Chapter 1 Introduction

Location

Cuming County is located in northeast Nebraska, along the Elkhorn River and US Highway 275. The county is bounded on the north by Wayne and Thurston Counties; on the east by Thurston and Burt Counties; on the south by Dodge and Colfax Counties; and on the west by Stanton County.

Photo Source: Cuming County

The county has six highways crossing the county including US Highway 275, Nebraska Highways 9, 15, 16, 32, and 51. The county is home to the communities of Bancroft, Beemer, West Point (county seat), and Wisner.

Early History of Cuming County

Northeast Nebraska, where Cuming County is located, was home to several Native American tribes as early as the late 17th century. The Poncas, Otoes, Missouria, Iowa, and Omahas relied on fishing and hunting across eastern Nebraska for sustenance. Later, in the 19th century, European fur trappers found easy transportation into the region via the Platte and Elkhorn rivers. In 1855, Nebraska's territorial legislature officially established the boundaries of Cuming County.

In 1857, after twice being placed in "paper" towns, speculative ventures that were unsurveyed and unplatted, a vote was held to put the seat of county government in the newly founded city of West Point. In 1861, the population stood at only 67. Early settlers were drawn by word of the area's rich soil, ideal for the cultivation of corn and wheat. Later, the efforts of railroad companies and immigrant societies brought to Cuming County a population boom of settlers, particularly Germans and Scandinavians. The settlement and development of Wisner and Bancroft - in 1871 and 1876, respectively - was spurred by the extension of the railroad. By the foundation of Beemer in 1885, Cuming County's population numbered over 10,000.

Throughout the development of Cuming County, agriculture provided the foundation of the county's economy. Although it was initially focused on crop farming, the agricultural industry soon evolved to include significant livestock production as well. Initially, beef cattle and hogs were transported by rail to livestock markets in Omaha. As the railroad faded as a significant portion of the county's transportation system, livestock transportation shifted to trucks.
Source: 2009 Comprehensive Plan

Comprehensive Development Planning

The Cuming County Comprehensive Development Plan is designed to promote orderly growth and development for the county, as well as providing policy guidelines to enable citizens and elected officials to make informed decisions about the future of the county.

The Comprehensive Development Plan will provide a guideline for the location of future developments and uses within the planning jurisdiction of Cuming County. The Comprehensive Development Plan is intended to encourage a strong economic base for the County so all goals can be achieved.

The Comprehensive Development Plan is intended as an information and management tool for County leaders to use in their decision-making process when considering future developments. The Comprehensive Development Plan is not a static document; it should evolve as changes in the land use, population or local economy occur during the planning period.

The Planning Process

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

In conjunction, the data collection phase will be occurring. Data is collected to provide a snapshot of the past and present conditions within the county. Analysis of data provides the basis for developing forecasts for future land use demands, as well as future needs regarding housing and facilities.

The Comprehensive Development Plan is a **blueprint**....designed to identify, assess, and develop actions and policies in the areas of

population, land use, transportation, housing, economic development, county facilities, and utilities.
The Comprehensive Development Plan contains recommendations, when implemented, that will be of value to the County and its residents.

The Comprehensive Development Plan identifies the tools, programs, and methods necessary to carry out the recommendations. Nevertheless, the implementation of the development policies contained within the Comprehensive Plan is dependent upon the adoption of the Plan by the governing body, and the leadership exercised by the present and future elected and appointed officials of the County.

Plan Preparation

The Plan was prepared under the direction of Cuming County Planning Commission, with the assistance and participation of the Cuming County Board of Supervisors; County staff; the Plan Review Committee and citizens of Cuming County. The time period for achieving the goals, programs, and developments identified in the Cuming County Comprehensive Plan is 20 years. However, the County should review the Plan annually and update the document every 10 years (2029), or when major, unanticipated opportunity arises.

Completing updates every ten years or so will allow the County to incorporate ideas and developments not known at the time of the present comprehensive planning process.

Comprehensive Plan Components

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

- Introduction Chapter
- Community Engagement Chapter
- Population Statistics Chapter
- Housing Chapter
- Economics/Economic Development Chapter
- County Facilities Chapter
- Parks and Recreation
- Public Safety
- Communications, Utilities, and Energy
- Hazards
- Resources/Environmental Chapter
- Land Use Chapter
- Transportation Chapter
- Implementation Chapter

The Comprehensive Development Plan is a vision presented in text, graphics and tables representing the desires of the County and its residents for the future.

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

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

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

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

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

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

Jurisdictional Organization

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

The planning and zoning jurisdiction of Cuming County, pursuant to Neb. Rev. Stat. § 23-114 (Reissue 1997), includes all of the unincorporated portions of the County, excluding the established extraterritorial jurisdiction of each incorporated city or village.

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Chapter 2 Community Engagement

Community Engagement

Community engagement is important to a successful planning effort. The use of public participation makes it possible to have a clearer understanding of how the residents feel regarding different parts of the community. However, there are limited numbers of individuals concerned about the effort either because things are going in a good direction or specific issues do not impact them.

Community Engagement

Community engagement in Cuming County was designed as a major component of the project and the process included multiple approaches. It was structured in a manner allowing for stakeholders to be involved in numerous ways throughout the process. Some key elements will include:

- Use of a steering committee
- SurveyMonkey
- Facebook
- Public hearings

Steering Committee Meetings

The Steering Committee for the Cuming County Comprehensive Plan consisted of the Cuming County Planning Commission, Deputy County Attorney, some County Board members, and county staff.

The steering committee acts as a sounding board during the entire process; this allows all pieces/Chapters of the plan to be reviewed and commented on at regularly scheduled meetings. The steering committee is one of the more critical components of the process.

SurveyMonkey

SurveyMonkey, a web based survey tool was utilized for gathering specific input on Cuming County. The survey process allows individuals to provide input while remaining totally anonymous. The survey was advertised using specially designed cards, announcements on the project, Facebook page, and on posters hung up throughout the county and communities.

One specific survey was developed for use within the rural areas of Cuming County. The survey contained a total of 19 questions relating to the county. These question can be viewed in the Appendices of the Plan.

In all 44 individuals chose to answer the survey. The overall general results can be seen in the office of the Zoning Administrator.

Town Hall Meetings

A Town Hall Meeting was intended to occur during this process. However, the advent of COVID-19 and different Directed Health Measures kept the Town Hall Meetings from occurring during the process.

Goals and Poliices

Planning for the future land uses of the county is an ongoing process of goal setting and problem solving aimed at encouraging and enhancing a better county with a better quality of life. Planning focuses upon ways of solving existing problems within the county, and providing a management tool enabling Cuming County citizens to achieve their vision for the future.

> ***Vision without action is merely a dream***
>
> ***Action without vision is just passing time***
>
> ***Vision with action can change the world***
>
> ***Joel Barker***

Visioning is a process of evaluating present conditions, identifying problem areas, and bringing about consensus on how to overcome existing problems and manage change. By determining Cuming County's vision, the county can decide where it wants to be in the future, and then develop a "roadmap" guiding decisions of the county. However, the plan cannot only be based upon this "vision" and "road map" concept. The residents of Cuming County must also act or implement the necessary steps involved in achieving this "vision".

Change is continuous, therefore Cuming County must decide specific criteria that will be used to judge and manage change. Instead of reacting to development pressures after the fact, the county along with their strategic vision, can better reinforce the desired changes, and discourage negative impacts that may undermine the vision. A shared vision allows Cuming County to focus its diverse energies and minimize conflicts in the present, and in the future.

A key component of a Comprehensive Plan is the goals and policies. The issues and concerns of the citizens are developed into a vision. The vision statement can then be further delineated and translated into action statements and/or policies, used to guide, direct, and base decisions for future growth, development and change within Cuming County. Consensus on "what is good land use?" and "how to manage change in order to provide the greatest benefit to the community and its residents?" is formed. Cuming County's goals and policies attempt to address various issues, regarding the questions of "how" to plan for the future.

Goals are desires, necessities and issues to be attained in the future. A goal should be established in a manner that allows it to be accomplished. Goals are the end-state of a desired outcome. Goals also play a factor in the establishment of policies within a county. In order to attain certain goals and/or policies within County government, they may need to be modified or changed from time to time.

Policies are measurable, definable steps that lead to the eventual completion of the goal. They are specific statements of principle or actions that imply a direction that needs to be undertaken.

These policies will synthesize the information from the goals, as well as the responses from the participants of the various input processes. Policies play an important role in the Comprehensive Development Plan because they direct the different actions that will need to be taken to meet the goals.

It is important for counties to establish their goals and policies in a manner allowing for both long-term and short-term accomplishments. The short-term goals and policies serve several functions:

- Allow for immediate feedback and success, which fuels the desire to achieve additional goals and better policies.
- Allow for the distribution of resources over time thus assuring a balanced use of public investment.
- Establish certain policies that need to be followed before the long-term goals can be accomplished.

Cuming County Vision and the Plan

The Cuming County Comprehensive Plan provides a broadly painted picture for the county's future. The vision statements and goals describing the desired future conditions provide guidance for land use decisions and other actions, both public and private that collectively will determine the future of Cuming County.

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The core premise embedded in the Cuming County Plan 2020 is designed to maintain and enhance the health, safety and welfare of the county during times of change, to promote our ideals and values as changes occur, and to meet the needs of today without sacrificing the ability of future generations to meet their needs. The plan acknowledges the importance of the connections between economic, environmental, and social components of the county. The plan is a combination of practicality and vision, and provides guidelines for sustaining the rich fabric of Cuming County.

Cuming County Plan Goals & Policies

The goals and policies for the Cuming County Comprehensive Plan will be contained throughout the following Chapters.

Goals are intended as a long-range desire; however, as the Plan is implemented and different things in the world around Cuming County changes, then the goals need to be modified to address the new direction and factors. Therefore, goals need to be flexible to ensure success and positive outcomes.

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Chapter 3 Population

Population Profile

Population is the major catalyst driving everything in a municipality or a county including housing, local employment, economies and fiscal stability. It is critical to understand how past population trends when applied to the future impacts the overall area. Cuming County needs to understand where the County has been, where it is currently, and where it appears to be going.

Understanding the historic populations aid in identifying where the population may go in the future and aids in determining potential impacts on future housing, retail, medical, employment, and educational needs within Cuming County. In addition, when future populations appear to be declining, it provides a benchmark from which to direct and gauge economic development activities.

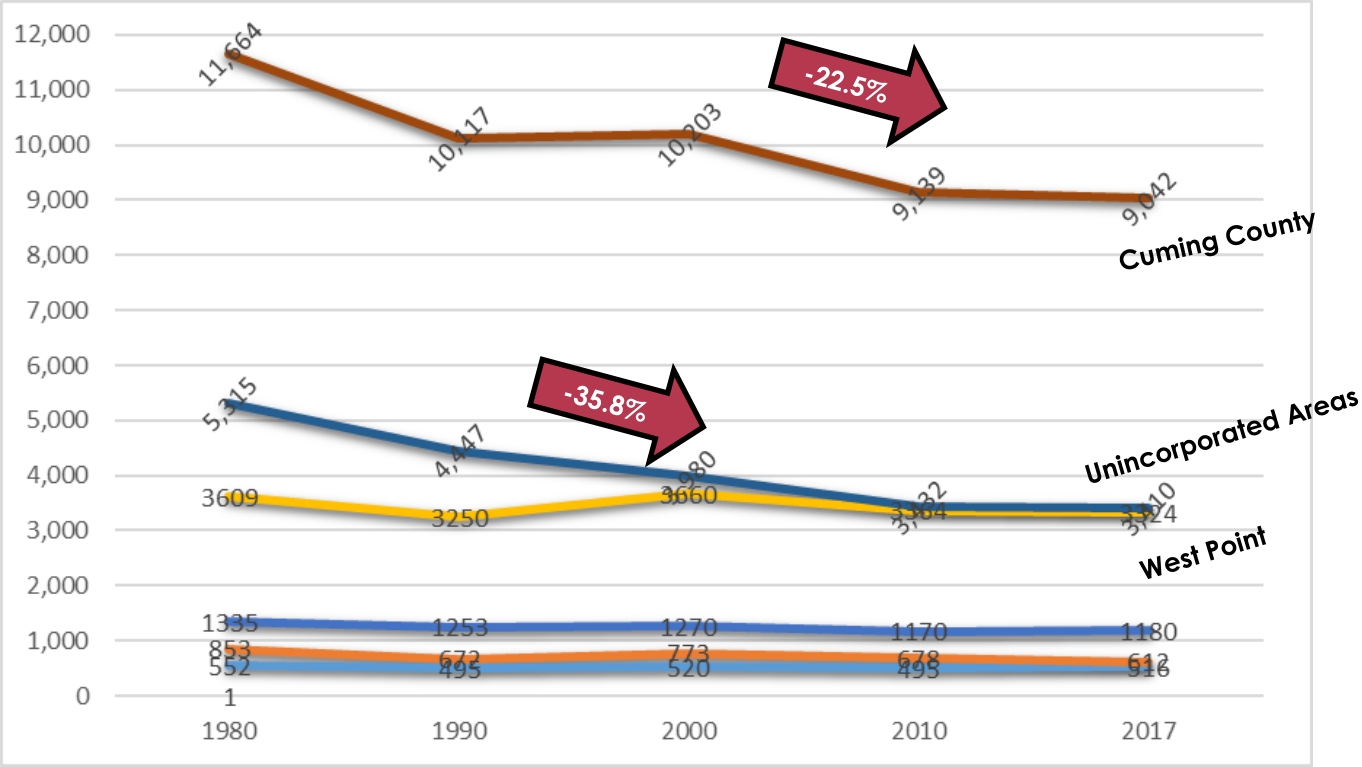
Projections provide an estimate for the County to base future land use and development decisions. However, population projections are only estimates and unforeseen factors may affect projections significantly.

Population Trends and Analysis

The population from 1980 until the 2017 estimates can be found in Figure 3.1 for Cuming County, the incorporated communities within the county, and the unincorporated areas. The data provide a look at where the county has been and allows for the eventual projection of populations in the County. Figure 3.2 contains the population data for each community, for the same period, but shown at a legible scale.

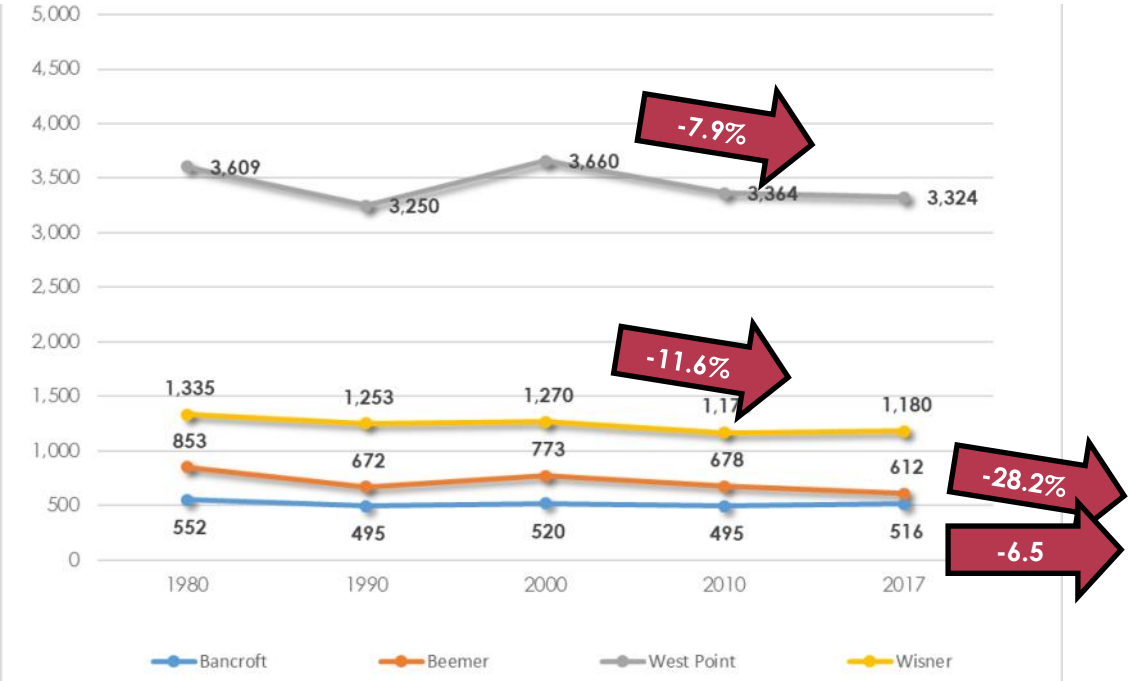
Overall, Cuming County has seen a –22.5% (-2,625 people) decline in population from 1980 to 2017. This decrease was based upon the overall decrease in the unincorporated portions of the county. The unincorporated portions of Cuming County declined by 35.8% from 1980 to 2017. Growth within the municipalities has declined, however, their decline has been a little flatter than the unincorporated areas and the County as a whole.

Figure 3.1: Population Trends and Analysis
Cuming County 1980 to 2015



Source: U.S. Census Bureau 1980 - 1990, 2000, 2010, 2015

Figure 3.2: Community Populations
Cuming County 1980 to 2017

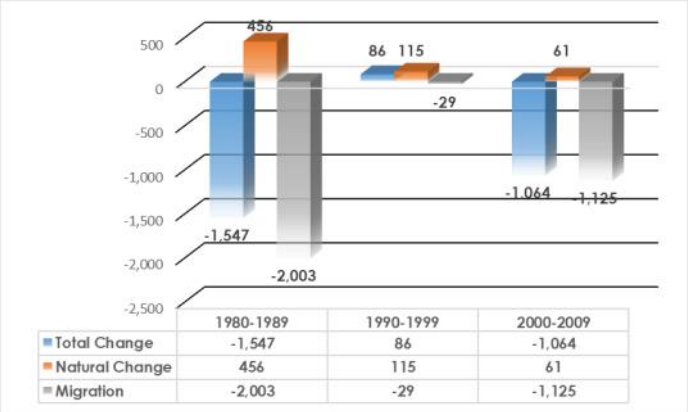


Source: U.S. Census Bureau 1980 - 1990, 2000, 2010, 2017

Migration Analysis

Migration Analysis is a toll which allows the County to understand critical dynamics of the population shifts. Total Migration indicates the population size migrating in or out of the County over a given period of time.

Figure 3.3: Migration Analysis



Cuming County 1980 to 2010

Sources: Nebraska DED 1994-2009
Nebraska DHHS, Vital Statistics Reports, 1980 – 2009

Figure 3.3 indicates the overall population change, countywide, as well as the two key components of population change, migration and natural change.

Overall from 1980 to 2010, Cuming County has declined by 2,525 people. The overall decline was associated with out-migration, which saw 3,157 people move out of Cuming County.

During the 30 year period births exceeded deaths in every decade. During the time period, there were 632 more births in Cuming County than deaths.

Age Structure Analysis

Age structure is another important component of population analysis. By analyzing age structure, one can determine a key dynamic affecting the population of Cuming County. Note: the data in Figure 3.3 is based on a calendar year and the data in Table 3.1 is as of April 1, 2000 and 2010; therefore the numbers may be slightly skewed.

Each age group affects the population in a number of different ways. For example, the existence of large younger age groups (20-44 years) means there is a greater ability to sustain future population growth compared to large older age groups. Understanding what is happening within the age groups of the county's population is necessary to effectively plan for the future.

Table 3.1: Age/Sex Characteristics

Age in 2000	2000 population	Age in 2010	2010 population	Cohort Change	% Change
		0-4	524	524	
		5-9	595	595	
0-4	665	10-14	715	50	7.5%
5-9	716	15-19	696	-20	-2.8%
10-14	844	20-24	376	-468	-55.5%
15-19	790	25-29	379	-411	-52.0%
20-24	424	30-34	434	10	2.5%
25-29	480	35-39	408	-72	-15.0%
30-34	596	40-44	678	82	13.8%
35-44	1,495	45-54	1,487	-8	-0.5%
45-54	1,240	55-64	1,049	-191	-15.4%
55-64	888	65-74	811	-77	-8.7%
65-74	952	75-84	775	-177	-18.6%
75 & older	1,113	85 and over	316	-797	-71.6%
Total	10,203		9,243	-960	-9.4%

Source: U.S. Census Bureau 2000 and 2010

Table 3.1 contains the age group structure for Cuming County in 2000 and 2010. The examination of age structure provides an understanding of where some of the population shifts have occurred. These data allow for a better understanding of what could occur in the future. Reviewing population in this manner permits a detailed analysis of which specific groups are moving in and out of the county. Negative changes in a group indicate out-migration or a combination of out-migration and deaths.

Cuming County saw growth in five age groups. The 0-4 and 5-9 groups are always an increase, since these individuals were not alive for the 2000 Census. Outside of the 2010 age groups of 0-4 and 5-9 years, the other increases were in the 10-14, 30-34, and the 40-44 age groups. Overall, there was an decrease of 960 persons in these age groups. When you eliminate the first two younger populations, there was 2,079 people that actually moved out or died during this period.

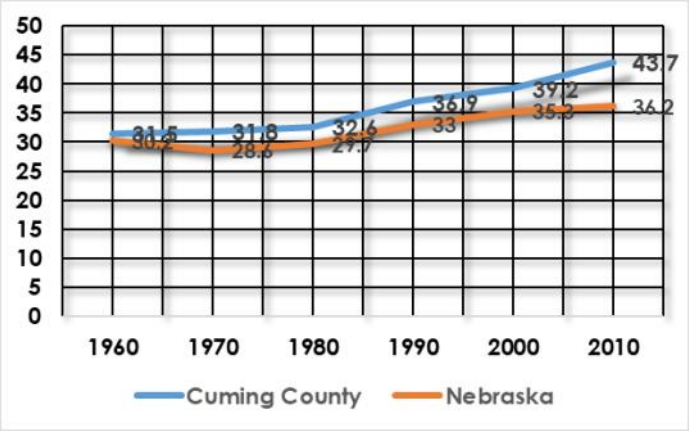
There were nine age groups from 2000 that declined by 2010. The group with the greatest loss was the 85 years+ (2010), which lost 797 persons over the period. This loss can be attributed to two causes: 1) people moving on after 75 years to other

communities and senior care facilities, or 2) a dying population base. The latter is likely the largest reason since between 2000 and 2010 there were 1,140 resident deaths in Cuming County. Overall, Cuming County had a more balanced population pattern occur between 1990 and 1999 period compared to decreases seen in other decades. This included less out-migration from family age groups and births.

Median Age

Between 1960 and 2010, the median age in Cuming County increased from 31.5 years to 43.7 years. This increase equaled 1.8 years per decade or 38.7% for the entire period. The overall median age across Nebraska increased by 6.0 years or 19.9% for the same period; approximately 1/2 the rate of Cuming County.

Figure 3.4: Median Age - 1960 to 2010



Source: U.S. Census Bureau 1950-2010

Dependency Ratio

Dependency ratios examine the portion of Cuming County supporting age groups historically dependent upon others for survival (those under 18 years and those 65 years and older). See the box above for details on calculating the ratio. The importance of this ratio focuses on the number of dependent persons and is there enough employed persons in the county to support these populations as well as themselves.

Figures 3.5 and 3.6 indicate the dependency ratios for 2000 and 2010 in Cuming County. The portion of persons less than 18 years of age decreased by 7.3% between 2000 and 2010; while those aged 65 years and older increased by 3.1% overall.

Dependency Ratio

The dependency ratio examines the portion of a community's earnings that is spent supporting age groups typically and historically dependent on the incomes of others.

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

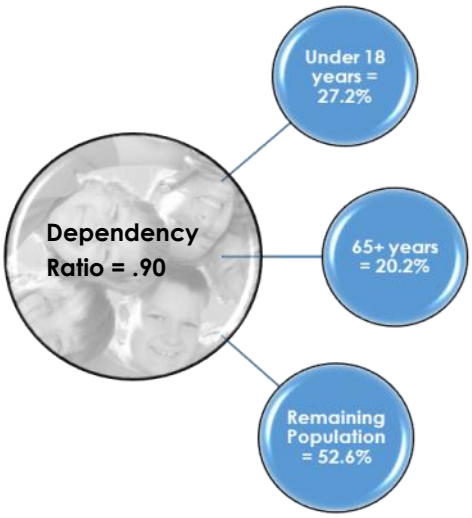
=1: 1 Independent resident able to support 1 Dependent resident

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

(%18 years and younger + %65 years and older)
% of remaining population

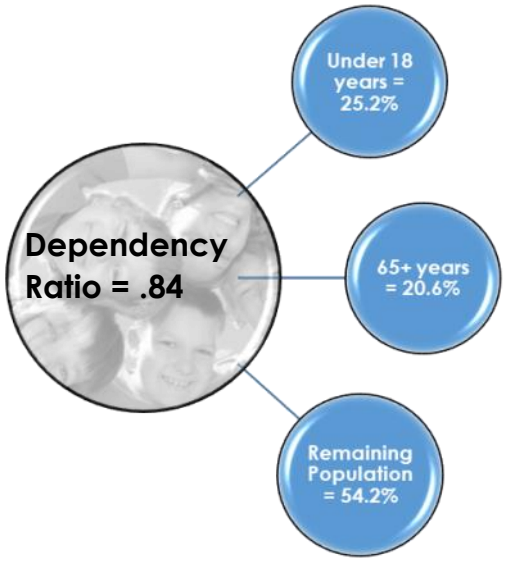
In 2000, Cuming County had a Dependency Ratio of 0.90 (47.4%/52.6%); however, by 2010 the Ratio had decreased to 0.84 (45.8%/54.2%). This is supported by the slight decrease in the 18 and under age group, plus the slight increase in the 65 and older group.

Figure 3.5: Dependency Ratio - 2000



Source: U.S. Census Bureau 2000-2010

Figure 3.6: Dependency Ratio – 2010



Source: U.S. Census Bureau 2000-2010

Ethnicity

Cuming County during the past decade has seen a shift in the ethnicity within the County. Analysis of the ethnicity provides more detail as to the changes being seen in a county. Ethnicity is more than additional people living in the county since these new residents bring their own cultures and beliefs to the area; some of these may not mesh well with those already in place. The changes in Cuming County saw increases in all non-white ethnic groups between 2000 and 2010; except for the Other, not Hispanic which lost 148 people during the period.

Table 3.2: Population by Ethnicity

Race	2000		2010		2000-2010	
	Number	% of total	Number	% of total	Net Change	% change
White, not Hispanic	9,783	95.9	8,651	93.6	-1,132	-11.6
Black or African Am.	13	0.1	130	1.4	117	900.0
Am. Indian & AK. Native	29	0.3	222	2.4	193	665.5
Asian & Pacific Islander	23	0.2	29	0.3	6	26.1
Other, not Hispanic	268	2.6	120	1.3	-148	-55.2
Hispanic	559	5.5	689	7.5	130	23.3
Mexican	465	4.6	673	7.3	208	44.7
Puerto Rican	1	0.0	0	0.0	-1	-100.0
Cuban	1	0.0	0	0.0	-1	-
Other Hispanic	92	0.9	16	0.2	-76	-82.6

Source: U.S. Census 2000 and 2010

The largest change was the Hispanic population, primarily Mexicans. The Hispanic population grew by 130 people between 2000 and 2010, the largest was those of Mexican ethnicity which accounted for 208 of the 130 people; thus, the other Hispanic populations all saw a decrease.

The second largest ethnic group was those classified as American Indian and Alaskan Native. This classification 193 nine new people come to Cuming County between 2000 and 2010. In Cuming County this is not a surprise since a portion of the county contains reservation land.

In addition, the White population had a 11.6% decrease overall, which equaled 1,132 fewer Caucasian people in the County. The County, communities, and school districts need to track these changes annually in order to minimize any potential fiscal impacts.

Population Projections

Population projections are estimates based upon past and present circumstances. The use of population projections allows Cuming County to estimate the potential population in future years by looking at past trends. By scrutinizing population changes in this manner, the County will be able to develop a baseline of change from which future scenarios can be generated. A number of factors (demographics, economics, social, etc.) may affect projections positively or negatively.

At the present time, these projections are the best tool Cuming County has for predicting future population changes. There are many methods to project the future population trends; the projection technique used below are intended to give Cuming County a broad overview of the possible population changes that could occur in the future.

Trend Line Analysis

Trend Line Analysis is a process of projecting future populations based upon changes during a specified period of time. In the analysis of Cuming County, five different trend lines were reviewed: 2000 to 2010, 1980 to 2010, 1990 to 2010, 2010 to 2018, and 1960 to 2010. A review of these trend lines indicates Cuming County will see varied levels of population changes between now and 2040. The following projections summarize the decennial population for Cuming County through 2040.

Summary of Population Projections

Three population projection scenarios were selected and include (1) a Low Series; (2) a Medium Series; and, (3) a High Series.

Cuming County Trend Analysis

Year	1960 to 2010
2010	9,139 persons
2020	8,593 persons
2030	8,080 persons
2040	7,597 persons

Year	1980 to 2010
2010	9,139 persons
2020	8,425 persons
2030	7,767 persons
2040	7,161 persons

Year	1990 to 2010
2010	9,139 persons
2020	8,686 persons
2030	8,256 persons
2040	7,846 persons

Year	2000 to 2010
2010	9,139 persons
2020	8,186 persons
2030	7,332 persons
2040	6,568 persons

Year	2010 to 2018
2010	9,139 persons
2018	8,991 persons
2020	8,955 persons
2030	8,773 persons
2040	8,596 persons

Low = *2000 to 2010*

2020	8,186 persons
2030	7,332 persons
2040	6,568 persons

Medium = *1990 to 2010*

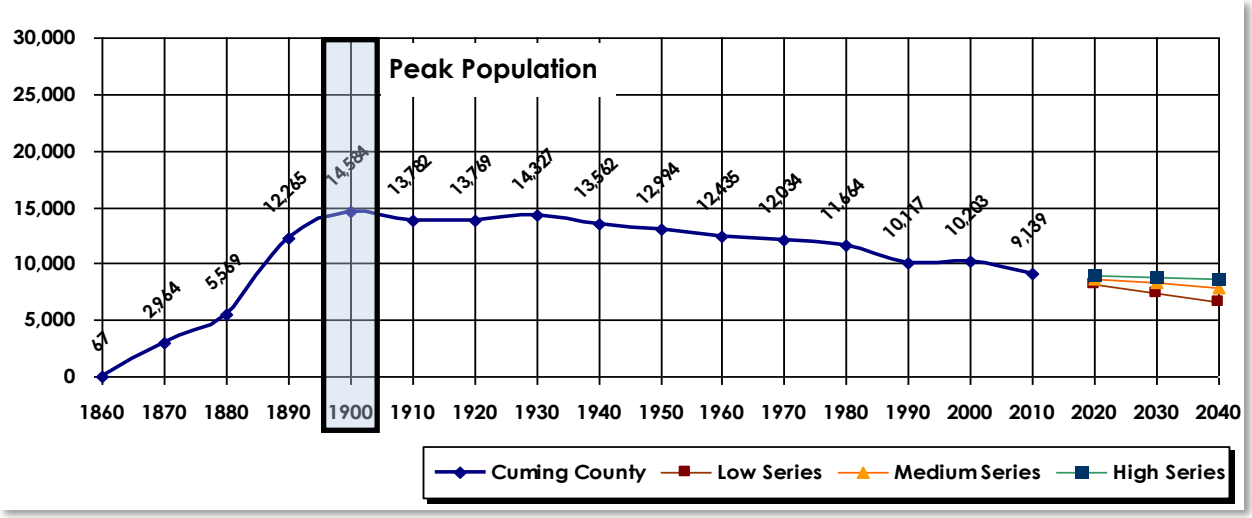
2020	8,686 persons
2030	8,256 persons
2040	7,846 persons

High = 2010 to 2018

2020	8,955 persons
2030	8,773 persons
2040	8,596 persons

Figure 3.7 reviews the population history of Cuming County between 1860 and 2010, and identifies the three population projection scenarios into the years 2020, 2030, and 2040. Figure 3.7indicates the peak population for Cuming County occurred in 1900.

FIGURE 3.7: POPULATION AND PROJECTIONS



Source: U.S. Census Bureau 1980 - 1990, 2000, 2010, 2018

Chapter 4 Housing

Housing Profile

The Housing Profile identifies existing housing characteristics and conditions for Cuming County. The primary goal of the housing profile is to allow the County to examine past and present conditions; while, identifying potential needs including provisions for safe, decent, sanitary, and affordable housing for every family and individual residing within the County.

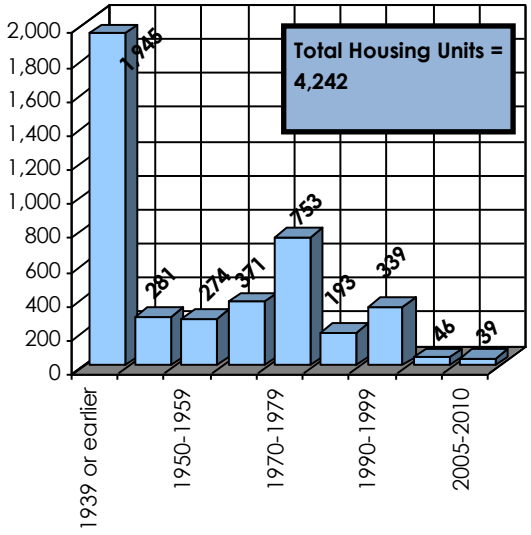
Projecting future housing needs requires several factors to be considered. These factors include population change, household income, employment rates, land use patterns, and residents' attitudes.

The following tables and figures provide the information to aid in determining future housing needs and develop policies designed to accomplish the housing goals for Cuming County.

Age of Existing Housing Stock

An analysis of the housing stock age can reveal a great deal about population and economic conditions of the past. Examining the housing stock is important in order to understand the overall quality of housing in Cuming County.

Figure 4.1: Age of Existing Housing Stock Cuming County 2010



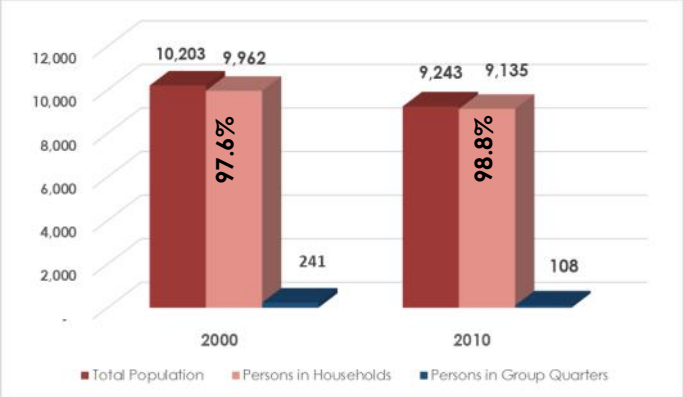
Sources: U.S. Census Bureau
American Community Survey 2010

Figure 4.1 indicates 1,946 homes, or 45.9% of Cuming County's 4,242 total housing units, were constructed prior to 1940. This statistic is county-wide, including each community, and will consist of older well-kept homes as well as homes likely in need of repair or demolition.

Cuming County saw very positive construction activity between 1960 and 2000 with 1,656 (39.0%) homes constructed. This was especially true between 1970 and 1980 which saw 753 (17.8%) new homes built during the decade. These data indicate the economy was relatively good during these decades. However, in recent years the construction of new homes has slowed throughout the county.

A total of 67.7% of all housing units in Cuming County were constructed prior to 1980. Due to the age of these homes, there may be a need for special weatherization programs in the County and communities to bring these homes up to current energy efficiency standards.

Figure 4.2: Housing Populations



Sources: U.S. Census Bureau
American Community Survey 2010

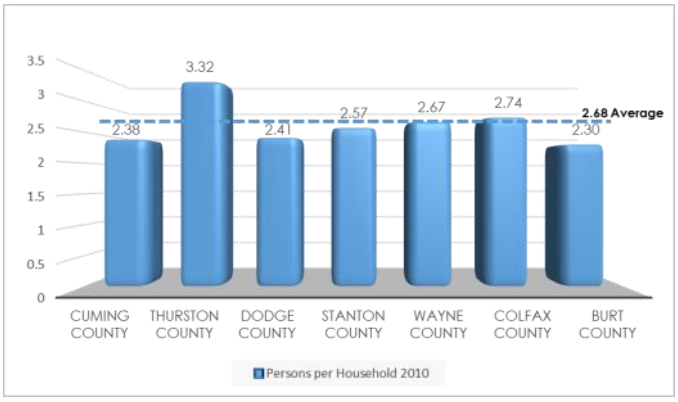
Housing Characteristics

Figures 4.2 through 4.10 identify several different housing characteristics in Cuming County. The figures indicate the breakdown between owner– and renter-occupied housing as well as the number of people living in group quarters.

Persons in Households/Group Quarters

In 2010 there were 827 fewer people living in households than in 2000, this represents a change of –8.3%. Between 2000 and 2010, the number of people living in group quarters went from 241 people in 2000 to 108 in 2010, a change of –55.2%.

Figure 4.3: Persons Per Household - 2010



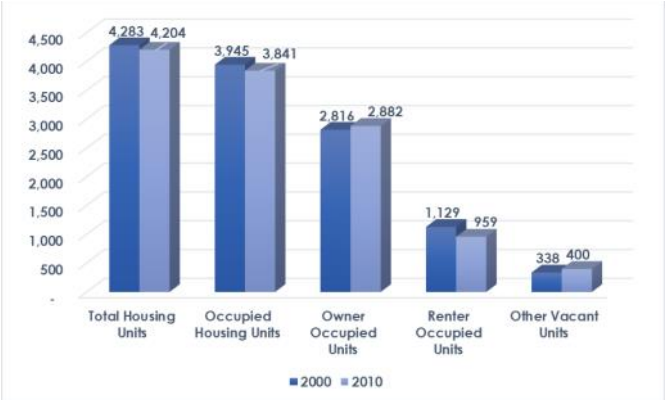
Sources: U.S. Census Bureau, American Community Survey 2010

Persons per Household

Figure 4.3 includes the number of persons per household. The average persons per household in Cuming County was 2.38 in 2010. The trend nationally has been towards a declining household size; however, the persons per household in Cuming County is slightly less than surrounding counties with the exception of Burt Counties. The surrounding counties in 2010 were:

- Thurston County has 3.32 persons/household
- Dodge County has 2.41 persons/household
- Stanton County has 2.57 persons/household
- Wayne County has 2.67 persons/household
- Colfax County has 2.74 persons/household
- Burt County has 2.30 persons/household
- The seven county area had an average of 2.68 persons per household

Figure 4.4: Occupied vs. Vacant Housing

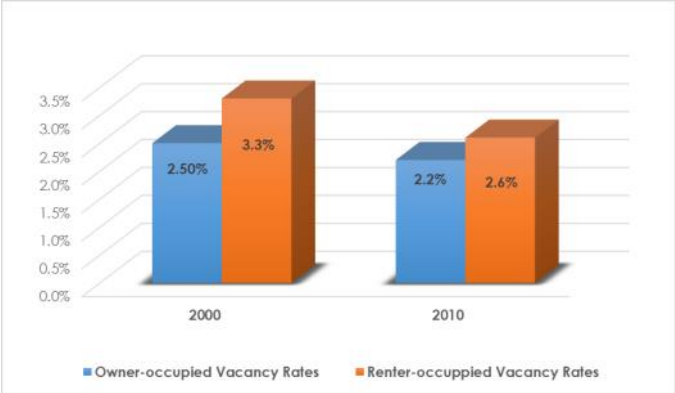


Sources: U.S. Census Bureau, American Community Survey 2000/2010

Occupied vs. Vacant Housing Units

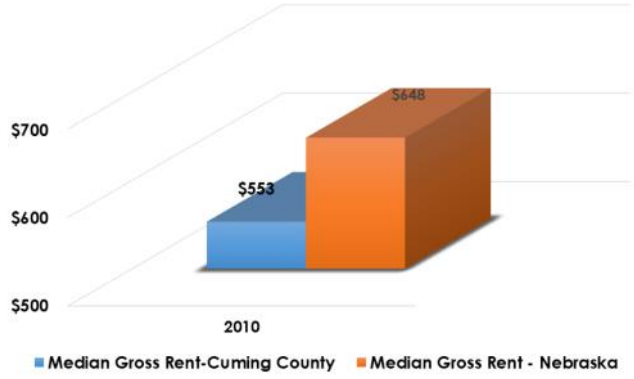
Occupied housing units in the County increased by 2.3% between 2000 to 2010; this was a 66 unit increase over 2000. During the same time frame, vacant housing units grew from 338 units to 400 units or 18.3%. The largest increase in vacancy rates was in the other vacant units. The overall percentage for owner– and renter-occupied units in 2010 was at 2.2% and 2.6% respectively. Both owner-occupied and renter-occupied units showed a decreases over 2000.

FIGURE 4.5: VACANCY RATES BY TYPE OF UNIT



Sources: U.S. Census Bureau, American Community Survey

FIGURE 4.6: MEDIAN GROSS RENT CUMING COUNTY AND NEBRASKA 2010

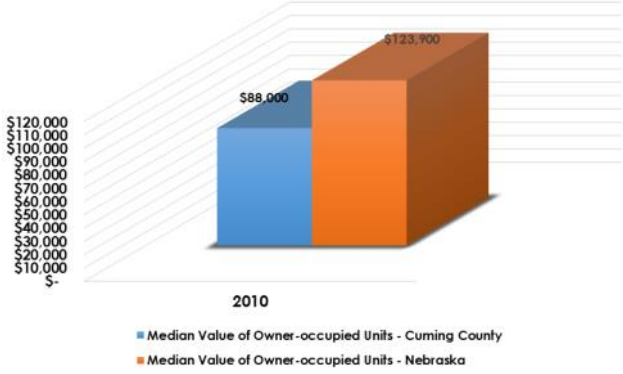


Sources: U.S. Census Bureau, American Community Survey 2000/2010

Median Gross Rent

Median gross rent in Cuming County was $553 per month in 2010 compared to $648 per month across the entire state of Nebraska. The median gross rent in Cuming County was 85.3% of the entire state.

FIGURE 4.7: MEDIAN VALUE OWNER-OCCUPIED CUMING COUNTY AND NEBRASKA 2010



Sources: U.S. Census Bureau, American Community Survey 2000/2010

Median Value of Owner-Occupied Units

The median value of owner-occupied housing units in Cuming County was $88,000 in 2010; while the median value of owner-occupied housing across the entire state of Nebraska was $123,900. Cuming County's median value was 71% of the state median.

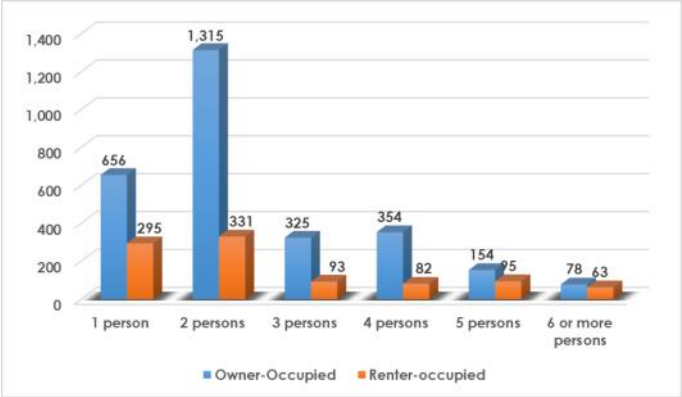
Persons Per Household

Figure 4.8 and 4.9 show tenure (owner-occupied and renter-occupied) of households by number and age of persons in each housing unit. Analyzing these data provides Cuming County the ability to see where key issues may exist regarding housing.

In 2010, the largest section of owner-occupied housing in Cuming County was in the two-person household, with 1,315 units or 45.6% of the total owner-occupied units. By comparison, the largest household size for rentals was also the two-person households with 331 renter-occupied housing units, or 34.5% of the total renter-occupied units.

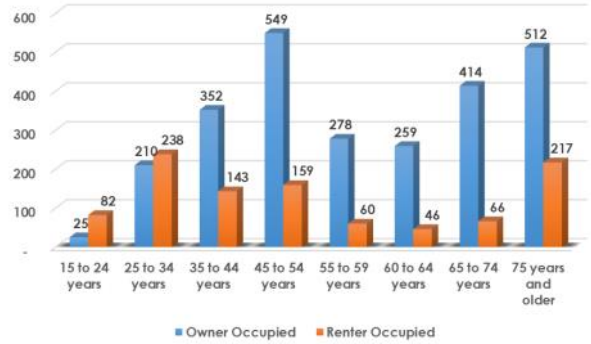
In 2010, the age cohorts representing the largest home ownership group were those 45 to 54 years. Of the total residents living in owner-occupied housing units, 19.0% were between 45 and 54 years of age. The 75 and over was a close second with 17.8% of the total owner-occupied units.

FIGURE 4.8: PERSONS BY HOUSEHOLD TYPE - 2010



Sources: American Community Survey 2010

FIGURE 4.9: AGE BY HOUSEHOLD TYPE - 2010

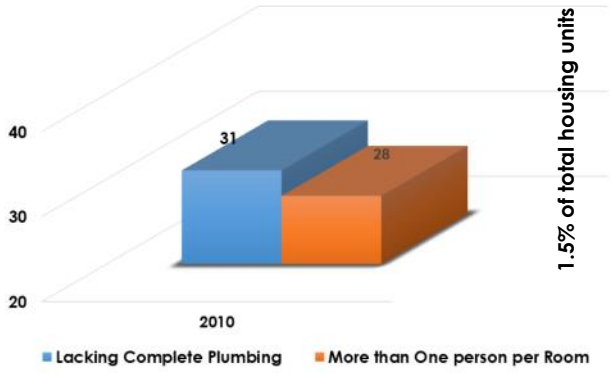


Sources: American Community Survey 2010

The renter-occupied housing was dominated by two different cohort groups; 25 to 34 (36.7%) and 75 years and older (22.6%). These two cohorts represent 59.3% of all the renter-occupied units in 2010.

Cuming County was comprised of 2,597 1- or 2-person households, or 67.6% of all households; which represents 7/10 households in Cuming County. Countywide, households with 5- or more persons accounted for 390 units, or 10.2% of the total.

FIGURE 4.10: SUBSTANDARD HOUSING CONDITIONS



Sources: U.S. Census Bureau 2000, ACS 2010

Substandard Housing

According to the U.S. Department of Housing and Urban Development (HUD) guidelines, housing units lacking complete plumbing or that are overcrowded are considered substandard housing units. HUD defines a complete plumbing facility as hot and cold-piped water, a bathtub or shower, and a flush toilet; overcrowding is more than one person per room. In addition, anytime there is more than 1.0 persons per room, the housing unit is considered overcrowded, thus substandard.

This criteria, when applied to Cuming County, 59 units were substandard in 2010. This figure was reached by adding the number of housing units meeting one criterion to the number of housing units meeting the other criterion. However, the largest amount of substandard units was based on lack of complete plumbing with 31 units.

Housing Goals, Objectives and Policies

Housing Goal 1

Provide quality housing throughout the county.

Housing Policies and Strategies

H-4.1.1 The County should continue to complete county-wide housing studies every four to five years in order to stay on top of local housing needs and demand.

H-4.1.2 The county should work with local agencies to provide quality housing.

H-4.1.3 A program to identify substandard housing units throughout Cuming County should be a priority and substandard housing units should be repaired or demolished.

H-4.1.4 The County should continually work with each community as they strive to provide better housing within the corporate limits.

Housing Goal 2

Affordable housing should be available throughout the county.

Housing Policies and Strategies

H-4.2.1 The county should continue to focus on affirmatively furthering fair housing throughout the entire county area.

H-4.2.2 The zoning and subdivision regulations should accommodate specific tools such as planned unit developments in order to aid in minimizing required improvements within developments.

H-4.2.3 The County should continually work with each community as they strive to provide better housing within the corporate limits.

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Chapter 5 Economy and Economic Development

Economic and Employment Profile

Economic data are collected in order to understand local changes in economic activity and employment needs and opportunities within Cuming County. In this section, employment by industry, household income statistics, and commuter analyses were reviewed for Cuming County and Nebraska.

Income Statistics

Income statistics for households are important in determining the earning power of households in a county. The data within show household income levels for Cuming County in comparison to the state. These data were reviewed to determine whether households experienced income increases at a rate comparable to the state of Nebraska and the Consumer Price Index (CPI).

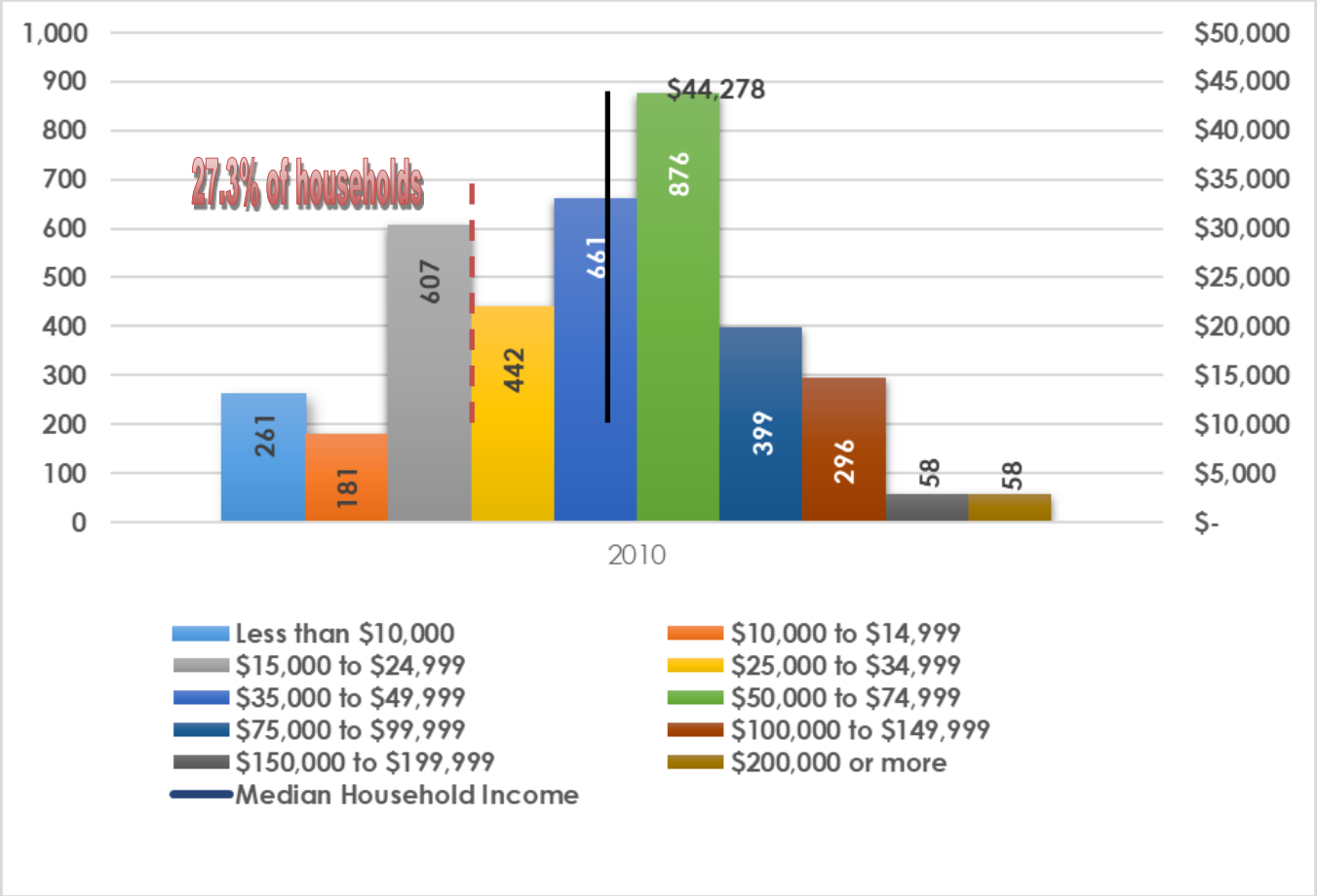
Figure 5.1 indicates the number of households in each income range for Cuming County for 2010. In 2010, the household income range most commonly reported was $50,000 to $74,999, which accounted for 22.8% of all households.

Those households earning less than $15,000 in accounted for 11.5% of all households. These households account for the poorest of the poor in the county.

In addition, the households earning less than $35,000 in 2010 made up 38.8% of all households in Cuming County.

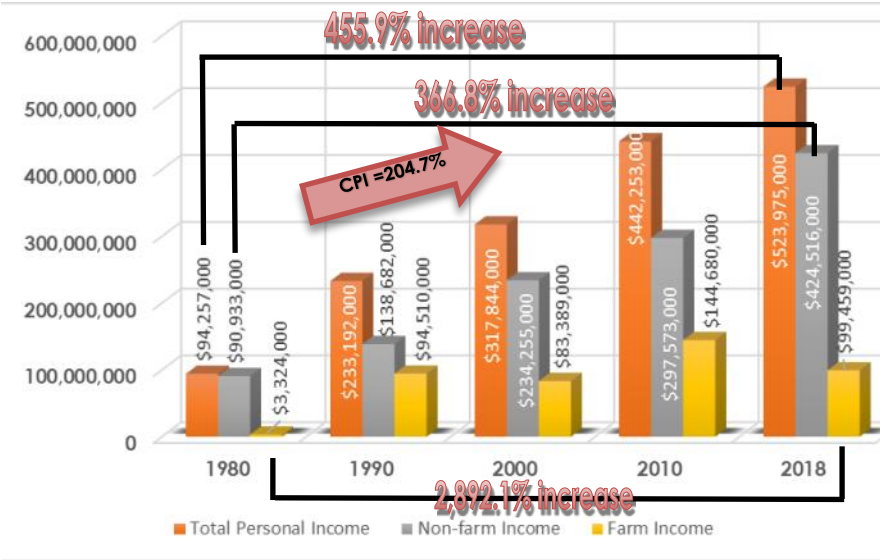
The median household income for Cuming County was $44,278 in 2010, which was considerably less than State median income of $49,342. The 2010 Cuming County median household income was 89.7% of the state's median income.

Figure 5.1: Household Income



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

Figure 5.2: Income by Source 1980 to 2018



Source: BEA, Regional Economic Information System, 2020

Income Source/Public Assistance

Figure 5.2 shows personal income by source for Cuming County. These data are compared to the CPI, in order to determine if increases are consistent with inflation and in terms of real dollars. Between 1980 and 2018, the CPI was 204.7%.

Overall Personal Income in Cuming County went from $94,257,000, in 1980, to $523,975,000, in 2018 or an overall increase of 455.9%. Total personal income for the county increased at approximately 2.5 times the rate of inflation over the 38 year period.

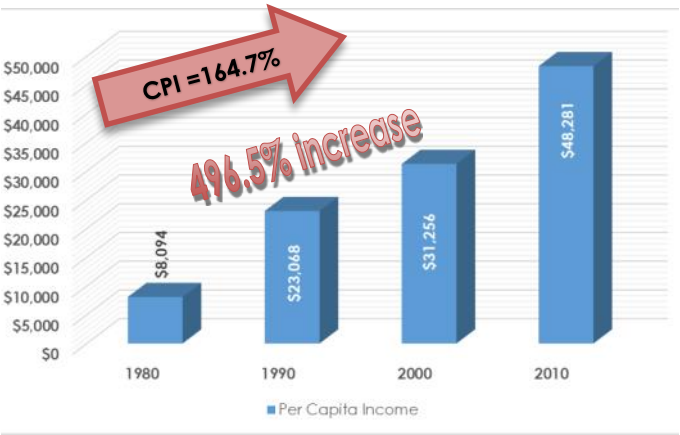
Non-farm and Farm Income

Non-farm income increased from $90,933,000 in 1980 to $424,516,000 in 2018, or an increase of 366.8%, which was 1.8 times the CPI. By 2018, farm income had risen from $3,324,000 to $99,459,000, or 2,892.1%, which is over 10 times the CPI.

Per Capita Income

The per capita income in Cuming County increased from $8,094 in 1980 to $48,281 in 2010, or an increase of 496.5%, which was over three times the CPI. Cuming County's per capita income was 120.6% of the state's per capita income level of $40,023.

FIGURE 5.3: PER CAPITA INCOME



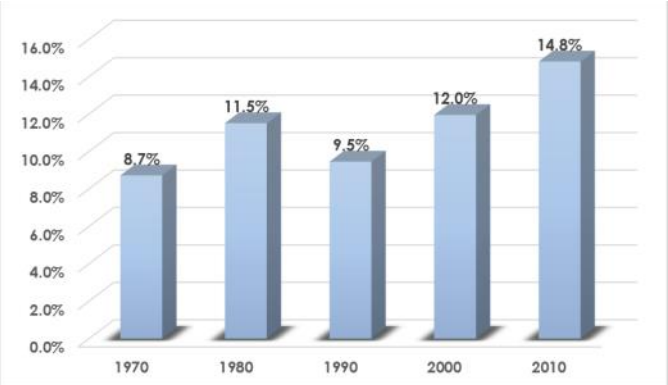
Source: BEA, Regional Economic Information System, 2016

Another income source deserving examination is the amount of Transfer Payments to individuals in Cuming County from 1970 to 2010, which is provided in Figures 5.4, 5.5, and Table 5.1. Note the total amount of Transfer Payments equals Government Payments to Individuals plus Payments to Non-Profit Institutions plus Business Payments. The remaining categories listed in the table are subsets of the Government Payments to Individuals category.

In 1970, Total Transfer Payments to Cuming County added up to $3,576,000. By 2010, Total Transfer Payments to Cuming County were $65,790,000, or an increase of 1,739.8%. Figure 5.5 shows in 2010, transfer payments per capita in Cuming County were $8,184.00.

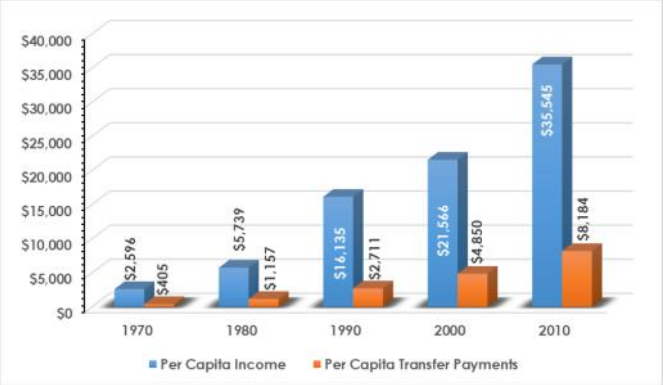
The trend for transfer payments per capita between 1970 and 2010 indicates payments increased significantly to individuals in Cuming County, increasing by over 1,700% in 40 years. However, transfer payments, as a proportion of per capita income, increased at a much lower rate between 1970 and 2010. In 1970, transfer payments comprised 15.6% of total per capita income, and in 2010, transfer payments were 23.0% of total per capita income, which is an annual increase of 1.2%.

FIGURE 5.4: TRANSFER PAYMENTS PER CAPITA



Source: Bureau of Economic Analysis, Regional Economic

FIGURE 5.5: TRANSFER PAYMENTS PER CAPITA/PER CAPITA INCOME 1970 –2010



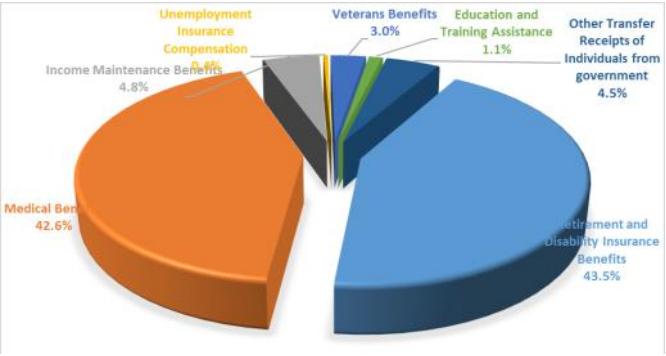
Source: Bureau of Economic Analysis, Regional Economic

TABLE 5.1: TRANSFER PAYMENTS 1970 TO 2018

Description	1970	1980	1990	2000	2010	2018	Change	Change/Year
Personal current transfer receipts							2100.34%	43.76%
Current transfer receipts of individuals from governments	3,301,000	10,119,000	20,885,000	36,126,000	63,868,000	76,569,000	2219.57%	46.24%
Retirement and disability insurance benefits	2,143,000	6,707,000	13,235,000	20,169,000	27,195,000	33,345,000	1456.00%	30.33%
Social Security benefits	2,129,000	6,665,000	13,159,000	20,074,000	27,082,000	33,236,000	1461.11%	30.44%
Excluding Social Security benefits	14,000	42,000	76,000	95,000	113,000	109,000	678.57%	14.14%
Medical benefits	561,000	2,012,000	5,941,000	12,674,000	26,988,000	32,653,000	5720.50%	119.18%
Medicare benefits							5926.75%	123.47%
Public assistance medical care benefits							5214.18%	108.63%
Military medical insurance benefits	5,000	10,000	48,000	53,000	131,000	149,000	2880.00%	60.00%
Income maintenance benefits							2896.72%	60.35%
Supplemental Security Income (SSI) benefits	56,000	116,000	147,000	248,000	480,000	519,000	826.79%	17.22%
Earned Income Tax Credit (EITC)	(NA)	144,000	268,000	718,000	1,216,000	1,207,000		
Supplemental Nutrition Assistance Program (SNAP)	27,000	43,000	111,000	155,000	630,000	576,000	2033.33%	42.36%
Other income maintenance benefits							3371.79%	70.25%
Unemployment insurance compensation							751.43%	15.65%
State unemployment insurance compensation	32,000	196,000	121,000	288,000	1,334,000	294,000	818.75%	17.06%
Excluding state unemployment				-			3.33%	0.69%
Veterans' benefits	341,000	586,000	494,000	782,000	1,508,000	2,270,000	565.69%	11.79%
Education and training assistance							782.83%	16.31%
Other transfer receipts of individuals from governments	-	-	3,000	19,000	2,274,000	3,473,000		
Current transfer receipts of nonprofit institutions	148,000	429,000	479,000	838,000	1,119,000	1,146,000	674.32%	14.05%
Current transfer receipts of individuals from	127,000						662.99%	13.81%

Source: Bureau of Economic Analysis, Regional Economic Information System, 2020

FIGURE 5.6: TRANSFER PAYMENTS BREAKDOWN 2018

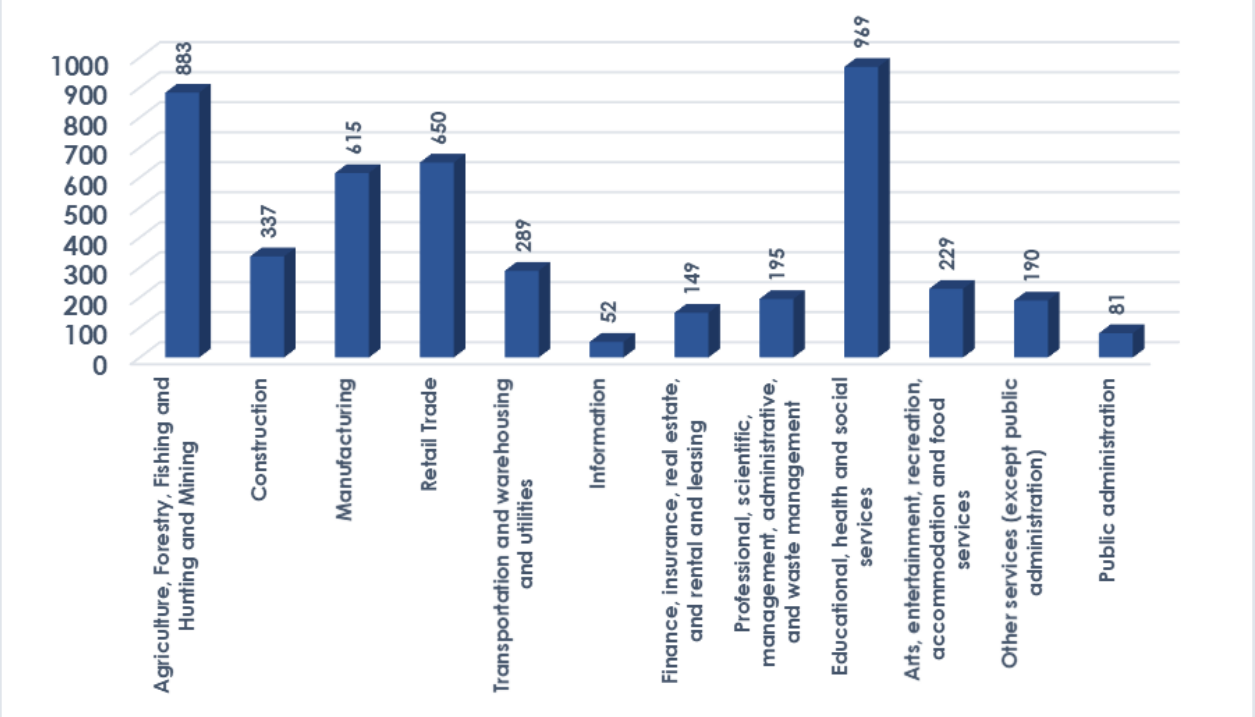


Source: Bureau of Economic Analysis, Regional Economic Information System, 2020

Industry Employment

Analyzing employment by industry assists a community in determining the key components of their labor force. This section indicates the type of industries making up the local economy, as well as identifying particular occupations employing residents. Figure 5.7 indicates employment size by industry for Cuming County for 2010 (these data indicate the types of jobs residents have, not the number of jobs locally).

FIGURE 5.7: EMPLOYMENT BY INDUSTRY 2010



Source: US Census 2010

The employment sector with the most employees in 2010 was Education, health, and social services. This sector employed 969 people or 20.9% of the total employed residents in 2010. The second largest sector Agriculture, Forestry, Fishing and Hunting and Mining with 19.0%.

Overall the top five industries in Cuming County for 2010 were as follows:

Industry	*People*
• Educational, health, and social services	969
• Ag./forestry/Fishing/and Hunting and Mining	883
• Retail Trade	650
• Manufacturing	615
• Construction	337

Regional Basic/Non-Basic Analysis

The following data examine five occupational areas established by the U.S. Census Bureau to evaluate trends in employment and the area economy. Basic employment and non-basic employment are defined as follows:

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

Non-Basic employment is business activity providing services primarily within the

local area through the sale of goods and services, and the revenues of such sales re -circulate within the community in the form of wages and expenditures by local citizens.

In order to establish a number of Basic jobs, a comparative segment or entity must be selected. For purposes of this analysis, the state of Nebraska will be used. This allows the analysis to establish where Cuming County is seeing exports from the state as a whole.

TABLE 5.2: BASIC/NON-BASIC BY OCCUPATIONS - 2010

Location	Management business, science, and arts occupations	Service occupations	Sales and office occupations	Natural Resources, construction and maintenance occupations	Production, transportation, and material moving occupations	Base Multiplier
Cuming County	**35.4%**	13.2%	20.6%	**15.1%**	**15.6%**	**12.5**
Wayne County	31.2%	**18.6%**	**26.3%**	**12.1%**	11.9%	**16.5**
Stanton County	25.5%	**17.7%**	21.9%	**14.9%**	**19.9%**	**7.1**
Thurston County	**35.1%**	**22.1%**	18.4%	**12.1%**	12.4%	**11.2**
Colfax County	21.9%	11.1%	14.4%	**13.4%**	**39.2%**	**2.5**
Burt County	33.4%	**18.3%**	22.4%	**13.8%**	12.1%	**16.2**
Nebraska	34.8%	16.2%	25.0%	10.1%	13.8%	NA

Source: American Community Survey 2006-2010

This analysis is used to further understand which occupational areas are exporting goods and services outside the area, thus importing dollars into the local economy. The five occupational categories used in the analysis are listed below:

- Managerial business, science, and arts occupations
- Service occupations
- Sales and office occupations
- Natural Resources, construction and maintenance occupations
- Production, transportation and material moving occupations

A related concept to the basic/non-basic distinction is the Base Multiplier. The base multiplier is a number, which represents how many non-basic jobs are supported by each basic job. A high base multiplier means that the loss of one basic job will have a large potential impact on the local economy if changes in employment occur. The rationale behind this analysis is that if basic jobs bring new money into a local economy, that money becomes the wages for workers in that economy. Therefore, more money brought in by basic jobs creates more non-basic jobs that are supported.

Basic Employment

The occupation categories are compared to the same categories for the state and where Cuming County's percentage exceeds the state's percentage there is Basic employment. Table 5.2 indicates there are three categories having Basic employment with the largest being Natural Resources, construction and maintenance occupations. The other two occupation sectors are Service occupations, and Management business, science, and arts occupation.

Overall, 3.7% of the employment base in Cuming County is tied to the exportation of goods or services. The county needs to continually work on their Business Retention and Expansion process in order to make these employers stay in Cuming County.

Base Multiplier

The information in Table 5.1 shows Cuming County has a base multiplier of 12.5, which means for every job considered to be basic, 12.5 other jobs in the county are supported and/or impacted. This is illustrated by comparing the basic and non-basic percentages against each other.

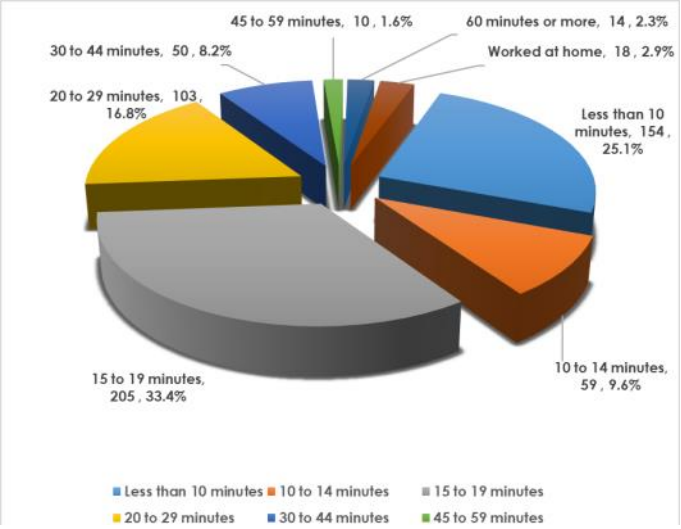
This indicates for every job tied to exportation of goods or services, there are 12.5 jobs created/ supported by the dollars coming into the community. Therefore, if Cuming County lost just one of the jobs tied to exports then there is the potential to lose approximately 12.5 jobs from the non-basic employment side.

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

Commuter Trends

Figure 5.8 show the commuter characteristics for Cuming County in 2010. Travel time to work is another factor used to gauge where Cuming County's workforce is employed. Figure 5.8 shows how many residents of Cuming County travel to work in each of several time categories.

Figure 5.8: Travel Time to Work - 2010



Source: American Community Survey 2005-2010

Table 5.3: Agricultural Profile 1997 to 2017

Agricultural Characteristics	1997	2002	2007	2012	2017	% Change 1997-2017
Number of Farms	995	904	863	918	804	-19.2%
Land in Farms (acres)	359,603	365,994	360,052	362,926	363,505	1.1%
Average size of farms (acres)	361	405	417	395	452	25.2%
Total area for Cuming County	368,000	368,000	368,000	368,000	368,000	0.0%
Percentage of land in farms	97.7%	99.5%	97.8%	98.6%	98.8%	1.1%
Total cropland (acres)	313,000	318,549	305,090	312,599	330,140	5.5%
Harvested cropland (acres)	289,396	302,800	293,341	300,486	317,824	9.8%
Estimated Market Value of Land & Bldg (avg./farm) $	548,579	658,526	1,040,286	2,120,511	2,752,249	401.7%
Estimated Market Value of Land & Bldg (avg./acre) $	1,571	1,571	2,493	5,364	6087	287.5%

Source: U.S. Census of Agriculture, 1997, 2002, 2007, 2012, 2017

Figure 5.8 indicates, in 2010, 28.0% of the workers residing in Cuming County were traveling 10 minutes or less to work; this includes the 18 people (2.3%) working from home. Those traveling 20 minutes or more to work totaled 177 people or 28.9% of those driving to work.

Agricultural Profile

Table 5.3 identifies key components affecting Cuming County's agricultural profile. This Table examines the number of farms, size of these farms, cropland data, and certain value criteria for these farms. The data are for 1997 through 2017.

Number of Farms

The table indicates the number of farms within Cuming County decreased between 1997 and 2017, which was the norm throughout Nebraska. The total number of farms decreased from 995 in 1997 to 804 in 2017, a change of –19.2%.

Land in Farms/Average size of Farms/Cropland

Table 5.3 also shows the total land in farms within Cuming County. From 1997 to 2017, Cuming County actually had an increase in the total land considered to be in farms. The overall increase was 1.1% or an approximate increase of 4,000 acres. The total land in farms accounts for 98.8% of the total acres in Cuming County, which is a increase from 97.7% in 1997.

The average size of each farm increased from 361 acres in 1997 to 452 in 2017. This trend has been the norm across Nebraska and the United States for the last several decades. The overall increase was 25.2%. The total cropland in Cuming County increased from 313,000 acres in 1997 to 330,140 acres in 2017.

The next data to review is harvested cropland. Harvested cropland is as it sounds - cropland actually harvested and yielded a crop. In 1997, the Harvested Cropland in Cuming County was 289,396 (92.5%) of Total Cropland and only 80.5% of the Total Land in Farms). By 2017 the Harvested Cropland increased to 317,824 acres (96.3%) of Total Cropland and only 87.4% of the Total Land in Farms).

Estimated Market Value

Table 5.3 also shows the Estimated Market Values of Land and Buildings, both by average per farm and average per acre. In 1997 the average value per farm acre was $1,571. The average value increased in every Census of Agriculture until it reached an average per acre of $6,087 in 2017; an increase of 287.5%. The CPI for this same period was approximately 46.7%; therefore the average value per acre increased at over six times the rate of inflation in Cuming County.

The increase in the average per acre also translates into an increase in the average per farm. The average value per farm in 1997 was $548,579 and increased to $2,752,249 in 2017, an overall increase of 401.7%. Again, this increase exceeded the CPI and the rate of inflation for the period. The average per farm, statewide, was $550,705 in 1997 and $2,674,492 in 2017, an increase of 385.6%. Therefore, the average farm value in Cuming County is slightly higher than the state average and the value has been growing at a greater rate than the state.

Table 5.4 indicates the number of farms by size from 1997 to 2017. The category with the greatest increases were in the farms averaging 1,000 or more acres increased by 65.6% and added a total of 42 farms to this size category. The 10 to 49 acres was the only other category to show an increase by adding 14 farms or 10.9%. All other size categories had decreases in the number of operations for the 20 year period. Cuming County went from 995 farms in 1997 to 804 farms in 2017 or a change of –19.2% for the period.

Table 5.4: Number of Farms by Size 1997 to 2017

Farm Size (acres)	1997	2002	2007	2012	2017	% Change 1997-2017
1 to 9	68	51	46	54	49	-27.9%
10 to 49	129	113	124	186	143	10.9%
50 to 179	215	197	212	191	179	-16.7%
180 to 499	347	298	242	257	210	-39.5%
500 to 999	172	160	153	140	117	-32.0%
1,000 or more	64	85	86	90	106	65.6%
Total	**995**	**904**	**863**	**918**	**804**	**-19.2%**

Source: U.S. Census of Agriculture, 1997, 2002, 2007, 2012, 2017

Table 5.5 indicates the number of farms and livestock by type for Cuming County between 1997 and 2017. The predominant livestock raised in Cuming County have been cattle and calves. Cattle and calves have been followed closely by Hogs and Pigs. Both types of livestock production saw decreases in the total operations in place. Cattle and calves saw an increase in animal numbers; while, Hogs and Pigs had a decrease in the total numbers.

Cow and calves went from 428 animals in 1997 to 896 per farm in 2017, which is the peak during the period. Hogs and pigs went from 649 per farm in 1997 to 1,923 per farm in 2017.

Table 5.5: Number Farms and Livestock by Type

Type of Livestock	1997	2002	2007	2012	2017	% Change 1997 to 2017
Cattle and Calves						
farms	520	464	411	466	360	-30.8%
animals	222,560	267,382	303,655	297,672	322,407	44.9%
average per farm	428	576	739	639	896	109.2%
Beef Cows						
farms	306	288	257	279	230	-24.8%
animals	12,455	13,357	11,966	12,153	10,571	-15.1%
average per farm	41	46	47	44	46	12.9%
Milk cows						
farms	29	16	11	18	8	-72.4%
animals	1,207	1,254	1,186	841	1,844	52.8%
average per farm	42	78	108	47	231	453.8%
Hogs and Pigs						
farms	324	200	162	131	77	-76.2%
animals	210,346	150,358	189,750	125,043	148,068	-29.6%
average per farm	649	752	1,171	955	1,923	196.2%
Sheep and lambs						
farms	24	31	24	23	22	-8.3%
animals	1,317	1,391	1,569	1,143	866	-34.2%
average per farm	55	45	65	50	39	-28.3%
Chickens (layers and pullets)						
farms	22	18	27	44	43	95.5%
animals	(D)	788	1,014	1,458	1,112	-
average per farm	-	44	38	33	26	-
Chickens (broilers)						
farms	3	12	11	2	1	-66.7%
animals	250	5,640	1,585	(D)	(D)	-
average per farm	83	470	144	-	-	-

Source: U.S. Census of Agriculture, 1997, 2002, 2007, 2012, 2017

Beef cows went from 306 farms in 1997 to 230 farms in 2017 a decrease of 24.8%. In addition, the category went from 12,455 beef cows in 1997 to 10,571 beef cows in 2017 a decrease of 15.1%; however, even with both of these decreases the animal per farm actually went up slightly.

Table 5.6 indicates the number of farms and crop by type for the period from 1997 to 2017. The table shows the prominent crops grown in the county. In addition, the table indicates the total number of farms producing the specific crop and finally an average per farm.

Corn and soybeans have been the two most frequently raised crops in Cuming County since 1997. Three of the eight categories shown increased in acres farmed; these include Corn for Grain, Corn for Silage, and Soybeans. The crop with the largest percentage increase (acres) was Corn for Silage at 60.2%, while Soybeans increased by 16.7% and Corn for Grain increased by 9.2%.

Agriculture has historically been a major part of the Cuming County economy. It appears its importance will only grow during the planning period of this document. It will be critical to maintain a balance in the type of livestock and grains raised in order to minimize future economic downturns.

Table 5.6: Number Farms and Crops by Type

Type of Crop	1997	2002	2007	2012	2017	% Change 1997 to 2017
Corn for Grain						
farms	755	632	570	547	541	-28.3%
acres	143,958	142,653	152,931	133,308	157,235	9.2%
average per farm	191	226	268	244	291	52.4%
Corn for Silage						
farms	102	124	66	204	54	-47.1%
acres	7,082	9,373	5,551	32,000	11,346	60.2%
average per farm	69	76	84	157	210	202.6%
Sorghum						
farms	5	-	1	2	4	-20.0%
acres	539	-	(D)	(D)	88	-83.7%
average per farm	108	-	-	-	22	-79.6%
Wheat						
farms	-	1	13	3	2	-
acres	-	(D)	904	179	(D)	-
average per farm	-	-	70	60	-	-
Oats						
farms	63	35	22	24	5	-92.1%
acres	1,197	601	419	395	134	-88.8%
average per farm	19	17	19	16	27	41.1%
Soybeans						
farms	709	631	529	543	512	-27.8%
acres	114,655	123,876	109,923	117,074	133,814	16.7%
average per farm	162	196	208	216	261	61.6%
Dry Edible Beans excluding Limas						
farms	-	-	-	-	-	-
acres	-	-	-	-	-	-
average per farm	-	-	-	-	-	-
Potatoes						
farms	-	-	1	4	4	-
acres	-	-	(D)	4	1	-
average per farm	-	-	-	1	0.25	-

Source: U.S. Census of Agriculture, 1997, 2002, 2007, 2012

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Chapter 6 County Facilities

County Facilities

State and local governments provide a number of services to their citizens and are referred to as public facilities. Public facilities represent a wide range of buildings and services built and maintained by the different levels of government.

It is important for all levels of government to anticipate the future demand for their services if they are to remain strong and vital. The analysis of existing facilities and future services are contained in the County Facilities Chapter. Alternatively, in some instances, there are a number of services not provided by the local or state governmental body and are provided by non-governmental private or non-profit organizations for the community as a whole. These organizations are important providers of services and are in integral part of the community.

County Facilities Plan

The Facilities Plan component of a Comprehensive Development Plan reviews present public and private facilities and services.
The Facilities Plan for Cuming County is divided into the following categories:

- County Buildings
- Historic Sites and Places
- Education
- Health Care

County Buildings

County Courthouse

The original Cuming County Courthouse, within West Point, was built in 1872. This original courthouse was a wood-framed building. The current courthouse was opened in 1954. It has been said that there are elements of prairie-style architecture found in the buildings design. The current building was constructed on the backside of the old courthouse.

Photograph 6.1 Cuming County Courthouse Complex
Source: Google Earth

The courthouse houses the offices of the Board of Supervisors, Assessor, Clerk, Register of Deeds, Election Commissioner, Treasurer, County Extension, Clerk of Courts, County Attorney, Juvenile Diversion, Sheriff, TeamMates, Surveyor, E911 Dispatch, Roads & Weeds, Planning, Zoning, Flood Plain

Administrator, Veterans Service, General Assistance Emergency Management, Economic Development.

Cuming County Fairgrounds
The Cuming County Fair takes place in August each year in West Point and is operated by the Cuming County Ag Society.
Source: www.knoxcountyfairgrounds.com/

Photograph 6.2 Cuming County Fairgrounds
Source: Google Earth

National Register Historic Buildings and Site

Neihardt Study
The Neihardt Study is the most important building associated with the distinguished literary career of John Gneisenau Neihardt, poet laureate of Nebraska, and author of some twenty-five volumes of poetry, fiction, and philosophy. The house, located in Bancroft, is believed to have been constructed in the 1890s as a residence. During the years 1911-21, Neihardt rented the dwelling for use as an office and library. The property is owned by the Nebraska State Historical Society and operated as a branch museum.
Source: Nebraska Historical Society

Rattlesnake Creek Bridge (moved to Wilderness Park Trails and Pathways)
In January 1903 the Cuming County Supervisors awarded an annual bridge construction contract to the Standard Bridge Company of Omaha. In 1903 the county undertook an ambitious bridge-building program, ordering sixty new or rebuilt bridges. Among the structures erected that year by Standard Bridge was this pinned Pratt half-hip pony truss. Located northwest of Bancroft, the bridge carries a gravel surfaced county road over Rattlesnake Creek in northeastern Cuming County. With annual contracts for eastern Nebraska counties such as Cuming, Wayne, Thurston, Stanton, Dodge, and Burt, the Standard Bridge Company erected hundreds of half-hip trusses between 1900 and 1920. Many remain in place today. The Rattlesnake Creek Bridge is distinguished as the oldest documentable example among these.

Photograph 6.3 Neihardt Study

Source: Nebraska Historical Society

Photograph 6.3 Rattlesnake Creek Bridge
Source: Nebraska Historical Society

Museums

Cuming County Historical Museum Complex
The Cuming County Historical Museum Complex is made up of several buildings filled with historical displays. Maintained by the Cuming County Historical Society and the Cuming County Agricultural Society, it is located at the county's fairgrounds in West Point.

In August 1975, the Chicago Northwestern Railroad depot was moved to the fairgrounds. Joining the depot in June 1990 was the Union Pacific Railroad caboose. In 1992, a model railroad was placed in

the caboose.

A one-room schoolhouse built in 1912 and housing District #34, formerly located in rural Wisner, was added in 1991. It displays hundreds of antique rural school items, desks, stove, blackboards and inkwells and a merry-go-round in the front.

Photograph 6.5 Old Chicago Northwestern Depot
Source: Google Earth

In January 1996, St. Matthew's Lutheran Church, which had been located south of Wisner, was moved to the park. It serves as a place of worship on Sundays during the fair, and has been the site of a few weddings since its move to the fairgrounds.

The Dinklage and Cuming County Heritage Museum was built and dedicated in 1997. The 60×120 building houses machinery, cars and a variety of antique tools.

The historical buildings are open by appointment and during the Cuming The Cuming County Historical Museum Complex is made up of several buildings filled with historical displays. Maintained by the Cuming County Historical Society and the Cuming County Agricultural Society, it is located at the county's fairgrounds in West Point.
Source: http://cumingco.com/visitors/attractions/cuming-county-heritage-museum-complex/

Photograph 6.6 St. Matthew's Lutheran Church
Source: Google Earth

Wisner Heritage Museum
Residents of Wisner, proud of their heritage, started the Wisner Heritage Museum in 1996. The museum doors were first opened to the public during the community's celebration of St. Patrick's Day, as part of the Quasquicentenniel (Q125) year-long celebration.

After procuring a location along Highway 275, a small group of citizens began constructing the town they remembered from years past. The museum board and many volunteers are working toward preserving the community's history plus provide education.

A reconstruction of Phil's Tire Shop, a successful Wisner business that closed after 60 years, is on display at the Wisner Heritage Museum. Other displays include a church, drug store, sewing room, yarn making, weaving, school heritage, sports of all types, autograph books, photography, soap making, cooking, hat collection and tins of the past.
Source: http://cumingco.com/visitors/attractions/wisner-heritage-museum/

Education

Public Schools

The public schools in Nebraska are grouped into six classes, depending upon the type of educational services provided and the size of the school district. The six classes, as defined by the State of Nebraska, are:

Class 1 *Dissolved by Legislative action*
Class 2 Any school district with territory having a population of 1,000 inhabitants or less that

maintains both elementary and high school grades under the direction of a single school board.

Class 3 Any school district with territory having a population of more than 1,000 and less than 100,000 that maintains both elementary and high school grades under the direction of a single school board.

Class 4 Any school district with territory having a population of 100,000 or more and less than 200,000 inhabitants that maintains both elementary and high school grades under the direction of a single school board.

Class 5 Any school district with territory having a population of 200,000 or more that maintains both elementary and high school grades under the direction of a single school board.

Class 6 Any school district that maintains only a high school under the direction of a single school board. The territory of Class 6 district is made up entirely of Class 1 districts (or portions thereof) that have joined the Class 6.

Cuming County is served by a total of seven public school districts:

- Bancroft-Rosalie Community Schools
- Howells-Dodge Consolidated Schools
- Pender Public Schools
- West Point Public Schools
- Wisner-Pilger Public Schools

Photograph 6.7 Bancroft-Rosalie Community Schools
Source: Google Earth

Bancroft-Rosalie Community Schools

Bancroft-Rosalie Community Schools provides an educational opportunity to students in northeast Cuming, northwest Burt and Thurston counties. The district employs highly qualified staff using effective instructional strategies where students incorporate technology across all curricular areas. The curriculum is designed to meet the needs of all students, and to prepare them to function productively and responsibly in a continuously changing society. The Districts two facilities include:

- Bancroft-Rosalie Elementary School
- Bancroft-Rosalie Junior/Senior High School

Howells-Dodge Consolidated Schools

Howells-Dodge Consolidated Schools is one of the newest districts in Nebraska. The communities and former districts of Howells and Dodge joined in consolidation in 2011. Presently the district serves 282 PK-12 students. with attendance centers in both communities. The communities of Howells and Dodge also support Catholic Parochial Elementary Schools with a total of approximately 75 students.

The Howells-Dodge district has a total valuation of $715,180,786. The current total tax levy is 60 cents. The district has kept the levy right around 60 cents for the last 3 budget cycles and at the same time making many improvements to district facilities.

The Howells-Dodge Board of Education is very supportive in the continuation of providing a quality education for the children of the district while maintaining fiscal responsibility. Howells-Dodge Consolidated Schools is truly a very good school, committed to the quest of becoming a better school for the future of the children served in the district.

Source: https://www.howellsdodgeschools.org/vnews/display.v/SEC/District%7CDistrict%20Annual%20Report

Pender Public Schools

The Pender Public Schools are based in Thurston County but serve a portion of northern Cuming County. The school offers grades PK through 12.

West Point Public Schools

West Point, Nebraska is a thriving agricultural community located in Northeast Nebraska along the Elkhorn River. Our location is very attractive to people of all ages and backgrounds as we are 30 minutes from Fremont, 45 minutes from Norfolk, 70 minutes from Omaha, and 90 minutes from Lincoln. West Point was originally names New Philadelphia by settlers who moved across the country from the east in search of a better way of life. Later, the

name of the community was changed to West Point because the community was the western most point along the Elkhorn Valley. West Point has many past and present "local heroes" who carry on the 'can do' spirit and the values of hard work and a spirit of cooperation. West Point is proud of its' heritage and the families that have been here for three and four generations. West Point has received "The Outstanding Community' distinction from the Nebraska Department of Economic Development Diplomats.

Photograph 6.8 Entrance to West Point Elementary
Source: www.wpcadets.org

West Point Public Schools started in West Point in 1865. Before the school was constructed, several rooms were rented for the students. The first school was built 1866. The school was far from big. It was 22ft by 40ft and cost the village of West Point $1,600. In 1880, the need for a larger school was a must. They spent $10,159.73 for the new school.

Almost 40 years later a bigger elementary, high school, and library combination was built as seen above. It was completed in 1922 and cost more than $200,000. In the '60s, West Point was in need of a new building because overcrowding was a problem. They had to put up temporary buildings on the playground to help solve the overcrowding. In 1965 and 1966, votes for a new building failed. A vote for a new building was held in 1969. The vote passed with 54% approval since the state passed a law that year requiring only simple majority to pass. Another vote to start building was held on Oct. of 1971.

The vote was 871 to 764 to build a junior/senior high school. Classes in the new building started in the fall of 1974. In 1990, a junior high wing was added. In 2008, the Elementary School joined the Junior and Senior High up on the hill. In 2011, the high school did a remodel and added offices and a new south wing.

Beemer Schools merged with West Point Public School in 2006. Beemer Elementary is located in Beemer, NE (7 miles from West Point). They served Preschool - 4th Grade. Due to declining enrollment, Beemer Elementary Closed their doors in May 2017. The Beemer students are brought over to West Point. The Building was sold in November 2017 to the Village of Beemer.

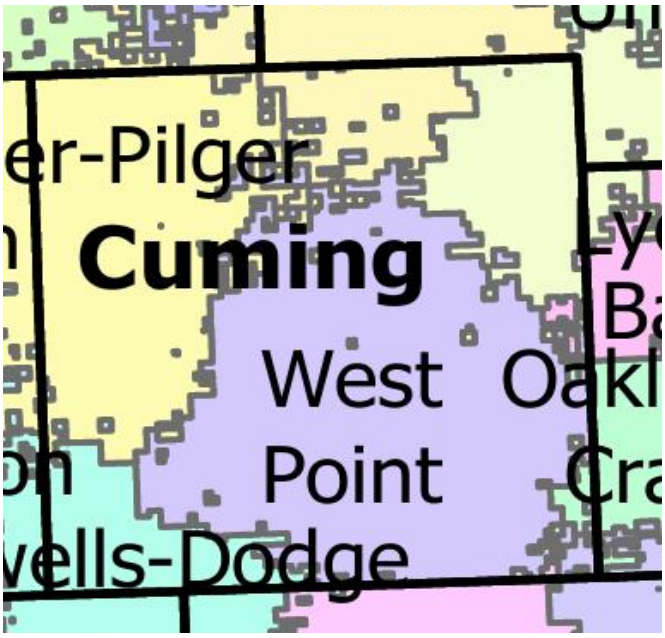
West Point Public Schools is a C1 school and has an enrollment of approximately 790 students PreK-12. West Point has seen the ethnic change from nearly 100% Caucasian to a 50/50 split between Caucasian and Hispanic students.

In addition to this ethnic change, West Point has also experienced a great increase in the number of Free/Reduced students. Currently, the elementary lower socio-economic student population is in excess of 60%.

These changes in student demographics have also brought about changes in philosophy for the District. We have worked toward three sections per grade at the elementary level. One of these sections is taught by a dually endorsed teacher (Elementary and Special Education). This staffing change has reduced our student to teacher ratio from about 22:1, to 17:1.

The school district is committed to technology. The school went 1 to 1 starting in the school year 2015-16. A modern distance-learning classroom offers high school and college classes from other high schools and colleges throughout Nebraska. West Point Public Schools also has a wireless lab in each building.

Figure 6.1: Cuming County School Districts 2017– 2018 School Year



Source: https://www.education.ne.gov/comm/esu-district-resources/

Wisner-Pilger Public Schools

Wisner-Pilger Public Schools was formed by a consolidation or Wisner Public Schools and Pilger Public Schools. Up until the tornado hit Pilger in 2014, the district had an elementary school in Pilger and the Jr/Sr High School in Wisner. After the tornado destroyed the elementary school in Pilger, a new facility was constructed in Wisner.

Photograph 6.9 Entrance to Wisner-Pilger Jr/Sr High
Source: www.wisnerpilger.org

Wisner-Pilger Schools 20-0030-000 is classified as a Class III School. The District boundary encompasses the north eastern portion of Stanton County and the north western portion of Cuming County. Wisner -Pilger Public Schools is a part of the Educational Service Unit 2 (ESU 2). The ESU 2 main office is located at 2320 N Colorado Avenue in Fremont and covers the four counties of Cuming, Burt, Dodge, and Saunders. ESU 2 states their "purpose is to provide innovative quality services that facilitate educational growth and that develop successful lifelong learners through resources and support for students, families, staff and communities".

Wisner-Pilger Public Schools provides the following description of the school district:
"The Wisner and Pilger school districts merged in 1969 and created the Wisner-Pilger Public School District #30. Approximately 500 students attend the Wisner-Pilger Schools. The District is proud of its dual credit program, all day Kindergarten program, morning and afternoon preschool for three and four-year-old students and a dual-core reading program. Wisner-Pilger Public Schools exists to provide quality educational, social, and cultural experiences to enhance knowledge, character, skills, and attitudes. The district strives to provide a comprehensive education to help develop competence for living in society and instill the desire to continue learning throughout life."
Source: Pilger Comprehensive Plan

Other Public Districts serving portions of Cuming County (based outside of the county)

- Lyons-Decatur Public Schools
- Oakland-Craig Public Schools
- Logan View Public Schools
- Scribner-Snyder Public Schools

Parochial Schools serving Cuming County

There are two parochial schools located in Cuming County.

- Guardian Angels Central Catholic in West Point
- St. Paul Lutheran Elementary School

Guardian Angel Central Catholic

Guardian Angel Central Catholic School is located in West Point. The school is the combination for four area parishes.

Photograph 6.10 Guardian Angel Central Catholic School
Source: Google Earth

According to the Guardian Angel Central Catholic website:

Guardian Angels School has been a landmark in West Point for over 120 years, providing academic excellence within a caring community since 1885. Construction of Guardian Angels was started in 1883 under the direction of Fr. Nicholas Horn. Fr. Horn died in 1884 and the task of completing the school was left to Msgr. Joseph Ruesing. The Franciscan Sisters of Christian Charity came from Manitowoc, WI, to staff the school. The school officially opened March 5, 1885, with an enrollment of 90 students. Guardian Angels was the first Catholic coeducational school in Nebraska.

A new building was constructed and dedicated September 1, 1918. It had an enrollment of 222 students in grades 1-12. The first high school student graduated in 1921. The old school building became the convent for the sisters and boarding house for students. In 1955, the old gym, located on the top floor of GA school, was converted into six classrooms; and the new auditorium located across the street was dedicated in April.

In 1958, plans were made to build a new high school. Land was also purchased for a new convent, which was completed in 1960. The original school building was razed to make room for the new high school. Central Catholic High School was completed in 1964.

During the 1970's and 1980's the surrounding communities closed their Catholic schools, which increased Guardian Angels' enrollment. St. Anthony's in St. Charles Township, St. Boniface in Monterey and St. Aloysius in Aloys were the schools that brought the largest enrollment increase to Guardian Angels. The school continues to serve these parishes in addition to Holy Cross in Beemer, St. Joseph's in Wisner, and St. Leo's in Snyder.

During the 1980's and 1990's the enrollment of Guardian Angels grade school was over 350 students. Kindergarten began in 1981 and a preschool program was added in 2002. A gradual decrease in rural population has affected the enrollment at Guardian Angels.

The Franciscan Sisters of Christian Charity still serve GACC. Today, however, the majority of teachers and staff at GACC are lay people and many of them are alumni of GACC.

A renovation committee was formed in 1997 to determine what improvements were needed for the Guardian Angels school building. Since then the bathrooms were remodeled and a state-of-the-art computer lab was installed. Various improvements have been made in classrooms and hallways including carpeting, new lights, lowered ceilings, new windows, and electrical updates. Many classrooms were also supplied with new TVs, DVD players, and computers. New entry doors on the building were installed to improve security and energy efficiency. Fire doors were installed and Fire Rated Kits and door closures were installed on all the classroom doors. A state-of-the-art camera security system was installed in December, 2007 and fall of 2008.

Source: https://www.gaccbluejays.org/vnews/display.v/SEC/About%20Us%7CHistory

St. Paul Lutheran Elementary

According to the St. Paul Lutheran Church and Elementary website:

Starting in 1883, the church building was used a classroom as well as a house of worship. This continued for 10 years until a new brick building was built in 1893 and used for twenty-three years. Then on November 6, 1916 a 40' x 50' two story brick building, costing $10,000 was dedicated. This building is pictured above. The current gym addition was dedicated in June of 1972.

A self-supporting Pre-School was started in 1985. This Pre-School program has been an outreach to not only the West Point community, but also the neighboring towns of Beemer, Dodge, Howells, Bancroft, Scribner, Snyder, Oakland, Wisner and Lyons.

Dirt work on our present building, began on the first day of school in August 2001. Monday, October 21, on the first day in the new building, a flag raising ceremony was held to mark the special day. The new school building is about 10,800 square feet and cost $1.3 million. St. Paul Lutheran Elementary School is located in West Point. St. Paul Lutheran School is a nationally accredited school through the NLSA and is dedicated to providing a Christian education to Preschoolers all the way through 8th grade. The school was established in 1883 when the church building was used as a classroom as well as a place of worship. Our curriculum consists of Religion (Pre-6th), Catechism (7th&8th), Saxon Math, Pre-Algebra, Algebra I, Shurley English, Writing, Vocabulary, Phonics, Reading/Literature, Science, Social Studies, Technology, Music, P.E., and Spanish.

Students have opportunities to take Band at Guardian Angels Catholic School and at West Point -Beemer Elementary School. We have boys and girls Basketball, Cheerleading, and a girls Volleyball team. Other sports are offered at Central Catholic School and West Point-Beemer School for our 7th and 8th grade students.

Source: https://www.stpaulwp.org/

Post-Secondary Education

There is one post-secondary educational facility located in Cuming County, which is the Northeast Community College Extended Campus in West Point. Otherwise, the residents of Cuming County and the surrounding area have additional selections of in-state post-secondary schools to select.

Some Nebraska institutions include:

- Northeast Community College
- Wayne State College
- University of Nebraska-Lincoln
- Hastings College
- Nebraska Wesleyan
- Union College
- Southeast Community College
- Central Community College
- University of Nebraska-Kearney
- University of Nebraska-Omaha
- Creighton University
- University of Nebraska Medical Center
- Methodist College of Nursing and Allied Health
- Midland Lutheran College

Health Care

Health care facilities in Cuming County are limited. There is only one hospital located in the county. The facility is Franciscan Care Services (St. Francis Memorial Hospital) in West Point.

The history of the facility, according to their website, is as follows:

The history of Franciscan Care Services begins with Monsignor Joseph Ruesing who became resident pastor of St. Mary's Catholic Church, West Point, Neb. in 1884. His active local community involvement and his membership in the Nebraska State Board of Charities and Correction made him conscious of the needs of the poor elderly pioneers around him and throughout the state.

Photograph 6.11 Aerial of St. Francis Memorial Hospital campus
Source: Google Earth

His desire to respond to these needs resulted in the opening of St. Joseph's Home for the Aged in 1905, the first home of its kind in northeastern Neb. It was located at the present site of St. Joseph's Retirement Community and was staffed by four Franciscan Sisters of Christian Charity from Manitowoc, Wis.

In 1923 Monsignor realized a hospital was another great need for this area. Using a portion of the Home already established and adding to it, the first hospital in this area became a reality. It was named St. Joseph's Home Hospital. Franciscan Sisters of Christian Charity provided the staffing.

By 1949 the first hospital was overcrowded and was not meeting government code. With the commitment of the Franciscan Sisters of Christian Charity to healthcare in northeastern Neb., the decision was made to build a new hospital on property owned by the Sisters located east of the 1923 hospital.

The doors of West Point Memorial Hospital opened on December 7, 1950. It was licensed for 75 beds and was named in memory of those men and women who came here as pioneers, and in memory of those men of the armed forces from this community who gave their lives in military service. The former hospital was then converted to rooms for residents who wanted to live at the "Home". In 1964 the hospital's name was changed to St. Francis Memorial Hospital.

By 1985, the "Home" was no longer meeting government code, and the decision to build a new structure was made. St. Joseph's Retirement Community, a 70 unit assisted living facility, opened in 1988. The old St. Joseph's Home was razed.
In 1995 the Elkhorn Valley Medical Clinic and the West Point Medical Clinic were purchased by the hospital. With St. Joseph's Retirement Community already sponsored by the Franciscan Sisters, it was decided to form a healthcare system. The system was named Franciscan Care Services.

In July of 1998, Dinklage Medical Clinic opened as a family practice medical clinic. It combined the operations of the Elkhorn Valley and West Point Medical Clinics into one facility attached to St. Francis Memorial Hospital. Satellite clinics have since been opened in Scribner, Wisner, Oakland, Howells, and Hooper, Neb.
In responding to the needs of the local community, Franciscan Care Services continued to add services and upgrade and expand its facilities. Some of the major renovations that have occurred within the hospital include radiology, lab and business departments, new labor and delivery, an outpatient clinic for specialty doctors, and a new surgery wing.

Other nearby health care facilities

- Pender Community Hospital - Pender, NE
- Oakland Mercy Hospital - Oakland, NE
- Methodist Fremont Hospital - Fremont, NE
- Faith Regional Health Services - Norfolk, NE
- Providence Medical Center - Wayne, NE
- St. Luke's Regional Medical Center - Sioux City, IA
- Methodist Hospital - Omaha
- Children's Hospital and Medical Center—Omaha
- Methodist Jennie Edmundson - Sioux City, IA
- University of Nebraska Medical Center - Omaha

Goals and Policies

Educational Goals

Educational Goal 1

Quality education is a vital component of positive growth. Although the County's role is limited, objectives and policies need to be established with regard to locating development to insure cost effective use of existing facilities.

Educational Policies and Strategies

ED-1.1 Continue to cooperate with the school systems in expanding public uses of educational facilities.

ED-1.2 The school districts should review all new development proposed within the zoning jurisdiction of Cuming County so they can accommodate future school populations.

Educational Goal 2

The county should coordinate with the school districts to insure adequate areas for future educational needs. Above all, the main goal is to encourage excellence in the school curriculum and facilities.

Educational Policies and Strategies

ED-2.1 Cooperate with school systems on any future expansion or the development of new joint facilities.

ED-2.2 Work with students to continually identify new facilities needed in the future.

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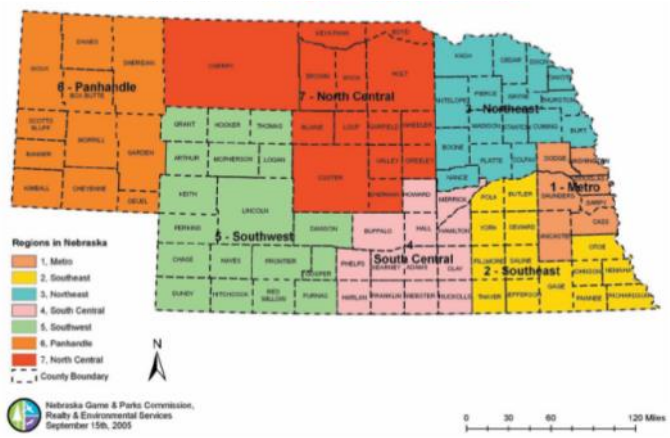
Chapter 7 Parks and Recreation

Parks and Recreation

Cuming County is located in Nebraska's Northeast Recreation Planning, Region 3, and a region within the Nebraska Department of Game and Parks system. The Region includes 15 counties in Northeastern Nebraska.

Figure 7.1: Nebraska Game and Parks Regions



Source: Nebraska Game and Parks Commission

Community Parks and Facilities

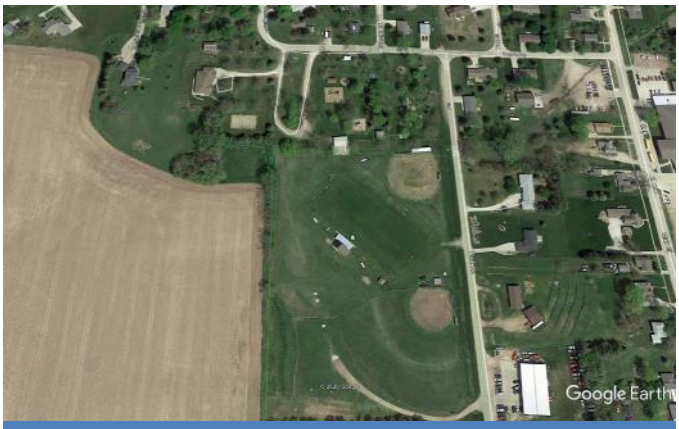
The following facilities and programs can be found in the identified communities of Cuming County. These parks will be located within the communities of Cuming County.

Bancroft Parks and Recreation

Bancroft Community Park is located on Park Road. Park grounds are shared with the Bancroft-Rosalie football, baseball and softball fields. Two picnic shelters and public restrooms are available for public use.

Camping spots available to the northwest of the park off of Public road. Two RV sites with electrical and water are available.

Source: https://www.bancroftnebraska.com/things-to-do/parkscamping/



Photograph 7.1 Bancroft Community Park
Source: Google Earth

Beemer Parks and Recreation

Beemer's two parks have playground equipment, Splash pad, picnic areas with tables and grills, shelters and rest rooms. Other facilities include: Two lighted ball diamonds; Camping available near the Elkhorn River; Canoeing on the Elkhorn River; excellent fishing in the Elkhorn River and nearby lakes; horseshoe pits at the park; a lighted hard-surfaced tennis court in the park

Source: https://ci.beemer.ne.us/recreate.htm

Photograph 7.2 Park in Beemer
Source: Google Earth

West Point Parks and Recreation

The City of West Point has 3 parks available to the public - Neligh, Timmerman, and Wilderness.

Timmerman Park

Timmerman Park includes 2 tennis courts, a basketball court, a sand volleyball court. Timmerman park includes a 4 ball field complex complete with concession stand and batting cage.

Photograph 7.3 Neligh Park in West Point
Source: Google Earth

Neligh Park

Neligh Park contains Anderson baseball field, three sand volleyball courts, and four horseshoe pits. In addition, the park has 17-30 foot camping pads, a bathroom facility with showers and two buildings for rent.

Wilderness Park

Wilderness Park, a natural preserve on the east edge of West Point, is the perfect place to take a leisurely stroll and enjoy the many species of wildlife and prairie vegetation in an undeveloped environment.

Many people use this area for kite flying. The scenic beauty of the 120 acre park interests young and old alike. Many species of wildlife, such as deer, make Wilderness Park their home.

West Point Swimming Pool

The West Point swimming pool is located on the edge of Neligh Park. The facility is north of W. Bridge Street, west of downtown.

Source: http://www.ci.west-point.ne.us/

Photograph 7.4 West Point Swimming Pool
Source: Google Earth

Wisner Parks and Recreation

The three parks in Wisner covering 13 acres. The facilities have two sand volleyball courts, two unsupervised playgrounds with standard playground equipment, three ball diamonds, a camping area with electrical hookups, a horse arena, a horseshoe pit, a swimming pool, basketball courts, grills, picnic tables, restrooms, and tennis courts

Source: https://www.ci.wisner.ne.us/2163/Recreational-Facilities

Photograph 7.5 Wisner Park
Source: Google Earth

Wisner City Pool

The Wisner Municipal Swimming Pool opens every year on or during the weekend of Memorial Day with free admission to the public on the first day of the swimming season.

During the summer this facility provides adults and youngsters with hours of refreshing fun to help beat the heat.

Source: https://www.ci.wisner.ne.us/2181/Swimming-Pool

Photograph 7.6 Wisner City Pool
Source: Google Earth

Regional Recreation

Regional recreational areas are a combination of state, federal, and major private facilities that attract people into the Cuming County area.

The following is a brief description of the facilities operated by Cuming County and Nebraska Game and Parks Commission in and around Cuming County.

John G. Neihardt State Historical Park

The John G. Neihardt State Historic Site is located at 306 W. Elm St., Bancroft, NE 68004, off highways 51 & 16 in northeast Nebraska. The Site is handicap accessible with free parking available on the grounds.

The Neihardt Center has been constructed for the study and preservation of the works of John G. Neihardt.

The memorial room repeats the symbolism of the Hoop of the World and chronicles Neihardt's life, works and the times in which he lived. Videotapes allow the visitor to see and listen to the poet, and a research library offers scholars the opportunity to examine works by and about the poet, including copies of Neihardt's manuscripts and his critical essays.

The Center also houses a smaller meeting room and administrative offices.

The John G. Neihardt Center is located on the property occupied by John Neihardt when he lived and worked in Bancroft, Nebraska.

In the early 1960s, the house in which he lived no longer existed; the only structure remaining on the property was a small outbuilding used by Neihardt as a study. The history of the Center as it exists today began with the John G. Neihardt Study Restoration Project, founded in 1965 by Evelyn Vogt. The purpose of this project was to preserve the one-room study building.

The Study Restoration Project was incorporated in 1967 as the John G. Neihardt Foundation for the purpose of constructing a building to house a museum, library and research facility to preserve Neihardt's works and effects. In 1974, State Senator Blair Richendifer of Walthill introduced into the Nebraska Legislature L.B. 855 that appropriated the "sum of two hundred thousand dollars for the purpose of constructing the John G. Neihardt Foundation."

The Center, dedicated August 1, 1976, was designed by the architectural firm of Clark, Enersen, Hamersky, Schlaebitz, Burroughs & Thomsen. The primary contractor for the construction was Larson & Jipp.

The Sacred Hoop Prayer Garden
The Sacred Hoop Prayer Garden is a living symbol of the Hoop of the World from the vision of the Oglala Lakota Holy Man Black Elk, found in John G. Neihardt's Black Elk Speaks. The Prayer Garden was designed by Neihardt. The symbolism is explained on signs along the quiet garden paths.

The hoop is divided into quarters, each with its own peculiar power, color and symbol. The Hoop itself is a symbol of the vastness of the universe, "so big," Black Elk said, "it has everything in it."

The West is symbolized by the color blue or black and the power to make, live and to destroy. The North is white, symbolizing cleansing and healing. The quarter of the East is symbolized by red and the power of enlightenment that brings understanding and peace. The South is resplendent in yellow to symbolize the power to grow.

Two roads cross the Hoop of the World, one from east to west, and one from south to north.

Like sunrise and sunset, life appears to progress from east to west on a hard black road of worldly difficulty. The red road from south to north is one of spiritual understanding.

Where the two paths cross each other is holy; there springs the tree of life to shield us, filled with leaves, blossoms and singing birds.

Visitors may stroll through the garden and enjoy the detailed explanations of the Garden symbolism as described in Neihardt's Black Elk Speaks.

The Study
The Study is the only structure remaining from the original property on which John Neihardt lived and worked from 1900 to 1920. The Study was actually erected for August Hartman in the 1890s prior to Neihardt's occupancy. Neihardt rented the building from 1911-1920 for use in his writing. In this building he wrote his poetry, prose and part of the Cycle of the West.

The building consists of only one room, which is furnished today much as it might have been when Neihardt used it. Although it is not open for entry, during times when the museum is open, the door is open allowing a wide view. In addition, the ample windows allow clear views of every part of the room.

The Memorial Room
The main museum building contains the Memorial Room, a library, a meeting room and administrative offices. The Memorial Room is circular reprising the Sacred Hoop motif of the outside garden. Display cases line the outside.

The displays show various landmarks in Neihardt's life along with copies of his publications and various memorabilia, including items given to Neihardt by the Lakota holy man, Black Elk.

In the center of the room is a cycad; the cycad is an ancient plant-form that symbolizes the tree of life. There is also room for a podium and seating that are used during the various indoor programs of the Center.

The Library
The library is available for scholarly research, but it is not a lending library. Arrangements may be made with the staff to view or listen to any of the library resources, which include all of the following:

- Books (including rare and first editions) in five subject categories, catalogued according to the Dewey decimal system
- Periodicals
- The Neihardt Subject Files--a collection of newspaper articles, photographs, brochures, and documents catalogued according to subject
- The Lucile Aly Collection
- Audiocassette tapes and transcripts of interviews, past programs and special events
- Original copies of the Neihardt Foundation Newsletter (1969-present)
- Original art: paintings, prints and sculpture, including one of three surviving portrait busts of John Neihardt made by his wife, Mona
- The desk, personal items, dictionary and dictionary stand that belonged to and were used by John G. Neihardt

Source: http://neihardtcenter.org/visit/

Fremont Lakes State Recreation Area
Fremont Lakes has about forty land acres and nearly 300 water acres in twenty sandpit lakes. Located three miles west of Fremont, this is a favorite area with campers, picnickers and water enthusiasts - from boating to fishing to water skiing. The swimming beach is

unsupervised, and there is a PWC area, as well as a handicap accessible fishing pier.

Thousands of campers, anglers, boaters, swimmers, picnickers and other enthusiasts enjoy the outdoor recreation at Fremont Lakes State Recreation Area. Few areas offer more diversified recreation. Facilities include modern campgrounds with dump stations, picnic tables, shelter houses, fireplaces, playground equipment, water, lights, modern restrooms and boat launch sites.

Fremont Lakes is composed of twenty sandpit lakes that provide a place for just about any type of activity. The areas features three swimming beaches. The area also has a specially redesigned lake for use by personal water craft (PWC). A ramp has been installed to allow the PWCs to back in the water, and two new picnic/viewing shelters have been added to the PWC beach.
Source: http://outdoornebraska.gov/fremontlakes/

Dead Timber State Recreation Area

This 200 acre area near Scribner on the Elkhorn River with fifty acres of water and offers primitive camping, picnicking, fishing and non powered boating. The area has seventeen pads with 30-amp electrical hookups, primitive camping, drinking water and latrines.

Dead Timber lies amidst the oxbow waters of the Elkhorn River. A neighboring wildlife management area also provides opportunity for fishing, hunting and wildlife viewing.
Source: http://outdoornebraska.gov/deadtimber/

Summit State Recreation Area

Summit Lake State Recreation Area is a 190-acre lake, surrounded by 345 acres of land. The area offers fishing, hiking, hunting, swimming and camping, among other activities.
Source: http://outdoornebraska.gov/summitlake/

Whitetail Wildlife Management Area

Whitetail Wildlife Management Area, located approximately 3 1/2 miles southwest of Schuyler, is the only state managed area in Colfax County. The Wildlife Management Area consists of a 216-acre tract along the Platte River that is available for public use. This acreage includes approximately 93 acres of wooded river bottom and 123 acres of islands and river. The WMA area offers hunting, fishing, hiking and canoe access. There are no facilities currently provided.

Maple Creek Recreation Area

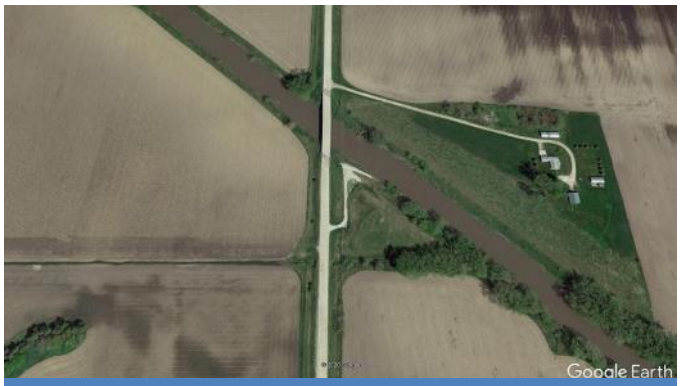
Located northwest of Leigh along Highway 91, there are fifty RV camping sites with fifty amp service and ten primitive tent sites. The area includes shower house, restrooms, swimming beach, hiking, biking, and horseback riding trails, picnic and playground equipment. There are two boat ramps and the lake is stocked with Large-Mouth Bass, Blue Gill and Channel Catfish.
Source: http://www.cityofleigh.com/attractions.htm

Water Trails

The Nebraska Game and Parks Commission now classifies certain rivers and creeks as water trails. Within Cuming County there are two water trails; the Elkhorn River and Logan Creek.

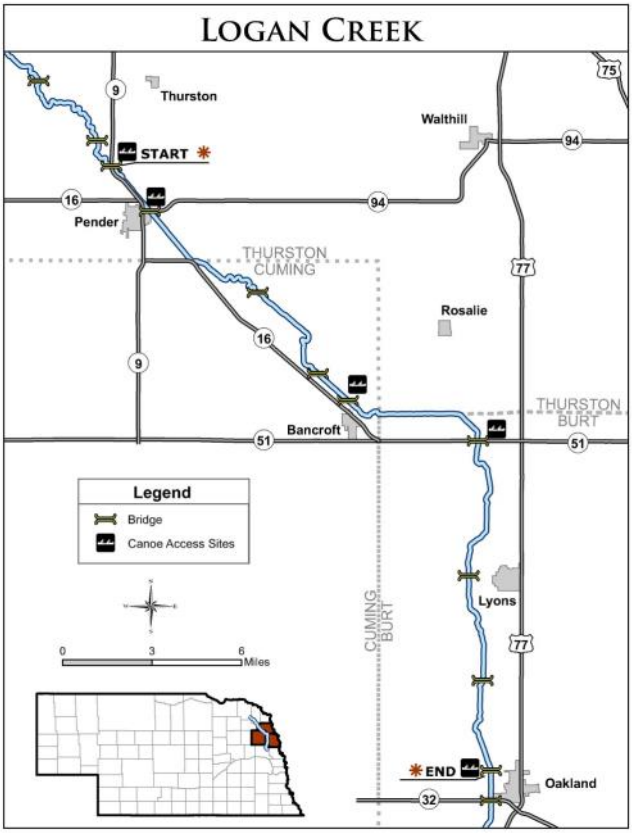
Logan Creek Water Trail

The Logan Creek Water Trail starts north of Pender and flows downstream to near Oakland. It passes right through Cuming County and there is a river access point near Bancroft.



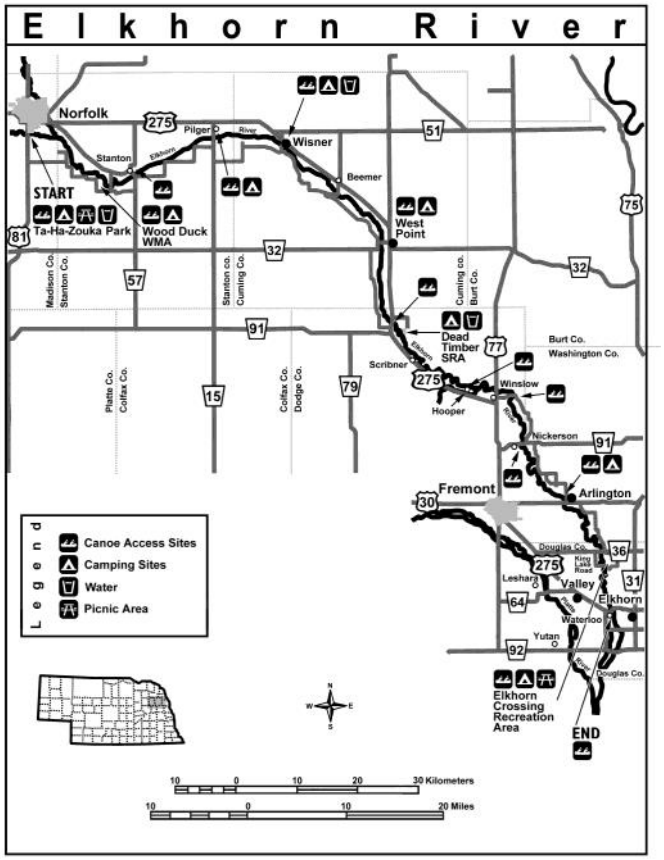
Photograph 7.7 View of Bancroft River Access
Source: Google Earth

Figure 7.2: Logan Creek Water Trail



Source: Nebraska Game and Parks Commission

Figure 7.3: Elkhorn River Water Trail



Source: Nebraska Game and Parks Commission

Elkhorn River Water Trail

The Elkhorn River Water Trail starts in Norfolk and flows downstream to near the former community of Elkhorn, near Waterloo. It passes right through Cuming County and there are river access points near Wisner and West Point.

Golf Courses

There are a number of golf courses serving the Cuming County area.

Course	Community
Indian Trails Country Club	Beemer
Twin Creeks Golf Club	Pender
Northridge Country Club	Tekamah
Oakland Golf Club	Oakland
Schuyler Golf Club	Schuyler
Elkhorn Acres Golf Course	Stanton
North Bend Golf Course	North Bend
Club 91 Golf Course	Leigh

Goals and Policies

Parks and Recreational Goals

Parks and Recreation Goal 1

Development of a county-wide trails system will aid in the long-term recreational and walkability needs as well as creating a tourism destination for the county.

Parks and Recreation Policies and Strategies

PR-1.1 The County should complete a long-range trails Master Plan in order to identify specific locations, routes and amenities to connect.

PR-1.2 The County should work with the NRD's to determine potential funding for the planning and construction of recreational trails within Cuming County.

PR-1.3 The County should, as the paved county roads are repaired, overlaid, etc. work to incorporate a standard trail width to the shoulder of the roadway.

PR-1.4 A trail system should work to connect different entities within Cuming County

together as well as connect to other regional trails in the area.

Parks and Recreation Goal 2

Cuming County will continue to work closely with different entities including the community's and NRD to maintain and enhance the existing parks, camps, riverfront, and lakes.

Parks and Recreation Policies and Strategies

PR-2.1 The County should continue promoting the areas recreational destinations.

PR-2.2 The County should continue to promote local Agri-tourism.

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Chapter 8 Public Safety

Photo Source: Bancroft Volunteer Fire Department

Fire Protection

Fire and Rescue

Fire and rescue in Cuming County is handled through 11 different departments / agencies:

- Bancroft VFD
- Beemer VFD
- West Point VFD
- Wisner VFD
- Dodge VFD
- Howells VFD
- Lyons VFD
- Oakland VFD
- Pender VFD
- Snyder VFD
- Uehling VFD

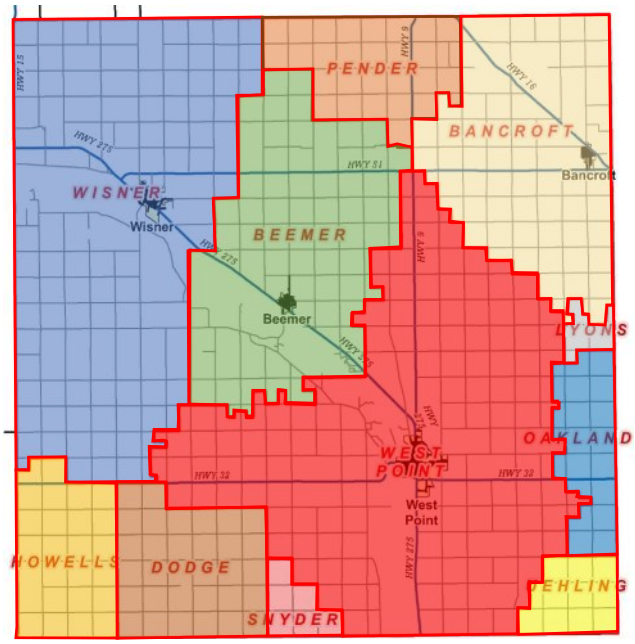
Each of the fire districts listed above, provide varying levels of fire and rescue service to their respective territories. Detailed information is not provided since the type and age of equipment can vary annually. Finally, the narratives are only for the fire departments based in Cuming County.

Figure 8.1 shows a map of the 11 fire agencies serving Cuming County.

Bancroft Rural Volunteer Fire Department

The Bancroft Rural Fire Department operates as a volunteer organization with 27 members with 12 members being EMTs. The station is located at 107 Poplar Street in Bancroft. The service area covers approximately 70 miles of Cuming County including the Village of Bancroft and the surrounding rural fire district area. On-going training and mutual aid coordination is handled at regular monthly meetings, with special training sessions provided several times each year. The Bancroft Volunteer Fire District also has an interlocal agreement with the Omaha Tribe to provide fire and rescue coverage on the reservation.

Figure 8.1: Cuming County Fire Districts



Source: GEOCOMM

Photograph 8.1 Bancroft Volunteer Fire Department
Source: Cuming County EMS

Photograph 8.3 West Point Volunteer Fire Department
Source: Cuming County EMS

Beemer Volunteer Fire Department

The Beemer Volunteer Fire Department has 30 firefighters and nine certified EMTs. The main facility is located in Beemer. The facility is located at 311 North Main Street. The district covers approximately 77 miles of Cuming County including the village of Beemer.

Photograph 7.2 Beemer Volunteer Fire Department
Source: Cuming County EMS

West Point Volunteer Fire Department

The West Point Volunteer Fire Department is located at 444 S. Main Street in West Point. The department has 44 volunteer firefighters and 20 certified EMTs. Their territory covers approximately 162 square miles in Cuming County including the community of West Point.

Wisner Volunteer Fire Department

Wisner's Volunteer Fire Department is located at 1055 Avenue D in Wisner. The department has 25 members and nine certified EMTS. The district covers approximately 127 square miles within Cuming County.

Photograph 8.4 Wisner Volunteer Fire Department
Source: Cuming County EMS

The other districts serving Cuming County are based outside the county in:

- Dodge
- Howells
- Lyons
- Oakland
- Pender
- Snyder
- Uehling

Law Enforcement

Cuming County Sheriff's Department

Cuming County is served by the Cuming County Sheriff's Department, which provides policing services to a majority of the county as well as support and operation of the county courts and jail facilities.

The following are other law enforcement agencies in Cuming County:

- Bancroft Police Department
- Beemer Police Department
- West Point Police Department
- Wisner Police Department

Based upon data from the Nebraska Commission on Law Enforcement and Criminal Justice, the Cuming County Sheriff's Department had five full-time sworn officers in 2018. Table 8.1 shows the employment levels for 2016 through 2018. When examining the number of sworn officers per 1,000 people, the Cuming County Sheriff's Department had an average of 0.9 sworn officers per 1,000 people in from 2016 to 2018. The Table compares Cuming County to the surrounding counties as far as actual employment numbers and officers per 1,000 residents

Table 8.1 also shows the West Point Police Department has maintained six sworn officers from 2016 to 2018 (2017 had no report), which equates to 1.8 sworn officers per 1,000 people.

Table 8.1: Sworn Officer Comparison

Agency	2016		2017		2018	
	Sworn Officers FT/PT	Officers per 1,000 Population	Sworn Officers FT/PT	Officers per 1,000 Population	Sworn Officers FT/PT	Officers per 1,000 Population
Cuming Co. Sheriff	**5/0**	**0.9**	**5/0**	**0.9**	**5/0**	**0.9**
Burt Co. Sheriff	5/0	1.3	5/0	1.3	5/0	1.3
Colfax Co. Sheriff	10/0	2.3	10/0	2.3	9/0	2.1
Dodge Co. Sheriff	20/0	2.1	18/0	1.9	21/1	2.2
Stanton Co. Sheriff	NA	NA	8/5	1.4	8/6	1.4
Thurston Co. Sheriff	6/4	0.9	9/0	1.4	9/0	1.4
Wayne Co. Sheriff	1/3	1.0	4/0	1.1	6/0	1.6
West Point Police	6/0	1.8	NA	NA	6/0	1.8

Source: Nebraska Commission on Law Enforcement and Criminal Justice 2016 through 2018

The ratio of law enforcement officers per 1,000 persons in the population for any given area is influenced by many factors. The determination of law enforcement strength for a certain area is based on such factors as population density, size and character of the county, geographic location and other conditions existing in the area. The data indicate Cuming County has been maintaining a ratio of 0.9 sworn officers per 1,000 people since 2016; apparently this is a good balance for Cuming County.

Emergency Management

Cuming County Emergency Management is a local agency addressing the county's needs. The local Agency has a director; however, the county's office works directly under the state agency, Nebraska Emergency Management Agency (NEMA). The local offices were created under the Nebraska Emergency Management Act of 1996.

The Nebraska Emergency Management Agency (NEMA) is part of the Military Department. The state's Adjutant General serves as the director of the agency as well as the commanding officer of the Army National Guard and the Air National Guard. The three units comprise the Military Department.

Originally, the agency was located in a bunker built in the 1960s during the height of the Cold War. It was intended to serve as Nebraska's government headquarters if nuclear confrontation was likely. In 2012, the agency headquarters was relocated to the Joint Force Headquarters, on the Nebraska National Guard base in Lincoln. NEMA is a small agency with less than 40 full-time and part-time employees. Day-to-day operations are managed by the assistant director.

Emergency management in the United States has been divided into four phases: preparedness, response, recovery, and mitigation. Even with the emphasis on terrorism since the 9/11 attacks, emergency management's role has not changed a great deal. Nebraska must still deal with a host of hazards, both natural and man-made.

Preparedness

During the preparedness phase, NEMA monitors the situation across the state. This is accomplished by using a duty officer system; state, National Weather Service and North American Warning and Alert

System (NAWAS); local emergency management organizations, police and fire departments across the state and the general public.

A member of NEMA staff serves as the duty officer on a rotational basis taking calls for a host of incidents in addition to severe weather such as tornadoes, floods and blizzards. A terrorist attack would be handled in the same manner as a tornado strike or flood.

During the preparedness phase, the agency coordinates the state Radiological Emergency Preparedness Program (REP), which develops emergency plans for the two nuclear power plants – Cooper and Ft. Calhoun Nuclear Stations.

The agency also monitors low-level and high-level radiological material shipments, which traverse the state by highway and railway. Any abnormality can trigger a call to the duty officer and alert the rest of Nebraska government.
NEMA conducts an extensive training program for emergency managers and first responders, such as police, fire and emergency medical personnel. The training classes cover a wide range of topics, including counter terrorism, hazardous materials, radiological emergency, public information and incident management. Classes, schedules and other information are listed on NEMA's training page.

An important part of preparedness is the development of state and local emergency operations plans, which NEMA coordinates. The agency has also developed an emergency operations exercise program that assists local jurisdictions in exercising their emergency plans.

Each year, once in the spring and again in the fall, the agency conducts public awareness campaigns. The severe weather awareness campaign tests the state's emergency systems in advance of the spring thunderstorm season and the winter weather awareness campaign does the same before winter. Both are sponsored by NEMA and the National Weather Service.

Response
In the event of an emergency anywhere in the state, the local jurisdictions are responsible for first response to the emergency. If local resources are inadequate to deal with the situation, the local political leader declares an emergency and requests state assistance.

Normally, the agency would be aware of the developing situation and would have alerted the governor's office and other state agencies. NEMA could also activate the State Emergency Operations Center (SEOC) located in the agency headquarters. The SEOC becomes the center for any state response. Depending upon the nature of the emergency, state teams can be dispatched to the disaster area.

If deemed necessary the Federal Emergency Management Agency' s (FEMA) Region VII office, which is located in Kansas City, can be alerted. They, in turn, can notify FEMA National in Washington, D.C.

Upon the advice of the agency director, the governor can proclaim a state emergency and sign a declaration. This declaration formalizes the state response and places all the state's resources at the disposal of the adjutant general. This can involve the National Guard, State Patrol, Department of Roads, Game and Parks Commission, Department on Aging, Health and Human Resources or any other agency that can be of assistance.

The formal declaration process also allows the adjutant general to use money in the governor's Emergency Fund to pay for the disaster costs. This fund, which was created and is maintained by the Legislature, usually is kept at around $1 million.

If the governor determines state resources are not sufficient to deal with the emergency, a federal disaster declaration can be requested. The issuance of a Presidential Disaster Declaration means all the resources of the federal government can be brought to bear on the emergency.

Recovery
Under a Presidential Disaster Declaration, NEMA and FEMA coordinate state and federal activities in a Joint Field Office. The two disburse recovery funds for two types of federal disasters. A Presidential Disaster Declaration can be for public assistance, individual assistance or both.

Public assistance is used to help local and state governments recover their disaster expenses. Public assistance is used to pay for roads, bridges, public buildings and other facilities damaged in the disaster and to pay for costs such as the National

Guard, police, fire and public works employee salaries and other costs. Normally, the Federal Government pays 75 percent of all eligible public costs. Traditionally, the state and local governments equally split the remaining 25 percent.

Individual assistance is provided to the survivors of the disaster. Individual assistance can come in the form of low interest loans both to families and businesses, or individual family grants to pay for losses to families or businesses that are not eligible for loans.

Mitigation

Following a federally-declared disaster, the state receives funding assistance for hazard mitigation. This can amount to substantial sums of money, because 15 percent of the total federal share of the disaster is earmarked for mitigation. Hazard mitigation is designed to lessen or mitigate the impacts of future disasters.

For example, hazard mitigation for flooding might mean the buyout of flood-prone structures in the disaster area, or it might involve raising structures above the 100-year flood level. In the case of tornadoes, mitigation might involve better warning systems or structural improvements. The state and federal governments must agree to whatever mitigation projects that are designed.

Source: https://nema.nebraska.gov/overview/nema-overview

Public Safety Goals and Policies

Public Safety Goals

Public Safety Goal 1

The goal of Cuming County (residents) is to maintain fire protection, rescue and ambulance programs by exploring programs and alternative services to insure optimum service levels and public costs.

Public Safety Policies and Strategies

PS -1.1 The different fire and rescue organizations and the county should continue to work to maintain quality equipment levels.

PS-1.2 The fire departments should continue to expand fire safety education and prevention throughout the county.

Public Safety Goal 2

The goal of Cuming County is to maintain quality law enforcement throughout the county.

Public Safety Policies and Strategies

PS-2.1 Continue to identify specific ways to work cooperatively with the County Sheriff regarding protection in Cuming County.

PS-2.2 Continue to support minimum standards regarding equipment used by law enforcement.

Public Safety Goal 3

The goal of Cuming County is to maintain regulations to protect the general health and safety of all residents.

Public Safety Policies and Strategies

PS-3.1 Establish regulations protecting the county residents from the secondary effects of adult entertainment.

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Chapter 9 Communications, Utilities and Energy

Communications

Telephone Services

The primary telephone providers in Cuming County is CenturyLink and Great Plains Communication.

Radio Stations

There are two locally operated stations in Cuming County, KTIC and 107.9 The Bull based in West Point. There are no other commercial radio stations based in Cuming County, the county receives many commercial radio frequencies based in surrounding areas such as Norfolk, Fremont, and Omaha.

Television Stations

Presently there are no local television stations located in Cuming County. The over the air stations that serve the area originate out of South Dakota, Iowa and Omaha.

Internet/World Wide Web Service Providers (ISP)

High speed Internet service in Cuming County is primarily provided by Great Plains Communications, Skywave, CenturyLink, and CableOne.

Cellular Service

All of the mainstream cellular providers have a presence in Cuming County.

Newspapers

The residents of Cuming County are served locally by the West Point News and Wisner News-Chronicle.

Listed below are newspapers with circulation within the Cuming County area:

- West Point News
- Wisner News-Chronicle
- Omaha World-Herald
- Norfolk Daily News
- Fremont Tribune

Utilities

Electricity

The Cuming County Public Power District provides power to Cuming County some retail and wholesale rural customers as well as Bancroft and Beemer.

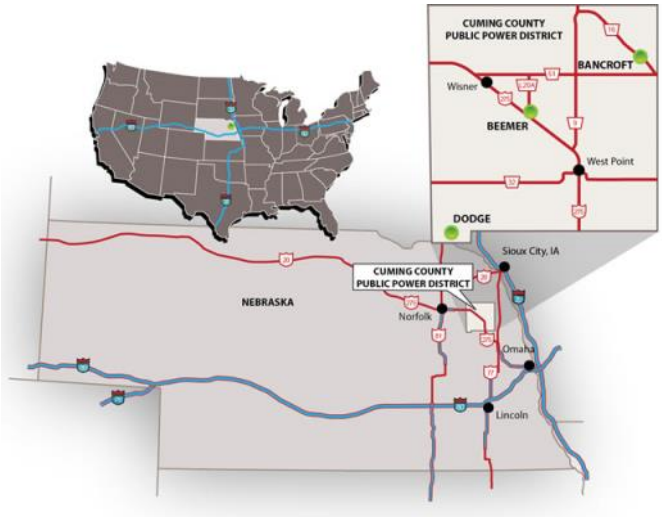
Cuming County Public Power District

Electrical power by Cuming County Public Power District serves nearly all of rural Cuming County and parts of northern Colfax and Dodge Counties. In addition, they supply retail services to the villages of Bancroft, Beemer, and Dodge. CCPPD is a non-profit organization.

CCPPD's present headquarters, located at 500 South Main Street in West Point, was opened in 1950.

Source: https://ccppd.com/about-ccppd/history/

Figure 9.1: Public Power District Service Areas



Source: https://ccppd.com/wp-content/uploads/service_map.jpg

Electrical Distribution
The overall distribution systems are in good condition. The systems are owned and operated by each of the power districts. The distribution systems not only supply power throughout Cuming County but are the foundation for power transmitted to other customers in northeast Nebraska.

Natural Gas
Natural gas supplies in Cuming County is provided by SourceGas.

Sanitary Sewer Systems
The sanitary waste in the rural parts of Cuming County is handled via individual septic systems. The level and complexity of these systems varies greatly throughout Cuming County due to different soil conditions, see Chapter 11: Natural Resources and Solis for more detail.

Sanitary waste within the communities of Cuming County are typically addressed via community-wide collection and treatment systems.

Water Systems
Water in Cuming County is supplied by wells drawing groundwater up for consumption or other uses. The unincorporated communities and the farmsteads, acreages, and homes along the river area typically have individual wells supplying the needs of the public. However, within the primary incorporated communities of the county, the wells are owned and operated by the local government. The local government runs a centralized system.

In addition to individual wells the portions of Cuming County are served by the Cuming County Rural Water System.

Solid Waste
Sanitation collection in Cuming County is provided by private haulers.

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

Cuming County has no SID's within the county.

ENERGY

Energy usage in the early 21st Century is becoming a critical issue throughout Nebraska as well as the entire United States. Our dependency on non-renewable energy sources has increased significantly over the past 100 years.

Energy consumption comes in several forms, such as:

- Lighting our homes, businesses, and industries
- Cooling and heating our homes, businesses, and industries
- Heating our water for homes, businesses, and industries
- Food preparation
- Transportation – both personal and business related
- Agricultural equipment
- Recreation and Entertainment – vehicular, computers, music, etc.

The 21st Century ushered in an increased concern for energy usage and its impacts on the environment. This increased concern for the environment created a better understanding of the carbon footprint generated by any one individual as well as striving towards modifying our behavior

patterns in order to lessen the footprint. In addition, the phrase and concept of sustainability has become more widely used, even in Nebraska.

Energy and the issues connected to the different sources are becoming more critical every year. The need for the Energy Element in the Cuming County Comprehensive Development Plan should be something desired as opposed to required.

Sustainability

Sustainability, in today's discussions, has a number of meanings. According to Webster's Third International Dictionary, the verb "sustain" is defined as "to cause to continue...to keep up especially without interruption, diminution or flagging". However, the American Planning Association has come up with the following definition:

> ***"Planning for 'sustaining places' is a dynamic, democratic process through which communities plan to meet the needs of current and future generations without compromising the ecosystems upon which they depend by balancing social, economic, and environmental resources, incorporating resilience and linking local actions to regional and global concerns".***

In other words, sustainability is the ability of present day generations to live without jeopardizing the ability of future generations to sustain life as we know it today.

All of us living in today's world need to begin switching gradually to cleaner and more renewable resources. By doing so it will aid future generations with their quality of life. The more renewable energy sources become the norm for our generation, the more likely these sources will be second nature and common in the future.

Americans have grown to rely more heavily on electricity. However, state and federal policies have been more insistent on curbing the level of our reliance on electricity; especially, those sources produced by non-renewable fossil fuels such as oil and coal. Federal policy has set a goal for 20% of all electricity, by 2020, in the United States be from renewable sources such as solar and wind.

So, what can Cuming County do to be more sustainable? There are a number of activities that can be undertaken and pursued to make an impact. The following information will meet at a minimum, the requirements of LB 997 but will also provide basic strategies Cuming County can undertake to make a contribution to the overall energy solution.

Energy Use by Sector

This section analyzes the energy use by residential, commercial, industrial and other users and will examine the different types of energy sources that are utilized by these different sectors.

Residential Uses

Within Cuming County, residential uses are provided a number of options for both power and heating and cooling. These include electrical power (both fossil fuel and renewable resources), natural gas, oil, propane, and wood. The most dominant of the energy sources available and used by the residents of Cuming County is electricity produced from both fossil fuels and renewable resources.

The use of natural gas, oil, propane and wood will be found typically as heating sources during the winter months. The type of fuel used will depend a great deal on where a residence is located within the county. Residents located within the more urbanized parts of Cuming County are more likely to have natural gas heating or electrical furnaces. Propane and wood stoves are most likely found in the rural parts of the county where natural gas infrastructure is not always available.

Commercial Uses

Cuming County's commercial uses also have a number of options for both power and heating and cooling. These include electrical power (both fossil fuel and renewable resources), natural gas, propane, oil and wood. The type of energy source is very dependent upon the specific commercial use and the facilities employed to house the use. The most dominant of the energy sources available is electricity produced from both fossil fuels and renewable resources.

Similar to residential uses, the use of natural gas, oil, propane and wood will be found typically as heating sources during the winter months. The type of fuel used will depend a great deal on the type of commercial use and the construction of the building(s) involved. The location of the

commercial uses will also dictate, similar to residential uses, what type of heating fuels are used. However, in commercial uses such as repair garages and other uses in larger metal buildings, they may be dependent upon recycling used motor oils to heat their facilities.

Industrial Uses

Cuming County's industrial uses will be very similar to those discussed within the commercial section. However, in some cases, diesel fuel can play a role in both power generation and heating and cooling.

Short-term and Long-term Strategies

As the need and even regulatory requirements for energy conservation increases, residents of Cuming County will need to:

1. Become even more conservative with energy usage
2. Make use of existing and future programs for retrofitting houses, businesses, and manufacturing plants
3. Increase their dependence on renewable energy sources.

Residential Strategies

There are a number of different strategies that can be undertaken to improve energy efficiency and usage in residences. These strategies range from simple (less costly) to complex (costly). Unfortunately not all of the solutions will have an immediate return on investment. As individual property owners, residents will need to find strategies that fit their budgets to invest in the long-term savings.

There are several ways to make a residence more energy efficient. Some of the easiest include:

- Converting all incandescent light bulbs and Compact Florescent Lights (CFL) or Light Emitting Diodes (LED) or the most recent technology to conserve energy.
- Installing additional insulation in the attic.
- Converting standard thermostats to digital/ programmable thermostats.
- Changing out older less efficient air conditioners and furnaces/boilers to newer high-efficiency units
- Changing out older appliances with new EnergyStar appliances.
- Exchanging less efficient water heaters with EnergyStar units or on demand systems.

Some of the more costly ways to make a residence more energy efficient include:

- New insulation in exterior walls.
- Addition of solar panels for either electrical conversion and/or water heater systems.
- Adding individual scale wind energy conversion systems.
- Installing a geothermal heating and cooling system.
- Installation of energy-efficient low-e windows.

Commercial/Industrial Strategies

Strategies for energy efficiency within commercial/ industrial facilities are more difficult to achieve than those for residential uses. Typically, these improvements will require a greater amount of investment due to the size of most of these facilities.

There are a number of different strategies that can be undertaken to improve energy efficiency and usage in commercial and industrial facilities. Again, not all of the solutions will have an immediate return on investment. Businesses and industries will need to find strategies that will fit into their ability to pay for savings at the present time.

There are several ways to make businesses/ industries more energy efficient. Some of the easiest include:

- Converting all incandescent light bulbs and CFL's to LED's or better on small fixtures.
- Converting all florescent lights to more efficient florescent systems.
- Converting standard thermostats to digital/ programmable thermostats.
- Installing additional insulation in an attic space.
- Changing out older less efficient air conditioners and furnaces/boilers to newer high-efficiency units.
- Exchanging less efficient water heaters with EnergyStar units or on demand systems.

Some of the more costly ways to make a business more energy efficient include:

- Installation of energy-efficient low-e windows and/or storefronts.
- New insulation in exterior walls.
- Addition of solar panels for either electrical conversion and/or water heater systems.
- Adding individual scale wind energy conversion systems.
- Installing a geothermal heating and cooling system.

- New storefronts with insulated panels and insulated Low-E glazing.

Public Strategies

Energy efficiency strategies for public facilities are similar to those of commercial and industrial users. Typically, these improvements will require a greater amount of investment due to the size of most of these facilities. However, in some cases there are grants available from time to time to assist public agencies with these improvements.

There are a number of different methods that can be undertaken to improve energy efficiency and usage in public facilities, including:

- Converting all incandescent light bulbs and CFL's to LED's or better on small fixtures.
- Converting all florescent lights to more efficient florescent systems.
- Converting standard thermostats to digital/ programmable thermostats.
- Installing additional insulation in an attic space.
- Changing out older less efficient air conditioners and furnaces/boilers to newer high-efficiency units.
- Exchanging less efficient water heaters with EnergyStar units or on demand systems.

Some of the more costly ways to make public facilities more energy efficient include:

- Installation of energy-efficient low-e windows and/or storefronts
- New insulation in exterior walls
- Addition of solar panels for either electrical conversion and/or water heater systems
- Adding individual scale wind energy conversion systems
- Installing a geothermal heating and cooling system
- New storefronts with insulated panels and insulated Low-E glazing

Renewable Energy Sources

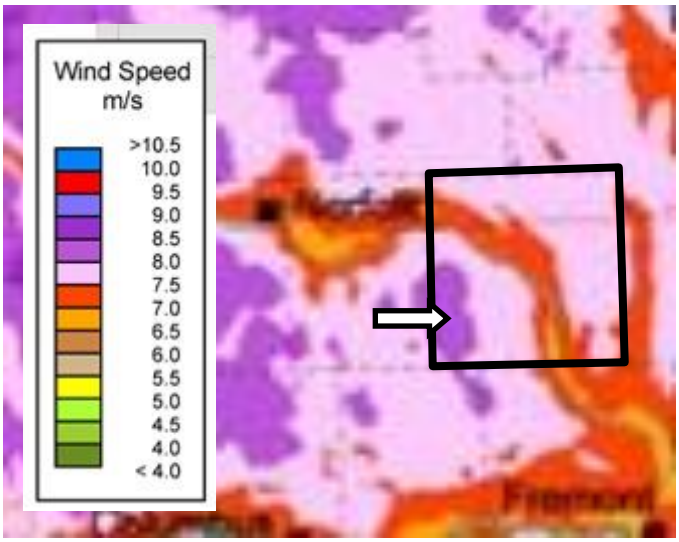
Renewable energy sources, according to most definitions, include natural resources such as the wind, the sun, water, and the earth (geothermal) can be used over and over again with minimal or no depletion, as well as tapping into sources of methane (from natural resources or man-made conditions). The most common sources of renewable energy used in Nebraska are the wind, the sun, water and earth. The following are examples of how these renewable resources can be used to reduce dependency on fossil fuels.

Wind

The wind is one of those resources in abundance in Nebraska. Wind is not a new technology in Nebraska; the pioneers that settled in Nebraska used wind mills for power and to work the water wells on their farms and ranches.

Wind can be used to produce electricity through the construction of small-scale or utility/commercial grade wind conversion systems (wind turbines). However, not all areas of the state have the ideal levels needed to produce electricity on a utility or commercial level; but the use of small-scale wind turbines on homes and businesses will work in most parts of Nebraska.

9.2: Annual Average Wind Speed at 80 Meters



Source: AWS Truepower, NREL

Wind Energy in the Cuming County area
Cuming Wind Farm

One turbine located northeast of Wisner in Cuming County began commercial operation on December 15, 2019. Maximum capacity is 2.5 megawatts. Power will be sold to Cuming County Public Power District.
(Source: https://neo.ne.gov/programs/stats/inf/89.htm

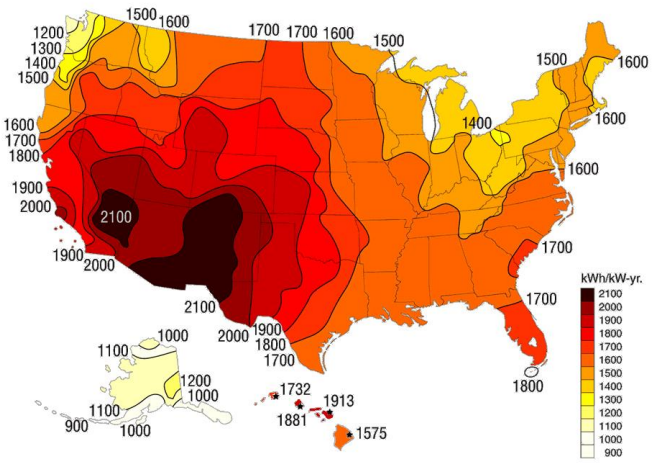
Solar

Solar energy has been around for decades and it last hit a high in popularity in the 1970's. However, today's solar energy design is much more efficient

and aesthetically pleasing. Some of the aesthetic improvements have to do with the fact that today's systems are not as bulky as their ancestors. Today, solar is being used much like wind turbines, on a small-scale level (home or business) or a much grander level (solar farms).

Based upon the diagram below there is great solar potential in the state of Nebraska. A majority of the state lies within some of the better areas in the country for solar potential.

Figure 9.3: Solar Contours



Source: Solar Energy Industries Association

Geothermal Energy

Geothermal energy is typically utilized through a process where a series of pipes are lowered into vertical cores called heat-sink wells. The pipes carry a highly conductive fluid that either is heated or cooled by the constant temperature of the ground. The resulting heat exchange is then transferred back into the heating and cooling system of a home or other structure. This is called a geothermal heat exchange system or ground source heat pump. The California Energy Commission estimates the costs of a geothermal system can earn net savings immediately when financed as part of a 30-year mortgage *(Source: American Planning Association, PAS Memo January/February 2009)*.

Methane Energy

The use of methane to generate electricity is becoming more cost-effective to use in Nebraska. Methane electrical generation can be accomplished through the use of a methane digester which takes the raw gas, naturally generated from some form of decomposing material, and converts the gas into electrical power.

There have been some attempts to take the methane generated from animal manure and convert it into electricity; most have been successful but were costly to develop. Another approach to methane electrical generation is to tap into the methane being generated from a solid waste landfill; instead of burning off the methane, it can be piped into a methane convertor and generated into electricity for operating a manufacturing plant or placed on the overall grid for distribution.

Methane convertors make use of unwanted gases and are able to produce a viable product. As long as humans need to throw garbage into a landfill or the production of livestock is required, there will be a source of methane to tap for electrical generation.

State Programs

The following provides a basic history and description of some newer programs in Nebraska; interested parties should contact the State of Nebraska Energy Office or the local power districts.

C-BED Program

In May 2007, Nebraska established an exemption from the sales and use tax imposed on the gross receipts from the sale, lease, or rental of personal property for use in a community-based energy development (C-BED) project. The Tax Commissioner is required to establish filing requirements to claim the exemption. In April 2008 L.B. 916 made several amendments to this incentive, including: (1) clarified C-BED ownership criteria to recognize ownership by partnerships, cooperatives and other pass-through entities; (2) clarified that the restriction on power purchase agreement payments should be calculated according to gross and not net receipts; (3) added language detailing the review authority of the Tax Commissioner and recovery of exempted taxes; and (4) defined local payments to include lease payments, easement payments, and real and personal property tax receipts from a C-BED project.

A C-BED project is defined as a new wind energy project that meets one of the following ownership conditions:

- For a C-BED project that consists of more than two turbines, the project is owned by qualified owners with no single qualified owner owning more than 15% of the project and with at least 33% of the power purchase agreement payments flowing to the qualified owner or owners or local community; or
- For a C-BED project that consists of one or two turbines, the project is owned by one or more qualified owners with at least 33% of the power purchase agreement payments flowing to a qualified owner or local community.

In addition, a resolution of support for the project must be adopted by the county board of each county in which the C-BED project is to be located.

A qualified C-BED project owner means:

- a Nebraska resident;
- a limited liability company that is organized under the Limited Liability Company Act and that is entirely made up of members who are Nebraska residents;
- a Nebraska nonprofit corporation;
- An electric supplier(s), subject to certain limitations for a single C-BED project.

In separate legislation (LB 629), also enacted in May 2007, Nebraska established the Rural Community-Based Energy Development Act to authorize and encourage electric utilities to enter into power purchase agreements with C-BED project developers.

Local Government and Renewable Energy Policies

Local governments can take steps to encourage greater participation in wind generation. Cities and counties can pursue strategies to make these projects more attractive, including:

- Develop or amend existing zoning regulations to allow small-scale wind turbines as an accessory use in all districts.
- Develop or amend existing zoning regulations to exempt small-scale turbines from maximum height requirements when attached to an existing or new structure; provided, they meet all building codes and manufacturers requirements for attachment.
- Work with the local power districts on ways to use wind turbines on small-scale individual projects or as a source of power for the community.

Net Metering in Nebraska

LB 436, signed in May 2009, established statewide net metering rules for all electric utilities in Nebraska. The rules apply to electricity generating facilities which use solar, methane, wind, biomass, hydropower or geothermal energy, and have a rated capacity at or below 25 kilowatts (kW). Electricity produced by a qualified renewable energy system during a month shall be used to offset any kilowatt-hours (kWh) consumed at the premises during the month.

Any excess generation produced by the system during the month will be credited at the utility's avoided cost rate for that month and carried forward to the next billing period. Any excess remaining at the end of an annualized period will be paid out to the customer. Customers retain all renewable energy credits (RECs) associated with the electricity their system generates. Utilities are required to offer net metering until the aggregate generating capacity of all customer-generators equals one percent of the utility's average monthly peak demand for that year.

State Law of Solar and Wind Easements

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

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

this period, however, the agreement may be extended.

Current Renewable Energy Programs/Funding Sources

There are several programs available through the power districts to assist in purchasing and installing more energy efficient equipment in residences and businesses. In addition, there are funding opportunities through the Nebraska Energy Office.

Energy in Cuming County

Cuming County will continue to encourage the development of energy-related goals, policies and strategies.

Chapter 10 Hazards

Introduction

This Chapter of the Cuming County Comprehensive Plan contains the description of specific hazards within the planning area. Good planning would dictate the need to include such issues as Hazards within the Comprehensive Plan. The information found in this Chapter has been taken from the current Hazard Mitigation Plan written for the Lower Elkhorn NRD for the counties of Pierce, Wayne, Stanton, Cuming and portions of the counties of Knox, Cedar, Dixon, Thurston, Madison, Burt, Platte, Colfax and Dodge. The discussion herein will be focused on those with a land use impact and only for Cuming County.

Hazards Section

One of the key items within the hazard mitigation plan is a risk assessment for the future. The assessment is based upon the type of hazard event and likelihood of it occurring again in the future.

The type of hazards assessed are:

- Agricultural disease (Animal and Plant)
- Chemical spills (Fixed site and Transportation)
- Dam Failure
- Drought
- Extreme Heat
- Flooding (Flash flood and flood)
- Grass/Wildfires
- Hail
- High winds
- Levee failure
- Severe Thunderstorms
- Severe Winter Storms
- Tornadoes

Hazard Mitigation Plan

Section 4 of the ***Lower Elkhorn NRD Multi-Jurisdictional Hazard Mitigation Plan*** rates the seven different hazards and rates them on Location, Maximum Probable Extent, Probability of Future Events, and Overall Significance.

It is critical to monitor hazards, even the ones rated as a Low Risk. The key to successfully addressing these incidents is to follow through with the Goals and Strategies developed to mitigate the issues. Successful mitigation will aid in minimizing the overall loss occurring from any hazard situation.

Photograph 10.1 River Road during 2019 Flooding
Source: Cuming County

Figure 10.1: Hazard Identification and Risk Assessment Cuming County - 2020

Cuming County Hazard Identification			
Hazard	**Previous Event Occurrence Occurrence**	**Property Damage**	**Crop Damage**
Ag Animal Disease	7	4086 animals	NA
Ag Plant Disease	13	NA	$181,477
Chemical Fixed Sites	5	$0	NA
Chemical Transportation	2	$24,515	NA
Dam Failure	0	< 1%	Limited
Drought	364/1,487 month	$0	$77,943,183
Earthquakes	0	$0	$20,038
Extreme Heat	1day/year	NA	$7,408,453
Flash Flooding	20	$92,000	$749,256
Flooding	13	$851,000	
Grass/Wildfires	89	613 acres	$82,767
Hail	94	$525,000	$10,908,707
High winds	19	$21,000	$0
Levee failure	1	NA	NA
Severe Thunderstorms - Wind	56	$197,000	NA
Severe Thunderstorm– Heavy Rain	1	$0	$2,8755,428
Severe Thunderstorm - Lightning	4	$13,000	NA
Severe Winter Storms - Blizzard	5	$0	$169,941
Severe Winter Storms - Extreme Cold/Wind Chill	5	$0	
Severe Winter Storms - Heavy Snow	4	$0	
Severe Winter Storms - Ice Storm	2	$0	
Severe Winter Storms - Winter Storm	37	$0	
Severe Winter Storms - Winter Weather	14	$0	
Terrorism	0	$0	NA
Tornadoes (1 Fatality)	5	$1,545,000	$113,473
Total	**385**	**$3,268,515**	**$107,111,920**

Source: 2020 Multi-jurisdictional Hazard Mitigation Plan

County Hazard Prioritization

The following information, as with this entire Chapter is completely derived from the 2020 Lower Elkhorn NRD Hazard Mitigation Plan. Only hazards identified either as a concern by Cuming County, by the local planning team or based on the occurrence and risk of the hazard to the county are discussed in detail below.

Agricultural Animal & Plant Disease

Agriculture and livestock are major contributors to Cuming County's economy. A major disease outbreak for crops or livestock would have a large impact on the county's rural and urban populations. The local planning team indicated that Chronic Wasting Disease, Avian Influenza, and Bovine Respiratory Disease were the top livestock diseases for the area. The largest effects would impact chicken and cow populations. In the event of an animal or plant disease outbreak, there are local plans in place to deal with this issue. The Nebraska Extension Office also has educational programs in the county to help educate farmers and residents.

Flooding

The county is concerned with both riverine and flash flooding. Recent large flooding events occurred in the summer of 2010, June 2018, and March 2019. Flooding in 2010 caused an estimated $500,000 in property damages. Damage estimates have not been released for the 2019 flood event as reporting and recovery are still ongoing. Both the Elkhorn River and Logan Creek flow through large portions of the county and are subject to flooding on a regular basis. The local planning team indicated that no critical county buildings have been damaged by past flood events. Cuming County participates in the NFIP and has 21 policies in-force with a total coverage of $2,407,000.

High Winds

The primary concern regarding high winds is damage caused by downed trees and limbs. The most damaging high wind event occurred October 2007 when 53 mph winds caused $10,000 of damages to a barn five miles south of Pender. No critical facilities have been damaged by past high wind events. The county planning team indicated that the county has data backup systems for important records. Currently, Cuming County Emergency Management does not offer severe weather text alerts.

Tornadoes

NCEI data indicates Cuming County has experienced five tornadic events since 1996. The largest events occurred in June 2014 when Wisner experienced an EF4 tornado and Pilger experienced an EF3 tornado. Combined damages from the tornadoes were an estimated $1,500,000. There was one fatality caused during these storms and over 300 head of cattle were lost. According to the county planning team, there are emergency shelters located in every community in the county and many homes have basements where residents can take shelter. The county has mutual aid agreements with Stanton, Thurston and Burt counties should a disaster occur. No educational outreach activities are done at this time.

Hazard Goals and policies

Action	Backup Generator
Analysis	Provide a portable or stationary source of backup power to redundant power supplies, municipal wells, lift stations, and other critical facilities and shelters.
Hazard(s) Addressed	Tornadoes, High Winds, Severe Winter Storms, Severe Thunderstorms, Hail
Estimated Cost	$15,000-$30,000 per generator
Potential Funding	Local Taxes
Timeline	2-5 Years
Priority	Low
Lead Agency	County EM
Status	In Progress. A generator has been added to the County Courthouse building.

Action	Civil Service Improvements
Analysis	Improve Fire Department and Rescue squad equipment and facilities. Providing additional, or updating existing emergency response equipment; this could include fire trucks, ATVs, pay loaders, etc. This would also include developing backup systems for emergency vehicles and identifying and training additional personnel for emergency response.
Hazard(s) Addressed	All Hazards
Estimated Cost	$5,000 to $400,000 per vehicle, varies depending on what equipment is needed
Potential Funding	PDM, NEMA, LENRD, Governing County & Local Governing Agency
Timeline	5+ Years
Priority	High
Lead Agency	Village/City Boards, Rural Fire Districts, Local Fire Departments
Status	Not Started

Action	Emergency Communications
Analysis	Establish an action plan to improve communication between agencies to better assist residents and businesses during and following emergencies. Establish interoperable communications.
Hazard(s) Addressed	All Hazards
Estimated Cost	$10,000+
Potential Funding	Homeland Security, LENRD, Governing County & Local Governing Agency
Timeline	2-5 Years
Priority	Medium
Lead Agency	County, City/Village Boards
Status	Not Started

Action	Improve Building Codes
Analysis	Improve any existing building standards or establish new standards as deemed necessary to reduce potential of damage to new and existing structures, especially mobile home parks and other highly vulnerable populations such as nursing home facilities.
Hazard(s) Addressed	All Hazards
Estimated Cost	$5,000+
Potential Funding	CDBG, HMGP, LENRD, Governing County & Local Governing Agency
Timeline	5+ Years
Priority	Low
Lead Agency	Zoning Commission, City/Village Boards
Status	Not Started

Action	Improve Subdivisions Design
Analysis	Improve any existing building standards or establish new standards as deemed necessary to reduce potential of damage to new and existing structures in subdivisions.
Hazard(s) Addressed	All Hazards
Estimated Cost	Staff Time
Potential Funding	General Fund
Timeline	5+ Years
Priority	Low
Lead Agency	County Zoning Commission, City/Village boards
Status	Not Started

Action	Levee/ Floodwall Construction and/or Improvements
Analysis	Levees and floodwalls serve to provide flood protection to businesses and residents during large storm events. Improvements to existing levees and floodwalls will increase flood protection. If possible, the structure may be designed to FEMA standards to provide 100-year flood protection providing additional flood insurance benefits. The Elkhorn river is the main source of flooding in Cuming county. This mitigation action would reduce this vulnerability to people and property within the river's floodplain.
Hazard(s) Addressed	Flooding
Estimated Cost	$500,000+
Potential Funding	USACE, HMGP, PDM, LENRD, Governing County & Local Governing Agency
Timeline	5+ Years
Priority	Medium
Lead Agency	City Manager of West Point
Status	Planning Stage. The county helping West Point where needed on this project.

Action	Mutual Aid
Analysis	Work with other utility providers for Mutual Aid.
Hazard(s) Addressed	All Hazards
Benefits	Working with other utility providers ensures that there is a backup source of utility services.
Estimated Cost	Staff Time
Potential Funding	General Fund
Timeline	5+ Years
Priority	Low
Lead Agency	County
Status	Not started

Action	Power and Service Lines
Analysis	Communities can work with their local Public Power District or Electricity Department to identify vulnerable transmission and distribution lines and plan to bury lines underground or retrofit existing structures/infrastructure to be less vulnerable to storm events. Electrical utilities shall be required to use underground construction methods where possible for future installation of power lines. Activities could include: Replacing damaged/aging power poles lines and removing unused lines from poles; burying power lines; install pad mounted transformers; elevating transformers above floodplain; adding guy wire and support; removing large diameter communication lines; replacing damaged poles with higher class; using multiple poles or dead end structures to support; replacing porcelain cutout; ice-proof cutouts; and use dead head poles.
Hazard(s) Addressed	Tornadoes, High Winds, Severe Thunderstorms, Severe Winter Storms, Hail
Estimated Cost	$70,000/mile for burying, other costs vary
Potential Funding	HMGP, PDM, LENRD, Governing County & Local Governing Agency
Timeline	5+ Years
Priority	Medium
Lead Agency	Cuming County Public Power District
Status	Ongoing. There are some power lines buried but additional power lines need to be buried over time.

Action	Property Acquisition
Analysis	Encourage flood-prone property owners to voluntarily relinquish/sell that property to the City/Village/ County.
Hazard(s) Addressed	Flooding, Dam Failure, Levee Failure
Estimated Cost	Varies
Potential Funding	HMGP, PDM, CDBG, USACE, FMA, SRL, RLC, LENRD, Governing County & Local Governing Agency
Timeline	5+ Years
Priority	Low
Lead Agency	Cuming County
Status	Not Started

Action	River/ Stream Bank Stabilization
Analysis	Bank degradation is occurring along many rivers and creeks. Stabilization improvements includes rock rip rap, vegetative cover, j-hooks, boulder vanes, etc. and can be implemented to reestablish the channel banks.
Hazard(s) Addressed	Flooding
Estimated Cost	Varies greatly with size and length of channel requiring bank stabilization.
Potential Funding	HMGP, PDM, LENRD, Governing County & Local Governing Agency
Timeline	2-5 Years
Priority	Low
Lead Agency	Cuming County Roads Department
Status	Planning Stage. This project is expected to happen by the Beemer Bridge of the Elkhorn River.

Action	Safe Room / Storm Shelter
Analysis	Design and construct storm shelters and safe rooms in highly vulnerable areas such as mobile home parks, campgrounds, school, and other areas.
Hazard(s) Addressed	Tornadoes, High Winds, Severe Thunderstorms
Estimated Cost	$200-$300/sf stand alone; $150-200/sf addition/retrofit
Potential Funding	PDM, HMPG, LENRD, Governing County & Local Governing Agency
Timeline	5+ Years
Priority	Low
Lead Agency	County
Status	Not Started

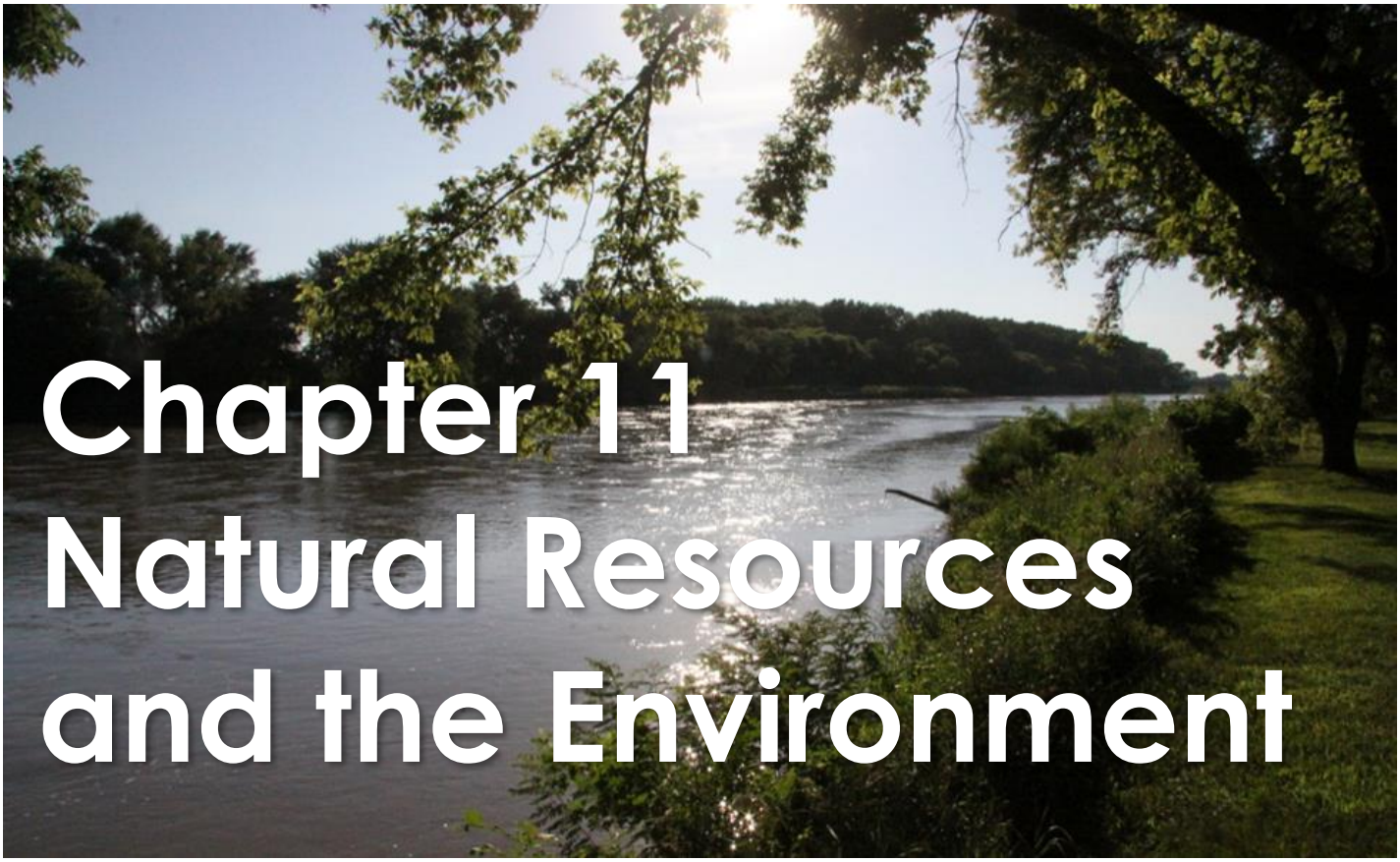
Action	Stormwater System and Drainage Improvements
Analysis	The county mainly utilizes stormwater systems comprising of ditches and culverts to convey runoff. Undersized systems can contribute to localized flooding. Drainage improvements may include ditch upsizing, ditch cleanout and culvert improvements.
Hazard(s) Addressed	Reduces the risk of interior, localized flooding and the damages incurred from it by effectively conveying runoff. Also reduces the risk of illness/disease by eliminating standing water.
Estimated Cost	$10,000-$50,000 for smaller communities, $100,000+ for larger
Potential Funding	Local Taxes
Timeline	5+ Years
Priority	Medium
Lead Agency	Cuming County Department of Roads
Status	Ongoing. The county makes drainage improvements as issues arise and funding is available.

Action	Tree City USA – Tree Maintenance Programs
Analysis	Support communities in becoming a Tree City USA through the National Arbor Day Foundation in order to receive direction, technical assistance, and public education on how to establish a tree maintenance program in order to maintain trees in a community to limited potential damages when a storm event occurs. The four main requirements include: 1) Establish a tree board; 2) Enact a tree care ordinance; 3) Establish a forestry care program; 4) Enact an Arbor Day observance and proclamation.
Hazard(s) Addressed	Severe Thunderstorms, Severe Winter Storms, High Winds, Tornadoes, Hail
Estimated Cost	$0-$1,000+
Potential Funding	Arbor Day Foundation, US Forest Service, LENRD, Governing County & Local Governing Agency
Timeline	5+ Years
Priority	Low
Lead Agency	Cuming County
Status	Not Started

Action	Warning Systems
Analysis	Improve city cable TV interrupt warning system and implement telephone interrupt system such as Reverse 911, emergency text messaging warning system etc.
Hazard(s) Addressed	All Hazards
Estimated Cost	$5,000+
Potential Funding	HMGP, PDM, LENRD, Governing County & Local Governing Agency
Timeline	2-5 Years
Priority	Medium
Lead Agency	County, City/Village Boards
Status	Not Started

Action	Water System Improvements
Analysis	Water system improvements to include additional fire hydrants/increase supply and pressure. High pressure is needed in the event of an emergency to effectively fight fires and also to meet increasing demands.
Hazard(s) Addressed	All Hazards
Estimated Cost	$50,000+
Potential Funding	CDGB, SRF, LENRD, Governing County & Local Governing Agency
Timeline	5+ Years
Priority	Low
Lead Agency	Cuming County
Status	Not Started

Action	Weather Radios
Analysis	Conduct an inventory of weather radios at schools and other critical facilities and provide new radios as needed.
Hazard(s) Addressed	All Hazards
Estimated Cost	$50/per radio
Potential Funding	HMGP, PDM, LENRD, Governing County & Local Governing Agency
Timeline	5+ Years
Priority	Low
Lead Agency	Cuming County
Status	Not Started



Chapter 11 Natural Resources and the Environment

Introduction

In order to formulate a truly valid and "comprehensive" plan for the future development of Cuming County, it is first necessary to evaluate the environmental and man-made conditions currently existing in order to determine the impacts these factors may have on future land uses in the County. This component of the Cuming County Comprehensive Plan provides a general summary of the environmental and man-made conditions, which are present in the County, and identifies and qualifies the characteristics of each which will directly or indirectly impact future land uses in the County.

Natural Environmental Conditions

- Climate
- Geology
- Relief and Drainage
- Wetlands
- Soil Association
- Capability Grouping
- Prime Farmland
- Soil Limitations

Natural Conditions

Climate

Cuming County is typically cold during the winter months. Summers can be humid and hot with occasional cool spells. Precipitation during the winter frequently occurs as snowstorms. During the warm months precipitation mainly consists of showers, often heavy, that occur when warm, moist air moves in from the south. Total annual rainfall is normally adequate for corn, soybeans, and small grain.

In winter, the average temperature is 11 degrees F and the average daily minimum temperature can be below 0 degrees. The lowest temperature on record, which occurred at West Point on January 12, 1912 –38 degrees. In summer, the average temperature is 86 degrees and the maximum temperature can reach 100 degrees. The highest recorded *temperature,* which occurred on July 25, 1936, is 113 degrees.

The total annual precipitation is about 28 inches. Of this, more than 21 inches, or nearly 75 percent, usually falls in April through September. The growing season for most crops falls within this period.

The average seasonal snowfall is about 34 inches. The number of such days with snow varies greatly from year to year.

Tornadoes and severe thunderstorms occasionally occur. These storms are local in extent and of short duration. They can result in sparse damage in narrow areas. Hailstorms occur at times during the warmer part of the year. They occur in irregular patterns and in relatively small areas.

Geology and Groundwater

(This information was taken from the April 2003 issue of UNL Conservation and Survey Division Report Geology, Groundwater Chemistry and Management of the Dakota Aquifer in Nebraska.)

Cuming County lies within the Nebraska portion of the Dakota Aquifer. According to the report... The Dakota aquifer of the central Great Plains is a key secondary aquifer in many parts of Nebraska. It is an important source of water for municipal, industrial and domestic supplies in an area that runs from the northern to the eastern and southeastern parts of the state. While the regional groundwater flow can be characterized generally as moving northeast from the Rocky Mountains to the Missouri River, locally the flow systems are hydrologically complex.

Water in the northeastern part of the state (Dakota, Thurston, Cuming, Burt and Dodge counties), is of a mixed origin as the aquifer changes from a confined condition to unconfined farther south. The aquifer is largely recharged from the regional groundwater flow system where it is mostly confined and from the local system where it is mostly unconfined. The more recently recharged area has better potential for increased development. This potential is restricted by the provision that increased usage does not exceed the amount of input from local recharge and lead to mining of the aquifer. Where the aquifer is under varying degrees of confinement, changes in groundwater chemistry could be used to assess the extent to which a well is being influenced by water from the regional confined aquifer or local flow systems.

Physiography, Relief, and Drainage

(This information was taken from the Cuming County Soil Survey by the United States Department of Agriculture – Soil Conservation Service – 1975)

Cuming County is in the northern part of the rolling hills topographic region of Nebraska. Long slopes, rolling hills, and broad, low-gradient valleys are characteristic of the landscape. The elevation ranges from 1,275 feet on the bottom lands of the Elkhorn River in the southern part of the county to 1,600 feet on the uplands in the northwestern part, a difference of 325 feet. The elevation of most of the county is between 1,300 and 1,500 feet.

The county is wholly within the area drained by the Elkhorn River. In general, surface drainage is to the east and south. The Elkhorn River enters the county 6 miles south of the northwest corner and leaves the county 9 miles west of the southeast corner. Plum, Rock, Sand, Leisy, Coffee, and Fisher Creeks are the principal tributaries that empty into the Elkhorn River within the county. Other streams that drain parts of Cuming County but empty into the Elkhorn downstream from the south county line are Logan, Pebble, Maple, and Cuming Creeks. All the named creeks are fed by many small streams and drainageways.

Relief, or lay of the land, influences the formation of soil mainly through its effect on drainage, runoff, and vegetative growth. The degree of slope, shape of the surface, and permeability of the soil determine the rate of runoff, the internal drainage, and the moisture content of the soil. Internal drainage and availability of moisture are important factors in forming the horizons of a soil.

On steep slopes, where runoff is rapid and little moisture penetrates the soil, development of the soil is slower than on gentler slopes. Erosion removes the surface soil almost as fast as it is formed. Lime and other elements are not leached deeply. In Cuming County, the steep Crofton soils have little soil profile development other than a slightly darkened, thin surface layer.

The nearly level and gently sloping soils on uplands have stronger development and more distinct soil horizons than the steeper soils. They absorb more moisture, and percolation is deeper into the profile. Consequently, lime and plant nutrients are leached to greater depths, and a B horizon develops. The nearly level and gently sloping Moody and Belfore soils have distinct horizons.

Some of the nearly level soils on bottom lands are somewhat poorly drained because of slow runoff or a moderately high water table. Where runoff is slow, water penetrates the soil, causes silt to weather to clay, and leaches certain elements into lower horizons. Where the water table is

moderately high, water is brought from the zone of saturation to the root zone by capillary action and is used by plants. The moisture in the soil affects the kind and amount of vegetation, which in turn influences soil development. In Cuming County, the Colo, Calco, and Zook soils are somewhat poorly drained.

WETLANDS

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

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

Inland wetlands found in Cuming County are most common on floodplains along the Elkhorn River, Logan Creek and the other creeks (riparian wetlands), in isolated depressions surrounded by dry land (for example, playas, basins, and "potholes"), along the margins of lakes and ponds, and in other low-lying areas where the groundwater intercepts the soil surface or where precipitation sufficiently saturates the soil (vernal pools and bogs). Inland wetlands include marshes and wet meadows dominated by herbaceous plants, swamps dominated by shrubs, and wooded swamps dominated by trees.

Certain types of inland wetlands are common to particular regions of the country:

- wet meadows or wet prairies in the Midwest
- prairie potholes of Nebraska

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

The federal government protects wetlands through regulations (like Section 404 of the Clean Water Act), economic incentives and disincentives (for example, tax deductions for selling or donating wetlands to a qualified organization and the "Swampbuster" provisions of the Food Security Act), cooperative programs, and acquisition (for example, establishing national wildlife refuges).

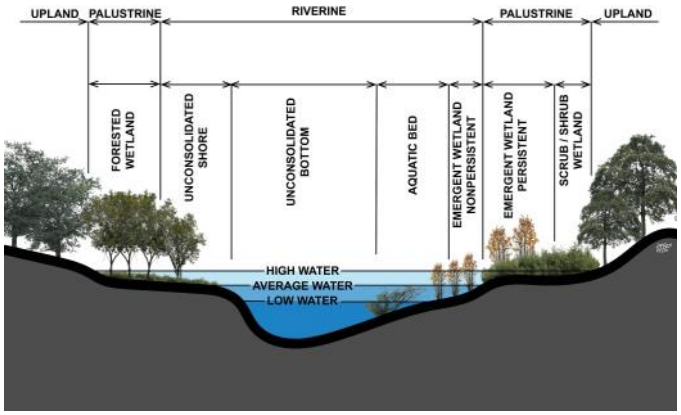
Partnerships to manage whole watersheds have developed among federal, state, tribal, and local governments; nonprofit organizations; and private landowners. The goal of these partnerships is to implement comprehensive, integrated watershed protection approaches. A watershed approach recognizes the interconnection of water, land, and wetlands resources and results in more complete solutions that address more of the factors causing wetland degradation.

The government achieves the restoration of former or degraded wetlands under the Clean Water Act Section 404 program as well as through watershed protection initiatives. Together, partners can share limited resources to find the best solutions to protect and restore America's natural resources. While regulation, economic incentives, and acquisition programs are important, they alone cannot protect the majority of our remaining wetlands. Education of the public and efforts in conjunction with states, local governments, and private citizens are helping to protect wetlands and to increase appreciation of the functions and values of wetlands. The rate of wetlands loss has been slowing. Approximately 75 percent of wetlands are privately owned, so individual landowners are critical in protecting these areas.

Wetlands play an important role in the ecology of Cuming County. Wetlands are home to many species of wildlife, many of which live only in wetland areas. Wetlands also provide an important service to nearby areas by holding and retaining floodwaters. These waters are then slowly released as surface water, or are used to recharge groundwater supplies. Wetlands also help regulate stream flows during dry periods.

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

Figure 11.1: Riverine Wetland System



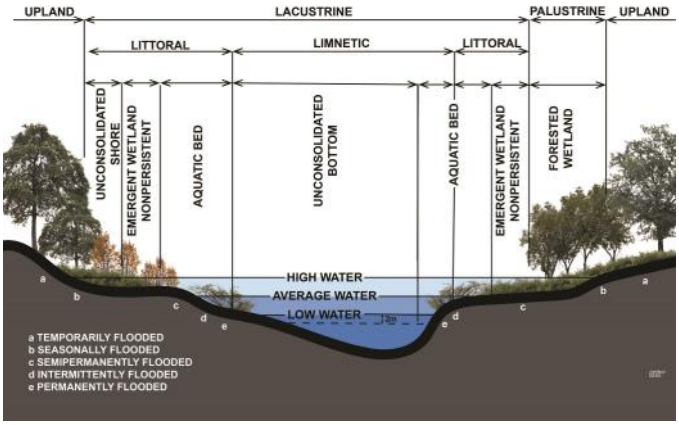
Source: National Wetlands Inventory

Wetlands are categorized in several classifications, each more detailed and specific than the previous. The NWI uses five systems; marine, estuarine, riverine, lacustrine, and palustrine. Within each system, there are subsystems, classes, subclasses, and dominance types to describe different wetland characteristics. The system classification refers to wetlands sharing similar hydrologic, geomorphologic, chemical, or biological factors. The following are definitions and examples of three of the five systems used to describe wetlands. The Marine and Estuarine wetland systems are located in and near the open ocean; therefore, they do not occur in Nebraska. Further information, through NWI, on specific classifications is available.

Cuming County experiences each of these three other wetland systems. The majority of the wetlands in the county occur, mostly along the Platte River and as meadow areas. However, there are smaller wetland pockets scattered around Cuming County.

Figures 11.1, 11.2, and 11.3 depict common examples of the riverine, lacustrine, and palustrine wetlands, respectively. Figure 11.4 shows the occurrence of wetlands in Cuming County. These figures were produced by the United States Fish and Wildlife Service, and are taken from their 1979 publication entitled "Classification of Wetlands and Deepwater Habitats of the United States", some enhancement was completed in order to place accents on key areas.

Figure 11.2: Lacustrine Wetland System



Source: National Wetlands Inventory

Figure 11.1 shows the riverine system includes all wetlands occurring in channels, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergent, emergent mosses, or lichens, and (2) habitats with water containing ocean derived salts in excess of 0.5%. A channel is an open conduit either naturally or artificially created which periodically or continuously contains moving water, or which forms a connecting link between two bodies of standing water. Therefore, water is usually, but not always, flowing in the riverine system.

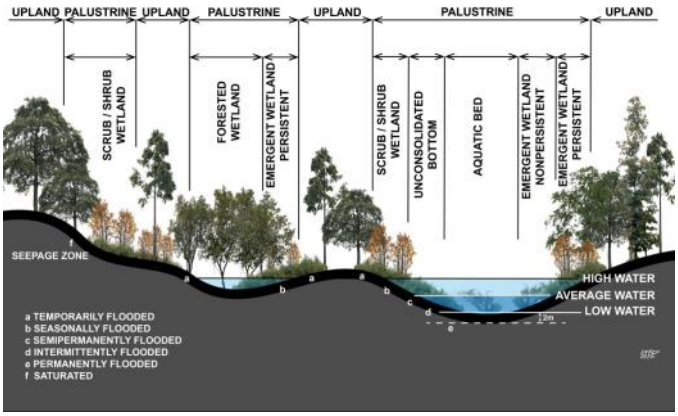
Springs discharging into a channel are also part of the riverine system. Uplands and palustrine wetlands may occur in the channel, but are not included in the riverine system. Palustrine Moss-Lichen Wetlands, Emergent Wetlands, Scrub-Shrub Wetlands, and Forested Wetlands may occur adjacent to the riverine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

The Lacustrine System includes all wetlands with all of the following characteristics: (1) situated in a topographic depression or a dammed river channel; (2) lacking trees, shrubs, persistent emergents, emergent moss or lichens with greater than 30% area coverage; and (3) total area exceeds 20 acres. Similar wetland areas totaling less than 20 acres are also included in the Lacustrine System if an active wave-formed or

bedrock shoreline feature makes up all or part of the boundary, or if the water depth in the deepest part of the basin exceeds 6.6 feet (2 meters) at low water.

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

Figure 11.3: Palustrine Wetland System



Source: National Wetlands Inventory

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

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

Soil Formation and Classification

The general soil map shows broad areas having a distinctive pattern of soils, relief, and drainage. Each map unit, or soil association, on the general soil map is a unique natural landscape. Typically, an association consists of one or more major soils and some minor soils. The associations are named for the major soils. The soils making up one association can occur in other associations but in a different pattern.

Because of its scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one soil association differ from place to place in slope, depth, drainage, and other characteristics that affect management.

(The following information has been inserted directly from the Cuming County Soils Survey dated 1975)

Soil Associations

1.Nora-Moody-Judson Associations

General Soil Description

Deep, well-drained, gently sloping to moderately steep, silty soils on uplands and foot slopes

This association consists mostly of gently sloping to moderately sloping soils on divides and of moderately steep soils on hillsides bordering drainageways (Figure 11.6).

It includes colluvial soils on foot slopes along narrow upland drainageways. This association is dissected by many small intermittent drainageways that merge into larger drainageways. Relief from the bottom of a drainageway to the crest of the adjacent ridge ranges from 65 to 125 feet. Soils in this association are deep and generally are well drained.

The areal extent of this association is about 48,000 acres, or 13 percent of Cuming County. Nora soils make up about 47 percent of the association, Moody soils 26 percent, and Judson soils 12 percent. The remaining 15 percent consists of minor soils.

Nora soils are on narrow ridgetops and on hillsides adjacent to drainageways on uplands. These are mod-erately sloping to moderately steep, friable soils that formed in loess. The surface layer is silty clay loam and ranges from 5 to 15 inches in thickness. The subsoil is silty clay loam that is noncalcareous in the upper part and calcareous in the lower part. The underlying material is calcareous silt loam. Brown, yellowish-brown, and reddish-brown mottles occur below the surface layer.

Moody soils are on broad ridgetops and on hillsides adjacent to drainageways on uplands. They are gently sloping to moderately sloping soils that formed in loess. The surface layer is firm silty clay loam and ranges from 6 to 15 inches in thickness. The subsoil is firm silty clay loam. The upper part of the calcareous un-derlying material is silty clay loam, and the lower part is silt loam that has brown, yellowish-brown, grayish-brown, and gray mottles.

Judson soils are on foot slopes along narrow upland drainageways and small stream valleys. These gently sloping soils formed mostly in colluvium. The surface layer is silty clay loam that ranges from 25 to 36 inches in thickness; it is friable in the upper part and firm in the lower part. The subsoil, to a depth of 60 inches, is silty clay loam and has yellowish-brown and grayish-brown mottles.

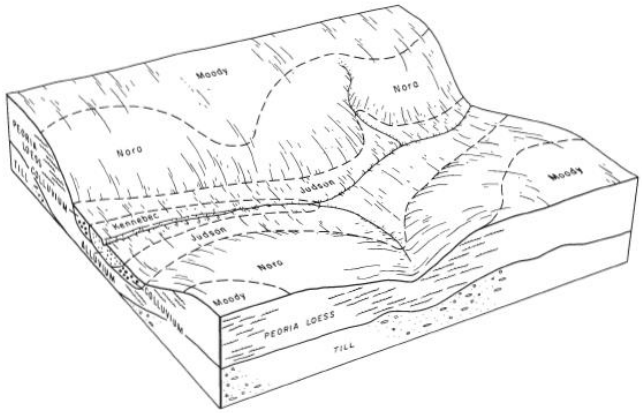
The minor soils in this series are in the Kennebec and Colo series. They are on bottom lands and are nearly level. Kennebec soils are friable and are moderately well drained. Colo soils are friable in the surface layer and firm beneath; they are somewhat poorly drained. The water table is at a depth of 8 to 12 feet in areas of Kennebec soils and at a depth of 3 to 8 feet in areas of Colo soils.

About 75 percent of the acreage is cultivated. Corn, alfalfa, and soybeans are the principal crops. The remaining areas are in pasture. A few areas are irrigated by means of self-propelled sprinkler systems.

Farms in this association average about 250 acres in size and are diversified. They are primarily a combination of the cash-grain and livestock types. Soybeans are grown for cash. Nearly all of the grain and hay produced is fed to livestock. Many cattle and hogs are fattened in feedlots and are marketed locally through livestock buyers or livestock sale barns. A small percentage of livestock is shipped to terminal markets in large cities outside the county. The markets are easily accessible. Gravel, blacktop, or improved dirt roads are on most section lines, but there is no road on some section lines. Several State highways and one Federal highway cross the area; these are concrete or good blacktop roads.

Conserving water and maintaining good tilth and high fertility are the main concerns of management in this association. On uplands, erosion of soils is the principal hazard. In narrow valleys, local flooding is a hazard and wetness limits the use of some soils.

Figure 11.4: Nora-Moody-Judson Associations

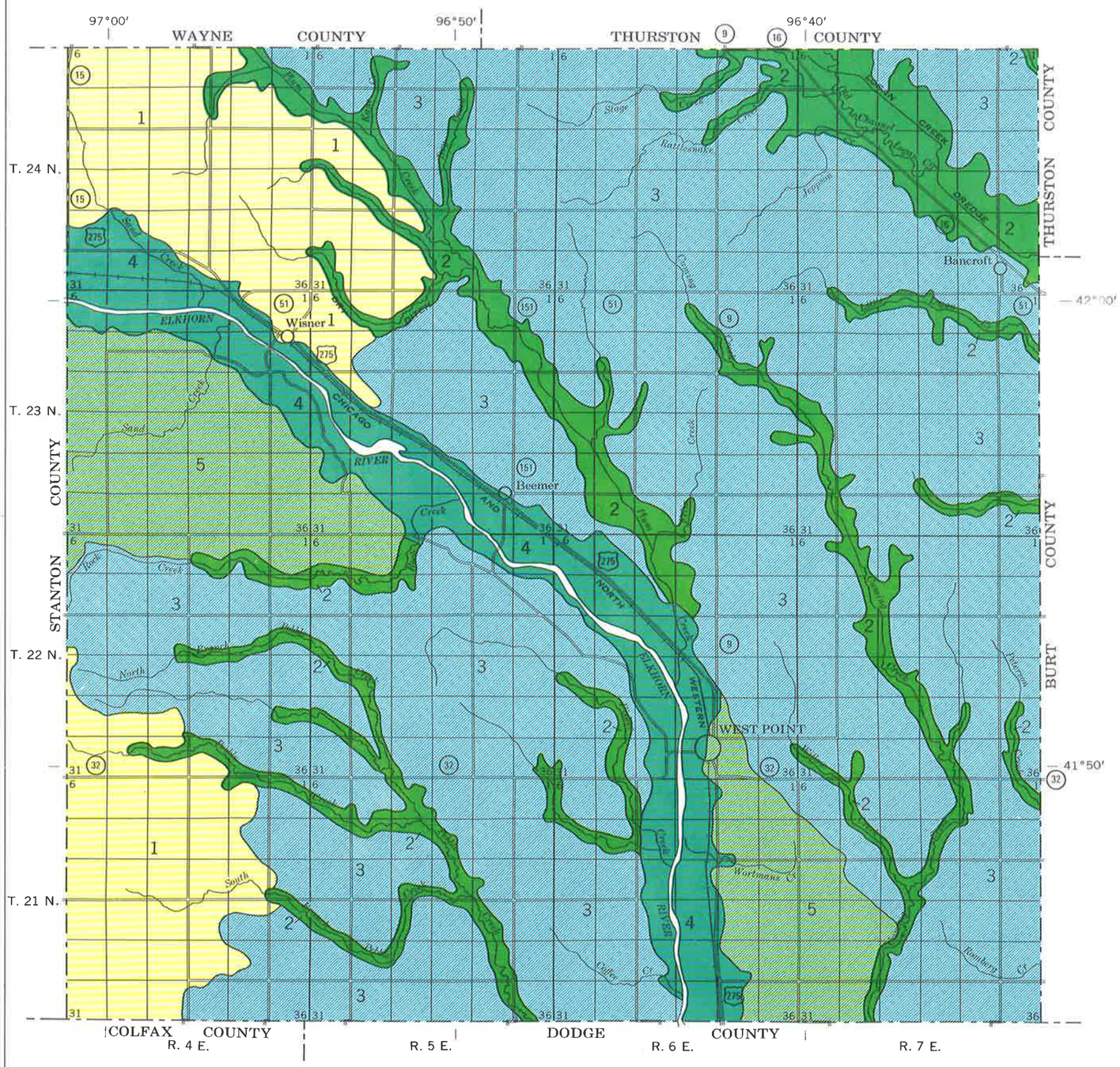


2. Colo-Calco-Kennebec Association

General Soil Description

Deep, somewhat poorly drained and moderately well drained, nearly level, silty soils on bottom lands

This association consists mostly of nearly level soils on bottom lands of the major creeks and their tributaries. The creeks are narrow and moderately deep, and those not artificially straightened have meandering courses through the bottom lands. Logan and Plum Creeks have been straightened, but many meanders of their former natural channels still are evident. During periods of heavy rainfall, the streams commonly over-flow and flood the bottom lands. In most of the association, the water table is at a depth of 2 to 8 feet, though in a few places it is at the surface, and in some places it is as much as 12 feet below the surface. Soils in this association formed in silty alluvium, are deep, and



Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

SOIL ASSOCIATIONS *

1. Nora-Moody-Judson association: Deep, well-drained, gently sloping to moderately steep, silty soils on uplands and foot slopes
2. Colo-Calco-Kennebec association: Deep, somewhat poorly drained and moderately well drained, nearly level, silty soils on bottom lands
3. Moody-Nora-Belfore association: Deep, well-drained, nearly level to moderately steep, silty soils on uplands
4. Zook-Leshara-Wann association: Deep, somewhat poorly drained, nearly level, clayey, silty, and loamy soils on bottom lands
5. Thurman-Leisy-Moody association: Deep, somewhat excessively drained and well drained, nearly level to moderately sloping, sandy, loamy, and silty soils on uplands

*Texture named in soil associations is that of surface layer of the major soils.

Compiled 1973

N

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

GENERAL SOIL MAP

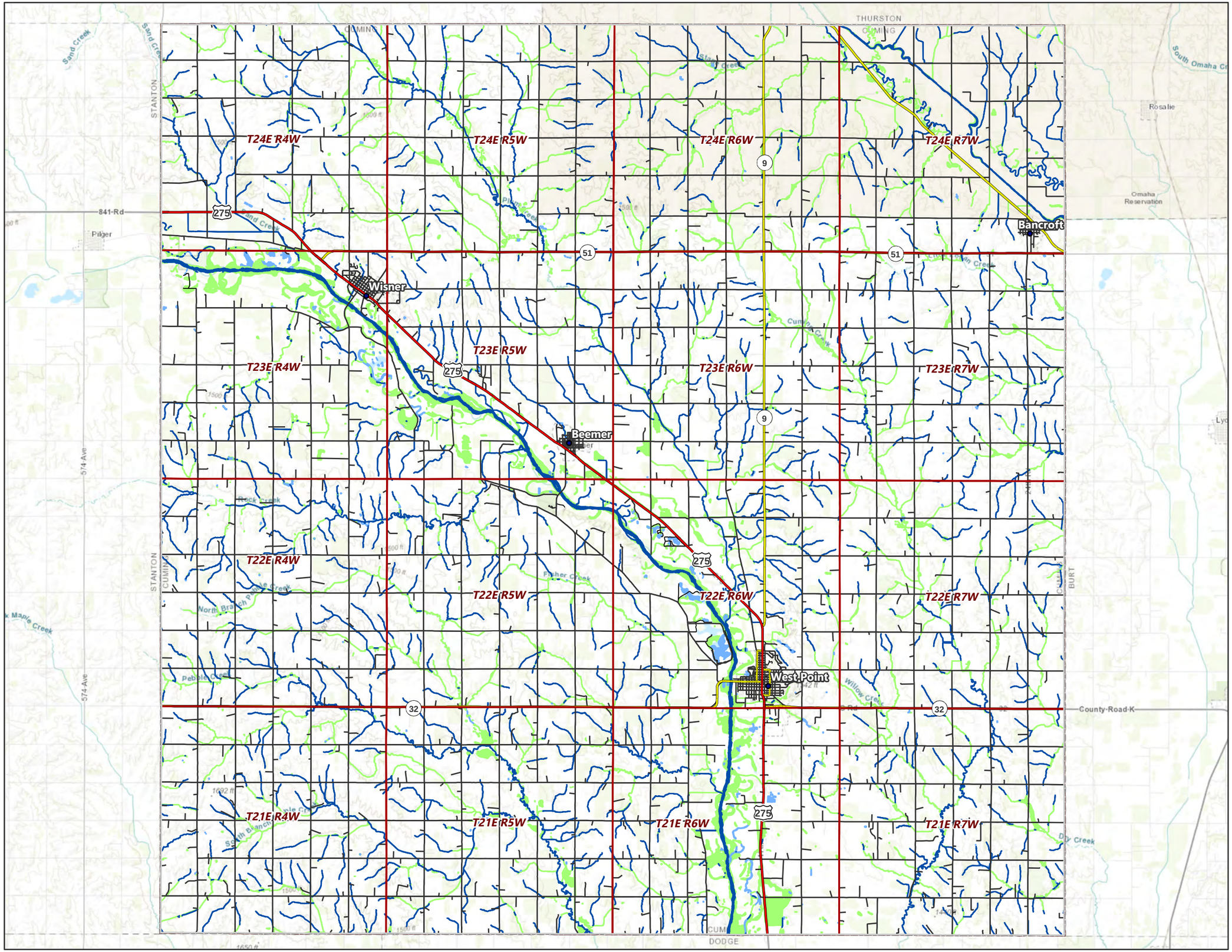
CUMING COUNTY, NEBRASKA

Scale 1:190,080

1 0 1 2 3 4 Miles

SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36



CUMING COUNTY, NEBRASKA

COMPREHENSIVE PLAN

NATIONAL WETLANDS INVENTORY

LEGEND

- City/Town
- Wetlands
- Lake/Pond
- River/Stream
- US Highway
- State Highway
- County Road
- Township/Range
- County Boundary

MARVIN PLANNING CONSULTANTS

Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 12.09.2019

N

0 1.5 3 6 Miles

1" = 3 miles

generally are somewhat poorly drained to moderately well drained.

The areal extent of this association is about 47,000 acres, or about 13 percent of Cuming County. Colo soils make up about 25 percent of this association, Calco soils 19 percent, and Kennebec soils 18 percent. The remaining 38 percent consists of minor soils.

Colo soils are on stream terraces and on broad, nearly level bottom lands, mostly in the upper reaches of drainageways. They are somewhat poorly drained, noncalcareous soils that are silty clay loam throughout their profile. The surface layer is friable and ranges from 22 to 34 inches in thickness. Horizons below the surface layer have brown, reddish-brown, and yellowish-brown mottles.

Calco soils are mainly on bottom lands along the upper reaches of drainageways and creeks that are only shallowly entrenched into the landscape. They are firm, calcareous, somewhat poorly drained soils that are silty clay loam throughout their profile. The surface layer ranges from 30 to 48 inches in thickness. Brown, reddish-brown, and yellowish-brown mottles occur below a depth of 35 inches.

Kennebec soils are on the highest areas of the bottom lands of upland drainageways. They are friable, noncalcareous, and moderately well drained. The surface layer, 24 to 42 inches thick, and the transitional layer beneath it consist of silt loam. The underlying material is silt loam and silty clay loam and has yellowish-brown to brown mottles.

Minor soils in this association are in the Zook and Judson series. Zook soils are mostly in the lowest areas of bottom land along the major creeks and are somewhat poorly drained. Judson soils are on foot slopes along narrow upland drainageways and small stream valleys; they are gently sloping and well drained.

Most of the acreage is cultivated. The soils are fertile, and where wetness is not a limitation, they are suited to all crops commonly grown in the county. When rainfall is insufficient, row crops in some areas are irrigated with water from wells and streams. Some of the wet areas are planted to grass for pasture.

Farms in this association average about 300 acres in size and are diversified. They are the cash-grain type or a combination of the cash grain and livestock types. Cattle feeding is a major enterprise in this area. Nearly all the grain and hay produced is fed to livestock or is marketed within the county. Most fattened livestock are marketed locally, but a small percentage is marketed outside the county. Markets are easily accessible. Good gravel or improved dirt roads are on most section lines, but some do not cross the creeks. Several paved or blacktop highways cross areas of this association.

Wetness related to a high water table or to flooding is the main limitation on soils in this association. The lack of adequate surface and internal drainage is the principal concern of management.

3. Moody-Nora-Belfore Association

General Soil Description

Deep, well-drained, nearly level to moderately steep, silty soils on uplands

This association consists mostly of nearly level to gently sloping soils on broad divides and of moderately sloping to moderately steep soils on narrow ridgetops and hillsides adjacent to drainageways on uplands (Figure 11.7). It is dissected by many small drainageways.

Soils in this association formed in loess, are deep, and generally are well drained.

The areal extent of this association is about 208,740 acres, or about 57 percent of Cuming County. Moody soils make up about 41 percent of the association, Nora soils about 24 percent, and Belfore soils 14 percent. The remaining 21 percent consists of minor soils.

Moody soils are on broad divides and hillsides that parallel the drainageways. They are gently sloping to moderately sloping. The surface layer is firm silty clay loam that ranges from 6 to 15 inches in thickness. The subsoil is firm silty clay loam. The upper part of the calcareous underlying material is silty clay loam, and the lower part is silt loam that has brown, yellowish-brown, grayish-brown, and gray mottles.

Nora soils are on narrow ridgetops and on hillsides that border drainageways on uplands. They are

moderately sloping to moderately steep, friable soils. The surface layer is silty clay loam that ranges from 5 to 15 inches in thickness. The subsoil is silty clay loam; it is noncalcareous in the upper part and calcareous in the lower part. The underlying material is calcareous silt loam. Brown, yellowish-brown, and reddish-brown mottles occur below the surface layer level. The surface layer is friable silty clay loam that ranges from 10 to 19 inches in thickness. The upper part of the subsoil is firm silty clay, and the lower part is friable silty clay loam. The friable underlying material ranges from silty clay loam to silt loam. Light gray, yellowish-brown, and reddish-brown mottles occur in the lower part of the subsoil and in the underlying material.

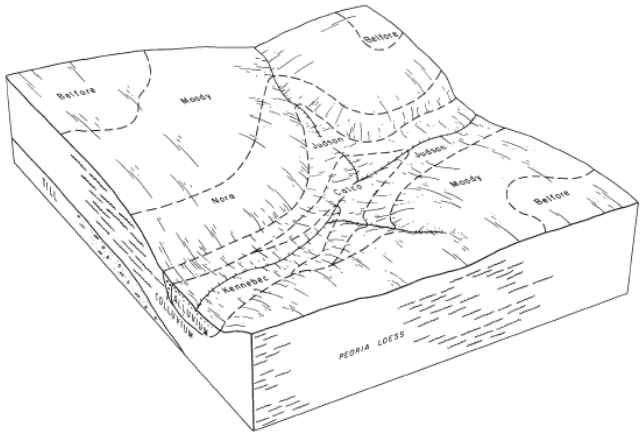
The minor soils in this association are the terrace phase of the Belfore series and soils in the Calco, Crofton, Judson, and Kennebec series. The terrace phase of the Belfore series is a nearly level soil that is on narrow stream terraces in a few of the wider valleys. Calco soils are nearly level and somewhat poorly drained; they are in low areas on narrow bottom lands along the upper reaches of upland drainageways and streams. Crofton soils are moderately sloping to steep and are on convex ridges and hillsides that border drainageways. Judson soils are gently sloping and are on foot slopes along narrow drainageways and small stream valleys. Kennebec soils are nearly level and moderately well drained ; they are on the highest areas of the narrow bottom lands.

Most of the acreage is cultivated, and the principal crops are corn, soybeans, alfalfa, and oats. Some areas are in pasture, which is grazed by cattle and sheep. In places row crops are irrigated with water from wells.

Farms in this association average about 280 acres in size and are diversified. They are primarily a combination of the cash grain and livestock types. Soybeans are grown for cash. Much of the grain and hay is fed to cattle and hogs that are being fattened for market. Most of the other farm produce is marketed locally. Fattened cattle and hogs commonly are marketed locally through sale barns and direct livestock buyers, but a small percentage of livestock is shipped to terminal markets in large cities outside the county. The markets are readily accessible. Gravel, blacktop, or improved dirt roads are on most section lines. Concrete or blacktop State and Federal highways cross the area.

Controlling erosion, conserving water, and maintaining fertility are the chief concerns of management in this association. Localized flooding is a hazard, and wetness limits the use of some soils.

Figure 11.7: Moody-Nora-Belfore Associations



4. Zook-Leshara-Wann Association

General Soil Description

Deep, somewhat poorly drained, nearly level, clayey, silty, and loamy soils on bottom lands

This association consists mostly of nearly level soils on the flood plain in the Elkhorn River valley (Figure 11.8). These soils formed in sandy, loamy, and clayey alluvium. They are deep and generally are somewhat poorly drained. Before the Elkhorn River was straightened, its course through this association was very meandering.

The areal extent of this association is about 26,000 acres, or about 7 percent of Cuming County. Zook soils make up about 26 percent of the association, Leshara soils 18 percent, and Wann soils 17 percent. The remaining 39 percent consists of minor soils and land types.

Zook soils are on some of the lowest areas of bottom land. They have a firm silty clay loam and silty clay surface layer that ranges from 24 to 34 inches in thickness. The subsoil and underlying material are firm to very firm silty clay. Faint reddish-brown mottles occur in the underlying material.

Leshara soils are on the intermediate elevations of bottom lands. These soils have a friable silt loam sur-face layer that ranges from 10 to 22 inches in thickness. Beneath this is a transitional layer of calcareous silt loam. The calcareous underlying material is silt loam in the upper part and sandy loam in the lower part. Yellowish-brown mottles occur below the surface layer.

Wann soils are in low areas adjacent to streams or their former channels. They have a very friable surface layer that ranges from 12 to 20 inches in thickness. The calcareous underlying material ranges from very friable fine sandy loam to sandy loam to a depth of about 40 inches and from loose very fine sandy loam to fine sand below that depth. Faint yellowish-brown mottles occur in the underlying material.

The minor soils in this association consist of soils in the Inavale and Lamo series and of areas of Sandy alluvial land. Inavale soils are in the highest areas of bottom lands, are nearly level to gently sloping, and are excessively drained. Lamo soils are in the lowest areas of bottom lands, are nearly level, and are somewhat poorly drained. Sandy alluvial land is nearly level and consists of mixed sand and silty alluvial material on low areas of the flood plain, where flooding occurs several times each year.

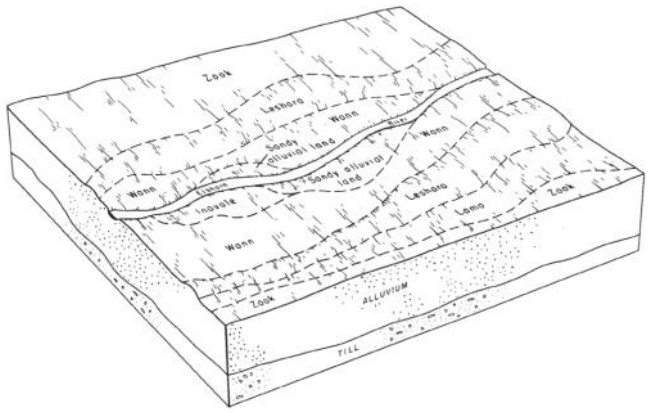
About 60 percent of the acreage is cultivated. Corn, soybeans, and alfalfa are the principal crops. The remaining areas are generally in pasture grasses, hay, and native woodland. The native woodland usually is used for pasture by livestock. A few areas in this association are irrigated either by gravity method or by sprinkler systems, with water pumped from wells or from the Elkhorn River.

Farms in this association average about 240 acres in size and are diversified. They are of the cash grain type or a combination of the cash grain and livestock types. Cattle and hogs are fattened in feedlots. Nearly all the grain and hay produced are fed to livestock. Most cash crops and livestock are marketed locally, but some livestock is shipped to terminal markets in large cities outside the county. The markets are readily accessible. Only a few roads are on section lines, but several gravel roads and one paved highway cross the area.

Flooding and wetness related to a high water table are the principal limitations of the soils in this association. Maintaining high fertility and organic-matter content are the main concerns of management.

The strongly sloping to steep areas are used as hayland. The other areas of this association are used for cultivated crops or support introduced grasses used for grazing. Corn, alfalfa, and oats are the main crops.

FIGURE 11.8: ZOOK-LESHARA-WANN ASSOCIATIONS



5. Thurman-Leisy-Moody Association

General Soil Description

Deep, somewhat excessively drained and well-drained, nearly level to moderately sloping, sandy, loamy, and silty soils on uplands

This association consists mostly of gently sloping to moderately sloping soils on rounded divides and of nearly level to gently sloping soils on the sides and bottoms of swales (Figure 11.9). These are deep soils that formed mostly in eolian sand and loess.

The areal extent of this association is about 35,000 acres, or 10 percent of Cuming County. Thurman soils make up about 30 percent of the association, Leisy soils 23 percent, and Moody soils 20 percent. The remaining 27 percent consists of minor soils.

Thurman soils are on rounded upland divides. They are nearly level to moderately sloping, somewhat excessively drained soils that formed in eolian sand. The surface layer is very friable loamy fine

sand and ranges from 10 to 19 inches in thickness. Beneath this is a transitional layer of very friable loamy fine sand. The underlying material is loose fine sand.

Leisy soils are on side slopes and in swales at slightly lower elevations than Thurman soils. They are well-drained, gently sloping to moderately sloping soils that formed in eolian fine sand. The surface layer, which ranges from 10 to 20 inches in thickness, is very friable fine sandy loam and loam. The subsoil is very friable loam in the upper part and firm silty clay loam in the lower part. The underlying material, which is generally below a depth of 60 inches, ranges from friable silty clay loam to loam. Reddish-brown mottles occur in the lower part of the subsoil.

Moody soils are in swales and on hillsides adjacent to upland drainageways. They are well-drained, gently sloping to moderately sloping soils that formed in loess. The surface layer, which ranges from 6 to 15 inches in thickness, and the subsoil are firm silty clay loam. The upper part of the calcareous underlying material is firm silty clay loam, and the lower part is friable silt loam that has brown, yellowish-brown, grayish-brown, and gray mottles.

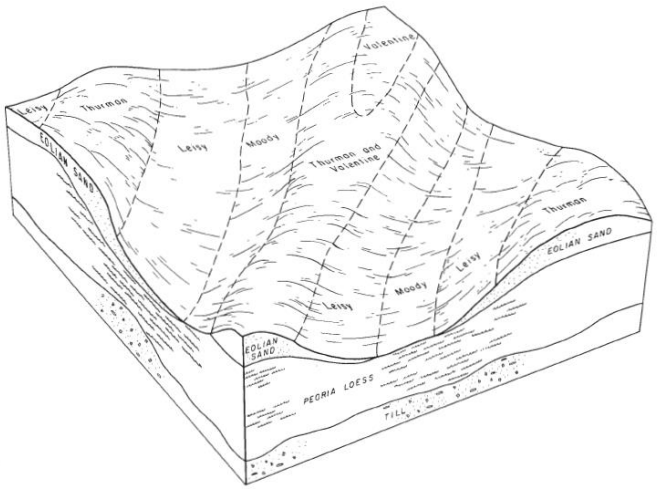
The minor soils in this association are in the Valentine, Cass, and Judson series. Valentine soils occupy high positions on the landscape, are gently sloping to moderately sloping, and are excessively drained. Cass soils are on bottom lands of narrow streams and drainageways and are nearly level and well drained. Judson soils are on colluvial foot slopes that border upland drainageways and small stream valleys; they are gently sloping and well drained.

About 80 percent of the acreage is cultivated, about 15 percent is in pasture, and 5 percent is in native grass. Corn, soybeans, alfalfa, and grain sorghum are the principal crops. The steeper sandy soils are used mainly for pasture and range. A few areas that are used for crops are irrigated with sprinkler systems.

Farms in this association average about 260 acres in size and are diversified. They are mainly a combination of the cash grain and livestock types. Many cattle and hogs are fattened in feedlots, and these livestock generally are marketed locally. Most of the sheep and milk produced are shipped by truck to markets outside the county. Gravel or improved dirt roads are on most section lines, and a few blacktop highways cross the area.

Soil blowing, water erosion, and a lack of adequate rainfall are the principal limitations where the soils in this association are cultivated. Improving fertility and organic-matter content are important concerns of management. Use of the proper grazing system is an important concern where the soils are in pasture.

Figure 11.9: Thurman-Leisy-Moody Associations



Soil Suitability

The characteristics of soils play a major role in determining the potential compatibility of certain uses on the land. The ability to absorb certain liquids such as water and wastewater are different for certain types of soils. In addition, how sensitive an area is to erosion or how shallow the soils are in an area can have a major impact on the ability to develop a specific area of Cuming County. These conditions and how they factor into a soils ability to support certain types of uses is referred to limitations.

Finally, if a soil has some level of limitation, it does not mean the different land uses cannot be undertaken in those soils. However, the key focus needs to be on the types of special engineering solutions needing to be

implemented in order to overcome these specific soil limitations.

Soil Limitations

The interpretations are based on the engineering properties of soils, on test data for soils in the survey area and others nearby or adjoining, and on the experience of engineers and soil scientists familiar with the soils of Cuming County.

Soil limitations are indicated by the ratings Not Limited, Somewhat Limited, and Very Limited.

Not Limited means soil properties are generally favorable for the stated use, or in other words, that limitations are minor and easily overcome.

Somewhat Limited means some soil properties are unfavorable but can be overcome or modified by special planning and design.

Very Limited means soil properties may be so unfavorable and difficult to correct or overcome as to require various degrees of soil reclamation, special designs, or intensive maintenance.

Dwellings with Basements

Figure 11.10 shows the soil suitability conditions for constructing Dwellings with basements. In addition Table 11.1 provides the suitability by soil types and the specific conditions impacting the soil.

Very Limited Conditions

Based on Table 11.1, approximately half of the soils in Cuming County are considered Very Limited As noted above, half of the soils in Cuming County are considered Very Limited for a Dwelling Unit with a Basement. There are six major conditions impacting the soils (not all six are present in any one soil type). The conditions present in the different soils are:

- Flooding
- Depth to saturated zone
- Shrink-Swell
- Ponding
- Slope
- Subsidence Risk

Again, these conditions may or may not eliminate the ability of a land owner to build a dwelling unit, but specific conditions will need to be engineered to overcome to eliminate potential problems in the future.

Somewhat Limited Conditions

There are fewer Somewhat Limited rated soils having fewer issues when developing. The conditions creating the Somewhat Limited classification are:

- Shrink-swell
- Slope

Dwellings without Basements

Figure 11.11 shows the soil suitability conditions for constructing dwelling without a basement (slab on-grade construction). In addition Table 11.1 provides the suitability by soil types and the specific conditions impacting the soil.

Very Limited Conditions

Based on Table 11.1, about half of the soils in Cuming County are considered Very Limited for a Dwelling Unit without a Basement. There are six major conditions impacting the soils (not all six are present in any one soil type). The conditions present in the different soils are:

- Flooding
- Depth to saturated zone
- Shrink-Swell
- Ponding
- Slope
- Subsidence Risk

Again, these conditions may or may not eliminate the ability of a land owner to build a slab-on-grade dwelling unit, but specific conditions will need to be engineered to overcome potential problems in the future.

Somewhat Limited Conditions

Besides the Severe soils, there are some soils considered Somewhat Limited which is less of an issue when developing. The conditions that are creating the Somewhat Limited classification are:

- Shrink-swell
- Slope

Septic Tank and Absorption Fields

Figure 11.12 shows the soil suitability conditions for placement of a septic tank and absorption field in

Cuming County. Table 11.1 provides the suitability by soil types and the specific conditions impacting the soil.

Very Limited Conditions
Based upon the Table 11.1, there are seven conditions impacting the use of septic tanks and absorption fields in Cuming County. The major conditions impacting the soils are:

- Flooding
- Depth to saturated zone
- Ponding
- Slope
- Seepage. Bottom layer
- Filtering Capacity
- Slow water movement

Again, these conditions may or may not eliminate the ability of a land owner to use a septic tank and absorption field but specific conditions will need to be engineered to overcome to eliminate potential problems in the future.

Somewhat Limited Conditions
The issues present creating Somewhat problems for septic tanks are:

- Flooding
- Depth to saturated zone
- Slope
- Slow water movement

Sewage Lagoons

Figure 11.13 shows the soil suitability conditions for placement of Sewage Lagoons in Cuming County. Table 11.1 provides the suitability by soil types and the specific conditions impacting the soil.

Very Limited Conditions
Based on Table 11.1, there are five conditions impacting the use of sewage lagoons in Cuming County. The major conditions impacting the soils are:

- Flooding
- Depth to saturated zone
- Ponding
- Slope
- Seepage

Again, these conditions may or may not eliminate the ability of a land owner to use a sewage lagoon but specific conditions will need to be engineered to overcome to eliminate potential problems in the future.

Somewhat Limited Conditions
Besides the Very Limited soils, there are some soils considered Somewhat Limited which is less of an issue when developing. The conditions that are creating the Somewhat Limited classification are:

- Flooding
- Slope
- Seepage

Again, these conditions may need special engineering to overcome to eliminate potential problems in the future.

Sanitary Landfills

Figure 11.14 shows the soil suitability conditions for placement of sanitary landfills in Cuming County. Table 11.1 provides the suitability by soil types and the specific conditions impacting the soil.

Very Limited Conditions
Based on Table 11.1, there are six conditions impacting the use of sanitary landfills in Cuming County. The major conditions impacting the soils are:

- Flooding
- Depth to saturated zone
- Ponding
- Slope
- Seepage
- Dusty

Again, these conditions may or may not eliminate the ability of a land owner to use a sanitary landfill but specific conditions will need to be engineered to overcome to eliminate potential problems in the future.

Somewhat Limited Conditions
Besides the Very Limited soils, there are some soils considered Somewhat Limited which is less of an issue when developing. The conditions that are creating the Somewhat Limited classification are:

- Slope
- Seepage
- Dusty

Again, these conditions may need special engineering to overcome to eliminate potential problems in the future.

Small Commercial Businesses

Figure 11.15 shows the soil suitability conditions for placement of small commercial businesses in Cuming County. Table 11.1 provides the suitability by soil types and the specific conditions impacting the soil.

Very Limited Conditions

Based on Table 11.1, there are six conditions impacting the use of small commercial buildings in Cuming County. The major conditions impacting the soils are:

- Flooding
- Depth to saturated zone
- Shrink-Swell
- Ponding
- Slope
- Subsidence Risk

Again, these conditions may or may not eliminate the ability of a land owner to use a small commercial buildings but specific conditions will need to be engineered to overcome to eliminate potential problems in the future.

Somewhat Limited Conditions

Besides the Very Limited soils, there are some soils considered Somewhat Limited which is less of an issue when developing. The conditions that are creating the Somewhat Limited classification are:

- Shrink-swell
- Slope

Again, these conditions may need special engineering to overcome to eliminate potential problems in the future.

Other Factors Impacting Land Uses

The previously discussed uses are typical to counties similar to Cuming County. Earlier in this Chapter, the issue of wetlands was covered in some detail and is very closely associated with surface and groundwater. The following topics are greatly influenced by the type of soil and its location in an area. The following paragraphs will focus on Prime Farmland and Percent of Slope.

Prime Farmland

Prime farmland is directly tied to the specific soils and their composition. The map in Figure 11.16 identifies Prime Farmland, Prime Farmland if Drained, Farmland of Statewide Importance, and Not Prime Farmland.

According to the USDA, Prime farmland

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

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, state, and federal levels, as well as individuals, must encourage and facilitate the wise use of our nation's prime farmland.

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

Table 11.1: Soil Properties by Type and Use

Soil Symbol/Soil Name Bolded soil represents specific soil in a complex	Dwellings with Basements		Dwellings without Basements		Septic tank and absorption fields		Sewage Lagoons		Sanitary Landfill		Small Commercial Businesses	
	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions
6603 Alcester	1	3,5	1	3,5	2	1,2,5,7,8,9	1	5	1	5,11	1	3,5
6318 Barney	2	1,2	2	1,2	2	1,2,7,8	2	1,2,10	2	1,2,10	2	1,2
6628 Belfore	2	2,3,5	1	3	2	2,4,9	0	0	1	11	2	2,3,4
6505 Belfore	2	1,2,3,4	1	3	2	2,4,9	0	0	1	11	2	1,2,3,4
6630 Belfore-Moody	2	2,3,4	2	2,3,5	2	2,4,9	0	0	1	11	2	2,3,5
8418 Boel	2	1,2	2	1,2	2	1,2,7,8	2	1,2,10	2	1,2,10,11	2	1,2
6401 Calco	2	1,2,3	2	1,2,3	2	1,2,9	2	1,2,10	2	1,2,11	2	1,2,3
6403 Calco	2	1,2,3	2	1,2,3	2	1,2,9	2	1,2,10	2	1,2,11	2	1,2,3
3521 Cass	2	1	2	1	2	1,7	2	1,10	2	1,10,11	2	1
3710 Cass	2	1,2,3	2	1,2,3	2	1,7	2	1,10	2	1,10,11	2	1
6324 Coleridge	2	1,2,3	2	1,2,3	2	1,2,7,9	2	1,2,10	2	1,2,11	2	1,2,3
6681 Crofton	2	3,5	2	5	2	5,7,8,9	2	5,10	2	5,10,11	2	3,5
6687 Crofton	1	3,5	1	5	1	5,9	2	5,10	1	5,10,11	2	3,5
6860 Crofton	1	5	1	5	1	5,9	2	5,10	1	5,11	2	5
6789 Crofton-Nora	1	3,5	1	3,5	1	5,9	2	1,2,5,10	1	5,10	2	1,2,3,5
9900 Fluvaquent	2	1,2,4	2	1,2,4	2	1,2,4,9	2	1,2,4,10	2	1,2,4,10,11	2	1,2,4
3529 Gibbon	2	1,2,3	2	1,2,3	2	1,2,7,9	2	1,2,10	2	1,2,10,11	2	1,2,3
3537 Gibbon	2	1,2,3	2	1,2	2	1,2,7,9	2	1,2,10	2	1,2,10,11	2	1,2,3
3561 Hobbs	2	1,2,3	2	1,2,3	2	1,2,9	2	1,2,10	2	1,2,10,11	2	1,2,3
2110 Inavale	2	1,2	2	1,2	2	1,2,7,8	2	1,2,10	2	1,2,10,11	2	1,2
2352 Inavale-Boel	2	1,2	2	1,2	2	1,2,7,8	2	1,2,10	2	1,2,10,11	2	1,2
7050 Kennebec	2	1,2,3	2	1,2,3	2	1,2,9	2	1,2,10	2	1,2,11	2	1,2,3
7053 Kennebec	2	1,2,3	2	1,2,3	2	1,2,9	2	1,2,10	2	1,2,11	2	1,2,3
7153 Kennebec	2	1,2,3	2	1,2,3	1	1,2,9	1	1,10	2	1,2,11	2	1,2,3
3518 Lamo	2	1,2,3	2	1,2,3	2	1,2,9	2	1,2,10	2	1,2,11	2	1,2,3
3524 Lamo-Saltine	2	1,2,3	2	1,2,3	2	1,2,9	2	1,2,10	2	1,2,11	2	1,2,3
6831 Leisy	0	0	1	3	2	9	2	5,10	1	11	1	5
6802 Leisy	0	0	1	3	2	9	2	5,10	1	11	2	5
6833 Leisy	0	0	1	3	2	9	1	5,10	1	11	1	5
6352 Leshara	2	1,2,3	2	1,2,3	2	1,2,7,9	2	1,2,10	2	1,2,11	2	1,2,3
6790 Loretto	0	0	0	0	2	7	2	5,10	2	10,11	1	5
6808 Moody	1	3	1	3	2	2,5,9	1	10	1	11	1	3
6811 Moody	1	3	1	3	2	1,2,4,9	1	5,10	1	11	1	3,5
6812 Moody	1	3	1	3	2	9	1	5,10	1	11	1	3,5
6813 Moody	1	3,5	1	3,5	2	5,9	2	5,10	1	5,11	2	3,5
6814 Moody	1	3,5	1	3,5	2	5,7,8,9	2	5,10	1	5,11	2	3,5
6545 Moody	1	3	1	3	2	1,2,4,9	1	10	1	11	1	3
6750 Nora	1	3,5	1	5	1	5,9	2	5,10	1	5,11	2	3,5
6756 Nora	1	3,5	1	3,5	1	5,9	2	5,10	1	5,11	2	3,5
6758 Nora	1	3,5	1	3,5	2	5,9	2	5,10	1	5,11	2	3,5
6767 Nora	1	3,5	1	3,5	2	5,7,8,9	2	5,10	1	5,11	2	3,5
6774 Nora-Crofton	1	3,5	1	3,5	1	5,9	2	5,10	1	5,11	2	3,5

Soil Symbol/Soil Name Bolded soil represents specific soil in a complex	Dwellings with Basements		Dwellings without Basements		Septic tank and absorption fields		Sewage Lagoons		Sanitary Landfill		Small Commercial Businesses	
	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions
6782 Nora-Moody	1	3	1	3	2	9	2	5,10	1	5,11	2	3,5
6364 Obert	2	1,2,3,4	2	1,2,3,4	2	1,2,4,9	2	1,2,4,10	2	1,2,4,11	2	1,2,3,4
6363 Obert	2	1,2,3,4	2	1,2,3,4	2	1,2,4,9	2	1,2,4	2	1,2,4,10	2	1,2,3,4
8574 Platte-Inavale	2	1,2,3	2	1,2,3	2	1,2,7,9	2	1,2,10	2	1,2,10,11	2	1,2,3
6380 Saltine-Gibbon	2	1,2,3	2	1,2,3	2	1,2,9	2	1,2,10	2	1,2,11	2	1,2,3
6385 Shell	2	1	2	1	2	1,9	2	1,10	2	1,11	2	1
6555 Shell	2	1,3	2	1	2	1,9	2	1,10	2	1,11	2	1,3
6722 Thurman & Valentine	1	5	1	5	2	5,7,8	2	5,10	2	5,10	2	3,5
6703 Thurman	0	0	0	0	2	2,7,8	2	2,5,10	2	2,10	1	5
6716 Thurman-Valentine	0	0	0	0	2	7,8	2	10	2	10	0	0
6717 Thurman-Valentine	0	0	0	0	2	7,8	2	5,10	2	10	1	5
4791 Valentine	0	0	0	0	2	2,7,8	2	1,2,10	2	2,10	1	5
2288 Wann	2	1,2	2	1,2	2	1,2,7	2	1,2,10	2	1,2,10,11	2	1,2
7099 Zook	2	1,2,3,6	2	1,2,3,6	2	1,2,7,9	2	1,2,10	2	1,2,11	2	1,2,3,6

Legend for Table 11.1

Suitability	Conditions
0 = Not Limited	1= Flooding
1 = Somewhat Limited	2 = Depth to Saturation Zone
2 = Very Limited	3 = Shrink-swell
	4 = Ponding
	5 = Slope
	6 = Subsidence Risk
	7 = Seepage, Bottom layer
	8 = Filtering Capacity
	9 = Slow water movement
	10 = Seepage
	11 = Dusty

Depth to saturated zone refers to soils which do not drain well or have a low permeability. This conditions creates an above average existence of wet soils.

Depth to Bedrock means typically a soil that has limited distance to bedrock of some kind.

Depth to Soft Bedrock means bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Flooding is defined as soils located in areas which are prone to flooding.

Poor Filter means soils with rapid permeability or an impermeable layer near the surface, the soil may not adequately filter effluent from a waste disposal system.

Slow water movement means soils that do not allow reasonable downward movement of water.

Slope means the inclination of the land surface from the horizontal. Within Knox County the class of slopes are:

Nearly level	0 to 1 percent
	0 to 2 percent
Very gently sloping	1 to 3 percent
Gently sloping	2 to 6 percent
	3 to 6 percent
Strongly sloping	6 to 9 percent
	6 to 11 percent
Moderately sloping	9 to 20 percent
	11 to 15 percent
Steep	15 to 30 percent

Seepage means the movement of water through the soil. Seepage adversely affects the specified use.

Shrink-swell means the shrinking of soil when dry and swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Subsidence means the sudden sinking or gradual downward settling of the ground's surface with little or no horizontal motion.

in the least damage to the environment.

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

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

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

About 316,000 acres, or nearly 86 percent, of Cuming County meets the soil requirements for prime farmland.

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

Soils determined to be prime farmland need to be protected throughout the rural areas of Nebraska. These soils are typically the best crop producing lands.

Percent of Slope

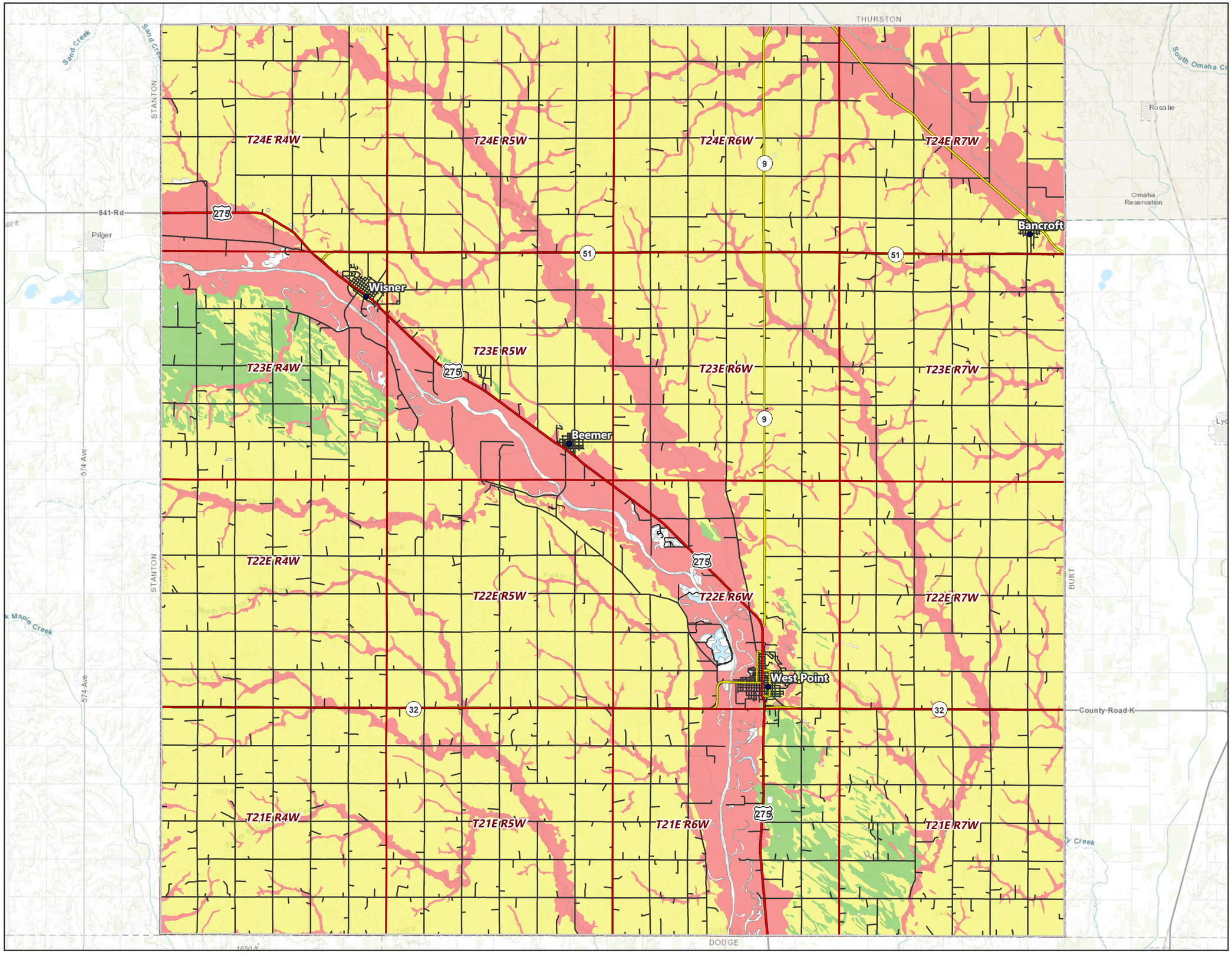
The slope of an area is critical to the ability of the area to be used for agricultural purposes to constructing homes and septic systems. Typically the steeper the slope the more difficult these issues become. However, lands with little to no slope can also create problems regarding the inability of water to drain away from a site.

Table 11.2: Defintion of Soil Slopes

Classes Simple Slopes	Complex Slopes	Slope Gradient Limits	
		Lower Percent	Upper Percent
Nearly level	**Nearly level**	0	3
Gently sloping	**Undulating**	1	8
Strongly sloping	**Rolling**	4	16
Moderately sloping	**Hilly**	10	30
Steep	**Steep**	20	60
Very steep	**Very steep**	>45	

Figure 11.17 shows the percent slope for Cuming County. Based upon the map, Cuming County has steep slopes throughout the entire county; however, the majority of these slopes are along the Elkhorn River and east of West Point.

Based upon Table 11.1 slope is factor in a few soils/ locations in the county. In a number of situations, any soil conditions based upon slope could likely be engineered to become more compatible.



CUMING COUNTY, NEBRASKA

COMPREHENSIVE PLAN

SOILS - DWELLINGS WITH BASEMENTS

LEGEND

- City/Town
- US Highway
- State Highway
- County Road
- Township/Range
- County Boundary

Soils - Dwellings with Basements

- Not Rated
- Not Limited
- Somewhat Limited
- Very Limited

MARVIN PLANNING CONSULTANTS

Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 12.09.2019

N

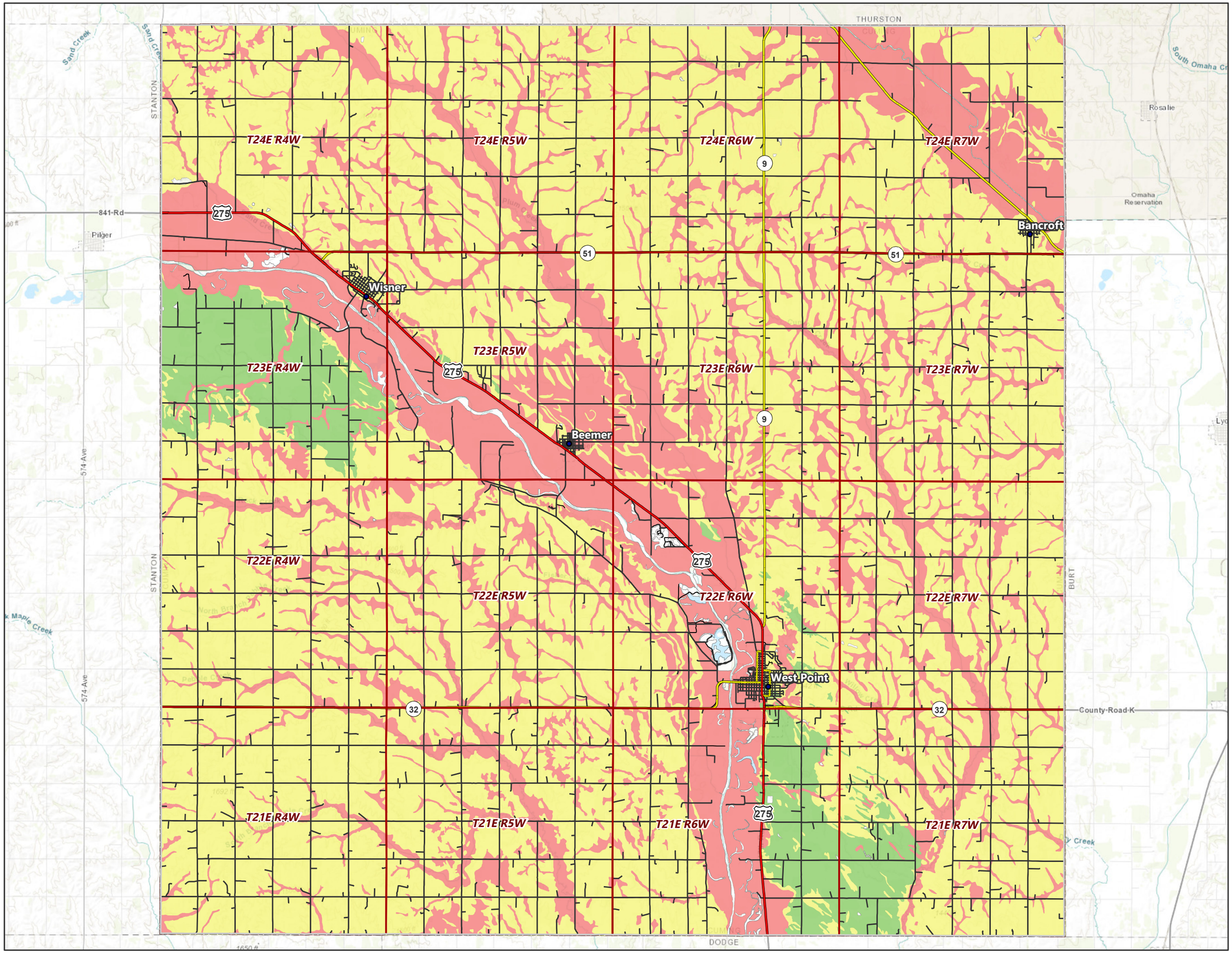
0 1.5 3 6 Miles

1 " = 3 miles

CUMING COUNTY, NEBRASKA

COMPREHENSIVE PLAN

SOILS - DWELLINGS WITHOUT BASEMENTS



LEGEND

- City/Town
- US Highway
- State Highway
- County Road
- Township/Range
- County Boundary

Soils - Dwellings without Basements

- Not Rated
- Not Limited
- Somewhat Limited
- Very Limited

MARVIN PLANNING CONSULTANTS

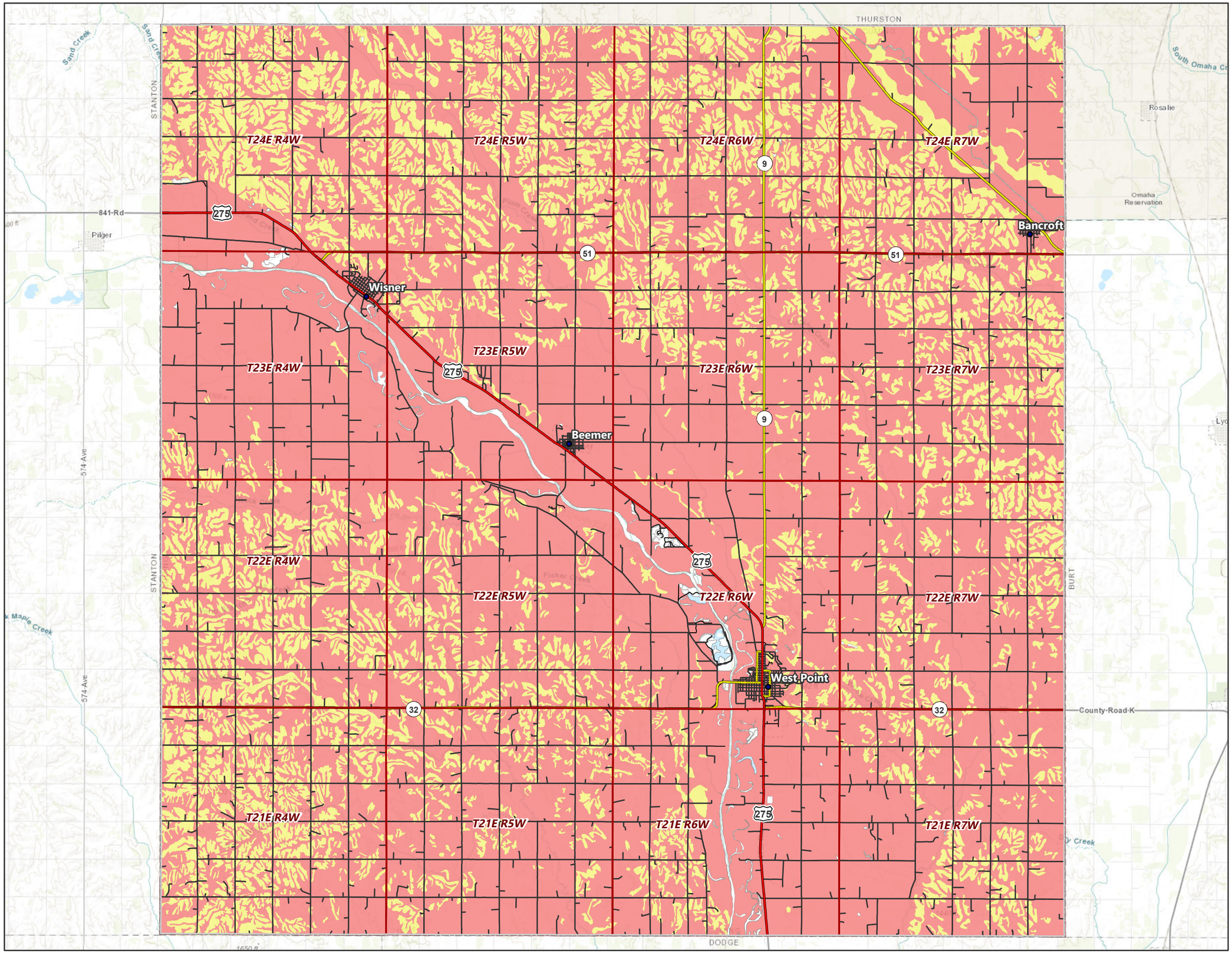
Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 12.09.2019

0 1.5 3 6 Miles

1" = 3 miles

N



CUMING COUNTY, NEBRASKA

COMPREHENSIVE PLAN

SOILS - SEPTIC TANK ABSORPTION FIELD CONDITIONS

LEGEND

- City/Town
- US Highway
- State Highway
- County Road
- Township/Range
- County Boundary

Soils - Septic Tank Absorption Field Conditions

- Not Rated
- Somewhat Limited
- Very Limited

MARVIN PLANNING CONSULTANTS

Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 12.09.2019

N

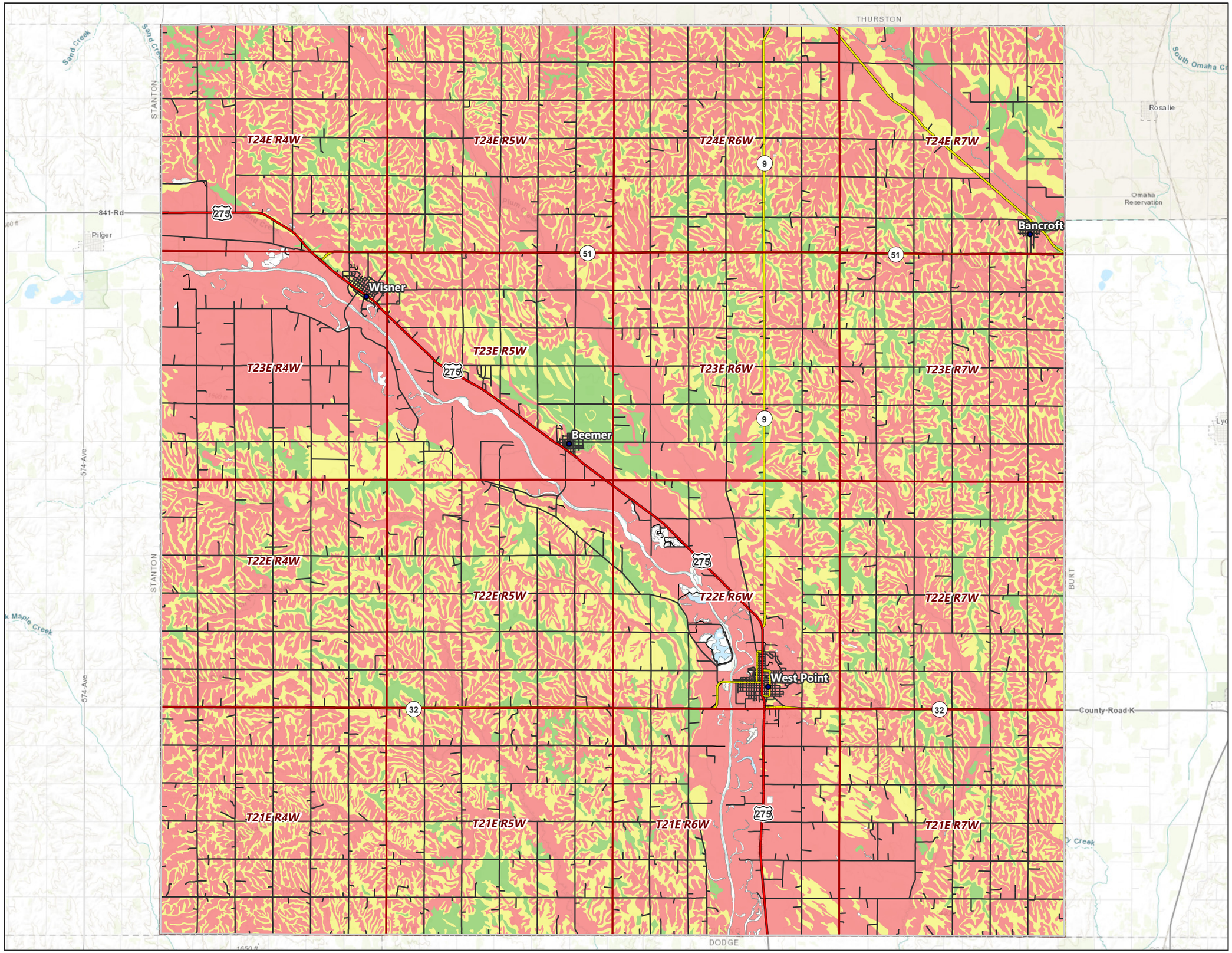
0 1.5 3 6 Miles

1" = 3 miles

CUMING COUNTY, NEBRASKA

COMPREHENSIVE PLAN

SOILS - SEWAGE LAGOON RATINGS



LEGEND

- City/Town
- US Highway
- State Highway
- County Road
- Township/Range
- County Boundary

Soils - Sewage Lagoon Ratings

- Not Rated
- Not Limited
- Somewhat Limited
- Very Limited

MARVIN PLANNING CONSULTANTS

Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 12.09.2019

N

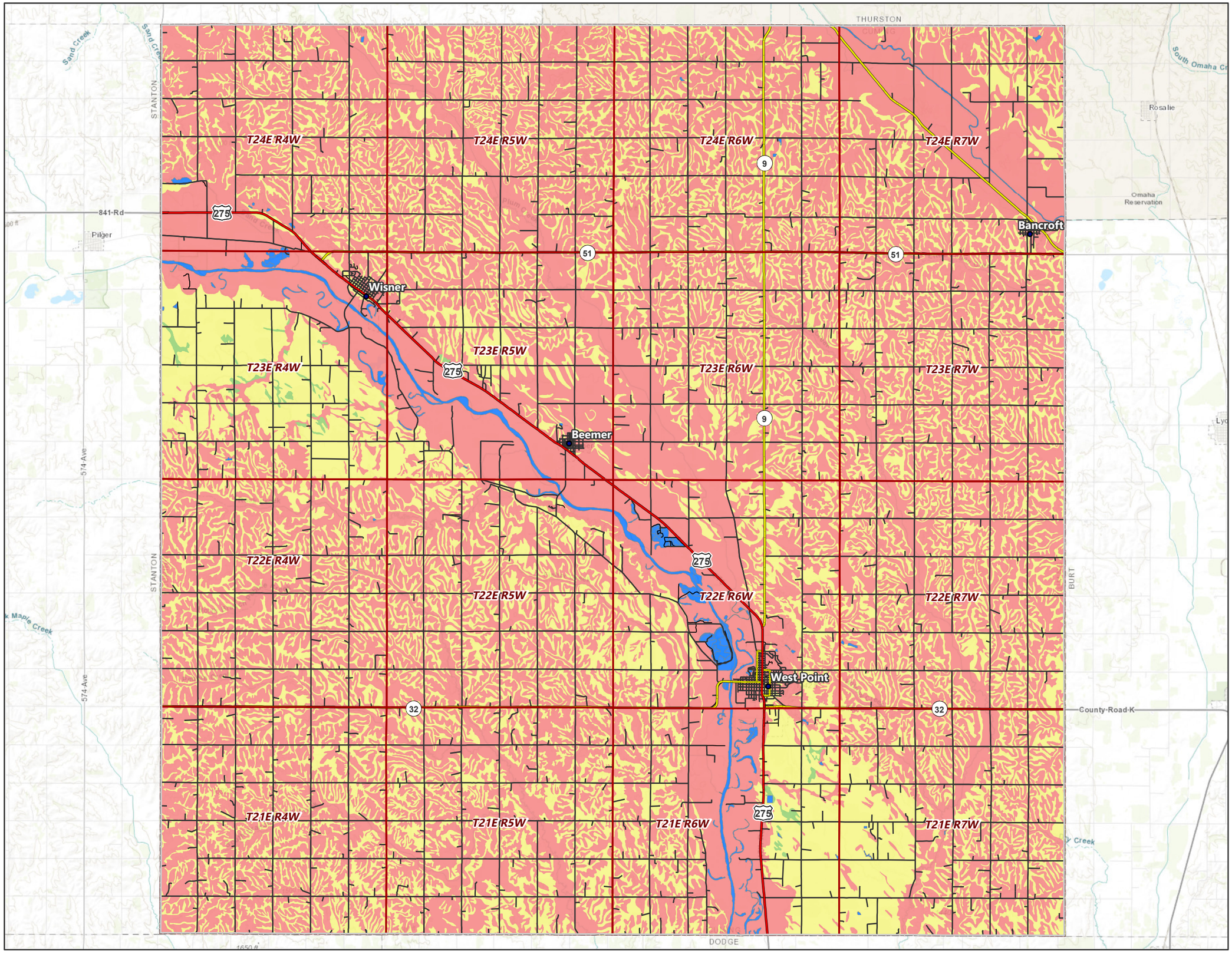
0 1.5 3 6 Miles

1" = 3 miles

CUMING COUNTY, NEBRASKA

COMPREHENSIVE PLAN

SOILS - SMALL COMMERCIAL BUILDING SUITABILITY



LEGEND

- City/Town
- US Highway
- State Highway
- County Road
- Township/Range
- County Boundary

Soils - Small Commercial Building Suitability Rating

- Not Limited
- Somewhat Limited
- Very Limited
- Water - Not Rated

MARVIN PLANNING CONSULTANTS

Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 12.09.2019

N

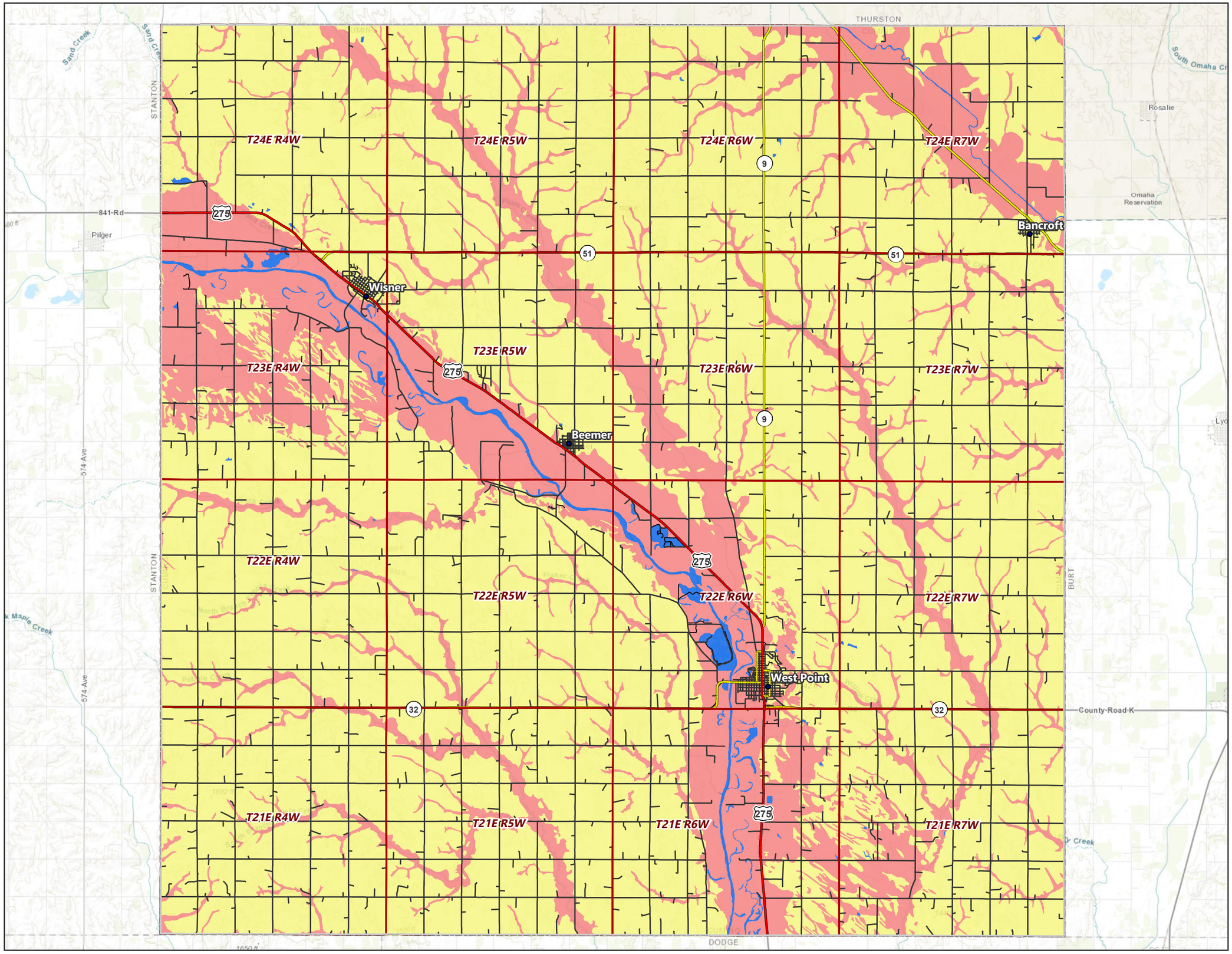
0 1.5 3 6 Miles

1" = 3 miles

CUMING COUNTY, NEBRASKA

COMPREHENSIVE PLAN

SOILS - LANDFILL SUITABILITY



LEGEND

- City/Town
- US Highway
- State Highway
- County Road
- Township/Range
- County Boundary

Soils - Landfill Suitability Rating

- Somewhat Limited
- Very Limited
- Water - Not Rated

MARVIN PLANNING CONSULTANTS

Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 07.23.2020

N

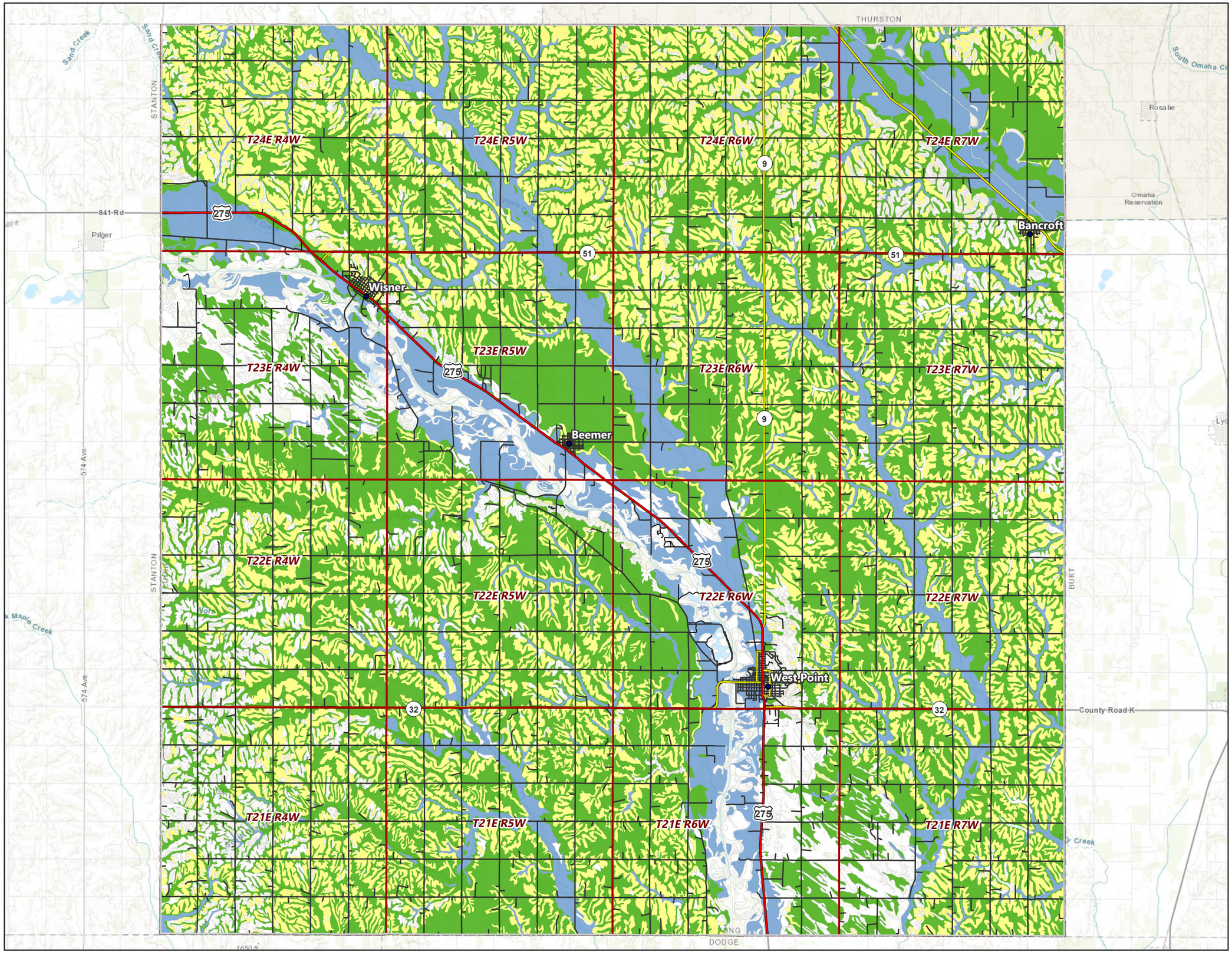
0 1.5 3 6 Miles

1 " = 3 miles

CUMING COUNTY, NEBRASKA

COMPREHENSIVE PLAN

SOILS - PRIME FARMLAND



LEGEND

- City/Town
- US Highway
- State Highway
- County Road
- Township/Range
- County Boundary

Soils - Dwellings without Basements

- Not Prime Farmland
- All Areas are Prime Farmland
- Farmland of Statewide Importance
- Prime Farmland if Drained

MARVIN PLANNING CONSULTANTS

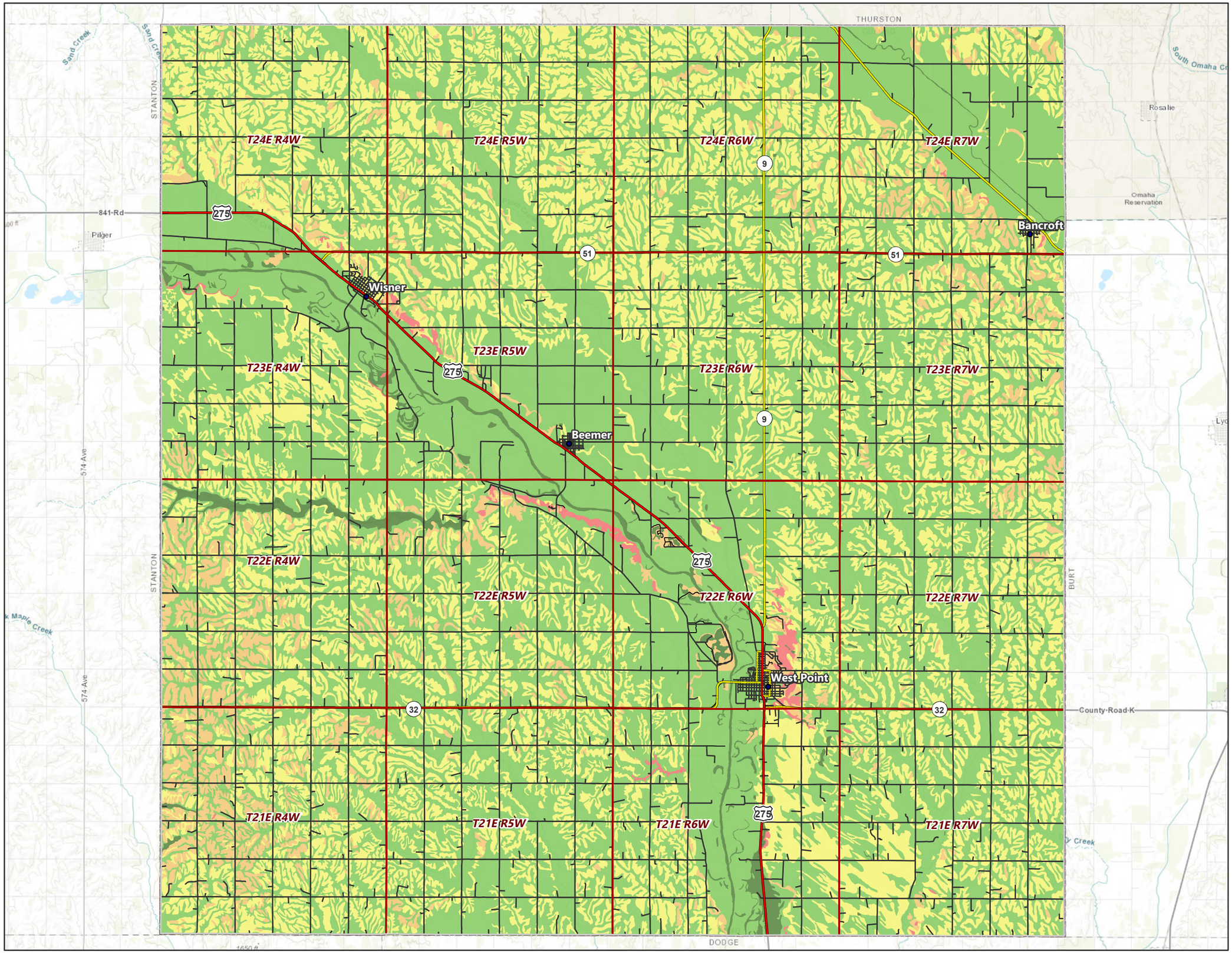
Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 12.09.2019

N

0 1.5 3 6 Miles

1" = 3 miles



CUMING COUNTY, NEBRASKA

COMPREHENSIVE PLAN

SOILS - SLOPE GRADIENT

LEGEND

- City/Town
- US Highway
- State Highway
- County Road
- Township/Range
- County Boundary

Soils - Slope Gradient

- <1% Slopes
- 1 - 4% Slopes
- 5 - 10% Slopes
- 11 - 15% Slopes
- >20% Slopes

MARVIN PLANNING CONSULTANTS

Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 12.09.2019

N

0 1.5 3 6 Miles

1" = 3 miles

Permeability

Permeability is defined in the Cuming County Soil Survey as..."The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through saturated soils." Permeability is rated as:

Very slow	less than 0.06 inches
Slow	0.06 to 0.20 inches
Moderately slow	0.2 to 0.6 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Table 11.3 indicates the various permeability rates for each soil and at what depth the rating was taken. The Table indicates those considered to moderately rapid or higher in red. There are a number of soils in Cuming County that can see a permeability of twenty inches per hour or more.

There are a number of specific uses that are not compatible for soils rated as Moderately rapid or higher. Soils rated at these levels will move contaminated materials much faster through the profile and into the regional water tables and aquifers. These uses will typically include anything dealing with animal or human sanitary waste systems.

Permeability, as with other soil factors, can be overcome with the proper engineering and construction techniques. Caution is a must when dealing with these conditions since the potential for contaminating an aquifer that feeds an entire area with water is a risk.

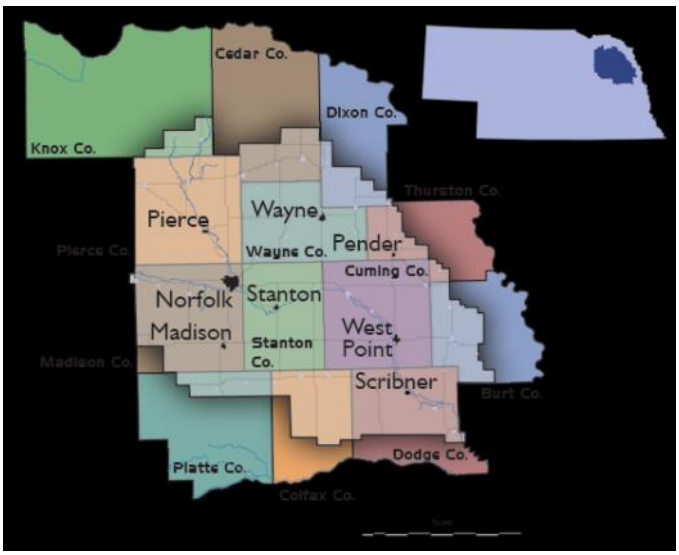
Water and the Impact on Cuming County

Water, along with the soils are the two most restricting environmental conditions faced by Cuming County. Damaging either one of these two elements will impact the residents of the county for years to come. As with the soil descriptions and conditions, it is important to discuss the water factors impacting Cuming County during the present and coming planning period. Water in this section will apply to two topics, surface water and ground water.

Surface water applies to any water running across a surface and eventually runs into a minor drainage area, eventually ending up in a major waterway such as the Elkhorn River. However, a certain portion of surface water can and is absorbed by the soil in order to support plant life including corn, soybeans, and grass lawns.

Cuming County lies in one distinct watershed, these are defined and drainage areas controlled by the respective Natural Resource District. The district covering Cuming County is the Lower Elkhorn Natural Resource District. The Lower Elkhorn Natural Resource District is based in Norfolk, Nebraska.

Figure 11.19: Natural Resource District



Source: Lower Elkhorn NRD

Groundwater

Groundwater refers to water found beneath the surface and includes smaller pockets of water as well as aquifers. This water source is where the residents of Cuming County both city and rural, get their potable water for everyday living as well as the irrigation water for crops. The ability to find water meeting these specific needs is critical to the placement of certain uses. These specific needs include water quantity, water quality, and water pressure.

Use of Groundwater

Groundwater use in Cuming County is in three forms; domestic and livestock supply, public water supplies, and irrigation. Each use is

Table 11.3: Permeability/Shrink-Swell

Soil Symbol/Soil Name		Depth (inches)	Permeability (inches/hour)	Shrink-Swell potential
6603	Alcester	0-8	.2-.6	Moderate
		8-16	.2-.6	Moderate
		16-23	.2-.6	Moderate
		23-47	.2-.6	Moderate
		47-67	.2-.6	Moderate
		67-79	.2-.6	Moderate
6318	Barney	0-4	2-20	Low
		4-60	6-20	Low
6628	Belfore	0-7	.2-.6	High
		7-15	.2-.6	High
		15-32	.06-.6	High
		32-47	.2-2	Moderate
		47-79	.2-2	Low
6505	Belfore	0-7	.2-.6	High
		7-15	.2-.6	High
		15-32	.06-.6	High
		32-47	.2-6	Moderate
		47-79	.2-6	Low
6630	Belfore	0-11	.2-.6	High
		11-45	.2-.6	High
		45-60	.2-.6	High
	Moody	0-11	.2-.6	Moderate
		11-42	.2-.6	Moderate
		42-60	.6-2	Moderate
8418	Boel	0-12	.6-2	Low
		12-60	6-20	Low
6401	Calco	0-9	.6-2	Moderate
		9-48	.6-2	Moderate
		48-60	.6-2	Moderate
6403	Calco	0-9	.6-2	Moderate
		9-48	.6-2	Moderate
		48-60	.6-2	Moderate
3521	Cass	0-20	.6-2	Low
		20-38	.6-2	Low
		38-60	6-20	Low
3710	Cass	0-16	2-6	Low
		16-30	2-6	Low
		30-60	6-20	Low
6324	Coleridge	0-7	.2-2	Moderate
		7-31	.2-2	Moderate
		31-47	.2-2	Moderate
		47-79	.2-.6	Moderate
6681	Crofton	0-5	.6-2	Moderate
		5-11	.6-2	Moderate
		11-80	.6-2	Low
6687	Crofton	0-6	.6-2	Moderate
		6-11	.6-2	Moderate
		11-80	.6-2	Low
6860	Crofton	0-6	.6-2	Moderate
		6-12	.6-2	Moderate
		12-80	.6-2	Low
6789	Crofton	0-6	.6-2	Moderate
		6-14	.6-2	Moderate
		14-79	.6-2	Low
	Nora	0-7	.6-2	Moderate
		7-17	.2-.6	Moderate
		17-29	.6-2	Low
		29-79	.6-2	Low
9900	Fluvaquents	0-60	.6-6	Low
3529	Gibbon	0-7	.6-2	Low
		7-14	.2-.6	Moderate
		14-22	.2-.6	Moderate
		22-36	.2-.6	Moderate
		36-44	.2-2	Low
		44-60	6-20	Low
3537	Gibbon	0-18	.2-.6	Moderate
		18-28	.6-2	Moderate
		28-60	.6-6	Low
3561	Hobbs	0-6	.6-2	Moderate
		6-79	.6-2	Moderate
2110	Inavale	0-7	6-20	Low
		7-12	6-20	Low
		12-60	6-20	Low
2352	Inavale	0-7	6-20	Low
		7-12	6-20	Low
		12-60	6-20	Low
	Boel	0-16	.6-2	Low
		16-60	6-20	Low
7050	Kennebec	0-37	.6-2	Low
		37-60	.6-2	Low
7053	Kennebec	0-20	.6-2	Low
		20-60	.6-2	Low
7153	Kennebec	0-38	.6-2	Low
		38-60	.6-2	Low
3518	Lamo	0-7	.2-.6	Moderate
		7-28	.2-.6	Moderate
		28-56	.2-.6	Moderate
		56-79	.2-.6	Moderate
3524	Lamo	0-12	.2-6	Moderate
		12-60	.2-.6	Moderate
	Saltine	0-6	.2-.6	High
		6-25	.2-.6	Moderate
		25-48	.2-.6	High
		48-60	6-20	Moderate
6831	Leisy	0-18	2-6	Low
		18-32	.6-2	Low
		32-80	.2-.6	Moderate
6802	Leisy	0-18	2-6	Low
		18-32	.6-2	Low
		32-80	.2-.6	Moderate
6833	Leisy	0-18	2-6	Low
		18-32	.6-2	Low
		32-80	.2-.6	Moderate
6352	Leshara	0-17	.6-2	Low
		17-31	.6-2	Low
		31-42	.6-2	Low
		42-60	6-20	Low
6790	Loretto	0-16	2-6	Low
		16-41	.6-6	Low
		41-60	.6-6	Low
6808	Moody	0-7	.2-.6	Moderate
		7-12	.2-.6	Moderate
		12-37	.2-.6	Moderate
		37-46	.2-.6	Moderate
		46-79	.6-2	Low
6811	Moody	0-7	.2-.6	Moderate
		7-12	.2-.6	Moderate
		12-37	.2-.6	Moderate
		37-46	.2-.6	Moderate
		46-79	.6-2	Low
6812	Moody	0-4	.2-.6	Moderate
		4-11	.2-.6	Moderate
		11-33	.2-.6	Moderate
		33-43	.2-.6	Moderate
		43-79	.6-2	Low
6813	Moody	0-7	.2-.6	Moderate
		7-12	.2-.6	Moderate
		12-37	.2-.6	Moderate
		37-46	.2-.6	Moderate
		46-79	.6-2	Low
6814	Moody	0-4	.2-.6	Moderate
		4-11	.2-.6	Moderate
		11-33	.2-.6	Moderate
		33-43	.2-.6	Moderate
		43-79	.6-2	Low
6545	Moody	0-7	.2-.6	Moderate
		7-12	.2-.6	Moderate
		12-37	.2-.6	Moderate
		37-46	.2-.6	Moderate
		46-79	.6-2	Low
6750	Nora	0-7	.6-2	Moderate
		7-17	.2-.6	Moderate
		17-29	.6-2	Low
		29-79	.6-2	Low
6756	Nora	0-7	.6-2	Moderate
		7-17	.2-.6	Moderate
		17-29	.6-2	Low
		29-79	.6-2	Low
6758	Nora	0-7	.2-.6	Moderate
		7-22	.2-.6	Moderate
		22-33	.2-.6	Moderate
		33-80	.6-2	Low

Soil Symbol/Soil Name		Depth (inches)	Permeability (inches/hour)	Shrink-Swell potential
6767	Nora	0-9	.2-.6	Moderate
		9-20	.2-.6	Moderate
		20-34	.2-.6	Moderate
		34-80	.6-2	Low
6778	Nora	0-7	.6-2	Moderate
		7-17	.2-.6	Moderate
		17-29	.6-2	Low
		29-79	.6-2	Low
	Crofton	0-6	.6-2	Moderate
		6-14	.6-2	Moderate
		14-79	.6-2	Low
6774	Nora	0-7	.6-2	Moderate
		7-17	.2-.6	Moderate
		17-29	.6-2	Low
		29-79	.6-2	Low
	Crofton	0-6	.6-2	Moderate
		6-13	.6-2	Moderate
		13-79	.6-2	Low
6782	Nora	0-10	.6-2	Moderate
		10-27	.2-.6	Moderate
		27-60	.6-2	Moderate
	Moody	0-10	.2-.6	Moderate
		10-36	.2-.6	Moderate
		36-60	.6-2	Moderate
6363	Obert	0-7	.6-2	Moderate
		7-60	.2-.6	High
6364	Obert	0-10	.2-.6	High
		10-60	.2-2	Moderate
8574	Platte	0-12	.6-2	Low
		12-16	.6-6	Low
		16-60	20-100	Low
	Inavale	0-7	6-20	Low
		7-28	6-20	Low
		28-60	6-20	Low
6380	Saltine	0-7	.2-.6	High
		7-30	.6-2	Moderate
		30-48	.2-.6	High
		48-60	.2-2	Moderate
	Gibbon	0-14	.2-.6	Moderate
		14-36	.2-.6	Moderate
		36-60	.2-.6	Low
6385	Shell	0-35	.6-2	Low
		35-60	.6-2	Low
6555	Shell	0-25	.2-.6	Moderate
		25-32	.6-2	Low
		32-60	.6-2	Low
6703	Thurman	0-6	6-20	Low
		6-14	6-20	Low
		14-24	6-20	Low
		24-41	6-20	Low
		41-59	6-20	Low
		59-79	6-20	Low
6716	Thurman	0-15	6-20	Low
		15-60	6-20	Low
	Valentine	0-5	6-20	Low
		5-60	6-20	Low
6717	Thurman	0-13	6-20	Low
		13-60	6-20	Low
	Valentine	0-5	6-20	Low
		5-60	6-20	Low
6722	Thurman	0-10	6-20	Low
		10-60	6-20	Low
	Valentine	0-5	6-20	Low
		5-60	6-20	Low
4791	Valentine	0-5	6-20	Low
		5-12	6-20	Low
		12-79	6-20	Low
2288	Wann	0-12	.6-2	Low
		12-48	2-6	Low
		48-60	2-6	Low
7099	Zook	0-7	.06-.6	High
		7-41	.06-.6	Very High
		41-65	.06-.6	High
		65-79	.06-.6	High

important to the overall viability of Cuming County.

Domestic and Livestock supplies

Typically domestic and most livestock water supplies are obtained through the use of small diameter wells. Most of these wells are drilled only a few feet below the top of the water table, are low production wells, and equipped with electric powered jet or submersible pumps. The water yield of this type of well is usually no more than five gallons of water per minute.

Public water supplies

The public water supply is one of the most critical uses of groundwater resources. These supplies are used by the municipalities supplying water to its residents. In Cuming County, all of the incorporated communities have a publicly owned water supply system. In addition, Cuming County has one rural water district located in the county.

The State of Nebraska places a great deal of value on these systems across the state. The value is so high that a Wellhead Protection Program is available to municipalities through Nebraska Department of Environment and Energy. This program allows the municipalities, after a series of prescribed steps are completed, to designate special areas around their wells and well fields in order to protect the quality and quantity of the water within the underlying aquifers. Development of a community wellhead protection plan can help communities receive financial assistance to protect and secure the source of drinking water for the community.

Wellhead Protection

A Wellhead Protection Area is an delineated area indicating where a water source is located, as well as the area of travel for a specific well or well field. A wellhead protection area is important from the aspect that correctly implemented, the area will aid in protecting the water supply of a domestic well providing potable water to a community.

In Nebraska, the goal of the Nebraska Department of Environment and Energy's Wellhead Protection Program "...is to protect the land and groundwater surrounding public drinking water supply wells from Contamination". Within the NDEE's program there are five steps to developing a wellhead protection area, which are:

1. Delineation
2. Contamination Source Inventory
3. Contaminant Source Management

4. Emergency, Contingency, and Long-term Planning
5. Public Education

The mapping process includes the use of computer modeling and other data. From this the NDEE can generate a map indicating the wellhead Protection Area. However, delineating an area is not sufficient for protecting the groundwater around a public supply well, the governmental entity must adopt an ordinance in order to enforce the area and the regulations used to protect this water supply. Another way to officially regulate a wellhead protection area is for the community to create an interlocal agreement with the County to regulate these areas as part of the county comprehensive plan and zoning regulations.

Figure 7.19 shows the documented wellhead protection areas impacting Cuming County. These are only the mapped areas, it is not clear if these communities have actually adopted the proper ordinances to fully protect the water supply.

Irrigation

Irrigation wells in Cuming County has been a long standing practice. This process has become increasingly important to the production of crops within Cuming County and Nebraska. The water demand for irrigation varies greatly from year to year and is dependent upon the amount of natural precipitation received in the area.

The use of irrigation is critical during the growing and finishing periods of the crop lifecycle. The demand for irrigation can have major impacts on the draw down of the aquifer and the aquifers ability to recharge itself in an appropriate time period.

Irrigation in Cuming County does have some limitations based upon the topography/ percentage slope of agricultural grounds. However, if an area can be irrigated in a cost-effective manner then it has a high probability of occurring.

Hydric Soils

Hydric soils are formed under conditions of saturation, flooding, or ponding. The process has to occur long enough during the growing season to develop anaerobic conditions in the upper part. Hydric soils along with hydrophytic vegetation and wetland hydrology are used to define wetlands. (USDA/NRCS, Fall 1996)

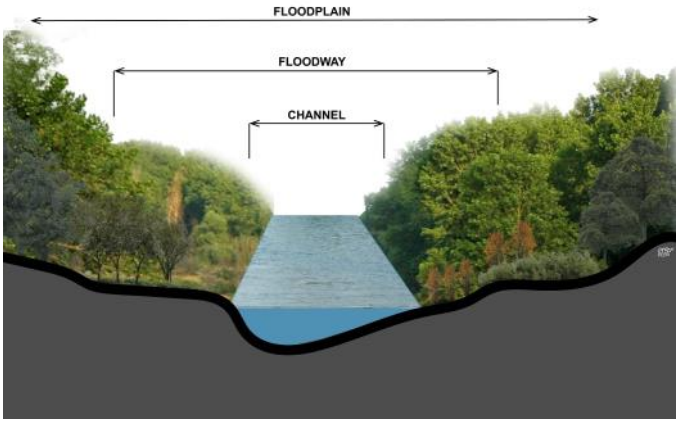
Figure 7.20 indicates where the hydric soils are located in Cuming County. The soils are classified as the following:

- All Hydric; or
- Not Hydric

The majority of the soils in Cuming County are considered Not Hydric. Overall, a small amount of soils are considered as 100% Hydric or All Hydric.

Floodways and Floodplains

Flooding is the temporary covering of the soil surface by flowing water from any source, such as streams and rivers overflowing their banks, runoff from adjacent or surrounding slopes, or a combination of different sources. During a flooding event there are a number of components that make up the flooded area.



These areas include:

Floodway which is the channel of a watercourse and those portions of the adjoining floodplains which are required to carry and discharge the 100-year flood with no significant increase in the base flood elevation.

Floodplain which is the low land near a

watercourse which has been or may be covered by water from flood of 100-year frequency, as established by engineering practices of the U.S. Army Corps of Engineers. It shall also mean that a flood of this magnitude may have a 1 percent chance of occurring in any given year.

Floodway Fringe which is that portion of a floodplain that is inundated by floodwaters but is not within a defined floodway. Floodway fringes serve as temporary storage for floodwaters.
The floodplain also includes the floodway and the

Photograph 11.1 Road 6 - Wisner South during 2019 Flooding
Source: Cuming County

A home north of Quincy, Illinois within the 100- year floodplain - river is between 1 and 2-miles away

flood fringe, which are areas covered by the flood, but which do not experience a strong current.
The floodplain area of greatest significance in terms of state and federal regulation is the 100 year

Same house during the 2008 Mississippi River floods

floodplain. This area is defined by the ground elevation in relation to the water elevation experienced during a 100 year flood event. The 100 year floodplain is calculated to be the elevation level of flood water expected to be equaled or exceeded every 100 years on average. In other and more accurate words, the 100 year flood is a 1% flood, meaning it defines a flood that has a 1% chance of being equaled or exceeded in any single year.

Preserving the floodplain and floodway are critical to limiting the level of property damage that can occur as well as the level of damage to life of the occupants of the area. Land when not flooded seems to be harmless, but it is those rare times that threaten life and property that need to be controlled.

In recent years there have been numerous flooding occurrences in Nebraska and the Midwest. These events have included the Elkhorn River, the Platte River, the Missouri River, and the Mississippi River, as well as their tributaries. Each of these events have caused significant damage to life and property. In order to protect an individuals property there are specific rules and guidelines that need to be followed.

On some occasions these guidelines work and others they may not; most guidelines are developed for 100 year flooding events. The times that the guidelines do not work are typically referred to a 500 year event for lack of a better term. However, in some cases, due to mother nature and increases in development runoff, the area needed to handle the floodway and

floodplain (100 year event) have increased due to the amount and speed that the water is reaching the streams and rivers.

Natural Resources/Environment Goals and Policies

Soils

Soil Goal 1

Cuming County needs to protect specific soils regarding the suitability of certain uses.

Soil Policies and Strategies

Soil-1.1 The County should require the use of the Planned Unit Development technique for larger developments in highly sensitive areas.

Soil-1.2 Discourage conversion of designated prime agricultural land and soils to non-agricultural uses by targeting less productive agricultural soils (crops) for urban or non-farm uses.

Water (surface water and groundwater)

Water Goal 1

Protect both the surface water and groundwater that runs through and is under the county.

Water Policies and Strategies

W-1.1 Encourage the preservation of environmentally sensitive areas such as wetlands, wooded areas, waterways (streams, ponds, lakes, rivers, etc.).

W-1.2 Protect all water supplies and aquifers from development activities that may affect the quality of water; development must demonstrate a positive or, at least, a neutral impact on groundwater.

W-1.3 Continue participation in the FEMA National Flood Insurance Program to prevent flood-caused loss of life and property.

W-1.4 Cuming County should discourage land use development within the floodplains of the county.

W-1.5 Cuming County should support soil and water conservation efforts to aid in erosion, sediment, and run-off control.

W-1.6 Cuming County should coordinate with and support city, regional, state and federal water-quality plans and programs so that high water quality will be achieved in the cities and villages of the County.

W-1.7 Cuming County should require the protection of riparian vegetation from damage that may result from development.

W-1.8 Water erosion control structures, including riprap and fill, should be reviewed by the appropriate authorities to insure they are necessary and are designed to minimize adverse impacts on water currents, erosion, and accretion patterns.

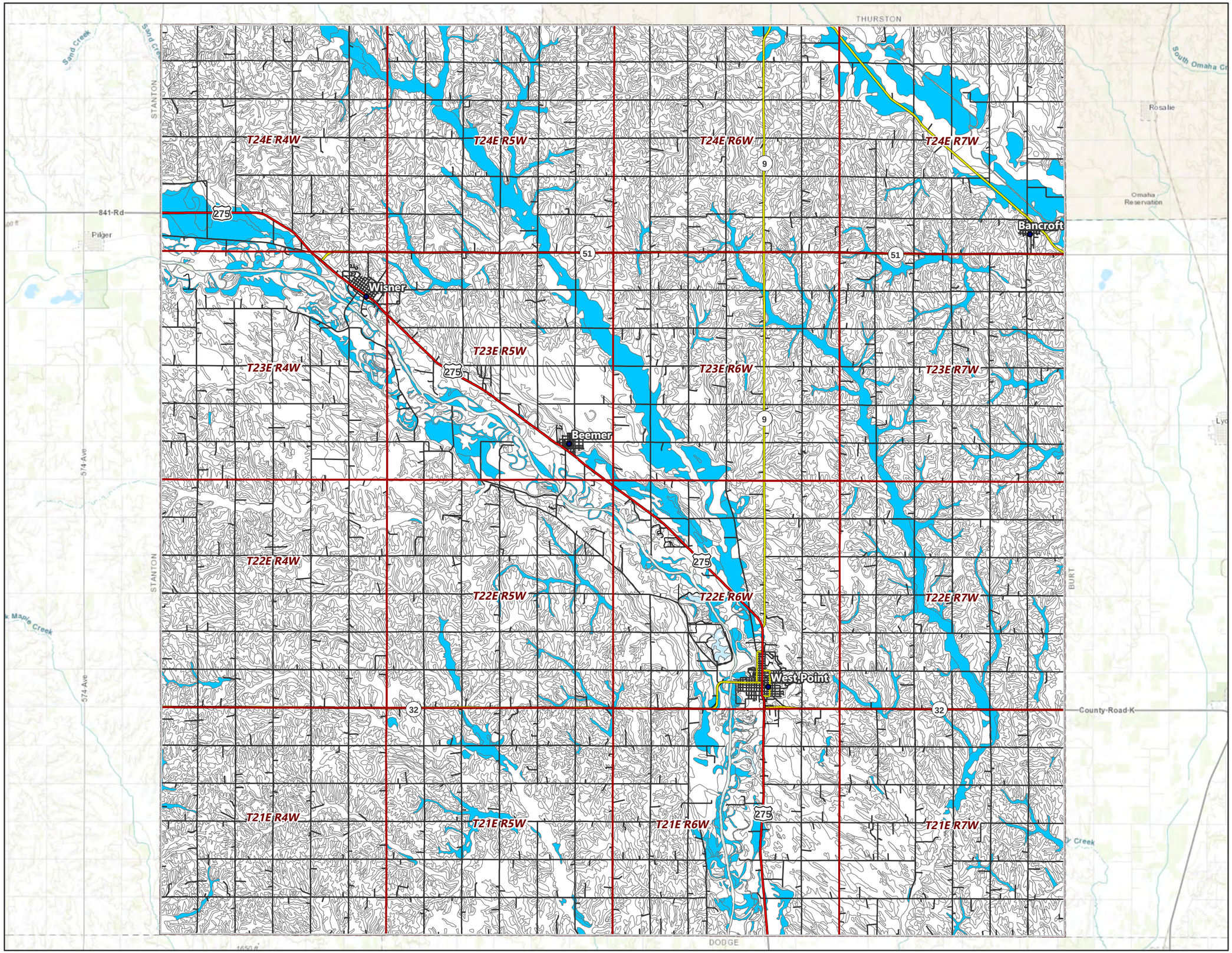
W-1.9 Cuming County should consider the following in any public or private land use determination subject to county review:

1) the impact of filling or drainage of swamps or marshes;
2) the damming of rivers and streams;
3) the location and construction of highways and utility transmission lines; and
4) Any other land development activities which significantly interfere with the vegetation or soil cover or drainage patterns in critical habitat areas.

CUMING COUNTY, NEBRASKA

COMPREHENSIVE PLAN

SOILS - HYDRIC RATING



LEGEND

- City/Town
- US Highway
- State Highway
- County Road
- Township/Range
- County Boundary

Soils - Hydric Rating

- Hydric Soil
- Not Hydric

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PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 12.09.2019

N

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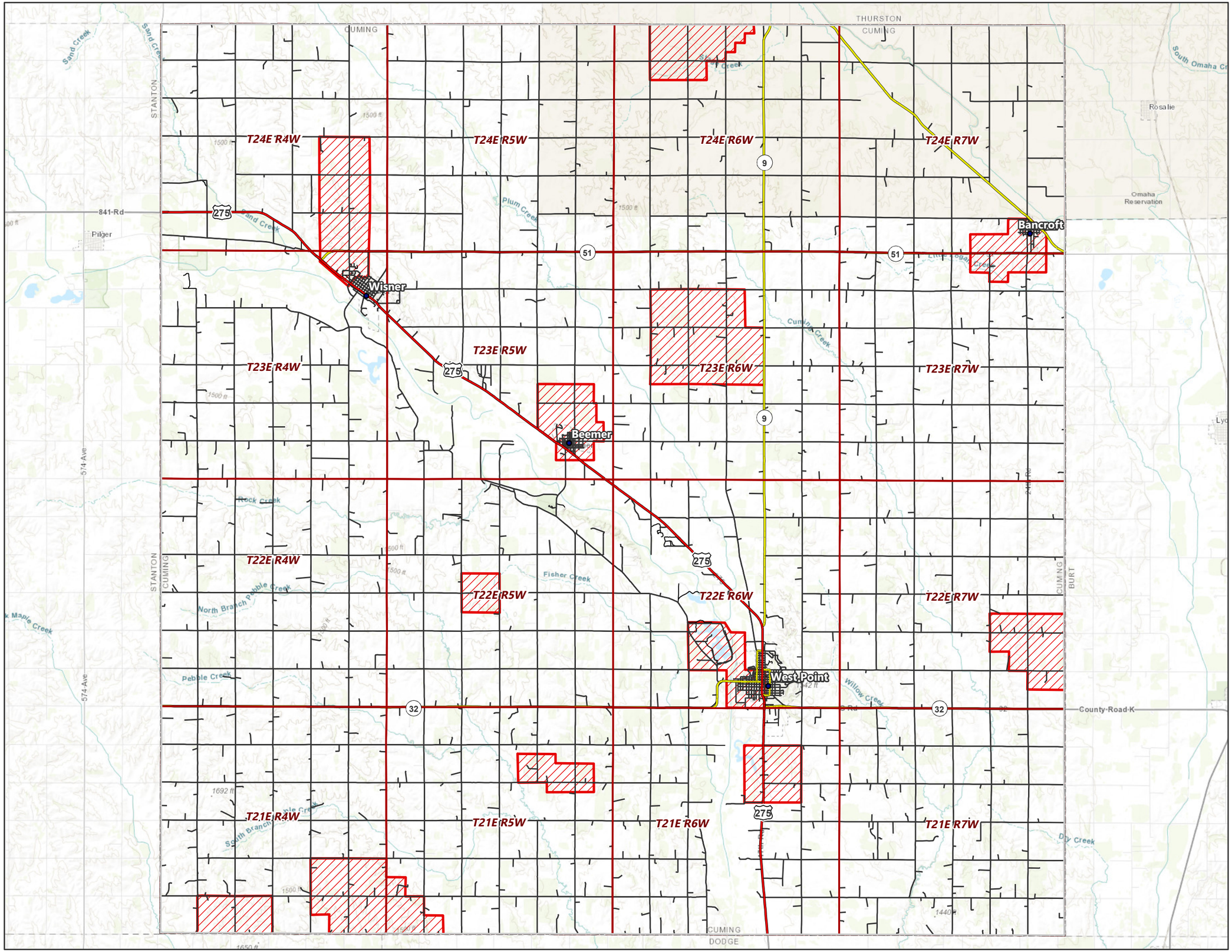
1 " = 3 miles


CUMING COUNTY, NEBRASKA
COMPREHENSIVE PLAN
WELLHEAD PROTECTION AREAS
LEGEND
City/Town
US Highway
State Highway
County Road
Township/Range
County Boundary
Wellhead Protection Area
T24E R4W
T24E R5W
T24E R6W
T24E R7W
T23E R4W
T23E R5W
T23E R6W
T23E R7W
T22E R4W
T22E R5W
T22E R6W
T22E R7W
T21E R4W
T21E R5W
T21E R6W
T21E R7W
Wisner
Beemer
Bancroft
West Point
Pilger
Rosalie
Omaha Reservation
CUMING
THURSTON
STANTON
BURT
DODGE
841-Rd
574-Ave
County-Road-K
Sand Creek
Plum Creek
Cuming Creek
Rock Creek
Fisher Creek
North Branch Pebble Creek
Pebble Creek
Willow Creek
Dry Creek
South Omaha Cr
Maple Creek
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DATUM: NAD 83
DATE: 07.22.2020
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1" = 3 miles
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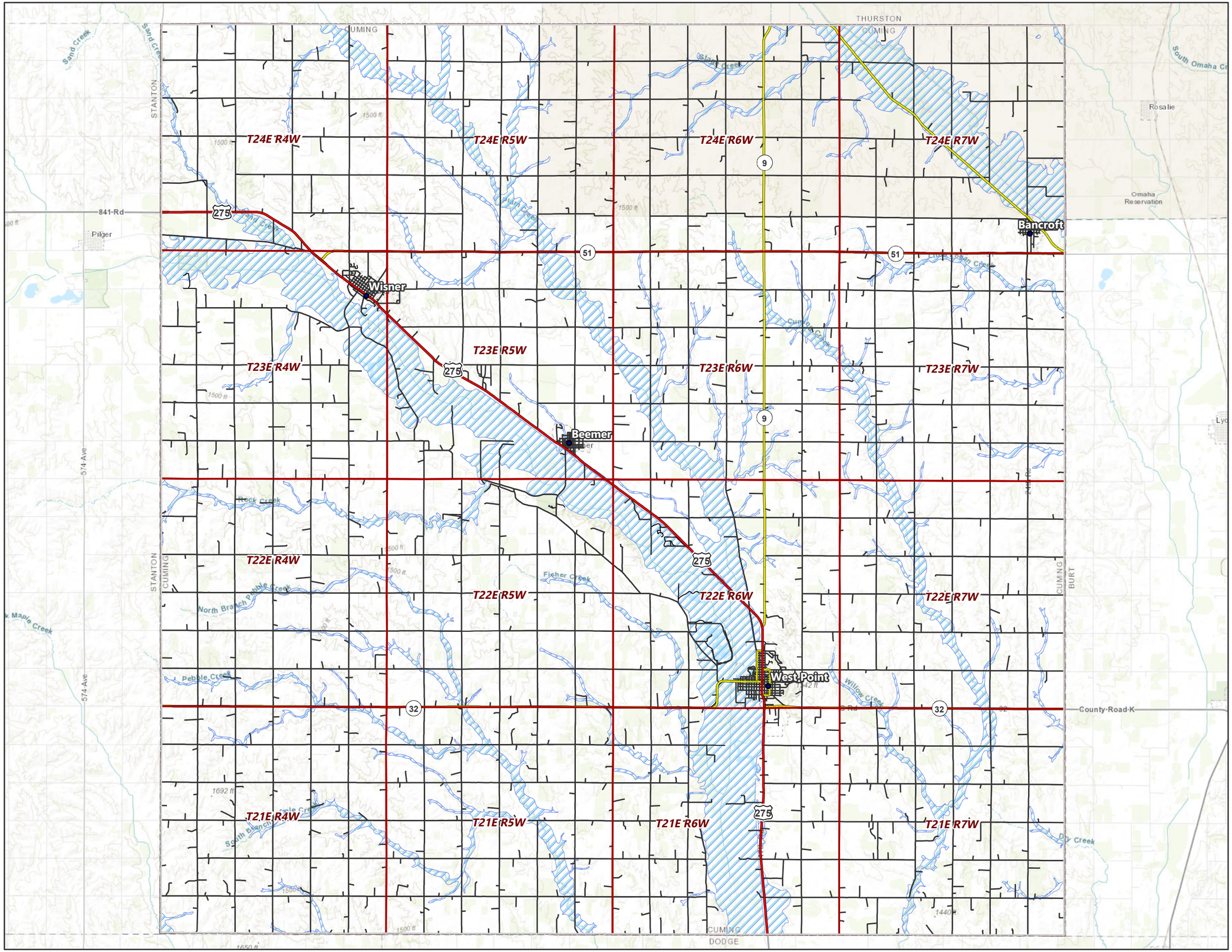
CUMING COUNTY, NEBRASKA

COMPREHENSIVE PLAN

FEMA FLOODPLAIN



LEGEND

- City/Town
- US Highway
- State Highway
- County Road
- Township/Range
- County Boundary
- FEMA Floodplain

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DATUM: NAD 83
DATE: 07.22.2020

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1 " = 3 miles

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Chapter 12 Land Use

Introduction

The purpose of the Cuming County Land Use Chapter is to provide a general guide to land uses which directs zoning criteria. The resulting land uses are intended to be a guide without creating multiple incompatibilities with current uses existing within Cuming County. This Chapter reflects the existing conditions and should be flexible in order to meet the needs of its citizens as well as the vision of the county whenever possible.

The Cuming County Land Use Chapter provides the basis for the formulation of land use and the zoning regulations. For this reason, it is imperative to formulate a plan tailored to the needs, desires and environmental limitations of the planning area. The Chapter should promote improvements in all the components of the local economy.

Cuming County Land Use Elements

The elements of the Cuming County Land Use Chapter include:

- Existing Land Use, and
- Future Land Use Plan

All of these elements are integrated in some manner. Effective evaluations and decisions regarding development decisions require a substantial amount of information to be utilized.

Existing Land Use

The term "Existing Land Use" refers to the current uses in place within a building or on a specific parcel of land. The number and type of uses can constantly change within a county, and produce a number of impacts either benefiting or detracting from the county. Because of this, the short and long -term success and sustainability of the county is directly contingent upon available resources utilized in the best manner given the constraints the county faces during the course of the planning period.

Overall, development patterns in and around Cuming County have been influenced by topography, water, soils and manmade features such as five Nebraska highways and some hard-surfaced county roads. These items will likely continue to influence development patterns throughout the course of the planning period.

Existing Land Use Categories

The utilization of land is best described in specific categories providing broad descriptions where numerous businesses, institutions, and structures can be grouped. For the purposes of the Comprehensive Plan, the following land use classifications are used:

- Farmsteads/residential uses
- Commercial uses
- Quasi-Public/Public (includes churches and schools)
- Livestock facilities
- Agriculture

The above land use categories may be generally defined in the following manner:

Agriculture- Row crop, alfalfa, pastureland and all grain crops are considered agriculture land uses. Cuming County is an agricultural based county and the existing land use map verifies these uses.

Livestock facilities– These are specific confinement buildings including chicken and swine houses, dairies, and open lots. Since Cuming County is considered a Livestock friendly county then it is important to located these facilities so their ability to exist and expand in the future is not encroached upon by other incompatible uses.

Residential– This category includes residential dwellings either as a farmstead, acreage or residential developments located within the county. Residential units of this type are distributed throughout the County.

Commercial- Uses in this category consist of convenient stores; feed, seed, automobile and machinery sales; petroleum sales, etc. Commercial uses tend to be located near urban areas or in proximity to major highways for accessibility.

Industrial/Railroad Right-of-Way - Land uses of this nature may include communication plants, light manufacturing, commercial storage, industrial parks, large salvage yards, etc. These uses tend to be located near municipalities and major transportation routes for accessibility purposes.

Physical Character of Cuming County

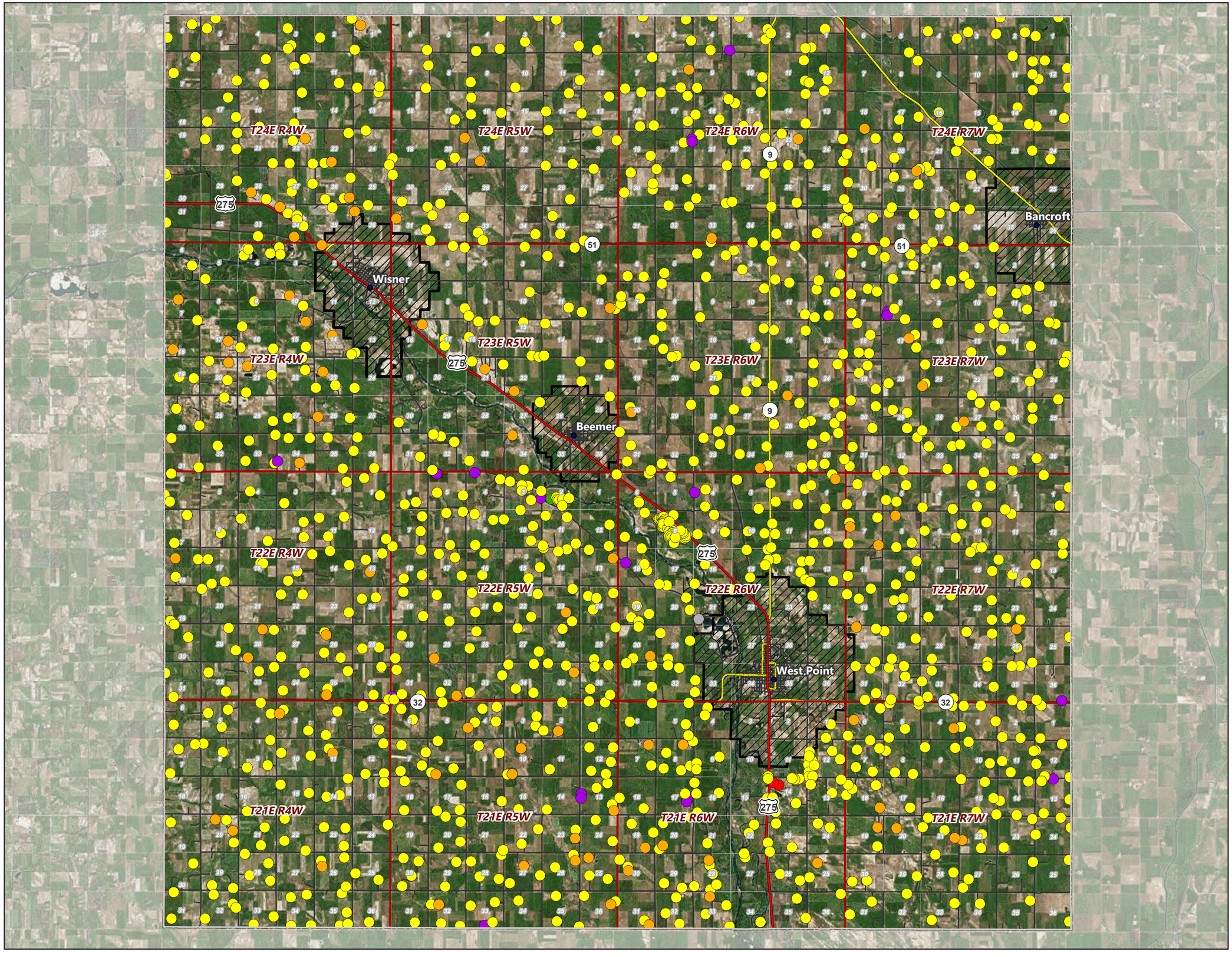
One of the most critical factors, concerning land use development in any area is the physical characteristics of the area. The physical character of Cuming County has a variety of different environmentally sensitive landscapes. The county is a variety of environments including:

- Elkhorn River valley
- Cropland
- Rolling hills

CUMING COUNTY, NEBRASKA

COMPREHENSIVE PLAN

EXISTING LAND USE



LEGEND

- City/Town
- US Highway
- State Highway
- County Road
- Township/Range
- County Boundary
- Extraterritorial Jurisdiction

Existing Land Use

- Residential
- Commercial
- Quasi Public
- Recreation
- Industrial
- Livestock/Feed Lot

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DATE: 10.13.2020

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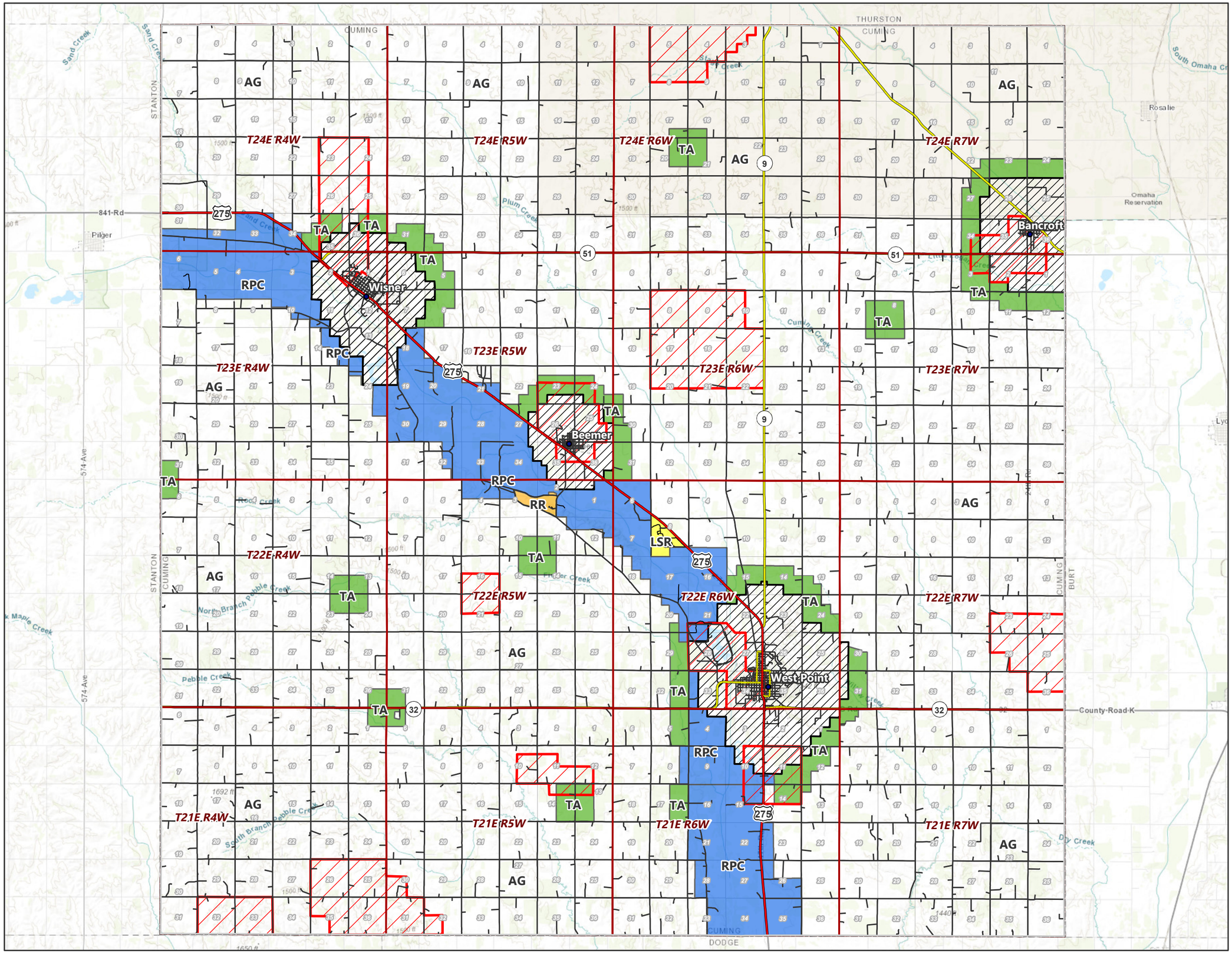
1" = 3 miles


CUMING COUNTY, NEBRASKA
COMPREHENSIVE PLAN
FUTURE LAND USE
LEGEND
City/Town
US Highway
State Highway
County Road
Township/Range
County Boundary
Extraterritorial Jurisdiction
Wellhead Protection Area
Future Land Use
A - Agriculture
Transitional Agriculture
River Protection Corridor
Lakeside Residential
Rural Residential
THURSTON
CUMING
STANTON
DODGE
BURT
Rosalie
Omaha Reservation
Pilger
Wisner
Beemer
West Point
Bancroft
841-Rd
574-Ave
County-Road-K
T24E R4W
T24E R5W
T24E R6W
T24E R7W
T23E R4W
T23E R5W
T23E R6W
T23E R7W
T22E R4W
T22E R5W
T22E R6W
T22E R7W
T21E R4W
T21E R5W
T21E R6W
T21E R7W
AG
TA
RPC
RR
LSR
Sand Creek
Plum Creek
Cuming Creek
Rock Creek
North Branch Pebble Creek
Pebble Creek
South Branch Pebble Creek
Dry Creek
South Omaha Cr
Maple Creek
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Specializing in Municipal, County and Neighborhood Planning
PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 10.12.2020
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1 " = 3 miles
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Future Land Use Plan

The Future Land Use Plan provides the basis for the formulation of land use policy and zoning regulations. For this reason, it is imperative to formulate a plan tailored to the needs, desires and environmental limitations of the planning area. The Future Land Use Plan should promote improvements in all components of the local economy. The following common principles and land use concepts have been formed to guide future development and redevelopment activities within Cuming County's planning and zoning jurisdiction.

The plan is based upon existing conditions and projected future conditions for the county. The Land Use Plan also assists the county in determining the type, direction and timing of future growth and development activities. The criteria used in this Plan reflect several elements, including:

- the current use of land within and around the county
- the desired types of growth, including location of growth
- future development activities
- physical characteristics, opportunities and constraints of future growth areas
- current population and economic trends affecting the county

Efficient allocation of land recognizes the forces of the private market and the limitations of the capital improvement budget. This Plan acknowledges these factors play an important role in the growth and development of Cuming County. A Future Land Use Plan is intended to be a general guide to future land uses that balance private sector development (the critical growth element in any county) with the concerns, interests, and demands of the overall local economy.

Land Use Categories

The future land uses for Cuming County are separated into 11 categories. The following list shows the land uses within this plan:

- Primary Agricultural
- Transitional Agricultural
- River Protection Corridor
- Lake Area Residential
- Rural Residential

Reservation Land

The policies found in the following pages apply county-wide, except, on areas considered Tribal lands within reservation areas of Cuming County. The main reservation is the Santee Sioux Reservation as outlined on the Land Use Maps of this Chapter. Please note, any land owned and used by non-native in these areas shall follow the policies of this plan.

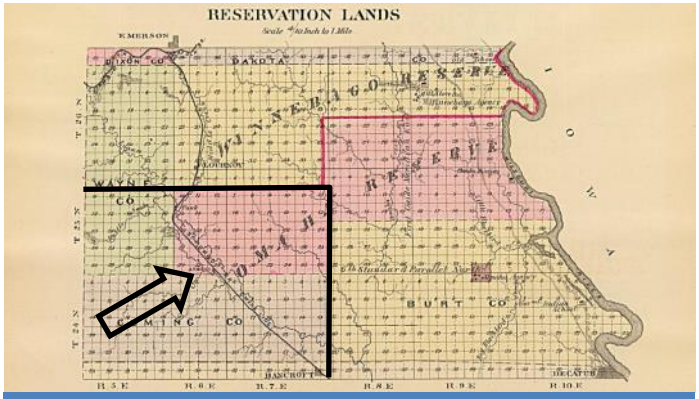


Photo 10.1: Old map showing Omaha Indian Reservation
Source: NET

Photo 10.2: Current map showing Omaha Indian Reservation
Source: Bureau of Indian Affairs

Nearly all of the reservation land in Cuming County is considered Fee Land, meaning it is able of being regulated by the County regarding Land Use and Zoning.

Primary Agriculture

General Purpose

This land use district provides for all agriculture practices. In this "agriculture first" land use district, agricultural activities should be given primary consideration where conditions prove favorable. This category is where livestock production and feeding operations are allowed and non-farm residential development are discouraged.

Compatible Uses

1. Crop production, including grazing lands
2. Livestock operations for all types of animals
3. Private grain storage
4. Commercial grain storage
5. Commercial uses related to agriculture such as: fertilizer processing and storage, grain elevators, etc.
6. Manure/fertilizer applications
7. Single acreage developments
8. Public recreational, wildlife and historical areas
9. Renewable energy equipment
10. Agri-Tourism activities such as: hunting preserves, fishing, vineyards etc.
11. Religious uses and structures
12. Educational uses and structures
13. Commercial mining

Incompatible Uses

1. Residential/Acreage developments not associated with a farming operation
2. Large commercial developments

Potential issues to consider

1. Rural Water availability and connections
2. Groundwater availability
3. Slopes
4. Topography
5. Natural amenities such as trees, ponds, and streams
6. Site drainage
7. Flooding hazards.
8. Groundwater contamination
9. Minimum lot sizes and residential densities
10. Wetlands
11. Existing and/or proposed sanitary systems
12. Wellhead protection areas
13. Proximity to conflicting uses such as new acreages near livestock confinements
14. Transportation systems (county roads, highways)

Special Policies

1. Minimum residential lot sizes should be kept at or near the 10 acres. This size accommodates both private water and sanitary sewer.
2. Cluster developments should be considered and used whenever soils, topography, natural amenities warrant.
3. Separation distances should be applied to the livestock facility and rural acreages.
4. Livestock feeding operations should be a permitted use.

PRIMARY AGRICULTURE, CONT.

Residential Development Policies

It is the policy of Cuming County to support intensive agricultural practices in the AG Land Use District. Persons seeking to construct a new dwelling unit in the AG Land Use District should be required to do the following:

1. Make Application for a Permit for a dwelling unit;
2. Applicant should acknowledge and accept as reasonable and normal effects on rural living of normal, usual, customary, or generally accepted farming practices or farming operations, and all matters in any way related to or incidental thereto, as the same now exist, or as the same may be hereafter developed in Cuming County including but not limited to:
   - noise from tractors or other farm equipment and aerial spraying at all hours and noise from livestock at all hours;
   - dust from animal pens, field work, harvesting, and gravel roads;
   - increased flies, mosquitoes, or other insects that are attracted to crops, livestock, or manure;
   - odor from livestock operations and animal confinement operations, and order from silage, manure, and manure application procedures including; liquid manure being distributed on farm ground via pivot or other method, stockpiling of manure away from the livestock feeding operation for later distribution, or distributing manure on farm ground as fertilizer;
   - smoke from burning ditches or other approved burning;
   - the use and application practices for all livestock waste, herbicides, pesticides, fertilizer and other chemicals, including drift by aerial spraying or other application of such products;
   - all field preparation, harvest practices, and all livestock animal husbandry practices;
   - the movement of livestock, farm products, manure, machinery and equipment on public roads; and
   - all other similar or related farming practices or farming operations, and all matter in any way related or incidental thereto.

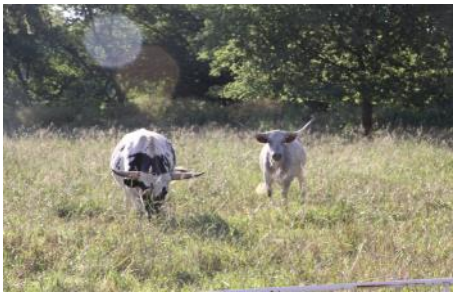
Transitional Agriculture

General Purpose

The Transitional Agriculture represents an area in the County where agriculture is protected, but limited. The Transitional Agriculture land use is intended to provide a location where agriculture can continue to thrive but may at some point in the future be influenced by growth in the adjacent communities.

Compatible uses

1. Crop production, including grazing lands
2. Livestock operations for all types of animals
3. Agri-Tourism activities such as: hunting preserves, fishing, vineyards etc.
4. Private and commercial grain storage
5. Manure/fertilizer applications
6. Single acreage developments
7. Public recreational, wildlife and historical areas
8. Renewable energy equipment
9. Religious uses and structures
10. Educational uses and structures



Incompatible Uses

1. Large scale residential developments including mobile homes as a single-family dwelling unless located within a mobile home park
2. Livestock over 1000 animal units
3. Large commercial developments

Potential issues to consider

1. Rural Water availability and connections
2. Slopes
3. Proximity to existing livestock facilities
4. Topography
5. Natural amenities such as trees, ponds, and streams
6. Site drainage
7. Flooding hazards.
8. Groundwater availability
9. Groundwater contamination
10. Wetlands
11. Existing and/or proposed sanitary system
12. Potable well locations
13. Wellhead protection areas
14. Transportation systems (county roads, highways)

Special policies

1. Residential lot sizes may vary depending upon the types of sanitary system installed and the source of potable water.
2. Cluster developments should be considered and used whenever soils, topography, natural amenities warrant.
3. Livestock in this land use area should be limited to the smaller class sizes. Larger confined feeding operations should not be allow in the Transitional Agricultural District.

Transitional Agriculture, cont.

Residential Development Policies

It is the policy of Cuming County to support intensive agricultural practices in the TA Land Use District. Persons seeking to construct a new dwelling unit in the TA Land Use District should be required to do the following:

1. Make Application for a Permit for a dwelling unit;
2. Applicant should acknowledge and accept as reasonable and normal effects on rural living of normal, usual, customary, or generally accepted farming practices or farming operations, and all matters in any way related to or incidental thereto, as the same now exist, or as the same may be hereafter developed in Cuming County including but not limited to:
   - noise from tractors or other farm equipment and aerial spraying at all hours and noise from livestock at all hours;
   - dust from animal pens, field work, harvesting, and gravel roads;
   - increased flies, mosquitoes, or other insects that are attracted to crops, livestock, or manure;
   - odor from livestock operations and animal confinement operations, and order from silage, manure, and manure application procedures including; liquid manure being distributed on farm ground via pivot or other method, stockpiling of manure away from the livestock feeding operation for later distribution, or distributing manure on farm ground as fertilizer;
   - smoke from burning ditches or other approved burning;
   - the use and application practices for all livestock waste, herbicides, pesticides, fertilizer and other chemicals, including drift by aerial spraying or other application of such products;
   - all field preparation, harvest practices, and all livestock animal husbandry practices;
   - the movement of livestock, farm products, manure, machinery and equipment on public roads; and
   - all other similar or related farming practices or farming operations, and all matter in any way related or incidental thereto.

River Protection Corridor

General Purpose

This land use district is shown along the Elkhorn River. The River Protection Corridor has the environmental objective of protecting water supplies through a limited number of permitted uses. Preserving water quality and minimizing flood hazards are the leading priorities in considering any type of land use. Development meeting the floodplain regulations may construct in identified floodplains. However, no new construction will be allowed in the designated floodway unless a Letter of Map Amendment (LOMA) can be obtained from FEMA.

Compatible uses

1. Crop production, including grazing lands
2. Private grain storage
3. Manure/fertilizer applications
4. Single acreage developments
5. Public recreational, wildlife and historical areas
6. Tourism activities such as: parks, hunting preserves, fishing etc.
7. Religious uses and structures
8. Educational uses and structures
9. Community/Recreational Center
10. Larger park and recreation areas
11. Mining operations
12. Marinas
13. Small scale renewable energy facilities

Incompatible Uses

1. Livestock operations
2. Large commercial developments
3. Large industrial developments
4. RV Storage located in the floodplain and/or floodway
5. Mobile homes as a single-family dwelling unless located within a mobile home park

Potential issues to consider

1. Floodway
2. Floodplain and flooding hazard
3. Rural Water availability and connections
4. Proximity to existing livestock facilities
5. Wetlands
6. Depth to groundwater
7. Topography
8. Natural amenities such as trees, ponds, and streams
9. Site drainage
10. Groundwater contamination
11. Existing and/or proposed sanitary system
12. Potable well locations
13. Wellhead protection areas
14. Transportation systems (county roads, highways)

Special policies

1. Residential lot sizes may vary depending upon the types of sanitary system installed and the source of potable water.
2. When a sandpit development or mining operation is proposed and the development is the proposed reclamation solution, the density should be greater.
3. Cluster developments should be considered and used whenever soils, topography, natural amenities warrant.

River Protection Corridor, cont.

Residential Development Policies

It is the policy of Cuming County to support intensive agricultural practices in the RPC Land Use District. Persons seeking to construct a new dwelling unit in the RPC Land Use District should be required to do the following:

1. Make Application for a Permit for a dwelling unit;
2. Applicant should acknowledge and accept as reasonable and normal effects on rural living of normal, usual, customary, or generally accepted farming practices or farming operations, and all matters in any way related to or incidental thereto, as the same now exist, or as the same may be hereafter developed in Cuming County including but not limited to:
   - noise from tractors or other farm equipment and aerial spraying at all hours and noise from livestock at all hours;
   - dust from animal pens, field work, harvesting, and gravel roads;
   - increased flies, mosquitoes, or other insects that are attracted to crops, livestock, or manure;
   - odor from livestock operations and animal confinement operations, and order from silage, manure, and manure application procedures including; liquid manure being distributed on farm ground via pivot or other method, stockpiling of manure away from the livestock feeding operation for later distribution, or distributing manure on farm ground as fertilizer;
   - smoke from burning ditches or other approved burning;
   - the use and application practices for all livestock waste, herbicides, pesticides, fertilizer and other chemicals, including drift by aerial spraying or other application of such products;
   - all field preparation, harvest practices, and all livestock animal husbandry practices;
   - the movement of livestock, farm products, manure, machinery and equipment on public roads; and
   - all other similar or related farming practices or farming operations, and all matter in any way related or incidental thereto.

Lake Area Residential

General Purpose

This land use area is intended to provide for existing and future developments along the Elkhorn River. This area will require some special guidelines in the future to protect future construction.

Compatible uses

1. Crop production, including grazing lands
2. Religious uses and structures
3. Educational uses and structures
4. Community/Recreational Center
5. Residential developments

Incompatible Uses

1. Livestock operations
2. Large commercial developments
3. Mobile homes as a single-family dwelling unless located within a mobile home park

Potential issues to consider

1. Soils formations (critical in this area)
2. Floodway
3. Floodplain and flooding hazard
4. Proximity to existing livestock facilities
5. Wetlands
6. Depth to groundwater
7. Natural amenities such as trees, ponds, and streams
8. Site drainage
9. Groundwater contamination
10. Existing and/or proposed sanitary system
11. Potable well locations
12. Wellhead protection areas
13. Transportation systems (county roads, highways)

Special policies

1. Residential lot sizes may vary depending upon the types of sanitary system installed and the source of potable water.
2. Cluster developments should be considered and used whenever soils, topography, natural amenities warrant.
3. New developments are encourage to contain internal water and/or sanitary sewer systems.

Rural Residential

General Purpose

The Rural Residential Land Use District represents an area in the County where multiple residential lots and dwellings may be platted. At present, there are a minimal number of locations fitting this land use type. These areas should be developed as planned developments and should incorporate clustered development concepts into the design.

Compatible uses

1. Residential developments meeting design criteria
2. Mixed-use developments incorporating:
   - Residential (This should be the dominate use)
   - Supporting commercial
   - Public amenities such as meeting halls, community centers
   - Marina
3. Agri-Tourism activities such as: vineyards etc.
4. Public recreational, wildlife and historical areas
5. Renewable energy equipment
6. Religious uses and structures
7. Educational uses and structures
8. Mobile homes within an approved mobile home park

Incompatible Uses

1. Major agricultural operations
2. Livestock operations
3. Large commercial developments
4. Large industrial developments

Potential issues to consider

1. Rural Water availability and connections
2. Slopes
3. Proximity to existing livestock facilities
4. Topography
5. Natural amenities such as trees, ponds, and streams
6. Site drainage
7. Flooding hazards.
8. Groundwater availability
9. Groundwater contamination
10. Wetlands
11. Existing and/or proposed sanitary system
12. Potable well locations
13. Wellhead protection areas
14. Transportation systems (county roads, highways)

Special policies

1. Residential lot sizes may vary depending upon the types of sanitary system installed and the source of potable water.
2. Cluster developments should be considered and used whenever soils, topography, natural amenities warrant.
3. Developments of this type should be completed as a Planned Development.
4. Developments of this type should avoid areas near larger confined feeding operations.

Wellhead Protection Areas (Overlay)

General Purpose

This land use area is identified for the protection of public water supplies. These areas are identified but will not be strictly enforced through zoning until an interlocal agreement is approved by the county and other party owning the wellhead.

These areas are considered as overlays and are in addition to the requirements and policies of the underlying area.

Typical Uses

1. Use allowed in the underlying area that are not considered a contamination hazard to the wellhead area and the water supply.

Potential Issues to Consider

1. See underlying land use category.

Buildable Lot Policies

1. See underlying land use category.

Development Policies to Consider

1. See underlying land use category.

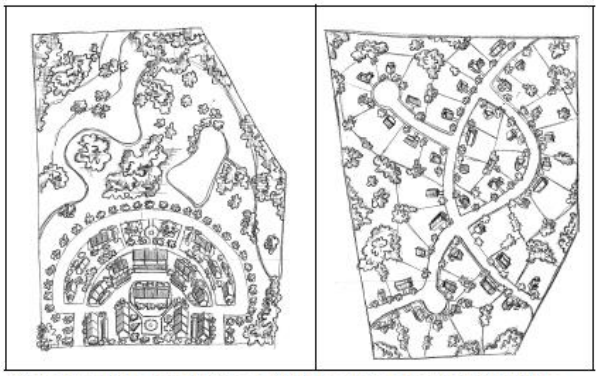
Conservation Subdivisions

The graphic to the right represents a standard subdivision and how it can be redrawn into a conservation subdivision. The primary usage of this technique in Cuming County is so a developer can maintain a specific density of building lots while protecting key environmental elements on the property. Some of these environmental elements include:

- Wetlands
- Prominent Tree Stands
- Slopes
- Floodplains
- Streams
- Natural prairie

Key items needing to be preserved/conserved within new and existing subdivisions are the slopes, rock outcroppings, and quality trees. Many developers spend large amounts of money to replicate some of the qualities available in northern Cuming County. The County should work hard to negotiate with developers to maintain a larger part of the natural amenities available. One specific tool is the use of Planned Developments. This tool allows the county to negotiate locations, setbacks, and density of certain areas in exchange of protections.

In most cases the sensitive areas are placed in some type of conservation easement. The protected areas, in a majority of cases, are placed into a common area to be shared by all the residents; this in turn increases the overall value of the lots.



Conservation subdivisions (left) feature smaller lots with a high percentage of open space. Conventional subdivisions (right) feature large lots with little common open space. A conventional subdivision is subject to all of the base zoning district standards, such as minimum lot size, front setbacks, landscaping, and adequacy of public facilities.

Aerial view of a subdivision in Bella Vista, Arkansas using these Conservation principles.

Drainageway using conservation design concepts in Fallbrook (Lincoln, NE)

FUTURE LAND USE GOALS

Land Use Goal and Objectives

Guiding future growth and development in Cuming County in order to insure compatible uses locate together is essential during this planning period.

General Land Use Policies and Strategies

GENLU-1.1 Ideally, new residential development within Cuming County should be focused on the communities of the county; except for those still farming in the county.

GENLU-1.2 Future land uses in the county should carefully consider the existing natural resources of the area, including soils, rivers, and groundwater.

GENLU-1.3 Any future growth and development in rural Cuming County should work toward compact patterns of land uses.

GENLU-1.4 Cuming County should consider limited future development to identified areas along the major highways spanning the county.

GENLU-1.5 The Cuming County Land Use Plan and Zoning Regulations should be designed to expedite the review and approval process where possible.

GENLU-1.6 All land uses and structures should be carefully reviewed for compliance with the duly adopted floodplain and floodway regulations in Cuming County.

Agricultural Land Use Policies and Strategies

AGLU-1.1 Cuming County should continue to develop policies enhancing the "Livestock Friendly" designation.

AGLU-1.2 Cuming County should encourage uses referred to as "Agri-tourism" (Wineries and orchards).

AGLU-1.3 Livestock production should be encouraged in Cuming County provided environmental conditions are appropriate.

AGLU-1.4 Livestock production should be protected from the establishment of conflicting uses such as acreages.

AGLU-1.5 New livestock operations should be located in areas where their impact on neighboring land uses will be minimal.

AGLU-1.6 Cuming County should allow agricultural production throughout the county; except where there may be potential conflicts with other policies of this plan.

AGLU-1.7 Livestock operations should be encouraged to utilize odor reducing technologies such as methane digestion and composting .

AGLU-1.8 Regulations should be established and implemented creating setback and buffer requirements to minimize the impacts of solid, liquid, and gas emissions from livestock facilities.

AGLU-1.9 Establish adequate separation distances between livestock facilities and residential uses and vice versa.

AGLU-1.10 Cuming County should minimize encroachment of non-agricultural uses into areas designated as "Prime Farmland".

AGLU-1.11 Protect the quality of groundwater in agricultural areas of Cuming County.

AGLU-1.12 Work with livestock producers on a continual basis in evaluating protections and regulations.

River Protection Corridor Land Use Policies and Strategies

RPCLU-1.1 The River Protection Corridor should be protected due to the nature of the soils in the area and the flooding occurring in the area.

RPCLU-1.2 The County should not allow the introduction of new livestock operations into the Elkhorn River Corridor, especially in any designated floodway.

RPCLU-1.3 The establishment of chemical storage facilities including the manufacturing of chemicals should not be allowed in this area.

RPCLU-1.4 Existing uses within the River Protection Corridor having a high contaminate potential should be relocated to a more suitable location when possible.

RPCLU-1.5 The County should continue to promote the recreational potential of the area and work with existing property owners to establish specific eco-tourism opportunities.

Residential Land Use Policies and Strategies

RESLU-1.1 Large residential subdivisions should be located next to or near the communities within Cuming County.

RESLU-1.2 Residential developments should be separated from more intensive uses, such as agriculture, industrial, and commercial development, by the use of setbacks, buffer zones, or impact easements.

RESLU-1.3 Subdivision regulations should guide development so it provides a quality living environment while avoiding inefficient and expensive public infrastructure expansions.

RESLU-1.4 New residential developments should include a subdivision agreement, which provides for the maintenance of common areas, easements, groundwater, use of plant materials and drainage.

RESLU-1.5 Zoning and subdivision design standards should require buffers, and screening standards and functional usable green space, for new developments.

RESLU-1.6 All proposed rural area developments should be based on reasonable expectations and no large-scale development should be approved without:

1) The submission and approval of a layout and design concept, with provision for the staging and servicing of all phases of the development;
2) The approval of all federal and state agencies relative in any applicable health, safety and environmental controls; and
3) An adequate demonstration of the financial capacity (escrows, performance bonds, etc.) and responsibility of the applicants to complete the development and provide for operation and maintenance services.
4) Should be appropriately, if not uniquely, suited to the area or site proposed for development;
5) Should not be located in any natural hazard area, such as a floodplain (unless a sandpit development mitigating the circumstances) or area of steep slope, severe drainage problems or soil limitations for building or sub-surface sewage disposal, if relevant.
6) Should be furnished with adequate access – when possible a minimum of two entrances and exits.

RESLU-1.7 Examine implementation of a planned unit development (PUD)/Clustered Development concept which provides a viable alternative to conventional urban development patterns, while providing a means to encourage creative yet responsible/sensitive developments.

RESLU-1.8 Cuming County should review and accommodate, wherever possible, any new or alternative development concepts or proposals, provided such concepts or proposals are consistent with and do not compromise in any way the established disposition of land uses on the Land Use Map or the goals and policies of the Plan.

RESLU-1.9 New residential construction or relocations should not be allowed along any minimum maintenance road unless the road is upgraded to county specifications and paid for by the property owner, prior to construction.

Commercial Policies and Strategies

CFLU-1.1 Encourage the location of commercial and industrial uses to locate within the communities of Cuming County or along the major highways.

CFLU-1.2 Encourage the location and clustering of commercial and industrial uses within the rural areas of Cuming County at major transportation intersections and/or along major railroad.

CFLU-1.3 Utilize frontage roads within clustered commercial centers when locating along major roads/highways.

CFLU-1.4 Commercial uses should be required to provide their own adequate water supply without negatively impacting

existing neighboring properties.

CFLU-1.5 Heavy industrial uses with a high water and/or waste disposal requirement should be encouraged to locate or relocate only in or immediately adjacent to urban areas where all required services are available.

CFLU-1.6 Commercial and industrial areas located outside a community's extraterritorial jurisdiction should have adequate services, including major utility lines, electric power substations and transmission lines, sanitary sewer and water can be provided, and where appropriate, gas lines are available.

CFLU-1.7 Commercial and industrial uses should be located so an adequate buffer space is provided between incompatible land uses.

CFLU-1.8 The county should develop appropriate performance, design and specification standards and requirements for all existing and future industrial uses to guide their location or relocation in the county.

CFLU-1.9 The county should encourage industrial development that bases its products on renewable and indigenous raw materials.

CFLU-1.10 The county should recognize and encourage small-scale industries as viable alternatives to larger, conventional enterprises.

CFLU-1.11 Discourage the construction of "strip" commercial developments in rural areas of the county.

Chapter 13 Transportation Plan

Introduction

Transportation networks tie communities together as well as providing a link to the outside world. Adequate circulation systems are essential for the safe and efficient flow of vehicles and pedestrians, and accessibility to all parts of the community. The Transportation Plan will identify existing systems and any major improvements planned for the future and those necessary to provide safe and efficient circulation of vehicles within Cuming County, including major projects ensuring implementation of the Land Use Plan.

Transportation System and Facilities

Residents within a county have specific transportation needs. These include rail service, bus service, air transportation, as well as vehicular transportation. All of the transportation facilities present are not available within the county and require residents to travel to the nearest location. This portion of the Comprehensive Development Plan examines those services with regard to the closest proximity for residents of Cuming County.

Railroad Service

The closest rail freight service to Cuming County is in Norfolk Through Nebraska Central Railroad. The nearest passenger service is located in Omaha through Amtrak.

Bus Service

The nearest commercial bus service with ticketing services is available in Fremont and Norfolk via Arrow Stage Lines and Omaha for Burlington Trailways and Greyhound.

Commercial Airport Service

Eppley Airfield in Omaha is the closest commercial airport offering flights via multiple airlines.

Small craft Public Airports

The Pender Municipal Airport is one of three small craft airports near Cuming County. Runway #15/33 is 3600 feet by 60 feet with concrete surfacing. Elevation is listed at 1355 feet.

The Scribner State Airport is located in Dodge County. The airport is a former Air Force Base. The facility has two runways, runway #12/30 is 3199 feet by 60 feet with concrete surfacing. The second runway is #17/35 is 4200 feet long and 75 feet wide and is concrete. Elevation is listed at 1325 feet.

The final public access airport is the Fremont Municipal Airport in Fremont. The facility has one runway, runway #14/32. The runway is 6350 feet long; however, there is 850 feet displaced on each end of the runway. The width of the runway is 100 feet. The runway is paved with concrete and is at elevation 1203 feet.

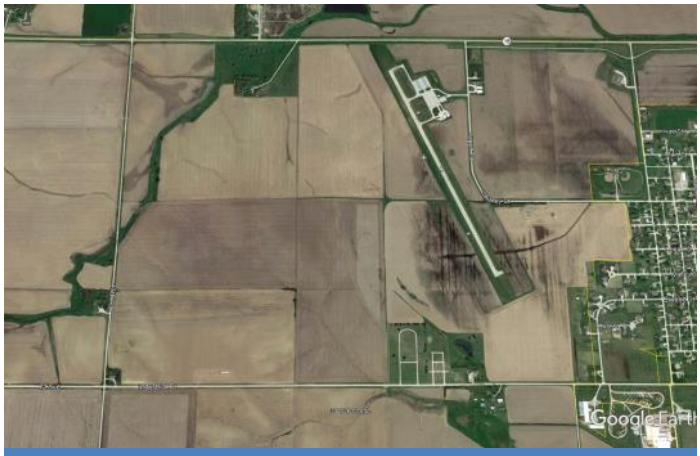


Photo 13.1
Aerial of Pender Municipal Airport
Source: Google Earth

State and Federal Highways

Cuming County has five major highways running through the county. US Highway 275 is the main highway running through the county. This highway connects Cuming County to Norfolk and Fremont. The major Nebraska Highways are 9, 16, 32, and 51.

Photo 13.2: Road Map of Cuming County
Source: State of Nebraska Official Road Map

Transportation Planning and Land Use

Land use and transportation create the pattern for future development and are extremely interdependent upon one another in order to effectively shape the community. An improved or new transportation route generates a greater level of accessibility and will likely determine how adjacent land will be utilized in the future.

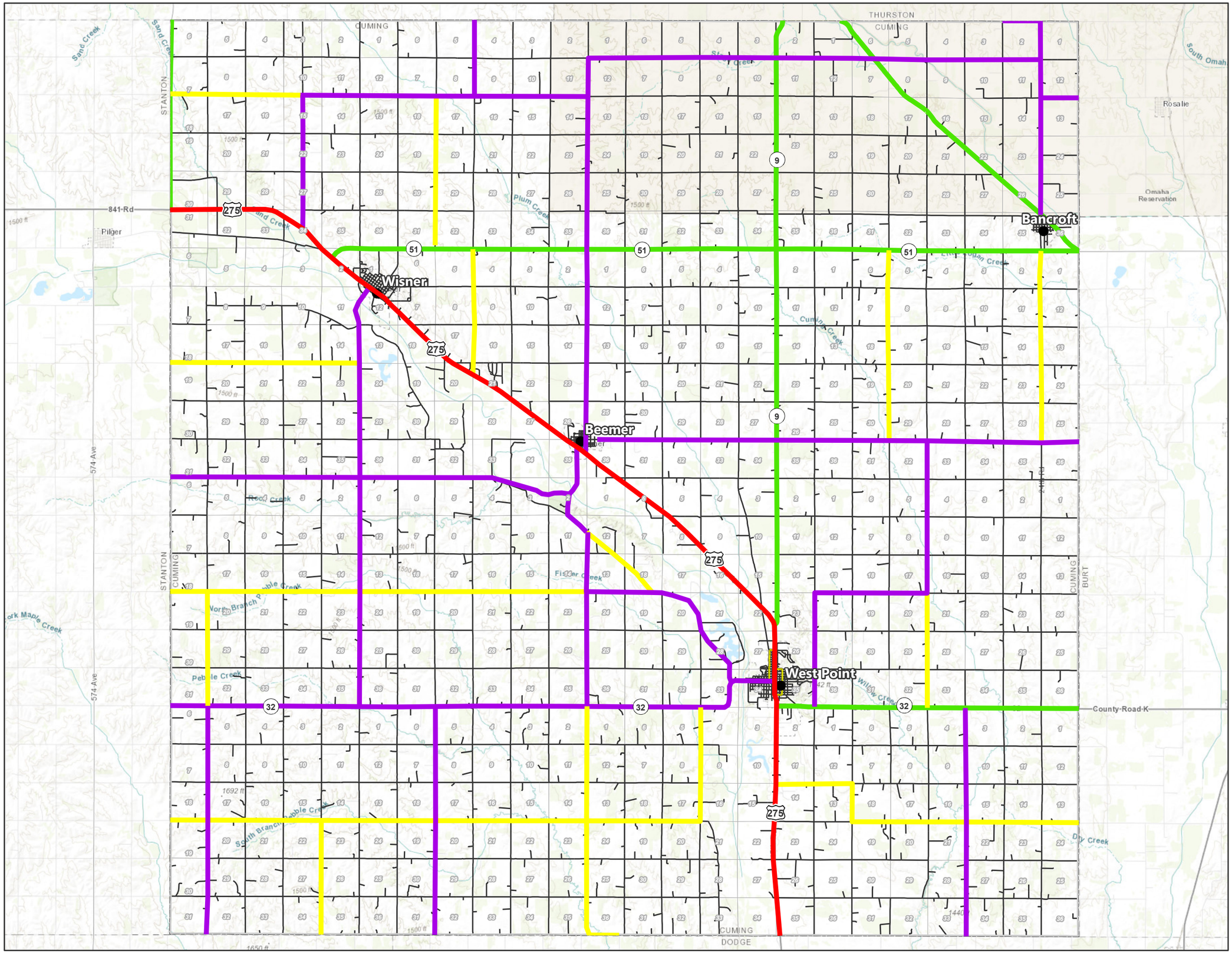
In the short term, land use shapes the demand for transportation and vice versa; one key to good land use planning is to balance land use and transportation. However, new or improved roads, as well as, county and state highways may change land values, thus altering the intensity of which land is utilized.

In general, the greater the transportation needs of a particular land use, the greater its preference for a site near major transportation facilities. Commercial activities are most sensitive to accessibility since their survival often depends upon how easy a consumer can get to the business. Thus, commercial land uses are generally located near the center of their market area and along highways or at the intersection of arterial streets. Industrial uses are also highly dependent on transportation access, but in a different way. For example, visibility is not as critical for an industry as it is for a retail store. Industrial uses often need access to more specialized transportation facilities, which is why industrial sites tend to be located near railroad lines or highways to suit individual industrial uses.

Street and Road Classification System

All of the public highways, roads, and streets in Nebraska are divided into two broad categories, and each category is divided into multiple functional classifications. The two broad categories are Rural Highways and Municipal Streets. State statute defines Rural Highways as "all public highways and roads outside the limits of any incorporated municipality," and Municipal Streets as "all public streets within the limits of any incorporated municipality." Neb. Rev. Stat. § 39-2102 (RRS 1998)

Nebraska Highway Law (Chapter 39, Article 21, Revised Reissue Statutes of Nebraska 1943) proposes the functional classification of both rural and municipal roads and streets and public highways. Chapter 39, Article 21.03 lists rural highway classifications as:



CUMING COUNTY, NEBRASKA

COMPREHENSIVE PLAN

NATIONAL ROAD CLASSIFICATIONS

LEGEND

- City/Town
- County Road
- Township/Range
- County Boundary

National Road Classifications

- Other Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector

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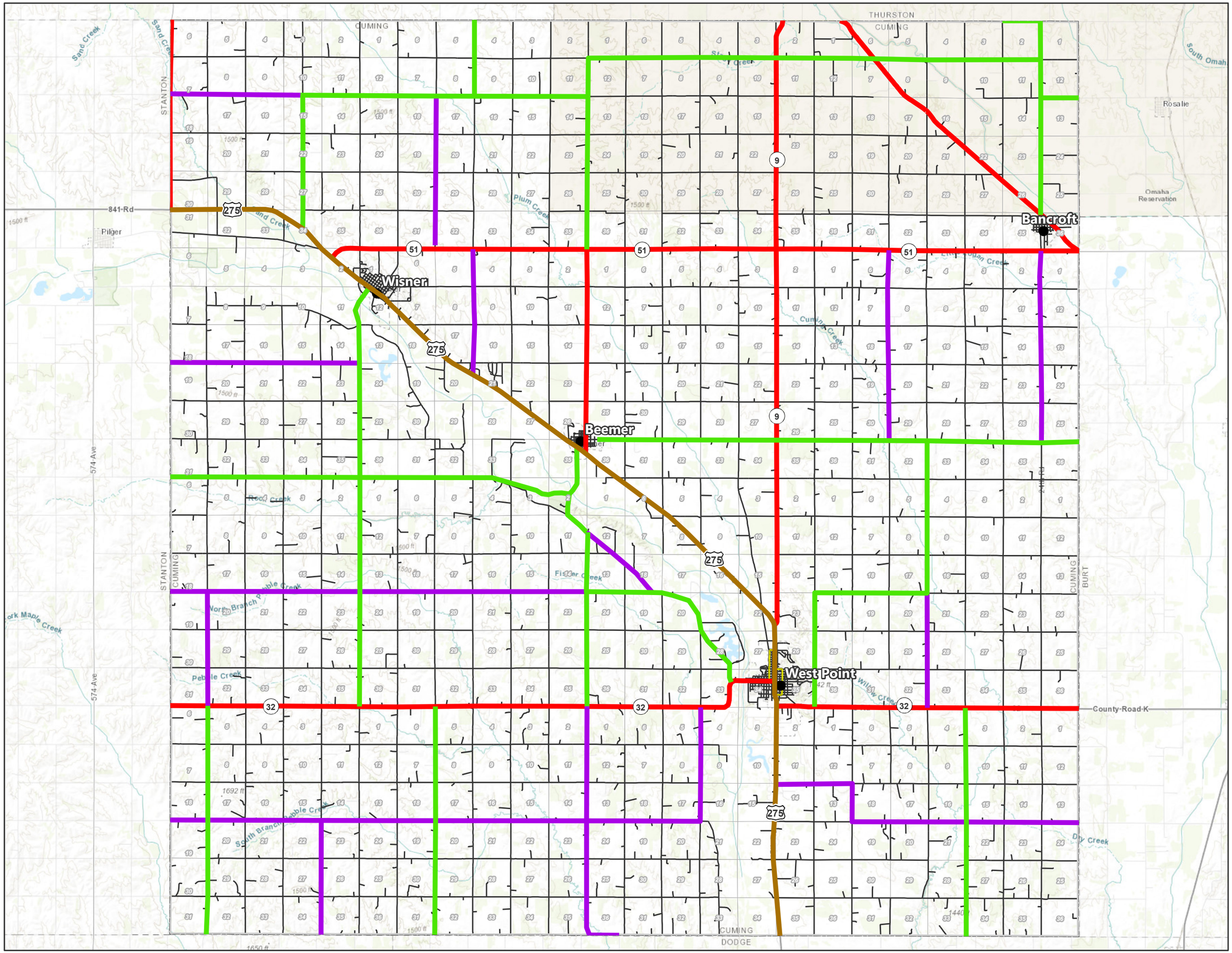
Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 10.14.2020

N

0 1.5 3 6 Miles

1 " = 3 miles



CUMING COUNTY, NEBRASKA

COMPREHENSIVE PLAN

STATE ROAD CLASSIFICATIONS

LEGEND

- City/Town
- County Road
- Township/Range
- County Boundary

State Road Classifications

- Expressway
- Major Arterial
- Other Arterial
- Collector

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Specializing in Municipal, County and Neighborhood Planning

PROJECTION: NE State Plane (Ft.)
DATUM: NAD 83
DATE: 10.14.2020

N

0 1.5 3 6 Miles

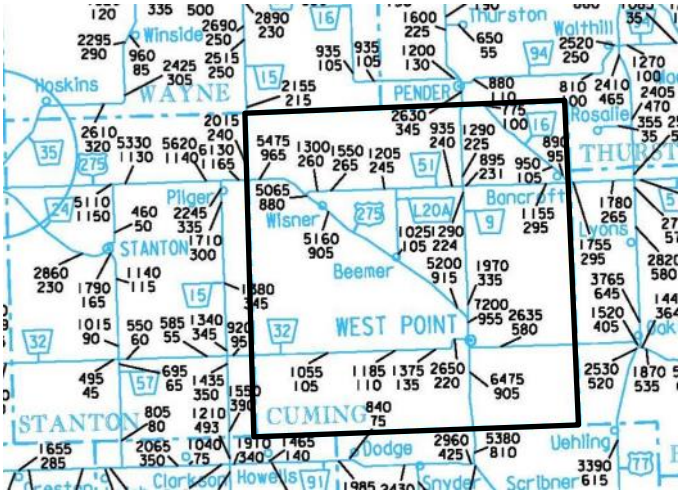
1 " = 3 miles

1. Interstate: federally-designed National System of Interstate and defense highways;
2. Expressway: second in importance to Interstate. Consists of a group of highways following major traffic desires in Nebraska and ultimately should be developed to multiple divided highway standards;
3. Major Arterial: consists of the balance of routes that serve major statewide interests for highway transportation in Nebraska. Characterized by high speed, relatively long distances, travel patterns;
4. Other Arterial: consists of a group of highways of less importance as through-travel routes.
5. Collector: consists of a group of highways that pick up traffic from the local or land-service roads and transport community centers or to the arterial systems. Main school bus routes, mail routes, and farm-to-market routes;
6. Local: consists of all remaining rural roads, generally described as land-access roads providing service to adjacent land and dwellings; and
7. Bridges: structures crossing a stream three hundred feet or more in width or channels of such a stream having a combined width of three hundred feet or more.

Traffic Counts in Cuming County

Traffic flow within the county on these highways varies considerably.

FIGURE 13.3:
TRAFFIC FLOW MAP - 2014



Source: Nebraska Department of Transportation

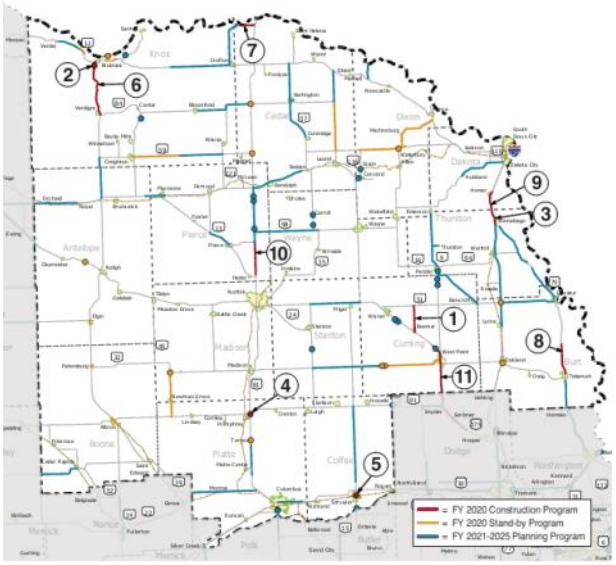
Figure 11.3 indicates the greatest traffic flows are along US Highway 275 coming from the south and dropping off at West Point; this route hits 7200 average vehicles per day and nearly 1000 trucks on an average day. However, the Nebraska highways carry far less than US Highway 275. Most Nebraska highways carry between 1,000 and 2,000 vehicles on average daily.

NE DOT Improvements

The Nebraska Department of Transportation publishes an annual list of proposed projects for the current fiscal year, for fiscal years one to five years from the present, and seven years and beyond. Cuming County is in the Department of Road's District 3. Between Fiscal Years 2020 and 2025, there are six projects budgeted for the Cuming County area. These projects include:

- Nebraska L20A Beemer North-5.3 miles of paving and bridge work ($2,477,000)
- US Highway 275 Scribner/West Point-19.7 miles of 4-lane, grading, structures, and surfacing (-$119,643,000)
- Nebraska 32 West Point west - 10.9 miles of resurfacing and bridge repair ($6,563,000)
- Nebraska 9 Pender South - bridges ($2,620,000)
- Nebraska 16 North Jct. N-51 to S. Jct. N-9 - 10.6 miles of resurfacing and bridge work ($6,230,000)
- US Highway 275 Wisner Southeast Bridges - ($2,820,000)
- US Highway 275 West Point Northwest Bridges - ($2,820,000)

FIGURE 13.4:
NDOT SIX-YEAR HIGHWAY PROGRAM



Source: Nebraska Department of Transportation

Overall the Nebraska Department of Transportation is expecting to spend $23,530,000 in upgrades in the Cuming County over the next six years. However, this number does not include $ -119,643,000 in for the US Highway 275 4-lane project between Scribner and West Point.

Transportation Policies and Strategies

TRAN-1.1 Development should be discouraged from occurring in areas where the road system is insufficient to handle any additional traffic load without upgrades being completed.

TRAN-1.2 Improve, develop, and maintain well-traveled roads with hard surfacing, when possible.

TRAN-1.3 Cuming County should require new development to:

1. Limit access points on highways designated as arterials when alternative access points are feasible.
2. Minimize direct access points onto arterial rights-of-way by encouraging the utilization of common driveways.
3. New development should not be located along roads officially designated as "Minimum Maintenance"

Chapter 14 Implementation

Achieving Cuming County's Future

Successful community plans have the same key ingredients: "2% inspiration and 98% perspiration." This section of the plan contains the inspiration of the many county officials and residents who have participated in the planning process. However, the ultimate success of this plan remains in the dedication offered by each and every resident.

There are numerous goals and objectives in this plan. We recommend reviewing the relevant goals during planning and budget setting sessions to determine what projects may need to be undertaken during the course of the fiscal year.

Action Agenda

The Action Agenda is a combination of the following:

- Goals and Objectives
- Land Use Policies
- Support programs for the above items

It will be critical to earmark the specific funds to be used and the individuals primarily responsible for implementing the goals and objectives in Cuming County.

Support Programs for the Action Agenda

Five programs will play a vital role in the success of Cuming County's plan. These programs are:

1. **Zoning Regulations**--updated land use districts can allow the county to provide direction for future growth.
2. **Subdivision Regulations**--establish criteria for dividing land into building areas, utility easements, and streets. Implementing the Transportation Plan is a primary function of subdivision regulations.
3. **Plan Maintenance**--an annual and five-year review program will allow the county flexibility in responding to growth and a continuous program of maintaining the plan's viability.
4. **Housing Study** – A Housing Study will be critical to use in direct relationship to the Comprehensive Plan due to the need for housing issues in the county. The study will help guide the county in the redevelopment and future development of housing throughout the county and all of the communities in Cuming County.
5. **Strategic Plan** – A Strategic Plan will assist in identifying future economic development strategies that will tie into the overall planning effort of the county. It will be critical to work with this document and the Plan in unison.

Comprehensive Plan Maintenance

Annual Review of the Plan

A relevant, up to date plan is critical to the on-going planning success. To maintain both public and private sector confidence; evaluate the effectiveness of planning activities; and, most

importantly, make mid-plan corrections on the use of county resources, the plan must be current. The annual review should occur during the month of January.

After adoption of the comprehensive plan, opportunities should be provided to identify any changes in conditions that would impact elements or policies of the plan. At the beginning of each year a report should be prepared by the Planning Commission, which provides information and recommendations on:

- whether the plan is current in respect to population and economic changes; and
- The recommended goals, objectives, and/or policies are still valid for the County and its long-term growth.

The Planning Commission should hold a meeting on this report in order to:

1. Provide citizens or developers with an opportunity to present possible changes to the plan,
2. Identify any changes in the status of projects called for in the plan, and
3. Bring forth any issues, or identify any changes in conditions, which may impact the validity of the plan.

If the Planning Commission finds major policy issues or major changes in basic assumptions or conditions have arisen which could necessitate revisions to the Comprehensive Plan, they should recommend changes or further study of those changes. This process may lead to identification of amendments to the Comprehensive Plan and would be processed as per the procedures in the next section.

Unanticipated Opportunities

If major new, innovative development and/or redevelopment opportunities arise which impact any number of elements of the plan and which are determined to be of importance, a plan amendment may by proposed and considered separate from the Annual Review and other proposed Comprehensive Plan amendments. The Comprehensive Plan amendment process should adhere to the adoption process specified by Nebraska law and provide for the organized participation and involvement of citizens.

Methods for Evaluating Development Proposals

The interpretation of the Comprehensive Plan should be composed of a continuous and related series of analyses, with references to the goals and policies, the land use plan, and specific land use policies. Moreover, when considering specific proposed developments, interpretation of the Comprehensive Plan should include a thorough review of all sections of the Comprehensive Plan.

If a development proposal is not in conformance or consistent with the policies developed in the Comprehensive Plan, serious consideration should be given to making modifications to the proposal or the following criteria should be used to determine if a Comprehensive Plan amendment would be justified:

- the character of the adjacent area
- the zoning and uses on nearby properties
- the suitability of the property for the uses allowed under the current zoning designation
- the type and extent of positive or detrimental impact that may affect adjacent
- properties, or the county at large, if the request is approved
- the impact of the proposal on public utilities and facilities
- the length of time that the subject and adjacent properties have been utilized for their current uses
- the benefits of the proposal to the public health, safety, and welfare compared to
- the hardship imposed on the applicant if the request is not approved
- comparison between the existing land use plan and the proposed change regarding the relative conformance to the goals and policies
- consideration of County staff recommendations