

An aerial photograph of a rural landscape in Brown County, Nebraska. The scene shows rolling green hills, a large pond on the left, and several farm buildings, including a long white barn and several silos. The sky is blue with some light clouds.

Brown County, Nebraska Comprehensive Plan 2020-2030.

Prepared for:
Brown County Planning Commission.

Prepared by:

HANNA:KEELAN ASSOCIATES, P.C.
COMMUNITY PLANNING & RESEARCH

APRIL, 2020

BROWN COUNTY, NEBRASKA COMPREHENSIVE PLAN 2020-2030.

PLAN PARTICIPANTS

COUNTY BOARD OF COMMISSIONERS

Raymond Small
Dennis Bauer
Reagan Wiebelhaus

PLANNING/ZONING BOARD

Linda O'Hare – Chair
Wilbner Saner
Pat Schumacher

Steve Bejot
Jimmy Jackson

COUNTY STAFF

Tom Jones, Zoning Administrator
Andy Taylor, County Attorney

CONSULTANT

HANNA:KEELAN ASSOCIATES, P.C.
COMMUNITY PLANNING & RESEARCH

* Lincoln, Nebraska * 402.464.5383 *

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SECTION 1:
The Brown County
Planning Process.

HANNA:KEELAN ASSOCIATES, P.C.
COMMUNITY PLANNING & RESEARCH

SECTION 1

THE BROWN COUNTY PLANNING PROCESS.

THE COMPREHENSIVE PLAN.

This **Comprehensive Plan** was prepared to guide and direct future growth and development activities in **Brown County, Nebraska** during the 10-year planning period, 2020 to 2030. The **Plan** replaces the existing **Brown County Plan**, completed in 1993.

The focus of this **Comprehensive Plan** is to assess the effectiveness of balancing the desire to preserve and protect agricultural production lands for agricultural uses, while at the same time, in appropriate locations, provide for the development of non-farm dwellings and rural subdivisions.

The implementation of this **Comprehensive Plan** should be guided by the establishment of **“Goals & Policies,”** as determined by the evaluation and analysis of **“Population, Income, & Economic Profile,” “Land Use Profile & Plan,” “Public Facilities & Transportation”** and an **“Energy Element.”** The intent of this **Comprehensive Plan** is also to serve as a foundation and guide for the implementation of **Zoning and Subdivision Regulations**, as needed, to achieve the specific **Goals and Policies** identified in the **Plan**.

This **Comprehensive Plan** is intended to provide policy guidance to enable the residents and elected officials of the County to make decisions based upon the consensus of opinion of the **Brown County Planning Commission**. **Plan** implementation methods should include incentives to stimulate private action consistent with the **Plan** and the use of local, State and Federal programs for County-wide economic development activities.

The **Comprehensive Plan** addresses the rural, unincorporated areas of Brown County. The **Plan** was prepared under the direction of the **Brown County Planning Commission** by **Hanna:Keelan Associates, P.C.**, a Lincoln, Nebraska-based Community Planning & Research Consulting Firm.

PLANNING PERIOD

The planning time period for achieving the goals, programs and economic development activities identified in this **Comprehensive Plan** for Brown County, Nebraska, is 10 years (2020-2030).

AUTHORITY TO PLAN

This **Comprehensive Plan** for Brown County is prepared under the Authority of Sections 23-114 to 23-174.10, Nebraska State Statutes 1943, as Amended.

AMENDMENT

The **Comprehensive Plan** should be reviewed, amended and/or updated as the need arises, as provided in the Nebraska State Statutes.

LOCATION

Brown County is located in north-central Nebraska, bordered by the Niobrara River/Keya Paha County (north), Rock County (east), Loup County (southeast), Blaine County (south) and Cherry County (west). U.S. Highways 20 and 183 and Nebraska State Highway 7 support transportation to and from Brown County Communities and beyond. The City of Ainsworth serves as the County-Seat of Brown County.

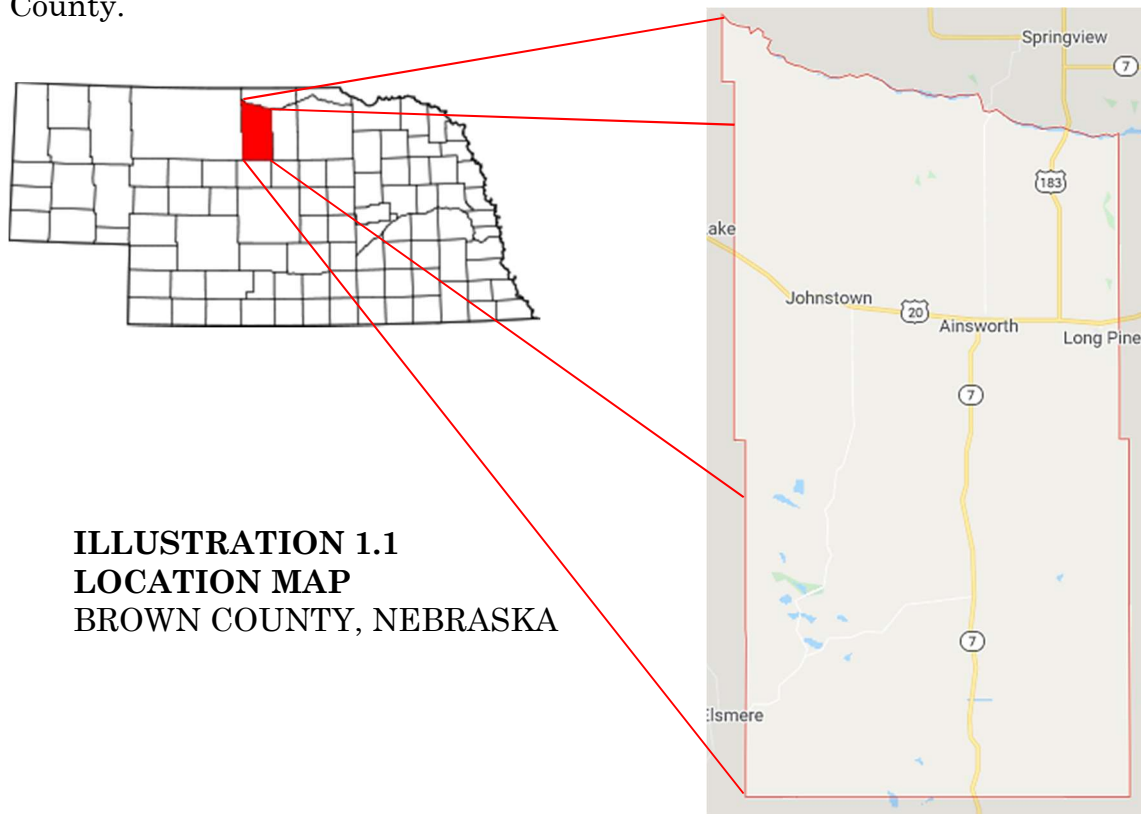


ILLUSTRATION 1.1
LOCATION MAP
BROWN COUNTY, NEBRASKA

An aerial photograph of a rural landscape. In the foreground, there is a large, long, white barn with a corrugated metal roof. To the left, there is a small pond. The background shows rolling green hills, scattered trees, and a few smaller farm buildings under a blue sky with light clouds.

SECTION 2: Goals & Policies.

HANNA:KEELAN ASSOCIATES, P.C.
COMMUNITY PLANNING & RESEARCH

SECTION 2

GOALS & POLICIES.

INTRODUCTION.

The **Comprehensive Plan** plays a major role in the future growth and sustainability of Brown County. Important components of this **Plan** are specific planning **Goals** and **Policies** that provide local leadership with the direction for the administration and overall implementation of the **Plan**. In essence, **Goals** and **Policies** are the most fundamental elements of the Plan; the premises upon which all other elements of the **Plan** must relate. Effective **Goals** and **Policies** not only address past and present issues, but also provide a strategic vision and plan and procedures to assist Brown County leaders in taking a proactive approach to solving future issues.

Creating a strategic vision for a County through the development of **Goals** and **Policies** requires an evaluation of the present conditions. Because change is a constant occurrence, a County's vision and associated **Goals** and **Policies** must be continuously reviewed, amended and updated to ensure the present needs and desires of residents are being met. The following **Goals** and **Policies** will be in effect for the period of this **Comprehensive Plan, 2020 to 2030**, pending annual review.

The **Goals** and **Policies** included in the **1993 Brown County Comprehensive Plan** were reviewed, and in some cases, revised and/or included in whole, in this **Section** of the **Comprehensive Plan**.

Goals.

Goals are broad statements that identify state or condition citizens desire the primary components of the Brown County planning area to be, or evolve into within a given length of time. Primary components include **land use, housing, economic development, public infrastructure, facilities and transportation and plan maintenance and implementation**. Goals are long-term in nature and, in the case of those identified for this **Comprehensive Plan**, will be active throughout the **10-year planning period**.

Policies.

Policies help to further define the meaning of Goals. Policies, or often referred to as objectives, are recommendations for means by which **Goals** can be accomplished. **Policies** are sub-parts of a **Goal** and are accomplished in a much shorter time frame.

The following **Goals** and **Policies** are the result of both qualitative and quantitative research conducted in association with this **Comprehensive Plan**. These **Goals** and **Policies** are intended to support and recognize current and future community and economic development activities and sustainability measures, as desired by the leaders and general citizenry of Brown County.

GENERAL COUNTY GOALS.

The first step in developing **Goals** and **Policies** for this **Comprehensive Plan** was the creation of **general Goals**. These general **County Goals** were developed to "highlight" **important** elements of this comprehensive planning process, as determined via the identification of "key" issues by members of the Brown County Planning Commission.

The following represents the General Goals associated with the rural, unincorporated areas of Brown County, Nebraska.

- ❖ Promote citizen participation by persons of all ages and incomes to ensure the preservation and improvement of the economic and social quality of life in Brown County.
- ❖ Promote the lifestyle and amenities of Brown County to broaden the economic base and expand economic development and employment opportunities.
- ❖ Promote the preservation of the agricultural industry, including the diversity of crops and cattle/calf production. Historically, agriculture has been the primary income producing activity for Brown County, and is anticipated to remain as such through the 10-year planning period.
- ❖ Protect the natural resources and living environs of Brown County by, only, allowing developments in specific regions deemed appropriate.

- ❖ Discourage developments in rural Brown County that would have negative impacts within any designated Wellhead Protection or rural Conservation Areas.
- ❖ Maintain a flood plain evaluation and administration process in Brown County that fits with both proper development activities and flood mitigation efforts. This includes finalizing and implementing **minimum requirements of Nebraska Standards for floodplain management programs** in Brown County.
- ❖ Encourage proper rural housing development activities and job creation opportunities to stabilize the Brown County population. Preserve rural lands for agricultural use by limited future residential development to the Planning Jurisdictions of Brown County Communities.
- ❖ Foster and market the values of rural Brown County to encourage the development of organized local action to preserve and strengthen the quality of life for residents throughout the County.
- ❖ Monitor the consumption of energy by all development sectors in the County, while supporting the utilization of alternative energy sources such as Wind, Solar, Geothermal, Biomass, Hydropower and Methane, to reduce the reliance on traditional fossil fuels as energy sources.
- ❖ Continue to strengthen relationships between the County and the Communities of Brown County to produce planning practices supportive of associated land usage, as well as appropriate planning and zoning administration procedures, to ensure the proper implementation of the **Brown County Land Use Plan**.

LAND USE.

Goal 1 – Provide opportunities for land development in an orderly, efficient and environmentally sound manner.

Policies:

- 1.1 Maintain Zoning and Subdivision Regulations that support the conservation of natural and recreational resources.
- 1.2 Ensure that future non-agricultural development in rural Brown County are equipped with an adequate, modern utility system and do not conflict with existing agricultural and/or residential uses.
- 1.3 Avoid non-agricultural developments that could result in the contamination of soils and groundwater resources.
- 1.4 Direct future developments to locations which are relatively free of environmental constraints relating to: sensitive soils, slope, floodplains, drainage, ground water, endangered species or other natural resources.
- 1.5 Implement Zoning Regulations that allow for livestock/confinement facilities in appropriate areas of rural Brown County, when in conformance with the Brown County Zoning Regulations.
- 1.6 Provide for the use of alternative energy systems to supplement individual residential, commercial and industrial electric consumption in accordance with Nebraska State Statute 70-1012, as amended August, 2009. The use of Solar, Methane, Wind, Biomass, Hydropower and Geothermal Energy systems on individual properties to supplement or sell excess energy produced to the local utility district, is a process known as “**Net Metering.**”
- 1.7 Consider the development of Utility Grid Solar Energy Systems (commonly referred to as “Solar Farms”) in appropriate locations in Brown County, via a conditional use permitting process.
- 1.8 Utilize soil suitability when evaluating development proposals for septic systems or lagoons for sewage treatment.

Goal 2 - Maintain land use development patterns and densities in Brown County that conform to uniform planning standards.

Policies:

- 2.1 Maintain and follow the **Land Use Plan** for the County, which is based upon both present and future development conditions.
- 2.2 Continue to implement Zoning and other policies/regulations that will provide incentives for maintenance of agricultural lands for traditional agricultural uses.
- 2.3 Direct both irrigated and dryland crop production to areas that minimize the effect on the local groundwater system.
- 2.4 Allow for higher density residential developments in appropriate locations throughout rural Brown County, through the promotion of urban dwellings/planned rural subdivisions, to increase both the population and tax base in the County.
- 2.5 The **Brown County Land Use Plan** should limit high activity developments in areas with sensitive soils, enhanced environmental conditions and/or recreational land use (current or potential). This includes livestock confinement facilities and other high-intensity industrial operations.
- 2.6 Ensure that adequate open and recreational space is maintained in rural Brown County, especially relating to rural conservation corridors along the Niobrara River. Emphasize recreational opportunities and amenities offering year-round enjoyment, including Pine Glen and Bobcat State Wildlife Management Areas.

Goal 3 - Encourage compatible adjacent land uses throughout the County by implementing regulations suited to the unique characteristics and location of each use.

Policies:

- 3.1 Establish an annual review and modification process of established Zoning Districts and regulations to encourage both development and redevelopment activities throughout Brown County.
- 3.2 Ensure the orderly development of residential uses that are environmentally sound, regarding topography and soils capacity.

- 3.3 Encourage planned development of residential dwellings within and adjacent Brown County Communities and in areas not suitable for agricultural production. Encourage planned rural subdivisions with modern infrastructure, within appropriately Zoned districts.
- 3.4 Ensure the appropriate location of industrial and commercial developments within and/or adjacent Brown County Communities, or in areas allowing for compatible land uses and adequate access to transportation systems and utilities.

Goal 4 - Work cooperatively with Federal, State and County Governments to develop compatible flood control measures.

Policies:

- 4.1 Continue to work cooperatively with State and Federal Agencies to protect the natural environment in Brown County from developments that result in contaminants or pollutants.
- 4.2 Require all developments in the County to be consistent with regulations set forth for flood-prone areas.
- 4.3 Review and identify measures which limit or reduce flood hazards, control water runoff and enhance the quality of surface and ground water.

Goal 5 - Achieve residential, commercial, and industrial land use developments that are suitable for existing soils capacity and topography.

Policies:

- 5.1 Support sound, planned rural subdivision development in Brown County, through appropriate, but cost efficient standards for subdivision design and construction.
- 5.2 Identify land uses to promote and complement the existing State Recreation, Wildlife Management and Rural Conservation Areas.

HOUSING.

Goal 1 - Provide access to a variety of safe, decent and affordable housing types in rural Brown County, especially for persons and agricultural families of low- to moderate income.

Policies:

- 1.1** Improve on existing and develop new organizational relationships to create affordable housing in Brown County, including County government partnering with Central Nebraska Economic Development District and Central Nebraska Community Action Partnership.
- 1.2** Promote affordable housing programs in rural Brown County, both for the rehabilitation and/or removal of unsafe housing, as well as new housing construction.
- 1.3** Promote and encourage the development of varied housing styles, prices, densities, quantities and locations, as to attract individuals and families to Brown County.
- 1.4** Promote additional housing to retain young families, especially the local workforce.
- 1.5** Promote and support the development of affordable housing in Brown County for persons with disability types.



Goal 2 - Protect and preserve existing rental and owner occupied residential housing units in Brown County.

Policies:

- 2.1 Promote housing rehabilitation programs in rural Brown County to preserve and ensure that the existing housing stock meets current health and safety codes.
- 2.2 Identify and encourage the rehabilitation/preservation of the historically significant residences and structures in Brown County.

Goal 3 - Encourage future residential developments in Brown County that are compatible and complements existing environmental features. Non-farm/ranch dwellings should be located adjacent or near hard surfaced highways.

Policies:

- 3.1 Identify and promote appropriate land areas for residential development in Brown County. Land in close proximity to hard-surfaced roads/highways should be targeted, in an effort to prevent conflicts with agricultural production areas of the County.
- 3.2 Prohibit residential development in environmentally sensitive areas and within designated floodplains throughout Brown County.
- 3.3 Utilize soils and other environmental data in determining the suitability of areas for housing development.

PUBLIC FACILITIES & TRANSPORTATION.

Goal 1 - Plan, program and implement the most effective, safe and cost efficient public facilities and transportation systems throughout Brown County.

Policies:

- 1.1 Support local, public organizations in preparation of **Capital Improvement Programs or Plans**, consistent with the **Goals and Policies** of this **Comprehensive Plan**.
- 1.2 Recognize the need for and improve on intergovernmental and regional cooperation to reduce duplication of public health and safety efforts.
- 1.3 Maintain modern design standards and policies for public infrastructure improvements throughout rural Brown County.
- 1.4 Maintain a **One- and Six-Year Road Plan** to assure a safe and efficient road system in Brown County.

Goal 2 - Provide a transportation system throughout Brown County for the safe and efficient movement of people, goods and services.

Policies:

- 2.1 Coordinate transportation planning and improvements with the planning and development of other elements of the County, including public utilities and facilities supportive of commercial and industrial development.
- 2.2 Maintain a road and associated bridge system in Brown County that is in accordance with the standard functional street classification system of the State of Nebraska.

Goal 3 - Provide adequate, efficient and appropriate public utilities and services to both existing and future residential, commercial and industrial areas in Brown County.

Policies:

- 3.1 Provide facilities and services in Brown County necessary to prevent degradation of the environment, including sewage treatment, refuse collection and disposal, road maintenance and similar environmental control processes as necessary. This includes the proper disposal of animal waste.

- 3.2 Supply appropriate drinking water and sewage treatment systems to all residents. Ensure the rules and regulations governing safe drinking water and sewage treatment are met in Brown County. The Nebraska Departments of Environment and Energy and Health and Human Services assist in the regulation of these systems.
- 3.3 Maintain and improve existing public utilities and health & safety services on an as needed basis.

Goal 4 - Provide for the equitable distribution of public facilities to meet the cultural, educational, social, recreational, safety and health needs of Brown County.

Policies:

- 4.1 Provide sufficient resources to examine, maintain and develop appropriate recreational, cultural and leisure activities in Brown County.
- 4.2 Provide adequate public health, safety and crime prevention systems throughout Brown County.
- 4.3 Promote a social and cultural environment in the County that provides an opportunity for all residents to experience, develop and share their values, abilities, ambitions and heritage.
- 4.4 Foster a local educational delivery system capable of maintaining the overall educational level in Brown County.
- 4.5 Develop and promote programs to educate the residents of Brown County and visitors regarding the rich heritage and history of the region. Utilize current and future public and cultural facilities such as community libraries, museums and natural wildlife areas.
- 4.6 Ensure the rules and regulations of the Americans with Disabilities Act are met in all public facilities.

PLAN MAINTENANCE & IMPLEMENTATION.

Goal 1 - Maintain and utilize the Comprehensive Plan as the primary tool for making decisions regarding the physical development of Brown County.

Policies:

- 1.1** Establish an annual review process for the **Comprehensive Plan** and **Zoning & Subdivision Regulations**. This process should require a public comment period.
- 1.2** Coordinate local groups and organizations to carry out the **Goals** and **Policies** of this **Comprehensive Plan**.
- 1.3** Coordinate development and land use changes and issues with local, County and State officials, or other specialized agencies.



SECTION 3:
Population, Income &
Economic Profile.

HANNA:KEELAN ASSOCIATES, P.C.
COMMUNITY PLANNING & RESEARCH

SECTION 3

POPULATION, INCOME & ECONOMIC PROFILE.

INTRODUCTION.

Population, income and economic trends in Brown County serve as valuable indicators of future development needs and patterns for the County and provide a basis for the realistic projection of the future population. The quantity and location of social and economic features play an important role in shaping the details of various development plans to meet the County's needs.

The population trends & projections for the years 2000 through 2030 were studied and forecasted, utilizing a process of trend analysis, U.S. Census population estimates and popular consent. Brown County is projected to experience a slightly decreasing population during the next 10 years, from an estimated 2,985 persons in 2020 to 2,774 in 2030, a decrease of 211 persons, or 7.1 percent. **By encouraging and promoting the development of a variety of businesses and housing types, the County can attract individuals and families to Brown County and maintain a stable population base during the 10-year planning period.**

GENERAL POPULATION TRENDS & PROJECTIONS.

The analysis and projection of population are at the center of all planning decisions. This process assists in understanding important changes which have and will occur throughout the planning period.

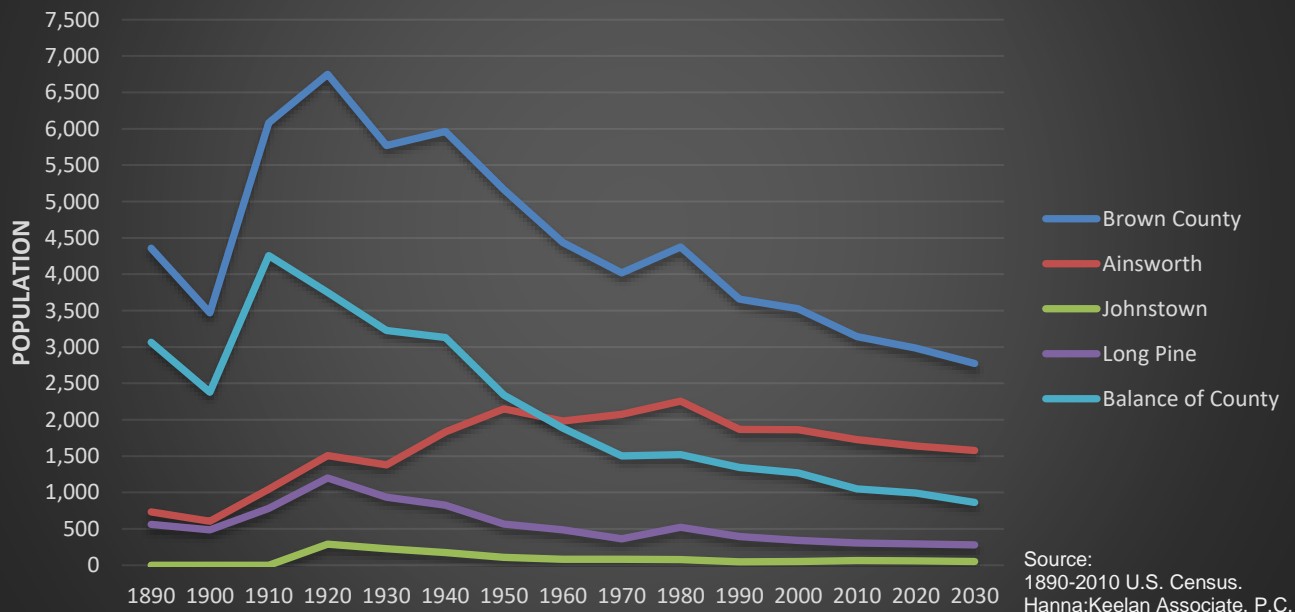
Estimating population size is a critical component to the planning process. The population base has an effect on the housing, economic, employment and fiscal stability of a County and each Community. Projecting a County's population is extremely complex due to the various, wide-ranging assumptions that must be made about the future. Therefore, projections must be carefully analyzed and continually re-evaluated to accurately reflect the changing dynamics of an area's economic and social structure.

Population.

Figure 3.1 highlights historical population trends for Brown County and Communities, from 1890 to 2030. The population of Brown County was first recorded by the 1890 U.S. Census, which identified 4,359 residents living in the County. The County reached a historic population peak in 1920, when it recorded a population of 6,749 residents. Since 1920, the County has generally experienced a slightly decreasing population.

The City of Ainsworth, the County’s largest Community, recorded a historic population peak in 1980, when the City recorded a population of 2,256. Ainsworth surpassed the Balance of County (rural Brown County) in total population for the first time in 1960, and has maintained a larger population since. Since 2000, all Brown County Communities and the Balance of County have experienced gradual, slightly decreasing populations, a trend that is projected to continue through 2030.

**Figure 3.1: Historical Population Trends
Brown County & Communities, Nebraska
1890-2030**



Brown County Population: 1890 to 2030								
Year	1890	1900	1910	1920	1930	1940	1950	1960
Population	4,359	3,470	6,083	6,749	5,772	5,962	5,164	4,436
Year	1970	1980	1990	2000	2010	2020 Est.	2030 Projection	
Population	4,021	4,377	3,657	3,525	3,145	2,985	2,774	

Table 3.1 identifies **population trends and projections** for Brown County and each incorporated Community, from 2000 through 2030. A decrease in population occurred for Brown County between the 2000 and 2010, declining 10.8 percent, or by 380 residents.

Currently (2020), the Brown County total population and the Balance of County, or the rural portion of the County, have estimated populations of 2,774 and 864, respectively. Both the County and Balance of County are projected to decrease in population during the next 10 years. The 2030 population, for Brown County, is estimated to be 2,774, a decline of 211 persons from 2020.

During the next 10 years, the Communities of Ainsworth, Johnstown and Long Pine are also projected to decrease in population, but remain stable through 2030.

**TABLE 3.1
POPULATION TRENDS & PROJECTIONS
BROWN COUNTY & COMMUNITIES, NEBRASKA
2000-2030**

	<u>2000</u>	<u>2010</u>	<u>2020</u>	<u>2030</u>	<u>% Change 2020-2030</u>
Brown County:	3,525	3,145	2,985	2,774	-7.1%
Ainsworth:	1,862	1,728	1,639	1,578	-3.7%
Johnstown:	53	64	60	52	-13.3%
Long Pine:	341	305	295	280	-5.1%
Balance of County:	1,269	1,048	991	864	-12.8%

Source: 2000, 2010 Census.
Hanna:Keelan Associates, P.C., 2020.

Age Distribution.

For planning purposes, the various cohorts of population are important indicators of the special needs of a County. The cohorts of age, sex and family structure can assist in determining potential labor force and the need for housing, public facilities and other important local services. An analysis of age characteristics can be used to identify the potential needs for public schools, recreational areas and short- and long-term health care facilities.

Table 3.2, Page 3.5, provides **age distribution trends and projections** for Brown County, from 2000 to 2030. Overall, the County is projected to experience a net decrease in population during the next 10 years of approximately 211 persons. All age cohorts under 55 years are projected to decrease, while all age cohorts 55+ are projected to experience population increases in Brown County, by 2030.

The “55 to 64” age group is projected to experience the largest population increase during the next 10 years, from 494 persons in 2020 to 536 by 2030, an estimated increase of 42 persons. The **Balance of County** population, or rural areas of Brown County, is also projected to decline in each of the three youngest age categories, “19 and Under,” “20 to 34” and “35 to 54,” through 2030. The population of all age groups 55+ years are expected to increase in the **Balance of County**.

There is evidence of an “**aging in place**” population in Brown County. To support this segment of the County’s population base, additional housing and associated services for elderly, frail elderly and retirees, including independent living, assisted living and skilled nursing/long-term care facilities will be needed in Brown County.

As of 2020, the **median age** in **Brown County** is an estimated **49.1 years**, while the **median age** in the **Balance of County** is estimated to be **50.3 years**. The median age for the **County** as a whole is projected to increase to 51.3 years, while the **Balance of County** median age is anticipated to increase to 52.4 years, between 2020 and 2030.

**TABLE 3.2
POPULATION AGE DISTRIBUTION
TRENDS & PROJECTIONS
BROWN COUNTY, NEBRASKA
2000-2030**

Brown County

<u>age group</u>	<u>2000</u>	<u>2010</u>	<u>Change</u>	<u>2020</u>	<u>2030</u>	<u>Change</u>
19 and Under	936	736	-200	659	472	-187
20-34	439	391	-48	363	325	-38
35-54	976	792	-184	713	658	-55
55-64	382	469	+87	494	536	+42
65-74	358	359	+1	364	373	+9
75-84	297	254	-43	240	248	+8
85+	137	144	+7	152	162	+10
TOTALS	3,525	3,145	-380	2,985	2,774	-211
Median Age	43.1	47.9	+4.8	49.1	51.3	+2.2

Balance of County

<u>age group</u>	<u>2000</u>	<u>2010</u>	<u>Change</u>	<u>2020</u>	<u>2030</u>	<u>Change</u>
19 and Under	349	210	-139	181	110	-71
20-34	155	105	-50	82	49	-33
35-54	378	278	-100	229	159	-70
55-64	161	205	+44	235	259	+24
65-74	136	158	+22	166	179	+13
75-84	68	77	+9	82	90	+8
85+	22	15	-7	16	18	+2
TOTALS	1,269	1,048	-221	991	864	-127
Median Age	41.5	49.2	7.7	50.3	52.4	+2.1

Source: 2000, 2010 Census.

Hanna:Keelan Associates, P.C., 2020.

Household Characteristics.

Table 3.3 identifies **specific household characteristics** of Brown County, from 2000 to 2030. The total number of households is projected to decrease by an estimated 66 throughout the County and by 47 households in the **Balance of County**.

Currently, the 1,397 total households in Brown County consist of an estimated **2.11 persons per household**. During the next 10 years, “**persons per household**” in the County is projected to decline, slightly, to an estimated **2.06**.

Group quarters consist of living quarters that are not considered a household, such as dormitories, nursing care centers and correctional facilities. Currently, a total of 36 persons reside in group quarters in Brown County. Persons residing in group quarters is projected to decrease to 31 by 2030. No group quarters exist in the **Balance of County**.

**TABLE 3.3
SPECIFIC HOUSEHOLD CHARACTERISTICS
BROWN COUNTY, NEBRASKA
2000-2030**

	<u>Year</u>	<u>Population</u>	<u>Group Quarters</u>	<u>Persons in Households</u>	<u>Households</u>	<u>Persons Per Household</u>
Brown County:	2000	3,525	49	3,476	1,530	2.27
	2010	3,145	40	3,105	1,449	2.14
	2020	2,985	36	2,949	1,397	2.11
	2030	2,774	31	2,743	1,331	2.06
Balance of County:	2000	1,269	0	1,269	507	2.50
	2010	1,048	0	1,048	471	2.22
	2020	991	0	991	454	2.18
	2030	864	0	864	407	2.12

Source: 2000, 2010 Census.
Hanna:Keelan Associates, P.C., 2020.

Household Tenure.

Table 3.4 identifies **tenure by household** for Brown County, from 2000 to 2030. The County is currently (2020) comprised of an estimated 1,397 households, consisting of 1,010 owner (72.2%) and 387 renter (27.8%) households. By 2030, owner households will account for an estimated 71.4 percent of the total households in Brown County, resulting in 950 owner households and 381 renter households.

Between 2020 and 2030, the number of both owner and renter households in Brown County is projected to decrease throughout the County. In the **Balance of County**, owner households are projected to decrease by an estimated 31 by 2030, while renter households will decrease 16 households. In total, the number of households in rural Brown County is projected to decrease from 454 to 407 by 2030, a decrease of 47 households, or 10.4 percent.

**TABLE 3.4
TENURE BY HOUSEHOLD
BROWN COUNTY, NEBRASKA
2000-2030**

	<u>Year</u>	<u>Total Households</u>	<u>Owner</u>		<u>Renter</u>	
			<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
Brown County:	2000	1,530	1,135	74.2%	395	25.8%
	2010	1,449	1,058	73.0%	391	27.0%
	2020	1,397	1,010	72.2%	387	27.8%
	2030	1,331	950	71.4%	381	28.6%
Balance of County:	2000	507	384	75.7%	123	24.3%
	2010	471	371	78.7%	100	21.3%
	2020	454	362	79.9%	92	20.1%
	2030	407	331	81.5%	76	18.5%

Source: 2000, 2010 Census.
Hanna:Keelan Associates, P.C., 2020.

INCOME TRENDS & PROJECTIONS.

Area Median (Household) Income.

Table 3.5 identifies **median household income** for Brown County, Nebraska, from 2000 to 2030. Currently, median income in Brown County is an estimated \$45,912. By 2030, median income in the County is projected to increase an estimated 17.1 percent to \$53,774. By comparison, the Communities of Ainsworth, Johnstown and Long Pine are projected to experience income increases of 19.1, 17.5 and 24.6 percent, respectively.

The Balance of County currently has the highest median income in the County. This is projected to continue through 2030 with the area median (household) income increasing from \$56,820 to \$69,346.

**TABLE 3.5
AREA MEDIAN (HOUSEHOLD) INCOME – TRENDS & PROJECTIONS
BROWN COUNTY & COMMUNITIES, NEBRASKA
2000-2030**

	<u>2000</u>	<u>2017 Est.*</u>	<u>2020</u>	<u>2030</u>
Brown County:	\$28,356	\$42,773	\$45,912	\$53,774
Ainsworth:	\$29,357	\$40,781	\$43,644	\$51,993
Johnstown:	\$20,625	\$22,500	\$23,023	\$27,041
Long Pine:	\$25,156	\$32,813	\$34,159	\$42,550
Balance of County:	\$32,626	\$52,375	\$56,820	\$69,346

*2017 Estimate Subject to margin of error.

NOTE: Four-Person Household, 100% Area Median Income - \$70,000

Source: 2000 Census, 2013-2017 American Community Survey.

Hanna:Keelan Associates, P.C., 2020.

Per Capita Income.

Table 3.6, identifies **per capita income** for Brown County and the State of Nebraska, from 2012 to 2030. Per capita income is equal to the gross income of an area (State, County, City, Village) divided equally between the residents of the area. In **2020**, per capita income in Brown County is an estimated **\$55,346**. By **2030**, per capita income will increase in the County by an estimated 24.2 percent, to **\$68,772**.

Per capita income in Brown County, since 2012, has generally increased at a slightly faster rate than the Nebraska state-wide per capita income.

**TABLE 3.6
PER CAPITA INCOME
BROWN COUNTY, NEBRASKA / STATE OF NEBRASKA
2012-2030**

<u>Year</u>	<u>Brown County</u>		<u>State of Nebraska</u>	
	<u>Per Capita Income</u>	<u>Percent Change</u>	<u>Per Capita Income</u>	<u>Percent Change</u>
2012	\$43,587	--	\$46,066	--
2013	\$47,723	+9.4%	\$45,876	-0.4%
2014	\$56,373	+18.1%	\$48,419	+5.5%
2015	\$60,433	+7.2%	\$49,567	+2.3%
2016	\$57,882	-4.2%	\$50,029	+0.9%
2017	\$51,850	-10.4%	\$50,809	+1.6%
2020	\$55,346	+6.7%	\$52,436	+3.2%
2000-2020	\$43,587-\$55,346	+26.9%	\$46,166-\$52,436	+13.5%
2020-2030	\$55,346-\$68,772	+24.2%	\$52,436-\$56,637	+8.0%

Source: Nebraska Department of Economic Development, 2019.
Hanna:Keelan Associates, P.C., 2020.

Social Security Income.

Table 3.7 identifies the number of **persons receiving Social Security Income and/or Supplemental Security Income** in Brown County. A total of 790 persons received Social Security Income in Brown County, in 2018. Of this total, 82.3 percent, or 650 persons were aged 65+ years.

TABLE 3.7 PERSONS RECEIVING SOCIAL SECURITY INCOME BROWN COUNTY, NEBRASKA 2018	
<u>Social Security Income-2018</u>	<u>Number of Beneficiaries</u>
<u>Retirement Benefits</u>	
Retired Workers	575
Wives & Husbands	40
Children	5
<u>Survivor Benefits</u>	
Widows & Widowers	70
Children	15
<u>Disability Benefits</u>	
Disabled Persons	75
Wives & Husbands	0
Children	10
TOTAL	790
<u>Aged 65 & Older</u>	
Men	300
Women	350
TOTAL	650
<u>Supplemental Security Income-2018</u>	<u>Number of Beneficiaries</u>
Aged 65 or Older	N/A
Blind and Disabled	N/A
TOTAL	N/A

N/A = Not Available.

Source: Department of Health and Human Services, Social Security Administration, 2019.

EMPLOYMENT & ECONOMIC TRENDS.

The most recent and comprehensive employment data available for Brown County was obtained from the Nebraska Department of Labor. A review and analysis of Brown County labor force statistics provides a general understanding of the economic activity occurring in and around the County.

Employment Data.

Table 3.8 identifies **employment data trends and projections** for Brown County from 2007 through 2030. In **2020**, Brown County is estimated to have 1,370 employed persons with an estimated **unemployment rate of 2.9 percent**. By 2030, employed persons in the County are projected to decrease 72 persons, or 5.3 percent. The **2030 unemployment rate** is projected at approximately **3 percent**.

TABLE 3.8
EMPLOYMENT DATA TRENDS & PROJECTIONS
BROWN COUNTY, NEBRASKA
2007-2030

<u>Year</u>	<u>Number of Employed Persons</u>	<u>Change</u>	<u>Percent Unemployed</u>
2007	1,771	--	2.6%
2008	1,798	+27	2.7%
2009	1,775	-23	3.3%
2010	1,744	-31	3.8%
2011	1,821	+77	2.3%
2012	1,818	-3	3.0%
2013	1,858	+40	2.8%
2014	1,370	-488	3.5%
2015	1,309	-61	3.5%
2016	1,316	+7	3.9%
2017	1,387	+71	3.2%
2018	1,359	-28	2.6%
2020*	1,370	+11	2.9%
2030	1,298	-72	3.0%
2007-2030	1,771-1,298	-473	2.6%-3.0%

*Department of Labor Estimate: January, 2020.
Source: Nebraska Department of Labor, 2020.
Hanna:Keelan Associates, P.C., 2020.

Commuting Patterns.

Table 3.9 illustrates the **travel time to work** for residents of Brown County, in 2017. Approximately 1,153 (81.5 percent) of the employed residents of Brown County traveled less than 20 minutes to work or worked at home, while 132 residents, 9.3 percent, travel 40 minutes or more.

	9 Minutes or Less	10-19 Minutes	20-29 Minutes	30-39 Minutes	40 Minutes or More
Brown County:	732	421	71	59	132
Ainsworth:	573	152	40	29	11
Johnstown:	0	14	4	3	5
Long Pine:	22	49	3	5	5
Balance of County:	137	206	24	22	111

[^]Estimate subject to margin of error.
Source: 2013-2017 American Community Survey.

Figure 3.2 highlights commuting patterns for persons living and/or working in Brown County, as per the U.S. Census Bureau, Center for Economic Studies (CES). CES recorded 1,187 persons employed in Brown County in 2017. **Of the 1,187, an estimated 378, or 31.8 percent commute into the County for work**, while 809, or 68.2 percent are both employed and living in Brown County. Additionally, the data reveals that 1,216 total employed persons live in Brown County. **Of these, an estimated 407 persons, or 33.5 percent are employed outside the County**, while 809 (66.5 percent) are both employed and living in Brown County.

Figure 3.2 – Commuting Patterns



Civilian Labor Force.

Table 3.10 identifies **workforce employment by type**, in Brown County, as of January, 2020. The Local Government sector is the largest Non-farm employment sector, with 335 employed persons in this category. “Retail Trade” was the second largest employment sector with 175 employed persons.

Workforce	
Non-Farm Employment (Wage and Salary)	1,176
Agriculture Forestry, Fishing & Hunting.	0
Mining, Quarrying and Oil/Gas Extraction.	0
Utilities.	*
Construction.	58
Manufacturing.	68
Wholesale Trade.	95
Retail Trade.	175
Transportation & Warehousing.	24
Information.	*
Finance & Insurance.	51
Real Estate & Rental/Leasing.	*
Professional, Scientific & Technical Services.	24
Management of Companies & Enterprises.	*
Administrative/Support/Waste.	*
Educational Services.	28
Health Care & Social Assistance.	105
Arts, Entertainment & Recreation.	*
Accommodation & Food Service.	57
Other Services (except Public Administration).	59
Federal Government.	18
State Government.	50
Local Government.	335

*Data not available because of disclosure suppression.
Source: Nebraska Department of Labor, Labor Market Information, 2020.

HOUSING STOCK CONDITIONS, VALUE & GROSS RENT.

Housing Stock Conditions.

Tables 3.11 and 3.12 (Page 3.15) illustrate a Housing stock profile for Brown County, including units in structure and “substandard housing” as defined by the U.S. Department of Housing and Urban Development (HUD). A substandard unit, as defined by HUD, is a unit lacking complete plumbing, plus the number of households with more than 1.01 persons per room, including bedrooms, within a housing unit.

Between 2000 and 2017, both Brown County (overall) and the Balance of County declined in the number of total housing units. The number of housing units in the County decreased by an estimated 40 housing units, while the Balance of County declined an estimated 96 housing units. A large majority of housing units in both the total County and the Balance of County consist of a single unit.

Of the 1,745 total housing units in Brown County, only six were identified as lacking complete plumbing, while 27 units were considered to be overcrowded. No housing units in the Balance of County were recorded as lacking complete plumbing and six were recorded as being overcrowded.

**TABLE 3.11
HOUSING STOCK PROFILE/UNITS IN STRUCTURE
BROWN COUNTY, NEBRASKA
2000 & 2017 ESTIMATE***

		<u>Number of Units</u>					
		<u>1 unit</u>	<u>2-9 units</u>	<u>10+ units</u>	<u>Other**</u>	<u>Total</u>	
Brown County:	2000	1,647	100	10	159	1,916	
	2017	1,526	183	29	138	1,876	
Balance of County:	2000	619	2	0	96	717	
	2017	487	31	0	103	621	

*2017 Estimate subject to margin of error.

**Other includes mobile homes, vans, RVs, boats, etc.

Source: 2000 Census, 2013-2017 American Community Survey.

**TABLE 3.12
HOUSING STOCK PROFILE
DEFINING SUBSTANDARD HOUSING – HUD
BROWN COUNTY, NEBRASKA
2017 ESTIMATE***

	<u>Total</u>	<u>Complete Plumbing</u>		<u>Lack of Complete Plumbing</u>		<u>Units with 1.01+ Persons per Room</u>	
		<u>Number</u>	<u>% of Total</u>	<u>Number</u>	<u>% of Total</u>	<u>Number</u>	<u>% of Total</u>
Brown County:	1,745	1,739	99.6%	6	0.4%	27	1.5%
Balance of County:	692	692	100.0%	0	0.0%	6	0.9%

*2017 Estimate subject to margin of error.

Source: 2013-2017 American Community Survey.

Housing Value & Gross Rent.

The cost of housing in any Community is influenced by many factors, including the cost of construction, availability of land and infrastructure and the organizational capacity of the Community or County to combine these factors into an applicable format and secure the appropriate housing resources, including land and money. Brown County and each Community are challenged to organize necessary resources to meet the needs of their residents, including both financial and organizational resources.

Table 3.13 identifies **owner occupied housing values** in Brown County, from 2000 through 2030. Currently, the **Brown County** median owner housing value is an estimated \$83,900. By 2030, the estimated median housing value is projected to increase an estimated 19.7 percent to \$100,400. The **Balance of County** is also projected to experience an increase in housing values, increasing an estimated 22 percent through 2030, or from \$114,500 to \$139,700.

**TABLE 3.13
OWNER OCCUPIED HOUSING VALUE
BROWN COUNTY, NEBRASKA
2000-2030**

		Less than \$50,000	\$50,000 to \$99,999	\$100,000 to \$149,999	\$150,000 to \$199,999	\$200,000 or More	Total
Brown County:	2000	600	382	92	29	35	1,138
	2000 Med. Val.	\$47,600					
	2017*	273	470	184	40	108	1,075
	2017 Med. Val.*	\$80,200					
	2020	\$83,900					
	2030	\$100,400					
Balance of County:	2000	139	110	64	28	31	372
	2000 Med. Val.	\$71,300					
	2017*	18	125	82	14	79	318
	2017 Med. Val.*	\$109,800					
	2020	\$114,500					
	2030	\$139,700					

*2017 Estimate subject to margin of error.

Source: 2000 Census & 2013-2017 American Community Survey.

Hanna:Keelan Associates, P.C., 2020.

Table 3.14 identifies **gross rent** in Brown County, from 2000 through 2030. The current estimated median gross rent for **Brown County** is \$516. The median gross rent is projected to increase an estimated 17.8 percent to \$608. Gross rent in the **Balance of County** is also projected to increase through 2030, an estimated 25.2 percent, or from \$540 to \$676.

**TABLE 3.14
GROSS RENT
BROWN COUNTY, NEBRASKA
2000-2030**

		<u>Less than \$300</u>	<u>\$300 to \$499</u>	<u>\$500 to \$699</u>	<u>\$700 or More</u>	<u>Total</u>
Brown County:	2000	169	113	44	6	332
	2000 Median Rent	\$347				
	2017 Est.*	179	59	114	48	400
	2017 Med. Rent*	\$492				
	2020	\$516				
	2030	\$608				
Balance of County:	2000	61	14	13	2	90
	2000 Median Rent	\$221				
	2017 Est.*	48	0	42	14	104
	2017 Med. Rent*	\$519				
	2020	\$540				
	2030	\$676				

*2017 Estimate subject to margin of error.

Source: 2000 Census & 2013-2017 American Community Survey.

Hanna:Keelan Associates, P.C., 2020.



SECTION 4:
Land Use
Profile & Plan.

HANNA:KEELAN ASSOCIATES, P.C.
COMMUNITY PLANNING & RESEARCH

SECTION 4

LAND USE PROFILE & PLAN.

INTRODUCTION.

The following **Land Use Profile & Plan** for the **Brown County Comprehensive Plan** focuses on the analysis of existing and future land uses in rural Brown County, as well as a brief historical profile of initial settlement. Detailed components include the natural environment, highlighting soils, watersheds, wetlands and ground water.

HISTORY.

The Pawnee and Sioux Tribes claimed the Brown County area for hunting grounds around 1800. Both tribes utilized the bison, which roamed the area in large numbers, as their primary source of food and raw material. Between 1854 and 1876, all of the territories claimed by the Pawnee and Sioux had been acquired by the United States Government through a series of Treaties. The final Treaty of 1876 opened up the entire Sandhills region to settlement.

In 1876, Nebraska was admitted into the Union. At that time, all of the area around Ainsworth was known as Sioux County, which was attached to Holt County. The first settlers in the area were cattlemen and bankers. The earliest ranch in Brown County was the Cook and Tower Ranch located on Bone Creek and established in 1873.

In the years surrounding 1880, this region was the scene of a great struggle between vigilantes and gangs of horse thieves. “Doc” Middleton was among these horse thieves although this leader of the most notorious horse thief gang was captured and sent to prison in 1879, “Kid” Wade, the infamous Middleton follower eluded the law for several months. He was eventually captured and hanged by a lynching party at Basset, east of Ainsworth.

Brown County was originally established on February 8, 1883 and included the present day Brown, Rock and Keya Paha Counties and a small portion of Holt County. In 1884, Keya Paha became a separate county in in 1888, Rock County was formed leaving Brown County at its present size and location. Bridges over the Niobrara River and the Long Pine, Blum and Bone Creeks were constructed early in the County’s development to facilitate travel and transportation of goods.

The construction of the railroad in Brown County was a major factor in the settlement of the area. The three major towns in the County are located along the railroad line. The Sioux City and Pacific Railroad reached the County in 1881, and by 1882, the line had been completed through the County. The advent of the railroad line through the County guaranteed a steady flow of goods and people and also provided an affordable way to export any agricultural products the County produced.

The earliest settlers in the Brown County area were the cattle ranchers who brought their Texas longhorn cattle up the Chisholm Trail for winter ranging. These early cattlemen did not take out claims as the land was still Indian Territory. They generally set up shelters in the canyon areas along the creeks and rivers of the County which provided timber and wildlife for the winter. Large ranches were established in the County and it was not until the hard winter of 1880-81 that the ranchers left the area.

A slow trickle of settlers had begun to arrive in the County in the last years of the 1870s and by the early 1880s, settlement was in full swing. The early settlers, following the example of the cattlemen, established themselves along the rivers and creeks throughout the County and constructed both sod and log dwellings. The 1880s proved to be a decade of growth for the County, with over 4,000 persons entering the County during this time. The three major communities of Brown County, Ainsworth, Long Pine and Johnstown were established during this decade. The 1890s proved the opposite for the County. From 1890 to 1900, the population of the County dropped from 4,359 to 3,470 persons. Many settlers, discouraged with the economic and climatic conditions, returned east or moved further west in search of better lands.

The passage of the Kinkaid Act in 1904 was an essential factor in the settlement of Brown County. The effect of this Act is evidenced by the near doubling of the County's population from 1900 to 1910, rising from 3,470 persons to 6,083 persons. In the early 1900s, Brown County developed into an area dotted with numerous small ranches containing not only range cattle but wheat and dairy cattle. As with other northern Sandhills counties, Brown County experienced the beginning of a permanent decline in population during the Depression of the 1930s. Farms and ranches have become increasingly larger since 1940 and, therefore, support a smaller population than the period of development and growth (1890-1920). From 1960 to 1980, the population of Brown County remained steady with approximately 4,200 persons. Since then, a slightly declining population has led to the current (2020) population estimate of 2,985.

*Source: Nebraska Blue Book, 1987.

THE NATURAL ENVIRONMENT.

The objective of the **Comprehensive Plan** is to protect agricultural lands and, where appropriate, provide for the potential development of intensive agricultural uses and/or non-farm/ranch rural dwellings and subdivisions. The consensus of the **Brown County Planning Commission** was that the future of the County may be reliant on both issues for continued economic prosperity. The challenge is to balance agricultural preservation with rural residential development, in appropriate areas of the County.

Physiographic Relief.

Brown County is divided into three physiographic regions. The majority of the County is in the Sandhills region. It is composed of sandy loam soil and is very hilly. There are numerous lakes and marshes to be found in the valleys of this region. In the northeast corner of the County, the land is classified in the Holt Table category. This type of physiography is identified most notably by its gently rolling plains. On the County's western border lies the Niobrara River Valley, which is one of Nebraska's most naturally scenic regions.

Like much of the Great Plains region of the Central United States, the topography of Brown County is level to gently rolling. The topography of Brown County has a gradual slope towards the northeast averaging ten feet to the mile. Along the river valleys are steep slopes, canyons and gullies.

The Sandhills region landscape is a succession of dunes and swales with some elongated dry valleys. This area is also scattered with shallow lakes and occasional streams. The soils of the dunes have dark colored surface horizons which are stabilized by native grasses. The height of the dunes range from just a few feet to over 200 feet in height. The high dunes have hilly side slopes and the low dunes have smooth, gentle slopes. The high dunes will often form long ridges that extend for several miles. These ridges generally parallel similar ridges. Between the ridges are long, narrow valleys that usually do not have a stream but do often contain small water table lakes with wetlands.

In the northern portion of the County, the topography develops an undulating plain which has been split occasionally by canyon-like drainage ways. The bedrock is sandstone of the Tertiary Age and soils have developed in this material on the slopes adjacent the major drainage ways.

Geology.

The Ogallala Formations or Pliocene Age underlies the County, except for along the Niobrara River. It is an important source of ground water throughout the County.

Overlying the Ogallala Foundation are mostly sand and loamy sand soils. The soil formations at and near the surface consist of fine windblown sands lying upon silts, silty sands and alluvial sands mixed with relatively fine gravel. These formations range in thickness from about 190 feet to an extreme of over 500 feet; the average is from 200 to 300 feet.

The Sandhills region, which includes much of Brown County, is characterized by low-lying dunes of sand covered by native grasses suitable for the grazing of cattle. There is little surface drainage due to the porous nature of the sandy soil. The vast dunes of the Sandhills lie above large aquifers, which, in certain areas, reach a depth of one-thousand feet. Between the porous hills and numerous basins which sometimes widen into larger valleys, the high water table has risen above the surface of the land to form marshes, ponds and lakes on many of the valleys in Brown County. The effect of the high water can be seen through the existence of more than 2,000 lakes scattered across the Sandhills region, with the number of observable lakes varying depending upon annual precipitation and groundwater discharge.

Soils.

There are three central soil associations in Brown County. These include Thurman-Jansen, Valentine-Dunday and Rough Broken Land. Thurman-Jansen and Rough Broken Land Soil Associations are located in the north and northeastern portions of the County. The Valentine-Dunday Soil Associations comprise the remainder of the County. The Valentine-Dunday Soil Association, absorbs precipitation rapidly, and runoff is generally absent. A considerable amount of the precipitation passes through the soil and substratum to the water table. Soils with the water table within the root zone of the grasses occur frequently in this region.

The area in proximity to the Niobrara River is classified as Rough Broken Land surrounded by soils of the Thurman-Jansen Association. Rock outcrops on steep and sometimes vertical slopes. The Thurman-Jansen Soil Association is characterized by sand surface horizons and sandy or gravelly subsoils. These sandy materials have been shaped by the wind into small mounds and ridges, but in this particular area the topography is nearly level. These soils are also more gravelly than sandy. Loess and Loess-like material cover the gravelly-sandy material in some areas; this Loess covering is more than 40 inches thick. Holdrege, Hord and Moody soils are more than 20 inches thick, and less than 20 inches thick in Moody and Holdrege soils. Holdrege Soil subsoils are grayish-brown in color.

The Thurman-Jansen soils in this area developed under a canopy of grass vegetation. Their surface horizons are dark-colored. The soils with sandy and gravelly textures percolate precipitation more easily. This causes the lime carbonate to be leached to greater depths in Moody soils than in the more silty and clayey soils such as the Holdrege soils.

The Soil Conservation Services has identified 11 specific “Soil Associations” in Brown County, as depicted in **Illustration 4.1, Page 4.7.** The **Illustration** identifies the location of the 11 Soil Associations that are found in Brown County. The following narrative briefly identifies the general characteristics of the 11 Soil Associations.

❖ **Valentine Association.**

Deep, nearly level to hilly, excessively drained, sandy soils; on uplands.

❖ **Simeon-Valentine Association.**

Deep, nearly level to very steep, excessively drained, sandy soils; on uplands.

❖ **Valentine-Els-Tryon Association.**

Deep, nearly level to hilly, excessively drained, somewhat poorly drained, and poorly drained or very poorly drained, sandy soils; on uplands and in valleys.

❖ **Valentine-Els-Ipage Association.**

Deep, nearly level to strongly sloping, excessively drained, somewhat poorly drained and moderately well drained, sand soils; on uplands and in valleys.

❖ **Loup-Els-Tryone Association.**

Deep, nearly level and very gently sloping, somewhat poorly drained to very poorly drained, loamy and sandy soils; in valleys.

❖ **Johnstown-Jansen Association.**

Deep, nearly level to gently sloping, well drained, loamy soils underlain by coarse sand; on uplands.

❖ **Jansen-O’Neill-Meadin Association.**

Deep, nearly level to strongly sloping, well drained and excessively drained, loamy and sandy soils underlain by coarse sand and gravelly coarse sand; on uplands.

❖ **Valentine-O’Neill-Pivot Association.**

Deep, nearly level to strongly sloping, well drained to excessively drained, sandy soils and loamy and sandy soils underlain by coarse sand and gravelly coarse sand; on uplands.

❖ **Valentine-Ronson-Tassel Association.**

Deep to shallow, nearly level to steep, excessively drained and well drained, sandy and loamy soils; on uplands.

❖ **McKelvie-Tassel-Ronson Association.**

Deep to shallow, moderately steep to very steep, excessively drained to well drained, sand and loamy soils; on upland breaks to the Niobrara River and its tributaries.

❖ **Labu-Sansarc-Almeria Association.**

Deep to shallow, nearly level to very steep, well drained and poorly drained, clayey and loamy soils; on upland breaks to the Niobrara River Valley and on bottom land along the Niobrara River.

Climate.

The climate of Brown County is continental and characterized by widely ranging seasonal temperatures and rapidly changing weather patterns. The temperature ranges from an average daily minimum of 15 degrees in January to an average monthly maximum in July of 87 degrees. The majority of rainfall occurs between the months of April and September, with an average annual precipitation of 23.34 inches. The average annual snowfall is 38 inches.

GENERAL SOILS MAP

BROWN COUNTY, NEBRASKA



ILLUSTRATION 4.1

Legend: Soil Associations

- 1 Valentine
- 2 Simeon-Valentine
- 3 Valentine-Els-Tryon
- 4 Valentine-Els-Ipage
- 5 Loup-Els-Tryon
- 6 Johnstown-Jansen
- 7 Jansen-O'Neill-Meadin
- 8 Valentine-O'Neill-Pivot
- 9 Valentine-Ronson-Tassel
- 10 McKelvie-Tassel-Ronson
- 11 Labu-Sansarc-Almeria

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EXISTING LAND USE ANALYSIS.

The **Existing Land Use Maps, Illustration 4.2A and 4.2B, Pages 4.9 and 4.10**, serve as the basis for establishing the **Land Use Plan**. The **Existing Land Use Maps** highlights the impact of concentrations of rural dwellings and intensive agricultural facilities and production areas throughout the County. The impact of residential development on the production of crops and the raising of livestock can be evaluated for Brown County by the Nebraska Agricultural Census.

Existing Land Uses.

Existing land use throughout Brown County, which contains approximately 776,864 acres, is identified in **Illustrations 4.2A (north Brown County) and 4.2B (south Brown County)**. Harvested crop and livestock production are the most prolific rural land uses in Brown County.

❖ Rural Residential Development.

Illustrations 4.2A and 4.2B indicate rural dwellings exist throughout Brown County in areas where soil conditions are permissible for development. A majority of rural residential dwellings, including ranch homes/properties are located in the northern portion of the County along major Highway Corridors and surrounding the Communities of Ainsworth, Johnstown and Long Pine (**See Illustration 4.2A**). Rural residential dwellings are sparsely located throughout the southern portion of the County (**Illustration 4.2B**). Residential dwellings not located along major highways are serviced by access roads connecting one home or ranch to another, due to the lack of a complete rural road system.

❖ Public/Quasi-Public and Recreational Uses.

Public/quasi-public land uses, such as churches, cemeteries, rural utility substations and windmills, including the Ainsworth Wind Energy Facility, are scattered throughout Brown County. **Rural wildlife and recreation land uses** include the Niobrara National Scenic River, as well as several State Wildlife Management Areas and State Recreation Areas throughout the County.

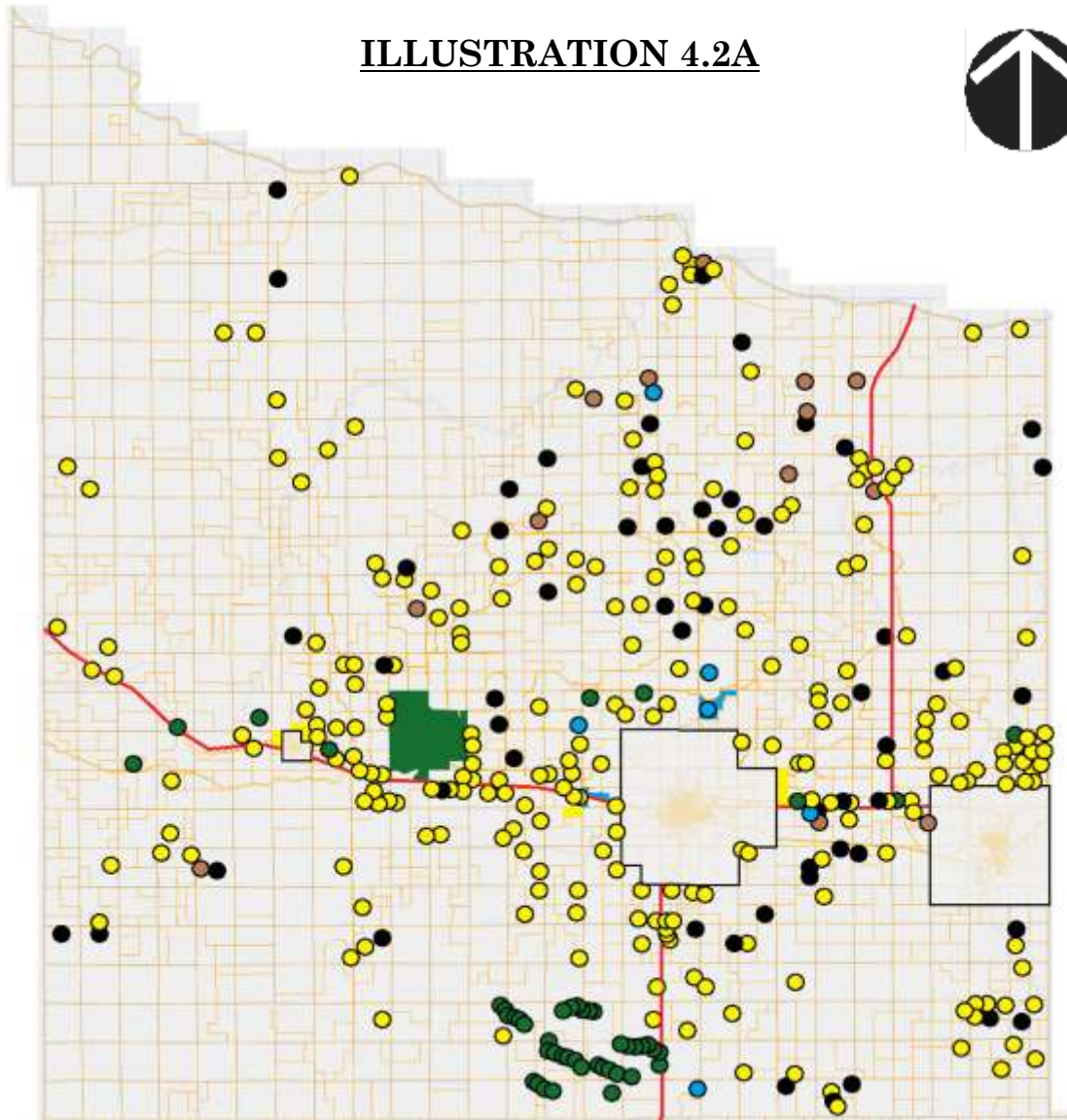
❖ Commercial and Intensive Agricultural/Industrial Uses.

Both **commercial and industrial land uses** are generally located within one to two miles of Brown County Communities. Rural livestock facilities are identified as “**intensive agricultural**” uses on the **Existing Land Use Maps** and are located in highest concentrations in the northern portion of the County.

EXISTING LAND USE MAP

BROWN COUNTY (NORTH), NEBRASKA

ILLUSTRATION 4.2A



LEGEND

- PUBLIC/QUASI-PUBLIC
- SINGLE FAMILY RESIDENTIAL/SUBDIVISION
- AG OR OTHER STRUCTURE/OUTBUILDING
- INDUSTRIAL
- COMMUNITY CORPORATE LIMITS/PLANNING JURISDICTION
- HIGHWAY CORRIDOR

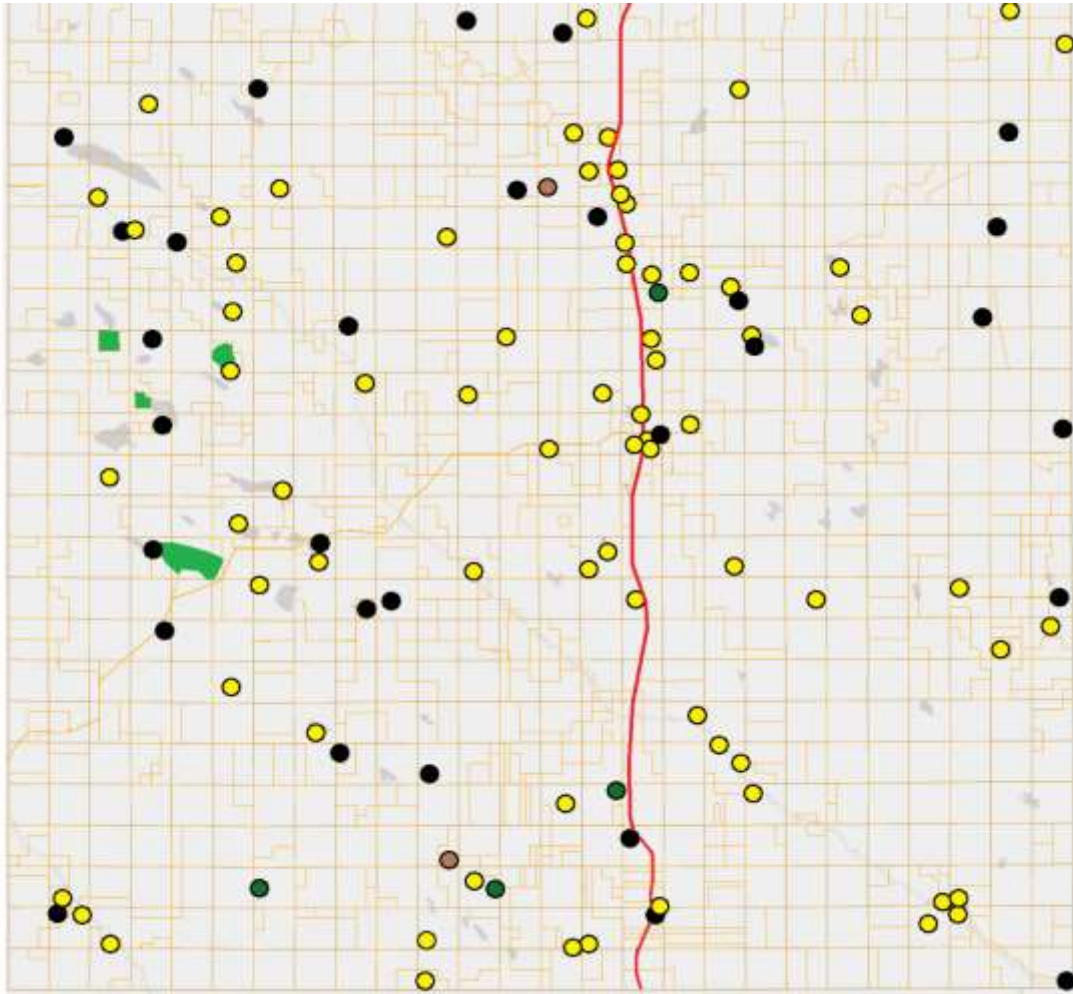
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EXISTING LAND USE MAP

BROWN COUNTY (SOUTH), NEBRASKA

ILLUSTRATION 4.2B



LEGEND

-  PARKS/RECREATION
-  PUBLIC/QUASI-PUBLIC
-  SINGLE FAMILY RESIDENTIAL/SUBDIVISION
-  AG OR OTHER STRUCTURE/OUTBUILDING
-  INDUSTRIAL
-  HIGHWAY CORRIDOR

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AGRICULTURAL PRODUCTION STATISTICS.

Number and Size of Farms/Ranches.

The development of new, small scale farms/ranches has been the trend in Brown County between 2007 and 2017. *Statistics included in the Nebraska Census of Agriculture are released every five years; the latest being 2017.*

The number and size of farms/ranches, identified in **Table 4.1**, indicates that the number of farms/ranches in the “1 to 9” and “10 to 49” acre categories increased by a combined total of 15 farms/ranches between 2007 and 2017. The total number of farms/ranches in the four remaining, larger acreage categories decreased during the same time period. Mid-sized category farms/ranches, between 50 and 999 acres in size, decreased by 37 total farms/ranches between 2007 and 2017. The number of large scale, 1,000+ acre farms/ranches remained relatively stable, decreasing by a total of two farms/ranches during the 10-year period.

Overall, the total number of farms/ranches decreased by 8.2 percent, or by 24 farms/ranches, between 2007 and 2017. **The average farm/ranch size has increased by 1.3 percent, from 2,266 acres in 2007 to 2,295 acres in 2017.** The decrease in total crop land and land in farms/ranches between 2007 and 2017, along with the decrease in total farms/ranches, will have a significant impact on the County as agriculture is the main source of income.

**TABLE 4.1
FARMS/RANCHES BY SIZE
BROWN COUNTY, NEBRASKA
2007 - 2017**

Size	2007	2012	2017	% Change 2007 - 2012	% Change 2007 - 2017
1 to 9 Acres	13	28	20	+115.4%	+53.8%
10 to 49 Acres	30	51	38	+70.0%	+26.7%
50 to 179 Acres	41	38	40	-7.3%	-2.4%
180 to 499 Acres	46	43	41	-6.5%	-10.9%
500 to 999 Acres	51	37	20	-27.5%	-60.8%
<u>1,000 to Acres or More</u>	<u>111</u>	<u>131</u>	<u>109</u>	<u>+18.0%</u>	<u>-1.8%</u>
Total Farms	292	328	268	+12.3%	-8.2%
Total Crop Land (ac.)	114,848	109,405	108,102	-4.7%	-5.9%
Land in Farms	661,606	725,395	614,967	9.6%	-7.0%
Average Farm Size	2,266	2,212	2,295	-2.4%	+1.3%
Median Farm Size	600	503	453	-16.2%	-24.5%

Source: Nebraska Census of Agriculture, 2007, 2012 & 2017.

Crop Production Trends.

Table 4.2 identifies the **status of crop production** in Brown County from 2007 to 2017. The total number of farms/ranches that harvested crops decreased by 28, or 14.5 percent from 2007 to 2017. During the same period, the number of farms/ranches with irrigated cropland decreased by 26, or by 21.8 percent. Total acres of irrigated cropland during the same period decreased by 11,872 acres, or 22.9 percent.

The total number of farms/ranches declined by 16.6 percent, or by 36, while the total acres of cropland decreased by 5.9 percent or by 6,746 acres between 2007 and 2017. This trend indicates that farms/ranches with both irrigated and harvested crop lands are consolidating into larger sized farms/ranches.

TABLE 4.2
STATUS OF CROP PRODUCTION
BROWN COUNTY, NEBRASKA
2007 - 2017

	<u>2007</u>	<u>2012</u>	<u>2017</u>	<u>% Change</u> <u>2007 - 2012</u>	<u>% Change</u> <u>2007 - 2017</u>
<i>HARVESTED CROPLAND</i>					
Farms	193	186	165	-3.6%	-14.5%
Acres	97,922	93,860	81,892	-4.1%	-16.4%
<i>IRRIGATED CROPLAND</i>					
Farms	119	90	93	-24.4%	-21.8%
Acres	<u>51,923</u>	<u>40,156</u>	<u>40,051</u>	<u>-22.7%</u>	<u>-22.9%</u>
<i>TOTAL CROPLAND</i>					
Farms	217	196	181	-9.7%	-16.6%
Acres	114,848	109,405	108,102	-4.7%	-5.9%

Source: Nebraska Census of Agriculture, 2007, 2012 & 2017.

Table 4.3 identifies **harvested crops by type** in Brown County, from 2007 to 2017. “Forage,” or land used for all hay and haylage, grass silage and greenchop, accounted for 45,361 total acres as of 2017, representing a 37.6 percent decrease since 2007. Harvest acres of “Corn for Grain or Seed” and “Corn for Silage or Greenchop” experienced decreases of 37.6 percent and 20.9 percent, respectively, between 2007 and 2017. “Soybeans for Beans” account for 8,229 total acres in 2017, a 150.9 percent increase over the 2007 total of 3,280 acres.

**TABLE 4.3
HARVESTED CROPS BY TYPE
BROWN COUNTY, NEBRASKA
2007 - 2017**

CROP BY TYPE	Production in Acres			% Change	% Change
	2007	2012	2017	2007 - 2012	2007 - 2017
Corn for Grain or Seed	42,351	27,967	26,413	-34.0%	-37.6%
Corn for Silage or Greenchop	2,335	1,867	1,848	-20.0%	-20.9%
Oats for Grain	107	-	-	-	-
Sorghum for Silage or Greenchop	385	-	-	-	-
Soybeans for Beans	3,280	8,053	8,229	145.5%	150.9%
Forage	49,585	55,912	45,361	-34.0%	-37.6%

Source: Nebraska Census of Agriculture, 2007, 2012 & 2017.

Livestock Production Trends.

Table 4.4, Page 4.14, identifies **livestock production trends** for Brown County from 2007 through 2017. During this period, the total number of livestock producing farms/ranches for “Cattle/Calves” decreased by five farms/ranches, while the total number of cattle/calves increased by 32,213 or 30.8 percent during the same period.

The change in the total number of animals, from 2007 to 2017, for remaining farm types is not available. For total number of farms, increases were experienced for “Milk Cows” and “Hogs and Pigs” of 33.3 percent and 100 percent, respectively. The number of “Beef Cows” and “Sheep and Lamb” farms decreased 9.7 percent and 50 percent, respectively, between 2007 and 2017.

**TABLE 4.4
LIVESTOCK PRODUCTION TRENDS
BROWN COUNTY, NEBRASKA
2007 - 2017**

Type	Total Farms / Total Animals			% Change	% Change
	2007	2012	2017	2007 - 2012	2007 - 2017
Cattle/Calves	169 / 104,641	211 / 121,860	164 / 136,854	+24.8% / +16.4%	-2.9% / +30.8%
Beef Cows	144 / D	163 / 31,464	130 / 30,891	+13.2% / N/A	-9.7% / N/A
Milk Cows	3 / D	11 / 26	4 / 11	+266.7% / N/A	+33.3% / N/A
Hogs and Pigs	4 / D	4 / D	8 / D	+0.0% / N/A	+100.0% / N/A
Sheep and Lamb	6 / 183	7 / 1,410	3 / D	+16.7% / +670.5%	-50.0% / N/A

(D) = suppressed information.

N/A = information not available.

*Farms less than 180 acres in size were not included in this analysis.

Source: Nebraska Census of Agriculture, 2007, 2012 & 2017.

Summary of Agricultural Statistics.

The review of agricultural statistics between 2007 and 2017 indicates the total number of acres harvested has decreased and the total number of farms/ranches has also declined by approximately 8.2 percent. Farming/ranching operations in Brown County during this 10-year period have mostly been consolidating or ceasing operation. During the same period, the number of livestock produced in Brown County is generally not available, but for “Cattle/Calf” production has increased 30.8 percent.

FUTURE RURAL LAND USE ANALYSIS.

Illustrations 4.3A and 4.3B, Pages 4.16 and 4.17, identify the **Future Land Use** for Brown County. The primary hard-surfaced County roads and State highways were reviewed to determine the potential impact of rural development adjacent these corridors. Rural residential land uses not associated with farming or ranching are most suitable within the Planning Jurisdictions of Brown County Communities.

Future Rural Land Uses.

❖ General Agricultural Areas.

The **Brown County Comprehensive Plan** focused on evaluating the effectiveness of policies that were intended to preserve and protect agricultural and livestock production areas, as well as encourage the development of multiple land use types in designated, appropriate locations throughout the County.

Future agricultural production land areas are expected to continue to be distributed throughout Brown County, as identified in the **Future Land Use Maps**. Land areas surrounding and adjacent municipal planning jurisdictions and highway corridors are largely targeted for commercial and/or industrial/intensive agricultural developments. Public/quasi-public and parks/recreation land uses and conservation districts in the rural areas of the County remain in their designated locations on the **Future Land Use Maps**.

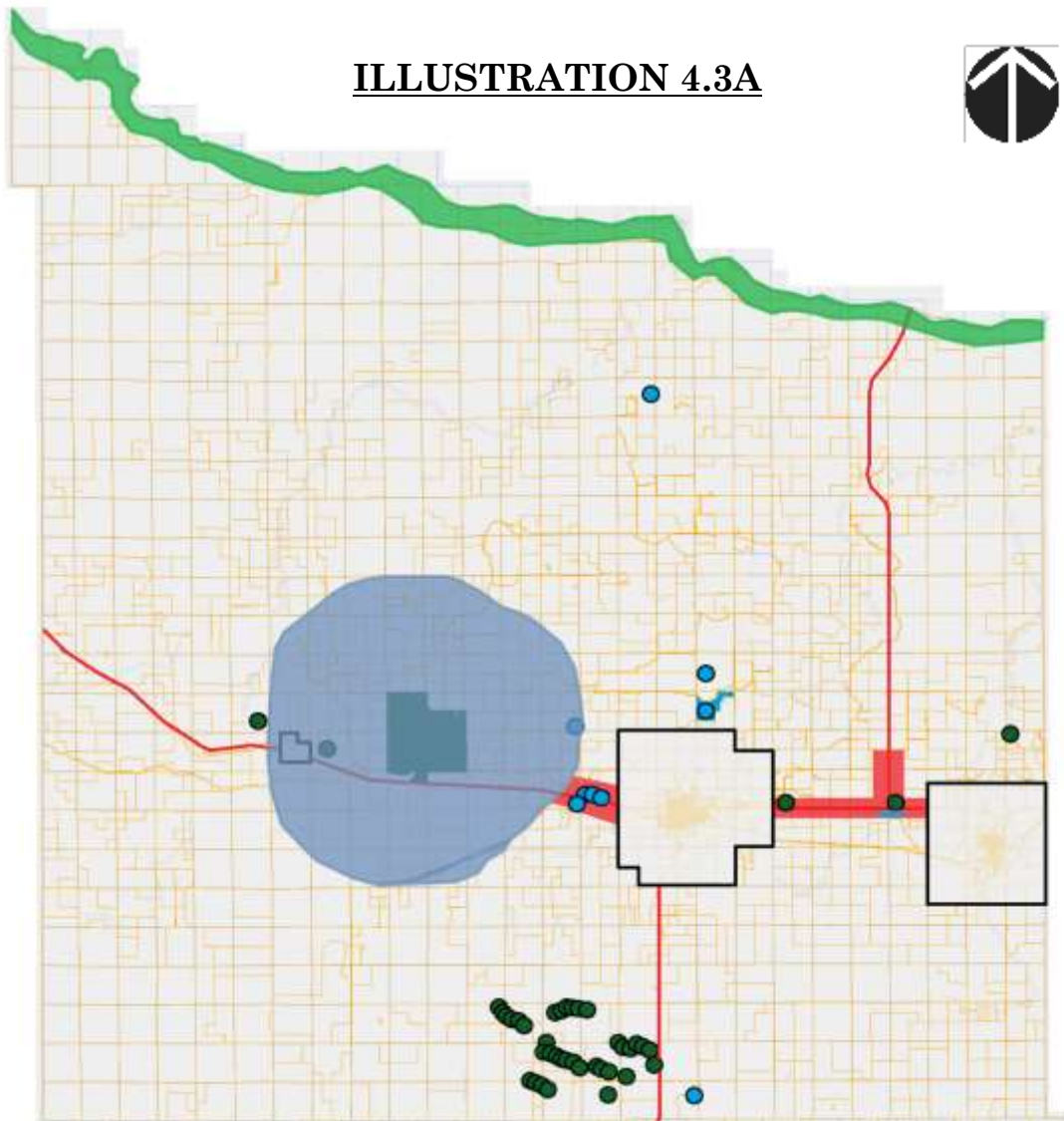
❖ Agricultural Residential Areas.

Existing rural farmstead dwellings are widely spread throughout the County, but higher concentrations exist along major Highway Corridors and in the northern portion of the County surrounding Brown County Communities. The **Future Land Use Maps** indicate the development of non-farm/ranch dwellings in Brown County will primarily occur within the planning jurisdictions of Brown County Communities. The designation of residential subdivisions to within municipal jurisdictions is in conformance with County-Wide goals to preserve and protect agricultural production areas from further encroachment of conflicting uses.







FUTURE LAND USE MAP

BROWN COUNTY (NORTH), NEBRASKA

ILLUSTRATION 4.3A



LEGEND

-  PARKS/RECREATION & CONSERVATION CORRIDOR
-  PUBLIC/QUASI-PUBLIC
-  COMMERCIAL
-  AIRPORT PLANNING JURISDICTION
-  INDUSTRIAL
-  HIGHWAY CORRIDOR

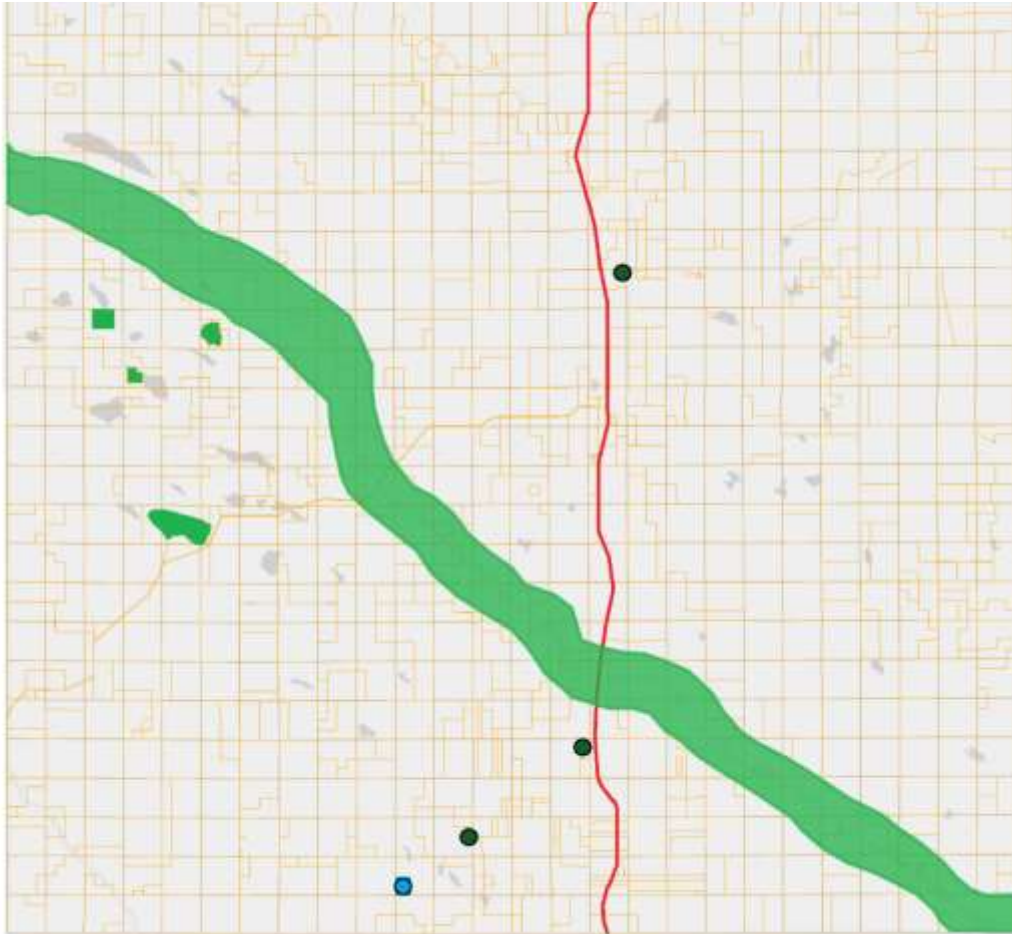
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COMMUNITY PLANNING & RESEARCH

* Lincoln, Nebraska * 402.464.5383 *





FUTURE LAND USE MAP

BROWN COUNTY (SOUTH), NEBRASKA

ILLUSTRATION 4.3B



LEGEND

-  PARKS/RECREATION & CONSERVATION CORRIDOR
-  PUBLIC/QUASI-PUBLIC
-  INDUSTRIAL
-  HIGHWAY CORRIDOR

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COMMUNITY PLANNING & RESEARCH

* Lincoln, Nebraska * 402.464.5383 *

❖ **Open Space & Parks/Recreation Areas.**

Park and recreational areas within Brown County consist of state recreation areas, wildlife management areas, private recreation and conservation areas. The south-central portion of the County consists of numerous lakes and marshes which include private-seasonal cabins, South Twin Lake Wildlife Management Area, American Game Association Marsh Wildlife Management Area and Long Lake State Recreational Area.

The northeastern portion of the County includes the Pine Glen State Wildlife Management Area, Keller School Land Wildlife Management Area, Bobcat Wildlife Management Area, Long Pine Wildlife Management Area, Keller State Recreation Area and Long Pine State Recreation Area near Long Pine. In addition, there are private cabins and camping facilities in the Long Pine Creek area. The Niobrara National Scenic River includes land along the northern boundary of the County. The Nature Conservancy organization also owns and manages the Niobrara Valley Preserve in extreme northwest Brown County and the Ainsworth Municipal Golf Course is located along U.S. Highway 20 between Johnstown and Ainsworth.

Future park and recreational land use development should concentrate on 1) preservation of the County's natural open space areas, such as river corridors and wetland areas; and 2) continued upkeep and maintenance of the existing park system.



Niobrara Valley Preserve.



Long Pine State Recreation Area.

❖ **Commercial & Industrial/Intensive Agricultural Areas.**

Future commercial uses in Brown County should consist of “Highway Commercial” developments, including all permissible uses, as allowed via the **Brown County Zoning Regulations**. Land zoned as “HC – Highway Commercial District” should be located in close proximity to the Communities of Brown County and, in limited cases, be considered at the junction of major highway corridors.

Industrial areas are encouraged to locate in close proximity to major transportation routes within each Community or specified rural areas, adjacent railroad or highway corridors. The types of encouraged industries should include “light manufacturing” and agriculture-related industries. These types of industries are often clean and efficient in operation and provide various employment opportunities.

Agriculture-oriented uses, such as intensive livestock confinement facilities are the primary intensive rural uses in the County. This **Comprehensive Plan** identifies these facilities as intensive agricultural uses in agricultural production areas. **The development of new animal and livestock confinement facilities should be carefully reviewed to ensure conformance with the land use goals and expectations of the County. Animal confinement facilities should not be located within flood plain/flood prone areas along rivers, creeks, streams and drainage ways, nor areas which have topographical or soil constraints.**



SECTION 5:
Public Facilities &
Transportation.

HANNA:KEELAN ASSOCIATES, P.C.
COMMUNITY PLANNING & RESEARCH

SECTION 5

PUBLIC FACILITIES & TRANSPORTATION.

INTRODUCTION.

Section 5 of this **Comprehensive Plan** discusses current conditions and planned improvements to existing **public facilities and transportation systems** in Brown County. All improvements to these components are aimed at maintaining or improving the quality of life in the County. It is important that the Brown County Planning Commission, Board of Commissioners and other local government leaders determine the adequacy of these public facilities to meet the future estimated demand during the current planning period.

PUBLIC FACILITIES.

Public Facilities identify existing public places in the County and determine future needs of and desires for pertinent public facilities during the planning period 2020 to 2030. Public facilities provide citizens with social, cultural and educational opportunities in Brown County. Facilities can include, but are not limited to schools, fire protection, medical/elderly services and recreational facilities such as parks and sports fields. A majority of the referenced public facilities are located within the Planning Jurisdictions of Brown County Communities.

Education.

A broader-based education, with emphasis on technical and human relation skills has become necessary and desired in today's society. Standards developed by educators and planners can provide guidance in the creation of, and addition to, each of the School Districts' educational facilities. It will be important, during the 10-year planning period, that the facilities maintained by Public School Districts within Brown County are able to support the existing school-age or youth populations, as well as be prepared to support a potential increasing youth population.

Public schools in Brown County should strive to meet the following general standards and guidelines:

- Schools should be centrally located.
- Schools should not be located near high traffic or heavily concentrated areas with high noise levels.
- Land acquisition should be made with future expansion in mind.
- Adequate open space should be available to students.
- Provide safe routes to schools from all neighborhoods of Brown County Communities, including sidewalks, pedestrian crossings and school bus access.

One Public School District maintains a presence in Brown County: **Ainsworth Community Schools.**

- ❖ **Ainsworth Community Schools** maintains one school building, located in the City of Ainsworth at 520 East 2nd Street. The Ainsworth School was originally built in 1922, and has undergone several renovations and additions over the years. In 1949 an addition to the school building included what is now the ag shop. In 1954 the Lila McAndrew Elementary and gymnasium were added. In 1965 an “annex building” was moved onto the school grounds and is now the Superintendent’s Office. The Learning Center addition was completed in 1975. In 2000, a new cafeteria, loft and renovations were completed following the passage of a bond in 1998. Additionally, several building facilities and classrooms have been remodeled in recent years.

Ainsworth Community Schools employs approximately 89 total staff members, including 48 Certified, 22 Classified and 19 part-time. The School currently enrolls approximately 440 students in grades K-12. The building is also home to Little Paws Preschool, a joint project between the School and Central Nebraska Community Services.

Extra-curricular activities offered at Ainsworth Community Schools include the standard clubs and organizations, as well as a variety of athletic teams. To enhance the student learning experience with a variety of educational applications, students in grades 7-12 receive laptops for personal use throughout the school year. Additionally, the School recently expanded its library collection to allow students to checkout e-books 24 hours a day.

Public Libraries.

The **Ainsworth Public Library** is located at 5th and Main Street and provides library services for residents of Brown County. The Library is open weekly during the following days:

Monday: 11:00AM-6:00 PM
Tuesday: 11:00AM-8:00 PM
Wednesday: 1:00-5:00 PM
Thursday: 11:00AM-8:00 PM
Friday: 11:00AM-6:00 PM
Saturday: 1:00-5:00 PM

The Library was completed in 1980 and currently employs three employees. The Library currently maintains 1,779 registered users and approximately 67,462 volumes with an average annual circulation of 19,486. Amenities include free Wi-Fi, 12 public internet computers available for use and 24-hour access to eBooks and audio-books via an online platform.

Parks/Recreation.

An integral part to the quality of life in any County or Community is a well-maintained park system and recreational opportunities provided to its residents and visitors. Additionally, parks and recreational facilities ensure the health of families and individuals, and contribute to the economic and environmental well-being of the entire County. The following highlights Brown County's Public Parks and other recreational facilities.

- ❖ **Keller Park State Recreation Area**– Located along Bone Creek, west of U.S. Highway 183, 5 miles east and 9 miles north of Ainsworth, Keller Park is a 196-acre area that offers fishing, camping, hiking and wildlife viewing, among other activities.
- ❖ **Long Pine State Recreation Area** – Located along Long Pine Creek and adjacent U.S. Highway 183 and the northwest Corporate Limits of the Community of Long Pine, the Area is a 153-acre tract of land that offers camping, fishing, hiking, picnicking and an archery range.
- ❖ **Long Lake State Recreation Area** – Located in southwest Brown County, the Area is made up of 30 acres of rolling sandhills and a 50-acre natural sandhill lake. The Area offers fishing, camping, picnicking and hunting access.

- ❖ **Long Pine State Wildlife Management Area** – This Area is located approximately one-half mile northwest of Long Pine on the north side of U.S. Highway 20. Long Pine Creek flows through the Area for a distance of 3,000 feet. The Area contains approximately 85 percent timbered rugged slopes and 15 percent sandhills prairie. The 160-acre Area is available for hunting and fishing activities.
- ❖ **Pine Glen State Wildlife Management Area** – This Area is located eight miles north of Long Pine and consists of 960 acres of mixed grassland and woodland with steep canyons, including one mile of the Bone Creek trout stream. Activities available include hunting and fishing.
- ❖ **South Twin Lake State Wildlife Management Area** – Located approximately 22 miles south of Johnstown, the Area consists of 160 acres of typical sandhills including a 60 acre shallow lake. South Twin Lake is available for hunting and does have a flowing well.
- ❖ **American Game Marsh State Wildlife Management Area** – Located approximately 21 miles south of Johnstown, the Area includes 160 acres of sandhills marsh and upland grass which is available for hunting, in season.
- ❖ **Keller School Land State Wildlife Management Area** – This Area is located adjacent Keller Park to the southwest. The Area consists of 640 acres of native grassland available for hunting, in season. Bone Creek flows through the property.
- ❖ **Bobcat State Wildlife Management Area** – This 893-acre Area is located approximately 14 miles north of Ainsworth. 90 percent of the Area consists of timbered steep canyons and 10 percent sandhills prairie. Plum Creek flows through the Area, where in-season hunting and fishing is allowed.
- ❖ **Niobrara Valley Preserve** – The Niobrara Valley Preserve encompasses a 25-mile stretch of the Niobrara River in northwest Brown County and portions of Cherry and Keya Paha Counties, Nebraska. A majority of the Preserve was acquired by The Nature Conservancy (TNC) in 1980, and is one of the largest TNC preserves in the U.S., considered to be a model for grassland management using bison, cattle and fire.

The Nebraska Natural Heritage Program identified the Niobrara Valley Preserve as the biological crossroads of the Great Plains. To date, 581 plant, 213 bird, 86 lichen, 70 butterfly, 44 mammal, 25 fish, 17 reptile and 8 amphibian species have been recorded at the Preserve. The Preserve is considered to be a world-class natural laboratory, consistently hosting a community of researchers, ranchers, students and conservation professionals.

- ❖ **Brown County Fairgrounds** – The County Fairgrounds are located in the Village of Johnstown along U.S. Highway 20. The County Fair is held each year over Labor Day weekend, and includes the following facilities: an outdoor rodeo arena, grandstands, bleachers, numerous outbuildings for displaying goods and holding activities, horse and sheep barns, 4-H buildings, dance hall, race track for saddle horses, large stage and bathroom facilities. Open space is also available for carnival activities.

Museums.

- ❖ **Sellers Barton Museum** – Located at the intersection of U.S. Highway 20 and Main Street in the City of Ainsworth’s Courthouse Park, Sellers Barton Museum holds historical artifacts, an interpretive display about the Sandhills and a wide assortment of exhibits and archives of Brown County area history.
- ❖ **Brown County Historical Coleman House and Dixon House** – This Museum is located in the City of Ainsworth and contains clothing, furniture, memorabilia, a genealogical file and other Brown County historical information.
- ❖ **Long Pine Heritage Society and Heritage House Museum** – Located at 199 West 3rd Street in Long Pine, this Museum displays a variety of local historical artifacts and genealogy information. The Museum is open on Saturdays, Memorial Day weekend through Labor Day weekend, annually.

Medical Facilities.

- ❖ **Brown County Hospital** – The Brown County Hospital is located at 945 East Zero Street in the City of Ainsworth. Built in 1971, the Hospital serves the north central region of the Sandhills. It is a 23-bed critical access facility. Services provided by the Hospital include cardiac rehabilitation, chemotherapy, general surgery, home health, laboratory, nursing, radiology and rehabilitative services. Additionally, several specialty clinics are offered at the Hospital by visiting doctors on a weekly basis.

Brown County Hospital also owns and operates **Ainsworth Family Clinic**, an internal medicine and family practice facility. The Clinic is open Monday through Friday, 7:00AM to Noon and 1:00PM to 5:00PM. The Hospital and Clinic have four full-time practitioners/providers.

A large-scale renovation and addition project was completed at Brown County Hospital in 2008. The renovations consisted of a 15,285 square-foot remodel to patient rooms, including new head-wall units, mechanical/electrical upgrades, new cabinets, new flooring, new lighting and ceilings. An additional 3,203 square-foot renovation included mammography, viewing areas, medical records, CEO office, conference rooms, mechanical/electrical system upgrades and sitework (drives and parking). A 16,139 square-foot addition included an entrance canopy, lobby, restrooms, admitting area, reception area, business office, medical records, a speech therapy lab, physical therapy space, occupational therapy space, surgery center, central sterile services, general storage, emergency department, mechanical and ambulance entrance canopy.

Public Safety.

Public administration facilities serve the citizens of the County and conduct business of government and carry out its operations. Therefore, it is essential these services are centrally located and convenient to the majority of the citizens of Brown County.

- ❖ **Law Enforcement** – The **Brown County Sheriff's Office** is located at 142 West 4th Street in Ainsworth, Nebraska and serves the entire Brown County area. The Sheriff's Office building was built in 1930 and in 1987 the interior was renovated.

The Brown County Sheriff's Office employs one full-time Sheriff and two full-time Deputies. The Sheriff's Office operates the Brown County Jail, a medium-security detention center. The Office holds inmates awaiting trial or sentencing, with most of the sentenced inmates held in the Jail for less than two years. The Jail accepts inmates from surrounding towns, municipalities, the US Marshal's Service and the Ainsworth Police Department, who do not have their own long-term cells. The County Jail typically accepts multiple detainees on a daily basis.

Sheriff Department staff also serve as court bailiffs and provide paging services for public utility emergency and after-hours calls. The Sheriff's Department also dispatches for the County Roads Department.

- ❖ **Fire Protection** – The Brown County Rural Fire District includes six rural fire departments:
 - Ainsworth Volunteer Fire Department, 148 West 4th Street.
 - Johnstown Volunteer Fire Department, RR1.
 - Long Pine Volunteer Fire Department, 502 North Main Street.
 - Raven Volunteer Fire Department.
 - South Pine Volunteer Fire Department, HC 69.
 - Willow Lake Volunteer Fire Department.

- ❖ **Civil Defense** – The present **Civil Defense** services in Brown County are managed by **Region 24**, along with local volunteer fire departments, the County Sheriff's Department and other County officials. Region 24 was formed in 2000 by the Counties of Brown, Boyd and Rock for the purpose of consolidating and becoming compliant in the Nebraska Emergency Management Act. Cherry and Kaya Paha Counties were added to Region 24 in April, 2008.

Civil defense is responsible for notifying citizens in the case of an emergency. In the case of an emergency, a list of trained volunteers is maintained on an as-needed basis. The planning and preparation for natural disaster and man-made emergencies consist of the following: Mitigation, Preparation, Response, and Recovery. Examples of natural and man-made disasters include floods, tornadoes, winter storms, chemical spills, explosions, plane crashes, etc. Other services include weather alert of severe weather, tornado awareness week education, winter time road services, etc.

Government & Public Administration.

- ❖ **County Courthouse** – The **Brown County Courthouse** is located at 148 West 4th Street in Ainsworth, Nebraska. The courthouse holds Brown County Commissioner meetings on the first and third Tuesday of each month. Offices included in the County Courthouse include:
 - County Assessor
 - County Attorney
 - County Clerk
 - County Clerk of District Court
 - County Election Commissioner
 - County Court
 - Highway Department
 - Register of Deeds
 - County Treasurer
 - Veterans Services Officer
- ❖ **Airport** – The **Ainsworth Regional Airport** is located seven miles northwest of Ainsworth and is owned by the Ainsworth Airport Authority. The Airport has two asphalt runways (6,824 by 110 feet and 5,501 by 75 feet) and one helipad (50 by 50 feet), supporting approximately 10 aircraft operations per day.

- ❖ **Postal Services** – Rural delivery routes throughout Brown County are maintained by Post Offices in each of the incorporated communities of the County.

The **Ainsworth Post Office** is located at 375 North Main Street and is open 8:30 AM to 4:30 PM Monday through Friday, as well as 10:00 AM to 12:00 PM on Saturdays. The lobby is open 24 hours per day, seven days per week.

The **Johnstown Post Office** is located at 200 North Main Street and is open 8:00 AM to 12:00 PM Monday through Friday, as well as 8:30 AM to 9:30 AM on Saturdays. The lobby is open 24 hours per day, seven days per week.

The **Long Pine Post Office** is located at 421 North Main Street and is open 8:00 AM to 11:30 AM and 12:00 PM to 2:30 PM Monday through Friday, as well as 8:30 AM to 9:30 AM on Saturdays. The lobby is open 24 hours per day, seven days per week.

- ❖ **United States Department of Agriculture (USDA)** – A USDA Farm Service Agency (FSA) office is located in the City of Ainsworth at 731 East 4th Street. The FSA serves local area farmers, ranchers and agricultural partners through the delivery various agricultural programs. Three primary goals of the FSA are:
 - 1) Support Productive Farms and Ranches.
 - 2) Support Secure and Affordable Food and Fiber.
 - 3) Conserve Natural Resources and Enhance the Environment.

TRANSPORTATION.

The availability of a convenient and efficient transportation system is essential to the continued economic and physical development of Brown County. An adequate transportation system is required to transport goods and services to and from major travel routes and market centers within and outside the County. The overall purpose of this transportation analysis is to provide the necessary guidelines for the safe movement of people and vehicles throughout the County.

The primary sources of information utilized to develop the transportation analysis were the (1) Brown County “One and Six Year Road Improvement Program” and (2) State of Nebraska Department of Transportation “Nebraska Highway Program” (Fiscal Years 2019-2024 and Beyond).

Existing Transportation System.

Illustrations 5.1A and 5.1B, Pages 5.11 and 5.12, highlight the **State Functional Classification Map** for Brown County, as identified by the Nebraska Department of Transportation. The transportation network in Brown County comprises three “*Major Arterial*” Highways including U.S. Highways 20 and 183 and Nebraska State Highway 7. The County’s transportation system also includes a variety of road segments classified as “*Other Arterial*” and “*Collector*” roads. The “*Major Arterial*” Highways link Brown County and its Communities with many cities and metropolitan areas throughout the region, while other county and local roads provide transportation services throughout Brown County and into adjacent counties.

Road Classifications.

Nebraska Highway Law identifies the nine functional classifications of rural highways as follows:

- 1) **Interstate:** Which shall consist of the federally designated National System of Interstate and Defense Highways;
- 2) **Expressway (Other Freeways & Expressways):** Second in importance to Interstate. Shall consist of a group of highways following major traffic desires in Nebraska and ultimately should be developed to multilane divided highway standards;
- 3) **Major Arterial (Other Principal Arterials):** Consists of the balance of routes which serve major statewide interests for highway transportation in Nebraska. Characterized by high speed, relatively long distances, and travel patterns;
- 4) **Scenic-Recreation:** Consists of highways or roads located within or which provide access to or through state parks, recreation or wilderness areas, other areas of geological, historical, recreational, biological, or archaeological significance, or areas of scenic beauty;
- 5) **Other Arterial (Minor Arterials):** Which shall consist of a group of highways of less importance as through-travel routes which would serve places of smaller population and smaller recreation areas not served by the higher systems;
- 6) **Collector (Major and Minor Collectors):** Which shall consist of a group of highways which pick up traffic from many local or land-service roads and carry it to community centers or to the arterial systems. They are the main school bus routes, mail routes, and farm-to-market routes;

- 7) **Local:** Which shall consist of all remaining rural roads, except minimum maintenance roads;
- 8) **Minimum Maintenance:** Which shall consist of (a) roads used occasionally by a limited number of people as alternative access roads for area served primarily by local, collector, or arterial roads, or (b) roads which are the principal access roads to agricultural lands for farm machinery and which are not primarily used by passenger or commercial vehicles.
- 9) **Remote Residential:** Consists of roads or segments of roads in remote areas of counties with (a) a population density of no more than five people per square mile or (b) an area of at least one thousand square miles, and which roads or segments of roads serve as primary access to no more than seven residences.

The rural highways classified under subdivisions (1) through (3) of this Section should, combined, serve every incorporated municipality having a minimum population of 100 inhabitants or sufficient commerce, a part of which will be served by stubs or spurs, and along with rural highways classified under subsection (4) of this section, should serve the major recreational areas of the State. Sufficient commerce shall mean a minimum of \$200,000 of gross receipts under the Nebraska Revenue Act of 1967.

Traffic Volume.

The Nebraska Department of Transportation monitors traffic volume in the Brown County area, for local roads and State and Federal highways. This tabulation process is done to identify appropriate existing road classification and engineering standards.

Illustration 5.2, Page 5.13 identifies the average daily traffic counts for State and Federal transportation routes throughout Brown County. Each of the road segments identified in the **Illustration** are classified as “*Major Arterial*” roads.

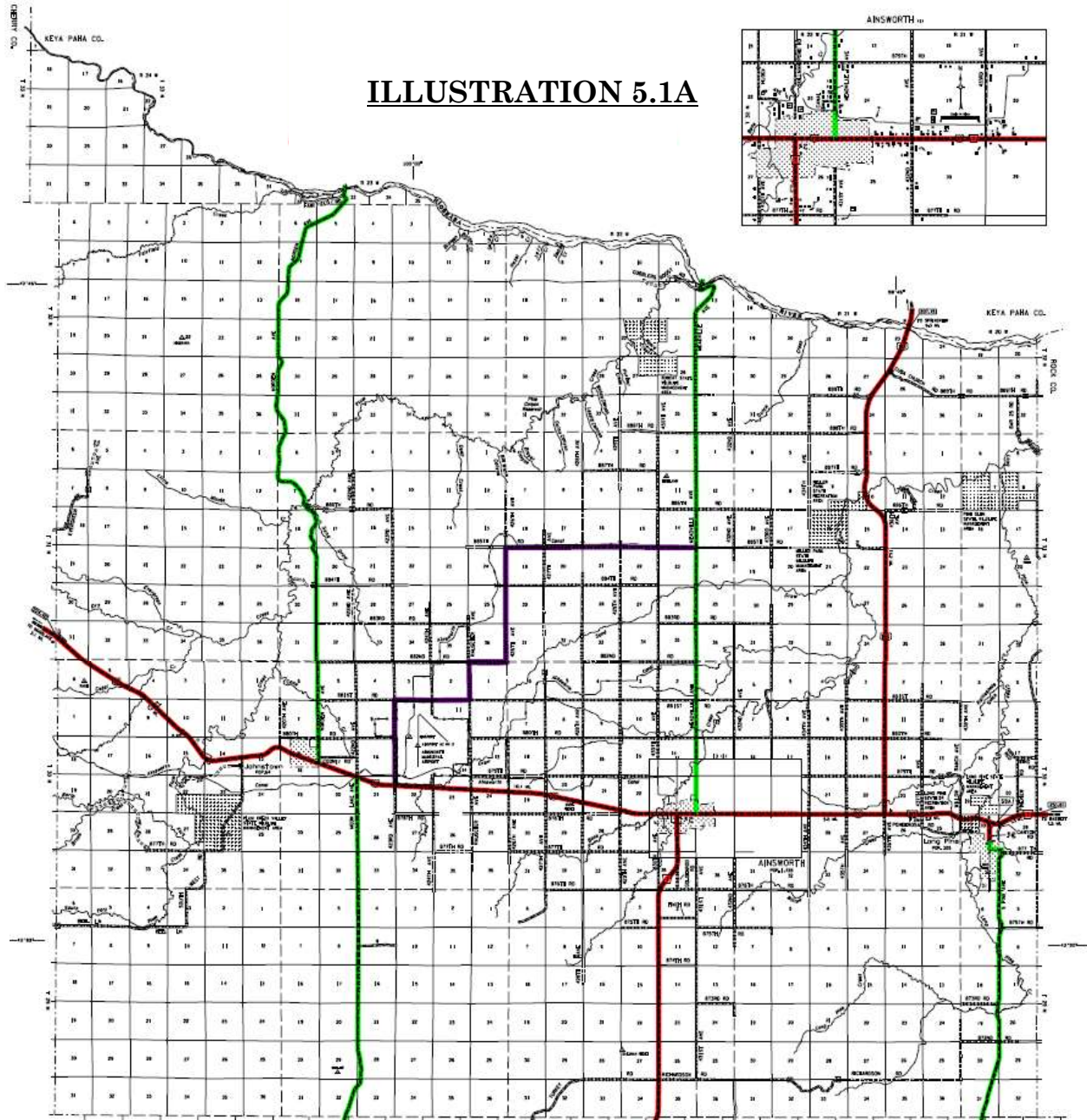
The analysis of average 24-hour traffic volumes at all identified locations in **Illustration 5.2** indicates that in the four-year period between 2014 and 2018, traffic volumes at all identified road segments in the County increased in terms of both total vehicles and heavy commercial vehicles. The only exception is Segment F (U.S. Highway 183) because traffic count data was not available for the year 2018.

STATE FUNCTIONAL CLASSIFICATION MAP

BROWN COUNTY (NORTH), NEBRASKA



ILLUSTRATION 5.1A



Source: Nebraska Department of Transportation.

LEGEND
STATE FUNCTIONAL CLASSIFICATION

INTERSTATE	
EXPRESSWAY	
MAJOR ARTERIAL	
OTHER ARTERIAL	
COLLECTOR	
REMOTE RESIDENTIAL (Rural Only)	
MINIMUM MAINTENANCE (Rural Only)	
SCENIC RECREATION (Rural Only)	
URBANIZED BOUNDARY	

All Roads Not Otherwise Indicated Are Classified As Local

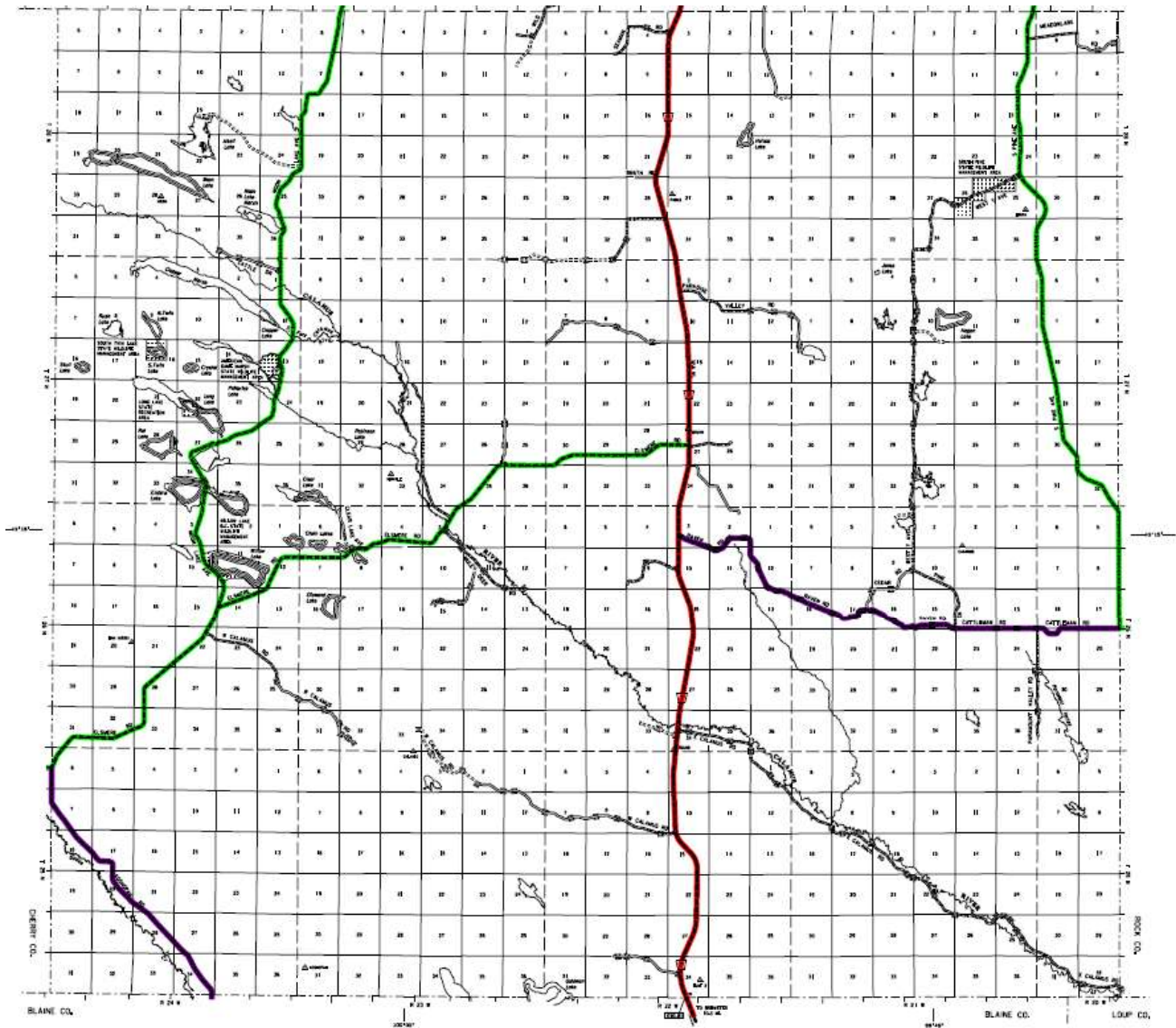
HANNA:KEELAN ASSOCIATES, P.C.
COMMUNITY PLANNING & RESEARCH

* Lincoln, Nebraska * 402.464.5383 *

STATE FUNCTIONAL CLASSIFICATION MAP

BROWN COUNTY (SOUTH), NEBRASKA

ILLUSTRATION 5.1B



Source: Nebraska Department of Transportation.

LEGEND
STATE FUNCTIONAL CLASSIFICATION

INTERSTATE	
EXPRESSWAY	
MAJOR ARTERIAL	
OTHER ARTERIAL	
COLLECTOR	
REMOTE RESIDENTIAL (Rural Only)	
MINIMUM MAINTENANCE (Rural Only)	
SCENIC RECREATION (Rural Only)	
URBANIZED BOUNDARY	

All Roads Not Otherwise Indicated Are Classified As Local

HANNA:KEELAN ASSOCIATES, P.C.
COMMUNITY PLANNING & RESEARCH

* Lincoln, Nebraska * 402.464.5383 *

AVERAGE ANNUAL 24-HOUR TRAFFIC BROWN COUNTY, NEBRASKA



**AVERAGE ANNUAL 24-HOUR TRAFFIC*
BROWN COUNTY, NEBRASKA
2014, 2016 & 2018**

	<u>2014</u>	<u>2016</u>	<u>2018</u>
Segment A	1,165/190	1,225/200	1,335/220
Segment B	1,240/185	1,695/205	1,645/205
Segment C	1,780/185	3,680/280	3,140/240
Segment D	530/90	615/100	665/95
Segment E	3,360/295	3,665/320	3,900/340
Segment F	515/85	510/85	N/A
Segment G	2,435/325	2,425/325	2,845/380
Segment H	800/80	890/90	925/95

*Total Vehicles / Heavy Commercial Vehicles.
Source: Nebraska Department of Transportation, 2014-2018.

**HANNA:KEELAN ASSOCIATES, P.C.
COMMUNITY PLANNING & RESEARCH**

* Lincoln, Nebraska * 402.464.5383 *

ILLUSTRATION 5.2

FUTURE BROWN COUNTY TRANSPORTATION SYSTEM.

County One- And Six-Year Road Improvement Plan.

The future transportation system is outlined in the Brown County **One- and Six-Year Road Improvement Plan**. The Improvement Plan is currently in the final stages of preparation and is scheduled to be approved by the Brown County Board of Commissioners in April, 2020. The County's One-Year Plan identifies projects to be undertaken in Fiscal Year 2020, while the Six-Year Plan includes projects to be undertaken through 2025, or earlier if funding becomes available. Road Improvement Plans are available in the office of the County Clerk.

The Brown County Highway Superintendent annually prepares the One and Six-Year Road Plan and reports directly to the County Commissioners. The County Board of Commissioners approves the Plan and files it with the Nebraska Department of Transportation. All County road improvement projects are included on the One-Year and Six-Year Road Improvement Plan for Brown County.

State One and Six-Year Transportation Plan.

The Nebraska “Surface Transportation Program 2020-2025” is an annual publication that includes a list of one-year short-term and six-year long-range improvement projects for State and Federal Highways. Improvement projects located in Brown County include the following projects:

One-Year Projects (Fiscal Year 2020 to Fiscal Year 2021):

- None.

Six-Year Planning Program Projects (Fiscal Years 2021-2025):

- **STP-NH-7-4(122):** Nebraska State Highway 7; Ainsworth Area; Microsurfacing; 31.6 Miles; Estimated Cost: \$2,160,000.
- **STP-7-4(112):** Nebraska State Highway 7; In Ainsworth & South; Milling, Resurfacing; 7.2 Miles; Estimated Cost: \$6,320,000.
- **NH-20-3(113):** U.S. Highway 20; In Ainsworth; Concrete, Pavement; 1.4 Miles; Estimated Cost: \$5,650,000.
- **MISC-20-3(2017):** U.S. Highway 20; Willow Creek Box Culvert; Culvert Repair; 0 Miles; Estimated Cost: \$570,000.
- **NH-20-3(114):** U.S. Highway 20; Long Pine Creek; Bridge Rehabilitation; 0.2 Miles; Estimated Cost: \$1,890,000.



SECTION 6:
Energy Element.

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COMMUNITY PLANNING & RESEARCH

SECTION 6

ENERGY ELEMENT.

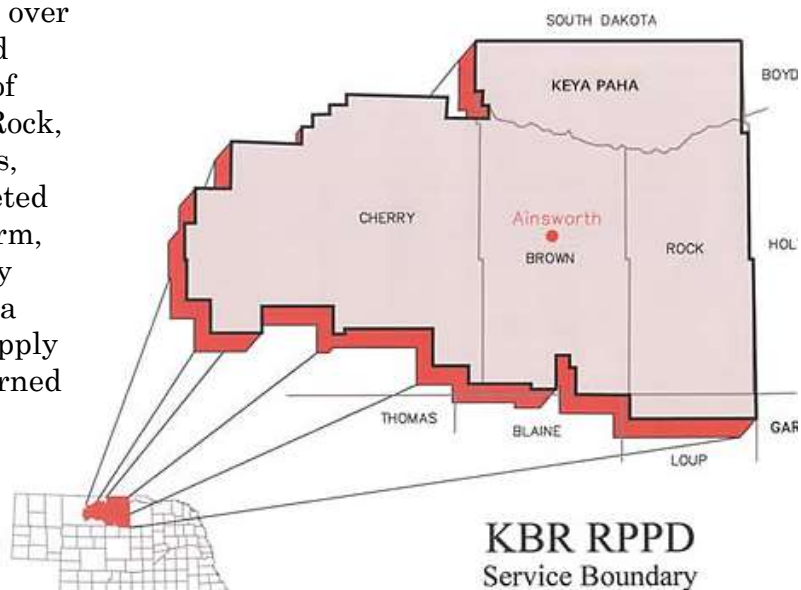
INTRODUCTION.

This **Section** of the **Brown County, Nebraska, Comprehensive Plan** complies with a **July, 2010, amendment to Nebraska State Statutes 23-114.02**, requiring updates to a County Comprehensive Plan to include an “**Energy Element.**” This component of the **Plan** profiles the energy infrastructure and energy use by sector, in the County, including residential, commercial and industrial. This Section also discusses the utilization of renewable energy sources and the promotion of energy conservation measures.

PUBLIC POWER DISTRIBUTION.

Energy usage and consumption throughout Brown County has followed the trends prevalent in the State of Nebraska. Electrical power is distributed across rural Brown County by **KBR Rural Public Power District (KBR)**, which purchases electricity from **Nebraska Public Power District (NPPD)**. KBR is one of 32 rural electric systems located in Nebraska and one of nearly 1,000 electric systems nationwide.

KBR provides electric service to over 5,400 electric accounts scattered across over 5,000 square miles of service area located in Brown, Rock, Keya Paha and Cherry Counties, Nebraska. KBR recently completed negotiations and signed long-term, total requirements power supply contracts with NPPD to ensure a stable and economical power supply far into the future. KBR is governed by a nine-member board and is headquartered in the City of Ainsworth, with outposts in Valentine and Springview, Nebraska.



As the largest electric generating utility in the State of Nebraska, NPPD provides electricity to all or parts of 86 of the State's 93 Counties. The fuel sources of NPPD's generating facilities includes coal, oil, natural gas and nuclear energy. Additionally, NPPD also purchases electricity from the **Western Area Power Administration (WAPA)**, which markets and transmits electricity for federally owned hydropower facilities.

Renewable Energy Strategic Plan.

“NPPD will further diversify its mix of generating resources (nuclear, coal, gas, hydro and renewable including wind, energy efficiency, and demand response) and energy storage, capitalizing on the competitive strengths of Nebraska (available water, proximity to coal, wind) with a goal of achieving 10% of our energy for NPPD's native load from renewable resources by 2020.

NPPD was formed in 1970 through the merger of two public power districts and the assets of the former Nebraska Public Power System. More than 5,200 miles of overhead and underground power lines make up NPPD's electric system. NPPD revenue is derived from wholesale power supply agreements with 46 municipalities and 25 public power districts and cooperatives. NPPD also serves 79 Nebraska communities at retail, consisting of more than 91,000 customers.

In 2016, nearly 19 percent of NPPD's generation came from renewable resources, adding to over a **60 percent carbon-free portfolio**, which nearly doubles the national average. NPPD's Cooper Nuclear Station contributes 44 percent toward this carbon-free resource mix.

Generating Resources.

The source of NPPD's generating facilities includes Fossil fuels – coal, oil or natural gas, Nuclear, Hydroelectric, Wind and Methane. Additionally, NPPD purchases electricity from the **Western Area Power Administration (WAPA)**, which markets and transmits electricity for federally owned hydropower facilities.

Preliminary 2019 data regarding NPPD's energy generation for Nebraska customers included the following:

- ◆ 19.1 percent of NPPD's energy generation was from coal.
- ◆ 51.9 percent was from nuclear.
- ◆ 5.0 percent generation from oil & natural gas.
- ◆ 8.1 percent from renewable wind generation.
- ◆ 7.9 percent from renewable Hydro generation.
- ◆ 0.1 percent from renewable Solar generation.
- ◆ The remaining 8.0 percent of NPPD's energy was supplied through wholesale purchases.

NPPD Renewable Energy Capabilities.

1.) Western Area Power Administration –

In 2017, NPPD purchased electrical energy, produced primarily from Hydropower, in the amount of 447.6 MWs of “firm” power.

2.) Hydropower Facilities –

NPPD owns and operates two hydroelectric generating facilities, at North Platte and Kearney on the Platte River and purchases 100 percent of the energy output from facilities owned by Central Nebraska Public Power and Irrigation District and Loup Public Power District. Combined these facilities produce 28 megawatts and serve approximately 9,500 homes.

3.) Wind Energy Facilities –

NPPD constructed Nebraska’s first wind-energy generation facility in 1998 west of Springview. Currently NPPD owns 32 MW of the Ainsworth Wind Energy Facility, while Omaha Public Power District (OPPD) and JEA of Jacksonville, Florida each own 10 MWs of the facility, the Municipal Energy Agency of Nebraska purchases 7 MWs, and the City of Grand Island purchases one MW.

NPPD has power purchase agreements with six additional wind generating facilities in Nebraska. NPPD purchases a total of 435 MWs, of which NPPD utilizes 281 MWs and has purchase agreements for the remaining 154 MWs to other utility districts.

4.) Solar Energy –

Under NPPD’s 2017 wholesale power contract, customers have the ability to invest in their own, local renewable energy sources by installing qualifying local generation, including solar, and offset its purchases of demand and energy from NPPD by up to two megawatts or 10 percent of their demand, whichever is greater.

Central City installed a 200 KW facility and became Nebraska’s first “Community Solar Garden.” This 100-panel system was installed in an industrial park and is owned by the City. Plans include installing an additional 500 KW system later this year. A new solar project near Callaway, Nebraska, in Custer County is a 600 KW solar facility owned by a private company. As of June 2016, it is the largest solar facility in the State. Custer Public Power District purchases power generated from the system.

NPPD also developed a “Community Solar Program” in 2017 and now operates three solar energy facilities in Kearney, Scottsbluff and Venango. The Program allows community members to purchase solar energy without having to install solar panels on individual rooftops. Solar subscribers can purchase different amounts of solar energy based on their annual electricity usage.

NPPD Traditional Production Facilities.

Coal-Fired Generators –

NPPD owns the Gerald Gentleman and Sheldon Stations, which are both coal-fired generating stations. Together, these facilities produce 1,590 MWs. The Gerald Gentleman Station produces enough power to supply electricity to 600,000 Nebraskans. Additionally, NPPD has a coal power purchase agreement with the Nebraska City #2, owned by Omaha Public Power District, for 162 MWs.

Natural Gas & Oil-Fired Generators –

Gas and Oil fired generators are utilized only during peak loads or as replacement power if another facility is down. NPPD owns two natural gas-fired generation facilities, the Beatrice Power Station and the Canaday Station that produce a combined total of 365 MW.

Three oil-fired generation facilities located in Hallam, McCook and Hebron, Nebraska produce 162 MW. NPPD also have capacity purchases agreements with 12 municipal systems in Nebraska for an additional 93 MWs.

NPPD Emission Free Electricity.

Nuclear Facilities –

Cooper Nuclear Station operates as the largest single unit electrical generator in Nebraska, by generating 810 MW of electricity. This facility is capable of supplying power to more than 310,000 customers during peak summer usage. In November of 2010, NPPD received an additional 20 years beyond its initial 40-year license to provide power through at least January, 2034.

“Net Metering”.

In 2009, the State of Nebraska Legislature approved and signed into law, LB 439 (**Nebraska State Statute §70-2001 to 2005**), which is also referred to as “**Net Metering**.” This law allows individual residences and businesses to supplement their standard electric service with one, or combinations of, five alternate energy systems, including Solar, Methane, Wind, Biomass, Hydropower and Geothermal.

By implementing these types of alternative energy systems, individuals will reduce their reliance on public utility systems, potentially generating more electricity than they use and profit by the public utility districts purchasing their excess energy. The Brown County Planning Commission could choose to allow usage control of Net Metering by allowing residential and businesses property owners to seek a **Special Use Permit**, if the applicant can document a project in conformance with allowable provisions included in the **Brown County Zoning Regulations**.

A new net metering service was developed by NPPD to assist its Communities in complying with net metering laws. As of 2018, NPPD had 29 net metering solar customers.

ENERGY CONSUMPTION.

Brown County Energy Consumption.

KBR Rural Public Power District provided annual consumption and revenue data between 2015 and 2019 for its four-county service area, including Brown County, as well as Cherry, Keya Paha and Rock Counties in Nebraska (see **Table 6.1, Page 6.6**). The Residential, Irrigation, Commercial/Industrial and Public Street/Highway sectors were analyzed.

The five-year period between 2015 and 2019 revealed an overall decrease energy consumption, from an estimated 90.34 Million Kilowatt Hours (kWh) to 81.26 Million kWh, following a peak output in 2017 of 94.26 Million kWh. Rural residential properties have consistently consumed the most kWh of energy within the reviewed five-year period.

The decrease in overall energy consumption in the KBR service area is primarily due to the substantial decrease in consumption from the Irrigation sector in 2018 and 2019. In 2019, energy consumption in the Irrigation sector was down 19,455,180 kWh, or 56.3 percent from 2015.

Total revenues from KBR Public Power gradually increased from 2015 to 2017, and have gradually decreased since 2017 due to the decreased energy consumption. Total revenue in 2019 was down \$683,865, or 5.4 percent, from 2015.

**TABLE 6.1
ENERGY CONSUMPTION & REVENUE DATA
KBR RURAL PUBLIC POWER DISTRICT SERVICE AREA*
2015-2019**

	<u>Sector</u>	<u>Revenue</u>	<u>Total Consumption (kWh Sold)</u>	<u>Average # of Customers</u>	<u>Average Consumption (kWh)</u>
2015	Residential (incl. seasonal)	\$4,764,780	35,810,608	3,342	10,715
	Irrigation	\$5,632,520	34,562,417	777	44,482
	Commercial/Industrial	\$2,418,943	19,668,346	651	30,213
	<u>Public Street/Highway</u>	<u>\$42,417</u>	<u>295,796</u>	<u>16</u>	<u>18,487</u>
	TOTAL	\$12,585,660	90,337,167	4,786	18,875
2016	Residential	\$4,754,093	35,575,723	3,333	10,674
	Irrigation	\$5,836,512	36,151,391	786	45,994
	Commercial/Industrial	\$2,581,498	20,948,843	673	31,128
	<u>Public Street/Highway</u>	<u>\$42,273</u>	<u>297,608</u>	<u>16</u>	<u>18,601</u>
	TOTAL	\$13,214,376	92,973,565	4,808	19,337
2017	Residential	\$4,799,402	36,131,162	3,341	10,814
	Irrigation	\$5,790,078	35,845,151	788	45,489
	Commercial/Industrial	\$2,632,224	21,980,377	685	32,088
	<u>Public Street/Highway</u>	<u>\$42,256</u>	<u>299,301</u>	<u>16</u>	<u>18,706</u>
	TOTAL	\$13,263,961	94,255,991	4,830	19,515
2018	Residential	\$5,107,520	39,408,966	3,349	11,767
	Irrigation	\$4,264,266	20,462,851	791	25,870
	Commercial/Industrial	\$2,833,553	23,476,295	691	33,974
	<u>Public Street/Highway</u>	<u>\$42,266</u>	<u>298,465</u>	<u>16</u>	<u>18,654</u>
	TOTAL	\$12,247,604	83,646,577	4,847	17,257
2019	Residential	\$5,153,049	39,767,134	3,341	11,903
	Irrigation	\$3,566,710	15,107,237	789	19,147
	Commercial/Industrial	\$3,139,445	26,092,856	705	37,011
	<u>Public Street/Highway</u>	<u>\$45,590</u>	<u>297,482</u>	<u>16</u>	<u>18,593</u>
	TOTAL	\$11,901,795	81,264,709	4,851	16,752

*Note: The Service Area for KBR RPPD comprises four Nebraska Counties, including Brown, Cherry, Keya Paha and Rock Counties.

Source: KBR Rural Public Power District, 2020.

State-Wide Trends in Energy Consumption.

During the last 40+ years, the State of Nebraska, as a whole, has vastly increased energy consumption. However, percentage share of personal income has remained constant, although it has declined in recent years. In 1970, 11.5 percent of the percentage share of personal income was spent on energy. As of 2015, 8.9 percent was spent on energy usage. The peak percentage occurred in 1980 at 16.6 percent.

Trends in the Total Energy Consumption for the State of Nebraska, published in the *“2019 Annual State Energy Report” of the Nebraska Department of Environment and Energy*, is mirrored in each of the individual energy categories, coal, natural gas, gasoline and distillate fuel oil (primarily diesel fuel), nuclear power, and hydroelectric production. Each energy type is detailed between 1960 and 2016, as follows:

- ◆ **Coal** consumption has increased from 20 trillion British Thermal Units (BTUs) in 1960 to 233.8 trillion BTUs in 2017. Peak use of coal was reached in 2013, surpassing the previous high set in 2011. The increase through 2013 was attributable to coal energy used to generate electricity.
- ◆ **Natural Gas** consumption has risen and fallen during the 56-year period between 1960 and 2016, beginning at 140.4 trillion BTUs, peaking in 1973 at 230.8 trillion BTUs and, by 2017, declining to 175.6 trillion BTUs.
- ◆ **Gasoline and Diesel Fuel** consumption nearly doubled in Nebraska between 1960 and 2017. Gasoline consumption increased nearly 29 percent, from 78.8 to 101.6 trillion BTUs, as of 2017, and peaked in 1978 at 116 trillion BTUs. Diesel fuel consumption more than quadrupled from 24.2 trillion BTUs to 111.4 trillion BTUs, primarily due to an increase in trucking and agricultural use. Petroleum consumption, overall, peaked in 1978 at 246.7 trillion BTUs.
- ◆ **Nuclear** power generation began in Nebraska in 1973 at 6.5 trillion BTUs. Usage has since increased to 72.3 trillion BTUs as of 2017. The peak use of nuclear power was in 2007 at 115.8 trillion BTUs.
- ◆ **Renewable energy** consumption has fluctuated, beginning in 1960 at 13.4, and peaking in 2017 at 185.6 trillion BTUs. Hydropower was the primary renewable energy source from 1960 to 1994. Biofuels, or ethanol production, began equaling hydropower in 1995. As of 2016, 64.4 percent of all renewable energy produced came from biofuels, 7.4 percent from hydroelectric, 25.2 percent from wind, and 2.1 percent from wood products. Minor amounts came from geothermal and solar energy.

Nebraska Energy Consumption by Sector.

- ◆ **Commercial Sector:** The commercial sector includes non-manufacturing business establishments, including energy use by local, state and federal governments. Energy use in the commercial sector closely parallels consumer energy use and economic activity in the State of Nebraska. More than 90 percent of all fuel used in the commercial sector was supplied by natural gas and electricity. Although natural gas has historically been the dominant fuel type, recent trends suggest a period of near parity between the two fuel types is likely into the near future. In 2017, a total of 135.2 trillion BTUs were consumed in the commercial sector, up 0.5 percent from 2016.
- ◆ **Residential Sector:** The residential sector consumed 17 percent, or 146.2 trillion BTUs, of the State's total energy demand in 2017. Demand decreased 1.5 percent from 148.3 trillion BTUs in 2016. Natural gas and electricity accounted for 90.3 percent of the total energy use in the residential sector.
- ◆ **Industrial Sector:** The industrial sector includes manufacturing, construction, mining, forestry and agricultural operations. Energy use in the industrial is more diverse, with natural gas, renewable energy, electricity, coal and a variety of petroleum products all being utilized. The industrial sector consumes more energy than any other sector in the State. In 2017, it accounted for 45 percent, or 392.4 trillion BTUs, of the State's total energy consumption. This was a 4.5 percent increase in energy use from 2016.
- ◆ **Transportation Sector:** Public and private vehicles, railroads, aircraft and boats are all included in the transportation sector. Petroleum products accounted for 93 percent of the energy use in the transportation sector in 2017. Approximately 23 percent of the State's total energy consumption (202.3 trillion BTUs) was used in the transportation sector in 2017.
- ◆ **Electric Power Sector:** The electric power sector consists of facilities which generate electricity primarily for use by the public. About 60 percent of energy usage in this sector comes from coal, while nuclear energy accounted for approximately 27 percent in 2017. Demand in the State's electric power sector totaled 353.3 trillion BTUs in 2017, a 4.1 percent decrease, or 15.1 trillion BTUs, from 2016.
- ◆ **Agricultural Sector:** As per the U.S. Department of Agriculture National Agricultural Statistics Service, there were 47,400 farms and ranches on 45.2 million acres in Nebraska in 2017, encompassing 91 percent of the State's total land area. Energy demand information in this sector is not available on a consistent or annual basis.

Increased Energy Costs & Conservation.

A comparison of “**Total Energy Expenditures Per Capita**” between the United States and the State of Nebraska indicated that between 1970 and 1994, Nebraska and the Nation’s per capita energy consumption were very close to one another. But, after 1994, Nebraska’s consumption began to be drastically higher than that of the Nation. The industrial sector, which includes agriculture, was the one sector that was surging in energy consumption in Nebraska.

Ethanol production in Nebraska in 1994 was 78.9 million gallons, by 2016 production had increased to 2.1 billion gallons. Considering ethanol production uses high volumes of both electricity and natural gas, the State’s energy expenditures per capita increased as well. **Additionally, in 2016, 43 percent of the State’s total corn harvested, or 727 million of the total 1.692 billion bushels of corn, was consumed by ethanol production.**

High fuel costs or limited availability of a particular energy type increases the desire for energy efficiency practices. For example, historic peak prices for natural gas in 2008 motivated farmers to convert natural gas and propane fueled irrigation equipment to electric power; to limit frequency and amount of applications of anhydrous ammonia fertilizer (a natural gas product); and to increase the use of conservation tillage practices to reduce crop cultivation. Access to low-cost financing through the Nebraska Energy Office and locally available low-interest loans to modernize agricultural equipment have led to conservation increases in the Agricultural Sector.

The U.S. Department of Agriculture issued a report in 2008 which concluded that farmers have increased conservation practices. **Since the 1970s, total farm energy consumption had fallen by 26 percent, while farm production increased by 63 percent, due to the adoption of energy conservation practices.** This figure is even more significant when the consolidation of farms is considered.

In 1966, just 3.1 million acres of Nebraska crop lands were irrigated, but as of 2017, 8.6 million acres were irrigated. Thus, approximately 38.6 percent of the total cropland in Nebraska was irrigated.

ENERGY CONSERVATION POLICIES.

The most effective means for Brown County to reduce its total energy consumption in each of the Energy Sectors (and by selected energy type) is through conservation practices and by continuing to promote the conversion to alternative energy systems when appropriate.

The following is a list of policies to guide energy practices throughout the County:

- ◆ **Promote the use of “Net Metering” or the use of one or more combinations of selected alternative energy sources to reduce public/quasi-public, residential, commercial and industrial facilities consumption of energy.**
 - Utilize the Brown County Zoning Regulations to control the placement and operation of alternative energy systems.
 - Require compliance with a Conditional Use permit process so that established conditions are met by the applicant.
 - Utilize the net metering services of KBR Rural Public Power District to assist Brown County in complying with Nebraska’s Net Metering Law.
 - Promote the development of vocational education opportunities in Ainsworth Community Schools, as well as regional State and Community Colleges, to educate the current and future workforce in alternative energy design, fabrication of equipment and maintenance.
- ◆ **As other sources of Alternative Energy Systems are developed, or become cost-effective for use in Nebraska, the planning documents of the County are recommended to be revised to guide their locations and monitor their operation.**
- ◆ **Promote the use of conservation methods to reduce the consumption of energy usage in each of the individual sectors including residential, commercial and industrial (which includes agricultural and public uses).**
 - Promote the expanded use of solar, methane, biomass, hydropower and geothermal exchange energy systems, or other sources of alternative energy systems, for applications throughout Brown County. The use of an alternate energy source or combinations of these energy sources should be considered by farming and ranching operations to lower energy consumption and to make energy more affordable.

- Promote the rehabilitation of agricultural, residential, commercial, industrial and public/quasi-public buildings utilizing weatherization methods and energy efficient or “green building” materials in conformance to the “LEED” Certified Building techniques.
- Promote the use of conservation programs supported by KBR Rural Public Power District, and in its association with Nebraska Public Power District, for its member Communities and public power districts. For example, the Electric Heat Rebate Program provides rebates to customers who install electric heat as their primary heating source.
- Brown County residents and farming/ranching operations could also access grant and loan programs to replace light fixtures with LED fixtures that reduce consumption and are more energy efficient.
- Support and provide incentives for the expanded use of agricultural practices to reduce energy consumption. Techniques such as conservation tillage, high efficiency irrigation equipment and cost-effective fuel sources to power irrigation systems.
- Support State and Federal incentive programs to continue to provide low-cost financing to purchase modern agricultural equipment such as low-pressure pivots and no-till equipment. Programs such as the U.S. Department of Agriculture’s Rural Energy for America Program (REAP) that finances irrigation efficiency improvements switching diesel, propane and natural gas pumps to electric operated.
- Promote the availability of incentives provided by public power districts to develop alternative energy sources for, and from, agricultural practices. Modern methods such as producing methane gas from livestock confinement facilities to power agricultural equipment, is one example.
- Promote the use of solar and geothermal exchange energy systems for agricultural applications that power equipment and heat/cool farm and ranch buildings.