BURT COUNTY, NEBRASKA COMPREHENSIVE PLAN 2019-2029.

PREPARED FOR:
Burt County Planning Commission.

PREPARED BY:

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

AUGUST, 2019

BURT COUNTY, NEBRASKA COMPREHENSIVE PLAN 2019-2029.

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The **Burt County, Nebraska Comprehensive Plan** was funded by the **Nebraska Investment Finance Authority Housing Study Grant Program,** with matching funds from the **Burt County Economic Development Corporation.** The **Comprehensive Plan** was completed with the guidance and direction of the **Burt County Planning Commission.**

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COMMUNITY PLANNING & RESEARCH

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SECTION 1

THE BURT COUNTY PLANNING PROCESS.

THE COMPREHENSIVE PLAN

This **Comprehensive Plan** was prepared as an update to the existing **Burt County Plan**, completed in 1999. This updated **Plan** will serve as a guide to direct future growth and development opportunities in **Burt County** during the 10-year planning period, 2019 to 2029.

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, at appropriate locations, providing for the development of non-farm dwellings and rural subdivisions. The implementation of this **Comprehensive Plan** guided by the establishment of ***"Goals & Objectives,"*** and evaluated by the analysis of ***"Population, Income & Economic Profile," "Land Use Profile & Plan," "Public Facilities & Transportation"*** and the ***"Energy Element."*** The intent of this **Comprehensive Plan** is also to serve as a foundation and guide to the current and updated **Zoning and Subdivision Regulations,** as needed, to achieve the specific Goals and Objectives 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 the Burt 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 Burt County. The **Plan** was prepared under the direction of the **Burt County Planning Commission** by Planning Consultants, **Hanna:Keelan Associates, P.C.,** of Lincoln, Nebraska.

PLANNING PERIOD

The planning time period for achieving the goals, programs and economic development activities identified in this **Comprehensive Plan** for Burt County, Nebraska, is 10 years (2019-2029).

AUTHORITY TO PLAN

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

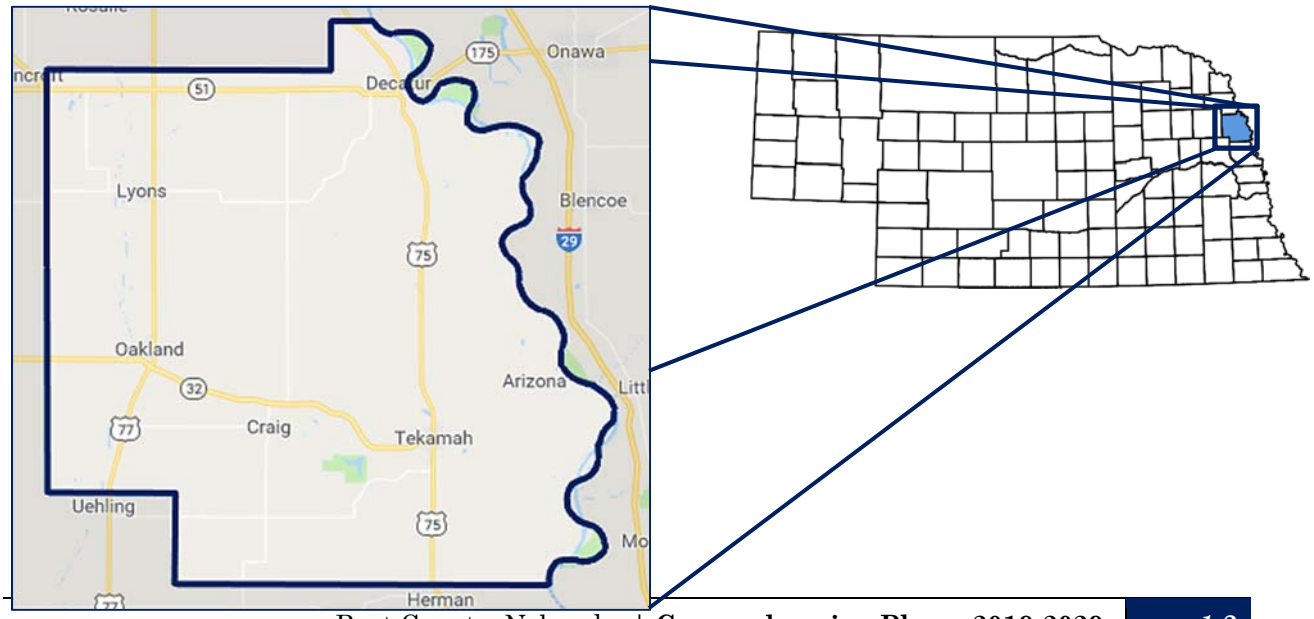
AMENDMENT

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

LOCATION

Burt County is located in northeast Nebraska along the State's eastern boundary. The County is bordered by the Missouri River (east), Washington County (south), Dodge County (southwest), Cuming County (west) and Thurston County (north). U.S. Highways 75 and 77 and Nebraska State Highways 32 and 51 support transportation to and from Burt County Communities and beyond. Tekamah, the County-Seat of Burt County, is located approximately 40 miles north of Omaha, Nebraska, and 55 miles south of Sioux City, Iowa.

ILLUSTRATION 1.1
LOCATION MAP
BURT COUNTY, NEBRASKA



SECTION 2:

Goals & Objectives.

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SECTION 2

GOALS & OBJECTIVES.

INTRODUCTION

The **Comprehensive Plan** is an **essential tool** to properly guide the development of Burt County. An important aspect of the Burt County planning process is the development of appropriate and specific **Planning Goals and Objectives** to provide the Planning Commission and other local leaders direction in the administration and overall implementation of the **Plan.** In essence, Goals and Objectives are the most fundamental elements of the **Plan;** the premises upon which all other elements of the **Plan** must relate. Effective Goals and Objectives not only address past and present issues, but also provide a strategic vision and plan and procedures to assist Burt County in taking a proactive approach to solving future issues.

Creating a strategic vision for a County through the development of Goals and Objectives requires an evaluation of the present conditions. Because change is a constant occurrence, a County's vision and associated Goals and Objectives must be continuously reviewed, amended and updated to ensure the present needs and desires of residents are being met. The following **Goals and Objectives** are to be in effect for the period of this **Comprehensive Plan, 2019-2029,** pending annual review.

The **Goals and Objectives** included in the **1999 Burt County Comprehensive Plan** were reviewed, and in some cases, revised and/or included in whole, in the **Goals and Objectives Section** of this Comprehensive Plan.

GOALS

Goals are broad statements that identify the state or condition citizens wish the primary components of the Burt 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.

OBJECTIVES

Objectives assist to further define the meaning of Goals. Objectives are recommendations for means by which Goals can be accomplished. Objectives are sub-parts of a Goal and are accomplished in a much shorter time frame.

The following **Goals and Objectives** are the result of both qualitative and quantitative research conducted in association with this **Comprehensive Plan.**

GENERAL COUNTY GOALS

The first step in developing **Goals and Objectives** 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 with the Burt County Planning Commission.

The following represents the general Goals associated with the rural, unincorporated areas of Burt County, Nebraska.

- Burt County is expected to experience a stable population base throughout the 10-year planning period. The rural or unincorporated areas of Burt County, or the **"Balance of County,"** is anticipated to decrease slightly, by 124 persons or 5.8 percent, between 2019 and 2029. *This projected population estimate is the result of trend analysis of recent and available, both local and Census population data.* The future of Burt County will greatly depend on the willingness of residents to accept changes in the population and economic structure and their willingness to be a part of the ongoing planning and implementation process of the County.

- Encourage and promote progress and development across all sectors in Burt County, including housing, commercial and industrial development, wind, solar and other energy-related projects and livestock production facilities, where appropriate.

- Promote the preservation of the agricultural industry, including crop diversification. Historically, agriculture has been the primary income producing activity for rural Burt County. This is anticipated to remain as such through the 10-year planning period, 2019 to 2029.

- Protect the natural resources and living environs of Burt County by, only, allowing developments in specific regions deemed appropriate. Development should be limited in the Missouri River Corridor, a protected Conservation District.

- Maintain the status of Burt County as a designated **"livestock friendly"** County, thus allowing for large-scale confined and intensive livestock feeding facilities in selected, appropriate locations throughout the County, as per the County's Land Use Plan and Zoning Regulations.

- Discourage developments in rural Burt County that would have negative impacts any designated Wellhead Protection Areas.

- Maintain a flood plain evaluation and administration process in Burt 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 Burt County.

- Programs of citizen participation should be fostered in rural Burt County to maintain and improve the economic and social quality of life, via public input.

- Foster and market the values of rural Burt County to encourage the development of organized local action to preserve and strengthen the quality of life for residents throughout the County.

- Preserve and protect rural lands for agricultural use in Burt County by limiting future residential development to the Planning Jurisdictions of Craig, Decatur, Lyons, Oakland and Tekamah and agricultural rural areas/rural residential subdivision areas along the eastern border of Burt County and surrounding community Planning Jurisdictions.

- 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 Burt 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 **Burt County Land Use Plan.**

LAND USE

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

Objectives:

1.1 Maintain Zoning and Subdivision Regulations that support the conservation of natural and recreational resources.

1.2 Ensure all areas for future non-agricultural development in rural Burt 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 ground water resources.

1.4 Limit future non-agricultural developments to locations which are relatively free of environmental constraints relating to soils, slope, flood plain, drainage, ground water, endangered species or other natural resources.

1.5 Continue the process of allowing new or expanded, confined or intensive animal feeding facilities with 300+ animal units in appropriate locations in rural Burt County, by allowing a conditional use permitting process.

1.6 Provide for the use of alternative energy systems to supplement individual residential, commercial and industrial electric consumption in accordance with Nebraska State Statue 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 Wind Energy Systems (commonly known as "Wind Farms") in appropriate locations in rural Burt 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 – ***Utilize land use development patterns and densities in rural Burt County that conform to uniform planning standards.***

Objectives:

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 Allow for higher density residential developments in appropriate locations throughout rural Burt County, through the promotion of urban dwellings/planned rural subdivisions, to increase both the population and tax base in the County.

2.4 The County **Land Use Plan** should limit high activity developments in areas with sensitive soils and/or enhanced environmental conditions, such as regions along the Missouri River, Bell Creek, Elm Creek, Logan Creek, Silver Creek, South Blackbird Creek and Tekamah Creek.

2.5 Ensure that adequate open and recreational space is maintained in rural Burt County. Emphasize recreational opportunities and amenities offering year-round enjoyment, especially those associated with Wildlife Management Areas, including Summit Lake and Pelican Point State Recreation Areas, the Missouri River and associated creeks and tributaries and the Logan Creek water trail.

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

Objectives:

3.1 Continue to annually review and modify the Zoning Districts and Regulations for Burt County to encourage both development and redevelopment activities throughout the County.

3.2 Facilitate residential developments that are not detrimental to the environment and located in transitional agricultural Zoning Districts, via a conditional use permitting process.

3.3 Non-farm residential dwellings should be encouraged to locate within the designated transitional agricultural (rural) areas of the Craig, Decatur, Lyons, Oakland and Tekamah Planning Jurisdictions and in transitional agricultural rural areas/rural residential subdivisions located along the eastern border of Burt County and surrounding community Planning Jurisdictions.

3.4 Encourage industrial and/or highway-commercial development along the Highway 32, 51, 75 and 77 Corridors throughout rural Burt County, in locations deemed appropriate by the **Comprehensive Plan** and **Zoning and Subdivision Regulations.**

Goal 4 – ***Work cooperatively with Federal, State and adjoining County governments to develop compatible flood control measures.***

Objectives:

4.1 Enforce Local and State regulations in Burt County that protect the environment from contamination or pollutants.

4.2 Require all developments in Burt County to be consistent with regulations set forth for flood prone areas.

4.3 Identify development measures in Burt County that limit or reduce flood hazards, control water run-off and enhance the quality of surface and ground water.

4.4 Develop conservation dams and reservoirs in the County for flood protection, conservation and recreation.

Goal 5 – ***Provide opportunities and incentives for developments that encourage economic stability and progress and strengthen the overall tax base in the County.***

Objectives:

5.1 Encourage the development and redevelopment of local businesses both within and adjacent the Planning Jurisdiction of Burt County Communities.

5.2 The development of new large scale manufacturing and industrial uses is recommended to be located within or near the Planning Jurisdiction of Burt County Communities, or at strategic locations in Burt County adjacent highway and railway corridors, specifically along the Highway 77 Corridor, between the Communities of Lyons and Oakland.

HOUSING

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

Objectives:

1.1 The **2019 Burt County-Wide Housing Study** identifies a **target demand** for **30 new single family housing units** in the rural areas of the County, by 2024.

1.2 The **2019 Burt County-Wide Housing Study** identifies a need to provide either moderate or substantial **rehabilitation efforts** for up to **145 housing units** and the **demolition** of up to **41 substandard housing units** in rural areas of the County, by 2024.

1.3 Utilize existing housing partnerships in Burt County to improve housing conditions throughout the County. Primary partners would include Burt County Economic Development Corporation, Northeast Nebraska Economic Development District and Three Rivers Housing Development Corporation.

1.4 Develop housing programs for both the removal and rehabilitation of unsafe housing.

1.5 Promote the development of housing in rural Burt County, considering a variety of styles, densities and quantities, in locations that are in conformance with the Burt County **Land Use Plan**.

Goal 2 – ***Protect and preserve existing rental and owner occupied residential units in Burt County.***

Objectives:

2.1 Create an ongoing County-wide housing rehabilitation program for both owner and rental housing units in the rural areas of Burt County.

2.2 Create a program to demolish substantially dilapidated housing units within rural Burt County.

2.3 Recognize and make a concentrated effort to preserve housing of historical significance in Burt County, in an effort to preserve County and Community history.

Goal 3 – ***Encourage future residential developments compatible with and complementary to both existing and future residential areas and public infrastructure, as well as the environment.***

Objectives:

3.1 Increase educational awareness of the opportunity for additional housing development activities throughout Burt County.

3.2 Prohibit residential development in environmentally sensitive areas, in designated "prime agriculture" areas and within designated floodplains throughout Burt County.

3.3 Promote rural residential developments to occur in close proximity to Burt County Communities and in planned rural residential subdivisions containing modern infrastructure systems.

3.4 Utilize soils and other environmental data in determining the suitability of areas for housing development.

ECONOMIC DEVELOPMENT

Goal 1 – ***Continue to coordinate economic development efforts in Burt County with area Communities.***

Objectives:

1.1 Encourage Community/County development activities that create permanent employment opportunities with competitive wages, especially for low- to moderate income persons and families.

1.2 Implement a Burt County Tourism Plan, to promote recreational and educational uses throughout the County.

1.3 Promote the development of a self-guided tour of historic buildings in the County, utilizing the Nebraska Historic Resources Survey of Burt County.

1.4 Promote the pooling of financial resources among Burt County Communities. Section 13-804 of the Nebraska State Statutes permits any group of two or more municipalities to act jointly under the Interlocal Cooperation Act, and together participate in the Local Option Municipal Economic Development Act (LB840) to appropriate local tax dollars for economic development purposes.

Goal 2 – ***Housing and public facility improvements, coupled with economic development opportunities, should be the foundation of community and economic development programming and implementation in Burt County.***

Objectives:

2.1 Community and economic development activities in Burt County should address County-Wide residential and commercial needs.

2.2 Ensure job creation is a priorty of any economic development activity implemented in Burt County, with emphasis on benefiting low- to moderate income persons and families paid a living wage.

Goal 3 – ***Maximize economic opportunity for all residents, with emphasis on low- to moderate income persons and families.***

Objectives:

3.1 Support the expansion of the agricultural business industry in Burt County.

3.2 Ensure all economic development activities be consistent with the **Comprehensive Plan**.

3.3 Take advantage of all available local, State and Federal government and private sector resources to promote and recruit new businesses and industries capable of producing competitive incomes for the residents of Burt County.

3.4 Promote cooperative economic development activities with Burt County Communities, as well as neighboring Counties.

PUBLIC INFRASTRUCTURE, FACILITIES, TRANSPORTATION & HEALTH & SAFETY

Goal 1 – ***Plan, program and implement the most effective, safe and cost-efficient infrastructure and public facilities systems throughout rural Burt County.***

Objectives:

1.1 Recognize the need for and improve on intergovernmental and regional cooperation to reduce duplication of services such as law enforcement, street and road maintenance and other services.

1.2 Maintain modern design standards and policies for public infrastructure improvements throughout rural Burt County.

1.3 Provide services to the public in an efficient and cost-effective manner by utilizing a benefit/cost-ratio (or similar) in evaluating whether to contract out for services or use County personnel.

Goal 2 – ***Provide a transportation system throughout the County that enhances the safe and efficient movement of people, goods and services.***

Objectives:

2.1 Coordinate transportation systems with the planning and development of other elements of the County, including public utilities and facilities.

2.2 Continue to develop and maintain County road systems in accordance with the Nebraska Department of Transportation's standards for "Functional Street Classifications."

2.3 Develop a Comprehensive Trails Plan to allow for educational and recreational activities throughout Burt County. The coordination of recreational trails with wildlife management areas and transportation corridors will provide greater access to Burt County historic and natural environments.

2.4 Support existing public transportation systems and increase access through expanded services along highway corridors to better connect Burt County Communities and rural areas.

Goal 3 – ***Provide adequate, efficient and appropriate public utilities and services to both new and existing agricultural and residential developments.***

Objectives:

3.1 Maintain and improve existing public utilities and services on an as needed basis.

3.2 Provide facilities and services in rural Burt County necessary to prevent degradation of the environment, including modern sewage treatment and disposal, and similar environmental control processes as necessary. This includes the proper disposal of animal waste.

3.3 Ensure public rules and regulations governing safe drinking water and sewage treatment are adhered to.

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

Objectives:

4.1 Promote a social and cultural environment that provides opportunities for all residents to experience, develop and share their values, abilities, ambitions and heritage.

4.2 Continue to support the evolution of the public educational system in Burt County and ensure that it is capable of elevating the County's overall educational level.

4.3 Set development standards in Burt County that coordinate reservation of land for future educational needs, and collaborate with school districts to expand public use opportunities of existing educational facilities and infrastructure.

4.4 Develop and promote programs to educate the residents of Burt County and visitors on the heritage and history of the region. Utilize current and future public and cultural facilities such as local libraries, museums and wildlife management areas.

4.5 Ensure rules and regulations of the Americans with Disabilities Act adhere to at all public facilities.

4.6 Expand the availability of supportive services to youth and older adults in Burt County.

Goal 5 – ***Support health care, fire protection and law enforcement programs to protect the health, safety, morals and general welfare of Burt County residents.***

Objectives:

5.1 Provide adequate public health, law enforcement, safety and crime prevention systems throughout Burt County.

5.2 Promote and expand various research activities to improve the quality of health care available in the County.

5.3 Maintain and enforce necessary land use regulations in Burt County that ensure industrial and agricultural operations do not affect the health, safety and general welfare of the public.

5.4 As necessary, increase law enforcement and protection services throughout the County, including the maintenance of modern equipment and facilities.

5.5 Develop a plan of education/action in Burt County to prevent and cleanup roadside dumping, including the removal of junk vehicles.

PLAN MAINTENANCE & IMPLEMENTATION

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

Objectives:

1.1 Establish a review process for the **Comprehensive Plan** and associated Regulations, including **Zoning** and **Subdivision Regulations** and **Land Use** issues. This process should require a public comment period.

1.2 Coordinate local groups and organizations to carry-out the **Goals and Objectives** 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.

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SECTION 3

POPULATION, INCOME & ECONOMIC PROFILE.

INTRODUCTION

Population, income and economic trends in Burt 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 2029 were studied and forecasted, utilizing a process of both trend analysis, U.S. Census population estimates and popular consent. Burt County is projected to decrease slightly in population during the next 10 years, from an estimated 6,530 persons in 2019 to 6,321 in 2029, a decrease of 209 persons, or 3.2 percent. **Burt County should encourage population growth and promote the development of a variety of businesses and housing types during the 10-year planning period throughout the County.**

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. Because projections are based on past trends and various assumptions about the future, projections must be carefully analyzed and continually re-evaluated due to an area's economic and social structure.

POPULATION

- **Table 3.1** identifies **population trends and projections** for Burt County and each Community, from 2000 through 2029. A decrease in population occurred for Burt County between the 2000 and 2010 decennial Censuses and is projected to continue through 2029.

  Currently (2019), the Burt County total population and the Balance of County, or the rural portion of the County, have estimated populations of 6,530 and 2,142, respectively. Both the County and Balance of County are projected to decrease slightly in population during the next 10 years. The 2029 population is projected to be 6,321, a decrease of 209 persons for Burt County. In the Balance of County, a projected population decrease of 124 persons will result in an estimated 2029 population of 2,018 persons.

  Throughout the next 10 years, all Burt County Communities are also projected to decrease in population.

Table 3.1
Population Trends & Projections
Burt County & Communities, Nebraska
2000-2029

	2000	2010	2019	2029	% Change 2019-2029
Burt County:	**7,791**	**6,858**	**6,530**	**6,321**	**-3.2%**
Craig:	241	199	**190**	**176**	**-7.4%**
Decatur:	618	481	**466**	**451**	**-3.2%**
Lyons:	963	851	**832**	**818**	**-1.7%**
Oakland:	1,367	1,244	**1,180**	**1,159**	**-1.8%**
Tekamah:	1,892	1,736	**1,720**	**1,699**	**-1.2%**
Balance of County:	**2,710**	**2,347**	**2,142**	**2,018**	**-5.8%**

2017 U.S. Census Population Estimates:
Burt Co. – 6,535; Craig – 190; Decatur – 467; Lyons – 805; Oakland – 1,183; Tekamah – 1,723.

Source: 2000, 2010 Census.
Hanna:Keelan Associates, P.C., 2019.

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 of public schools, recreational areas and short- and long-term health care facilities.

- **Table 3.2, Page 3.4,** provides **age distribution trends and projections** for Burt County and each Community, from 2000 to 2029. Overall, the County is projected to experience a net decrease in population during the next 10 years of approximately 209 persons. All age cohorts under 55 years are projected to decrease, while all age cohorts 55+ are projected to experience population increases in Burt County, by 2029.

  The "55 to 64" age group is projected to experience the largest population increase during the next 10 years, in Burt County, from 1,084 persons in 2019 to 1,164 by 2029, or an estimated increase of 80 persons. The **Balance of County** population, or rural areas of Burt County, is also projected to decline in each of the three youngest categories, "19 and Under," "20 to 34" and "35 to 54," through 2029. The age groups between 55 and 85 years of age are anticipated to increase by a combined 69 persons in the **Balance of County.**

  There is evidence of an "aging in place" population in Burt County. To support this segment of the County's population base, additional housing for elderly, frail elderly and retirees that includes independent living, assisted living and long-term care will be needed in Burt County.

  As of 2019, the median age in **Burt County** is an estimated 48.2 years, while the **Balance of County median age** is an estimated **45.8 years.** The median age for the **County** as a whole is projected to increase to 49.4 years. The **Balance of County** median age is anticipated to increase to 49.2 years between 2019 and 2029.

Table 3.2
Population Age Distribution
Trends & Projections
Burt County & Communities, Nebraska
2000-2029

Burt County			**2000-2010**			**2019-2029**
age group	**2000**	**2010**	**Change**	**2019**	**2029**	**Change**
19 and Under	2,170	1,675	**-495**	**1,543**	**1,401**	**-142**
20-34	909	827	**-82**	**799**	**738**	**-61**
35-54	2,217	1,770	**-447**	**1,504**	**1,381**	**-123**
55-64	797	1,001	**+204**	**1,084**	**1,164**	**+80**
65-74	855	696	**-159**	**704**	**715**	**+11**
75-84	571	628	**+57**	**630**	**647**	**+17**
85+	272	261	**-11**	**266**	**275**	**+9**
TOTALS	**7,791**	**6,858**	**-933**	**6,530**	**6,321**	**-209**
Median Age	42.2	47.1	**+4.9**	**48.2**	**49.4**	**+1.2**

Craig			**2000-2010**			**2019-2029**
age group	**2000**	**2010**	**Change**	**2019**	**2029**	**Change**
19 and Under	72	53	**-19**	**45**	**37**	**-8**
20-34	37	16	**-21**	**18**	**16**	**-2**
35-54	68	64	**-4**	**57**	**50**	**-7**
55-64	19	27	**+8**	**28**	**27**	**-1**
65-74	25	18	**-7**	**20**	**21**	**+1**
75-84	18	16	**-2**	**15**	**16**	**+1**
85+	2	5	**+3**	**7**	**9**	**+2**
TOTALS	**241**	**199**	**-42**	**190**	**176**	**-14**
Median Age	37.3	46.2	**+8.9**	**48.4**	**50.5**	**+2.1**

Decatur			**2000-2010**			**2019-2029**
age group	**2000**	**2010**	**Change**	**2019**	**2029**	**Change**
19 and Under	157	89	**-68**	**72**	**60**	**-12**
20-34	75	52	**-23**	**44**	**38**	**-6**
35-54	167	114	**-53**	**102**	**96**	**-6**
55-64	89	102	**+13**	**112**	**112**	**+0**
65-74	68	63	**-5**	**68**	**71**	**+3**
75-84	45	47	**+2**	**51**	**54**	**+3**
85+	17	14	**-3**	**17**	**20**	**+3**
TOTALS	**618**	**481**	**-137**	**466**	**451**	**-15**
Median Age	44.6	52.9	**+8.3**	**57.6**	**59.9**	**+2.3**

CONTINUED:

Table 3.2 (Continued)
Population Age Distribution
Trends & Projections
Burt County & Communities, Nebraska
2000-2029

Lyons			**2000-2010**			**2019-2029**
age group	**2000**	**2010**	**Change**	**2019**	**2029**	**Change**
19 and Under	249	163	**-86**	**143**	**133**	**-10**
20-34	104	107	**+3**	**100**	**96**	**-4**
35-54	250	205	**-45**	**185**	**173**	**-12**
55-64	96	120	**+24**	**128**	**133**	**+5**
65-74	119	94	**-25**	**103**	**106**	**+3**
75-84	92	104	**+12**	**108**	**104**	**-4**
85+	53	58	**+5**	**65**	**73**	**+8**
TOTALS	**963**	**851**	**-112**	**832**	**818**	**-14**
Median Age	44.9	51.7	**+6.8**	**53.8**	**55.7**	**+1.9**

Oakland			**2000-2010**			**2019-2029**
age group	**2000**	**2010**	**Change**	**2019**	**2029**	**Change**
19 and Under	367	331	**-36**	**307**	**294**	**-13**
20-34	135	152	**+17**	**160**	**165**	**+5**
35-54	357	298	**-59**	**268**	**249**	**-19**
55-64	119	162	**+43**	**181**	**193**	**+12**
65-74	147	108	**-39**	**90**	**87**	**-3**
75-84	147	118	**-29**	**104**	**102**	**-2**
85+	95	75	**-20**	**70**	**69**	**-1**
TOTALS	**1,367**	**1,244**	**-123**	**1,180**	**1,159**	**-21**
Median Age	44.6	44.9	**+0.3**	**45.1**	**46.8**	**+1.7**

Tekamah			**2000-2010**			**2019-2029**
age group	**2000**	**2010**	**Change**	**2019**	**2029**	**Change**
19 and Under	520	458	**-62**	**429**	**410**	**-19**
20-34	254	252	**-2**	**247**	**241**	**-6**
35-54	524	408	**-116**	**385**	**362**	**-23**
55-64	177	221	**+44**	**253**	**263**	**+10**
65-74	182	161	**-21**	**163**	**167**	**+4**
75-84	148	165	**+17**	**174**	**181**	**+7**
85+	87	71	**-16**	**69**	**75**	**+6**
TOTALS	**1,892**	**1,736**	**-156**	**1,720**	**1,699**	**-21**
Median Age	41.5	44.1	**+2.6**	**45.4**	**46.9**	**+1.5**

CONTINUED:

Table 3.2 (Continued)
Population Age Distribution
Trends & Projections
Burt County & Communities, Nebraska
2000-2029

Balance of County age group	2000	2010	2000-2010 Change	2019	2029	2019-2029 Change
19 and Under	805	581	**-224**	**547**	**467**	**-80**
20-34	304	248	**-56**	**230**	**182**	**-48**
35-54	851	681	**-170**	**507**	**451**	**-56**
55-64	297	369	**+72**	**382**	**436**	**+54**
65-74	314	252	**-62**	**260**	**263**	**+3**
75-84	121	178	**+57**	**178**	**190**	**+12**
85+	18	38	**+20**	**38**	**29**	**-9**
TOTALS	**2,710**	**2,347**	**-363**	**2,142**	**2,018**	**-124**
Median Age	39.8	44.1	**+4.3**	**45.8**	**49.2**	**+3.4**

Source: 2000, 2010 Census.
Hanna:Keelan Associates, 2019.

HOUSEHOLD CHARACTERISTICS

- **Table 3.3, Page 3.7,** identifies **specific household characteristics** of Burt County and each Community, from 2000 to 2029. The total number of households is projected to decrease by an estimated 78 throughout the County and by 53 households in the rural or **Balance of County.** During the next 10 years, "persons per household" in Burt County is projected to decrease, slightly, from 2.32 to 2.31.

  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 119 persons reside in group quarters in Burt County. Persons residing in group quarters is projected to increase to 120 by 2029. No group quarters exist in the **Balance of County.**

Table 3.3
Specific Household Characteristics
Burt County & Communities, Nebraska
2000-2029

	Year	Population	Group Quarters	Persons in Households	Households	Persons Per Household
Burt County:	2000	7,791	113	7,678	3,155	2.43
	2010	6,858	122	6,736	2,906	2.32
	2019	**6,530**	**119**	**6,411**	**2,768**	**2.32**
	2029	**6,321**	**120**	**6,201**	**2,690**	**2.31**
Craig:	2000	241	0	241	99	2.43
	2010	199	0	199	85	2.34
	2019	**190**	**0**	**190**	**82**	**2.32**
	2029	**176**	**0**	**176**	**76**	**2.32**
Decatur:	2000	618	0	618	278	2.22
	2010	481	0	481	240	2.00
	2019	**466**	**0**	**466**	**236**	**1.97**
	2029	**451**	**0**	**451**	**231**	**1.95**
Lyons:	2000	963	11	952	423	2.25
	2010	851	43	808	395	2.05
	2019	**832**	**43**	**789**	**386**	**2.04**
	2029	**818**	**45**	**773**	**381**	**2.03**
Oakland:	2000	1,367	58	1,309	565	2.32
	2010	1,244	38	1,206	528	2.28
	2019	**1,180**	**36**	**1,144**	**518**	**2.21**
	2029	**1,159**	**35**	**1,124**	**514**	**2.19**
Tekamah:	2000	1,892	44	1,848	778	2.38
	2010	1,736	41	1,695	715	2.37
	2019	**1,720**	**40**	**1,680**	**712**	**2.36**
	2029	**1,699**	**40**	**1,659**	**707**	**2.35**
Balance of County:	2000	2,710	0	2,710	1,012	2.68
	2010	2,347	0	2,347	943	2.49
	2019	**2,142**	**0**	**2,142**	**834**	**2.57**
	2029	**2,018**	**0**	**2,018**	**781**	**2.58**

*2012-2016 American Community Survey Burt County estimated group quarters population: 119.
Source: 2000, 2010 Census.
Hanna:Keelan Associates, P.C., 2019.

HOUSEHOLD TENURE

- **Table 3.4, Page 3.9,** identifies **tenure by household** for Burt County and each Community, from 2000 to 2029. The County is currently (2019) comprised of an estimated 2,768 households, consisting of 2,107 owner and 661 renter households. By 2029, owner households will account for an estimated 76.7 percent of the total households in Burt County, resulting in 2,063 owner households and 627 renter households.

  Between 2019 and 2029, the number of both owner and renter households in Burt County is projected to decrease throughout the County. The **Balance of County** is projected to decrease by 28 owner households by 2029, while renter households will decrease by 25. In total, the number of households in rural Burt County is projected to decrease from 834 to 781 households by 2029, a decrease of 53 households, or 6.4 percent of the total rural households.

Table 3.4
Tenure By Household
Burt County & Communities, Nebraska
2000-2029

			Owner		Renter	
	Year	Households	Number	Percent	Number	Percent
Burt County:	2000	3,155	2,391	75.8%	764	24.2%
	2010	2,906	2,197	75.6%	709	24.4%
	2019	**2,768**	**2,107**	**76.1%**	**661**	**23.9%**
	2029	**2,690**	**2,063**	**76.7%**	**627**	**23.3%**
Craig:	2000	99	89	89.9%	10	10.1%
	2010	85	76	89.4%	9	10.6%
	2019	**82**	**74**	**90.2%**	**8**	**9.8%**
	2029	**76**	**70**	**92.1%**	**6**	**7.9%**
Decatur:	2000	278	220	79.1%	58	20.9%
	2010	240	190	79.2%	50	20.8%
	2019	**236**	**189**	**80.1%**	**47**	**19.9%**
	2029	**231**	**187**	**81.0%**	**44**	**19.0%**
Lyons:	2000	423	318	75.2%	105	24.8%
	2010	395	285	72.2%	110	27.8%
	2019	**386**	**277**	**71.8%**	**109**	**28.2%**
	2029	**381**	**271**	**71.1%**	**110**	**28.9%**
Oakland:	2000	565	411	72.7%	154	27.3%
	2010	528	375	71.0%	153	29.0%
	2019	**518**	**370**	**71.4%**	**148**	**28.6%**
	2029	**514**	**368**	**71.6%**	**146**	**28.4%**
Tekamah:	2000	778	582	74.8%	196	25.2%
	2010	715	515	72.0%	200	28.0%
	2019	**712**	**512**	**71.9%**	**200**	**28.1%**
	2029	**707**	**510**	**72.1%**	**197**	**27.9%**
Balance of County:	2000	1,012	771	76.2%	241	23.8%
	2010	943	756	80.2%	187	19.8%
	2019	**834**	**685**	**82.1%**	**149**	**17.9%**
	2029	**781**	**657**	**84.1%**	**124**	**15.9%**

Source: 2000, 2010 Census.
Hanna:Keelan Associates, P.C., 2019.

INCOME TRENDS & PROJECTIONS

HOUSEHOLD INCOME GROUPS

- **Table 3.5** identifies **household income trends and projections** for Burt County, from 2000 to 2029. Currently, median income in Burt County is projected at $49,425. Median income in the County is projected to increase by an estimated 8 percent to $53,400, by 2029. The number of households throughout Burt County having an annual income at or above $50,000 is expected to increase during the next 10 years, while the number of households below an annual income of $50,000 is expected to decrease.

  The median income of elderly households (age 65+) in Burt County is projected to increase 8.7 percent over the next 10 years, from $32,115 to $34,900, by 2029. The number of elderly households with incomes of at least $35,000 is expected to increase over the next 10 years.

Table 3.5
Household Income By Age Group - Trends & Projections
Burt County, Nebraska
2000-2029

Income Group	2000*	2016*	2019	2029	% Change 2019-2029
All Households:					
Less than $10,000	298	149	**124**	**88**	**-29.0%**
$10,000-$19,999	565	401	**379**	**337**	**-11.1%**
$20,000-$34,999	781	448	**430**	**396**	**-7.9%**
$35,000-$49,999	614	474	**467**	**443**	**-5.1%**
$50,000 or More	917	1,351	**1,368**	**1,426**	**+4.2%**
TOTALS	**3,175**	**2,823**	**2,768**	**2,690**	**-2.8%**
Median Income	**$33,954**	**$47,137**	**$49,425**	**$53,400**	**+8.0%**
Households 65+ Yrs.					
Less than $10,000	173	57	**45**	**32**	**-28.9%**
$10,000-$19,999	322	285	**279**	**253**	**-9.3%**
$20,000-$34,999	300	225	**221**	**203**	**-8.1%**
$35,000-$49,999	144	150	**153**	**158**	**+3.3%**
$50,000 or More	159	289	**304**	**328**	**+7.9%**
TOTALS	**1,098**	**1,006**	**1,002**	**974**	**-2.8%**
Median Income	**$21,909**	**$27,981**	**$32,115**	**$34,900**	**+8.7%**

* Specified 2000 & 2016 Data Used. 2016 Estimate subject to margin of error.
Source: 2000 Census, 2012-2016 American Community Survey.
Hanna:Keelan Associates, P.C., 2019.

PER CAPITA INCOME

❖ **Table 3.6** identifies **per capita income** for Burt County and the State of Nebraska, from 2012 to 2029. 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 2019, per capita income in Burt County is an estimated $51,326. By 2029, per capita income will increase in the County by an estimated 16.2 percent, to $59,661.

Per capita income in Burt County has generally followed the trend of the Nebraska state-wide per capita income, settling either slightly above or below the state-wide per capita income.

Table 3.6
Per Capita Income
Trends & Projections
Burt County / State Of Nebraska
2012-2029

	Burt County		State of Nebraska	
Year	**Income**	**% Change**	**Income**	**% Change**
2012	$43,191	--	$46,066	--
2013	$53,701	+24.3%	$45,876	-0.4%
2014	$48,142	-10.4%	$48,419	+5.5%
2015	$50,961	+5.9%	$49,567	+2.3%
2016	$48,886	-4.1%	$50,029	+0.9%
2019	**$51,326**	**+5.0%**	**$51,436**	**+2.8%**
2012-2019	**$43,191-$51,326**	**+18.8%**	**$46,166-$51,436**	**+11.4%**
2019-2029	**$51,326-$59,661**	**+16.2%**	**$51,436-$61,022**	**+18.6%**

Source: Nebraska Department of Economic Development, 2018.
Hanna:Keelan Associates, P.C., 2019.

SOCIAL SECURITY INCOME

- **Table 3.7** identifies the number of **persons receiving Social Security Income and/or Supplemental Security Income** in Burt County. A total of 1,840 persons received Social Security Income in the County, in 2017. Of this total, 79.1 percent, or 1,455 persons were aged 65+ years.

Table 3.7
Persons Receiving Social Security Income
Burt County, Nebraska
2017

Social Security Income-2017	Number of Beneficiaries
Retirement Benefits	
Retired Workers	1,335
Wives & Husbands	75
Children	25
Survivor Benefits	
Widows & Widowers	125
Children	35
Disability Benefits	
Disabled Persons	215
Wives & Husbands	0
Children	30
TOTAL	**1,840**
Aged 65 & Older	
Men	675
Women	780
TOTAL	**1,455**
Supplemental Security Income-2017	**Number of Beneficiaries**
Aged 65 or Older	N/A
Blind and Disabled	111
TOTAL	**111**

N/A = Not Available.

Source: Department of Health and Human Services, Social Security Administration, 2018.

EMPLOYMENT & ECONOMIC TRENDS

The most recent and comprehensive employment data available for Burt County was obtained from the Nebraska Department of Labor. A review and analysis of Burt 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 Burt County, Nebraska, from 2008 through 2029. In 2018, Burt County was estimated to have 3,213 employed persons with an estimated unemployment rate of 3.2 percent. By 2029, employed persons in the County are estimated to decrease by 145 persons, or by 4.5 percent. The 2029 unemployment rate is projected at approximately 3.1 percent.

Table 3.8
Employment Data Trends & Projections
Burt County, Nebraska
2008-2029

Year	Number of Employed Persons	Change	Percent Unemployed
2008	3,797	--	4.2%
2009	3,776	-21	5.6%
2010	3,425	-351	5.9%
2011	3,429	+4	5.7%
2012	3,504	+75	4.7%
2013	3,492	-12	4.5%
2014	3,440	-52	3.9%
2015	3,478	+38	3.6%
2016	3,409	-69	3.7%
2017	3,348	-61	3.7%
2018*	3,213	-135	3.2%
2029	**3,068**	**-145**	**3.1%**
2008-2029	**3,797-3,068**	**-729**	**4.2%-3.1%**

*Employment data as of August, 2018.
Source: Nebraska Department of Labor, 2018.
Hanna:Keelan Associates, P.C., 2019.

CIVILIAN LABOR FORCE

- **Table 3.9** identifies **workforce employment by type,** in Burt County, Nebraska, for 2018. The "Local Government" sector, is the largest Non-farm employment sector in the County, with 464 employed persons. "Retail Trade" was the second largest employment sector with 196 employed persons in this category as of 2018.

Table 3.9
Workforce Employment By Type
Burt County, Nebraska
August, 2018

Workforce	
Non-Farm Employment (Wage and Salary)	**1,703**
Agriculture Forestry, Fishing & Hunting.	0
Mining, Quarrying and Oil/Gas Extraction.	0
Utilities.	0
Construction.	80
Manufacturing.	120
Wholesale Trade.	128
Retail Trade.	196
Transportation & Warehousing.	50
Information.	*
Finance & Insurance.	103
Real Estate & Rental/Leasing.	*
Professional, Scientific & Technical Services.	72
Management of Companies & Enterprises.	*
Administrative/Support/Waste.	9
Educational Services.	74
Health Care & Social Assistance.	153
Arts, Entertainment & Recreation.	30
Accommodation & Food Service.	55
Other Services (except Public Administration).	92
Federal Government.	30
State Government.	15
Local Government.	464

*Data not available because of disclosure suppression.
Source: Nebraska Department of Labor, Labor Market Information, 2018.

SECTION 4:

Land Use Profile & Plan.

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COMMUNITY PLANNING & RESEARCH

SECTION 4

LAND USE PROFILE & PLAN.

INTRODUCTION

The following **Land Use Profile & Plan** for the **Burt County Comprehensive Plan** focuses on the analysis of existing and future land uses in rural Burt County. Detailed components include the natural environment, highlighting soils, watersheds, wetlands and ground water.

DEVELOPMENT ISSUES

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

HISTORY

The land area of Burt County was originally included in the Louisiana Purchase of 1803 and was, in part, explored by Lewis and Clark during their expedition across the newly purchased land. Burt County is one of the eight original counties in the State of Nebraska. The County was named in honor of Francis G. Burt, Nebraska's first territorial governor. The first permanent settlement in Burt County was in 1854. This site was established through a claim staked out by Benjamin R. Folsom of Utica, New York. The first settlement came the same year of the County's organization, in the area of what is now the City of Tekamah. The original boundaries of Burt County consisted of a large portion of northeast Nebraska, but the County was configured to its present size by state legislature in 1879.

POPULATION TRENDS

Table 4.1 highlights historical population trends for Burt County. Burt County experienced early, rapid growth. The 1860 U.S. Census identified 388 people residing in the County. Ten years later, in 1870, the Census identified 2,847 persons in the County. The County continued growing at a rapid pace through the 1800's, before a slight decline in population in the early 1900's. The 1930 Census again recorded an increasing population, when the County reached its historic peak population of 13,062 residents. The population has gradually declined with each decennial Census since 1930. **As of the 2019, the population of Burt County is estimated to be 6,530.**

Table 4.1
Historical Population
Burt County, Nebraska
1860-2019

Year	Population	Change	Percent Change
1860	388	--	--
1870	2,847	+2,459	+633.8%
1880	6,937	+4,090	+143.7%
1890	11,069	+4,132	+59.6%
1900	13,040	+1,971	+17.8%
1910	12,726	-314	-2.4%
1920	12,559	-167	-1.3%
1930	13,062	+503	+4.0%
1940	12,546	-516	-4.0%
1950	11,536	-1,010	-8.1%
1960	10,192	-1,344	-11.7%
1970	9,247	-945	-9.3%
1980	8,813	-434	-5.0%
1990	7,868	-945	-10.7%
2000	7,791	-77	-1.0%
2010	6,858	-933	-12.0%
2019	6,530	-328	-4.8%

Source: University of Nebraska-Omaha, Center for Public Affairs Research, 2018.
Hanna:Keelan Associates, P.C., 2019.

1911 Tekamah High School Building.

Ferry boat parked near Decatur along the shores of the Missouri River, circa 1907.

CLIMATE

The climate of Burt County is continental and characterized by widely ranging seasonal temperatures and rapidly changing weather patterns. The temperature ranges from an average daily minimum of 12 degrees in January to an average monthly maximum of 85 degrees in July. The average annual precipitation is 30 inches. The average annual snowfall is 23 inches.

THE NATURAL ENVIRONMENT

SOILS

The U.S. Department of Agriculture, Soil Conservation Service and the University of Nebraska Conservation and Survey Division have identified seven "Soil Associations" in Burt County. These include the Zook-Colo Association, Moody-Nora-Judson Association, Ida-Monona-Judson Association, Luton-Solomon-Forney Association, Haynie-Albaton-Sarpy Association, Belfore-Moody-Marshall Association and Ida-Burchard-Steinauer Association. **Illustration 4.1, Page 4.4,** identifies the location of each of these Soil Associations within Burt County. The following narrative describes how each soil type is conducive to certain types of developments, as well as the general characteristics of the seven Associations.

- **ZOOK-COLO ASSOCIATION**

  Deep, poorly drained and somewhat poorly drained, nearly level, silty and clayey soils formed in alluvium; on bottomlands.

  This Association consists mainly of nearly level areas on bottomlands in the valleys of Logan, Bell and Blackbird Creeks and along the valleys of a few of the minor creeks. In places, it consists of small areas on stream terraces and foot slopes. Areas are long and narrow.

  This Soil Association occupies about 6 percent of the County. Zook soils make up about 46 percent of this Association, and Colo soils make up about 29 percent. The remaining 25 percent is soils of minor extent.

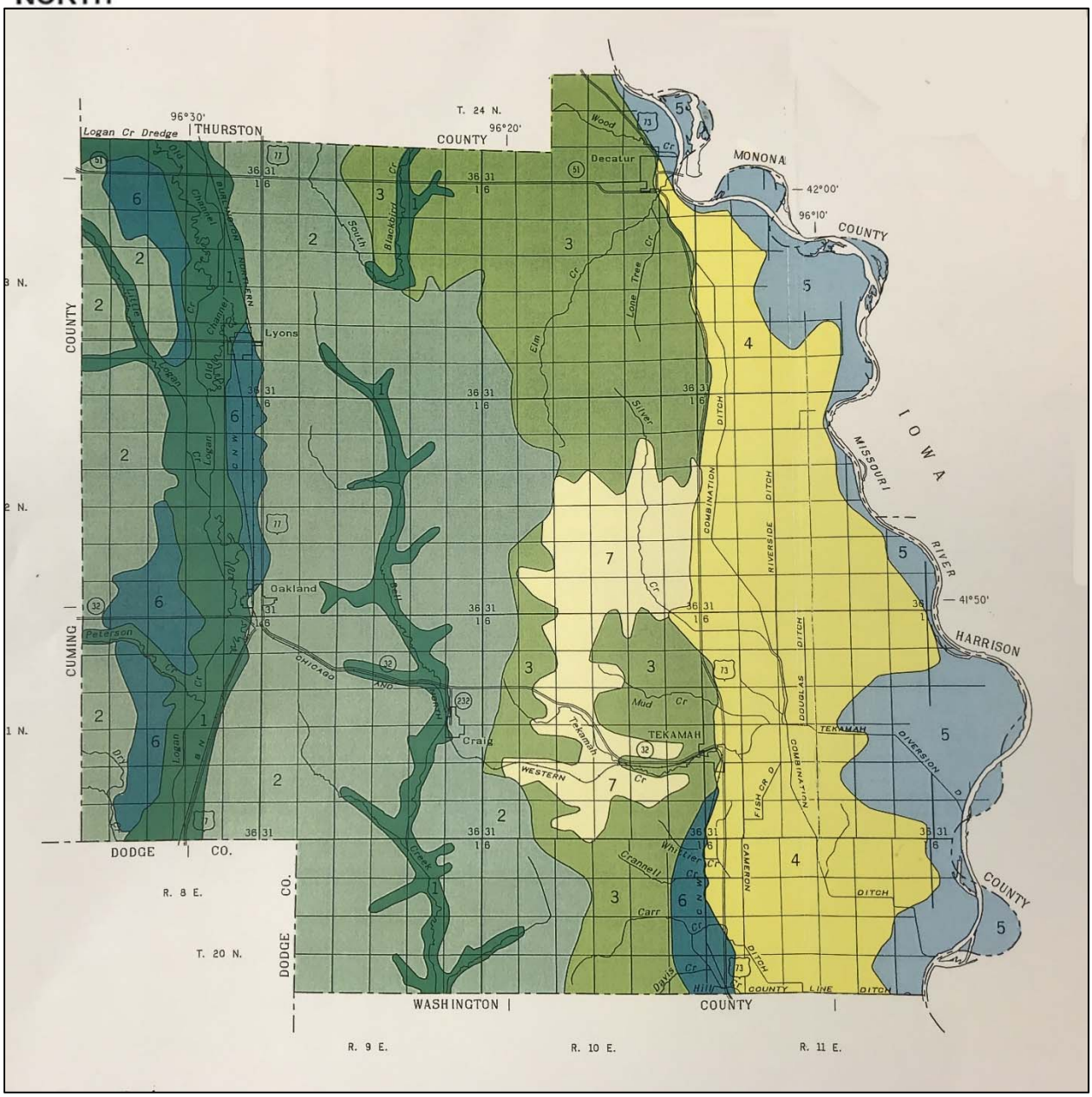
  The Zook soils are nearly level, deep and poorly drained. These soils are on the lowest parts of the bottom lands. Typically, the surface layer is black, firm silty clay loam about 29 inches thick. The subsoil is very dark gray, very firm silty clay about 15 inches thick. The underlying material to a depth of 60 inches is dark gray silty clay. In places the surface layer is silty clay.

  The Colo soils are nearly level, deep and somewhat poorly drained. They are slightly higher than Zook soils on bottomlands. Typically, the surface layer is very dark brown, black and very dark gray, firm silty clay loam about 30 inches thick. Below the surface layer is a layer that is transitional to the underlying material. It is very dark gray, mottled, firm silty clay loam about 8 inches thick. The underlying materials are very dark gray and grayish brown silty clay loam to a depth of 60 inches

NORTH

GENERAL SOILS MAP

BURT COUNTY, NEBRASKA



LEGEND

1	ZOOK-COLO ASSOCIATION
2	MOODY-NORA-JUDSON ASSOCIATION
3	IDA-MONONA-JUDSON ASSOCIATION
4	LUTON-SOLOMON-FORNEY ASSOCIATION
5	HAYNIE-ALBATON-SARPY ASSOCIATION
6	BELFORE-MOODY-MARSHALL ASSOCIATION
7	IDA-BURCHARD-STEINAUER ASSOCIATION

ILLUSTRATION 4.1

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
UNIVERSITY OF NEBRASKA
CONSERVATION AND SURVEY DIVISION

HANNA:KEELAN ASSOCIATES, P.C.
COMMUNITY PLANNING & RESEARCH
* Lincoln, Nebraska * 402.464.5383 *

Most areas of this Association are used for cultivated crops, mainly corn, soybeans, alfalfa, small grain and sorghum. A few areas are planted to introduce grasses that are used for pasture or cut for hay. Most of the areas are farmed under dryland conditions, but some areas are irrigated. Irrigation is by the gravity method or by sprinklers, and the water is pumped from wells or from Logan or Bell Creeks.

- **MOODY-NORA-JUDSON ASSOCIATION**

Deep, well drained, nearly level to strongly sloping, silty soils formed in loess and colluvium; on uplands and foot slopes.

This Association consists mainly of alternating divides on uplands that are dissected by narrow drainages. Nearly level areas are on the broad divides. The narrow divides and colluvial foot slopes are gently sloping, and the side slopes are strongly sloping.

This Association occupies about 36 percent of Burt County. Moody soils make up about 51 percent of this Association, Nora soils 20 percent and Judson soils 11 percent. The remaining 18 percent are soils of minor extent.

The Moody soils are nearly level to strongly sloping, deep and well drained. These soils are on broad divides, ridgetops and side slopes of the loess uplands. Typically, the surface layer is very dark grayish brown, friable silty clay loam about 11 inches thick. The subsoil is dark brown, brown and pale brown, friable silty clay loam about 42 inches thick. The underlying material is yellowish brown silty clay loam to a depth of 60 inches.

The Nora soils are strongly sloping and moderately steep, deep and well drained. They are on narrow ridgetops and side slopes of loess uplands. Typically, the surface layer is very dark grayish brown, friable silty clay loam about 10 inches thick. The subsoil is very dark grayish brown, dark brown and olive brown, friable silty clay loam and silt loam about 20 inches thick. The underlying material is light olive brown and grayish brown silt loam to a depth of 60 inches.

Judson soils are gently sloping, deep and well drained. They are on colluvial foot slopes at the base of adjacent loess uplands. Typically the surface layer is very dark brown, black and very dark grayish brown, friable silty clay loam about 34 inches thick. The subsoil is brown and dark yellowish brown, friable silty clay loam to a depth of 60 inches.

Most areas of this Association are used for cultivated crops, mainly corn, soybeans, alfalfa, small grain and grain sorghum. Some small areas are planted to introduced grasses or a mixture of grasses and legumes. Some farms are irrigated by gravity methods or by sprinklers, generally the self-propelled, rotary type. Corn, soybeans and alfalfa are the major irrigated crops. The potential for irrigation is moderate because a sufficient supply of irrigation water is not available in some areas.

- **IDA-MONONA-JUDSON ASSOCIATION**

Deep, well drained to excessively drained, gently sloping to very steep, silty soils formed in loess and colluvium; on uplands and foot slopes.

This Association consists of areas on loess uplands, bluffs and foot slopes. The bluffs border the Missouri River Valley and are mainly loess and sandstone. The strongly sloping or moderately steep loess uplands are adjacent the bluffs. These uplands are dissected by many drainageways that drain directly into the Missouri River. The gently sloping, colluvial foot slopes are adjacent the uplands.

This Association occupies about 23 percent of the County. Ida soils make up about 30 percent of this Association, Monona soils 21 percent and Judson soils 15 percent. The remaining 34 percent is soils of minor extent.

The Ida soils are strongly sloping to very steep. These soils are on narrow ridgetops and side slopes and are the dominant soils on bluffs of the Missouri River Valley. They deep, well drained to excessively drained and calcareous. Typically, the surface layer is dark brown, very friable silt loam about 7 inches thick. Beneath this the underlying material is brown and yellowish brown, calcareous silt loam to a depth of 60 inches.

The Monona soils are strongly sloping to moderately steep. They are on side slopes of the loess uplands, and are commonly in areas that are dissected by many drainageways and gullies. These soils are deep and well drained. Typically, the surface layer is very dark grayish brown, friable silt loam about 11 inches thick. The subsoil is dark brown and brown, friable silt loam about 19 inches thick. The underlying material to a depth of 60 inches is brown silt loam.

The Judson soils are gently sloping. They are on foot slopes below loess uplands and are deep and well drained. Typically, the surface layer is very dark brown, black and very dark grayish brown, friable silty clay loam about 34 inches thick. The subsoil is brown and dark yellowish brown, friable silty clay loam to a depth of 60 inches.

Most areas of this Association are used for cultivated crops, mainly corn, soybeans, alfalfa, small grain and grain sorghum. A few areas are planted to introduced grasses and are used for pasture. Native grasses or stands of native trees are in small areas. The grasses are grazed or cut for hay. A small acreage of this Association is irrigated by center-pivot sprinklers with water from deep wells. Deep wells that supply sufficient water for irrigation are difficult to obtain in this Association.

- **LUTON-SOLOMON-FORNEY ASSOCIATION**

Deep, poorly drained, nearly level, clayey soils formed in alluvium; on bottom lands.

This Association consists of nearly level areas on high bottomlands in the Missouri River Valley. The soils formed in fine textured sediment deposited by water. The seasonal high water table fluctuates between a depth of 1 and 3 feet, but is generally at a depth of about 4 feet in the growing season.

This Association occupies about 18 percent of the County. Luton soils make up about 24 percent of this Association, Solomon soils 18 percent and Forney soils 16 percent. The remaining 42 percent is soils of minor extent.

The Luton soils are on the lower parts of the landscape. These soils are deep, nearly level and poorly drained. Typically, the surface layer is very dark gray and black, very firm silty clay about 27 inches thick. The subsoil is dark olive gray and olive gray, very firm silty clay about 19 inches thick. The underlying material is olive gray clay to a depth of 60 inches.

The Solomon soils are on the lowest part of the landscape. They are deep, nearly level and poorly drained. Typically, the surface layer is black, very firm, calcareous silty clay about 20 inches thick. The subsoil is very dark gray, very firm, mottled silty clay about 20 inches thick. They underlying material is dark gray silty clay to a depth of 60 inches. Fragments of snail shells and carbonate concretions are in most parts of the soil.

The Forney soils are on slightly higher positions than Solomon or Luton soils. They are deep, nearly level and poorly drained. Typically, the surface layer is very dark gray, very firm silty clay about 9 inches thick. The underlying material is dark grayish brown, black and dark olive gray stratified silty clay to a depth of 60 inches.

Most areas of this Association are used for cultivated crops. This principal crops are corn, soybeans, alfalfa and grain sorghum. A few areas are planted to introduced grasses and are commonly used for grazing. Some areas of this Association are irrigated. Irrigation is by gravity methods or by center-pivot sprinklers, and generally the water is pumped from wells. Occasional flooding, wetness due to the water table and poor soil workability are the major concerns of management. Surface ditches or land grading is generally needed to improve the drainage and permit timely tillage operations. Maintaining soil fertility, improving tilth on the clayey soils and good water management of irrigation water are also concerns.

- **HAYNIE-ALBATON-SARPY ASSOCIATION**

Deep, moderately well drained, poorly drained and excessively drained, nearly level and gently sloping, silty, clayey and sandy soils formed in alluvium; on bottomlands.

This Association consists of areas on low bottomlands in the Missouri River Valley. The areas are nearly level, except some sandy areas near the river. The soils formed in clayey, silty or sandy sediment deposited by floodwater. This Association occupies about 8 percent of Burt County. Haynie soils make up about 26 percent of the Association, Albaton soils 20 percent and Sarpy soils 16 percent. The remaining 38 percent are soils of minor extent.

The Haynie soils are nearly level, deep and moderately well drained. They are on the higher parts of the landscape. Typically, the surface layer is very dark grayish brown, very friable silt loam about 7 inches thick. The upper part of the underlying material is dark grayish brown, mottled, stratified silt loam and very fine sandy loam. Below this to a depth of 60 inches, the underlying material is dark grayish brown, mottled silt loam that has thin layers of silty clay loam and silty clay.

The Albaton soils are nearly level, deep and poorly drained. These soils are on the lowest part of the landscape. Typically, the surface layer is very dark grayish brown, very firm silty clay about 8 inches thick. The underlying material is dark grayish brown, dark gray and olive gray, mottled, stratified silty clay to a depth of 60 inches.

The Sarpy soils are nearly level to gently sloping, deep and excessively drained. They are on bottom lands that are near channels of the Missouri River. Typically, the surface layer is dark grayish brown, loose fine sand about 4 inches thick. The underlying material is grayish brown, calcareous fine sand to a depth of 60 inches.

Most areas of this Association are used for cultivated crops. The principal crops are corn, soybeans and grain sorghum. Small areas have been planted to introduced grasses and are used for grazing. Along the Missouri River, trees are in small areas. Some farms are irrigated by gravity methods or by center-pivot sprinklers. Corn and soybeans are the principal irrigated crops. Potential for irrigation is high because a good supply of underground water is available.

- **BELFORE-MOODY-MARSHALL ASSOCIATION**

Deep, well drained, nearly level, silty soils formed in loess; on stream terraces.

This Association consists mainly of nearly level areas on stream terraces that are a part of the Logan Creek and Missouri River Valleys.

This Association occupies about 4 percent of Burt County. Belfore soils make up about 67 percent of the Association, Moody soils 15 percent and Marshall soils 13 percent. The remaining 5 percent are soils of minor extent.

The Belfore soils are nearly level, deep and well drained. They are on broad, nearly level stream terraces west of Logan Creek. Typically, the surface layer is very dark grayish brown, friable silty clay loam about 16 inches thick. The subsoil is dark brown and brown, friable silty clay loam about 30 inches thick. The underlying material is brown and pale brown silty clay loam to a depth of 60 inches.

The Moody soils are nearly level, deep and well drained. These soils are on stream terraces east of Logan Creek. Typically, the surface layer is very dark grayish brown, friable silty clay loam about 15 inches thick. The subsoil is brown and yellowish brown, friable silty clay loam. The underlying material is yellowish brown silty clay loam to a depth of 60 inches.

The Marshall soils are nearly level, deep and well drained. They are on stream terraces in the Missouri River Valley. Typically, the surface layer is very dark gray, friable silty clay loam about 15 inches thick. The subsoil is friable silty clay loam about 33 inches thick. The upper part of the subsoil is dark brown, the middle part is dark yellowish brown, and the lower part is yellowish brown. The underlying material is yellowish brown silty clay loam to a depth of 60 inches.

Most areas of this Association are used for cultivated crops, mainly corn, soybeans, alfalfa, grain sorghum and small grain. A few areas are planted to introduce grasses that are irrigated by gravity methods or sprinklers. Water is pumped from wells or from Logan Creek. The potential for irrigation is good because a sufficient supply of irrigation water is generally available.

- **IDA-BURCHARD-STEINAUER ASSOCIATION**

Deep, well drained to excessively drained, strongly sloping to very steep, silty and loamy soils formed in loess and glacial till; on uplands.

This Association consists of areas on uplands. A part of the areas are on bluffs that border the Missouri River Valley. The rest are on strongly sloping or moderately steep side slopes and ridgetops that are dissected by creeks and intermittent drainageways that drain to the Missouri River. Most areas are convex, but the lower slopes in some areas are concave.

This Association occupies about 5 percent of the County. Ida soils make up about 32 percent of the Association, Burchard soils 27 percent and Steinauer soils 17 percent. The remaining 24 percent is soils of minor extent.

The Ida soils are strongly sloping to very steep. These soils are deep, well drained to excessively drained and calcareous. These soils are on narrow, convex ridgetops and side-slopes on uplands. They formed in loess. Typically, the surface layer is dark brown, friable silt loam about 8 inches thick. The underlying material is brown, calcareous silt loam to a depth of 60 inches.

The Burchard soils are strongly sloping to moderately steep. They are deep, well drained and moderately permeable. These soils are on lower concave side slopes and low, rounded, convex knolls. They formed in glacial till. Typically, the surface layer is dark grayish brown, firm clay loam about 8 inches thick. The subsoil is dark yellowish brown and light olive brown, firm clay loam about 22 inches thick. The lower part of the subsoil is mottled and has many small masses of soft lime. The underlying material is mottled, light olive brown clay loam to a depth of 60 inches.

The Steinauer soils are moderately steep to steep. These soils are deep, somewhat excessively drained and calcareous. These soils are on convex side slopes on uplands, commonly in a band along the middle or upper part of the slope. They are also on narrow, convex ridgetops and points of ridges. These soils formed in glacial till. Typically, the surface layer is dark grayish brown, firm clay loam about 7 inches thick. Beneath this is the clay loam underlying material. The upper part of the underlying material is pale brown and has reddish brown mottles and soft masses of lime; the lower part to a depth of 60 inches is pale brown and has concretions of lime.

Most areas of this Association are used for cultivated crops. The principal crops are corn, alfalfa, small grain and grain sorghum. Some soybeans are grown. A few areas are planted to introduced grasses and are used for pasture. Small areas of native rangeland or stands of native trees are along the bluffs or creek bottoms. The native grasses are grazed by cattle or cut for hay. Deep wells that supply sufficient water for irrigation are extremely difficult to obtain in this Association.

EXISTING LAND USE ANALYSIS

The **Existing Land Use Map**, **Illustration 4.2, Page 4.13**, serves as the basis for establishing the **Land Use Plan**. The **Existing Land Use Map** 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 Burt County by the Nebraska Agricultural Census.

EXISTING LAND USES

Irrigated and dryland crop production is the most prolific rural land use in Burt County, which is generally practiced throughout all areas of the County. A variety of corn, wheat and soybeans are found in areas throughout the County.

- **RURAL RESIDENTIAL DEVELOPMENT.**

  The **Existing Land Use Map** indicates rural dwellings exist throughout Burt County, with non-farm, rural subdivision dwellings present adjacent the Missouri River along the eastern border of the County. Rural farm dwellings are, generally, evenly spread throughout agricultural production areas and are present on nearly all square mile sections throughout the County, but in higher concentrations west of State Highway 75.

- **PUBLIC/QUASI-PUBLIC AND RECREATIONAL USES.**

  Public/quasi-public land uses, such as churches, cemeteries and rural utility substations are scattered throughout Burt County. **Rural wildlife and recreational land uses** include Summit Lake State Recreation Area, located in south-central Burt County between the Communities of Tekamah and Craig and Pelican Point State Recreation Area in eastern Burt County along the Missouri River.

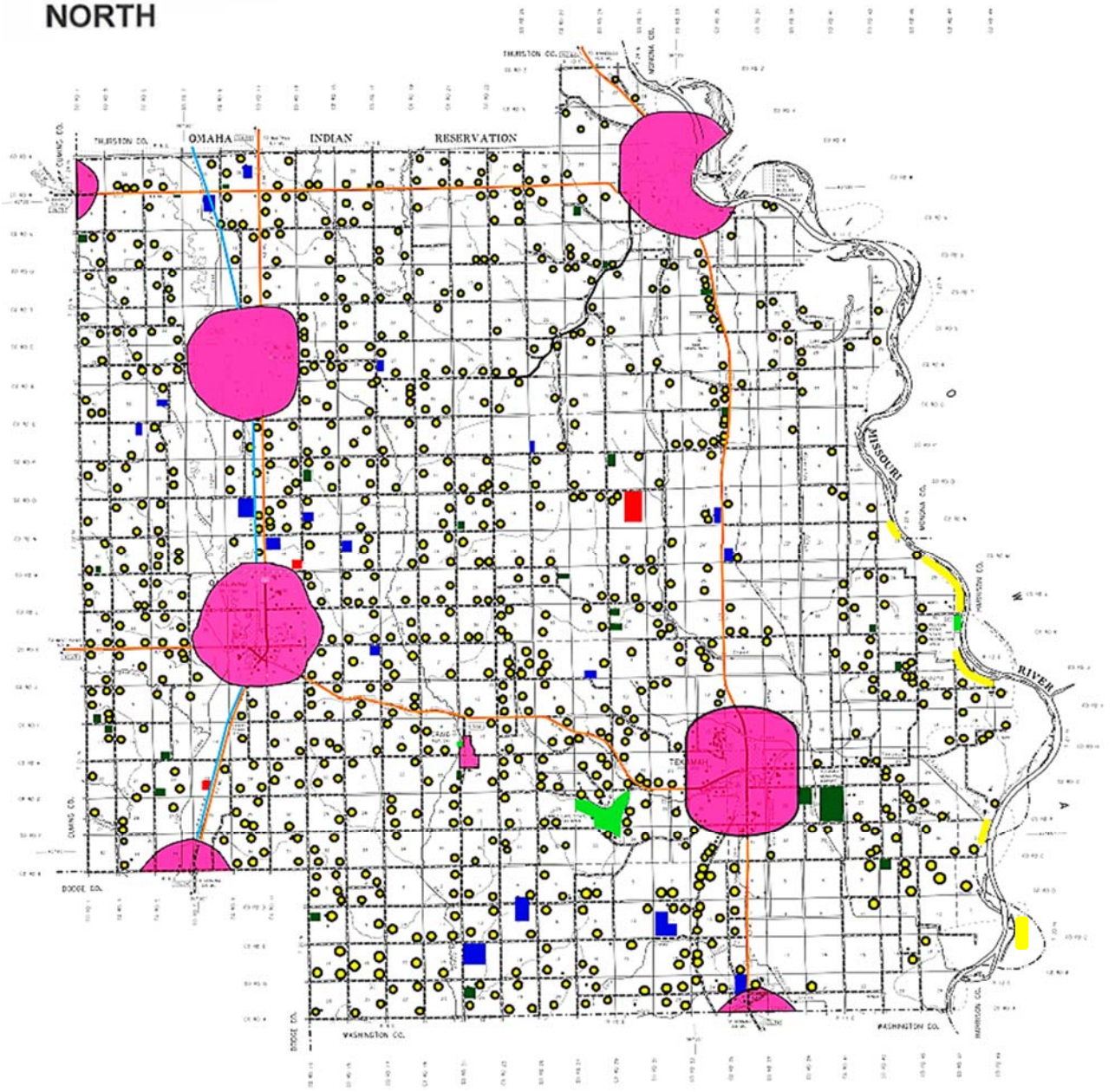
- **COMMERCIAL AND INDUSTRIAL USES.**

  Industrial land uses, including intensive agricultural/rural livestock facilities, are generally located throughout Burt County, though the highest concentrations of such facilities are found in the southern portion of Burt County as well as adjacent or near State Highway 77 between the Communities of Lyons and Oakland. Few **commercial land uses** exist in the rural areas of Burt County. Such land uses include the Pheasant Bonanza Hunt Club & Kennel.

EXISTING LAND USE MAP

BURT COUNTY, NEBRASKA

NORTH



LEGEND

- VACANT/AGRICULTURE
- PARKS/RECREATION
- PUBLIC/QUASI-PUBLIC
- RESIDENTIAL SUBDIVISION
- COMMERCIAL
- INTENSIVE AGRICULTURAL/INDUSTRIAL
- MUNICIPAL JURISDICTION
- RURAL SINGLE FAMILY DWELLING
- HIGHWAY CORRIDOR
- RAILROAD CORRIDOR

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ILLUSTRATION 4.2

AGRICULTURAL PRODUCTION STATISTICS

NUMBER AND SIZE OF FARMS

The development of new, small scale farms, has been the trend in Burt 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, identified in **Table 4.2,** indicates that the number farms in the "1 to 9" and "10 to 49" acre categories increased by a combined total of 33 farms, between 2007 and 2017. The total number of farms in the four remaining, larger acreage categories decreased during the same time period. Mid-sized category farms, between 50 and 500 acres in size, decreased by 55 total farms between 2007 and 2017. The number of large scale, 500+ acre farms remained relatively stable, decreasing by a total of six farms during the 10-year period.

Overall, the total number of farms decreased by 5.1 percent, or by 28 farms, between 2007 and 2017. **The average farm size has increased by 14.2 percent, from 501 acres in 2007 to 572 acres by 2017.** The increase in total crop land between 2007 and 2017, in comparison to the overall decrease of total farms, leads to the conclusion that mid-sized farms were consolidating into larger sized farms. The increase in the total number of smaller farms may reflect the increase in rural houses being constructed on smaller lots split off from larger tracts of land.

Table 4.2
Farms By Size
Burt County, Nebraska
2007 – 2017

Size	2007	2012	2017	% Change 2007 – 2012	% Change 2007 - 2017
1 to 9 Acres	33	35	55	+6.1%	+66.7%
10 to 49 Acres	80	93	91	+16.3%	+13.8%
50 to 179 Acres	131	109	99	-16.8%	-24.4%
180 to 499 Acres	137	127	114	-7.3%	-16.8%
500 to 999 Acres	74	101	71	+36.5%	-4.1%
1,000 to Acres or More	94	95	91	+1.1%	-3.2%
Total Farms	**549**	**560**	**521**	**+2.0%**	**-5.1%**
Total Crop Land	**246,588**	**278,477**	**275,222**	**+12.9%**	**+11.6%**
Land in Farms	**275,041**	**309,934**	**298,103**	**+12.7%**	**+8.4%**
Average Farm Size	**501**	**441**	**572**	**-12.0%**	**+14.2%**
Median Farm Size	**240**	**212**	**222**	**-11.7%**	**-7.5%**

Source: Nebraska Census of Agriculture, 2007, 2012 & 2017.
Hanna:Keelan Associates, P.C., 2019.

CROP PRODUCTION TRENDS

Table 4.3 identifies the **status of crop production** in Burt County, from 2007 to 2017. The total number of farms that harvested crops increased by 19, or 4.9 percent from 2007 to 2017. During the same period, the number of farms with irrigated land decreased by 18 or by 13.8 percent. Total acres of irrigated land during the same period increased by 4,558 acres, or 10.6 percent. This trend indicates that farms with irrigated crop lands are consolidating into larger sized farms.

The total number of farms experienced similar trends in that the number of farms declined by 1.9 percent or by nine farms, while the total acres of crop land increased by 11.6 percent or by 28,634 acres between 2007 and 2017.

Table 4.3
Status Of Crop Production
Burt County, Nebraska
2007 – 2017

	2007	2012	2017	% Change 2007 - 2012	% Change 2007 - 2017
IRRIGATED LAND					
Farms	130	118	112	-9.2%	-13.8%
Acres	42,938	37,576	47,496	-12.5%	+10.6%
HARVESTED CROP LAND					
Farms	390	435	409	+11.5%	+4.9%
Acres	225,990	263,506	251,591	+16.6%	+11.3%
TOTAL CROP LAND					
Farms	485	494	476	+1.9%	-1.9%
Acres	246,588	278,477	275,222	+12.9%	+11.6%

Source: Nebraska Census of Agriculture, 2007, 2012 & 2017.
Hanna:Keelan Associates, P.C., 2019.

Table 4.4 identifies **harvested crops by type** in Burt County, from 2007 to 2017. As of 2017, "Corn for Grain or Seed" was the primary crop in the County, accounting for 127,768 acres. Harvested acres of "Corn for Silage or Green Chop" had the largest increase by percentage of any crop in the County, increasing by 84 percent between 2007 and 2017. "Soybeans for Beans" accounted for 116,813 total acres in 2017, a 16.9 percent increase over the 2007 total of 99,956 acres.

Table 4.4
Harvested Crops By Type
Burt County, Nebraska
2007-2017

	Production in Acres			% Change	% Change
CROP BY TYPE	**2007**	**2012**	**2017**	**2007-2012**	**2007-2017**
Corn for Grain or Seed	118,588	135,570	127,768	+14.3%	+7.7%
Corn for Silage or Green Chop	488	1,230	898	+152.0%	+84.0%
Sorghum for Grain or Seed	(D)*	(D)*	-	--	--
Wheat for Grain	(D)*	269	(D)*	--	--
Oats for Grain	127	(D)*	-	--	--
Soybeans for Beans	99,956	117,512	116,813	+17.6%	+16.9%
Hay-alfalfa, Other Wild, Silage	6,634	7,405	5,460	+11.6%	-17.7%

*(D) Withheld to avoid disclosing data for individual operations.
Source: Nebraska Census of Agriculture, 2007, 2012 & 2017.
Hanna:Keelan Associates, P.C., 2019.

LIVESTOCK PRODUCTION TRENDS

Table 4.5 identifies **livestock production trends** from 2007 through 2017. During this period, the total number of livestock producing farms for "Cattle/Calves" decreased by 34 farms, while the total number of cattle/calves more than doubled, increasing by 18,465 or 102.2 percent during the same period. "Hogs and pigs" farms declined by 26, but the total number of animals produced increased from 44,006 to 89,802. The number of farms for "Sheep and Lambs" increased by three, but the total number of animals produced decreased by 175, or 25.9 percent.

Table 4.5
Livestock Production Trends
Burt County, Nebraska
2007-2017

Total Farms / Total Animals

Type	2007	2012	2017	% Change 2007-2012	% Change 2007-2017
Cattle/Calves	164 / 18,068	153 / 25,088	130 / 36,533	-6.7% / +38.9%	-20.7% / +102.2%
Beef Cows	133 / (D)**	123 / 4,958	108 / 6,644	-7.5% / --	-18.8% / --
Milk Cows	3 / (D)**	4 / 4	4 / 4	+33.3% / --	+33.3% / --
Hogs and Pigs	40 / 44,006	10 / 24,073	14 / 89,802	-75.0% / -45.3%	-65.0% / +104.1%
Sheep and Lambs	15 / 676	18 / 478	18 / 501	+20.0% / -29.3%	+20.0% / -25.9%

*Farms less than 180 acres in size were not included in this analysis.
**(D) Withheld to avoid disclosing data for individual operations.
Source: Nebraska Census of Agriculture, 2007, 2012 & 2017.
Hanna:Keelan Associates, P.C., 2019.

SUMMARY OF AGRICULTURAL STATISTICS

The review of agricultural statistics between 2007 and 2017 indicates that the total number of acres harvested has increased, but the total number of farms has declined. Thus, farms in Burt County during this 10-year period, appear to be consolidating into larger farms. During the same period, the amount of livestock produced in Burt County has increased substantially.

FUTURE RURAL LAND USE ANALYSIS

The purpose of the following **Future Rural Land Use Analysis** is to establish a strategic growth management plan for Burt County that promotes and encourages economic development activity throughout rural Burt County, as well as preserves agricultural production and environmentally sensitive land areas. The land use plans of Burt County and each Community should be in conformance to best coordinate new development activity throughout the County.

Illustration 4.3, Page 4.19, identifies the **Future Land Use Map** for Burt County. The primary hard-surfaced County roads and State highways were reviewed to determine the potential impact of rural development adjacent these corridors. The conclusion of the Planning Commission was that rural development, of any type, should primarily occur along the highway corridors throughout Burt County.

GENERAL AGRICULTURAL AREAS

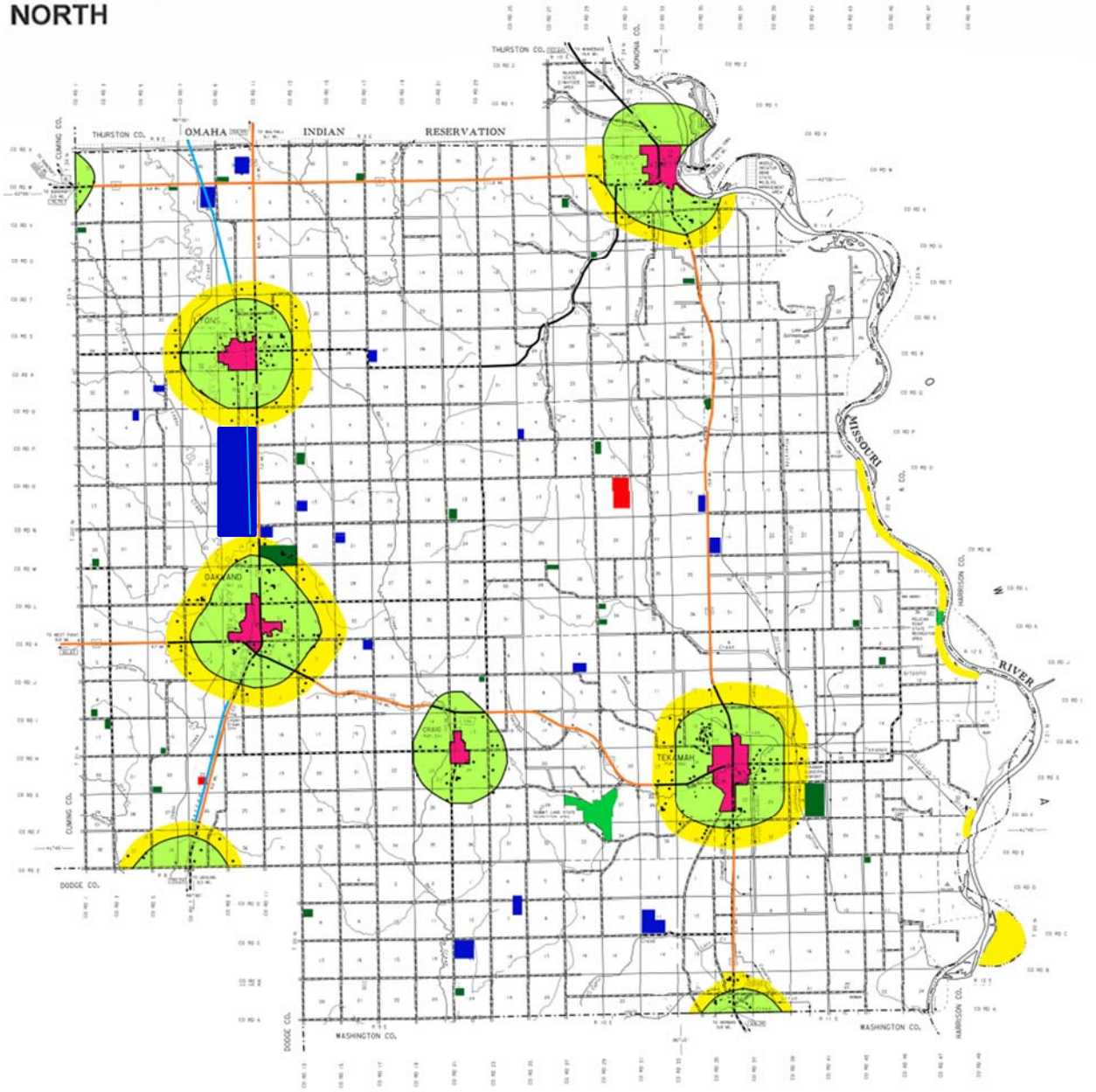
The **Burt County Comprehensive Plan** focused on evaluating the effectiveness of policies that were intended to both preserve and protect agricultural production areas, as well as encourage the development of all land use types in designated, appropriate locations throughout the County.

Future agricultural production land areas are expected to continue to be distributed throughout Burt County, as identified in the **Future Land Use Map,** and are represented as "vacant agricultural" areas. Land areas surrounding and adjacent municipal planning jurisdictions and highway corridors are largely targeted for residential, commercial and/or industrial developments. Additionally, the Missouri River Corridor (eastern border of Burt County) should continue to support residential developments in existing, appropriate locations. Otherwise, the Corridor is recommended to be preserved and protected from unnecessary encroachment of residential, commercial or industrial development.

FUTURE LAND USE MAP

BURT COUNTY, NEBRASKA

NORTH



LEGEND

- AGRICULTURE
- PARKS/RECREATION
- PUBLIC/QUASI-PUBLIC
- RESIDENTIAL SUBDIVISION/ TRANSITIONAL AGRICULTURAL
- COMMERCIAL
- INTENSIVE AGRICULTURAL/INDUSTRIAL
- MUNICIPAL INCORPORATED AREA
- MUNICIPAL PLANNING JURISDICTION
- HIGHWAY CORRIDOR
- RAILROAD CORRIDOR

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ILLUSTRATION 4.3

AGRICULTURAL RESIDENTIAL AREAS

Existing rural farmstead dwellings are generally located throughout the County, though higher concentrations exist west of State Highway 75. The **Future Land Use Map** promotes the continued development of non-farm dwellings in "Transitional Agricultural" areas surrounding and adjacent the municipal planning jurisdictions of Burt County Communities, as well as in select, appropriate locations along the Missouri River Corridor in eastern Burt County. By promoting higher density, non-farm residential development in the Transitional Agricultural areas, the County also seeks to preserve and protect agricultural production areas from further encroachment of conflicting uses. Additionally, this practice also would locate these future dwellings nearest local goods, services and amenities, a critical component in determining the location of new housing.

OPEN SPACE & PARKS/RECREATION AREAS

Two State Recreational Areas exist in Burt County. Summit Lake State Recreation Area is located in the south-central portion of the County, between the Communities of Tekamah and Craig, and Pelican Point State Recreation Area is located in eastern Burt County along the Missouri River. Several recreational opportunities are also located within the communities of Burt County. Preservation of these and other natural open space areas, such as river corridors and wetland areas, should be a priority during the 10-year planning period.

Summit Lake State Recreation Area.

Pelican Point State Recreation Area.

COMMERCIAL AND INDUSTRIAL AREAS

Existing and planned future commercial and industrial developments within rural Burt County are promoted within the Planning Jurisdictions of Lyons, Oakland and Tekamah, as well as within or in close proximity to the Villages of Craig and Decatur. Close proximity of municipal water and sewer services will continue to attract commercial and industrial uses to these locations. Additionally, new, large-scale industrial land uses are targeted to a mile-wide land area, adjacent and west of Highway 77 between Lyons and Oakland.

INTENSIVE AGRICULTURAL AREAS

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 Burt County Zoning Regulations provide for the expansion of existing and the development of new "Livestock Feeding Operations" (LFOs) by a Condition Use Permit in Rural Burt County. **Agricultural operations consisting of 300 animal units (A.U.) and under are considered a farm and do not require a Conditional Use Permit.** LFOs consisting of more than 300 A.U. are classified into one of four levels, as determined by the total number of A.U., and abide to different restrictions according to the LFOs classification as either Environmentally Controlled Housing (ECH) Operations or Open Lot Operations.

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 Burt County. All improvements to these components are aimed at maintaining or improving the quality of life in the County. It is important that the Burt County Planning Commission, Board of Supervisors 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 2019 to 2029. Public facilities provide citizens with social, cultural and educational opportunities in Burt 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 the Burt 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 Burt 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 Burt County should strive to meet the following 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 Burt County Communities, including sidewalks, pedestrian crossings and school bus access.

The following Public School Districts maintain school facilities in Burt County:

- **Tekamah-Herman Public Schools District** maintains an Elementary, Junior and Senior High School facility at 112 N 13th Street in Tekamah, Nebraska. The school district enrolls approximately 511 students in grades Pre-K through 12. The District employs 29 certified secondary education teachers (grades 7 through 12) and 23 certified elementary education teachers (grades Pre-K through 6).

  Extra-curricular activities offered at Tekamah-Herman Public Schools includes a variety of clubs, organizations and athletic teams. To enhance the student learning experience with a variety of educational applications, students in grades 9 through 12 receive an Apple MacBook Air laptop for personal use throughout the school year.

  Recent renovations completed at the School include a new roof and air conditioning system, an emergency security system including new doors, locks, windows and cameras, a renovated school auditorium and gym locker rooms and a renovated track and field facility with new bleachers and a press box. Future expansions/renovations include a new Career Education Center located across the street from the School building. The Center will house the School's welding, woodshop, automotive and agricultural education programs.

- **Oakland-Craig Public Schools District** has separate Elementary and Junior/High School buildings. The Elementary School (Pre-K through 6th grades) is located at 400 N Brewster Avenue in Oakland, while the Junior/Senior High School (7th through 12th grades) is located 309 N Davis Avenue in Oakland. Currently, the District enrolls approximately 434 students. The District employs approximately 78 total staff members, including certified teachers, administrators, para-educators, counselors, cooks, maintenance workers and other support staff.

Recent improvements in the District have been made at the High School building. These include a renovated library, updated classrooms, new entryway including a ramp, a lift station and new offices. **For the 2019-2020 academic year, the Oakland-Craig Public Schools District received a nearly $100,000 US Department of Education *21st Century Community Learning Center Grant.*** The grant will be used to develop the *Bright Knights* after-school program, free of cost to families. The program will offer activities including homework help and tutoring, physical activity, the arts, community service, choices for hands-on learning activities, positive youth development and leadership.

- **Lyons-Decatur Northeast Public Schools District** maintains an Elementary, Junior and Senior High School facility at 400 S 5th Street in Lyons. In 2016, the Lyons-Decatur School District began a sports co-op program with Bancroft-Rosalie Public Schools. Currently, the Lyons-Decatur Northeast Public Schools District enrolls approximately 300 students in grades Pre-K through 12, and employs a total of 29 certified teachers. Junior and Senior High School students (grades 7 through 12) receive a personal laptop to use during the academic year.

  Recently completed projects at the School include new doors and a renovated front entryway. Currently, there are no planned remodeling or expansion projects for the School building over the next 10 years.

PARKS/RECREATION

Nebraska's **State Wildlife Management Areas** are managed by the Nebraska Game and Parks Commission's Wildlife Division for the enhancement of wildlife habitat. These State lands are utilized for public hunting, trapping and fishing. However, they are also open to hiking, bird watching, nature study and primitive camping.

Hunters and anglers fund the acquisition, development and maintenance of these areas through the purchase of hunting, trapping and fishing permits, Habitat Stamps and through excise taxes on hunting and fishing equipment. Access to these lands is free, and no entry permit is necessary. Burt County has two State Recreation Areas that are not designated as State Wildlife Management Areas, but maintain hunting zones within the Recreation Areas managed by the Nebraska Game and Parks Commission:

- **Pelican Point State Recreation Area,** 10 miles northeast of Tekamah, 36 acres.
- **Summit Lake State Recreation Area,** 6 miles west of Tekamah, 535 acres.

Both recreation areas have picnicking, camping, hunting, fishing, hiking trails and swimming areas available.

Five municipal recreational lakes and two golf courses are available to residents and visitors of Burt County:

- Lake Quinnebaugh
- Langemeier Reservoir
- Michaels Lake
- Tekamah Creek Reservoir 6-1
- Tekamah Mud Creek Reservoir 22-A

- North Ridge Country Club (9-hole)
- Oakland Golf Club (18-hole)

MUSEUMS/HISTORICAL RESOURCES

Historic resources reflect a Community's or County's cultural heritage and historical identity and character. Because historic resources often symbolize an area's cultural heritage, the preservations of historic buildings and resources can produce social, economic, educational and recreational benefits for a Community or County.

- **Burt County Museum** – Located at 319 North 13th Street in Tekamah, the Burt County Museum includes the E.C. Houston House, the C.D. Houston House (Museum East House), a relocated 1903 District #57 (Nolana) one-room schoolhouse and a historic bridge (1910) that was originally located in Folsom Park in Tekamah before being moved to a lodge in Missouri, used for 30 years and relocated back to Tekamah to it current site as part of the Burt County Museum. Various historical artifacts from Burt County are on display throughout the property. The E.C. Houston House was constructed in 1904-05 and was placed on the National Register of Historic Places in 1986.

  Other Burt County properties currently listed on the National Register of Historic Places includes the following:

  - Logan Creek Site, 2 miles southwest of Oakland along Highway 77.
  - John Henry Stork Log House, Tekamah.
  - Deutsche Evangelische Luthersche St. Johannes Kirche (St. John's Lutheran Church), 4 miles southeast of Lyons.
  - H.S.M Spielman House, 1103 I Street, Tekamah.
  - Tekamah City Bridge, Highway 75 over Tekamah Creek, Tekamah.
  - Burt County Courthouse, 111 North 13th Street, Tekamah.
  - Tekamah Carnegie Library, 204 South 13th Street, Tekamah.
  - Guhl, William and Emma, Farmhouse, Oakland.
  - Burt County State Bank, 246 South 13th Street, Tekamah.

MEDICAL FACILITIES

Medical facilities throughout Burt County are found within the following Communities of the County:

- Decatur, NE: Burgess Health Center Center-Decatur Clinic.
- Lyons, NE – MercyOne Lyons Family Medicine.
- Oakland, NE – MercyOne Oakland Clinic.
- Oakland, NE – MercyOne Oakland Family Medicine.
- Oakland, NE – MercyOne Oakland Medical Center.
- Tekamah, NE – Cottonwood Clinic.
- Tekamah, NE – MercyOne Tekamah Family Medicine.

GOVERNMENT & PUBLIC SAFETY

Public administration facilities serve the citizens of the County and conduct business of government and carry out its operations. These essential services are centrally located and convenient to the majority of the citizens of Burt County.

- **County Courthouse** – The **Burt County Courthouse** is located at 111 North 13th Street in Tekamah, Nebraska. The building contains the County Offices of the Assessor, Attorney, County Clerk, Clerk of the District Court, Election Commissioner, Emergency Manager, Economic Development Corporation, UNL Extension, Highway Superintendent, Planning and Zoning, Register of Deeds, County Sheriff, Surveyor, Treasurer, Veterans Services Officer and Weed Superintendent. The Burt County Courtroom and the Burt County Board of Supervisors Room are also located in the County Courthouse.

- **Law Enforcement** – The Burt County Sheriff's Department is located within the Burt County Courthouse at 111 North 13th Street in Tekamah. The Burt County Jail is also located within the Courthouse. In addition to the County Sheriff, approximately 10 part-time and full-time staff provide law enforcement services to the residents of Burt County.

  The Burt County Sheriff's Department primarily provides rural law enforcement duties, but also provides these services to Burt County Communities that do not maintain local police departments. The following police departments also provide law enforcement services in Burt County in their local communities:

  - Decatur Police Department, 913 South Broadway Street.
  - Lyons Police Department, 135 North 2nd Street.
  - Oakland Police Department, 401 North Oakland Avenue.
  - Tekamah Police Department, 1318 L Street.

- **Fire & Rescue** – Five Rural Fire Districts are located in Burt County, including:
  - Craig, NE Fire District, 333 South Main Street.
  - Decatur, NE Fire District, 1012 South Broadway Street.
  - Lyons, NE Fire District, 335 Main Street.
  - Oakland, NE Fire District, 500 North Oakland Avenue.
  - Tekamah, NE Fire District, 1515 M Street.

- **Civil Defense** – Under state law, all local jurisdictions are responsible for initial response to a disaster. State law also mandates that each local government participate in a full-time emergency management program. The **Burt County Emergency Management Office** is located within the County Courthouse at 111 North 13th Street in Tekamah.

  Nebraska Emergency Managers and the Emergency Management Agency is charged by state statute to reduce the vulnerabilities of the people and communities of Nebraska from the damage, injury and loss of life and property resulting from natural, technological, or man-made disasters and emergencies.

  The planning and preparation for natural disaster and man-made emergencies consist of Mitigation, Preparation, Response, and Recovery. Examples of natural and man-made disasters include, but are not limited to floods, tornados, winter storms, chemical spills, explosions and plane crashes.

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

  The **Craig Post Office** is located at 149 North Main Street and is open 8:00 AM to 12:00 PM Monday through Friday, as well as 9:00 AM to 10:30 AM on Saturdays. The lobby is open 24 hours per day, seven days per week.

  The **Decatur Post Office** is located at 833 South Broadway Street and is open 7:30 AM to 11:30 AM Monday through Friday, and 8:00 AM to 10:00 AM on Saturdays. The lobby is open 24 hours per day, seven days per week.

  The **Lyons Post Office** is located at 165 Main Street and is open 8:30 AM to 11:30 AM and from 12:30 PM to 4:00 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 **Oakland Post Office** is located at 313 North Oakland Avenue and is open 8:30 AM to 11:45 AM and from 12:45 PM to 4:30 PM Monday through Friday, as well as 8:30 AM to 10:00 AM on Saturdays. The lobby is open 24 hours per day, seven days per week.

The **Tekamah Post Office** is located at 1323 K Street and is open 8:30 AM to 11:30 AM and from 12:30 PM to 4:30 PM Monday through Friday, as well as 8:30 AM to 10:00 AM on Saturdays. The lobby is open 24 hours per day, seven days per week.

TRANSPORTATION

The availability of a convenient and efficient transportation system is essential to the continued economic and physical development of Burt 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 (1) Burt County "One and Six Year Road Improvement Program" and (2) State of Nebraska Department of Roads "Nebraska Highway Program" (Fiscal Years 2019-2024 and Beyond).

EXISTING TRANSPORTATION SYSTEM

Burt County has approximately 760 miles of rural public roads, approximately 80 of which are unsurfaced. Of the surfaced public roads, about 615 miles are gravel-surfaced, and 65 miles are hard-surfaced roads, either asphalt or concrete.

Nearly 150 bridges are located in Burt County, and are inspected on a bi-annual basis. Most of the bridges are replaced as needed by contracting them to qualified construction companies. Most repair work is completed by the Burt County Road Department.

Illustration 5.1, State Functional Classification Map, Page 5.10, as identified by the Nebraska Department of Transportation, depicts the existing transportation system in Burt County. The transportation system is comprised of *"Major Arterial"* Highways including U.S. Highways 75 and 77 and State Highways 35 and 51, as well as a variety of road segments identified as *"Other Arterial," "Collector"* and *"Minimum Maintenance"* Roads. The *"Major Arterial"* Highways link Burt County and its Communities with many cities and metropolitan areas throughout the region, while the other county and local roads provide transportation services throughout Burt County and into adjacent counties.

ROAD CLASSIFICATIONS

Nebraska Highway Law identifies the eight 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 Burt 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 5.11,** identifies the average daily traffic counts for State and Federal transportation routes throughout Burt County. Each of the road segments identified are classified as *"Major Arterial"* roads.

The analysis of average 24-hour traffic volumes at the locations identified in **Illustration 5.2** included a four-year period, between 2014 and 2018. The change in average 24-hour traffic volumes varied throughout Burt County during this four-year period. A majority of the locations that experience an increase in average 24-hour traffic were located along or near U.S. Highway 77. Segment O (Highway 77, south of Oakland; See Illustration 5.2) experienced the largest increase in total vehicular traffic, approximately 325 more vehicles per day in 2018 than 2014.

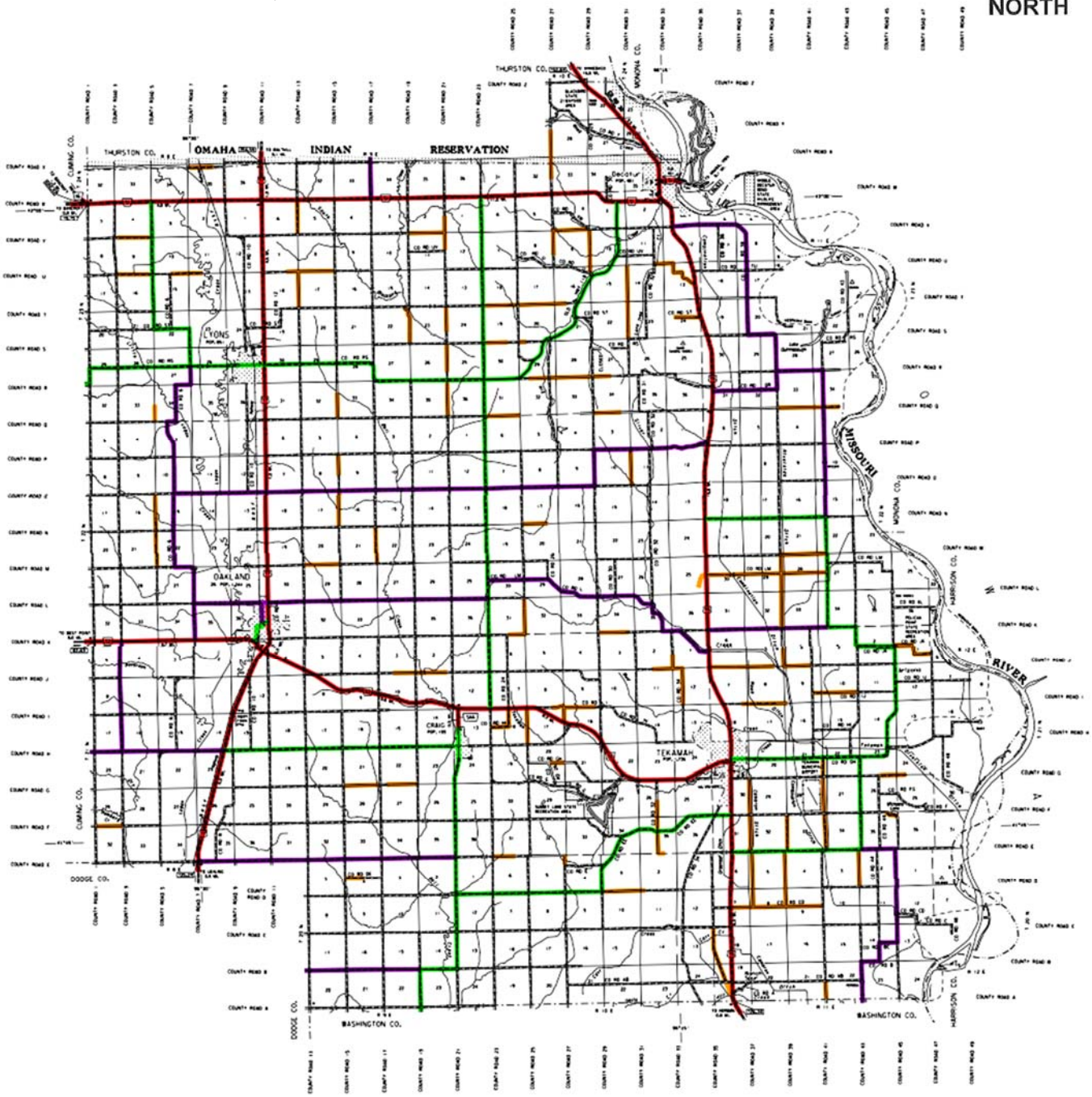
The Decatur Bridge over the Missouri River, looking west.

US Highway 77 between Lyons and Oakland, looking south.

STATE FUNCTIONAL CLASSIFICATION MAP

BURT COUNTY, NEBRASKA

NORTH



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

Source: Nebraska Department of Transportation.

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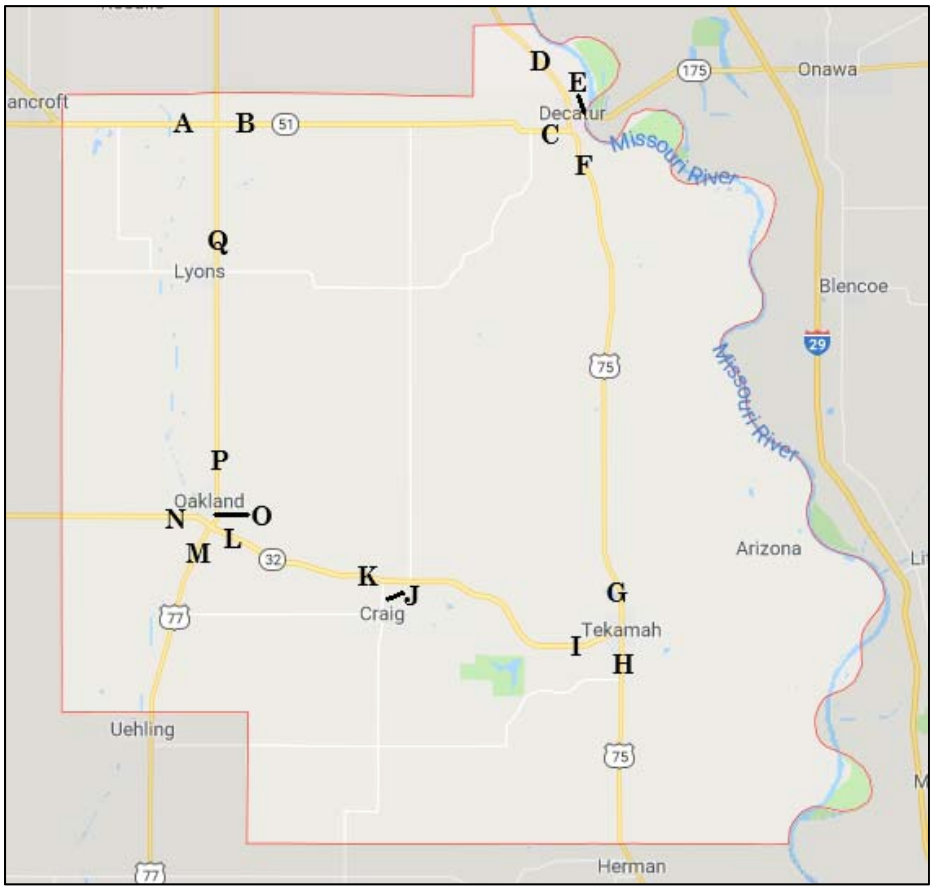
ILLUSTRATION 5.1

AVERAGE ANNUAL 24-HOUR TRAFFIC

BURT COUNTY, NEBRASKA



Average Annual 24-Hour Traffic*
Burt County, Nebraska
2014, 2016 & 2018

	2014	2016	2018
Segment A	1,780/265	1,835/270	1,815/265
Segment B	1,070/160	1,170/175	1,020/155
Segment C	1,500/220	1,335/195	1,480/215
Segment D	1,360/180	1,430/190	1,400/185
Segment E	1,605/155	1,890/185	1,695/165
Segment F	1,355/220	1,315/215	1,270/210
Segment G	1,880/240	1,565/200	1,720/220
Segment H	5,155/385	4,055/305	4,950/370
Segment I	2,365/410	2,375/410	2,510/435
Segment J	535/60	435/50	420/50
Segment K	1,875/335	1,865/335	1,745/315
Segment L	1,445/364	1,370/310	1,435/274
Segment M	2,530/520	2,785/534	2,800/455
Segment N	1,520/405	1,440/340	1,615/343
Segment O	3,765/645	3,970/696	4,090/624
Segment P	N/A	3,630/620	3,885/665
Segment Q	2,820/580	2,855/585	2,930/600

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

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ILLUSTRATION 5.2

FUTURE BURT COUNTY TRANSPORTATION SYSTEM

COUNTY ONE- AND SIX-YEAR ROAD IMPROVEMENT PLAN

The future transportation system is outlined in the Burt County **One- and Six- Year Road Improvement Plan.** The County's One-Year Plan is for projects to be undertaken in Fiscal Year 2019, while the Six-Year Plan is for projects to be undertaken through 2024, or earlier if funding becomes available.

The Burt County Highway Superintendent annually prepares the One and Six-Year Road Plan and reports directly to the County Supervisors. The County Board of Supervisors approves the Plan and files it with the Nebraska Department of Transportation. Improvement projects included in the County's current One- and Six-Year Road Plan include the following:

One-Year Projects (Fiscal Year 2019 to Fiscal Year 2020):

- **C-11(359):** Road GH, east of Tekamah; Overlay; 6.0 Miles; Estimated Cost: $1,800,000.
- **C-11(414):** Road G, east of Tekamah; Asphalt Pavement; 1.9 Miles; Estimated Cost: $1,500,000.
- **C-11(418):** Road 45, north of Road C; Bridge Replacement; 0.6 Miles; Estimated Cost: $546,000.
- **C-11(422):** Road 1, north of Road G; Bridge Replacement; 0.1 Miles; Estimated Cost: $171,000.
- **C-11(423):** Road L, east of Road 29; Bridge Rehabilitation; 0.1 Miles; Estimated Cost: $70,000.
- **C-11(425):** Road HI and Road 27; Bridge Replacement; 0.1 Miles; Estimated Cost: $62,000
- **C-11(427):** Road G, west of Road 37; Culvert; 0.1 Miles; Estimated Cost: $12,000.
- **C-11(428):** Road L, east of Highway 77; Culvert; 0.1 Miles; Estimated Cost: $35,000.
- **C-11(429):** Road L, west of Road 15; Culvert; 0.1 Miles; Estimated Cost: $19,000.

- **C-11(431):** Road G, east of Road 39; Bridge Replacement; 0.1 Miles; Estimated Cost: $220,000.

- **C-11(433):** Road A, west of Road 21; Bridge Rehabilitation; 0.1 Miles; Estimated Cost: $80,000.

Six-Year Planning Program Projects (Fiscal Years 2020-2024):

- **C-11(176):** Road 19, north of Road J; Bridge Replacement; 0.1 Miles; Estimated Cost: $394,000.

- **C-11(302):** Road N, west of Road 19; Bridge Replacement; 0.1 Miles; Estimated Cost: $300,000.

- **C-11(357):** Road U, east of Road 15; Bridge Replacement; 0.1 Miles; Estimated Cost: $420,000.

- **C-11(361):** Old Highway 118, Road 15 to Road 23; Overlay; 4.5 Miles; Estimated Cost: $960,000.

- **C-11(362):** Road 21, south of Craig; Overlay; 3.8 Miles; Estimated Cost: $800,000.

- **C-11(363):** Road L, west of Oakland; Overlay; 1.8 Miles; Estimated Cost: $374,000.

- **C-11(364):** Road H, west of Craig; Overlay; 6.3 Miles; Estimated Cost: $1,334,000.

- **C-11(365):** Road L, east of Oakland; Overlay; 6.0 Miles; Estimated Cost: $1,280,000.

- **C-11(366):** Old Highway 118, east of Highway 77; Overlay; 2.0 Miles; Estimated Cost: $427,000.

- **C-11(367):** Road 3, south of Highway 32; Overlay; 3.0 Miles; Estimated Cost: $640,000.

- **C-11(368):** Old Highway 118, south of Highway 51; Overlay; 3.0 Miles; Estimated Cost: $640,000.

- **C-11(369):** Road 3, north of Highway 32; Overlay; 2.0 Miles; Estimated Cost: $427,000.

- **C-11(370):** Road F, west of Highway 75; Overlay; 0.5 Miles; Estimated Cost: $107,000.

- **C-11(426):** Road V, west of Road 31; Culvert; 0.1 Miles; Estimated Cost: $90,000.

- **C-11(430):** Road L, east of Road 30; Culvert; 0.1 Miles; Estimated Cost: $26,000.

- **C-11(432):** Road M, east of Road 17; Bridge Replacement; 0.1 Miles; Estimated Cost: $320,000.

- **C-11(434):** Road 32, south of Highway 32; Bridge Replacement; 0.1 Miles; Estimated Cost: $93,000.

STATE ONE- AND SIX-YEAR TRANSPORTATION PLAN

The Nebraska "Surface Transportation Program 2019-2024" 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 Burt County include the following projects:

One-Year Projects (Fiscal Year 2019 to Fiscal Year 2020):

- None.

Six-Year Planning Program Projects (Fiscal Years 2020-2024):

- **STP-51-7(106):** Nebraska State Highway 51; U.S. Highway 77 to U.S. Highway 75; Resurfacing, Culverts; 11 Miles; Estimated Cost: $5,580,000.

- **STP-75-3(123):** U.S. Highway 75; Tekamah South; Milling, Resurfacing & Bridge Repair; 5.7 Miles; Estimated Cost: $4,150,000.

- **STP-75-3(122):** U.S. Highway 75; Tekamah North; Milling, Resurfacing & Bridge; 6.1 Miles; Estimated Cost: $5,420,000.

- **STP-75-3(118):** U.S. Highway 75; Decatur to Macy; Resurfacing & Bridge Repair; 7.8 Miles; Estimated Cost: $2,650,000.

- **ITS-NH-STP-77-3(134):** U.S. Highway 77; Districtwide; Deploy CCTV Cameras; 0.0 Miles; Estimated Cost: $400,000.

- **NH-77-3(126):** U.S. Highway 77; Lyons to Walthill; Resurfacing; 15.1 Miles; Estimated Cost: $8,810,000.

SECTION 6:

Energy Element.

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SECTION 6

ENERGY ELEMENT.

INTRODUCTION

This **Section** of the **Burt County, Nebraska, Comprehensive Plan** complies with a **July, 2010, amendment to Nebraska State Statues 23-114.02,** requiring updates to a County Comprehensive Plan to include an **"Energy Element."** This component of the **Plan** assesses the energy infrastructure and energy use by sector, including residential, commercial, and industrial. This section is also intended to evaluate the utilization of renewable energy sources and promote energy conservation measures.

PUBLIC POWER DISTRIBUTION

Energy usage and consumption throughout Burt County has followed the trends prevalent in the State of Nebraska. Electrical power is distributed across rural Burt County by **Burt County Public Power District (BCPPD)**, which purchases electricity from the **Nebraska Public Power District (NPPD).** BCPPD provides electricity to all of Burt County and portions of Cuming, Dodge, Thurston and Washington Counties, including the Communities of Uehling, Rosalie and Macy. BCPPD provides wholesale electricity to the Village of Decatur. Currently, BCPPD serves approximately 4,100 customers throughout its service area with more than 2,000 miles of power lines making up its electric system.

As the largest electric generating utility in the State of Nebraska, NPPD provides electricity to all or parts of 91 of the State's 93 Counties, including Burt County. The fuel source 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, goal, 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.***

As of 2016, NPPD had a total of 312 megawatts (MWs) generated from renewable resources, primarily wind, from eight separate facilities in the State. Energy from renewable resources is at just over 9 percent of the total energy generation, putting NPPD on track to achieve its goal of 10% energy generation 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.

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.

In 2018, NPPD's energy generation for Nebraska customers was comprised of:

- 34.3 percent of NPPD's energy generation was from coal.
- 39.6 percent was from nuclear.
- 3.2 percent generation from oil & natural gas.
- 8.3 percent from renewable wind generation.
- 8.2 percent from renewable Hydro generation.
- The remaining 6.3 percent of NPPD's energy was supplied through wholesale purchases.

MORE THAN 56% OF NPPD'S GENERATION SOURCES ARE CARBON-FREE.

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. At each plant, water passes through turbines, generates electricity and continues on unchanged. The generators, totaling 28 MW, can serve 9,500 homes. More than 8 percent of NPPD's energy generation in 2018 came from water power, including purchases from plants operated by other Nebraska utilities and the Western Area Power Administration.

3.) Wind Turbine Generators –
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 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" that is now in effect as of 2017 in pilot programs in 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.

WIND TURBINES AND "NET METERING"

Commercial, large scale wind turbines, or "Wind Conversion Systems," are being promoted in Nebraska Counties by companies and local property owners alike. Wind towers of up to 400' in height are typically developed as "wind farms," where multiple wind towers are constructed in a single area, or linearly along a ridge line, such as Laredo Ridge Wind Farm, east of Petersburg in Boone County, for example. This facility consists of 54 commercial scale, 1.5 megawatt (MW) turbines.

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 Burt County Planning Commission can choose to allow usage control of Net Metering by allowing residential and businesses property owners to seek a **Conditional Use Permit,** if the applicant can document they are in conformance with the provisions of the **Burt 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

BURT COUNTY ENERGY CONSUMPTION

Burt County Public Power District (BCPPD) provided annual Burt County energy consumption and revenue data for the period 2014 to 2018 (see **Table 6.1, Page 6.6**). BCPPD tabulates County Data within their region by Commercial, Irrigation and Rural Residential Sectors. **The Commercial Sector also includes agricultural and industrial energy data.**

During the five-year period between 2014 and 2018, energy consumption in the Commercial Sector generally followed an upward trend, increasing by 32.6 percent during this period. Energy consumption in the Irrigation Sector increased by 25.5 percent between 2014 and 2017, but decreased by 51.8 percent between 2017 and 2018. Energy consumption in the Rural Residential Sector has increased each year since 2015, but total consumption in 2018 was 1.4 percent lower than 2014. Overall, energy consumption across all three Sectors remained relatively stable over the five-year period. Total consumption increased 0.7 percent between 2014 and 2018.

Table 6.1
Burt County Rural Consumption And Revenue Data
2014-2018

Consumption of Electricity (KWh)	**2014**	**2015**	**2016**	**2017**	**2018**
Commercial	5,273,966	5,366,834	7,337,550	6,572,281	6,992,699
Irrigation	2,817,818	2,290,259	2,505,305	3,536,626	1,706,377
Rural Residential	26,475,198	23,927,842	24,143,737	24,689,174	26,094,567
TOTAL	**34,566,982**	**31,584,935**	**33,986,592**	**34,798,081**	**34,793,643**
Revenues					
Commercial	$695,615	$728,937	$932,918	$844,652	$908,365
Irrigation	$301,000	$840,823	$869,595	$965,995	$779,070
Rural Residential	$3,379,584	$3,151,428	$3,270,305	$3,312,363	$3,443,095
TOTAL	**$4,376,199**	**$4,721,188**	**$5,072,818**	**$5,123,010**	**$5,130,530**

*Note: Commercial also includes agricultural and industrial sectors.
Source: Burt County Public Power District.

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 ***"2018 Annual Report" of the Nebraska Energy Office***, 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 240.5 trillion BTUs in 2016. 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 2016, declining to 172.9 trillion BTUs.

- **Gasoline** and **Diesel Fuel** consumption nearly doubled in Nebraska between 1960 and 2016. Gasoline consumption increased by just under 25 percent, from 78.8 to 102.2 trillion BTUs, as of 2016, 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 97.8 trillion BTUs as of 2016. 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 2016 at 161.3 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, 69.97 percent of all renewable energy produced came from biofuels, 4.9 percent from hydroelectric, 21.7 percent from wind, and 2.5 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 2016, a total of 134.5 trillion BTUs were consumed in the commercial sector, down 1.9 percent from 2015.

- **Residential Sector:** The residential sector consumed 17 percent, or 147.9 trillion BTUs, of the State's total energy demand in 2016. Demand decreased 0.4 percent from 148.4 trillion BTUs in 2015. Natural gas and electricity accounted for 89.6 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 2016, it accounted for 44 percent, or 384.8 trillion BTUs, of the State's total energy consumption. This was a 4.5 percent increase in energy use from 2015.

- **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 2016. Approximately 23 percent of the State's total energy consumption (201.1 trillion BTUs) was used in the transportation sector in 2016.

- **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 2016. Demand in the State's electric power sector totaled 368.4 trillion BTUs in 2016, a 17.5 percent decrease, or 35.4 trillion BTUs, from 2015.

- **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 Burt County to reduce its total energy consumption in each of the Energy Sectors (and by 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 the five alternative energy sources to reduce public/quasi-public, residential, commercial and industrial facilities consumption of energy.**

    - Utilize the Burt County Zoning Regulations to control the placement and operation of alternative energy systems.

    - Require compliance with the Conditional Use permit process so that established conditions are met by the applicant.

    - Utilize the net metering services of Burt County Public Power District to assist Burt County in complying with Nebraska's Net Metering Law.

- Promote the development of vocational education opportunities in the Public School Districts of Burt County, as well as regional State and Community Colleges, to educate the current and future workforce in alternative energy design, fabrication of equipment and maintenance.

♦ **Work with the communities of Burt County during the application review process to identify appropriate locations in the County for Utility Grid Wind Energy Conversion Systems, commonly referred to as "Wind Farms."**

- The placement of "Utility Grid Wind Energy Conversion Systems" is not compatible with uses located within the planning jurisdictions of Burt County Communities, or within one-mile of villages without planning jurisdictions.

- The rural regions of Burt County would be more appropriate locations for Utility Grid Wind Energy Conversion Systems.

♦ **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 wind, solar, methane, biomass, hydropower and geothermal exchange energy systems, or other sources of alternative energy systems, for applications throughout Burt 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 Burt County Public Power District, and in its association with Nebraska Public Power District, for its member Communities and public power districts. For example, the ENERGYsmart Lighting Program provides cash incentives to businesses that replace old lighting fixtures with high-efficient light fixtures such as LED to reduce energy costs.

- Burt 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. Data has revealed that the pairing of center pivot corner systems with a variable frequency drive (VFD) can lead to energy efficiency savings of 20 to 30 percent.

- 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 expanded use of solar and geothermal exchange energy systems for agricultural applications that power equipment and heat/cool farm and ranch buildings.