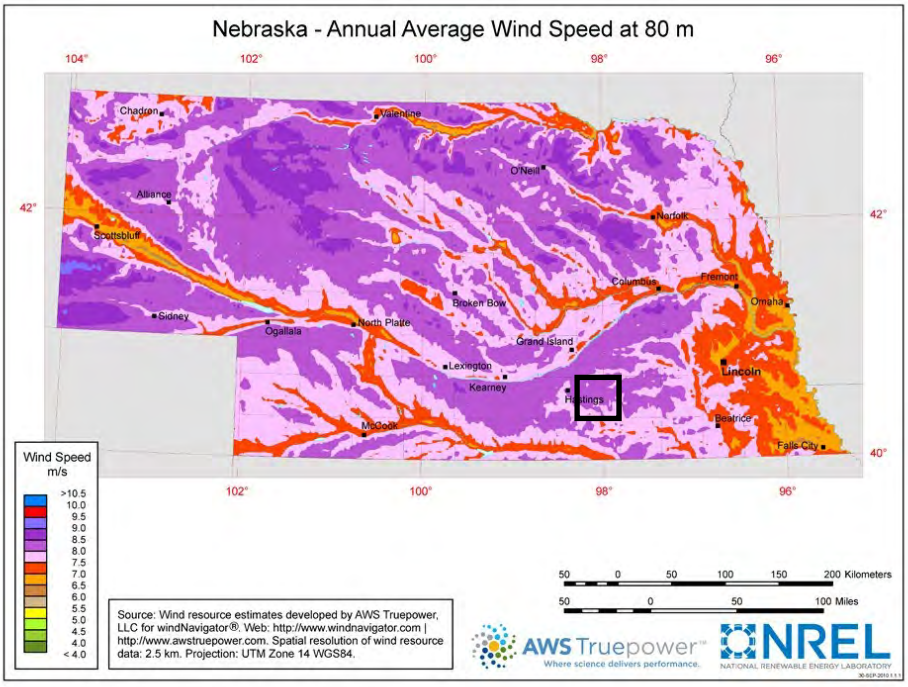
The efficiency at which PV cells convert sunlight to electricity

FIGURE 9.6: DIRECT NORMAL SOLAR RESOURCES OF NEBRASKA



Source: National Renewable Energy Laboratory, 2017

FIGURE 9.7: AVERAGE ANNUAL WIND SPEED AT 80M



Source: National Renewable Energy Laboratory, 2010

varies by the type of semiconductor material and PV cell technology. The efficiency of commercially available PV modules averaged less than 10% in the mid-1980s, increased to around 15% by 2015, and is now approaching 20% for state-of-the art modules. Experimental PV cells and PV cells for niche markets, such as space satellites, have achieved nearly 50% efficiency.

Rooftop solar has increasingly become an option for many homeowners and small businesses. The direction and pitch of the roof affect the amount of energy produced, as to nearby trees or other structures.

In 2021, there were 13 units in Nebraska producing electricity with utility-scale solar facilities. Only 0.2% of Nebraska's electricity was generated by solar in 2021, but the capacity doubled in just two years.

In general there is greater solar resource range in western Nebraska (Figure 9.6). However, solar is also being used to firm the variances in wind power generation and evening power flows on the electric transmission grids, as well as diversifying generation portfolios. The American Farmland Trust has developed general principles for siting solar development on active farm land:

1. Prioritize solar siting on buildings and land not well suited for farming;
2. Safeguard the ability for land to be used for agriculture;
3. Grow agrivoltaics for agricultural production and solar energy;
4. Promote equity and farm viability.

One solar project has been approved in Clay County, a 1.0 megawatt solar farm south of Saronville, placed in operation in 2021. A project for up–to 305–megawatts, named Big Allis Solar, has been discussed by Apex Clean Energy in the county.

There are also solar projects located nearby in adjacent counties:

- Deshler (Thayer County) 1.0 megawatt capacity, CUP approved October 2022.
- Hastings Community Solar Farm (Adams) 1.5 megawatt capacity, in operation 2109
- Superior (Nuckolls) 1.0 megawatt capacity, in operation 2018.
- Superior, a 1,248 kilowatt solar array is planned.

Source: www.eia.gov/energyexplained/solar and farmland.org

WIND

The wind blows in Nebraska and an increasing share of Nebraska's energy comes from renewable wind energy. In 2021, there were 1,333 utility-scale wind turbines producing electricity in Nebraska. The state's wind generation grew from 3% of electricity generated in 2011 to 25% in 2021.

According to the US Department of Energy's Office of Energy Efficiency & Renewable Energy, "Areas with annual average wind speeds around 6.5 meters per second and greater at 80-m height are generally considered to have a resource suitable for wind development. Utility-scale, land-based wind turbines are typically installed between 80- and 100-m high although tower heights for new installations are increasing—up to 140 m—to gain access to better wind resources higher aloft." Figure 9.7 shows

mapped windspeeds of approximately 8 m/s in Clay County.

Individual sites may be powered by Small Wind Energy Systems , a type of wind energy conversion system (WECS) with a rated capacity of 100 kilowatts or less. Technological advancements are driving the growth of the small wind power market by making turbines more efficient and cost-effective. Small wind turbines can operate efficiently on wind speeds of just 9 miles per hour.

The location of large commercial utility-scale wind farms must be carefully planned. There are currently no installed utility-scale wind farms in Clay County. There are several wind installations in the vicinity, including:

- CCC Hastings Wind Turbine (Adams) 1.7 MW, 2016.
- Perennial Windfarm (Filmore) three 2.3 megawatt turbines, in operation 2018.

Wind Energy Concerns

Concerns have been raised about land use conflicts between wind energy facilities and agricultural operations. For example, wind turbines limit the use of aerial application by fixed wing or helicopter operators.

Concerns have also been raised about impacts on viewsheds and wildlife of wind turbines. The majority of respondents to the countywide survey agreed with the statement "I think wind turbines would ruin my view of the landscape".

Impacts on wildlife, in particular migratory birds and bats, is a real constraint on wind energy development in Clay County. The University of Nebraska's Wind Energy and Wildlife Project recommended collaboration among stakeholders to reduce impacts on wildlife and habitat. "Guidelines for Avoiding, Minimizing, and Mitigating Impacts of Wind Energy on Biodiversity in Nebraska" have been developed by the Nebraska Wind and Wildlife Working Group.

Source: www.eia.gov/energyexplained/wind; wind-energy-wildlife.unl.edu

Battery Backup Systems

Energy storage technologies, particularly battery energy storage systems, are growing rapidly and already play a role in enhancing the electrical grid by supporting the deployment and integration of renewable energy sources — increasing reliability, controlling costs, and building a more resilient grid.

As technology chances rapidly, zoning, environmental review, and sound level considerations are needed for the effective integration of energy storage systems in various locations and applications. The International Fire Code, NFPA fire codes, and other standards have been developed to ensure safety in manufacturing, construction, installation, and operations.

Source: cleanpower.org

Net Metering

Small-scale wind and solar generation facilities are typically front-of-the meter applications, intended to provide direct power to a home, farm, or business. These facilities tend to range from 20 kW or less up to 100 kW in size, although some manufacturers may be able to use larger generators on site.

Since 2009, private electricity generating facilities with capacity at or below 25 kilowatts may operate under Nebraska's net–metering statutes. Any excess generation produced by the system will be credited at the utility's avoided cost rate and carried forward to the next billing period. Any excess remaining at the end of an annualized billing period is to be paid out to the customer.

In 2021, power districts operating in Clay County received power from net metered renewable installations:

- Perennial PPD 173 kW
- South Central 38 kW
- Southern PPD 344 kW

Solar/Wind Easements

Nebraska's solar and wind easement provisions allow property owners to create binding solar and wind easements for the purpose of protecting and maintaining proper access to sunlight and wind. Originally designed only to apply to solar, the laws were revised in March 1997 to include wind (LB 140, codified in Neb. Rev. Stat. §66-913 *et seq.*). Counties and municipalities are permitted to develop regulations, or development plans protecting access to solar and wind energy resources if they choose to do so. Local governing bodies may also grant zoning exceptions to solar and wind energy systems which would be restricted under existing regulations, so long as the exception is not substantially detrimental to the public good.

LB 568, enacted in May 2009, made some revisions to the law and added additional provisions to govern the establishment and termination of wind agreements. Specifically, the bill provides the initial term of a wind agreement may not exceed forty years. Additionally, a wind agreement will terminate if development has not commenced within ten years of the effective date of the wind agreement. If all parties involved agree to extend this period, however, the agreement may be extended.

RESOURCES

BROWNFIELDS ASSISTANCE

A brownfield is a property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.

The State of Nebraska offers assistance with redeveloping brownfield sites. For example, Section 128(a) Assessments are Environmental Site Assessments (ESAs) providing preliminary environmental information to determine if there is contamination on a property. The NDEE offers these assessments to communities at no cost.

These assessments are performed in accordance with the "all appropriate inquiry" requirements but may include additional activities such as nearby drinking water well sampling and testing building materials for asbestos, lead-based paint and/or mold. The first part of the assessment examines the background, setting and past uses of a property. It includes a records review, site reconnaissance, interviews, and, as a final product, a report documenting the environmental conditions at the property.

The second part of the assessment examines and evaluates the environmental conditions identified in the initial assessment. Soil and groundwater sampling and analyses are conducted to determine whether contamination associated with any environmental conditions has occurred on the site. The results of the sampling and analyses are evaluated in the Assessment Report.

Source: dee.ne.gov

COMMUNICATIONS, UTILITIES, & ENERGY GOALS, POLICIES, AND ACTIONS

CUE GOAL 9.1

Residents have access to communications networks.

ACTIONS

9.1.1 Continue to support local news—in print and online.

9.1.2 Support improvements in high-speed wired and wireless communications

9.1.3 Periodically review zoning regulations for conformance with broadband technological advances and FCC mandates.

CUE GOAL 9.2

Utility Infrastructure is sufficient to meet the needs of county residents and employers.

POLICIES

9.2.1 Development projects shall mitigate impacts on utilities.

ACTIONS

9.2.2 Work with municipalities and power suppliers as they maintain and extend powerlines to meet system needs.

9.2.3 Work with water providers to assure the quantity and quality of domestic water supply.

9.2.4 Assist property owners in conforming with State regulations for onsite wastewater treatment systems (OWTS).

CUE GOAL 9.3

Energy Infrastructure is sufficient to meet the needs of county residents and employers.

ACTIONS

9.3.1 Support Utility back-up and peaking generation facilities.

9.3.2 Promote consumer energy conservation measures, in partnership with utility providers.

CUE GOAL 9.4

Renewable energy facilities—biomass, geothermal, wind, solar—are carefully planned.

POLICIES

9.4.1 Energy projects shall mitigate impacts on neighbors and the environment.

ACTIONS

9.4.2 Provide for individual property owners utilizing small-scale, distributed renewable energy generation, eligible for net metering.

9.4.3 Periodically review zoning regulations for conformance with technological advances in renewable energy generation.



Chapter Ten
Natural Resources and Environment

Natural resources and the environment provide a foundation for land use and the local agricultural economy. They are also the foundation of residents' local quality of life. Local residents and property owners are the primary stewards of Clay County's land, natural resources, and the natural environment. Participants in the Town Hall expressed their love for Clay County's wide open spaces.

This chapter describes natural conditions of the county, water, wetlands, soils, and other factors. Much of this information is taken from the USDA Soil Conservation Service (SCS) *Soil Survey of Clay County, Nebraska*, published in 1981, and the online Natural Resources Conservation Service (NRCS) Web Soil Survey (Soil Survey Geographic Database—SSURGO), with additional updated data where available. As explained by the State Conservationist at the time of publication, the Soil Survey "contains information that can be used in land-planning programs in Clay County. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment."

NATURAL CONDITIONS

PHYSIOGRAPHY AND GEOLOGY

Clay County, Nebraska, is within the Central Loess Plains, which is part of the Great Plains physiographic province. The county is nearly level and gently undulating, dissected by streams and small depressions. The Little Blue River is the most prominent stream in the county, with a river valley averaging about one mile wide ranging from 100 to 200 feet below the uplands. The average elevation is about 1,750 feet above sea level.

The county is underlain to a depth of 100 to 400 feet by unconsolidated deposits of Quaternary age. These deposits cover a relatively uneven bedrock surface consisting of Cretaceous age rocks. Quaternary deposits consist of loess and water-deposited sediments.

The Little Blue River cut its valley into the underlying, clayey to gravelly, water-deposited sediments. These sediments are at the surface on some valley side slopes. More information on soils and suitability for development is provided later in this chapter.

CLIMATE

Clay County, Nebraska, is near the geographical center of the United States. Winters are cold and summers are hot. Snowfall is fairly frequent in the winter, but snow cover is usually not continuous. Rainfall is heaviest late in spring and early summer. In winter, the average temperature is 27*F, and the average daily minimum is 15*F. In summer, the average temperature is 75*F, and the average daily maximum temperature is 88 degrees.

Total annual precipitation is 27.5 inches, 80% of which falls April through September. Average seasonal snowfall is 34 inches. Average relative humidity is about 60%. The sun shines 70% of time in the summer and 60% in the winter.

Source: Soil Survey of Clay County, Nebraska, USDA 1981.

WATER

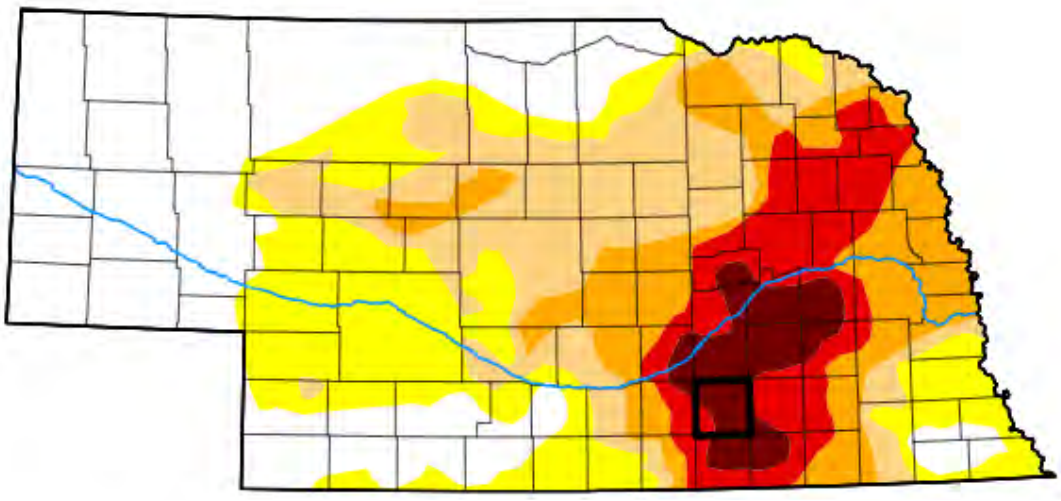
Clay County is located in the Blue River watershed. The Little Blue begins south of Minden, Nebraska, and flows east-southeast towards Marysville, Kansas. It joins the Big Blue River at Blue Rapids, Kansas.

SURFACE WATER

Almost all respondents to the countywide survey (82%) agreed lakes, reservoir, and streambeds are important assets. There were 95% of respondents who agreed water quality is important to Clay County, and 94% agree water availability is important.

There is a USGS stream gauge on the Little Blue River at the county line near Deshler. The National Weather Service flood stage is 16 feet. The highest recorded peak state was 19.35 feet on May 28, 2019, and prior to this, 17.35 feet on September 3, 2018. On May 24, 2020, the river peaked at 15.96 feet.

US Drought Monitor



The U.S. Drought Monitor is a map released weekly, showing parts of the U.S. in drought. This is a typical map for 2023. The map is produced jointly by the National Drought Mitigation Center (NDMC) at the University of Nebraska-Lincoln, the National Oceanic and Atmospheric Administration (NOAA), and the U.S. Department of Agriculture (USDA)

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

Natural Resource Districts (NRDs)

There are 23 Natural Resource Districts (NRDs) in Nebraska. The NRDs are a local unit of government, working on a range of conservation works and programs such as soil conservation, flood control, groundwater and surface water management, pollution control, fish and wildlife habitat, recreation facilities, and forestry and range management, among other interests.

Little Blue NRD

The Little Blue NRD, with offices in Davenport, covers the southern two-thirds of Clay County and all or portions of six other counties in the Little Blue watershed.

The Little Blue River is hydrologically connected to the principal aquifer from central Adams County to its discharge point at the Kansas State Line. The NRD's *Long Range Implementation Plan* (FY2021-2025) is intended to meet the requirements of state law, while providing the NRD's Board with an overview of objectives for orderly conservation and management of natural resources. The plan contains an overview of current programs and projects, and future objectives and plans of action across the district.

The Little Blue NRD *Voluntary Integrated Management Plan* (VIMP) *was completed* in cooperation with the Nebraska Department of Natural Resources (2019). The management plan is structured to assure the long-term viability of agriculture, business and industry, municipalities, fisheries and wildlife, and society as a whole.

The plan includes goals, objectives, and action items, including:

- Goal 1: Better and more scientific data and methods to support wise management of interconnected groundwater and surface water
- Goal 2: Scientifically sound, locally-based management actions to protect interconnected groundwater and surface water
- Goal 3: Education efforts to raise the level of awareness about finite, interconnected groundwater and surface water resources

The states of Nebraska and Kansas participate in the Blue River Basin Compact, entered in 1971. The compact is intended to achieve an equitable apportionment of the waters of the Basin, and encourage pollution-abatement programs in each state. The State of Nebraska grants surface water permits for both irrigation uses and storage uses, as well as one permit each for a domestic or industrial use.

Source: littlebluenrd.org

Upper Big Blue NRD

The Upper Big Blue NRD, with offices in York, covers the northern third of Clay County and portions of or portions of eight other counties in the Big Blue watershed, from Hastings to David City.

In 2018, the Upper Big Blue NRD joined the Nebraska Department of Natural Resources (NeDNR) and the Nebraska Department of Environment and Energy (NDEE) on a joint planning effort to address water quality and quantity across the district. A *Water Quality Management Plan* (WQMP) and draft *Voluntary Integrated Management Plan* (VIMP) were the result of this effort.

The Upper Big Blue NRD performs a variety of functions, including groundwater quantity and quality monitoring—in March and April 2022, water levels decreased by 1 to 2 feet in Clay County.

Source: www.upperbigblue.org

Groundwater

Over half (57%) of respondents to the Comprehensive Plan Survey strongly agreed the aquifer (ground water) is an important asset and should be conserved..

Within the watershed, the top of the groundwater aquifer slopes from north west Adams County to lower elevations in western Jefferson County. According to the Little Blue NRD's *Voluntary Integrated Management Plan,* productivity of the High Plains Aquifer ranges from 100 gallons per minute (gpm) to 2,000 gpm, 800 to 1,200 gpm on average.

The main source of water for irrigation and municipal uses is groundwater. According to the *Soil Survey* (1981), most groundwater is pumped from water-saturated sand and gravel deposits, averaging 50 to 150 feet in thickness. Depth to water table ranges from 60 to 100 feet throughout the county. In some areas, amounts pumped for irrigation has increased so the amount of discharge exceeds recharge to ground water.

Wellhead Protection

Nebraska's Wellhead Protection Program (WHP) is a voluntary initiative which assists communities and other public water suppliers in preventing contamination of their water supplies. The Wellhead Protection Area Act sets up a process for public water supply systems to use if they choose to implement a local Wellhead Protection plan. The Nebraska Department of Environment & Energy (NDEE) is the lead agency for Wellhead Protection Plan (WHP) approval.

The goal of Nebraska's Wellhead Protection Program is to protect the land and groundwater surrounding public drinking water supply wells from contamination. Since approximately 85% of Nebraskans receive their drinking water from groundwater, preventing groundwater contamination is vital. The Wellhead Protection planning process includes identifying the land surrounding the public water supply wells to be protected, identifying potential sources of groundwater contamination within this area, and managing the potential contaminant sources

According to NDEE, eight communities in Clay County have an approved WHP, as of mid-2024:

- City of Clay Center (2011)
- Village of Deweese (2011)
- City of Edgar (2005)
- City of Fairfield (2013)
- Village of Glenvil (2001)
- City of Harvard (2011)
- Village of Ong (2002)
- City of Sutton (2000)

Each responsible jurisdiction should take action to implement their WHP, including:

1. Establish and maintain performance standards to protect groundwater sources.
2. Participate in emergency, contingency, and lang-term planning for replacement sources of drinking water.
3. Work with Clay County and state agencies to inform the public about the Wellhead Protection Plan.

Clay County has adopted a Wellhead Protection district in the Clay County zoning regulations. Prior to application of a Wellhead Protection district in county jurisdiction, the municipality or rural water district shall make application to the County, as provided in the zoning regulations.

State and federal funding is periodically available to offset costs of implementing wellhead protection and other water quality measures.

Source: dee.ne.gov

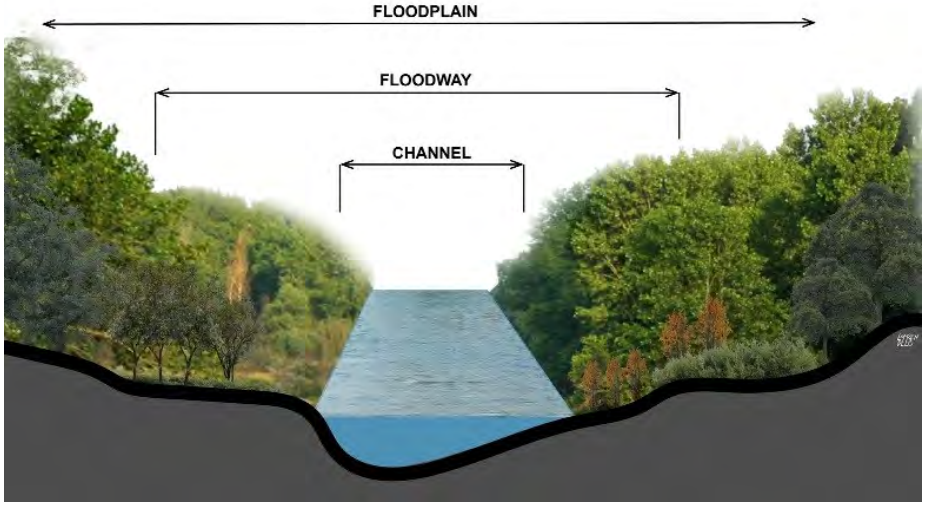
Floodplains and Floodways

A flood is a general and temporary condition of partial or complete inundation of normally dry land from flowing water, such as streams and rivers overflowing their banks, runoff from adjacent or surrounding slopes, or a combination of sources.

The floodplain, in general, contains three areas:

- Floodway, the channel of a watercourse and those portions of the adjoining floodplains which are required to carry and discharge a flood of 1-percent chance with no significant increase in the base flood elevation.
- Regulatory Floodplain, the low land near a watercourse which has been or may be covered by water from a flood event having a 1-percent chance in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood. The regulatory

Figure 10.1: Flood Plain Cross Section



Source: National Wetlands Inventory

floodplain is identified on Flood Insurance Rate Maps (FIRMs) as the Special Flood Hazard Area (SFHA).
- Flood Fringe, the portion of a floodplain which can be inundated by floodwaters but is not within the regulated floodway. The flood fringe serves as temporary storage for slow-moving or standing floodwaters.

The floodplain includes *both* the floodway and the flood fringe.

The floodplain area of greatest significance in terms of state and federal regulation is the 1% or 100 -year floodplain. This area is defined by the ground elevation in relation to the water elevation experienced during a base flood event. The 1% or 100-year floodplain is calculated to be the elevation level of flood water expected to be equaled or exceeded every 100 years on average. In other words, the 100 year flood is a 1% flood, meaning it defines a flood having a 1% chance of being equaled or exceeded in any single year.

Preserving the floodway and flood fringe are critical to limiting the level of property damage which can occur as well as the risk to life of the occupants of the area. These lands when not flooded may seem to be harmless, but it is those rare times threatening life and property which need to be anticipated.

See Chapter 11 Hazard Mitigation for more information on flood hazard mitigation and floodplain administration.

WETLANDS

Wetlands are areas where water covers the soil, or is present either at or near the surface of the soil all year or for varying periods during the year, including during the growing season. Water saturation (hydrology) largely determines the soil development and the types of plant and animal communities living in and on the soil.

Wetlands may support both aquatic and terrestrial species. The prolonged presence of water creates conditions favoring the growth of specially adapted plants (hydrophytes) and promote the development of characteristic wetland (hydric) soils. Wetlands vary widely because of regional and local differences in soils, topography, climate, hydrology, water chemistry, vegetation, and other factors, including human disturbance. Two general categories of wetlands are recognized: coastal or tidal wetlands and inland or non-tidal wetlands.

Many wetlands are seasonal (dry one or more seasons every year). The quantity of water present and the timing of its presence in part determine the functions of a wetland and its role in the environment. Wetlands can appear dry, at times, for significant parts of the year - such as vernal pools – and still provide habitat for wildlife adapted to breeding exclusively in these areas.

The federal government regulates certain types of wetlands under Section 404 of the Clean Water Act, depending on how "navigable waters" and "Waters of the United States" are defined. The US Supreme Court's 2023 decision in *Sackett et ux v. EPA et al* narrowed the definition in practice of the Waters of the United States.

The federal government offers incentives and disincentives, cooperative programs, and property acquisition programs to mitigate actual and potential harm to wetland resources.

Wetlands are home to many species of wildlife. Wetlands also provide an important service to nearby areas by holding and retaining floodwaters. These waters are then slowly released as surface water, or are used to recharge groundwater supplies. Wetlands also help regulate stream flows during dry periods.

National Wetlands Inventory

The U.S. Fish and Wildlife Service (FWS) compiles data on the characteristics, extent, and status of the Nation's wetlands and deep-water habitats. This information is compiled and organized in the National Wetlands Inventory (NWI).

Inland wetlands found in Clay County are most common along rivers and streams (riverine). There are also sites with freshwater ponds, and freshwater emergent and forested/shrub wetlands.

Wetlands are categorized in several classifications, each more detailed and specific than the previous. The NWI uses five systems; marine, estuarine, riverine, lacustrine, and palustrine. Within each system, there are subsystems, classes,

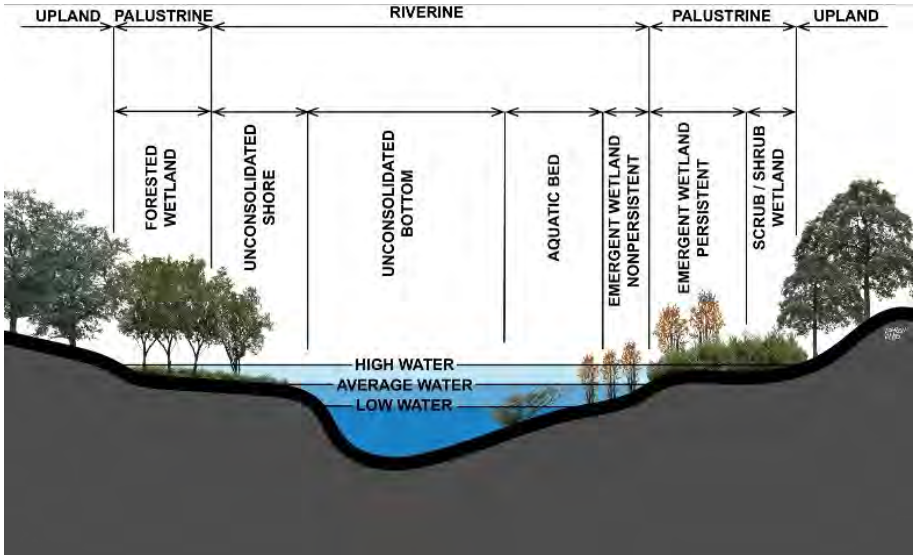
subclasses, and dominance types to describe different wetland characteristics. The system classification refers to wetlands sharing similar hydrologic, geomorphologic, chemical, or biological factors. The following are definitions and examples of three of the five systems used to describe wetlands. The Marine and Estuarine wetland systems are located in and near the open ocean; therefore, they do not occur in Nebraska. Further information, through NWI, on specific classifications is available.

Figures 10.2, 10.3, and 10.4 depict common examples of the riverine, lacustrine, and palustrine wetlands, respectively. These figures were produced by the United States Fish and Wildlife Service, and are taken from their 1979 publication entitled "Classification of Wetlands and Deepwater Habitats of the United States".

Riverine Wetlands

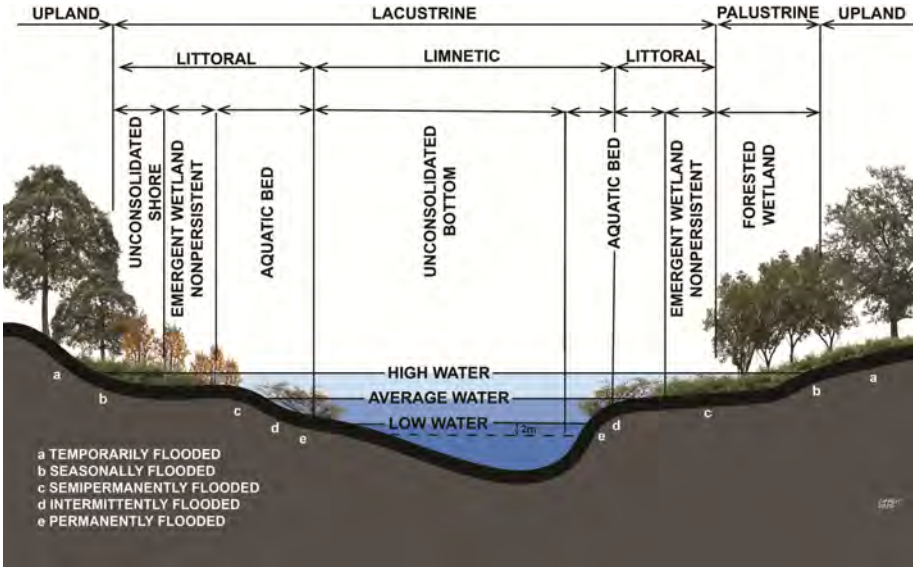
Figure 10.2 shows the Riverine system including all wetlands occurring in channels, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergent, emergent mosses, or lichens, and (2) habitats with water containing ocean derived salts in excess of 0.5%. A channel is an open conduit either naturally or artificially created which periodically or continuously contains moving water, or which forms a connecting link between two bodies of standing water. Therefore, water is usually, but not always, flowing in the riverine system.

FIGURE 10.2: RIVERINE WETLAND SYSTEM



Source: National Wetlands Inventory

FIGURE 10.3: LACUSTRINE WETLAND SYSTEM



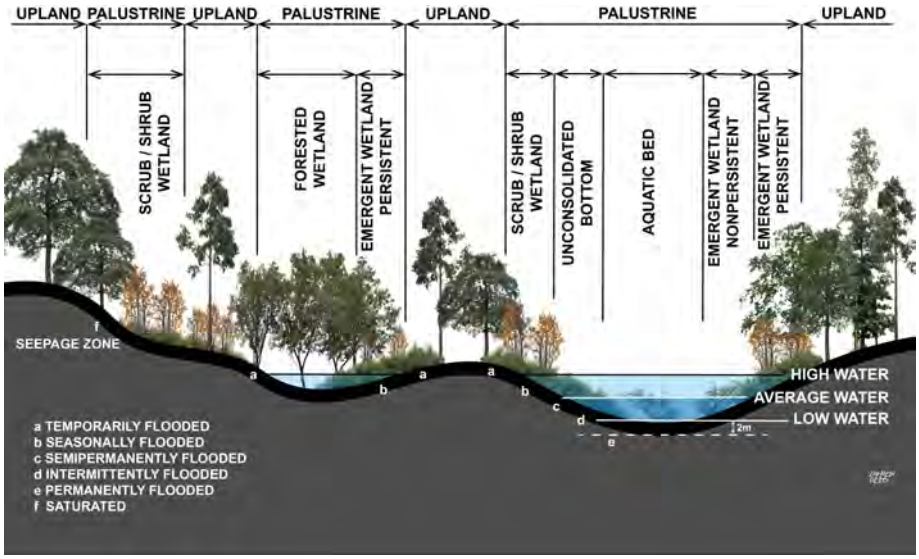
Source: National Wetlands Inventory

Springs discharging into a channel are also part of the riverine system. Uplands and palustrine wetlands may occur in the channel, but are not included in the riverine system. Palustrine Moss-Lichen Wetlands, Emergent Wetlands, Scrub-Shrub Wetlands, and Forested Wetlands may occur adjacent to the riverine system, often in a floodplain.

Lacustrine Wetlands

The Lacustrine System includes wetlands with all of the following characteristics: (1) situated in a topographic depression or a dammed river channel; (2) lacking trees, shrubs, persistent emergents, emergent moss or lichens with greater than 30% area coverage; and (3) total area exceeds 20 acres. Similar

FIGURE 10.4: PALUSTRINE WETLAND SYSTEM



Source: National Wetlands Inventory

wetland areas totaling less than 20 acres are also included in the Lacustrine System if an active wave-formed or bedrock shoreline feature makes up all or part of the boundary, or if the water depth in the deepest part of the basin exceeds 6.6 feet (2 meters) at low water.

The Lacustrine System includes permanently flooded lakes and reservoirs (e.g. Lake Superior, Michigan), intermittent lakes (e.g. playa lakes), and tidal lakes with ocean-derived salinities below 0.5% (e.g. Grand lake, Louisiana). Typically, there are extensive areas of deep water and there is considerable wave action. Islands of Palustrine wetlands may lie within the boundaries of the Lacustrine System.

PALUSTRINE WETLANDS

The Palustrine System includes all non-tidal wetlands dominated by trees, shrubs, persistent emergent, emergent mosses or lichens, and all such wetlands occur in tidal areas where salinity due to ocean-derived salts is below 0.5%. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area is less than 20 acres; (2) lacking active wave-formed or bedrock shoreline features; (3) water depth in the deepest part of basin is less than 6.6 feet (2 meters) at low water; and (4) salinity due to ocean-derived salts is less than 0.5%.

The Palustrine System was developed to group the vegetated wetlands traditionally called by such names as marsh, swamp, bog, fen, and prairie, which are found throughout the United States. It also includes the small, shallow, permanent, or intermittent water bodies often called ponds. These wetlands may be situated shoreward of lakes, river channels, or estuaries; on river floodplains; in isolated catchments; or on slopes. They may also occur as islands in lakes or rivers.

USFW CLASSIFICATION SYSTEM

Stewart & Kantrud developed a wetland classification system, published by USFWS in the 1971. This system classifies wetland communities into several types, including:

- Type I: Ephemeral wetlands
- Type II: Temporary
- Type III: Seasonal
- Type IV: Semipermanent
- Type V: Permanent

This system is similar to, but different than, the "Circular 39" system first published in 1956. Stewart & Kantrud's Types III, IV, and V have been considered generally as "public waters wetlands" for the purpose of land use regulation.

SOILS

The general soil map developed by the USDA SCS (now Natural Resources Conservation Service, NRCS) shows broad areas having a distinctive pattern of soils, relief, and drainage. Each map unit, or soil association, on the general soil map is a unique natural landscape. Typically, an association consists of one or more major soils and minor soils.

The soil series is the lowest category of the national soil classification system. The associations are named for the major soils—each series has an identifying place name (where it was first found) and is divided by texture of the surface soil. The soils making up one association can occur in other associations but in a different series pattern.

Soil surveys can be used for general farm and site planning. Onsite investigation is typically needed, such as soil quality

assessments and conservation and engineering applications. While the engineering classification is based on exact composition of a particular soil, soil survey is an essential basis for development site planning.

Source: websoilsurvey.nrcs.usda.gov

Soil Formations

Clay County has many different soil types. Some of these soils are similar; however, many are completely different from one another. The Clay County Soil Survey identifies key aspects of each soil.

A summary of soil series units and limitations on structures is included in Appendix B. In general, these include:

- Butler Series
- Cass Series
- Crete Series
- Fillmore Series
- Geary Series
- Gothenburg Series
- Hall Series
- Hastings Series
- Hobbs Series
- Holder Series
- Hord Series
- Massie Series
- Meadin Series
- Scott Series
- Uly series

Appendix B also includes summaries of soil suitability and limitations as described by NRCS, including for dwellings (with and without basements), septic tank and absorption fields, sewage lagoons, sanitary landfill, small commercial businesses; Most soil series in Clay County present limitations on buildings, including susceptibility to flooding and saturation, depth to bedrock, shrink-swell, slopes, ponding and slow water movement, filtering, seepage, or dust. Soil permeability by soil type is also described in Appendix B.

The text, graphics, tables, and maps included in Appendix B to this Comprehensive Plan are made part of this Comprehensive Plan by reference. A true and correct copy of said Appendix is on file in the Office of the County Clerk along with the true and correct copy of the Comprehensive Plan and all are available for public inspection during normal business hours.

OTHER FACTORS IMPACTING LAND USE

Certain uses of land are specifically impacted by natural resources and environmental factors. These uses also affect multiple elements of the comprehensive plan, from economic development to transportation.

Prime Farmland

Prime farmland is directly tied to specific soils and their composition. According to the USDA, "prime farmland" is:

> land *that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. It must also be available for these uses. It has the soil quality, growing season, and moisture supply needed to produce economically sustained high yields of crops when treated and managed according to acceptable farming methods, including water management. In general, prime farmlands have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. They are permeable to water and air. Prime farmlands are not excessively erodible or saturated with water for a long period of time, and they either do not flood frequently or are protected from flooding.*

Prime farmland is generally the highest and best use of land meeting the nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited. The USDA recognizes government at local, state, and federal levels must encourage and facilitate the wise use of the nation's prime farmland, and recognize individual efforts to this end.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils best suited to producing food, feed, forage, fiber, and oilseed crops. Such soils have properties which are favorable for the economic production of sustained high yields of crops. The soils need only to be treated and managed using acceptable farming methods. The moisture supply, of course, must be adequate, and the growing season has to be sufficiently long. Prime farmland soils produce the highest yields with minimal inputs of energy

and economic resources, and farming these soils results in the least damage to the environment.

Prime farmland soils may presently be in use as cropland, pasture, or woodland, or they may be in other uses. They either are used for producing food or fiber or are available for these uses. Urban or built-up land and water areas cannot be considered prime farmland.

Prime farmland soils usually get an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The acidity or alkalinity level of the soils is acceptable. The soils have few or no rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods and are not subject to frequent flooding during the growing season. The slope ranges mainly from 0 to 6 percent.

Soils which have a high water table, are subject to flooding, or are droughty may qualify as prime farmland soils if the limitations or hazards are overcome by drainage, flood control, or irrigation. Onsite evaluation is necessary to determine the effectiveness of corrective measures. More information on the criteria for prime farmland can be obtained at the local office of the NRCS.

Conversion of prime farmland to urban and industrial uses has been a trend in land use in parts of the county. The loss of prime farmland to other uses tends to put pressure on marginal lands, which generally are wet, more erodible, droughty, or difficult to cultivate and less productive than prime farmland.

CAFOs

Confined Animal Feeding Operations (CAFOs) are agricultural operations where animals are kept and raised in confined situations. The US EPA regulates CAFOS (as defined by the Clean Water Act) through the NPDES permitting program as point sources of potential pollution. The State of Nebraska's manure regulations are spelled out in Title 130 of the Nebraska Administrative Code for Livestock Waste Control. The Department of Environment and Energy is the primary regulatory authority in Nebraska.

Livestock operations (CAFOs) are typically categorized by the number of animals as small, medium or large, determining which rules apply. The need to obtain a State permit is based on the potential for contamination of the waters of the State. A nutrient management plan may be required or recommended depending on the situation.

Currently, the *Clay County Zoning Regulations* consider medium to large Confined/ Concentrated feeding of livestock and fowl as a Conditional Use in the Agricultural zoning district. The regulations set certain minimum requirements, including separation between confined feeding and dwellings, public use area, schools or churches.

ENVIRONMENTAL RESOURCES

Conservation Easements

Conservation easements have become a popular incentive-based strategy for land conservation. As the Lincoln Institute of Land Policy has noted, "Beyond tax credits, tax deductions, and other public subsidies that provide financial incentive for landowners to enter into conservation partnerships, this phenomenon is fueled by the perception that conservation easements are a win-win strategy in land protection, benefiting both landowners and the environment."

Agricultural easements can be a valuable tool for farmers and ranchers, allowing them to exercise private property rights while keeping land in agricultural production. This is an effective method to protect agriculture as the highest and best use of land. Easements may be sponsored by private organizations or by units of government. Some communities have established purchase of conservation easement programs to fund such programs.

Concerns with Easements

Governing laws and conventions can be problematic when it comes to conservation and preservation easements. Easements can conserve sensitive lands, yet wildlife and land or water easements can also take productive farmland out of production. An easement might restrict the construction of new farm buildings, irrigation systems, or processing facilities necessary to adapt to new

crops, livestock, or value-added production. This can stifle innovation and economic viability. Participants in the Town Hall raised concerns with the sheer amount of Federal land and institutional investment in conversation land taking land out of agricultural production.

Easements can also have impacts on local tax revenues if the market value of land is reduced. By permanently removing development rights, conservation easements typically reduce the market value of the land. Local school districts and units of government rely on these tax revenues to provide essential services. Such a reduction in property tax revenue would necessitate an increase in tax rates for other properties within the jurisdiction, effectively shifting the tax burden to the rest of county landowners.

While an easement might make land values more affordable for future farmers by reducing its development value, it also limits the potential for appreciation. This can make it difficult for future generations to use the land as collateral or realize its full economic potential.

Concerns remain about these about long-term implications of perpetual, rather than term, easements. Easements, particularly those in perpetuity, can "fix" the definition of agricultural use at the time the easement is created. This can become problematic as agricultural practices evolve, technologies advance, and market demands shift. Just as the County Board cannot commit future elected officials to a decision, there are concerns with current land owners tying the hands of future land owners.

Review Process

The *Clay County Zoning Regulations* Section 521 currently requires a Conditional Use Permit for recreation, preservation, conservation, and open space easements in the agricultural zoning district. Nebraska Revised States §76-2,111 *et seq.* (Reissue 1997) sets out a process for review of conservation easements under the Conservation and Preservation Easements Act.

- "Conservation Easement" is defined as "an easement, restriction, covenant, or condition...in real property" protecting "natural, scenic, or open condition, assuring its availability for agricultural, horticultural, forest, recreational, wildlife habitat, or open space use, protecting air quality, water quality, or other natural resources..."
- "Preservation Easement" is defined similarly, to protect "historical, architectural, archaeological, or cultural aspects of real property..."

§76-2,112(3) requires "each conservation or preservation easement shall be approved by the appropriate governing body." If the property in question is partially or entirely within a city or village ETJ, then the city or village is the governing body for this review.

The process outlined is:

1. The governing body refers the proposed easement to the local planning commission with jurisdiction over the property.
2. The Planning Commission has 60 days to provide comments regarding the conformity of the easement to the comprehensive plan.
3. The governing body shall receive the comments of the local planning commission.

Approval of a proposed easement may only be denied upon a finding of fact the acquisition is "not in the public interest" when:

1. A comprehensive plan for the area which had been officially adopted and was in force at the time of the conveyance, or
2. Any national, state, regional, or local program furthering conservation or preservation, or
3. Any known proposal by a governmental body for use of the land.

Any state agency can accept a conservation or preservation easement after soliciting comments from the local planning commission, without approval by the local governing body. Federal easements are not subject to local approval.

These issues require careful consideration of future land use impacts. For the purposes of this comprehensive plan, the following review criteria may be considered:

1. Agricultural easements protect and enhance farming and ranching operations and property rights as they currently exist. These activities are generally by-right under the zoning ordinance, and these easements should be considered conforming to the *Clay County Comprehensive Plan*.

2. Wildlife and land or water easements generally restrict use of land. While the property owner is voluntarily separating their bundle of private property rights, taking land out of production also impacts the agricultural economy and property values. Potential impacts of these easements on adjacent property should be reviewed for the public record.
3. The alternative to an easement may be fee simple acquisition by a private non-profit entity or a governmental body, or development of the property. A conservation or preservation easement may have lesser community impacts than fee simple acquisition.

Review of a conservation easement must be based in a substantial evidentiary record. Planning Commission comments must be made in writing. Nebraska Statutes specify "comments", not necessarily a recommendation. As well, the governing body's decision must be supported by evidence received. In the case of a decision to deny acquisition of an easement, there must be a clear statement of reasoning citing the criteria in statute, and how the proposed easement fails to meet the criteria.

The Planning Commission will want to monitor trends in land values, conservation easement terms, and fiscal impacts to public agencies going forward, as well as impacts on future land use policy.

Conservation Reserve Program

The Conservation Reserve Program (CRP) is a federal program overseen by the United States Department of Agriculture Farm Service Agency (FSA) paying a yearly rental payment in exchange for farmers removing environmentally sensitive land from agricultural production and planting species which will improve environmental quality.

Landowners can learn how CRP can increase their income with flexible programs fitting their land and operations by visiting their local USDA Field Office or talking with a Nebraska Game and Parks Commission or Pheasants Forever biologist. Biologists provide free one-on-one technical assistance.

Source: outdoornebraska.gov/crp



Conservation property, rural Clay County
Source: Marvin Planning Consultants

NATURAL RESOURCES GOALS, POLICIES, AND ACTIONS

NRE Goal 10.1

Clay County continues to protect groundwater quantity and quality.

Policies

10.1.1 Development projects should demonstrate availability of domestic water supply.

10.1.2 Development projects should maintain adequate lot size for well and septic service if not connected to urban services.

Actions

10.1.3 Work with water providers to assure the quantity and quality of domestic water supply.

10.1.4 Support access to agricultural water resources.

10.1.5 Assist property owners in conforming with State regulations for onsite wastewater treatment systems (OWTS).

NRE Goal 10.2

Watersheds and surface water are properly managed and protected.

Actions

10.2.1 Work with NRD on implementation of water management plans.

NRE Goal 10.3

Wetlands are protected to the extent required by Federal law.

Actions

10.3.1 Work with NDEE to maintain conformance with state and federal wetland regulations.

NRE Goal 10.4

Soils are protected from degradation and erosion.

Actions

10.4.1 Work with NRCS on prevention of soil erosion.

NRE Goal 10.5

Commercial crop and animal agriculture remains a viable, long-range land use.

Policies

10.5.1 Development projects shall mitigate impacts on agriculture and prime farmland.

Actions

10.5.2 Regularly review and update land use regulations for impacts on agricultural operations and structures.

10.5.3 Prioritize siting of infrastructure to avoid impacts on prime farmland.

10.5.4 Support farmland access and succession planning.

NRE Goal 10.6

Private property rights are protected for long-term land use flexibility.

Policies

10.6.1 Empower landowners and taxpayers for long-term viability of land subject to conservation easements.

Actions

10.6.2 Consider impacts of conservation easements on long-term agricultural operations.

10.6.3 Discourage perpetual conservation easements due to long-term impacts, in favor of mechanisms for modification or amendment in response to unforeseen changes.

10.6.4 Ensure easement deeds precisely articulate specific conservation values being protected and establish clear, measurable objectives for their preservation.

10.6.5 Promote thorough due diligence and education for landowners on conservation easements.

10.6.6 Facilitate communication and partnership between landowners and easement holders.

CLAY COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FIG 10.5: WELLHEAD PROTECTION AREAS

Hall County
Hamilton County
York County
Adams County
Fillmore County
Webster County
Nuckolls County
Thayer County
Trumbull
Harvard
Inland
Saronville
Sutton
Hastings
Glenvil
Fairfield
Clay Center
MARC
Edgar
Ong
Deweese
6
14
41
74
18D
18E
18C

LEGEND

- Highways
- Railroad
- Naval Ammunition Depot
- Clay County 1-Mile ETJs
- Hastings 2-Mile ETJ
- Municipal Limits
- County Boundaries
- Parcels
- Sections
- MARC
- Wellhead Protection Area

N

MARVIN PLANNING CONSULTANTS
Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 9.16.25

0 0.75 1.5 3 Miles

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

CLAY COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FIG 10.6: NATIONAL WETLAND INVENTORY

Hall County
Hamilton County
York County
Trumbull
Harvard
Sutton
Saronville
Inland
Hastings
Adams County
MARC
18D
Clay Center
Fillmore County
Glenvil
18E
Fairfield
Ong
Edgar
18C
Deweese
Webster County
Nuckolls County
Thayer County

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

LEGEND

- Highways
- Railroad
- Naval Ammunition Depot
- Clay County 1-Mile ETJs
- Hastings 2-Mile ETJ
- Municipal Limits
- County Boundaries
- Parcels
- Sections
- MARC
- Wetlands

N

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PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 9.16.25

0 0.75 1.5 3 Miles

CLAY COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FIG 10.7: GENERAL SOILS

Hall County
Hamilton County
York County
Trumbull
Harvard
Sutton
Saronville
Inland
Hastings
Adams County
MARC
18D
Clay Center
Fillmore County
Glenvil
18E
Fairfield
Ong
Edgar
18C
Dewease
Webster County
Nuckolls County
Thayer County
14
6
74
41

LEGEND

- Highways
- Railroad
- Naval Ammunition Depot
- Clay County 1-Mile ETJs
- Hastings 2-Mile ETJ
- Municipal Limits
- County Boundaries
- Parcels
- Sections
- MARC

N

MARVIN PLANNING CONSULTANTS
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PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 9.16.25

0 0.75 1.5 3 Miles

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Figure 10.7B: General Soils Legend

Soil Type

- Aquolls
- Arents, earthen dam
- Butler silt loam, 0 to 1 percent slopes
- Cass fine sandy loam, overwash, occasionally flooded
- Cass loam, occasionally flooded
- Cass silt loam, occasionally flooded
- Crete silt loam, 0 to 1 percent slopes
- Crete silt loam, 1 to 3 percent slopes
- Crete silt loam, thick solum, 0 to 1 percent slopes
- Fillmore silt loam, drained, 0 to 1 percent slopes
- Fillmore silt loam, frequently ponded
- Geary silt loam, 11 to 30 percent slopes
- Geary silt loam, 3 to 7 percent slopes
- Geary silt loam, 7 to 11 percent slopes
- Geary silty clay loam, 11 to 17 percent slopes, eroded
- Geary silty clay loam, 3 to 7 percent slopes, eroded
- Geary silty clay loam, 7 to 11 percent slopes, eroded
- Geary-Hobbs silt loams, 0 to 30 percent slopes
- Gravel pit
- Hall silt loam, 0 to 1 percent slopes
- Hastings silt loam, 0 to 1 percent slopes
- Hastings silt loam, 1 to 3 percent slopes
- Hastings silt loam, 3 to 7 percent slopes
- Hastings silty clay loam, 3 to 7 percent slopes, eroded
- Hastings silty clay loam, 7 to 11 percent slopes, erodec
- Hobbs silt loam, channeled, frequently flooded
- Hobbs silt loam, occasionally flooded
- Holder silt loam, 3 to 7 percent slopes
- Holder silt loam, 7 to 11 percent slopes
- Holder silty clay loam, 3 to 7 percent slopes, eroded
- Holder silty clay loam, 7 to 11 percent slopes, eroded
- Holdrege silt loam, 0 to 1 percent slopes
- Hord silt loam, 0 to 1 percent slopes, warm
- Hord silt loam, 1 to 3 percent slopes
- Massie silty clay loam, frequently ponded
- Meadin sandy loam, 2 to 30 percent slopes
- Miscellaneous water, sewage lagoon
- Sanitary landfill
- Scott silt loam, frequently ponded
- Uly silt loam, 11 to 17 percent slopes, eroded
- Uly silt loam, 11 to 30 percent slopes, eroded
- Uly-Hobbs silt loams, 0 to 30 percent slopes
- Water

CLAY COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FIG 10.8: PRIME FARMLAND

Hall County
Hamilton County
York County
Adams County
Webster County
Nuckolls County
Thayer County
Fillmore County

Trumbull
Harvard
Inland
Saronville
Sutton
Hastings
MARC
Clay Center
Glenvil
Fairfield
Edgar
Ong
Deweese

14
6
41
74
18D
18E
18C

LEGEND

- Highways
- Railroad
- Naval Ammunition Depot
- Clay County 1-Mile ETJs
- Hastings 2-Mile ETJ
- Municipal Limits
- County Boundaries
- Parcels
- Sections
- MARC

Rating

- All areas are prime farmland
- Prime farmland if drained
- Not prime farmland

N

MARVIN PLANNING CONSULTANTS
Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 9.16.25

0 0.75 1.5 3 Miles

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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Chapter Eleven
Hazard Mitigation

Hazard Mitigation is intended to help eliminate risks caused by natural and man-made hazards and disasters. Hazard mitigation plans provide a framework for decision-making throughout the community.

The incidence of hazards and potential damage caused can be avoided, or at least lessened, with thoughtful land use and development practices. Hazard mitigation informs the entire emergency management cycle (*see Chapter Eight Public Safety*).

This chapter summarizes findings of the *Little Blue NRD and Lower Big Blue NRD Hazard Mitigation Plan* (2021), and references resources for mitigation planning. The Federal Emergency Management Agency (FEMA) requires hazard mitigation plans be updated every five years to reflect changing conditions. This Comprehensive Plan should itself be updated to reflect any changes in the hazard mitigation plan.

HAZARD MITIGATION PLAN

The *Little Blue NRD and Lower Big Blue NRD Hazard Mitigation Plan* was updated in 2021 by JEO Consulting Group, and approved by FEMA in compliance with requirements of the Disaster Mitigation Act of 2000. Developing a hazard mitigation plan is not only good public policy for a resilient community, but participation in and adoption of a hazard mitigation plan is also required to become eligible for certain federal funding sources.

Little Blue Natural Resources District (NRD) and Lower Big Blue NRD sponsor the hazard mitigation plan process as independent jurisdictions. Clay County participated in the 2021 update, along with the municipalities of:

- City of Clay Center
- Village of Deweese
- City of Edgar
- City of Fairfield
- Village of Glenvil
- Village of Ong
- Village of Saronville
- City of Sutton
- Village of Trumbull

The hazard mitigation plan includes goals, objectives, and action items, including:

- Goal 1: Protect the health and safety of the public
- Goal 2: Protect critical facilities, critical infrastructure, and maintain their operation after a hazard
- Goal 3: Protect existing properties and natural resources
- Goal 4: Promote multi-agency coordination and resources

Hazard Risk Assessment

The hazard mitigation plan identified historical incidents of different hazards in a risk assessment by county. From 1996 to 2020, Clay County experienced the following hazard events, as documented by the NCEI Storm Events Database:

- Agricultural Disease: 46 incidents
- Dam Failure: 0 events
- Drought: 493 of 1,504 months
- Earthquakes 0 events
- Extreme Heat: Average 3 days per year
- Flooding: 7 flash flood and 5 general flood events
- Grass/Wildfire: 122 incidents affecting 1,983 acres
- Hazardous Materials: 6 chemical spills
- Levee Failure (none)
- Public Health Emergency: 11 deaths
- Severe Thunderstorms: 188 incidents of hail, plus heavy rain, lightning, and wind
- Severe Winter Storms: 11 blizzard events, plus extreme cold, heavy snow, ice and winter storms
- Terrorism: 0 events
- Tornadoes and High Winds: 16 tornadoes and 19 high wind events.

As noted in Chapter 9, On July 29, 2023, Sutton was hit by an EF-1 tornado. The National Weather Service estimated peak winds of 110 mph.

Priority Hazards

Each participating entity ranked hazards with the potential to affect the specific jurisdiction.

Clay County

Flooding
Grass/Wildfire
Hazardous Materials
Severe Thunderstorms
Severe Winter Storms
Tornadoes and High Winds

Clay Center

Agricultural Animal & Plant Disease
Severe Thunderstorms
Tornadoes and High Winds

Deweese

Severe Thunderstorms
Severe Winter Storms
Tornadoes and High Winds

Edgar

Hazardous Materials
Severe Thunderstorms
Tornadoes and High Winds

Fairfield

Flooding
Hazardous Materials
Severe Thunderstorms
Tornadoes and High Winds

Glenvil

Agricultural Animal & Plant Disease
Grass/Wildfire
Hazardous Materials
Tornadoes and High Winds

Ong

Grass/Wildfire
Hazardous Materials
Severe Thunderstorms
Severe Winter Storms
Tornadoes and High Winds

Saronville

Drought and Extreme Heat
Severe Thunderstorms
Severe Winter Storms
Tornadoes and High Winds

Sutton

Flooding
Levee Failure
Severe Thunderstorms
Tornadoes and High Winds

Trumbull

Hazardous Materials
Severe Thunderstorms
Severe Winter Storms
Tornadoes and High Winds

The following narrative is taken directly from the hazard mitigation plan's Clay County Community Profile:

Flooding

Clay County's main concern for flooding is in the area north of Highway 6. The waterways of most concern are School Creek near Sutton, the West Fork of the Big Blue River near Trumbull, and Little Sandy Creek. Creeks often cause problems for roads during heavy rain events and thunderstorms in the area have produced four to five inches of rain in the past.

In June 2015, flooding caused $600,000 in road and culvert damage throughout the county. The March 2019 flood produced minor flood damages in the county, particularly to county roads and agricultural land.

The county indicated historical changes in agricultural practices have contributed to flood risk. A new "no till" practice allows water to wash into overfilled culverts. Culverts are also regularly clogged with agricultural debris. The Little

Sandy Creek has silted in and vegetative growth has blocked the channel north of Clay Center in the right of way of Highway 14. During heavy rain events this area becomes inundated and flow is restricted. This impacts residences, businesses, and the storm drains for the City of Clay Center which have backed up. Damages to this system also cause rusting pipes to burst, create geysers, and wash out areas. break through the rusting pipes creating geysers and wash outs.

The County is currently working towards putting box culverts and bigger culverts where possible. The County does currently participate in the NFIP. The Upper Little Blue watershed and the West Fork Big Blue watershed are currently working to update maps as a part of a NeDNR Risk Map process. The DNR is the lead contractor on this project and are conducting new flood map studies for Clay County.

Grass/Wildfire

Grass fires and wildfires are major concerns for the county, especially during drought periods. Access to water is a particular concern, as a rolling grass fire being pushed by winter requires six to eight firefighters to extinguish, who must drive up to 15 miles to refill their tankers. The county has expressed interest in developing four wells for water access for tankers in strategic areas around the county. Also concerning to the county are problems with the ability of firefighters to communicate during operations and residents who inadvertently start fires in shelter belt areas.

Improvements in the floodplain

There were 341 improved structures located in Clay county's mapped floodplain—approximately 13% of all improvements in the County—with a value of almost $40 million. (JEO Consulting group analysis)

A fire in 2013 burned six square miles of grass and cropland, pushed by 45 mph winds. Fires in 2012, near the golf course, reached seven miles wide and was exacerbated by 55 mph winds. The most significant fire events burned 408 acres in 2017 when powerlines sparked a fire during dry conditions and a lightning sparked fire in 2000 which burned 200 acres and caused $28,000 in property damages.

The County LEOP has designated evacuation routes, although there was some concern the public may not be aware of what the routes are. Villages, towns, and cities have their own fire departments, with 20 personnel in Clay Center, five in Dewesse, 25 in Edgar, 10 in Fairfield, 22 in Harvard, three in Marshall Township, 25 in Sutton, and 10 in Trumbull.

The county has gas rigs and truckers, but some are old and are a minor concern, as weight limits on some roads will not support certain types of large fire equipment. The county does not have a Wildland Urban Interface Code, and property owners in the county are not encouraged or required to have defensible space around structures. There are no incentive programs for landowners to use ignition-resistant material during construction.

Hazardous Materials

Clay County has experienced ammonia tank leaks in recent years, and four trail derailments in the past 20 years which includes tanks leaking chemicals in the middle of fields. Also, in 2014, a truck spilled 100 gallon of diesel fuel in a ditch. Transportation routes in the county are heavily traveled and often see large loads of hazardous materials. Communities in Clay County are clustered around main corridors and spill events can put these communities at risk. The City of Harvard passed an ordinance in fall 2020 to prevent new anhydrous plants or storage locations from being constructed within the city.

Railroads, and Highways 6 and 74 are the main routes of concern for leaks or spills of transported chemicals. The intersection of Highway 14 with Highway 6, Highway 41, and Highway 74 are not wide enough for the smooth and effective movement of wind turbine blades being transported through the county. During transport, roadways can be blocked or delayed and transportation incidents involving hazardous materials are a concern for the local planning team. Overall, two railroads and four major highways transit the county, with several loads of chemicals and agricultural products passing through communities daily. Many of these cities and villages would be affected if a rail car or other vehicle experienced a major release.

Other concerns exist for waterways in the county which feed directly in river systems or transportation corridor access issues. Detours in the county can add additional hours to traveling residents' trips. Additional traffic detours from highways onto county roads also damage roads. The County's 911 Committee has developed new protocols for hazmat calls to utilize mutual aid agreements. In case of a major incident, the county would need to summon the Nebraska Hazardous Incident Team (NHIT) and/or State Emergency Response Team (SERT) for assistance. The planning team noted an emergency exercise is currently being planned for early 2021.

Severe Thunderstorms

Clay County frequently experiences damaging storms – at least three to five major storms per year, the county reports. Hail in particular is a major concern. A storm with 90 mph winds struck Ong on May 27, 2013, causing $6 million in damage and destroyed 45% of the county's crops. Another storm which struck Edgar on August 1, 2013 with 80 mph winds and half-dollar to golf ball size hail caused more than $3 million in damage, and possibly several million dollars more in crop damage. Other storms affecting Inland, Trumbull, and Fairfield on June 14, 2014 generated 80 mph winds and golf ball size hail, and caused more than $1.2 million more in damage. In 2015, 15-20% of the county's crops were destroyed by a hail event and a straight line wind storm in 2019 reported winds in excess of 100 mph across the county. Severe property damages included roofs, walls, doors collapsed on warehouses, crop and tree damage was extreme. Power loss occurred throughout the county due to downed power lines.

While the majority of farmers do have crop insurance, this insurance does not allow any farmers to make a profit, and as such economic impacts are of high concern. Following hail events, the USDA and the Nebraska extension office conduct crop damage estimates. Recent storm damage in the county has included damage to buildings, power outages lasting up to three days, major tree damage, and a destroyed grain elevator.

The county's main concerns about this hazard are the economic impacts, damage to crops, not having enough crews to quickly restore electric power and clean up, and the safety of people inhabiting old buildings, which may especially be prone to storm damage. There are four county owned facilities in Clay Center: the Highway Department, Sheriff's Office, courthouse, and Weeds Superintendent Building. The county has five maintainer sheds in villages around the county which house snow removal equipment.

Some county critical records are backed-up by an on-site server in the courthouse, but not all of the country's critical records are backed-up, or surge -protected. About five percent of the power lines in the county are buried underground. The new county office complex has a generator in case of power outages, as do the sheriff's office, jail, and public safety answering points (PSAPs). There are hazardous trees in the county needing removal. County critical facilities have weather radios.

Severe Winter Storms

The county's main concerns regarding winter storms are the potential for power outages, losses of livestock, and caring for the elderly or people with medical needs who may be negatively impacted by the loss of power or mobility. There are no hospitals in the county and during winter storms visibility is poor, endangering residents when traveling out of the county. Past events have stranded motorists which required assist. Power outages last three to four days on average, although they may be up to a week in some places. The most recent long-term power outages occurred in 2005 and 2007. The courthouse and sheriff's office have suffered roof damage from winter storms in recent years.

The county clears snow from gravel roads, while the state clears 80 percent of the asphalt roads (Highways 41, 74, and 14) in the county. The county's highway department clears about 30 miles of roads (along state highways), while individual villages and cities are responsible for clearing their own roads. The county owns blades on front of 10-ton dump trucks, and maintainers, and is in the process of updating of the snow removal trucks located in the maintainer sheds around the county. These resources are sometimes insufficient for snow removal. In 2005, the county had to employ contractors following a severe ice storm, to clear the roads within three days. The county is currently leasing the old potion of the middle school to serve as

another county office, and has purchased a generator for this facility. The county uses snow fences along major intersections. There are no designated snow routes in the county. Fewer than 10 percent of the power lines in the county are buried. The county has identified the need to update ambulances with more reliable units.

Tornadoes and High Winds

Clay County has experienced 16 confirmed tornadoes since 2000, with notable events including the May 11, 2014 event in which an EF-3 tornado struck Fairfield and caused $12.5 million in damage; a May 27, 2013 EF-2 tornado which caused $4 million in damage in Edgar; a Spring Ranch F-2 tornado on May 22, 2004 which caused $4.5 million in damage; and an F-3 storm on September 22, 2001, which caused $1.25 million in damage in Edgar. Homes, farmsteads, irrigation pivots, power poles, outbuildings, a grain elevator, train cars, and other structures and property have been damaged or destroyed by high winds and tornadoes in Clay County. In 2013, tornado damage included damage to the roofs of the county courthouse and the sheriff's department.

County municipal records are backed-up on-site, in the county courthouse. Newer records are backed-up electronically, and older records are kept in a vault. The county does not have a community safe room, so residents must rely on their own or a neighbor's basement or storm shelter for safety. Another options is for residents to take shelter at one of the local churches, which sometimes open up to provide shelter. Clay County's emergency management agency does offer text alerts for severe weather, but due to staffing limitations, is not always able to do this during an emergency. The county promotes emergency preparedness in local communities by making presentations to community clubs, and by providing information about emergency preparedness at the county fair, and via local newspapers. The county has mutual aid agreements in place with Hastings and the South Central Nebraska Forest Service district. The local planning team noted concerns for tree damage due to lack of tree mitigation and care funding availability for communities.

Mitigation Strategy

The primary focus of the mitigation strategy is to identify action items to reduce the effects and impacts from the identified top hazards of concern per community. These action items should help reduce impacts on existing infrastructure and property in a cost effective and technically feasible manner. A variety of mitigation actions were considered in the mitigation plan development process. These range from adding additional personnel for emergency response and new alert sirens to zoning ordinance updates.

Actions to implement the Hazard Mitigation Strategy for Clay County are presented in Table 11.1. Each municipality which participated in the 2021 update to the hazard mitigation plan has its own mitigation strategy spelled out in the Clay County Appendix to the Hazard Mitigation Plan.

Plan Maintenance

The hazard mitigation plan should be reviewed and updated after major disaster events, and no longer than five years after adoption. The local planning team is responsible for reviewing and updating the hazard mitigation plan's community profile as changes occur or after a major event.

This comprehensive plan should also be reviewed regularly and updated when the hazard mitigation plan is revised.

TABLE 11.1A: HAZARD MITIGATION STRATEGY

Completed Mitigation Actions

MITIGATION ACTION	BACK-UP GENERATOR
DESCRIPTION	Provide a portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations, and other critical facilities and shelters. Obtain a backup power generator for Clay County Highway Department shop
HAZARD(S)	Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds
STATUS	A new backup generator has been purchased and installed at the 911 center.

Continued Mitigation Actions

MITIGATION ACTION	ALERT NOTIFICATION SYSTEM
DESCRIPTION	Install Reverse 911 System for Clay County 911 Center
HAZARD(S)	All hazards
ESTIMATED COST	$4,000/yr
FUNDING	Homeland Security Grant Program (HSGP) and local funds
TIMELINE	2-5 years
PRIORITY	High
LEAD AGENCY	EMA
STATUS	This project has been updated as the county works towards an E-911 project plan.

MITIGATION ACTION	ALERT SIRENS
DESCRIPTION	Perform an evaluation of existing alert sirens in order to determine sirens that should be replaced or the placement of new sirens
HAZARD(S)	All hazards
ESTIMATED COST	$15,000+
FUNDING	City and village revenue, HMGP, BRIC
TIMELINE	1 year
PRIORITY	High
LEAD AGENCY	Clay County EMA
STATUS	The county EM has delegated evaluation of sirens to appointed local Ems and Civil Defense members.

Source: Little Blue NRD and Lower Big Blue NRD Hazard Mitigation Plan (2021).

TABLE 11.1B: HAZARD MITIGATION STRATEGY

Removed Mitigation Actions

MITIGATION ACTION	BRIDGE REPLACEMENTS
DESCRIPTION	Conduct replacement of condemned Clay County Highway Department bridges (8-10)
HAZARD(S)	Flooding
REASON FOR REMOVAL	This project was identified as no longer a priority for the county.

MITIGATION ACTION	NFIP CONTINUATION AND ENFORCEMENT
DESCRIPTION	Enforcement of floodplain management requirements, including regulating new construction in Special Flood Hazard Areas (SFHAs).
REASON FOR REMOVAL	While the county will continue to participate in the NFIP, this is no longer considered a mitigation action by FEMA. Enforcement of floodplain policies is required as part of ongoing codes.

MITIGATION ACTION	SAFE ROOMS
DESCRIPTION	Design and construct safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, schools, and other areas.
HAZARD(S)	Severe Thunderstorms, Severe Winter Storms, Tornadoes and High Winds
REASON FOR REMOVAL	This project was removed as it was not adopted at the local level.

MITIGATION ACTION	WATER SYSTEM IMPROVEMENTS
DESCRIPTION	Water system improvements to include additional fire hydrants to increase supply and pressure.
HAZARD(S)	Grass/wildfire
REASON FOR REMOVAL	This project was identified as no longer a priority.

Source: Little Blue NRD and Lower Big Blue NRD Hazard Mitigation Plan (2021).

FLOODPLAIN ADMINISTRATION

The Clay County Zoning Administrator also serves as Floodplain Administrator for Clay County. The Administrator works with the NRD and FEMA to keep Clay County's floodplain development regulations up to date with changing state and federal requirements.

NATIONAL FLOOD INSURANCE PROGRAM

Clay County has met the minimum requirements of the National Flood Insurance Program with several options in the regulations to better assure safety of life and property in the floodplain. The initial Flood Hazard Boundary Map for Clay County was identified on 11/08/1977. The Initial Flood Insurance Rate Map (FIRM) for Clay County became effective 9/01/1986, and the currently in effect map 7/05/2018, subject to map amendments and revisions.

All of the municipalities in the county participate in the NFIP except for the City of Fairfield, and the villages of Deweese, Ong, and Saronville. Fairfield was sanctioned by FEMA in 1976. Deweese was sanctioned in 1975. Trumbull was sanctioned in 2000. The cities and villages administer their own floodplain regulations and development permits.

A drainage-wide floodplain study is under way for this area. This effort will likely result in a comprehensive update of the FIRMs.

RESOURCES

FEMA and the American Planning Association work together to provide resources to communities for hazard mitigation planning. Their report *Hazard Mitigation: Integrating Best Practices into Planning* (2010), identifies effective multi-jurisdictional hazard mitigation strategies and tools based on a series of case studies for large and small towns and rural jurisdictions across the United States.

In 2020, the APA adopted a Hazard Mitigation Policy Guide, which includes 13 Guiding Policies on hazard mitigation. The guide supplements and updates APA's earlier report, with a focus on recent severe hazard occurrences. Plans need to consider not just mitigation, but adaptation to changing conditions and situations.

Source: www.planning.org/nationalcenters/hazards

HAZARD MITIGATION GOALS, POLICIES, AND ACTIONS

MITIGATION GOAL 11.1

Clay County and its communities provide adequate support for goals and objectives of the hazard mitigation plan.

ACTIONS

11.1.1 See Table 11.1.

MITIGATION GOAL 11.2

Clay County and its communities maintain (or come into) conformance with the National Flood Insurance Program (NFIP).

ACTIONS

11.2.1 Work with municipalities to mitigate flood hazards and assure conformance with NFIP requirements.

11.2.2 The Floodplain Administrator should work with the NRD on updated floodplain mapping for the county and municipalities.

11.2.3 The County Board should support participation by the Floodplain Administrator in specialized training opportunities for flood mitigation and floodplain administration.

CLAY COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FIG 11.1: FLOODPLAIN

Hall County
Hamilton County
York County
Trumbull
Harvard
Saronville
Sutton
Inland
Hastings
Adams County
MARC
Clay Center
Fillmore County
Glenvil
Fairfield
Ong
Edgar
Deweese
Webster County
Nuckolls County
Thayer County

14
6
18D
41
18E
74
18C

LEGEND

- Highways
- Railroad
- Naval Ammunition Depot
- Clay County 1-Mile ETJs
- Hastings 2-Mile ETJ
- Municipal Limits
- County Boundaries
- Parcels
- Sections
- MARC

Floodplain

- 1% Annual Chance Flood Hazard
- 0.2% Annual Chance Flood Hazard

N

MARVIN PLANNING CONSULTANTS
Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 9.16.25

0 0.75 1.5 3 Miles

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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Chapter Twelve
Land Use

Land use is the primary focus of the Comprehensive Plan. This chapter provides a general guide for future decision making. The Clay County Comprehensive Plan is not regulatory; however, the plan reflects the community's goals and vision for the future. The comprehensive plan plays a fundamental role as the substantive basis for development regulations implementing the plan including zoning, subdivision, and floodplain management.

It is essential the Land Use element reflect the needs and preferences of Clay County's residents and property owners, while being clear about natural and man-made constraints on development. This chapter addresses the statutory requirements of the land use element, describes existing land use, and presents the future land use plan.

LAND USE ELEMENT

This chapter is intended to meet the requirements for a land-use element in Neb. Rev. Stat. §23-114.02, "which designates the proposed general distribution, general location, and extent of the uses of land for agriculture, housing, commerce, industry, recreation, education, public buildings and lands, and other categories of public and private use of land."

The land use element is based on an understanding of the distribution, location, and extent of different types of existing land use. The other elements presented so far in this plan, from demographics to natural resources, inform the analysis of existing land use to determine recommendations for the future land use plan.

EXISTING LAND USE

Land in Clay County is used for many different purposes. In terms of existing land use, the plan includes both the use of buildings and use of parcels of land. Land use is not zoning; this section discusses how land is currently being used, and policies for future land use over the next 20 years. This provides a basis for implementation, including regulation by the county-wide zoning ordinance.

Land is used for homes and businesses, but also for public and institutional uses—schools, churches, parks, and natural areas. Land use is constantly changing—this plan presents a snapshot in time of existing land use. A solid understanding of existing land use allows one to more carefully consider future land use needs.

Clay County's predominate land use is production agriculture and uses associated with agriculture. This includes approximately 5,000 acres of the U.S. Meat Animal Research Center (USMARC) on the old Naval Ammunition Depot west of Clay Center. In 2020, there were 10.6 residents per square mile countywide.

Clay County residents support their small towns. Respondents to the countywide survey disagree (46%) or strongly disagree (10%) that new business should be along highway corridors instead of the downtowns. The majority of existing housing, approximately 75%, is located within the county's cities and villages. However, there are many homes located on active farms and ranches, and some homes on small-acreage rural lots. As well, residents are skeptical of over-regulation beyond specifically addressing impacts on nearby neighbors.

The Marvin Planning Consultants team analyzed data provided by the Clay County Assessor's Office to produce base maps of every parcel of land in the unincorporated area of the county. After consulting satellite aerial mapping online, the team spot-checked land use with wind-shield surveys of actual land use. Draft maps were provided to the County Zoning Administrator to spot check and verify existing land uses. Every attempt was made to assure the Existing Land Use Map is as accurate as possible as of late 2023.

Overall, the development patterns in Clay County is influenced by topography, soils, water, and infrastructure including roads, power, water, and suitability for wastewater treatment. This is how all of the elements of the comprehensive plan come to implementation in land use policy.

Existing Land Use Categories

The most common land use patterns fall into several general categories. Some parcels may include multiple uses, in which case the primary use or use of the majority of the property is mapped. Some parcels are mixed use, in which case the primary use is mapped.

The utilization of land is best described in specific categories providing broad descriptions. For the purposes of the Clay County Comprehensive Plan, the following land use classifications are used:

- Agricultural
- Residential
- Commercial
- Industrial
- Parks/Recreation
- Public/Institutional
- Right-of-Way

Agricultural

Agricultural land use covers the wide variety of farming and ranching operations and farmsteads. This includes row crops, alfalfa, and pastureland, as well as animal feeding operations. Clay County is an agricultural-based county, accounting for the majority of land use. As discussed in Chapter 10, prime farmland is best suited to producing food, feed, forage, fiber, and oilseed crops—Agriculture should be considered the highest and best use for prime farmland in most cases. The majority of respondents to the countywide survey strongly agree (28%) or agree (42%)"Protecting farmland should be the County's top priority."

Some areas of vacant land without structures or other uses are included in this category although they may not be actively farmed. These parcels are more common closer to municipalities, typically being held in anticipation of future development. Every effort was made to distinguish the most current use of property on the existing land use map.

Residential

Residential land use in the county is mapped for small parcels used primarily for housing,. This includes small parcels separated from an agricultural operation, since they could be sold separately. These parcels may be acreage tracts or rural residential subdivision developments.

The countywide land use map presents single-family and multi-family dwellings in one residential category. Land use maps for individual municipalities would show a greater level of detail between single-family and multi-family units.

Commercial/Industrial

Commercial land use includes local retail and services facilities. This includes, for example, convenience stores or retail stores . Commercial uses tend to be located near urban areas or in proximity to major roads for accessibility.

Industrial land use includes both light and heavy industry, ranging from manufacturing to outdoor storage, grain elevators, and salvage yards. Industrial uses tend to have external effects on neighbors, including sight impacts, smells, and other noxious effects. Some industrial uses, such as outdoor storage and junk yards, are susceptible to pollution from runoff and may lead to blight conditions. These uses require careful siting to mitigate impacts on infrastructure and adjacent residents and property owners.

Parks/Recreation

Parks and Recreation land uses cover public parks, clubs, and dedicated open space. These are mostly passive recreation sites in rural areas.

Public/Institutional

Public and Institutional land use accounts for public property (other than parks and recreation or rights-of-way). Public land use includes municipal, county, state, and federal facilities. Institutional land use includes property typically eligible for exemption from taxation, such as churches, as well as non-profit organizations which may or may-not be taxed. The US Meat Animal Research Center is included in this category.

Right-of-Way

The right-of-way existing land use category accounts for highway, road, and railroad transportation corridor rights-of-way.

Physical Character of Clay County

The topography, hydrology, and soil types, as modified by infrastructure—roads, bridges, utilities—make up the physical character of Clay County. This provides the foundation for use of the land now and into the future.

Defining characteristics of the county include:

- Prime farmland, both irrigated and dryland
- Floodplains along School Creek near Sutton, the West Fork of the Big Blue River, and Little Sandy Creek
- US Highway 6 east-west highway corridor through Sutton and south of Saronville, Harvard, and Inland CDP
- Highway 14 north-south corridor.
- Highway 74 east-west corridor through Fairfield
- US Meat Animal Research Center (USMARC) public land between Clay Center and Hastings

FUTURE LAND USE PLAN

The Future Land Use Plan is the foundation of land use policy and regulations in the county. The Future Land Use Plan implements the goals and objectives of the residents and property owners of the county, as expressed in the Clay County Comprehensive Plan.

The Future Land Use Plan is based upon existing conditions and projected future conditions of the county. It both reflects those trends as well as assisting decision makers in determining the type, direction, and timing of future growth and development.

The Future Land Use Map illustrates the plan. Several factors contribute to this map:

- Current use of land within County jurisdiction, as well as any municipal land use plans
- Desired characteristics of growth
- Future development patterns
- Physical character and constraints of the land as well as infrastructure
- Population and economic trends affecting the county.

Extraterritorial Jurisdiction

Each of the incorporated communities in Clay County (as cities of the second class and villages) have the option to plan for and enforce land use regulations within one-mile of their corporate limits (see Neb. Rev. Stat. §17-1001 *et seq,):* "...the extraterritorial zoning jurisdiction of a city of the second class or village shall consist of the unincorporated area one mile beyond and adjacent to its corporate boundaries. "

The Village of Ong has not chosen to adopt zoning.

While municipalities have primary jurisdiction over unincorporated property within their ETJs, this plan is intended to work cooperatively towards mutual goals and objectives of Clay County and municipalities. The Clay County Board, cities, and villages, should continue to work together for the common benefit.

Agriculture General

General Purpose

The General Agriculture land use district provides for agricultural production. In this "ag first" district, agricultural activities should be given primary consideration. This area is intended for livestock production and feeding operations, as well as value-added agricultural processing and warehousing. Non-farm residential development is discouraged.







Compatible Uses

1. By-right Agricultural use, including
   - Agricultural uses, including crop and grazing lands
   - Irrigation facilities
   - Wholesale orchards, tree farms, plant nurseries, and vineyards
   - Non-commercial grain, hay, and produce storage
2. Livestock operations, within necessary setbacks
3. Commercial uses related to agriculture (such as grain storage and elevators, veterinary clinics, farm machinery repair, fertilizer plants, etc.) when odors and hazards are mitigated
4. Agri-Tourism activities (such as game farms, vineyards and wineries, etc.
5. Residential dwellings associated with an Agricultural use.
6. Single acreage development, including home occupations
7. Public facilities (such as road maintenance, fire stations, public utility substations, cemeteries, etc.)
8. Airports
9. Religious and educational facilities
10. Recreation facilities (such as golf courses, shooting ranges, wildlife areas, etc.)
11. Commercial sand and gravel mining
12. Communications towers and facilities, with public review
13. Renewable Energy facilities (Biomass, geothermal, solar, wind), within performance standards
14. Adult entertainment where appropriate

Incompatible Uses

1. Residential/Acreages not associated with a farming operation
2. Large commercial development

Issues

1. Groundwater / Rural Water availability
2. Suitability for onsite wastewater treatment systems (septic)
3. Proximity of conflicting uses such as acreages near livestock confinements, mining, renewable energy facilities, etc.
4. Conservation easements
5. Soil conditions, drainage, and wetlands
6. Flood hazard areas
7. Wellhead protection areas
8. Site access (public roads)

Special Policies

1. Minimum lot sizes should be kept at the lowest possible size accommodating both private water and onsite wastewater treatment systems (OWTS).
2. Residential densities no more than 4 dwelling units per 1/4 section of land, to allow for continued agricultural operations.
3. Separation distances should be applied to rural acreages and uses with off-site impacts.







Agriculture Transition

General Purpose

The Transitional Agriculture category represents the area where agriculture is protected, but may be limited due to proximity to cities and villages. This applies in particular to the area which would be in the Village of Ong ETJ if one were established, and may be appropriate around unincorporated townsites. This land use district is intended to allow development of non-ag uses while minimizing conflicts with agriculture.

Compatible Uses

1. By-right Agricultural use, including
   - Agricultural uses, including crop and grazing lands
   - Irrigation facilities
   - Wholesale orchards, tree farms, plant nurseries, and vineyards
   - Non-commercial grain, hay, and produce storage
2. Livestock operations (smaller-scale) within necessary setbacks
3. Commercial uses related to agriculture (such as grain storage and elevators, veterinary clinics, farm machinery repair, fertilizer plants, etc.) when odors and hazards are mitigated
4. Agri-Tourism activities (such as game farms, farmstands, vineyards and wineries, etc.),
5. Single acreage development, including home occupations
6. Public facilities (such as road maintenance, fire stations, public utility substations, etc.)
7. Religious and educational facilities
8. Recreation facilities (such as golf courses, shooting ranges, wildlife areas, etc.)
9. Commercial sand and gravel mining
10. Communications towers and facilities, with public review
11. Renewable Energy facilities, within performance standards
12. Adult entertainment where appropriate

Incompatible Uses

1. Large scale residential development
2. Larger livestock operations which cannot mitigate odor impacts
3. Large commercial development

Issues

1. Groundwater / Rural Water / Municipal water availability
2. Suitability for onsite wastewater treatment systems (septic)
3. Proximity to existing livestock confinements, mining, renewable energy facilities, etc.
4. Natural amenities such as trees, ponds, and streams
5. Conservation Easements
6. Soil conditions, site drainage, and wetlands
7. Flood hazard areas
8. Wellhead protection areas
9. Site access (public roads)

Special Policies

1. Lot sizes may vary depending upon the source of potable water and OWTS/sewer service.
2. Residential densities no more than 4 dwelling units per 1/4 section.
3. Cluster developments should be considered and used whenever soils, topography, natural amenities warrant.
4. Separation distances should be applied to rural acreages and uses with off-site impacts.

TOWNSITE

General Purpose

The Townsite land use category is intended for areas in the county where small lots were created long ago at the unincorporated townsites of Eldorado, Inland, and Verona. The category is considered a mixed-use district allowing single-family and multi-family residential, commercial, and small-scale industrial uses to continue in these small communities.

Compatible Uses

1. Residential development
2. Mixed-use development
3. Small-scale commercial
4. Light industrial and warehousing
5. Public facilities (such as road maintenance storage, fire stations, public utility substations, etc.)
6. Religious and educational facilities
7. Home occupations
8. On-Site Renewable Energy facilities, within performance standards

Incompatible Uses

1. Major agricultural operations
2. Livestock operations
3. Large commercial development

Issues

1. Groundwater / Municipal water availability
2. Suitability for onsite wastewater treatment systems (septic)
3. Lot size
4. Natural amenities such as trees, ponds, and streams
5. Site drainage and wetlands
6. Flood hazard areas
7. Wellhead protection areas
8. Site access (public roads)

Special Policies

1. Lot size may vary depending upon the source of drinking water and OWTS/sewer service.
2. Residential densities within this land use category should be limited to legal lots existing at the time of adoption of zoning, until and unless community water and sewer service is provided.
3. Cluster development should be considered whenever soils, topography, natural amenities warrant.















COMMERCIAL/INDUSTRIAL

General Purpose

The Commercial/Industrial land use district is intended to accommodate a flexible blend of commercial and industrial uses, while minimizing potential conflicts. These uses are primarily located on the old Naval Ammunition Depot along US Highway 6, east of Hastings.

Compatible Uses

1. General commercial uses, providing goods and services to local communities
2. Manufacturing and warehousing (including value-added agricultural processing)
3. Commercial grain storage and processing, bulk fertilizer and fuel plants, livestock auction barns, veterinary clinics, etc. when off-site impacts and hazards are mitigated
4. Auto/truck and farm machinery/vehicle sales and service
5. Agri-Tourism activities (such as farmstands, vineyards, etc.)
6. Accessory residential uses (such as caretakers)
7. Public facilities (such as road maintenance, fire stations, public utility substations, community centers, etc.)
8. Religious and Educational uses and structures
9. On-Site Renewable Energy facilities, within performance standards
10. Off-site commercial advertising (billboards)
11. Adult entertainment where appropriate

Incompatible Uses

1. Livestock operations
2. Residential development

Issues

1. Groundwater / Municipal water availability and connections
2. Suitability for onsite wastewater treatment systems (septic)
3. Topography
4. Site drainage and wetlands
5. Flood hazard areas
6. Wellhead protection areas
7. Environmental effects of outdoor storage
8. Access to State highways

Special Policies

1. Minimum lot size based upon adequate space for vehicular movement, parking, and drinking water/wastewater treatment.
2. Developments of one acre or more may be required to meet the standards of NPDES permitting.
3. Developments which create more than a 5% increase in runoff may be required to construct a detention basin to control runoff.
4. General commercial retail and services should be encouraged to locate in local municipalities with infrastructure.

Parks/Recreation

General Purpose

The Parks and Recreation land use district provides for parks and recreation land uses. In the unincorporated county, these tend to be larger tracts such as wildlife management areas.





Compatible Uses

1. Local and County parks and recreation areas
2. Golf courses and accessory uses
3. Non-profit conservation lands
4. State and Federal recreation and wildlife management areas.

Incompatible Uses

1. Larger livestock operations which cannot mitigate odor impacts
2. Large commercial development
3. Industrial development

Issues

1. Conservation easements may have long-term impacts on property tax revenues.
2. Considerations for drinking water/wastewater treatment.

Public/Institutional

General Purpose

The Public and Institutional district provides for public land use. In the unincorporated county, these tend to be larger facilities owned and operated by a public or non-profit entity.







Compatible Uses

1. Local and County buildings and facilities
2. State and Federal buildings and facilities.
3. Non-profit buildings and facilities
4. Agricultural experiment stations and associated facilities

Incompatible Uses

1. Larger livestock operations which cannot mitigate odor impacts

Issues

1. Public and non-profit land holdings may have long-term impacts on property tax revenues.
2. Considerations for drinking water/wastewater treatment.



Wellhead Protection Areas (Overlay)

General Purpose

Wellhead Protection Areas are established for the protection of public water supplies. These areas are identified to inform zoning and land use development decisions.

As noted in Chapter 10, eight municipalities in Clay County have an approved Wellhead Protection Plan (WHP), as of mid-2024:

- City of Clay Center
- Village of Deweese
- City of Edgar
- City of Fairfield
- Village of Glenvil
- City of Harvard
- Village of Ong
- City of Sutton

Each municipality or other publicly-owned water supply system shall execute an interlocal agreement with Clay County for administration of regulations within the Wellhead Protection Overlay District, incorporated into the zoning ordinance.

Compatible Uses

1. Determined by underlying zoning, with certain exceptions

Incompatible Uses

1. Common potential groundwater contaminant sources (agricultural, commercial, industrial)
2. Confined Animal Feeding Operations (CAFOs)
3. Landfills and refuse recycling centers



Airport Hazard Area (Overlay)

General Purpose

Airport hazard areas recognize the need to protect aircraft and land use in airport approach paths. This area is identified to inform zoning and land use development decisions.

As describe in Chapter 13 Transportation, the Harvard State Airport is located north of the City of Harvard in unincorporated Clay County. The Federal Aviation Administration (FAA) establishes requirements for construction near airports.

Compatible Uses

1. Determined by underlying zoning
2. Uses which can coexist with aviation noise and navigation airspace (14 CFR Part 77 "imaginary surfaces")

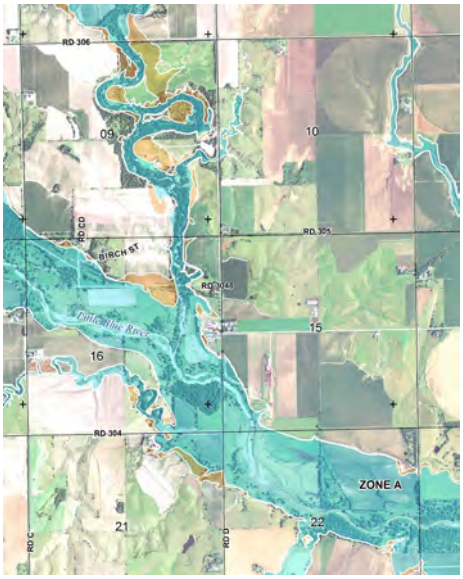
Incompatible Uses

1. Towers and other large structures with the potential to create hazards to aircraft.
2. Visual obstructions such as open mining which produce dust, or uses creating glare and light emissions (including LED-illuminated billboards)
3. Wildlife and bird attractants
4. Residential development
5. Dense commercial development

Flood Hazard Areas (Overlay)

General Purpose

Flood Hazard Areas represent the regulatory floodplain as designated on FEMA's Flood Insurance Rate Maps (FIRMs), discussed in Chapter 11 Hazard Mitigation. Developers and residents should be aware flooding can (and does) occur outside of the mapped flood hazard area.



Compatible Uses

1. Determined by underlying zoning, in accordance with the adopted floodplain management ordinance
2. Passive parks, recreation, and open space
3. Drainage and stormwater impoundments

Incompatible Uses

1. Damage-prone development susceptible to damage by flooding or flood-related hazards.
2. Storage and use of hazardous materials, such as gasoline, pesticides, and chemicals.
3. Development which would impede water flow in the effective floodway.

Issues

1. New construction and substantial improvement requires structures to be brought into conformance with FEMA standards, as specified in the floodplain management ordinance.
2. Agricultural structures may be treated differently than residential and commercial structures.

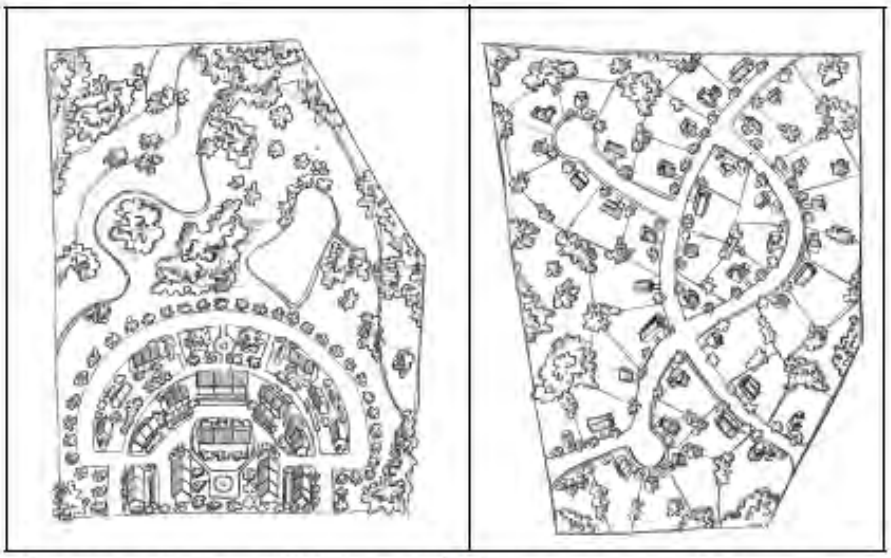
Future Land Use Categories

The future land use areas mapped include the categories of existing land use, and broad areas reflecting policy direction.

Future land use categories include:

- Agriculture General
- Agriculture Transition
- Townsite
- Commercial/Industrial
- Parks/Recreation
- Public/Institutional
- Wellhead Protection Overlay
- Airport Hazard Area Overlay
- Flood Hazard Area Overlay

The Future Land Use Plan is intended to be a general guide to future land uses balancing private sector development with the public interest, so the Clay County Board of Supervisors and other stakeholders can effectively and efficiently deliver public services to all citizens of Clay County.



Conservation subdivisions (left) feature smaller lots with a high percentage of open space. Conventional subdivisions (right) feature large lots with little common open space. A conventional subdivision is subject to all of the base zoning district standards, such as minimum lot size, front setbacks, landscaping, and adequacy of public facilities.

Source: Robert H. Freilich and S. Mark White, 21st Century Land Development Code, APA Planners Press, 2008.

COMMUNITY CHARACTER

Conservation Development

Conservation development is a customized approach to residential or commercial subdivision of land, where parcels are clustered into a smaller area to conserve agricultural or natural areas. Conserved areas may be prime farmland, wetlands and floodplains, or areas with steep slopes or soils unsuitable for building. The smaller developed area reduces costs for infrastructure such as roads and provides a variety of lot options for home builders and buyers.

Implementation of Conservation Development is often accomplished through a specific stand-alone or overlay zoning district, or adoption of Planned Unit Development (PUD) zoning and subdivision ordinance provisions.

Land Use and Zoning

Clay County and each of the municipalities in the county (except Ong) have adopted zoning regulations, which implement the Comprehensive Plan. These regulations require zoning permits for new development. The Clay County Joint Planning Commission includes representatives of unincorporated Clay County, the cities of Fairfield and Harvard, and the villages of Deweese, Glenvil, Saronville, and Trumbull. The Clay County Zoning Administrator/Floodplain Administrator also provides services to cities and villages in the county.

Current Zoning Districts

The Zoning Regulations for Clay County, Nebraska, and cooperating cities and villages currently designate several zoning districts, including:

- AG Agricultural
- R-1 Rural Residential
- R-2 Urban Residential
- C-1 Highway Commercial District
- C-2 General Commercial District
- I Industrial District
- Wellhead Protection

The Zoning Regulations do not currently incorporate Airport Hazard regulations. Floodplain regulations are implemented in a separate ordinance. Clay County zones property within the municipal planning areas to meet seamlessly with municipal zoning ETJs, to leave no gaps between County and City/ Village zoning districts.

Zoning Administration

The Joint Planning Commission hears and provides recommendations to decision-making authorities on Conditional Use Permits (CUPs) and zoning amendments. The Board of Adjustment hears and decides appeals, and authorizes specific dimensional variances.

The Clay County Zoning Administrator is responsible for issuing zoning permits, occupancy permits, Conditional Use Permits (upon approval), and other permits for the proper administration and enforcement of the Clay County Zoning Regulations. The Zoning Administrator also administers zoning permits for cities and villages participating in the Joint Planning Commission,

In addition, the Clay County Zoning Administrator provides support to the cities of Clay Center and Edgar for their Planning Commissions and to review zoning permits. The City of Sutton has its own City Planning Commission and enforces its own development regulations in municipal limits and their one-mile ETJ.

The Zoning Administrator should continue to monitor annexations, and make sure the Joint Planning Commission is involved in review and update of municipal boundaries, extra-territorial jurisdiction, and zoning on the County and municipal Official Zoning Maps.

Subdivision Regulations

Nebraska Revised Statute Section 23-373 *et seq*. requires the approval of the County Board prior to subdivision or platting of real property in unincorporated areas outside a city of village ETJ, when a comprehensive development plan (such as this plan) has been adopted. The County Board has the power, by resolution, to provide the manner by which real property is platted, including the lay out and dedication of streets and roads. However, the County Board must have "duly adopted comprehensive and uniform platting and subdivision regulations governing the alignment of streets, maximum grade of streets, and minimum area of lots."

The Clay County Zoning Regulations do provide standards for minimum lot areas, and minimum lot width and frontage in each zoning district.

In the AG Agricultural District, for example:

- Three (3) acre minimum lot area for single-family residential dwellings
- Four (4) dwellings per section maximum
- 1,000 foot minimum distance between dwellings located in the same quarter section
- Existing farmstead of 3-acres or more, not previously subdivided prior to adoption of zoning (2005), may be subdivided into two parcels
- Legal lots existing prior to 2005 without a residence may have a single-family dwelling added
- Minimum lot area for conditional uses are as determined by the County Board
- No minimum lot area listed for permitted uses other than single-family homes.

In the R-1 Rural Residential District,:

- Certain permitted principal uses require a minimum lot size of five acres.
- Permitted uses which utilize an on-site septic tank and tile field require a minimum one acre lot size. (The State of Nebraska may require a larger area for onsite wastewater treatment systems.)
- With a Conditional Use Permit, single-family dwellings within the unincorporated villages of Eldorado, Inland, and Verona are allowed on previously platted but undeveloped lots with a minimum lot size of 1/2-acre, when the septic tank and tile field can be located at least 100 feet from any water well. (Again, the State of Nebraska may require a larger lot area.)
- Minimum lot area for conditional uses are as determined by the County Board

LAND USE GOALS, POLICIES, AND ACTIONS

LAND USE GOAL 12.1

Future growth and development has adequate land available while avoiding land use conflicts and incompatible impacts.

POLICIES

12.1.1 Development projects shall follow the goals and policies of the Comprehensive Plan.

12.1.2 Future rural development should work toward compact and/or conservation approaches.

12.1.3 Direct development away from prime farmland and environmentally sensitive areas.

ACTIONS

12.1.4 Consider impacts of future development on adjacent land use.

12.1.5 Work with property owners to clean up deteriorated and dilapidated properties.

12.1.6 Regularly review and update land use regulations (zoning and subdivision ordinances) and application material.

LAND USE GOAL 12.2

New development is focused within Clay County's cities and villages.

POLICIES

12.2.1 New development should be located within existing cities and villages, where urban services are available.

12.2.2 New development should be contiguous to developed areas, and avoid "leapfrog" patterns inefficient for public services.

ACTIONS

12.2.3 Support annexation by cities and villages to minimize the County's cost of public services.

12.2.4 Work with NDEE and municipalities on implementation of Wellhead Protection Plans.

LAND USE GOAL 12.3

Agriculture is the predominate use in agricultural land use districts.

POLICIES

12.3.1 Development projects shall mitigate impacts on agriculture and prime farmland.

12.3.2 Recognize production agriculture as the highest and best use of land in agricultural districts.

ACTIONS

12.3.3 Encourage development of value-added agricultural processing.

LAND USE GOAL 12.4

Residential development is protected from conflicting land uses in rural land use districts.

POLICIES

12.4.1 Clay County supports housing development in municipalities.

ACTIONS

12.4.2 Review and update land use regulations to remove barriers to new and rehabilitated housing.

LAND USE GOAL 12.5

Employers have adequate land available in Commercial/ Industrial land use districts.

POLICIES

12.5.1 New commercial/ industrial development projects should minimize impacts on their present and future neighbors.

ACTIONS

12.5.2 Work with municipalities to provide infrastructure for commercial and industrial development.

Land Use Goal 12.6

Parks/Recreation and Public/ Institutional uses are provided for by those land use districts and land in other appropriate districts.

Policies

12.6.1 Development projects are encouraged to provide parks and recreation amenities.

Actions

12.6.2 Support municipalities in development of parks and trails systems.

12.6.3 Work with public school districts on long-term facilities siting.



Clay County Museums, Clay Center
Source: Marvin Planning Consultants

CLAY COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FIG 12.1: EXISTING LAND USE

Hall County
Hamilton County
York County
Adams County
Fillmore County
Webster County
Nuckolls County
Thayer County
Trumbull
Harvard
Inland
Hastings
Saronville
Sutton
MARC
Clay Center
Glenvil
Fairfield
Edgar
Ong
Deweese
6
14
41
74
18D
18E
18C

LEGEND

- MARC
- Highways
- Railroad
- Naval Ammunition Depot
- Clay County 1-Mile ETJs
- Hastings 2-Mile ETJ
- Municipal Limits
- County Boundaries
- Parcels
- Sections

Use

- Agriculture/Vacant
- Residential
- Parks and Recreation
- Public/Institutional
- Commercial/Industrial
- Transportation/ROW

N

MARVIN PLANNING CONSULTANTS
Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 9.16.25

0 0.75 1.5 3 Miles

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

CLAY COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FIG 12.2: EXISTING ZONING MAP

Note: This map is a representation of the Official Zoning Map available in the office of the Clay County Zoning Administrator.

Hall County
Hamilton County
York County
Adams County
Webster County
Nuckolls County
Thayer County
Fillmore County
Trumbull
Harvard
Inland
Hastings
Saronville
Sutton
Glenvil
Clay Center
Fairfield
Edgar
Ong
Deweese
MARC
R-1
AG
I
14
6
41
74
18D
18E
18C

LEGEND

- Highways
- Railroad
- Naval Ammunition Depot
- Clay County 1-Mile ETJs
- Hastings 2-Mile ETJ
- Municipal Limits
- County Boundaries
- Parcels
- Sections
- MARC

District

- Agricultural Area (A)
- Rural Residential - Village (R-1)
- Rural Residential - 1-Mile (R-2)
- Industrial (I)

N

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DATUM: NAD 83
DATE: 9.16.25

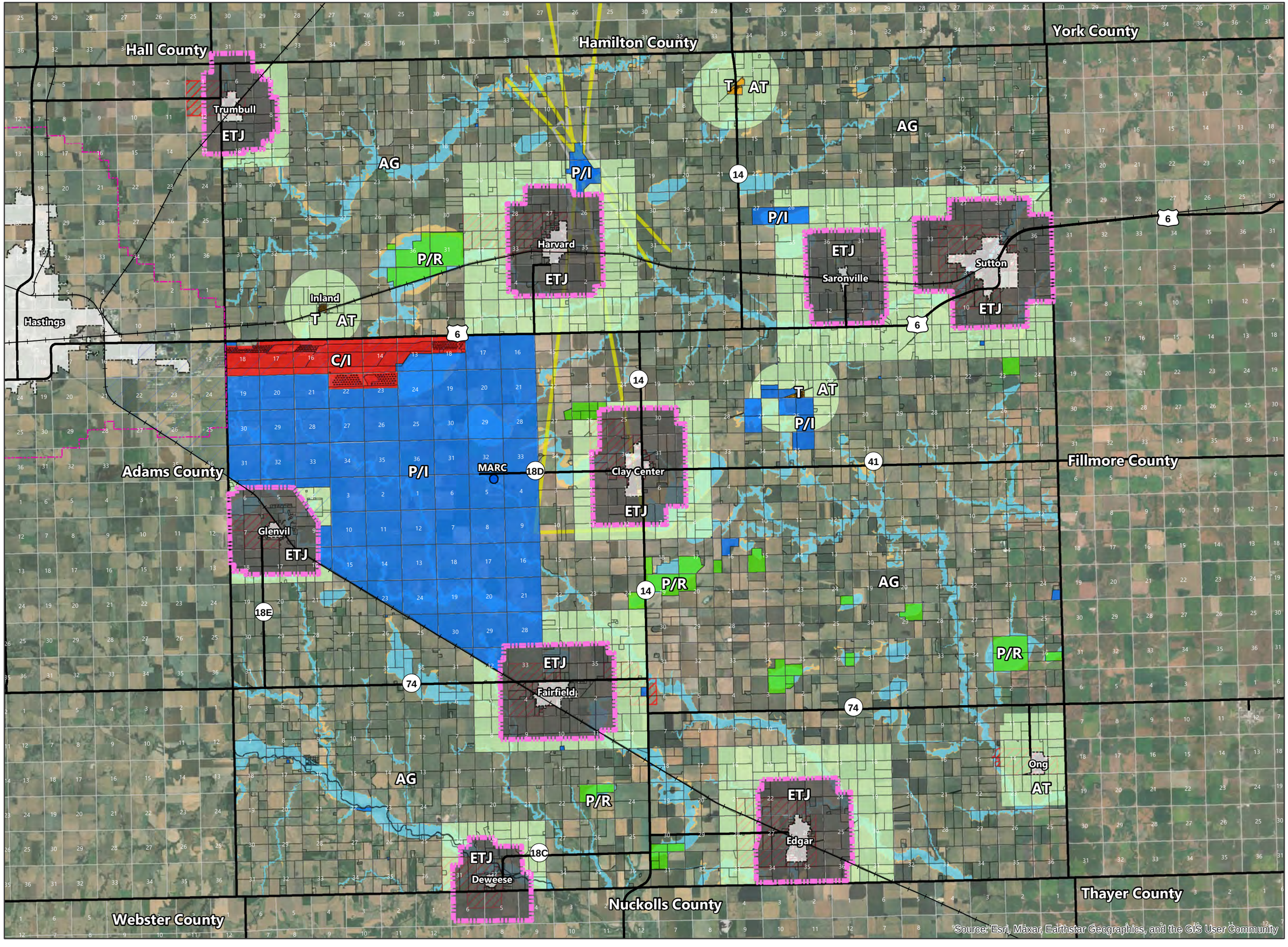
0 0.75 1.5 3 Miles

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

CLAY COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FIG 12.3: FUTURE LAND USE



LEGEND

- Highways
- Railroad
- Naval Ammunition Depot
- Clay County 1-Mile ETJs
- Hastings 2-Mile ETJ
- Municipal Limits
- County Boundaries
- Parcels
- Sections
- MARC

Future Land Use

- Agriculture General (AG)
- Agriculture Transition (AT)
- Townsite (T)
- Commercial/Industrial (C/I)
- Parks/Recreation (P/R)
- Public/Institutional (P/I)
- Extra-Territorial Jurisdiction (ETJ)

Wellhead Protection Areas (Overlay)

- Wellhead Protection Area

Airport Hazard Area (Overlay)

- Approach Zone
- Transition Zone
- 3-Mile Turning Zone
- Operation Zone

Flood Hazard Areas (Overlay)

- 1% Annual Chance Flood Hazard
- 0.2% Annual Chance Flood Hazard

N

MARVIN PLANNING CONSULTANTS

Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 9.16.25

0 0.75 1.5 3 Miles

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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Chapter Thirteen Transportation

Transportation and land use are inextricably linked. Transportation infrastructure has the power to shape development, influence property values, and determine a area's character and quality of life. Transportation investments also have impacts on the built and natural environment.

Land use and transportation create the pattern for future development. For example, improved roads attract more intense land use into areas which may not provide other necessary infrastructure, may be remote from public services, or may not be compatible with existing land uses. Participants in the Town Hall expressed concerns about County roads, in particularly atbusiness locations.

Transportation infrastructure in rural Nebraska includes highways, multi-modal facilities, railroads, and air transport networks. This chapter is intended to function as Clay County's Major Street Plan, and to meet the requirements for a transportation element in Neb. Rev. Stat. §23-114.02, including "The general location, character, and extent of existing and proposed major streets, roads, and highways, and air and other transportation routes and facilities."

HIGHWAYS

Streets, roads, and highways are classified by function:

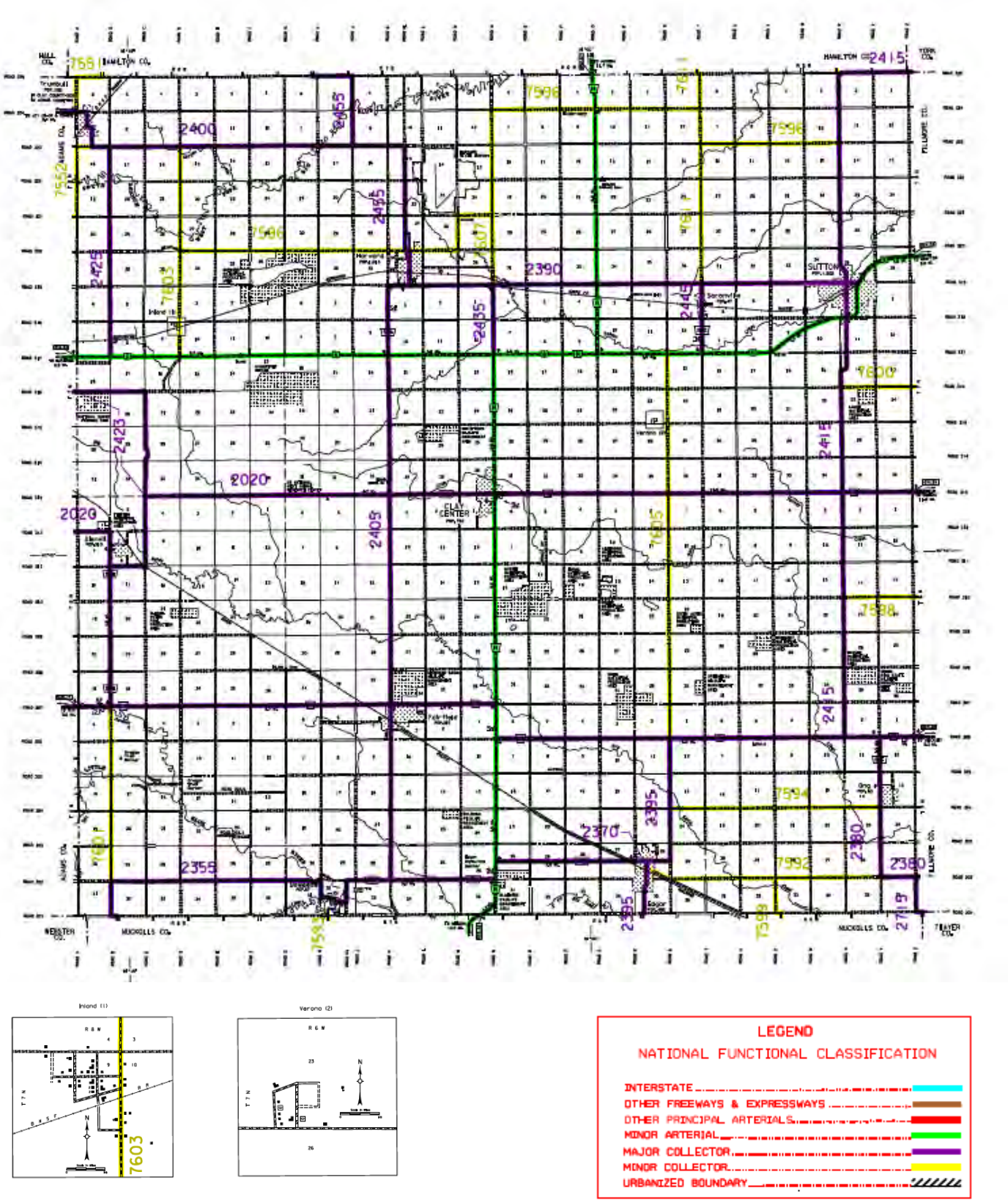
- Freeway—major roadway for state or regional access
- Arterial—major road with high volumes of traffic, primarily connecting places to each other
- Collector—street with less traffic, connecting local traffic to arterial roads
- Local—street with low traffic volumes and slow design speeds, primarily uses for direct access to property.

Clay County's primary road network is based on US Highway 6 running east and west through Sutton, and Nebraska Highway 14 running north-south through Clay Center. Highway 41 runs east of Clay Center, and Highway 74 runs east-west through Fairfield and the southern portion of the county.

US 6 runs across Nebraska, parallel to Interstate 80, as a two-lane highway functionally classified as a Minor Arterial. US 6 runs through Sutton south of downtown, then south of Saronville, Harvard, and Inland IDP. There is an industrial area south of US 6 on the old Naval Ammunition Depot which is served by US 6. US 6 connects Clay County to Fairmont (east) and Hastings (west).

Highway 14 is a two-lane highway functionally classified as a Minor Arterial. Highway 14 connects Clay County to I-80 at

FIGURE 13.1: CLAY COUNTY NATIONAL FUNCTIONAL CLASSIFICATION



Source: Nebraska Department of Roads

Aurora to the north. Highway 14 continues from Clay Center to Superior and Kansas to the south.

Highway 41 from Geneva is functionally classified as a major collector, ending at Highway 14 in Clay Center. The road continues as Spur18D to US MARC west of Clay Center, where the paved County Rd 313 continues west, forking on County Rd C northwest towards Hastings and southwest through Glenvil, where Spur 18E goes south to Highway 74.

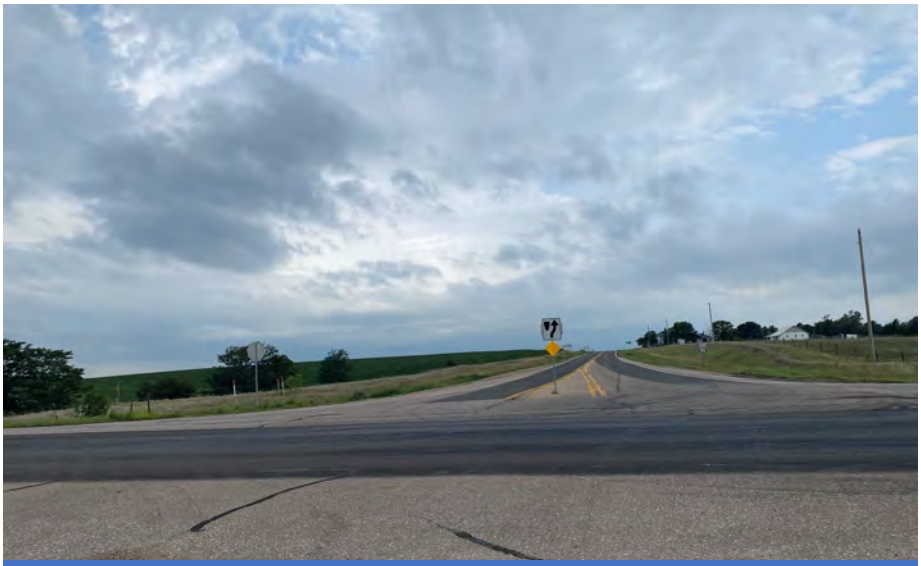
Highway 74 runs from Western, Nebraska, with a one-mile jog north on Highway 14, continuing through Fairfield and west to US 281 south of Hastings. It is functionally classified as a major collector. Sandy Creek Public Schools campus is located on the Highway 14/74 jog in unincorporated Clay County.

The village of Ong is connected to Highway 74 1-1/2 miles by Highway S18F, which is classified as a major collector. A major collector county road connects Ong south to Davenport in Thayer County.

Edgar is connected to Highway 14 by four miles of Highway S18B, with a county road classified as a major collector connecting Edgar to Highway 74. A paved county road headed south out of Edgar is also classified as a major collector, connecting to Highway 4 west of Davenport in Nuckolls County.

Deweese is connected to Highway 14 by five miles of Highway S18C, classified as a major collector. A county road heading west out of Deweese is also classified as a major collector.

The Clay County Zoning Regulations include minimum roadway standards by functional classification for the county and participating municipalities, in the definitions section of Article 3. The definitions also include the expected rights-of-way for Clay County roads and highways.



Intersection of Highway 14 and 74, rural Clay County
Source: Marvin Planning Consultants

Frontage on a Public Road

New homes should have access to an existing public road, other than a roadway designated by the Clay County Board of Supervisors as a minimum maintenance road or other unimproved roadway.

For many years, there was a preference to construct frontage roads along heavily trafficked highways. However, experience has shown that "backage roads" are more effective in reducing traffic conflicts when local access is constructed a block or so off the highway while minimizing conflict points on the functionally classified highway network.

One and Six-Year Plans

The Clay County Highway Superintendent develops a One and Six-Year Road Plan for the county, which is adopted by the County Board. The plan for 2023-2028, listed 28 projects on the one-year plan, and 31 projects on the six-year plan.

The largest projects on the one-year plan included:

- Highway 18D (major collector) extension west of the USMARC offices, then north and west to county line, and south and west through Glevill to county line; $2.9 million asphalt overlay.
- Spring Ranch Bridge, Road 305/C over the Little Blue River, $2.5 million new bridge.
- County Road B north and northwest from US 6 to Trumbull (major collector), and County Road D from US 6 to Inland CDP (minor collector), $1.8 million asphalt overlay.

- County Road N north of US 6 then east and west south of Harvard, and County Road L along the east side of Harvard (major collector), $1.8 million asphalt overlay.
- Railroad bridge west of Sutton, County Road W over BNSF Railway, $1.8 million

Most respondents to the countywide survey agreed County roads were generally in good condition.

NDOT

Clay County is located in the Nebraska Department of Transportation (NDOT) District 4, headquartered in Grand Island. NDOT's Surface Transportation Program Book for Fiscal Year (FY) 2023 (the "six-year plan") included two projects in Clay County.

Asset Preservation Projects:

- Hwy S-18C Deweese Spur (5.2 miles) resurfacing, bridge
- Highway 41 Clay Center East (11.6 miles) resurfacing

Billboards

Off-site commercial advertising, commonly referred to as "billboards" advertise goods or services which are not sold or produced on the premises where the sign is located. The Federal Highway Beautification Act (HBA) of 1965 regulated the location of billboards on federal-aid highways. The "Kerr Amendment" allowed outdoor advertising in commercial and industrial zones.

Many communities do not allow billboards, due to concerns with distracted driving and visual blight as a form of visual pollution. The National Association of Realtors has reported billboards hurt nearby residential property values.

In 2022, the US Supreme Court ruled in the case of City of Austin v. Reagan National Advertising local sign codes may continue to strictly regulate off-premise advertising. Clay County may want to revisit current zoning for signage to assure conformance with the latest case law.

Transit

Midland Public Transit (MPT) is a service of Midland Area Agency on Aging (see Chapter 6 Facilities). MPT assists seniors across their service area .

Source: www.midlandareaagencyonaging.org

MULTIMODAL

Multi-modal transportation planning creates communities where it is possible to get around by walking, bicycling and public transport. Many State and county roads are designed to favor high-speed motorized traffic, without considering those walking and bicycling. As the community ages, building streets for multiple modes of transportation becomes all the more important.

Young people need to be able to get around town without relying on drivers. As well, many older people may prefer not to drive, or may become unable to drive. Trail development is becoming an economic development attraction as young families consider options for where to live. It is said designing transportation systems for those 8 years old and those 80 years old assures safe options for all of a community's residents.

Sidewalks and Trails

Many communities have invested in good places to walk or ride a bicycle. A complete network creates safe, comfortable, and accessible multimodal routes for people walking and bicycling.

Most of Clay County's municipalities have a basic



Trail in Sutton
Source: Marvin Planning Consultants



Historic Burlington Northern caboose, Clay Center
Source: Marvin Planning Consultants

sidewalk network. However, many of these sidewalks are aging and segments are often missing, forcing people to walk in the streets. Also, too few intersections have accessible curb ramps, creating an obstacle for users with strollers and wheelchairs, or who simply find curbs difficult to maneuver.

Multi-user trails are becoming a popular piece of infrastructure for everyday transportation as well as exercise and recreation. The City of Sutton, for example, has installed a concrete trail connecting to local parks (*see also Chapter Seven Parks and Recreation*).

ACCESSIBILITY

The Americans with Disabilities Act (ADA) was signed by President George H.W. Bush in 1990. The ADA is intended to make sure people with disabilities have the same rights and opportunities as everyone else.

The NDOT Roadway Design Manual (May 2022) provides guidance for design of pedestrian and bicycle facilities in conformance with ADA. This includes having a transition plan when structural modifications are required to provide accessibility, including curb ramps.

Sidewalks on rights-of-way and bridges must be at least four-feet wide, provided there are larger passing spaces every 200 feet. (Driveways may be considered as passing spaces.) A shared-use path must be a minimum 10 feet wide, with 11-14 feet preferred in certain situations.

RAILROADS

BNSF

The Burlington Northern Santa Fe (BNSF) Railway operates the east-west rail line that parallels US Highway 6 through Clay County. BNSF Railway is the product of nearly 400 different railroad lines that merged or were acquired over the course of 170 years. This line provides a southern connection from Lincoln to Hastings, east to Chicago and west to Denver. The Clay County section can handle 286,000 lbs. four-axle rail cars.

BNSF is committed to consistently enhancing the quality of life of the communities where they work and live. The BNSF Railway Foundation supports communities by funding a wide variety of arts and social service organizations and college scholarship



UP Railroad crossing, Glenvil
Source: Marvin Planning Consultants

programs. BNSF has an active economic development program.

Source: www.bnsf.com

Union Pacific

The Union Pacific (UP) Railroad, headquartered in Omaha, Nebraska, operates a rail line running from southeast Clay County to the Northwest, passing through the communities of Edgar, Fairfield, and Glenvil. This line connects the UP's Heartland division at Marysville, Kansas, to Gibbon Junction on the UP mainline west of Grand Island in the Great Plains division. This section is approved for heavy axle rail cars which can handle up to 286,000 lbs. or 315,000 lbs. gross weight.

UP provides a number of community-oriented programs in their service area. This includes the UP Foundation, economic development, and sustainability programs. UP also provides a comprehensive public safety program.

Source: www.up.com

Railroad Crossings

There are at-grade crossings throughout the rural areas of Clay County. The BNSF line has street crossings in the communities of Harvard, Saronville, and Sutton, and unincorporated Inland CDP. The UP line has street crossings in Edgar, Fairfield, and Glenvil.



Harvard State Airport
Source: Marvin Planning Consultants

AIR TRAVEL

The Federal Aviation Administration regulates air travel and provides funding for airport improvements. Through federal grant assurances, airport sponsors and owners are obligated to pursue all reasonable and appropriate actions to secure and promote compatible land use and development within their local areas. Careful land use planning benefits air travel by preservation of aircraft operations, protection of airport approaches, reduced potential for litigation, and avoidance of hazardous wildlife attractants.

Airports

Harvard State Airport (FAA LID: 08K) (Harvard State Airfield) is located two miles northeast of Harvard, in Clay County. The facility is publicly owned by the Nebraska Department of Aeronautics, with a manager based at Fairmont State Airfield. Airport use is open to the public.

Runway 17/35 is 3,722 x 60 ft asphalt. Runway 14/32 is 3,873 x 150 ft turf, in fair condition. As of autumn 2023, there were 11 aircraft based on the field. In 2022, there were an average of 96 aircraft operations per week, with 92% local general aviation.

Aurora Municipal Airport (KAUH) Al Potter Field is located approximately 15 nautical miles north of Harvard State Airport. Hastings Municipal Airport (KHSI) is located 16 nautical miles to the west.

It is important that any development projects near the Harvard State Airport are reviewed for conformance with FAA regulations and Airport Hazard Overlay requirements.

Passenger Air Service

The nearest scheduled passenger air service is available at Grand Island, Kearney, Lincoln, and Omaha, Nebraska.

RESOURCES

Electric Vehicle Charging Stations

Electric vehicles (EVs, also known as battery-electric vehicles) require off-board electric charging stations. Although the majority of EV owners charge at home, public charging and workplace charging stations are necessary for trips away from home.

There are currently three types of EV charging stations:

- Level 1 chargers use typical electric outlets (120V);
- Level 2 chargers are typically freestanding or hanging, and require a higher level of service (240V);
- Level 3 or DC fast chargers are freestanding stations. They can take around 30 minutes to charge a vehicle but require a very high level of service (480V).

General public charging uses Level 2 or DC fast charging, while Level 1 stations are typically located in a home garage or place of business. Charging stations should typically be located where vehicle owners are highly concentrated and parked for long periods of time. Public charging stations should also be located along highway corridors.

According to the US Department of Energy and Nebraska DOT, there is one public EV charging station location in Clay County.

- Fairfield Honey Farm at 305 D Street in Fairfield. There is one public Level 2 (J1772 connection) charger, operated by Blink charging network.

While not on the public EV map, Friesen Chevrolet has installed an EV charging station at their dealership in Sutton. Central Community College also has a Level 2 charger on campus at Hastings, operated by ChargePoint. A Level 2 charging station typically provides approximately 25 miles of range per hour of charging, while DC charging stations provide 100 to 200 miles range for 30 minutes of charging.

Currently, NDOT is focusing electric charging infrastructure funding on the designated Alternative Fuel Corridor (AFC) along I-80 and in the Omaha area. Additional state and federal funding programs may be available in the future.

Zoning regulations should be reviewed to provide guidelines for EV charging stations to be located in safe locations, integrated with parking requirements.

Source: afdc.energy.gov/fuels/electricity_basics.html



Electric Vehicle Charging Stations, Hebron, Nebraska
Source: Marvin Planning Consultants

TRANSPORTATION GOALS, POLICIES, AND ACTIONS

TRANSPORT GOAL 13.1

Clay County's highway network continues to meet the needs of local users and those passing through the county.

POLICIES

13.1.1 New development should be located on existing improved roads, while limiting direct access on arterial routes.

13.1.2 Restrict development on designated Minimum Maintenance roads.

ACTIONS

13.1.3 Annually review the County's One and Six Year Plan for conformance with the Comprehensive Plan.

13.1.4 Continue regular maintenance of county roads.

13.1.5 Prioritize paving and drainage improvements in growth areas.

13.1.6 Work with Nebraska DOT on improving State roads and highways.

13.1.7 As the industry evolves, review zoning requirements for EV charging stations.

TRANSPORT GOAL 13.2

Multi-modal transportation infrastructure is provided for walking, bicycling, and public transportation where appropriate.

POLICIES

13.2.1 Development projects are encouraged to provide multi-modal amenities.

ACTIONS

13.2.2 Support municipalities in maintaining multi-modal infrastructure.

13.2.3 Support municipalities in development and/or extension of pedestrian, bike and equestrian trails systems.

13.2.4 Assure County facilities meet ADA accessibility requirements.

TRANSPORT GOAL 13.3

Commercial rail service continues to be available to Clay County agriculture and industry.

ACTIONS

13.3.1 Support efforts to work with BNSF and UPRR to assure service continues across Clay County.

13.3.2 Work with BNSF and UPRR to improve railroad crossing safety.

TRANSPORT GOAL 13.4

The public airport is protected from conflicting uses.

POLICIES

13.4.1 New development located near Harvard State Airport shall be reviewed for compliance with Airport Hazard Area requirements.

ACTIONS

13.4.2 Support maintenance and improvement of Harvard State Airport.

13.4.3 New tall structures shall be discouraged near airports in Clay County.



Chapter Fourteen Implementation

Successful community plans have the same key ingredients: "2% inspiration and 98% perspiration." This section of the plan contains the inspiration of the many county officials and residents who have participated in the planning process. However, the ultimate success of this plan remains in the dedication offered by each and every resident.

There are numerous goals and actions in this plan. These items should inform annual workplans and budget setting to assure progress continues to bring the plan to life.

ACTION PLAN

The Comprehensive Plan is not intended to sit on a shelf. The plan is intended to be put into action.

The action plan for County implementation is a combination of goals and action Items, with provisions to bring the plan to life while evaluating development proposals. Goals and action items specific to each plan element are included in the relevant chapter.

CAPITAL IMPROVEMENTS PROGRAM (CIP)

A Capital Improvements Program (CIP) is an annual plan assessing capital needs and prioritizing tasks to meet these needs in the County's budget. Programming in the CIP should cover facilities (county courthouse, Sheriff's office, highway shop, etc.), capital equipment, parks and recreation, utilities, trails, transit, and other capital facilities. The process should be coordinated with the One-and-Six Year plan for roads.

EVALUATION OF DEVELOPMENT PROPOSALS

Development proposal applications should be carefully reviewed against the goals and policies of the Clay County Comprehensive Plan, as well as the specific requirements of the development regulations. This plan is not regulatory; however, the underlying regulations are based on compatibility with this plan. Each development application should address how the specific proposal meets the policies of the comprehensive plan.

In cases in which a proposal is counter to the policies of this plan, the developer should be encouraged to bring the proposal into conformance. On the other hand, approval of a proposal which is not in conformance would point to the need to review and update the plan to better serve the citizens of Clay County.

Comprehensive Plan Maintenance

Annual Review of the Plan

A relevant, up to date plan is critical to the on-going planning success. To maintain both public and private sector confidence; evaluate the effectiveness of planning activities; and, most importantly, make mid-plan corrections on the use of county resources, the plan must remain current. The annual review should be performed each January to begin the calendar year. This review should result in a report from the Planning Commission and Staff to the County Board and the citizens of Clay County.

Unanticipated Opportunities

If major new, innovative development and/or redevelopment opportunities arise which impact any number of elements of the plan and which are determined to be of importance, a plan amendment may by proposed and considered separate from the Annual Review and other proposed Comprehensive Plan amendments. The Comprehensive Plan amendment process should adhere to the adoption process specified by Nebraska law and provide for the organized participation and involvement of citizens.

Ten Year Review

As discussed in the Introduction, the Clay County Comprehensive Plan is a 20-year plan. However, the County should review the plan annually and update the document at least every 10 years (2034), or when major, unanticipated opportunity arises. Completing updates every ten years or so will allow the County to incorporate ideas and developments not known at the time of the comprehensive planning process.

Implementation Goals, Policies, and Actions

Implementation Goal 14.1

Development regulations are updated and maintained.

Implementation Goal 14.2

The Planning Commission reviews this plan regularly.

Action Items

This plan recommends several immediate tasks as implementation action items. These include:

1. Zoning Regulations
2. Subdivision Regulations
3. Floodplain Regulations & Mapping
4. Capital Improvements Program
5. Plan Maintenance

The County Board will have a critical role in implementation of this plan through the annual budgeting process. County elected officials, staff, and volunteers take the primary role in implementation of the comprehensive plan. Other action items are referenced in support of activities by other entities supporting implementation of this plan.

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Appendix A: Public Participation

As noted in Chapter Two, there were several ongoing efforts to support Community Engagement in this Comprehensive Plan update process. Additional details on these efforts are included here.

TOWN HALL MEETING

A county-wide town hall meeting was held on August 16, 2023, at the Clay County Event Center. Attendees came from all over the county. This meeting was an integral part of the planning process.

PUBLIC COMMENTS

Participants engaged in a conversation regarding growth and development in Clay County. Marvin Planning Consultants staff facilitated and recorded comments.

WHY DO YOU CHOOSE TO LIVE OR HAVE A BUSINESS IN CLAY COUNTY?

- Ancestral home - born here / born & raised here
- Moved here -- sense of community
- Feels safe
- Families have moved for Quality of Life
- Lifestyle -- parks, schools, churches
- Neighbors and good friends
- From Nebraska
- Housing at a reasonable price
- Married a Farmer here
- Landowner in Clay County -- live here to have a voice here.

WHAT ARE THE BIGGEST OPPORTUNITIES CLAY COUNTY HAS FOR THE FUTURE?

- Younger Families moving in
- Grow health services/youth services
- Local foods - fresh food/ produce
- Improve internet services (provide job options)
- Pre-K thru HS services / New daycare
- Affordable housing / rentals
- Should be more supportive of agriculture
- Finish more hogs here - capture value locally
- Help facilitate grants/funding
- WMAs - hunting
- Businesses for sale - succession planning

What are the biggest weaknesses Clay County has right now?

- Cell Service / Rural ISPs (internet service not so good out of town)
- Consolidation of Production Ag/Farm Services businesses
- Too much Federal Land
  - USFWS management of upland game, waterfowl habitat
  - Tax revenue replacement (i.e. need PILT program)
- Wildfire hazards
- Conservation easements & property undervaluation
- Need local spending to benefit from tourism
- Housing -- quality, services to improve & repair, availability
- Professional Services e.g. tough to find a plumber
- Underserved Populations / Aging & senior services
  - Child Care
- County Roads, esp. around businesses
- Infrastructure for current and future businesses
  - Need ready space for new biz to start-up
  - Need economic development assistance county-wide
- Keep up with the times - update business practices to compete

What do you love about Clay County

- Small Town Attitude / Values - take care of ourselves
- Neighborliness (x2)
- NOT OMAHA
- People are supportive (x2)
- Feeling Safe
- Small Biz - People support / Don't need large industry
- Small schools
- Wide Open Spaces
- Volunteers & Service organizations
- Community events
- 4-H program
- Have What We Want - even if not what we need

How would you describe the ideal Clay County 20 years from now?

- Towns big enough to support themselves, while maintaining Quality of Life
- Reversed outmigration and consolidation
- Return to "Golden Years" - can do attitude
- People can age in place
- Reasonable growth (x2)
- Safe
- Long-term viability of Agriculture

COMPREHENSIVE PLAN SURVEY

The countywide survey was released at the beginning of July and held open until September, 2023. This time period coincided with the Town Hall meeting on August 16, 2023.

The survey used the SurveyMonkey online platform. Paper copies were also made available across the community. There were 205 respondents to the survey.

Respondents represent a wide variety of residents:

- 98% of respondents were from Clay County, including 31% from rural Clay County, 25% from Clay Center, 18% from Sutton, 8% from Edgar, 7% from Harvard, 4% from Fairfield, and 3% from Trumbull.
- Over 1/4 (27%) have lived in Clay County for 50+ years, 13-14% for 21 to 40 years.



Town Hall Meeting, Clay County Fairgrounds
Source: Clay County News

- Almost 1/4 (24%) were age 65 -74, 20% were age 55-64, and 15% were age 45-54. There were no respondents under age 25.
- The largest number of families, 29%, have/had 2 children, 25% had 3 children, 13% had 4, and 12% had 1, and 10% had 5+.
- About 2/3 (67%) of respondents replied their children grown, 17% said their children were in grades 9-12, 15% stated K-5, 14% stated College, and 13% said Daycare/Preschool.
- Almost half (48%) of respondents stated their children were grown-living in Nebraska, 37% stated their children were at home, 31% said grown-living out of state, 24% grown-living in Clay County,
- There were 96% of respondents who said their children were educated in public schools, 7% stated private schools, and 4% stated at-home schooling (multiple replies were allowed).
- Almost half (49%) of respondents stated they were employed full-time, 29% were retired, 15% were self-employed, and 5% employed part-time.
- Over 1/;4 (28%) were employed in Agriculture or forestry; 15% in Educational, health, and social services; 5% in Professional services, and 4% in Public administration.
- Almost 1/3 (29%) commute less than 10 minutes, while 15% work at/from home; 15% commute 15-29 minutes, and 7% commute 10-14 minutes.
- One-third (33%) have a community/technical/ vocational education, 30% have graduated from a 4-year college or university, 19% have a graduate/ advanced degree, and 18% have a high school diploma.
- The largest number of respondents (27%) work in Clay Center, followed by Sutton and Hastings (13%).
- Two-thirds (66%) grew up or have lived on a farm.

Respondents expressed a wide variety of opinions, including:

- There were 9% of respondents who replied "Very high quality" and 44% who replied "High quality" to the question "Is Clay County a quality place to live?" 37% replied "neither high nor low quality" and 6.5% responded low or very low quality.
- Almost half (49%) stated they are confident in Clay County's future. Just over 1/3 (39%) replied they were not sure.
- Over half (57%) strongly agreed "The aquifer (ground water) is an important asset and should be conserved.
- Almost half (48%) strongly agreed "Retaining youth is the key to Clay County's future."
- Over half (59%) agreed "The County should be more proactive in supporting existing business."
- Over half (56%) agreed "It is important to preserve and share Clay County history."
- Over half (56%) agreed "I would support a program to strengthen community pride and appearance."
- Over half (56%) agreed "Recruiting new business should be a priority for the county."
- Over half (55%) agreed "Retention and expansion of current business is key to Clay County's economic survival.
- Over half (55%) agreed "More affordable housing is needed for young families."
- Over half (54%) agreed "Good quality education is available in Clay County's schools.
- Over half (54%) agreed "The county has quality fire protection."
- Over half (54%) agreed "Most homes in Clay County appear to be in good condition."
- Over half (51%) agreed "New or expanded manufacturing plants will bring the kind of jobs we need."
- Over half (51%) agreed "Growth and development should be carefully managed."
- Over half (52%) disagreed with the statement "There is enough rental property in Clay County."
- Over 1/4 (27%) strongly agree and almost 1/2 (49%) agree creating farm-to-home operations such as farmers markets, community-supported agriculture, or on-farm stores, is a value-added strategy for Clay County.
- Almost 1/2 (49%) of respondents replied they strongly agree drought is a threat to agriculture.

- If they cannot find what they want in Clay County, the largest number of respondents shop in Hastings for items such as groceries (89%), fast food (86%), gas/ convenience (83%), or entertainment (82%); more people go to Grand Island than Hastings for dining with sit-down service (69% vs 64%) or clothes (56% vs 38%) although 48% go to Lincoln for clothes (multiple choices permitted).
- The largest number of respondents (81%) stated banking is available in Clay County.
- The largest number of respondents (28%) stated recreational facilities were not available locally, followed by tech support (27%).
- The largest number of respondents (39%) stated their plan for retirement is to stay in Clay County, while only 9% stated they plan to move to another state.
- There were 95% of respondents who stated water quality was an important environmental concern for the county now and in the future, followed by 94% who stated water quality was important; 75% stated soils were important, 71% stated agricultural land was important; and 59% stated wildlife was important.
- In regard to economic development, agriculture was rated the highest priority for Clay County, followed by retail and wholesale trade.
- About 1/2 (48%) of respondents stated Local Fire Service was excellent, followed by Local EMS Service (41%); Half (50%) stated the County Clerk's office offered good service; several respondents highlighted the County Health Department.

Complete results of the countywide survey are available on request from the Clay County Planning and Zoning office.

Appendix B: Soil Survey

CLAY COUNTY SOIL SURVEY

The information in this Appendix is taken from the Soil Survey of Clay County, Nebraska (1981) and online sources as summarized in Chapter 10 Natural Resources and Environment.

SOIL CHARACTERISTICS

Soil properties are based on field examination of soils and by laboratory index testing of benchmarks. The system of soil classification by the Soil Survey has six categories, leading from broad associations to more specific series. (See Table X2.1 Soil Types)

BUTLER SERIES

The Butler series consists of very deep, somewhat poorly drained soils formed in loess. Butler soils are on flat or slightly concave swales on loess uplands and loess-covered stream terraces on river valleys in the Central Loess Plains. Slopes are 0 to 2 percent.

Nearly all is cultivated. Sorghum and winter wheat are the principal dryland crops. Corn, soybeans, sorghum, and alfalfa are the principal crops where the soils are irrigated.

CASS SERIES

The Cass series consists of deep, well drained soils. They formed in alluvium on floodplains in Central Nebraska Loess Hills. Slopes range from 0 to 3 percent.

Most areas are cultivated, and much of it is irrigated. The main crops are corn, alfalfa, and sorghum. The native vegetation is tall prairie grasses and deciduous trees along streams.

CRETE SERIES

The Crete series consists of very deep, moderately well drained soils formed in loess. Crete soils are on interfluves and hillslopes on loess uplands and loess-covered stream terraces on river valleys in Central Loess Plains. Slopes range from 0 to 11 percent.

Most areas are cropped. The main crops are corn, soybeans, sorghum and wheat.

FILLMORE SERIES

The Fillmore series consists of very deep, somewhat poorly drained soils formed in loess. Fillmore soils are in closed depressions on loess uplands and loess-covered stream terraces on river valleys in the Central Loess Plains. Slopes are 0 to 2 percent.

TABLE X2.1: SOIL TYPES

Map Unit	Soil Unit Name	Acres	Percent of County
2667	Holdrege - silt loam, 0 to 1 percent slopes	1,416.2	0.4%
2823	Uly - silt loam, 11 to 17 percent slopes, eroded	77.6	0.0%
2824	Uly - silt loam, 11 to 30 percent slopes, eroded	6,614.4	1.8%
2834	Uly-Hobbs - silt loam, 0 to 30 percent slopes	606.4	0.2%
3255	Meadin - sandy loam, 2 to 30 percent slopes	7,258.9	2.0%
3545	Hobbs - silt loam, channeled, frequently flooded	4,968.5	1.4%
3561	Hobbs - silt loam, occasionally flooded	3,017.3	0.8%
3731	Massie - silty clay loam, frequently ponded	26,391.0	7.2%
3820	Butler - silt loam, 0 to 1 percent slopes	70,708.8	19.3%
3824	Crete - silt loam, 0 to 1 percent slopes	8,023.8	2.2%
3825	Crete - silt loam, 1 to 3 percent slopes	304.2	0.1%
3835	Geary - silt loam, 11 to 30 percent slopes	595.1	0.2%
3837	Geary - silty clay loam, 11 to 17 percent slopes, eroded	516.0	0.1%
3838	Geary - silt loam, 7 to 11 percent slopes	1,964.4	0.5%
3840	Geary - silty clay loam, 7 to 11 percent slopes, eroded	246.3	0.1%
3844	Geary - silt loam, 3 to 7 percent slopes	225.6	0.1%
3846	Geary - silty clay loam, 3 to 7 percent slopes, eroded	3,041.1	0.8%
3851	Geary-Hobbs - silt loams, 0 to 30 percent slopes	79,487.5	21.7%
3864	Hastings - silt loam, 0 to 1 percent slopes	53,755.9	14.6%
3866	Hastings - silt loam, 1 to 3 percent slopes	2,767.7	0.8%
3868	Hastings - silt loam, 3 to 7 percent slopes	22,893.8	6.2%
3870	Hastings - silty clay loam, 3 to 7 percent slopes, eroded	2,825.3	0.8%
3882	Holder - silt loam, 3 to 7 percent slopes	881.7	0.2%
3884	Holder - silt loam, 7 to 11 percent slopes	4,990.6	1.4%
3887	Holder - silty clay loam, 3 to 7 percent slopes, eroded	10,942.6	3.0%
3889	Holder - silty clay loam, 7 to 11 percent slopes, eroded	4,883.2	1.3%
3910	Scott - silt loam, frequently ponded	9,450.4	2.6%
3952	Fillmore - silt loam, frequently ponded	4,897.0	1.3%
3953	Fillmore - silt loam, drained, 0 to 1 percent slopes	4,284.6	1.2%
3962	Hastings - silty clay loam, 7 to 11 percent slopes, eroded	13,108.1	3.6%
4100	Crete - silt loam, thick solum, 0 to 1 percent slopes	357.9	0.1%
8434	Cass - fine sandy loam, overwash, occasionally flooded	5.3	0.0%
8436	Cass - loam, occasionally flooded	1,192.6	0.3%
8439	Cass - silt loam, occasionally flooded	2,649.4	0.7%
8840	Hall - silt loam, 0 to 1 percent slopes	5,930.8	1.6%
8866	Hord - silt loam, 0 to 1 percent slopes, warm	3,632.2	1.0%

Source: USDA Natural Resources Conservation Service.

Most areas are cultivated. The main crops are corn, soybeans, sorghum, and wheat. The native vegetation is short and mid-prairie grasses.

Geary Series

The Geary series consists of very deep, well drained soils formed in loess. Geary soils are on hillslopes on uplands in the Central Kansas Sandstone Hills, MLRA 74. Slopes range from 0 to 30 percent.

Most areas are cultivated. The principal crops are wheat and grain sorghum.

Gothenburg Series

The Gothenburg series consists of soils which are very shallow over gravelly coarse sand. They are poorly drained soils. These soils formed in alluvium on river valley flood plains. Slopes range from 0 to 2 percent.

Range and habitat for wildlife. Vegetation is mainly switchgrass, mixed with cottonwood and cedar trees on the higher areas, and prairie cordgrass, sedges, annual grasses, and willow trees on the lower areas. Annual grasses, weeds, sedges, and shrubs are common.

Hall Series

The Hall series consists of very deep well drained soils formed in loess or alluvium. These soils are on uplands and stream terraces of Central Nebraska Loess Hills. Slope ranges from 0 to 6 percent.

Nearly all the acreage is in cultivated cropland. Much of the cropland is irrigated. Corn, grain sorghum, soybeans, and alfalfa are the principal crops. A small acreage is still in native grass, mainly mid and tall species.

Hastings Series

The Hastings series consists of very deep, well drained soils formed in loess. Hastings soils are on interfluves and hillslopes on loess uplands in the Central Loess Plains. Slopes range from 0 to 17 percent.

Most areas are cultivated. Common crops are corn, grain sorghum, winter wheat, soybeans, and alfalfa.

Hobbs Series

The Hobbs series consists of very deep, well drained soils formed in stratified, silty alluvium. These soils are on flood plains, foot slopes, and alluvial fans in river valleys of Central Loess Plains. Slopes range from 0 to 6 percent.

Where the areas are sufficiently wide and flooding is not too severe, these soils are used for cultivated crops, both dryland and irrigated. The main crops are corn, soybeans, grain sorghum, and alfalfa. The native vegetation species are big bluestem, switchgrass, western wheatgrass, and little bluestem, with scattered deciduous trees.

Holder Series

The Holder series consists of very deep, well drained soils formed in loess. Holder soils are on interfluves and hillslopes on loess uplands in the Central Loess Plains. Slopes are typically less than 4 percent but ranges from 0 to 11 percent.

Most areas are cropped and much of it is irrigated. The main crops are corn, grain sorghum, winter wheat, soybeans, and alfalfa. The native vegetation consists of mixed tall, mid, and short grasses. .

Hord Series

The Hord series consists of very deep, well drained, moderately permeable soils formed in mixed loess and alluvium on foot slopes and stream terraces. Slope is dominantly less than 1 percent, but can range from 0 to 7 percent.

Nearly all the acreage is in cultivated crops and much of it is irrigated. Corn, grain sorghum, soybeans and alfalfa are the principal crops. Minor crops are winter wheat and introduced pasture grasses. A small acreage is in native grass.

Massie Series

The Massie series consists of very deep, very poorly drained soils formed in loess. Massie soils are in the lowest parts of closed depressions on loess uplands in the Central Loess Plains. Slopes are less than 1 percent.

The Massie soils are used mostly as habitat for wildlife. They are generally too wet for pasture, range or cultivated crops. Vegetation consists mainly of giant and other sedges, spikerush and bulrush, cattails, perennial smartweed, arrowhead, pondweed, and other water-tolerant plants. Some reed canarygrass is present on outer margins

Meadin Series

The Meadin series consists of very deep, excessively drained, rapidly permeable soils formed in loamy and sandy material over gravelly sand. These upland soils have slopes ranging from 0 to 35 percent.

Meadin soils are used mainly as range. The soils are generally not suited to cultivation except where irrigated.

Scott Series

The Scott series consists of very deep, poorly and very poorly drained soils formed in loess. Scott soils are in closed depressions on loess uplands and stream terraces in the Central Loess Plains, MLRA 75. Slopes range from 0 to 1 percent.

Most areas are in pasture or wildlife habitat and used for livestock grazing and waterfowl. The plant community consists mainly of smartweed, curly dock, barnyard grass, plains coropsis, perennial bursage, sedges, and spikerush. Reed canarygrass has been seeded in some areas. Minor use is cropping.

Uly Series

The Uly series includes very deep, well drained formed in loess on uplands. Slopes range from 0 to 30 percent.

Most of the acreage of these soils is in native grass. Big bluestem, little bluestem, sideoats grama, blue grama, and western wheatgrass are the dominant species. Cultivated areas are cropped mainly to corn, winter wheat, sorghum, and alfalfa.

Source: USDA NRCS Official Soil Series Descriptions (OSDs)

Soil Suitability and Limitations

The characteristics of soils play a major role in determining the potential compatibility of certain uses on the land. Soil limitations do not generally prohibit certain uses of land; however, they indicate the need for site-specific study and often special engineering solutions to overcome those limitations.

USDA NRCS' Web Soil Survey (based on the earlier county-level soil surveys) includes data on suitability and limitations of use. The ratings are identical to these shown by the Soil Data Viewer tool. A selection of data is shown here for categories most relevant to land use and development. Additional information is available at the NRCS website.

Soil limitations are shown in Table X2.2. These interpretations by NRCS are based on the engineering properties of soils, on test data for soils in the survey area and others nearby or adjoining, and on the experience of engineers and soil scientists. Soil limitations are indicated by the ratings Not Limited, Somewhat Limited, and Very Limited.

- Not Limited means soil properties are generally favorable for the stated use, or in other words, which limitations are minor and easily overcome.
- Somewhat Limited means some soil properties are unfavorable but can be overcome or modified by special planning and design.
- Very Limited means soil properties may be so unfavorable and difficult to correct or overcome as to require various degrees of soil reclamation, special designs, or intensive maintenance.

Dwellings without Basements

Soil limitations for dwellings without basements are shown in Table X2.2. The table provides the suitability and conditions by soil types.

Very Limited Conditions

A majority of the soil types in Clay County are considered Very Limited for a Dwelling Unit without a Basement. There are five major conditions impacting the soils (not all five are present in any one soil type).

Conditions present in the different soils include:

- Flooding
- Depth to saturation zone
- Depth to bedrock
- Shrink-Swell
- Ponding

These conditions may or may not eliminate the ability of a land owner to build a slab-on-grade dwelling, but specific conditions will need to be engineered to overcome potential problems in the future. As well, all structures must comply with floodplain requirements.

Somewhat Limited Conditions

Besides the Severe soils, there are several soil series considered Somewhat Limited which is less of an issue for development. The conditions which are contributing to the Somewhat Limited classification include:

- Depth to bedrock
- Shrink-Swell
- Slope

Not Limited Conditions

Hord series soils only present general limits to construction of dwellings without basements. It should be noted other units of

these soil types do present different profiles for soil suitability and limitations.

Dwellings with Basements

Soil limitations for dwellings with basements are shown in Table X2.2. Suitability and conditions for basements are similar to dwellings without basements.

Very Limited Conditions

Most soil types in Clay County are Very Limited for a Dwelling Unit with a Basement. There are several major conditions impacting the soils (not all are present in any one soil type).

Conditions present in the different soils include:

- Flooding
- Depth to saturation zone
- Depth to bedrock
- Shrink-Swell
- Ponding

These conditions may or may not eliminate the ability of a land owner to build a dwelling subgrade, but specific conditions will need to be engineered to overcome potential problems in the future. All structures must comply with floodplain requirements.

Somewhat Limited Conditions

Many soils are considered Somewhat Limited which is less of an issue for development. The conditions contributing to the Somewhat Limited classification include:

- Depth to bedrock
- Shrink-Swell
- Slope

Not Limited Conditions

Holdrege and Hord series soils present only general limits to construction of dwellings without basements.

Septic Tank and Absorption Fields

Soil limitations for dwellings with basements are shown in Table X2.2.

Very Limited Conditions

A majority of the soil types in Clay County are considered Very Limited for septic tanks and absorption fields. There are several major conditions impacting the soils (not all are present in any one soil type).

Conditions present in the different soils include:

- Flooding
- Depth to saturated zone
- Depth to bedrock
- Slope
- Slow water movement
- Filtering capacity
- Seepage

These conditions may or may not eliminate the ability of a land owner to use a septic tank and absorption field, but specific conditions will need to be engineered to overcome potential problems. All structures must comply with floodplain requirements.

Somewhat Limited Conditions

There are a few soils considered Somewhat Limited which is less of an issue. The conditions are contributing to the Somewhat Limited classification include:

- Depth to bedrock
- Slow water movement

Sewage Lagoons

Soil limitations for sewage lagoons are shown in Table X2.2.

Very Limited Conditions

A majority of the soil types in Clay County are considered Very Limited for sewage lagoons. There are several major conditions impacting soils (not all are present in any one soil type).

Conditions present in the different soils include:

- Flooding
- Depth to saturated zone
- Depth to bedrock
- Seepage

These conditions may or may not eliminate the ability of a land owner to use a sewage lagoon, but specific conditions will need to be engineered to overcome potential problems. All structures must comply with floodplain requirements.

Somewhat Limited Conditions

Besides the Severe soils, there are some soils considered Somewhat Limited which is less of an issue. The conditions are contributing to the Somewhat Limited classification include:

- Depth to bedrock
- Seepage

Sanitary Landfill

Soil limitations for sanitary landfills are shown in Table X2.2.

Very Limited Conditions

Most soil types in Clay County are considered Very Limited for a sanitary landfill. While these include fewer soil types than for other infrastructure, there are many major conditions impacting soils (not all are present in any one soil type).

Conditions present in the different soils include:

- Flooding
- Depth to saturated zone
- Depth to bedrock
- Ponding
- Dusty

TABLE X2.2A: SOIL LIMITATIONS

Clay County Soil Symbol/Soil Name	Dwellings without Basements		Dwellings with Basements		Septic tank and absorption fields		Sewage Lagoons		Sanitary Landfill		Small Commercial Businesses	
	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions
2667 Holdrege	1	4	0	-	2	2,6,7	1	9	1	10	1	4
2823 Uly	1	3,4	1	3,4	1	3,7	2	1,2,3,9	1	3,10	2	1,2,3,4
2824 Uly	2	1,3,4	2	1,3,4	2	1,3,7	2	3,9	2	1,3,10	2	1,3,4
2834 Uly-Hobbs	2	1,3,4	2	1,3,4	2	1,3,7	2	1,3,9	2	1,3,10	2	1,3,4
3255 Meadin	2	3	2	3	2	3,8,9	2	3,9	2	3,10	2	3
3545 Hobbs	2	1,2	2	1,2	2	1,2,7	2	1,2,9	2	1,2,10	2	1,2
3561 Hobbs	2	1,2,4	2	1,2	2	1,2,7	2	1,2,9	2	1,2,10	2	1,2,3,4
3731 Massie	2	2,3,4	2	2,4,6	2	2,6,7	2	2,6,9	2	2,6,10	2	2,3,4
3820 Butler	2	2,3,4	2	2,4,6	2	2,6,7	2	2,6,9	2	2,6,10	2	2,4,6
3824 Crete	2	2,3,4	2	2,4,6	2	2,6,7	1	9	1	10	2	2,4,6
3825 Crete	2	2,3,4	2	2,4,6	2	2,6,7	1	9	1	10	2	2,4,6
3835 Geary	2	1,3,4	2	1,3,4	2	1,3,7,8,9	2	1,3,9	2	1,3,10	2	1,3,4
3837 Geary	1	3,4	1	3,4	1	3,7	2	1,3,9	1	3,10	2	1,3,4
3838 Geary	1	3,4	1	3,4	2	1,3,7,8,9	2	1,3,9	1	3,10	2	1,3,4
3840 Geary	1	3,4	1	3,4	1	3,7	2	1,2,3,9	1	3,10	2	1,2,3,4
3844 Geary	1	4,5	1	4,5	2	1,2,3,5,7	1	3,9	1	10	1	3,4,5
3846 Geary	1	4	1	4,5	1	7	1	3,9	1	10	1	3,4
3851 Geary-Hobbs	2	1,2,3,4	2	1,2,3,4	2	1,2,3,7	2	1,2,3,9	2	1,2,3,10	2	1,2,3,4
3864 Hastings	2	2,3,4	1	4	2	2,6,7	1	9	1	10	2	2,4,6
3866 Hastings	2	2,3,4	1	4	2	2,6,7	1	9	1	10	2	2,4,6
3868 Hastings	1	4	1	4	2	1,2,7	1	3,9	1	10	1	3,4
3870 Hastings	1	4	1	4	2	1,2,7	1	3,9	1	10	1	3,4
3882 Holder	1	4	1	4	2	1,7	1	3,9	1	10	1	3,4
3884 Holder	1	3	1	3	2	3,7	2	3,9	1	3,10	2	3,3
3887 Holder	1	4	1	4	2	1,7	1	3,9	1	10	1	3,4
3889 Holder	1	3,4	1	3,4	2	1,3,7	2	1,3,9	1	3,10	2	1,3,4
3910 Scott	2	2,3,4,6	2	2,4,6	2	2,6,7	2	2,6,9	2	2,6,10	2	2,4,6
3952 Fillmore	2	2,4,6	2	2,4,6	2	2,6,7	2	2,6,9	2	2,6,10	2	2,4,6

Source: USDA Natural Resources Conservation Service.

TABLE X2.2B: SOIL LIMITATIONS

Clay County Soil Symbol/Soil Name	Dwellings without Basements		Dwellings with Basements		Septic tank and absorption fields		Sewage Lagoons		Sanitary Landfill		Small Commercial Businesses	
	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions
3953 Fillmore	2	2,4,6	2	2,4,6	2	2,6,7	2	2,6,9	2	2,6,10	2	2,4,6
3962 Hastings	1	3,4	1	3,4	2	1,2,3,7	2	1,2,9	1	3,10	2	1,2,3,4
4100 Crete	2	2,3,4,6	2	2,4,6	2	2,6,7	1	9	1	10	2	2,4,6
8434 Cass	2	1	2	1	2	1,8,9	2	1,9	2	1,9,10	2	1
8436 Cass	2	1,2	2	1,2	2	1,2,7,9	2	1,2,9	2	1,9,10	2	1,2
8439 Cass	2	1	2	1	2	1,9	2	1,9	2	1,9,10	2	1
8840 Hall	1	4	1	4	2	2,6,7	1	9	1	10	1	4
8866 Hord	0	-	0	-	1	7	1	3,9	1	10	0	-
8870 Hord	0	-	0	-	1	7	1	9	1	10	0	-

Source: USDA Natural Resources Conservation Service.

Legend for Table X2.2

Suitability	Limiting Conditions
Green = Not Limited	1. Flooding
Yellow = Somewhat Limited	2. Depth to Saturated Zone
Red = Very Limited	3. Depth to Bedrock
	4. Shrink-Swell
	5. Slope
	6. Ponding
	7. Slow Water Movement
	8. Filtering Capacity
	9. Seepage
	10. Dusty

SOIL LIMITING CONDITIONS

DEPTH TO BEDROCK (3) MEANS TYPICALLY A SOIL THAT HAS LIMITED DISTANCE TO BEDROCK OF SOME KIND

DEPTH TO SATURATED ZONE (2) REFERS TO SOILS WHICH DO NOT DRAIN WELL OR HAVE A LOW PERMEABILITY. THIS CONDITIONS CREATES AN ABOVE AVERAGE EXISTENCE OF WET SOILS.

DUSTY CONDITIONS OCCUR WHEN SOIL PARTICLES DETACH EASILY AND CAUSE DUST.

FLOODING (1) IS DEFINED AS SOILS LOCATED IN AREAS WHICH ARE PRONE TO FLOODING.

FILTERING CAPACITY (8) MEANS SOILS WITH RAPID PERMEABILITY OR AN IMPERMEABLE LAYER NEAR THE SURFACE, THE SOIL MAY NOT ADEQUATELY FILTER EFFLUENT FROM A WASTE DISPOSAL SYSTEM.

PONDING (6) MEANS SOILS SUBJECT TO FREQUENT FLOODS AND PONDING.

SEEPAGE (9) MEANS THE MOVEMENT OF WATER THROUGH THE SOIL. SEEPAGE ADVERSELY AFFECTS THE SPECIFIED USE.

SHRINK-SWELL (4) MEANS THE SHRINKING OF SOIL WHEN DRY AND SWELLING WHEN WET. SHRINKING AND SWELLING CAN DAMAGE ROADS, DAMS, BUILDING FOUNDATIONS, AND OTHER STRUCTURES. IT CAN ALSO DAMAGE PLANT ROOTS.

SLOPE (3) MEANS THE INCLINATION OF THE LAND SURFACE FROM THE HORIZONTAL. THE CLASS OF SLOPES ARE:

NEARLY LEVEL	0 TO 1 PERCENT
	0 TO 2 PERCENT
VERY GENTLY SLOPING	1 TO 3 PERCENT
GENTLY SLOPING	2 TO 6 PERCENT
	3 TO 6 PERCENT
STRONGLY SLOPING	6 TO 9 PERCENT
	6 TO 11 PERCENT
MODERATELY SLOPING	9 TO 20 PERCENT
	11 TO 15 PERCENT
STEEP	15 TO 30 PERCENT

SLOW WATER MOVEMENT (7) MEANS SOILS THAT DO NOT ALLOW REASONABLE DOWNWARD MOVEMENT OF WATER, WITH LIMITED PERMEABILITY.

TABLE X2.3A: SOIL PERMEABILITY BY SOIL TYPE

Soil Symbol/Soil Name		Depth (inches)	Permeability (inches/ hour)	Shrink-Swell potential
2667	Holdrege - silt loam, 0 to 1 percent slopes	0-6	.6-2	Moderate
		6-11	.6-2	Moderate
		11-16	.2-.6	Moderate
		16-26	.2-.6	Moderate
		26-33	.6-2	Moderate
		33-79	.6-2	Low
2823	Uly - silt loam, 11 to 17 percent slopes, eroded	0-9	.6-2	Moderate
		9-25	.6-2	Moderate
		25-79	.6-2	Low
2824	Uly - silt loam, 11 to 30 percent slopes, eroded	0-9	.6-2	Moderate
		9-25	.6-2	Moderate
		25-79	.6-2	Low
2834	Uly-Hobbs - silt loam, 0 to 30 percent slopes	0-9	.6-2	Moderate
		9-25	.6-2	Moderate
		25-79	.6-2	Low
		0-6	.6-2	Moderate
		6-79	.6-2	Low
3255	Meadin - sandy loam, 2 to 30 percent slopes	0-9	.6-2	Low
		9-13	6-20	Low
		13-60	20-100	Low
3545	Hobbs - silt loam, channeled, frequently flooded	0-6	.6-2	Moderate
		6-79	.6-2	Moderate
3561	Hobbs - silt loam, occasionally flooded	0-6	.6-2	Moderate
		6-79	.6-2	Moderate
3731	Massie - silty clay loam, frequently ponded	0-2	14-85	Low
		2-8	.2-.6	Moderate
		8-11	.6-2	Low
		11-54	0-.06	Very High
		54-67	.2-.6	High
		67-79	.2-.6	Moderate
3820	Butler - silt loam, 0 to 1 percent slopes	0-9	.6-2	Moderate
		9-13	.6-2	Low
		13-34	.06-.2	Very High
		34-41	.2-.6	High
		41-79	.6-2	Moderate
3824	Crete - silt loam, 0 to 1 percent slopes	0-6	.6-2	Low
		6-15	.2-.6	Moderate
		15-25	.06-.2	Very High
		25-33	.06-.2	Moderate
		33-40	.2-.6	Moderate
		40-79	.6-2	Moderate
3825	Crete - silt loam, 1 to 3 percent slopes	0-6	.6-2	Low
		6-12	.2-.6	Moderate
		12-23	.06-.2	Very High
		23-31	.06-.2	High
		31-39	.2-.6	Moderate
		39-79	.6-2	Moderate
3835	Geary - silt loam, 11 to 30 percent slopes	0-7	.6-2	Moderate
		7-11	.6-2	Moderate
		11-24	.2-.6	Moderate
		24-32	.6-2	Moderate
		32-38	.6-2	Moderate
		38-79	.6-2	Moderate
3837	Geary - silty clay loam, 11 to 17 percent slopes, eroded	0-6	.6-2	Moderate
		6-17	.2-.6	Moderate
		17-25	.6-2	Moderate
		25-32	.6-2	Moderate
		32-79	.6-2	Moderate
3838	Geary - silt loam, 7 to 11 percent slopes	0-7	.6-2	Moderate
		7-11	.6-2	Moderate
		11-27	.2-.6	Moderate
		27-34	.6-2	Moderate
		34-42	.6-2	Moderate
		42-79	.6-2	Moderate
3840	Geary - silty clay loam, 7 to 11 percent slopes, eroded	0-6	.6-2	Moderate
		6-22	.2-.6	Moderate
		22-33	.6-2	Moderate
		33-38	.6-2	Moderate
		38-79	.6-2	Moderate
3844	Geary - silt loam, 3 to 7 percent slopes	0-8	.6-2	Moderate
		8-14	.6-2	Moderate
		14-33	.2-.6	Moderate
		33-46	.6-2	Moderate
		46-54	.6-2	Moderate
		54-79	.6-2	Moderate
3846	Geary - silty clay loam, 3 to 7 percent slopes, eroded	0-6	.6-2	Moderate
		6-22	.2-.6	Moderate
		22-33	.6-2	Moderate
		33-38	.6-2	Moderate
		38-79	.6-2	Moderate
3851	Geary-Hobbs - silt loams, 0 to 30 percent slopes	0-7	.6-2	Moderate
		7-11	.6-2	Moderate
		11-31	.2-.6	Moderate
		31-43	.6-2	Moderate
		43-51	.6-2	Moderate
		51-79	.6-2	Moderate
		0-7	.6-2	Moderate
		7-24	.6-2	Moderate
		24-39	.6-2	Moderate
		39-79	.6-2	Moderate
3864	Hastings - silt loam, 0 to 1 percent slopes	0-6	.6-2	Moderate
		6-13	.2-.6	Moderate
		13-17	.2-.6	High
		17-32	.2-.6	High
		32-39	.2-.6	Moderate
		39-79	.6-2	Moderate
3866	Hastings - silt loam, 1 to 3 percent slopes	0-6	.6-2	Moderate
		6-11	.2-.6	Moderate
		11-14	.2-.6	High
		14-31	.2-.6	High
		31-38	.2-.6	Moderate
		38-79	.6-2	Moderate
3868	Hastings - silt loam, 3 to 7 percent slopes	0-10	.6-2	Moderate
		10-14	.2-.6	High
		14-32	.2-.6	High
		32-38	.2-.6	Moderate
		38-79	.6-2	Moderate
3870	Hastings - silty clay loam, 3 to 7 percent slopes, eroded	0-8	.2-.6	Moderate
		8-14	.2-.6	High
		14-32	.2-.6	High
		32-38	.2-.6	Moderate
		38-79	.6-2	Moderate
3882	Holder - silt loam, 3 to 7 percent slopes	0-8	.6-2	Moderate
		8-30	.2-.6	Moderate
		30-36	.6-2	Moderate
		36-79	.6-2	Moderate
3884	Holder - silt loam, 7 to 11 percent slopes	0-12	.6-2	Low
		12-26	.2-.6	High
		26-36	.6-2	Low
		36-80	.6-2	Low
3887	Holder - silty clay loam, 3 to 7 percent slopes, eroded	0-8	.6-2	Moderate
		8-30	.2-.6	Moderate
		30-36	.6-2	Moderate
		36-79	.6-2	Moderate
3889	Holder - silty clay loam, 7 to 11 percent slopes, eroded	0-8	.6-2	Moderate
		8-30	.2-.6	Moderate
		30-36	.6-2	Moderate
		36-80	.6-3	Moderate
3910	Scott - silt loam, frequently ponded	0-5	.6-2	Moderate
		5-7	.6-2	Low
		7-38	0-.06	Very High
		38-48	.2-.6	High
		48-79	.2-.6	High
3952	Fillmore - silt loam, frequently ponded	0-9	.6-2	Moderate
		9-14	.6-2	Low
		14-39	0-.06	Very High
		39-49	.2-.6	High
		49-79	.2-.6	High

Source: USDA Natural Resources Conservation Service.

TABLE X2.3B: SOIL PERMEABILITY BY SOIL TYPE

	Soil Symbol/Soil Name	Depth (inches)	Permeability (inches/ hour)	Shrink-Swell potential
3953	Fillmore - silt loam, drained, 0 to 1 percent slopes	0-19	.6-2	High
		19-33	0-.06	High
		33-45	.2-.6	High
		45-80	.6-2	Moderate
3962	Hastings - silty clay loam, 7 to 11 percent slopes, eroded	0-8	.2-.6	Moderate
		8-14	.2-.6	High
		14-32	.2-.6	High
		32-38	.2-.6	Moderate
		38-79	.6-2	Moderate
4100	Crete - silt loam, thick solum, 0 to 1 percent slopes	0-12	.6-2	Moderate
		12-15	.2-.6	High
		15-45	.06-.2	High
		45-80	.2-.6	Moderate
8434	Cass - fine sandy loam, overwash, occasionally flooded	0-10	2-6	Low
		10-14	.6-2	Low
		14-60	6-20	Low
8436	Cass - loam, occasionally flooded	0-10	.6-2	Low
		10-30	2-6	Low
		30-38	6-20	Low
		38-47	.6-2	Low
		47-80	2-6	Low
8439	Cass - silt loam, occasionally flooded	0-17	.6-2	Low
		17-29	2-6	Low
		29-80	6-20	Low
8840	Hall - silt loam, 0 to 1 percent slopes	0-13	.6-2	Low
		13-44	.2-.6	Low
		44-80	.6-2	Low
8866	Hord - silt loam, 0 to 1 percent slopes, warm	0-20	.6-2	Moderate
		20-36	.6-2	Moderate
		36-79	.6-2	Moderate
8870	Hord - silt loam, 1 to 3 percent slopes	0-20	.6-2	Moderate
		20-36	.6-2	Moderate
		36-79	.6-2	Moderate

Source: USDA Natural Resources Conservation Service.

These conditions may or may not eliminate the ability to construct a sanitary landfill, but specific conditions will need to be engineered to overcome potential problems.

Somewhat Limited Conditions

Besides the Severe soils, there are some soils considered Somewhat Limited which is less of an issue. The conditions contributing to the Somewhat Limited classification include:

- Depth to Bedrock
- Dusty

SMALL COMMERCIAL BUSINESSES

Soil limitations for small commercial businesses are shown in Table X2.2.

Very Limited Conditions

A majority of the soil types in Clay County are considered Very Limited for a Small Commercial Business. There are several major conditions impacting the soils (not all are present in any one soil type).

Conditions present in the different soils include:

- Flooding
- Depth to saturation zone
- Depth to bedrock
- Shrink-Swell
- Ponding

These conditions may or may not constrain the ability of a land owner to construct small commercial structures, but specific conditions will need to be engineered to overcome potential problems. All structures must comply with floodplain requirements.

Somewhat Limited Conditions

Besides the Severe soils, there are some soils considered Somewhat Limited which is less of a concern for development. The conditions contributing to the Somewhat Limited classification include:

- Depth to bedrock
- Shrink-Swell
- Slope

Not Limited Conditions

Hord series soils only present general limits to construction of dwellings without basements. It should be noted other units of these soil types do present different profiles for soil suitability and limitations.

SOIL PERMEABILITY

USDA NRCS divides soils into hydrologic soil groups (HSGs), based on low to high runoff potential. Each official soil series description includes drainage and saturated hydraulic conductivity (permeability) based on the characteristics of water movement through soil.

Shrink-swell potential is a related factor, based on the volume change occurring as a result of changes in moisture content of the soil. The ability of soil to drastically change volume can cause damage to existing structures, such as cracks in foundations.

Table X2.3 presents the NRCS permeability ratings and shrink-swell potential by soil type. High shrink-swell potential is highlighted by red text.

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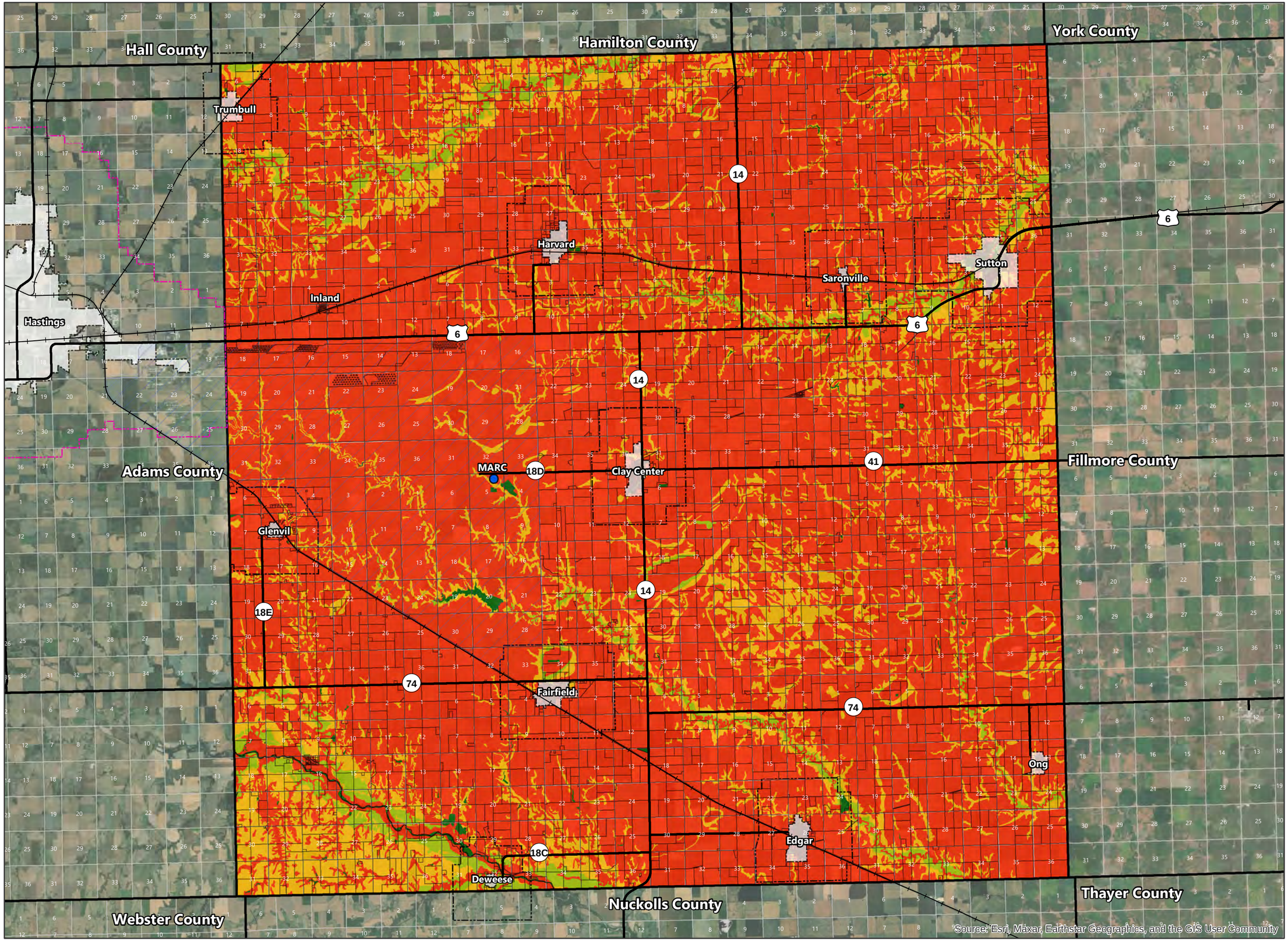

CLAY COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FIG B1: DWELLINGS WITHOUT BASEMENTS

LEGEND

- Highways
- Railroad
- Naval Ammunition Depot
- Clay County 1-Mile ETJs
- Hastings 2-Mile ETJ
- Municipal Limits
- County Boundaries
- Parcels
- Sections
- MARC

Rating

- Not rated
- Not limited
- Somewhat limited
- Very limited

N

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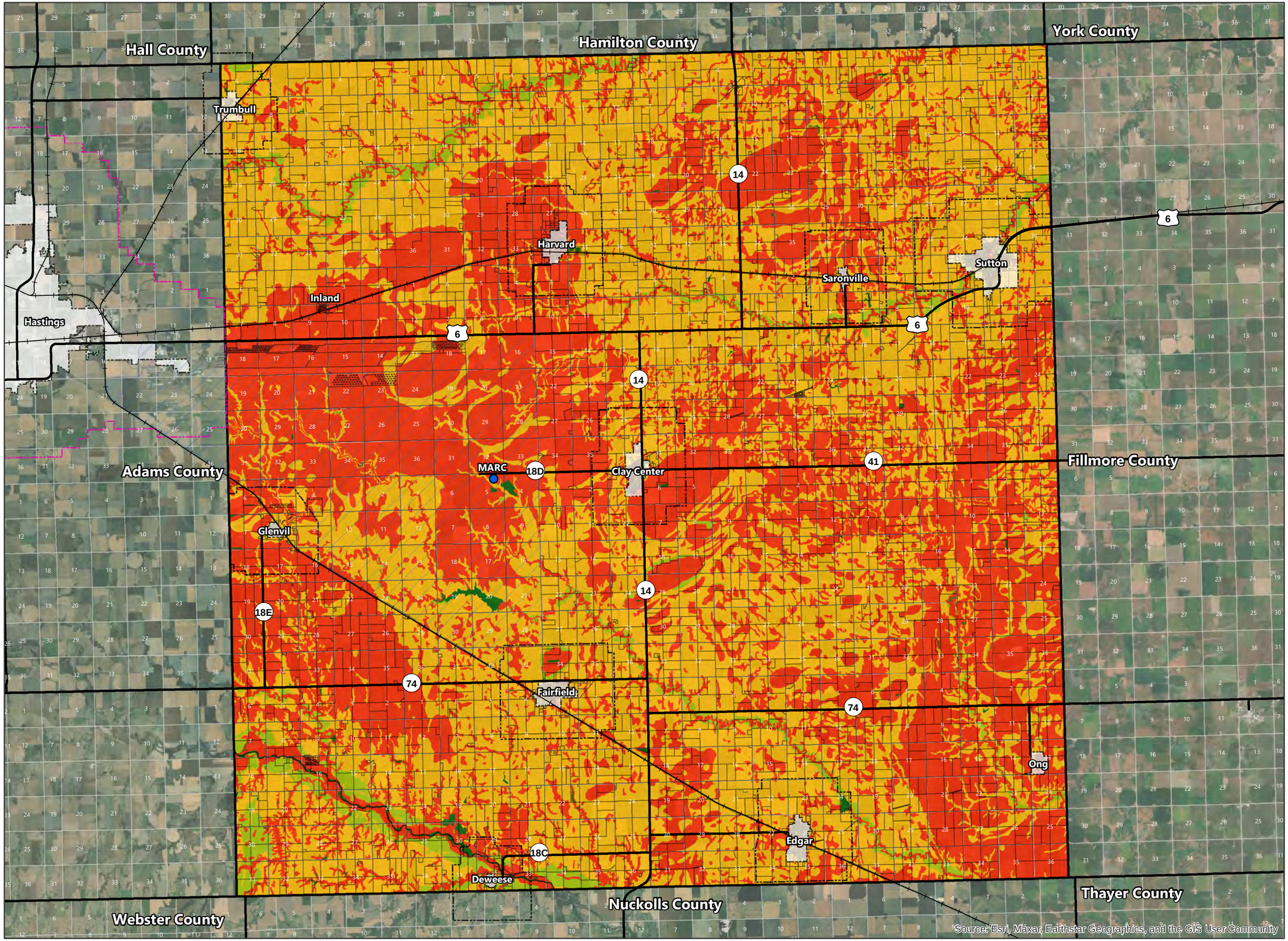
PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 9.16.25

0 0.75 1.5 3 Miles



CLAY COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FIG B2: DWELLINGS WITH BASEMENTS

LEGEND

- MARC
- Highways
- Railroad
- Naval Ammunition Depot
- Clay County 1-Mile ETJs
- Hastings 2-Mile ETJ
- Municipal Limits
- County Boundaries
- Parcels
- Sections

Rating

- Not rated
- Not limited
- Somewhat limited
- Very limited

N

MARVIN PLANNING CONSULTANTS
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PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 9.16.25

0 0.75 1.5 3 Miles

CLAY COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FIG B3: SEPTIC TANK ABSORPTION

Hall County
Hamilton County
York County
Trumbull
Harvard
Inland
Saronville
Sutton
Hastings
Adams County
MARC
Clay Center
Fillmore County
Glenvil
Fairfield
Ong
Edgar
Deweese
Nuckolls County
Thayer County
Webster County

LEGEND

- Highways
- Railroad
- Naval Ammunition Depot
- Clay County 1-Mile ETJs
- Hastings 2-Mile ETJ
- Municipal Limits
- County Boundaries
- Parcels
- Sections

Rating

- Not rated
- Somewhat limited
- Very limited
- MARC

N

MARVIN PLANNING CONSULTANTS
Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 9.16.25

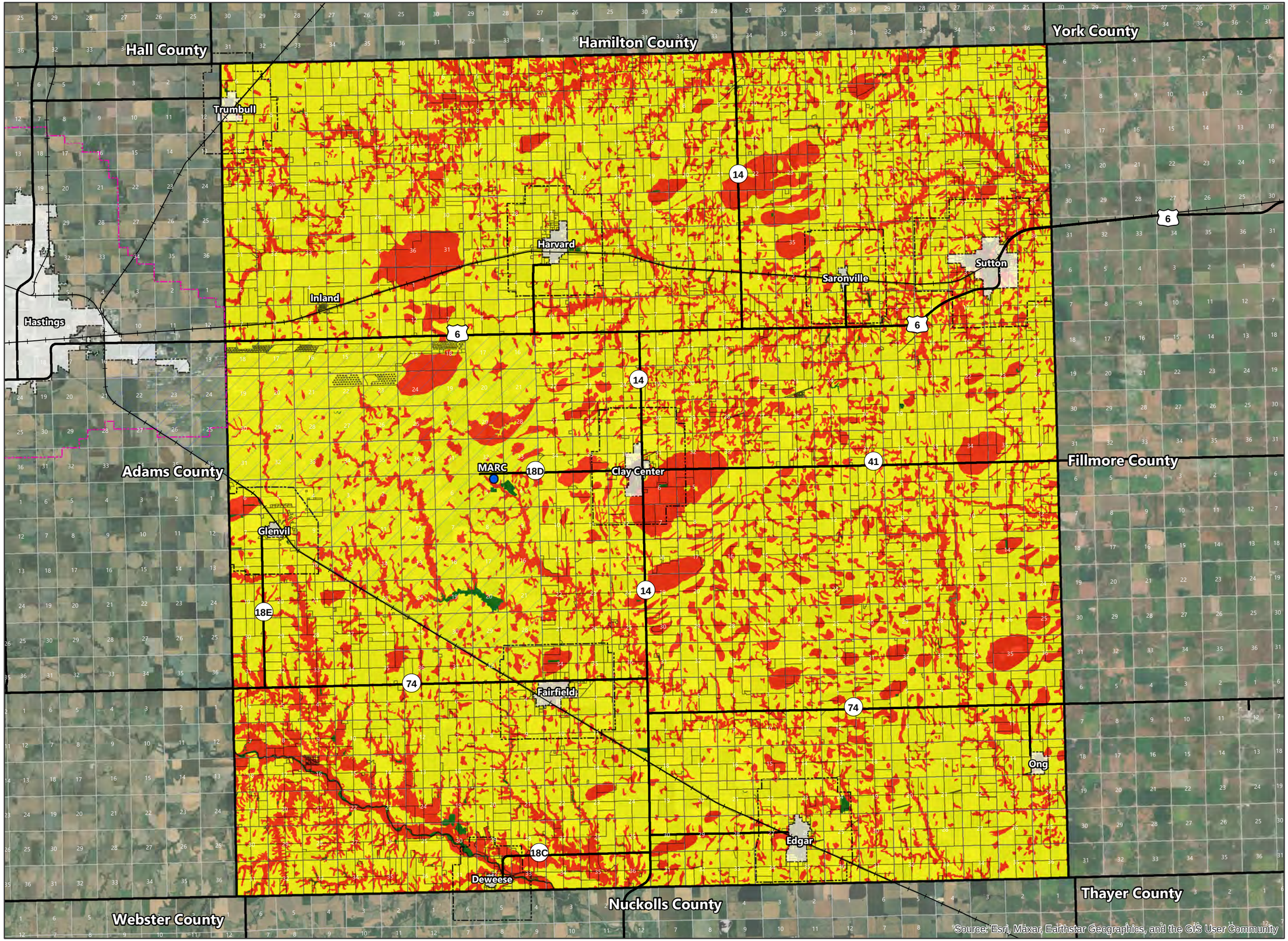
0 0.75 1.5 3 Miles

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

CLAY COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FIG B4: SEWAGE LAGOONS



LEGEND

- Highways
- Railroad
- Naval Ammunition Depot
- Clay County 1-Mile ETJs
- Hastings 2-Mile ETJ
- Municipal Limits
- County Boundaries
- Parcels
- Sections
- MARC

Rating

- Not rated
- Somewhat limited
- Very limited

N

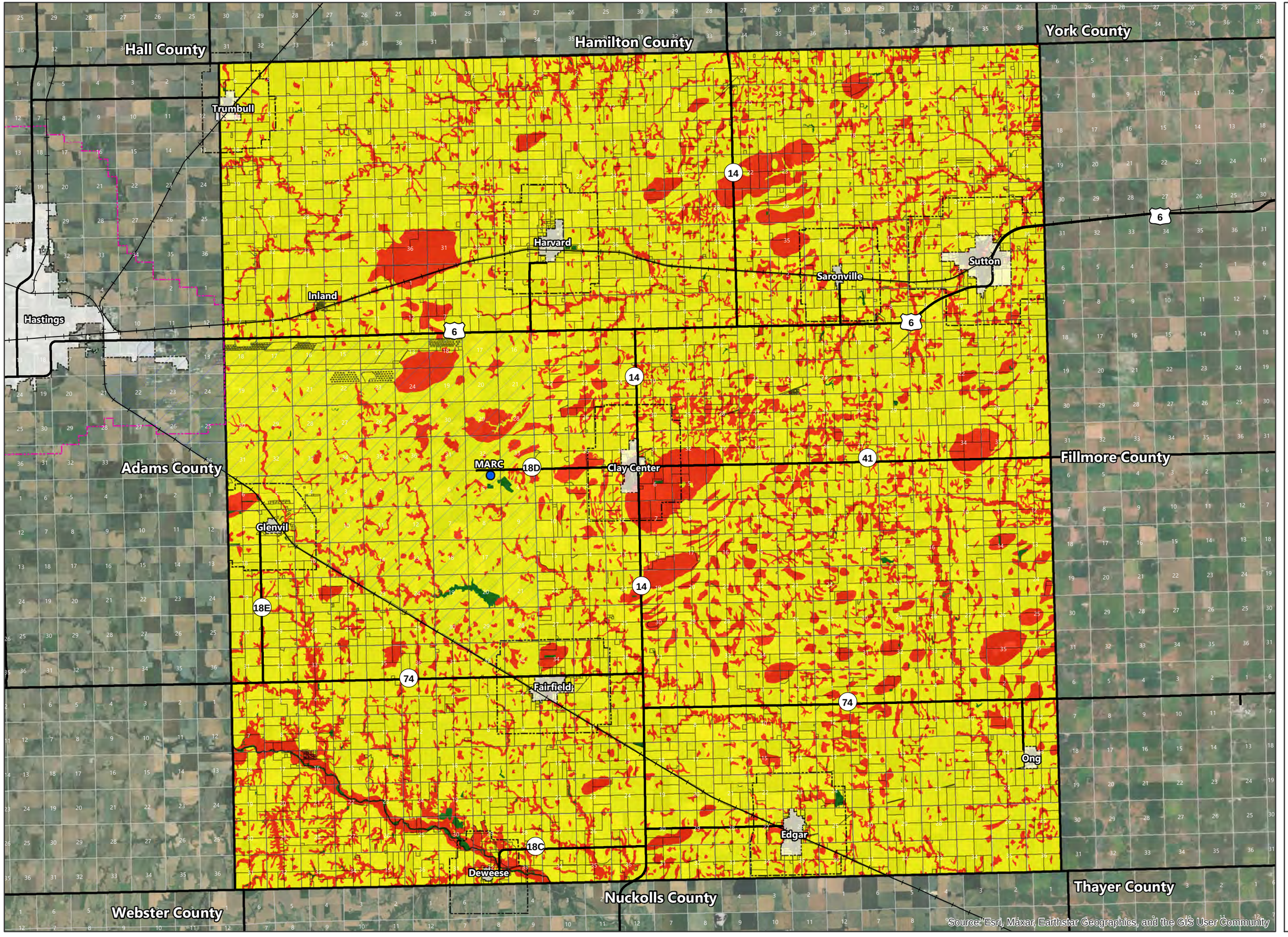
MARVIN PLANNING CONSULTANTS

Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 9.16.25

0 0.75 1.5 3 Miles

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



CLAY COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FIG B5: SANITARY LANDFILL

LEGEND

- Highways
- Railroad
- Naval Ammunition Depot
- Clay County 1-Mile ETJs
- Hastings 2-Mile ETJ
- Municipal Limits
- County Boundaries
- Parcels
- Sections
- MARC

Rating

- Not rated
- Somewhat limited
- Very limited

N

MARVIN PLANNING CONSULTANTS

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 9.16.25

0 0.75 1.5 3 Miles

CLAY COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FIG B6: SMALL COMMERCIAL BUILDINGS

Hall County
Hamilton County
York County
Adams County
Fillmore County
Webster County
Nuckolls County
Thayer County
Trumbull
Harvard
Inland
Hastings
Saronville
Sutton
Glenvil
Fairfield
Clay Center
MARC
Edgar
Ong
Deweese
6
14
74
41
18D
18E
18C

LEGEND

- Highways
- Railroad
- Naval Ammunition Depot
- Clay County 1-Mile ETJs
- Hastings 2-Mile ETJ
- Municipal Limits
- County Boundaries
- Parcels
- Sections
- MARC

Rating

- Not limited
- Not rated
- Somewhat limited
- Very limited

N

MARVIN PLANNING CONSULTANTS
Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 9.16.25

0 0.75 1.5 3 Miles

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community