
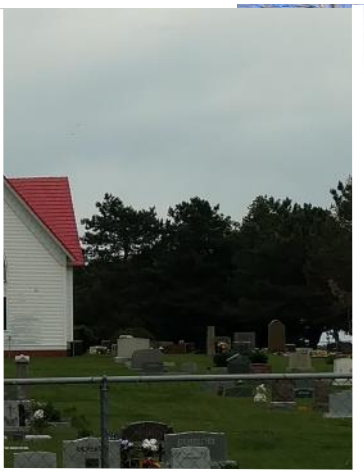








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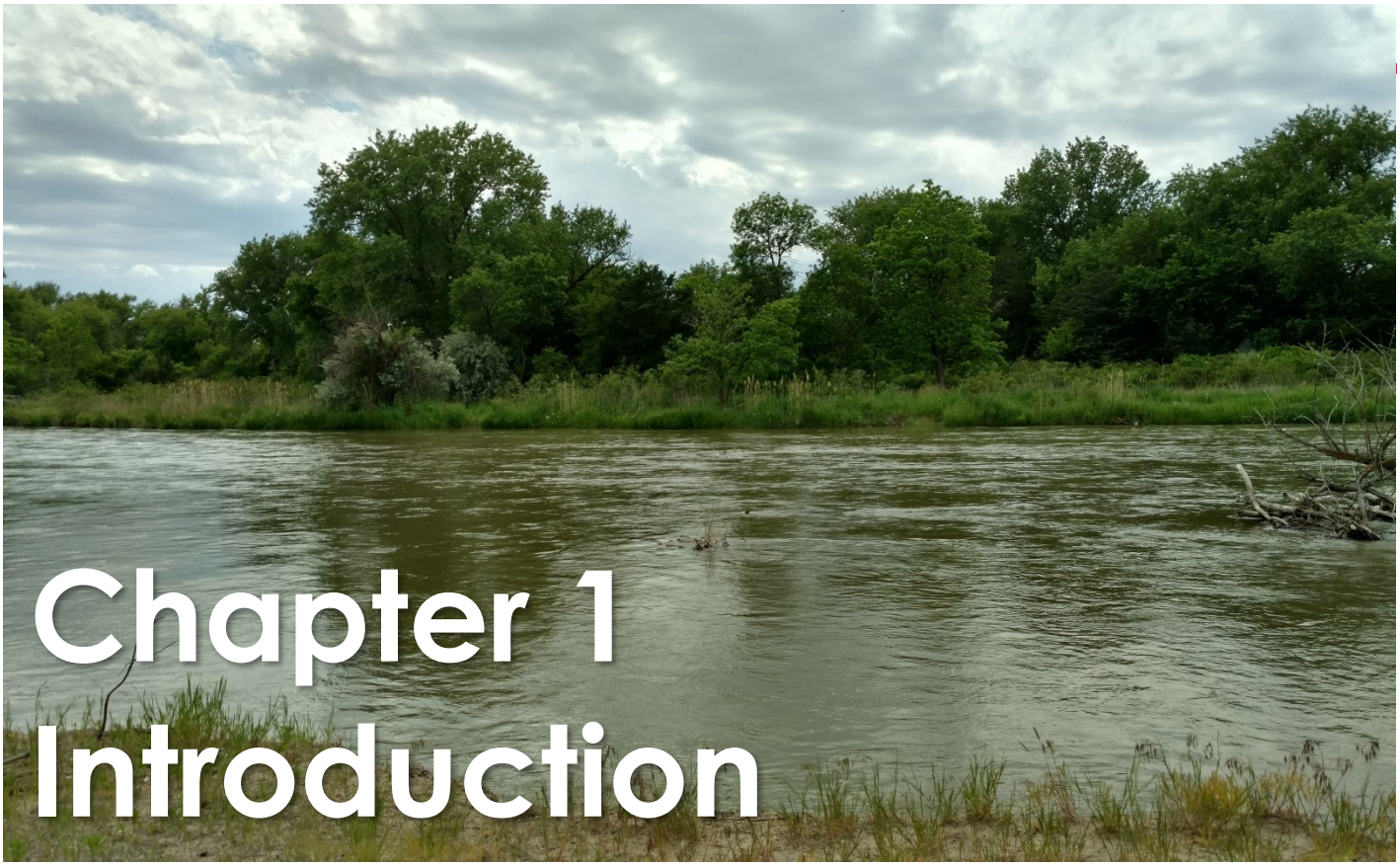
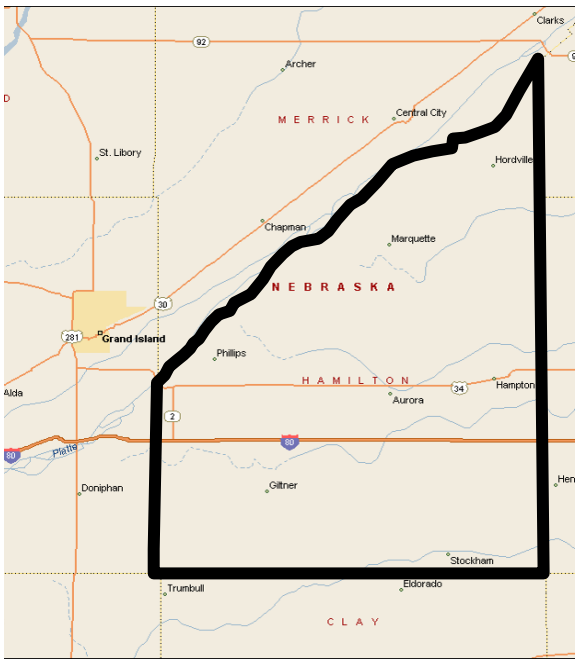


Chapter 1 Introduction

Location

Hamilton County is located in central Nebraska, immediately east of Hall County and the city of Grand Island. Hamilton County is considered part of the Grand Island Metropolitan Area. The county is bounded on the west by Hall County; on the north by Merrick County; on the east by York and Polk Counties; and on the south by Clay and Adams Counties.



The county has four highways crossing the county including US Highway 34, Nebraska Highways 2, 14 and 66. The county is home to the communities of Aurora (county seat), Giltner, Hampton, Hordville, Marquette, Phillips, and Stockholm.

Comprehensive Development Planning

The Hamilton 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 Hamilton 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 that when implemented 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 Hamilton County Planning Commission, with the assistance and participation of the Hamilton County Board of Commissioners; County staff; the Plan Review Committee and citizens of Hamilton County. The time period for achieving the goals, programs, and developments identified in the Hamilton County Comprehensive Plan is 20 years. However, the County should review the Plan annually and update the document every 10 years (2027), 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
- Energy Chapter
- Resources/Environmental Chapter
- Land Use Chapter
- Transportation Chapter
- Implementation Chapter
- Hamilton County Zoning and Subdivision Regulations

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 Hamilton County to closely monitor population, housing and economic conditions that may impact the County.

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.

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

The Comprehensive Development Plan records where Hamilton 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 Hamilton 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 Hamilton County's evolution as it achieves its physical, social, and economic goals.

Jurisdictional Organization

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

The planning and zoning jurisdiction of Hamilton 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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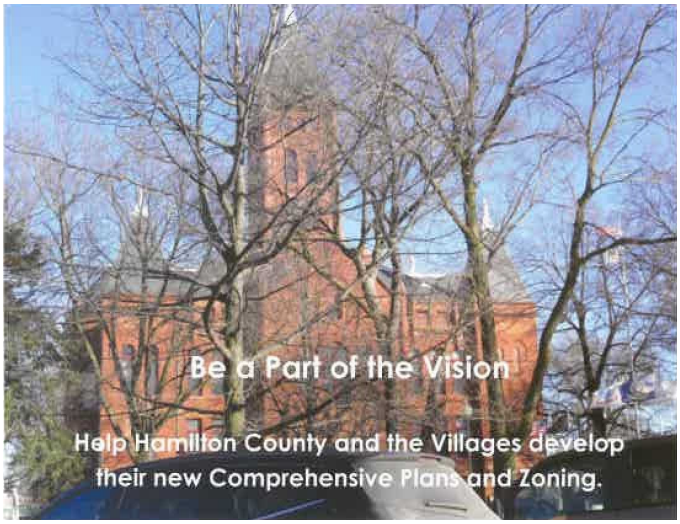
Chapter 2 Community Engagement

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 Hamilton 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:

- Education: Planning 101
- Use of a steering committee
- SurveyMonkey
- Facebook
- Five Open Houses
- Public hearings

Planning 101

Planning 101 forms the educational foundation for the entire project. In this process, there was one workshop. This workshop addressed:

- What is a Comprehensive Plan?
- How the plan is used?
- How does the plan impact me?

Steering Committee Meetings

With the assistance of Hamilton County, a steering committee was decided upon. The steering committee will be primarily the Joint Hamilton County Planning Commission, to provide regular input on all phases of the planning project. In addition, elected officials from all entities were invited to attend. This group also provided the internal assistance the planning effort needed to get more people involved in the process.

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 Hamilton 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 Hamilton County. The survey contained a total of 21 questions relating to the county. These question can be viewed in the Appendices of the Plan.

In all 17 individuals chose to answer the survey. The overall general results can be found on file with the Hamilton County Zoning Office.

Facebook

A special Facebook page was established for the Hamilton County Comprehensive Plan. The Facebook page served as a means to notify people about the survey as well as providing another medium for asking questions. In addition, the Facebook page provided a location to upload links to parts of the Comprehensive Plan as they were completed and reviewed.

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

Town Hall Meetings

The team attended five meetings throughout Hamilton County. The meetings were:

- May 31, 2017 in Marquette
- June 7, 2017 in Phillips
- June 13, 2017 in Stockham
- June 14, 2017 in Aurora at the Fairgrounds
- June 21, 2017 in Giltner

Attendance at these meetings was limited; however, there was good discussion regarding the future of the county.

Results of the County Town Hall Meetings

What are the key things the County should protect in the future?

- Quality of life for residents
- Infrastructure (Roads, bridges, and power grid)
- Water- groundwater
- Reputation- recruitment of businesses/ meeting their needs
- Progressive attitude of county
- Villages of the county

- Ag. Communities/operations
- Livestock friendly
- Law enforcement/Public Safety
- Schools
- Strong business environment
- Courthouse
- Clean Air
- Attract people to communities not rural areas
- Property rights
- Protect older acreages from large wind turbines and possibly Confined Animal Feeding Operations
- Citizens
- Local government
- Corridors to communities
- Protect schools

What are the key things the County needs to improve upon in the future?

- Roads
- Bridges
- Upkeep on ditches
- Keep up with technology/cellular/internet
- Economic Development for county area
- Financial support for economic development, by the county, towards the smaller villages
- Land use strategies for interchanges/exits to villages
- More housing countywide (affordable) (redefine)
- Less restrictive livestock regulations
- Less restrictive rules concerning things like solar or wind
- Fine line to define regulations/property rights
- More authority with zoning administrator
- Make more user-friendly
- Wind turbine regulations that work for all
- Regulations need to be sensitive to entrepreneurship
- Density
- Tree location (20' from fence line)
- Ambulance
- Nursing Home
- Dumping regulations
- More dump hours
- Enforcing state statutes
- Maintaining ditches
- Rural road management
- Manage run down rural properties
- Property upkeep

What do you consider the greatest threat to Hamilton County?

- Natural Disaster
- Youth moving away
- Loss of public power
- Hall County- their influence on county
- Losing local schools
- Negativity toward Ag. Economy
- Taxes/Property Taxes
- Changes to the National Farm Bill
- Nebraska Sales Tax policy
- Health Care- cost of insurance
- Adult entertainment
- Water quality
- Infrastructure
- Railroad-park at road intersections and block them
- Manure Regulations (not allowing spreading of manure via the village)
- Land Valuation
- Unfunded mandates
- Legislated tax lids
- Population is going to the east
- School funding formula
- Executive orders/Federal regulations
- Extreme environmental regulations
- Age of the comp plan
- Age of jail
- Cost of law enforcement
- Technology
- Wind energy
- Property rights eroding
- Poor land use
- Lack of growth

If we gave you $1,000,000 to fix something in Hamilton County, what would it be?

- Roads and bridges
- Recreation
- Something to keep current youth in the county
- Technology infrastructure
- Data storage center
- Combine ag producers with technology
- Site ready industrial park (Check with ADC)
- Build up Highway 14 corridor between I-80 and Aurora
- Better marketing of County
- Add staffing to economic development efforts
- By land, subdivide land, and give land away if they build a house
- Better ag tourism (Living history farms)
- Jail
- Drug war along I-80
- Finish Road P north of 34
- Tuck point Courthouse
- Buy more gravel
- Sidewalks

- Turn lane at Giltner Spur and US HWY 34
- Pay Southern Public Power to move turbines one county over
- Law enforcement
- Pave Road 12
- Clean ditches
- Pedestrian overpass along Highway 34 by Aurora swimming pool

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 Hamilton County citizens to achieve their vision for the future.

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 Hamilton 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 Hamilton County must also act or implement the necessary steps involved in achieving this "vision".

The Hamilton 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 the County.

Change is continuous, therefore Hamilton 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 Hamilton 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 Hamilton 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. Hamilton 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.

Hamilton County Vision and the Plan

The Hamilton 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 Hamilton County.

The core premise embedded in the Hamilton County Plan 2018 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 Hamilton County.

Hamilton County Plan Goals & Policies

The goals and policies for the Hamilton County Comprehensive Plan will be contained throughout the following Chapters. Each Chapter shall contain the pertinent goals and polices for the Chapter.

Goals are intended as a long-range desire; however, as the Plan is implemented and different things in the world around Hamilton 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

Understanding past and existing populations; while applying these to the future is critical. Hamilton County, including the decision-makers, should understand where the County has been, where it is, and where it appears to be going. Population impacts all of the major components making up the County including housing, local employment, economics, and fiscal stability.

Developing an understanding of the historic population helps identify where the population is going in the future and aids in determining potential impacts on future housing, retail, medical, employment, and educational needs within Hamilton County.

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.

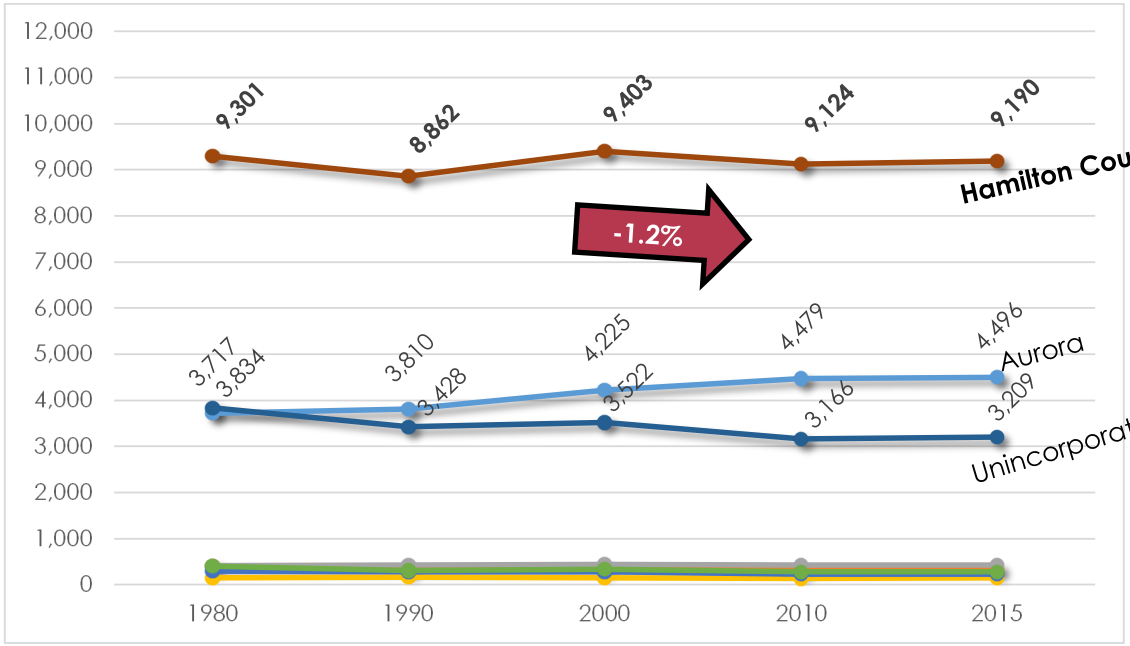
Population Trends and Analysis

Figure 3.1 contains the historic population between 1980 and 2015 for Hamilton County, the incorporated communities within Hamilton County, and the unincorporated areas. The data provide a look at where Hamilton County has been and allows for the eventual projection of populations in the County.

Typically, a mid-decade comprehensive plan update such as Hamilton County would include the most recent population projections. However, after examining the 2015 population estimates, it was determined nothing significant was occurring at either the County or municipal levels.

Overall, Hamilton County has seen a –1.2% (-111 people) decline in population from 1980 to 2015. This decrease was based upon the overall decrease in the unincorporated portions of the county. The unincorporated portions of Hamilton County declined by 635 people or –16.3% from 1980 to 2015. Growth in Aurora has actually allowed the county's overall decrease to be less since the community has grown by 779 (21%) people during the same period. Therefore the remaining six communities have remained relatively stable.

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

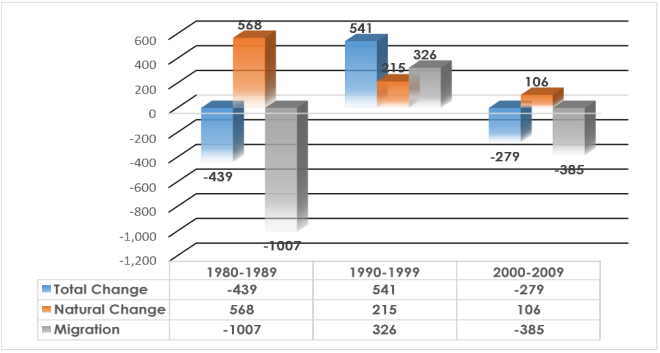


Source: U.S. Census Bureau 1980 - 1990, 2000, 2010

Migration Analysis

Migration Analysis is a tool 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 3.2: Migration Analysis Hamilton County 1980 to 2010



	1980-1989	1990-1999	2000-2009
Total Change	-439	541	-279
Natural Change	568	215	106
Migration	-1007	326	-385

Sources: U.S. Census Bureau 1980 – 2010
Nebraska DHHS, Vital Statistics Reports, 1980 – 2009

Figure 3.2 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, Hamilton County has declined by 111 people. The overall decline was associated with out-migration, which saw 1,066 people move out of Hamilton County.

During the 30 year period births exceeded deaths by 889 people. Each of the three decades recorded more births than deaths.

Age Structure Analysis

Age structure is an important component of population analysis. By analyzing age structure, one can determine a key dynamic affecting the population of Hamilton County. Note: the data in Figure 3.2 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 AND SEX CHARACTERISTICS HAMILTON COUNTY 2000 TO 2010

	Male and Female Populations			2000-2010	
Age in 2000	2000 population	Age in 2010	2010 population	Cohort Change	% Change
		0-4	526	526	
		5-9	638	638	
0-4	629	10-14	712	83	13.2%
5-9	786	15-19	674	-112	-14.2%
10-14	785	20-24	332	-453	-57.7%
15-19	754	25-29	437	-317	-42.0%
20-24	337	30-34	443	106	31.5%
25-29	448	35-39	518	70	15.6%
30-34	551	40-44	575	24	4.4%
35-44	1,495	45-54	1,519	24	1.6%
45-54	1,332	55-64	1,251	-81	-6.1%
55-64	850	65-74	747	-103	-12.1%
65-74	714	75-84	505	-209	-29.3%
75 & older	722	85 and over	247	-475	-65.8%
Total	9,403		9,124	-279	-3.0%

Source: U.S. Census Bureau 2000 and 2010

Table 3.1 contains the age group structure for Hamilton County in 2000 and 2010. The examination of age structure provides an understanding of where some of the population shifts are occurring. 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.

Hamilton County saw growth in seven 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, 35-39, 40-44, and 45-54 age groups. Overall, there was an increase of 1,471 persons in these age groups. When you eliminate the first two younger populations, there were 307 people that actually moved into Hamilton County during this period. This population increase consisted primarily of family aged adults and children.

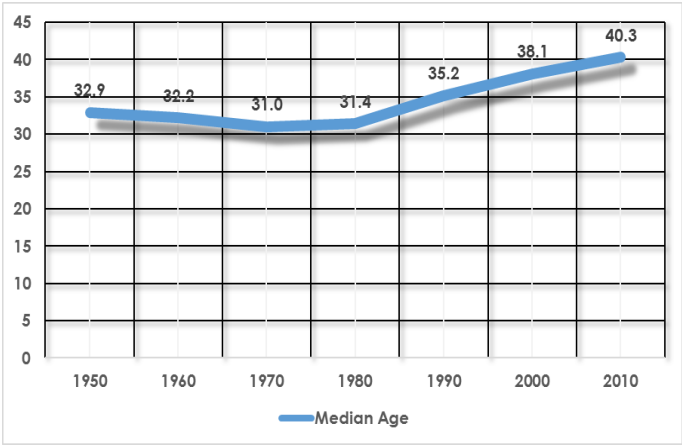
There were seven age groups from 2000 that declined by 2010. The group with the greatest loss was the 85 years+ (2010), which lost 475 persons over the period. This loss can be attributed to two causes: 1) people moving on after 75 years to other communities and senior care facilities, or 2) a dying population base. The latter is likely the largest reason since between 2000 and 2010 there were 933 resident deaths in Hamilton County. Overall, Hamilton County had a positive population pattern occur during the ten year period; including solid in-migration from family age groups and births.

MEDIAN AGE

Between 1950 and 2010, the median age in Hamilton County increased from 32.9 years to 40.3 years. This increase equaled 1.23 years per decade or 22.5% for the entire period. During this period, the county saw a dip in the median age; it dropped to a low of 31.0 years in 1970 and then began to climb to its current level.

Since the low point, the median age has increased by 9.3 years, 2.32 years per decade on average or 30.0% overall. Between 2000 and 2010, the median age increased from 38.1 years and 40.3 years or 5.8%.

FIGURE 3.3: MEDIAN AGE HAMILTON COUNTY 1950 TO 2010



Source: U.S. Census Bureau 1950-2010

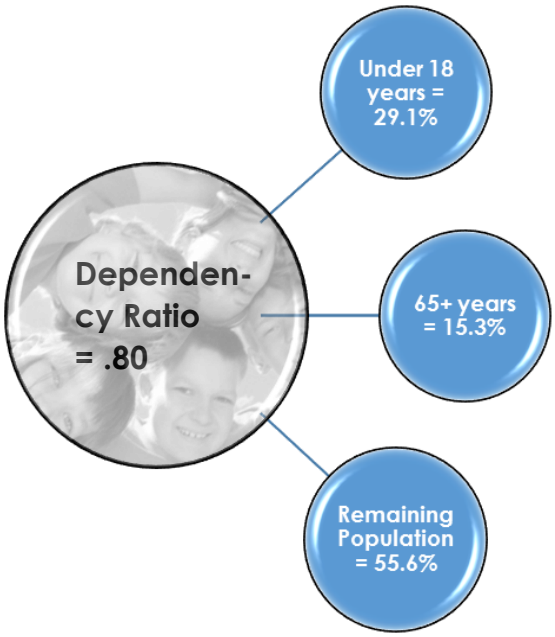
DEPENDENCY RATIO

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

Figures 3.4 and 3.5 indicate the dependency ratios for 2000 and 2010 in Hamilton County. The portion of persons less than 18 years of age decreased by 12.0% between 2000 and 2010; while those aged 65 years and older increased by 4.3% overall.

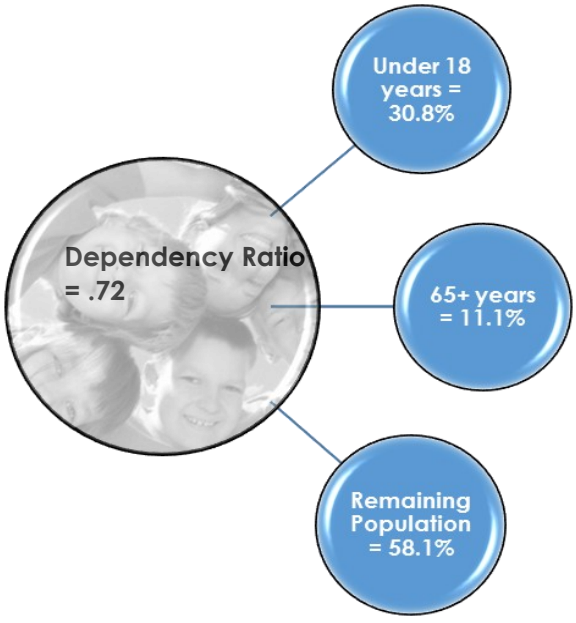
In 2000, Hamilton County had a Dependency Ratio of 0.80 (44.4%/55.6%); however, by 2010 the Ratio had decreased to 0.72 (42.0%/58.0%). This is supported by the slight decrease in the 18 and under age group, plus the slight increase in the 65 and older group.

FIGURE 3.4: DEPENDENCY RATIO HAMILTON COUNTY 2000



Source: U.S. Census Bureau 2000-2010

FIGURE 3.5: DEPENDENCY RATIO HAMILTON COUNTY 2010



Source: U.S. Census Bureau 2000-2010

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)

ETHNICITY

Hamilton 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 Hamilton County saw considerable increases in all non-white ethnic groups between 2000 and 2010; except for the Asian and Pacific Islander which lost two people.

TABLE 3.2: POPULATION BY ETHNICITY HAMILTON COUNTY 2000 TO 2010

Race	2000		2010		2000-2010	
	Number	% of total	Number	% of total	Net Change	% change
White, not Hispanic	9,255	98.4	8,955	98.1	-300	-3.2
Black or African Am.	17	0.2	19	0.2	2	11.8
Am. Indian & AK. Native	11	0.1	15	0.2	4	36.4
Asian & Pacific Islander	21	0.2	19	0.2	-2	-9.5
Other, not Hispanic	46	0.5	51	0.6	5	10.9
Hispanic	107	1.1	181	2.0	74	69.2
Mexican	78	0.8	141	1.5	63	80.8
Puerto Rican	1	0.0	15	0.2	14	1400.0
Cuban	0	0.0	1	0.0	1	-
Other Hispanic	28	0.3	24	0.3	-4	-14.3

Source: U.S. Census 2000 and 2010

The largest change was the Hispanic population, primarily Mexican and Puerto Ricans. The Hispanic population grew by 74 people between 2000 and 2010, the largest was those of Mexican ethnicity which accounted for 63 of the 74 people.

The second largest ethnic group was those classified as Other, not Hispanic. This classification saw five new people come to Hamilton County between 2000 and 2010. In Nebraska, in recent years, these typically are people from Sudan and

Somalia. These two groups present new issues for counties and communities, especially for law enforcement since these two cultures have historically not got along.

In addition, the White population had a 3.2% decrease overall, which equaled 300 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 Hamilton 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 crystal ball Hamilton 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 Hamilton 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 Hamilton County, four different trend lines were reviewed: 2000 to 2010, 1980 to 2010, 1990 to 2010, and 1960 to 2010. A review of these trend lines indicates Hamilton County will see varied levels of population changes between now and 2040. The following projections summarize the decennial population for Hamilton County through 2040.

Hamilton County Trend Analysis

Year	1960 to 2010
2010	9,124 persons
2020	9,208 persons
2030	9,293 persons
2040	9,379 persons

Year	1980 to 2010
2010	9,124 persons
2020	9,066 persons
2030	9,008 persons
2040	8,950 persons

Year	1990 to 2010
2010	9,124 persons
2020	9,258 persons
2030	9,394 persons
2040	9,532 persons

Year	2000 to 2010
2010	9,124 persons
2020	8,853 persons
2030	8,591 persons
2040	8,336 persons

Summary of Population Projections

Using the modeling techniques discussed in the previous paragraphs, a summary of the population projections for Hamilton County through the year 2040 is shown in Figure 3.1. Three population projection scenarios were selected and include (1) a Low Series; (2) a Medium Series; and, (3) a High Series.

Low = *2000 to 2010*

2020	8,853 persons
2030	8,591 persons
2040	8,336 persons

Medium = *1960 to 2010*

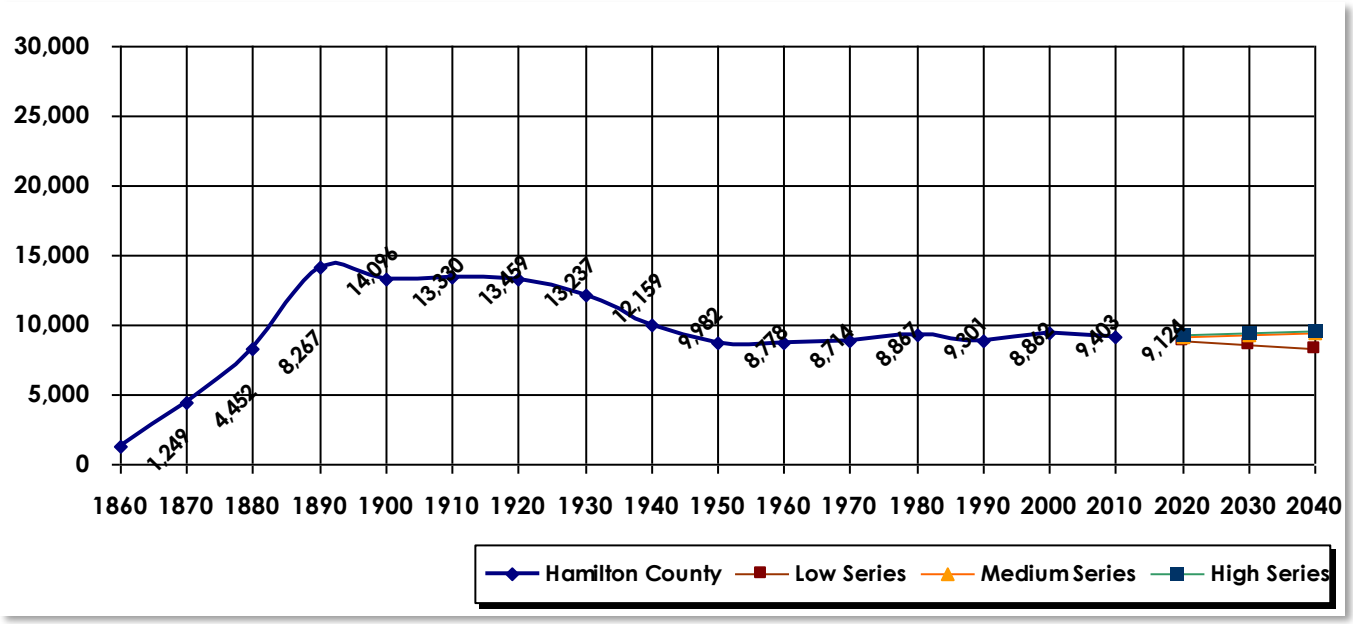
2020	9,208 persons
2030	9,293 persons
2040	9,379 persons

High* = *1990 to 2010

2020	9,258 persons
2030	9,394 persons
2040	9,532 persons

Figure 3.6 reviews the population history of Hamilton County between 1860 and 2010, and identifies the three population projection scenarios into the years 2020, 2030, and 2040. Figure 3.5 indicates the peak population for Hamilton County occurred in 1890.

FIGURE 3.6: POPULATION AND PROJECTIONS HAMILTON COUNTY 1860 TO 2040



Sources: U.S. Census Bureau, Marvin Planning Consultants

Chapter 4 Housing

Housing Profile

The Housing Profile identifies existing housing characteristics and projected housing needs for residents of Hamilton 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.

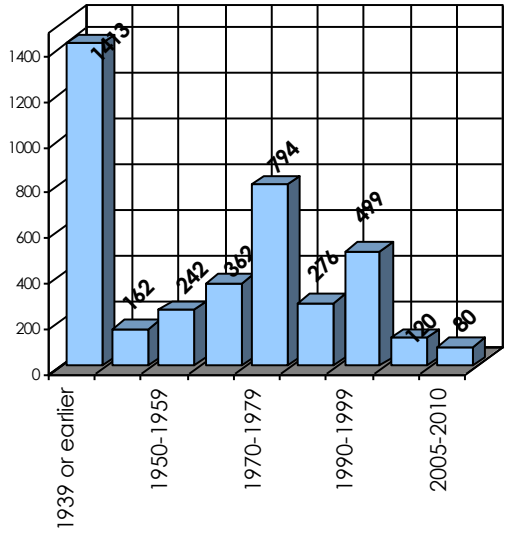
Projecting future housing needs requires several factors to be considered. These factors include population change, household income, employment rates, land use patterns, and residents' attitudes.

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 Hamilton County.

Age of Existing Housing Stock

An analysis of the age of the housing stock 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 Hamilton County.

Figure 4.1: Age of Existing Housing Stock Hamilton County 2010



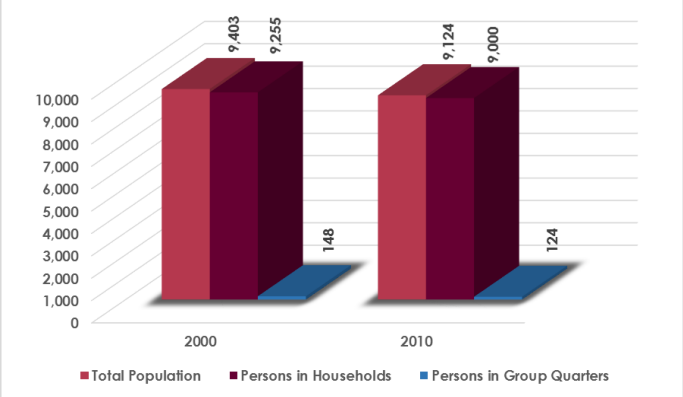
Sources: U.S. Census Bureau
American Community Survey 2010

Figure 4.1 indicates 1,413 homes, or 35.8% of Hamilton County's 3,948 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.

Hamilton County saw very positive construction activity between 1970 and 2000 with 1,569 (39.8%) homes constructed. This was especially true between 1970 and 1980 which saw 794 (20.1%) 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.

A total of 75.3% of all housing units in Hamilton 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 Hamilton County 2000 to 2010



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

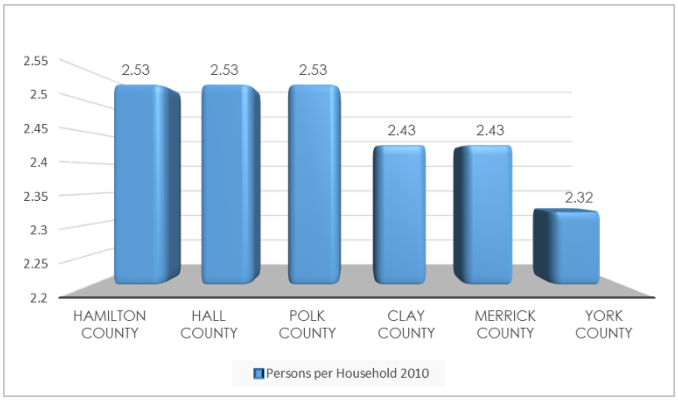
Housing Characteristics

Figures 4.2 through 4.9 identify several different housing characteristics in Hamilton 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 255 fewer people living in households than in 2000, this represents a change of 2.8%. The decrease in persons in households is slightly higher than the actual population decrease of 3.0% seen for the same period. Between 2000 and 2010, the number of people living in group quarters went from 148 people in 2000 to 124 in 2010, a change of –16.2%.

Figure 4.3: Persons Per Household Hamilton County 2010



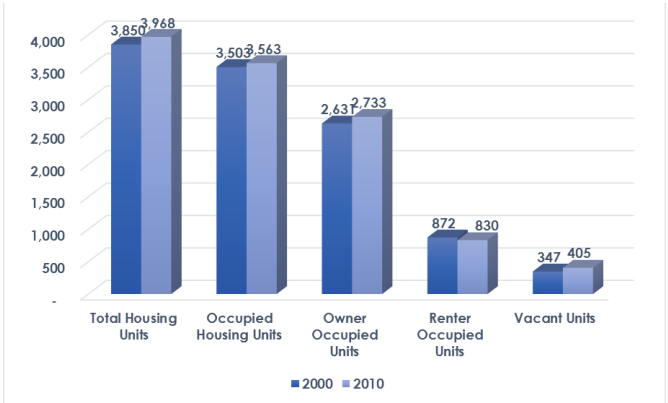
Sources: U.S. Census Bureau, American Community Survey 2010

Persons per Household

Figure 4.3 also includes the number of persons per household. The average persons per household in Hamilton County decreased from 2.64 to 2.53 persons between 2000 and 2010. The trend nationally has been towards a declining household size; however, the persons per household in Hamilton County is similar to the surrounding counties:

- Hall County has 2.53 persons per household
- Polk County has 2.53 persons per household
- Clay County has 2.43 persons per household
- Merrick County has 2.43 persons per household
- York County has 2.32 persons per household

Figure 4.4: Occupied vs. Vacant Housing Hamilton County 2000 and 2010



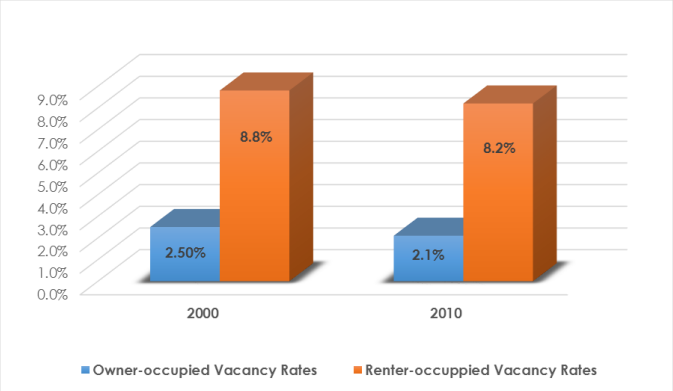
Sources: U.S. Census Bureau, American Community Survey 2000/2010

Occupied vs. Vacant Housing Units

Occupied housing units in the County increased by 1.7% between 2000 to 2010; this was a 60 unit increase over 2000.

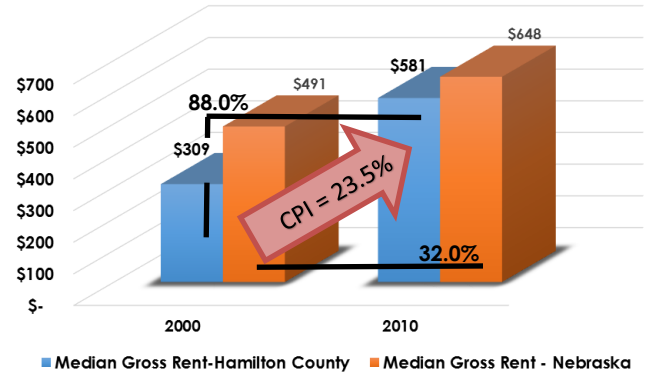
During the same time frame, vacant housing units grew from 347 units to 405 units or 16.7%. The largest increase in vacancy rates was in the renter-occupied units. The overall percentage for owner– and renter-occupied units in 2010 was at 2.1% and 8.2% respectively. Both showed decreases over 2000.

FIGURE 4.5: VACANCY RATES BY TYPE OF UNIT HAMILTON COUNTY 2000-2010



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

FIGURE 4.6: MEDIAN GROSS RENT HAMILTON COUNTY AND NEBRASKA 2000-2010



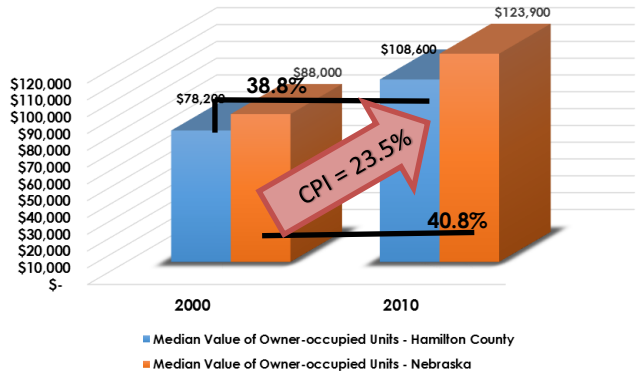
Sources: U.S. Census Bureau, American Community Survey 2000/2010

Median Gross Rent

Median gross rent in Hamilton County increased from $309 per month in 2000 to $581 per month in 2010, or 88.0%. The State's median monthly gross rent increased by 32.0%. This indicates Hamilton County has seen a gross rent increase three times more than the State. However, the County's median gross rent was 89.7% of the State's median gross rent in 2010.

Comparing changes in monthly rents between 2000 and 2010, with the Consumer Price Index (CPI), enables the local housing market to be compared to national economic conditions. Inflation between 2000 and 2010 increased at a rate of 23.5%, indicating Hamilton County's rents increased by over three times the rate of inflation for the 10-year period. Thus on average, Hamilton County tenants were paying considerably more in monthly rents in 2010, in terms of real dollars, than they were in 2000. Landlords were potentially making less on their investment.

FIGURE 4.7: MEDIAN VALUE OWNER-OCCUPIED HAMILTON COUNTY AND NEBRASKA 2000-2010



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

Median Value of Owner-Occupied Units

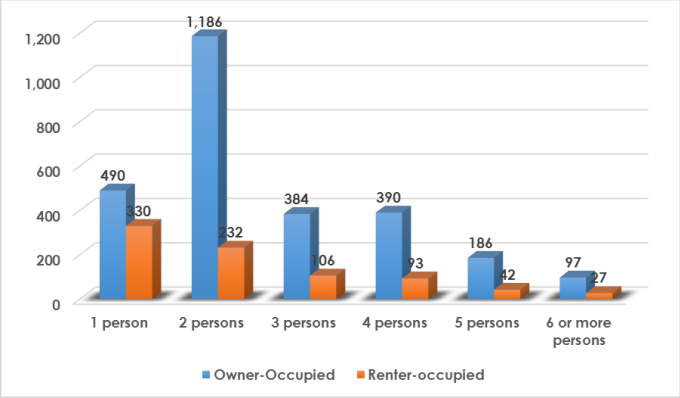
The Median value of owner-occupied housing units in Hamilton County increased from $78,200 in 2000 to $108,600 in 2010, and represents an increase of 38.8%. The median value for owner-occupied housing units in the State showed an increase of 40.8%. Housing values in Hamilton County grew at a slightly slower rate than the state. In addition, the median value of an owner-occupied unit in Hamilton County is 87.6% of the state median.

In comparison to the CPI, the local value of owner-occupied housing increased at a rate greater than the CPI. This indicates housing values in the County were worth more in 2010 compared to 2000 dollars.

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 gives Hamilton County the opportunity to determine where there may be a need for additional housing.

FIGURE 4.8: PERSONS BY HOUSEHOLD TYPE HAMILTON COUNTY 2010

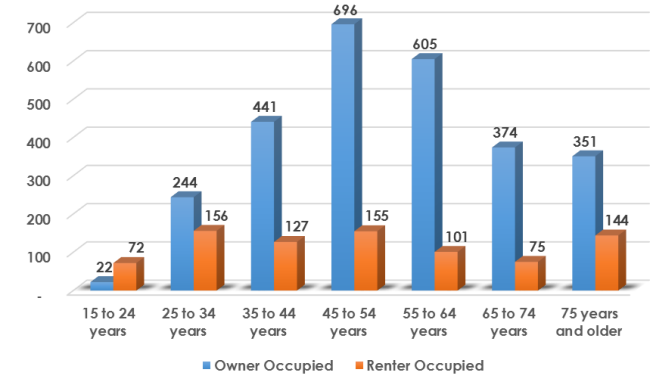


Sources: American Community Survey 2010

In 2010, the largest section of owner-occupied housing in Hamilton County was in the two-person household, with 1,186 units or 43.4% of the total owner-occupied units. By comparison, the largest household size for rentals was the single-person households with 330 renter-occupied housing units, or 39.8% 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, 25.4% were between 45 and 54 years of age. The 55 to 64 years cohort was a close second with 22.1% of the total owner-occupied units.

FIGURE 4.9: AGE BY HOUSEHOLD TYPE HAMILTON COUNTY 2010

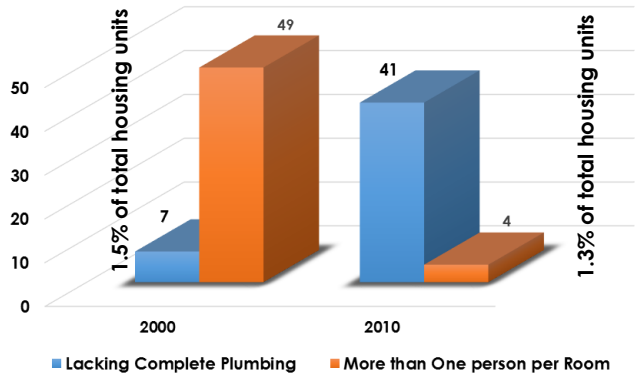


Sources: American Community Survey 2010

The renter-occupied housing was also dominated by the three different cohort groups; 25 to 34 (18.8%), 45 to 54 years (18.7%) and 75 years and older (17.4%). These three cohorts represent 54.9% of all the renter-occupied units in 2010.

Hamilton County was comprised of 2,238 1- or 2-person households, or 61.1% of all households; which represents a considerable portion of the households. Countywide, households with 5- or more persons accounted for 352 units, or 9.6% of the total.

FIGURE 4.10: SUBSTANDARD HOUSING CONDITIONS HAMILTON COUNTY 2000 TO 2010



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 Hamilton County, 56 units were substandard in 2000. 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 overcrowding with 49 units.

In 2010, the total number of substandard housing units decreased to 44 units. The primary contributing factor was the lack of complete plumbing, which accounted for nearly 91% of the substandard issue. The actual reported number

decreased by 11 units from 2000 to 2010. Comparing Hamilton County to the State of Nebraska as a whole, the percent of substandard housing units in Hamilton County was slightly higher than the State for both time periods.

What these data fail to consider are housing units that have met both criterion and counted twice. Even so, the County should not assume this data overestimates the number of substandard housing. Housing units containing major defects requiring rehabilitation or upgrading to meet building, electrical, or plumbing codes should also be included in an analysis of substandard housing. A comprehensive survey of the entire housing stock should be completed every five years to determine and identify the housing units that would benefit from remodeling or rehabilitation work. This process will help ensure that a county maintains a high quality of life for its residents through protecting the quality and quantity of its housing stock.

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 work with local agencies to provide quality housing.

H-4.1.2 Develop a program to continually identify substandard housing units throughout Hamilton County.

H-4.1.3 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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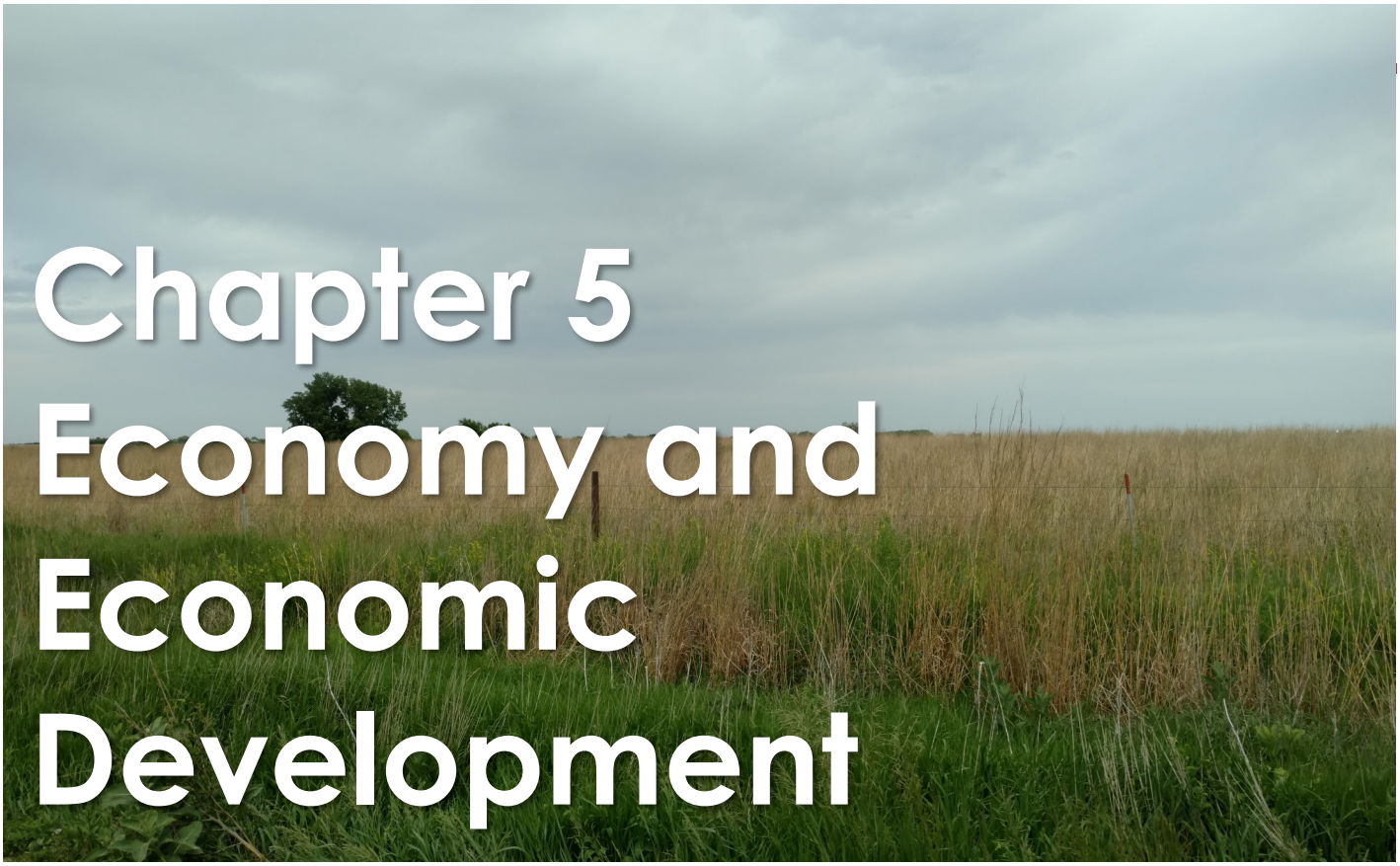


Chapter 5 Economy and Economic Development

Economic and Employment Profile

Economic data are collected in order to understand local changes in economic activity and employment needs and opportunities within Hamilton County. In this section, employment by industry, household income statistics, and commuter analyses were reviewed for Hamilton 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 Hamilton 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 Hamilton County for 2000 and 2010. In 2000, the household income range most commonly reported was $50,000 to $74,999, which accounted for 23.2% of all households.

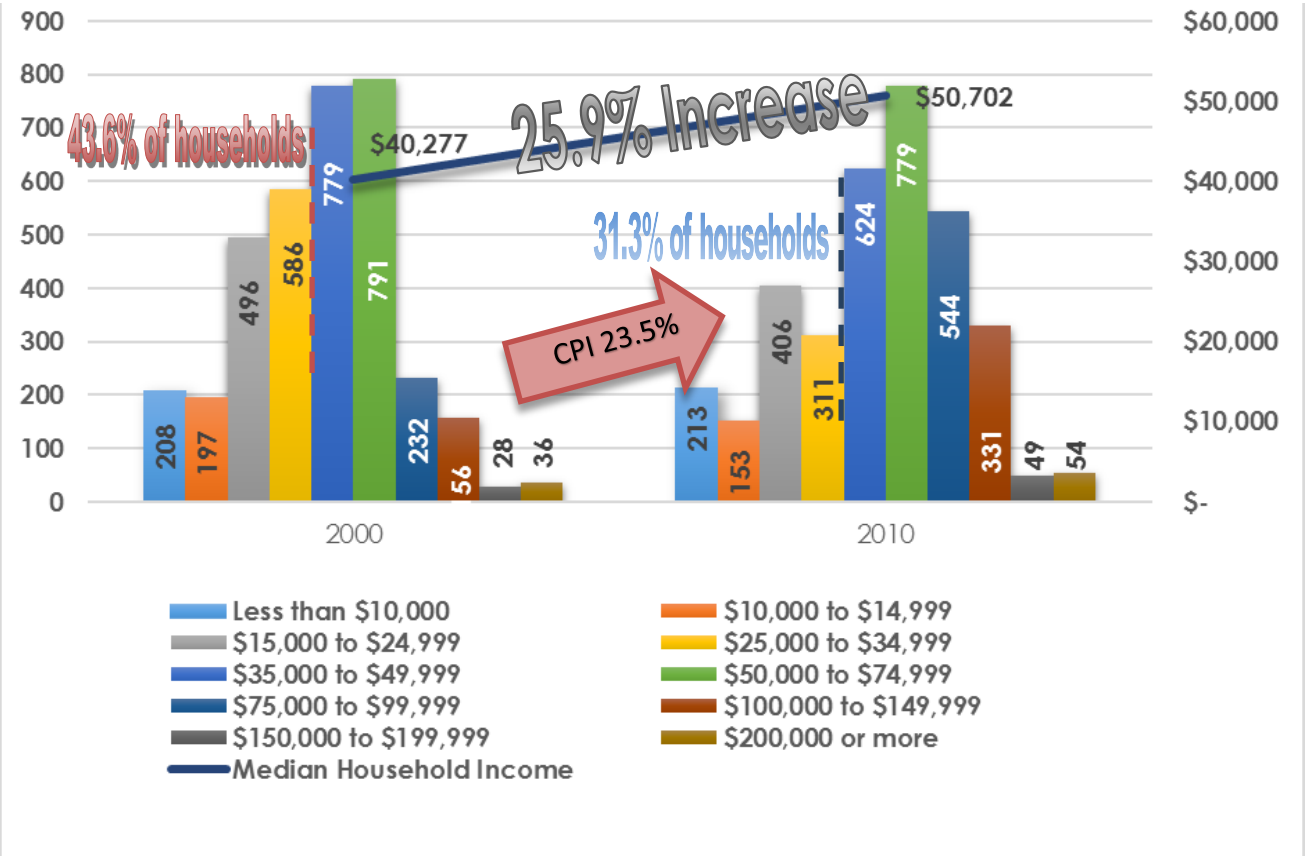
In 2010, the income range reported most was still the $50,000 to $74,999; however, this income range now represented 24.0% of the total households.

Those households earning less than $15,000 decreased from 11.9% in 2000 to 11.3% in 2010. The level of change did not fall much due to the overall population decline countywide. These household groups account for the poorest of the poor in the community.

In addition, the households earning less than $35,000 in 2000 accounted for 43.6% of the households. By 2010 these households had decreased to 31.3% of the households.

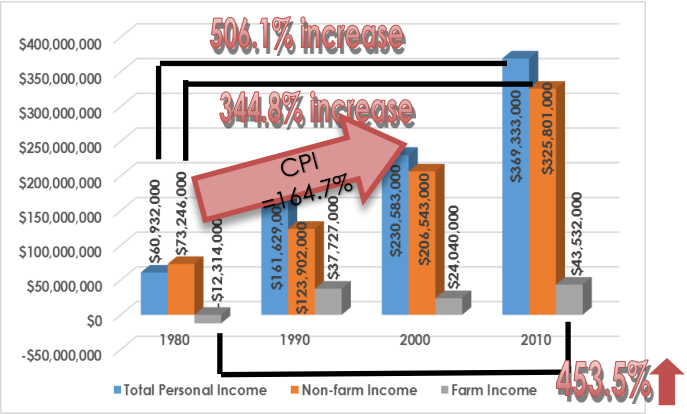
The median household income for Hamilton County was $40,277 in 2000, which was approximately $1,000 more than the State median income of $39,250. By 2010, the median household income increased to $50,702 or an increase of 25.9%. The CPI for this period was 23.5%, which indicates household incomes in Hamilton County exceeded inflation. Therefore, households were actually earning more in real dollars in 2010 than in 2000. This difference basically indicates for every $1.00 earned in a household during 2000, it was earning $1.10 in 2010.

FIGURE 5.1: HOUSEHOLD INCOME HAMILTON COUNTY 2000 TO 2010



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

FIGURE 5.2: INCOME BY SOURCE HAMILTON COUNTY 1980 TO 2010



Source: BEA, Regional Economic Information System, 2016

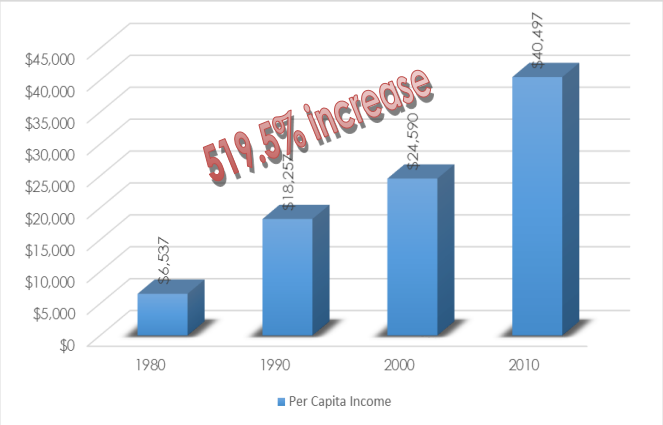
Income Source/Public Assistance

The table below shows personal income by source for Hamilton County and the State. 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 2010, the CPI was 164.7%.

Non-farm and Farm Income

Non-farm income increased from $73,246,000 in 1980 to $325,801,000 in 2010, or an increase of 344.8%, which was two times the CPI. By 2010, farm income had risen from $12,314,000 to $43,532,000, or 453.5%, which is over 2 ½ times the CPI.

FIGURE 5.3: PER CAPITA INCOME HAMILTON COUNTY 1980 TO 2010



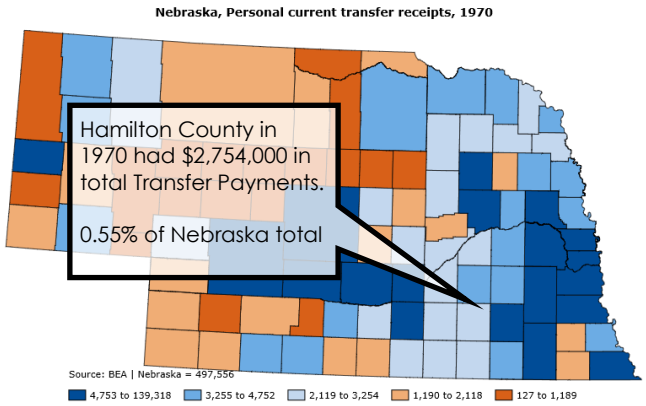
Source: BEA, Regional Economic Information System, 2016

Per Capita Income

The per capita income in Hamilton County increased from $6,537 in 1980 to $40,497 in 2010, or an increase of 519.5%, which was over three times the CPI. Hamilton County's per capita income was 101% of the state's per capita income level of $40,023.

Another income source deserving examination is the amount of Transfer Payments to individuals in Hamilton County from 1970 to 2010, which is provided in Figure 5.4 and 5.5. 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.

FIGURE 5.4: TRANSFER PAYMENTS 1970 HAMILTON COUNTY

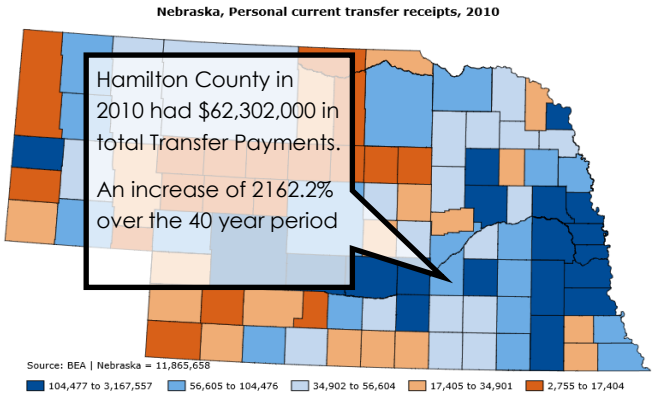


Source: Bureau of Economic Analysis, Regional Economic Information System, 2016

In 1970, Total Transfer Payments to Hamilton County added up to $2,754,000. By 2010, Total Transfer Payments to Hamilton County were $62,302,000, or an increase of 2,162.2%. Figure 5.6 shows in 2010, transfer payments per capita in Hamilton County were $6,614.

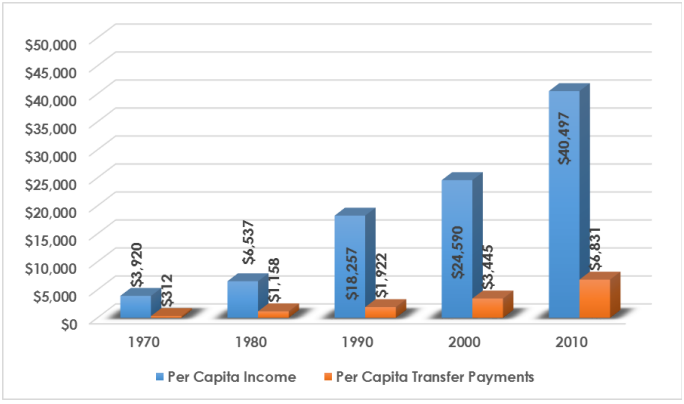
The trend for transfer payments per capita between 1970 and 2010 indicates payments increased significantly to individuals in Hamilton County, increasing by over 2,134% in 40 years. However, transfer payments, as a proportion of per capita income, increased at a much lower rate between 1970 and 2010. In 1970, transfer payments comprised 7.7% of total per capita income, and in 2010, transfer payments were 15.9% of total per capita income, which is an annual increase of 2.7%.

FIGURE 5.5: TRANSFER PAYMENTS 2010 HAMILTON COUNTY



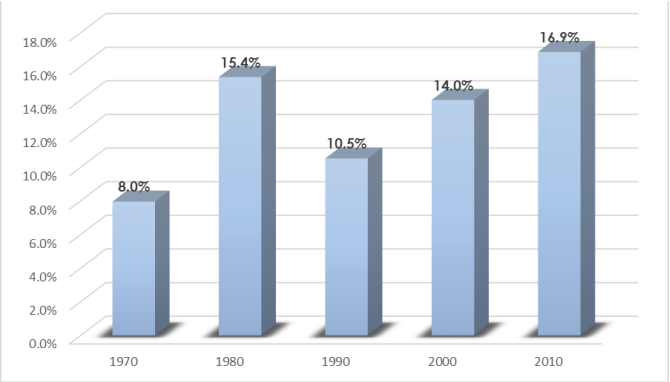
Source: Bureau of Economic Analysis, Regional Economic

FIGURE 5.6: TRANSFER PAYMENTS PER CAPITA HAMILTON COUNTY 1970 –2010



Source: Bureau of Economic Analysis, Regional Economic

FIGURE 5.7: TRANSFER PAYMENTS PER CAPITA/PER CAPITA INCOME 1970 –2010



Source: Bureau of Economic Analysis, Regional Economic

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 5.8 indicates employment size by industry for Hamilton County for 2000 and 2010 (these data indicate the types of jobs residents have, not the number of jobs locally).

FIGURE 5.8: EMPLOYMENT BY INDUSTRY (NUMBERS) 2000 AND 2010

The employment sector with the most employees in 2000 was Education, health, and social services. This sector employed 1,052 people or 23.1% of the total employed residents in 2000. In 2010, the largest employment sector was still Educational, health, and social services with 998 employees or 21.9% of the total. Hamilton County has seen major fluctuations during the time period in Figure 5.8.

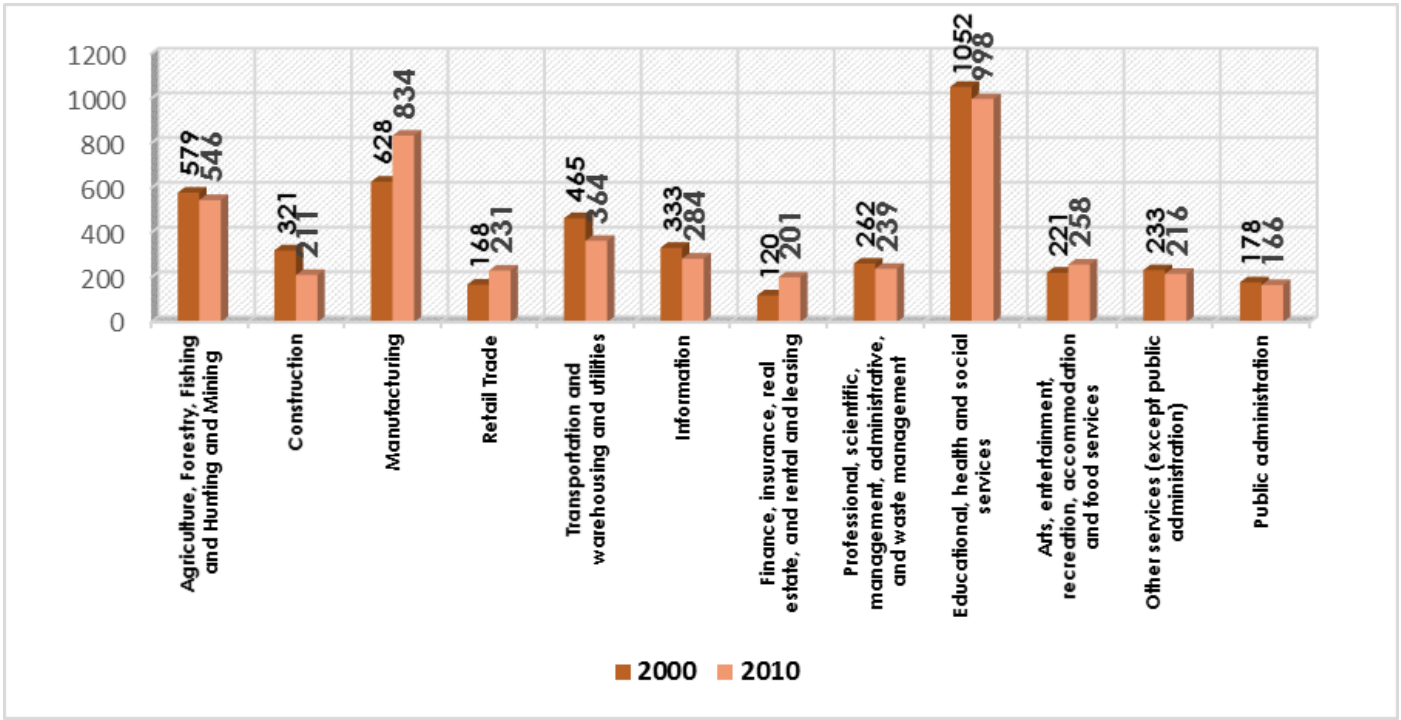
Overall the top five industries in Hamilton County for 2000 were as follows:

Industry	***People***
• Educational, health, and social services	1,052
• Manufacturing	628
• Ag./forestry/Fishing/and Hunting and Mining	579
• Transportation and warehousing and utilities	465
• Information	333

By 2010, the overall top five industries in Hamilton County were as follows:

Industry	***People***
• Educational, health, and social services	998
• Manufacturing	834
• Ag./forestry/Fishing/and Hunting and Mining	546
• Transportation and warehousing and utilities	364
• Information	284

Employment in the top five industries for both 2000 and 2010 are relatively balanced. By 2010, the actual gap in the percent of the total actually became greater than in 2000.



Source: U.S. Census Bureau 2000, American Community Survey 2005-2009

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 Hamilton County is seeing exports from the state as a whole.

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.

TABLE 5.1: 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
Hamilton County	33.2%	15.1%	23.6%	10.9%	17.1%	23.4
Merrick County	28.5%	13.9%	28.5%	14.1%	15.0%	10.5
Hall County	24.6%	17.6%	26.5%	11.2%	20.1%	8.7
Clay County	32.1%	16.9%	22.8%	15.0%	13.3%	16.9
York County	31.8%	17.8%	25.3%	10.4%	14.6%	32.3
Polk County	32.9%	15.9%	18.7%	16.9%	15.6%	10.6
Nebraska	34.8%	16.2%	25.0%	10.1%	13.8%	NA

Source: American Community Survey 2006-2010

Basic Employment

The occupation categories are compared to the same categories for the state and where Hamilton County's percentage exceeds the state's percentage there is Basic employment. Table 5.1 indicates there are two categories having Basic employment with the largest being Production, transportation and material moving occupations business, and Natural Resources, construction and maintenance occupations

Overall, 4.1% of the employment base in Hamilton 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 Hamilton County.

Base Multiplier

The information in Table 5.1 shows Hamilton County has a base multiplier of 23.4, which means that for every job that falls into the basic category, 23.4 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 23.4 jobs created/ supported by the dollars coming into the community. Therefore, if Hamilton County lost just one of the jobs tied to exports then there is the potential to lose approximately 23.4 jobs from the non-basic employment side.

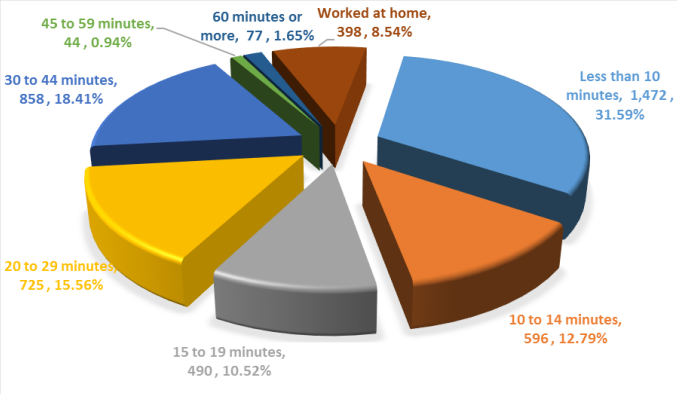
There is no magical multiplier a county can aim to achieve. Every county is different and the dynamics involved are different. The unique and ever changing dynamics are what make a particular county unique and attractive to different employers. It is critical for a county to determine their future vision 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 that next big catch and forget about the opportunities existing employers can offer through expansion of their operations.

Commuter Trends

Figure 5.9 show the commuter characteristics for Hamilton County in 2010. Travel time to work is another factor that can be used to gauge where Hamilton County's workforce is employed. Figure 5.9 shows how many residents of Hamilton County travel to work in each of several time categories.

Figure 5.9 indicates, in 2010, 31.59% of the commuters were traveling 10 minutes or less to work. In addition, 398 people or 8.54% work from home. Those traveling 20 minutes or more to work totaled 1,704 people or 36.57% of those driving to work.

Figure 5.9: Travel Time to Work - 2010



Source: American Community Survey 2005-2010

Agricultural Profile

Table 5.2 identifies key components affecting Hamilton 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 2012.

Number of Farms

The table indicates the number of farms within Hamilton County decreased between 1997 and 2012, which was the norm in Nebraska. The total number of farms decreased from 661 in 1997 to 572 in 2012, a change of –13.5%.

Land in Farms/Average size of Farms/Cropland

Table 5.2 also shows the total land in farms within Hamilton County. From 1997 to 2012, Hamilton County actually had a decrease in the total land considered to be in farms. The overall decrease was 11.4% or an approximate decrease of 39,000 acres. The total land in farms accounts for 87.0% of the total acres in Hamilton County, which is a decrease from 98.2% in 1997.

The average size of each farm increased from 520 acres in 1997 to 532 in 2012. This trend has been the norm across Nebraska and the United States for the last several decades. The overall increase was 2.3%.

The total cropland in Hamilton County decreased from 309,989 acres in 1997 to 273,153 acres in 2012.

The next term/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 Hamilton County was 292,984 (94.5%) of Total Cropland and only 85.3% of the Total Land in Farms). By 2012 the Harvested Cropland decreased to 267,210 acres (97.8% of Total Cropland and only 87.8% of the Total Land in Farms).

Estimated Market Value

Table 5.2 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 $1,626. The average value increased in every Census of Agriculture until it reached an average per acre of $6,446 in 2012; an increase of 296.4%. The CPI for this same period was approximately 45%; therefore the average value per acre increased at nearly six times the rate of inflation in Hamilton 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 $869,228 and increased to $3,430,491 in 2012, an overall increase of 294.4%. 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 $2,159,268 in 2012, an increase of 292.1%. Therefore, the average farm value in Hamilton County is more than the state average and the value has been growing at a greater rate than the state.

TABLE 5.2: AGRICULTURAL PROFILE HAMILTON COUNTY 1997 TO 2012

Agricultural Characteristics	1997	2002	2007	2012	% Change 1997-2012
Number of Farms	661	603	550	572	-13.5%
Land in Farms (acres)	343,622	348,178	319,115	304,395	-11.4%
Average size of farms (acres)	520	531	580	532	2.3%
Total area for Hamilton County	349,952	349,952	349,952	349,952	0.0%
Percentage of land in farms	98.2%	99.5%	91.2%	87.0%	-11.4%
Total cropland (acres)	309,989	312,973	291,752	273,153	-11.9%
Harvested cropland (acres)	292,984	302,707	287,753	267,210	-8.8%
Estimated Market Value of Land & Bldg (avg./farm)	$869,228	$1,100,103	$1,511,457	$3,430,491	294.7%
Estimated Market Value of Land & Bldg (avg./acre)	$1,626	$1,661	$2,605	$6,446	296.4%

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

Table 5.3 indicates the number of farms by size from 1997 to 2012. The category with the greatest increases were in the farms averaging 10 to 49 acres, increasing by 33 farms or 75.0%. However, the farms with 500 or more acres saw an overall decline, going from 290 farms in 1997 to 230 farms in 2012, a total change of –20.7%. Overall, Hamilton County went from 661 farms in 1997 to 572 farms in 2010 or a change of –13.5% for the period.

TABLE 5.3: NUMBER OF FARMS BY SIZE HAMILTON COUNTY 1992 TO 2007

Farm Size (acres)	1997	2002	2007	2012	% Change 1997-2012
1 to 9	31	27	42	53	71.0%
10 to 49	44	53	47	77	75.0%
50 to 179	112	84	86	90	-19.6%
180 to 499	184	163	138	122	-33.7%
500 to 999	205	174	131	128	-37.6%
1,000 or more	85	102	106	102	20.0%
Total	**661**	**603**	**550**	**572**	**-13.5%**

Source: U.S. Census of Agriculture, 1992, 1997, 2002, 2007

Table 5.4 indicates the number of farms and livestock by type for Hamilton County between 1997 and 2012. The predominant livestock raised in Hamilton 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. Both of these operation types saw an increase in the Average Number of Livestock Per Farm; Cow and calves went from 161 animals in 1997 to 213 per farm in 2012. Hogs and pigs went from 505 per farm in 1997 to 811 per farm in 2012. The only

Table 5.4: Number Farms and Livestock by Type Hamilton County 1992 to 2012

Type of Livestock	1997	2002	2007	2012	% Change 1997 to 2012
Cattle and Calves					
farms	263	225	160	193	-26.6%
animals	42,319	46,607	32,896	41,093	-2.9%
average per farm	161	207	206	213	32.3%
Beef Cows					
farms	203	183	132	151	-25.6%
animals	7,479	7,061	(D)	5,992	-19.9%
average per farm	37	39	-	40	7.7%
Milk cows					
farms	8	3	1	-	-100.0%
animals	280	175	(D)	-	-100.0%
average per farm	35	58	-	-	-100.0%
Hogs and Pigs					
farms	72	33	24	11	-84.7%
animals	36,363	73,531	23,422	8,919	-75.5%
average per farm	505	2,228	976	811	60.5%
Sheep and lambs					
farms	15	16	11	3	-80.0%
animals	1,039	926	863	384	-63.0%
average per farm	69	58	78	128	84.8%
Chickens (layers and pullets)					
farms	18	16	27	25	38.9%
animals	620	414	563	692	11.6%
average per farm	34	26	21	28	-19.6%
Chickens (broilers)					
farms	5	2	3	2	-60.0%
animals	1,057	(D)	300	(D)	-
average per farm	211	-	100	-	-

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

livestock category showing an increase in farms and animals from 1997 to 2012 was Chickens (layers and pullets).

Table 5.5 indicates the number of farms and crop by type for the period from 1997 to 2012. 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 Hamilton County since 1997. Three of the six categories showed an increase in acres farmed; these include Corn for silage, Wheat, and Soybeans. The crop with the largest percentage increase (acres) was Soybeans at 139.4%, while Wheat increased by 45.3%. In 2012, the total acres harvested of corn for grain was 181,373 acres which accounted for 67.9% of all harvested cropland. Soybeans accounted for 74,979 acres of cropland in Hamilton County during 2012, accounting for 28.1% of all harvested cropland.

Table 5.5: Number Farms and Crops by Type Hamilton County 1992 to 2012

Type of Crop	1997	2002	2007	2012	% Change 1997 to 2012
Corn for Grain					
farms	547	465	414	373	-31.8%
acres	246,752	192,239	205,182	181,373	-26.5%
average per farm	451	413	496	486	7.8%
Corn for Silage					
farms	30	49	21	18	-40.0%
acres	1,447	2,682	915	1,530	5.7%
average per farm	48	55	44	85	76.2%
Sorghum					
farms	58	34	17	5	-
acres	4,562	2,408	798	224	-
average per farm	79	71	47	45	-
Wheat					
farms	31	18	64	20	-35.5%
acres	955	629	8,858	1,388	45.3%
average per farm	31	35	138	69	125.3%
Oats					
farms	19	7	1	3	-
acres	428	170	(D)	19	-
average per farm	23	24	-	6	-
Soybeans					
farms	332	396	292	288	-13.3%
acres	31,315	94,265	64,980	74,979	139.4%
average per farm	94	238	223	260	176.0%

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

Agriculture has historically been a major part of the Hamilton 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.

Economic Development Goals and Policies

Economic Development Goal 5.1

Promote Hamilton County on a full-time basis

Economic Development Policies and Strategies

ED-5.1.1 The county should continue working with Aurora Area Chamber and Development (AACD) with promoting Hamilton County and all of the communities in the county.

Economic Development Goal 5.2

Promote a balanced economic development program that strives to add value to the agricultural base of the county.

Economic Development Policies and Strategies

ED-5.2.1 Agriculture and agricultural employment, including value-added agricultural businesses, should be promoted throughout Hamilton County.

ED-5.2.2 Hamilton County should encourage economic development projects, which do not conflict with the agricultural character of the County.

ED-5.2.3 Work with businesses and agricultural operators to build new vertically integrated economic systems from the current agricultural uses in place.

ED-5.2.4 Work to establish new or existing public and/or private research facilities in Hamilton County.

ED-5.2.4 Continue to promote the county's Livestock Friendly status.

Economic Development Goal 5.3

Recruit or retain the youth of the county during or after college.

Economic Development Policies and Strategies

ED-5.3.1 Develop programs and jobs to address the needs of the youth in order to attract them back to the area after completion of their post-secondary education.

ED-5.3.2 The youth of Hamilton County should be involved in the identification and development of these projects.

ED-5.3.3 The county should also attract the youth back to the county that are commuting to Grand Island and other communities in the region.

Economic Development Goal 5.4

Develop new industrial sites within Hamilton County that have rail access.

Economic Development Policies and Strategies

ED-5.4.1 Work with BNSF Railroad to identify strategies for expanding rail access in Hamilton County.

Economic Development Goal 5.5

Examine the potential and promote Hamilton County as a great place to work and telecommute.

Economic Development Policies and Strategies

ED-5.5.1 Develop a promotional campaign to promote the quality of life issues of Hamilton County as a place to live and "Work from".

ED-5.4.2 Economic Development activities should focus on growing local businesses, established by county residents, as opposed to pursuing the ultimate "smokestack(s). Homegrown businesses and industries will contribute more to the local communities and county and will be a part of the community.

ED-5.4.3 Identify businesses and professions where telecommuting would be appropriate and functional.

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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. Such facilities are provided to insure the safety, wellbeing and enjoyment of the residents of Hamilton County. These facilities and services provide residents with social, cultural, educational, and recreational opportunities, as well as law enforcement and fire protection services designed to meet area needs.

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 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 capacities of all public and private facilities and services.

The Facilities Plan for Hamilton County is divided into the following categories:

- Recreation
- County Buildings
- Historic Sites and Places
- Education
- Fire/Law Enforcement
- Communication
- Health Care

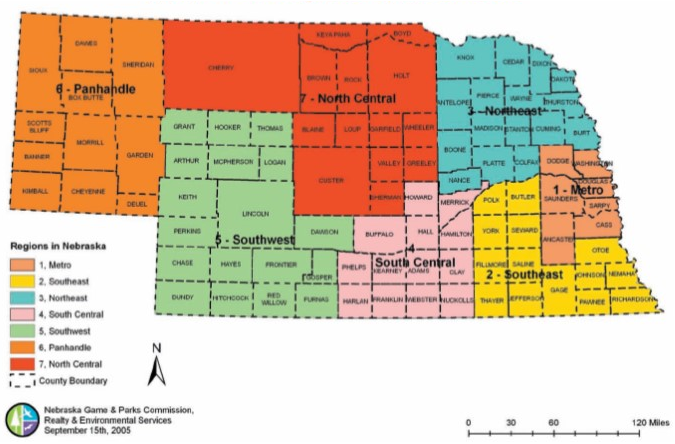
Recreation

Hamilton County is located in Nebraska's Southeast Recreation Planning, Region 1, and a region within the Nebraska Department of Game and Parks system. The Region includes 13 counties in South Central Nebraska.

Community Parks and Facilities

The following facilities and programs can be found in the identified communities of Hamilton County.

FIGURE 6.1: NEBRASKA GAME AND PARKS REGIONS



Aurora Parks

Aurora has five city park facilities, which include:

- Streeter Park
  - ◊ Aquatic Facility
  - ◊ Softball Fields
  - ◊ Campground
  - ◊ Twin Cottonwoods monument
  - ◊ Deepwell Irrigation Monument
- Cole Park
- Refshauge Park
- Veteran's Tribute Plaza
- Hardy RV Park

Photo 6.1 Streeter Park, Aurora
Source: Google Earth

Giltner Parks

Giltner has one park facility, Village Park, which contains baseball & softball fields, a basketball court, sand volleyball and playground equipment.

Hampton Parks

The park in Hampton is primarily a baseball and softball field located adjacent to Hampton High School.

Photo 6.2 View of Village Park in Giltner
Source: Google Maps (Panoramio)

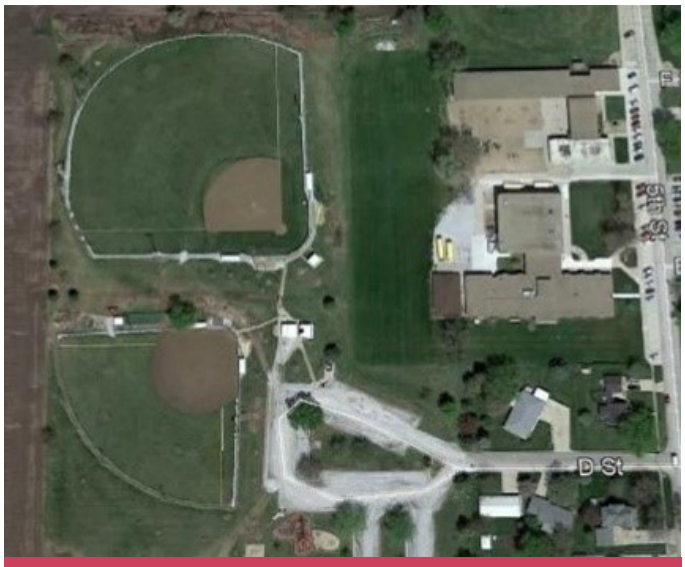


Photo 6.3 Ballfields in Hampton
Source: Google Earth

Photo 6.4 Playground Area in Hordville

Hordville Parks
The primary park in Hordville consists of several pieces of playground equipment. The park area is located in the northeast corner of the community near Fridman Lutheran Church. In addition, the community has horseshoe pits.

Marquette Parks
Marquette has a small park with a baseball field and lighted soccer/football fields.

Phillips Parks
The Village of Phillips has one small park with a baseball & softball field.

Photo 6.5 Aerial view of Memorial Ballpark in Phillips
Source: Google Earth

Stockham Parks
Stockham has a limited amount of park space within the community due to its population and size. There is some playground equipment and basketball court located near the Village office and fire station

Regional Recreation

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

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

Tooley Park
Tooley Park is a county owned and operated park located along the Platte River. The park is west of Marquette and contains 16 acres of ground. The park offers camping, nature walks, Platte River access, canoe and kayak landing and fishing.

Photo 6.6 Tooley Park

Mormon Island State Recreation Area
Just off Interstate 80 in Doniphan in nearby Hall County, Mormon Island State Recreation Area is a convenient place for outdoor fun. Mormon Island has handicap-accessible fishing piers, modern camping, great fishing, great swim beaches and abundant picnicking opportunities. Mormon Island West has 42 surface acres of water, and the middle island has 19 surface acres of water. **(Source: Nebraska Game and Parks Commission)**

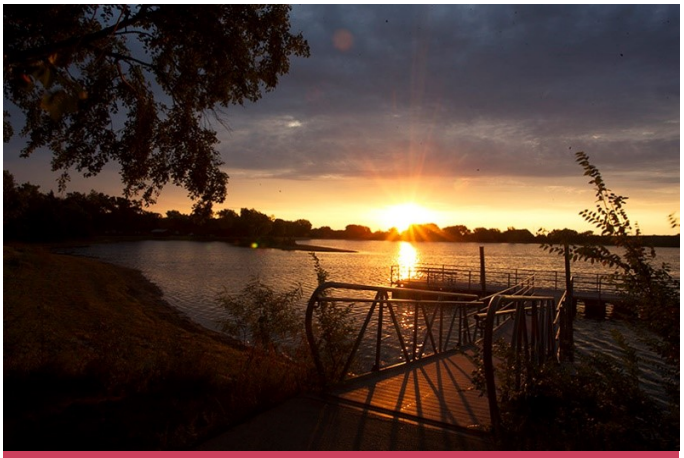


Photo 6.7 Mormon Island State Recreation Area
Source: Google Maps (Panoramio)

Windmill State Recreation Area
Windmill State Recreation area is one of the jewels of the Nebraska Game and Parks Commission in the state's unique chain of lakes along Interstate 80 near Gibbon in Buffalo County. Situated at the Gibbon Interchange between Kearney and Grand Island, the area draws its name from the old-time windmills situated in the park. The oldest windmill is a 1880 Standard that was used to pump water for

steam locomotives in Fleming, Colo. All have been restored to working order. **(Source: Nebraska Game and Parks Commission)**

Other Regional Attractions, Parks, and Recreational Opportunities in and around Hamilton County:

Photo 6.8 Windmill State Recreation Area

Alexandria State Recreation Area
Alexandria is a peaceful, scenic recreation area encompassing 55 acres of land with two lakes totaling 46 acres of water. The area is fairly level with mature trees for shade and offers fishing, picnic shelters and campsites.
(Source: Nebraska Game and Parks Commission)

Blue River State Recreation Area
Blue River State Recreation area is a day-use only area that provides walk-in pedestrian river access for anglers. Common carp, channel catfish and flathead catfish are among the species present in this stretch of the river. Picnicking is permitted, though no tables, shelters or grills are provided.
(Source: Nebraska Game and Parks Commission)

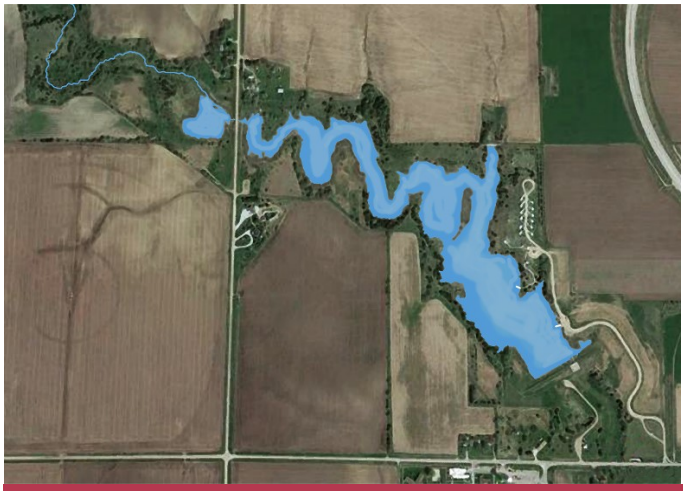
Cheyenne State Recreation Area
Cheyenne is a small state recreation area with a 15 -acre pond near the community of Wood River. The area offers fishing, camping and picnicking. There are no designated campsites, though tent campers are welcome. Fishing and boating are also permitted.
(Source: Nebraska Game and Parks Commission)

North Loop State Recreation Area
North Loup State Recreation Area is a 13-acre area adjacent to the Loup River. It has two ponds with a total of seven water acres. The area offers fishing, picnicking, a playground and primitive campsites.
(Source: Nebraska Game and Parks Commission)

Sherman Reservoir State Recreation Area
Known for its great fishing opportunities, Sherman Reservoir State Recreation Area boasts a 2,845-acre lake and 4,721 land acres. Primitive camping includes 360 non-pad sites. Other facilities include: picnic tables, shelters, water, dump station, modern restrooms, vault toilets, four boat ramps, fish cleaning stations, coin-operated showers and concession. Cabin rental and RV camping pads are available through the local concessionaire.
(Source: Nebraska Game and Parks Commission)

War Axe State Recreation Area
War Axe State Recreation Area comprises nine acres of land and a 16 acre lake just off Interstate 80. The area offers boating, fishing and picnicking, as well as non-powered boating.
(Source: Nebraska Game and Parks Commission)

Bruce L. Anderson Recreation Area/Recharge Lake
The Bruce L. Anderson Recreation Area, named for the longtime Upper Big Blue NRD Board of Director and conservation advocate, is located 1.75 miles west of York, Nebraska, on 4th Street, and features a 44-surface-acre lake which stores 310 acre feet of water on a tributary of Beaver Creek.



Photograph 6.9 Recharge Lake
Source: Upper Big Blue NRD

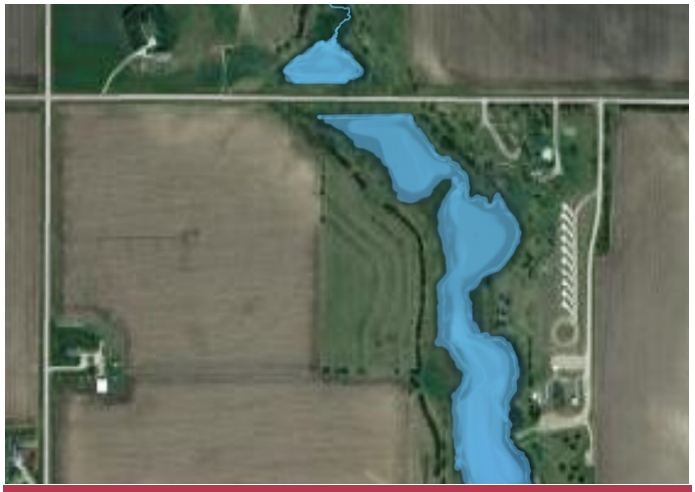
Constructed in 1990, for a five-year groundwater recharge study, the lake is now used primarily for recreation.

A boat dock and ramp is accessible on the east side of the lake. Hunting is prohibited. The Recharge Lake Archery Range used for target practice is located to the east of "Road K".

Facilities at the site include picnic tables, cooking grills, fire rings, hiking trails, and playground

equipment. A picnic shelter is located near the north parking lot.
(Source: http://www.upperbigblue.org/about/recreation-areas)

Pioneer Trails Recreation Area
The Pioneer Trails Recreation Area, located 1.25 miles east and 1.0 mile north of Aurora, Nebraska, features a 40-surface-acre lake which can store 277 acre feet of water.



Photograph 6.10 Pioneer Trails Recreation Area
Source: Upper Big Blue NRD

Constructed on a tributary of Lincoln Creek in 1986, the project was designed to provide flood control, aquifer recharge, wildlife habitat, and recreational opportunities.

Target shooting is prohibited. Discharging center-fire and rim-fire rifles, handguns, and muzzleloading firearms are prohibited unless a special trapping permit is issued by the District. Hunting is prohibited on the south 250 feet on the lands located in the SW 1/4 of Section 26 designated for public use.
(Source: http://www.upperbigblue.org/about/recreation-areas)

Dark Island Trail
Traversing just over eight miles in central Nebraska, the Dark Island Trail runs from the small town of Central City to the even smaller village of Marquette. For those experiencing the trail by bike, wider tires are recommended.

The rail-trail opened in 2011, capping off nearly ten years of work by the Nebraska Trail Committee and Nebraska Trails Foundation on converting the former railroad corridor into a recreational trail. The centerpiece of the trail is undoubtedly its 1,072-foot long bridge, which was originally built in the 1880s by the Republican Valley Railroad. It spans the Platte River south of Central City and has been fully converted to pedestrian use with improved decking, handrails, and several bump-outs for enjoyment of the beautiful view.

Photograph 6.11 Dark Island Trail - Marquette
Source: Google Earth

Close to Central City, the trail runs through the middle of the Turtle Beach neighborhood and immediately adjacent to the lake which the community is built around. From Turtle Beach to Marquette, the Dark Island Trail runs uninterrupted for miles through Nebraska's famous verdant farmland.

Parking and Trail Access
State Route 14 runs through Central City and comes close to Marquette. Take the road to either endpoint and park on city streets. There are signs directing visitors to the Dark Island Trail in Central City and in Marquette. As always, be mindful of parking restrictions and respectful of the property of the towns' residents.
Source: https://www.traillink.com/trail/dark-island-trail/

Golf Courses
The following is a brief description of the local golf courses in Hamilton County.

Photograph 6.12 Poco Creek Golf Course, Aurora
Source: Google Maps (Panoramio)

Course	Community
Poco Creek Golf Course	Aurora
Valley View County Club	Marquette

Museums

The Plainsman Museum , Aurora

The Plainsman Museum is a museum located in Aurora, Nebraska focusing on the history of the settlers and their descendants in the central Nebraska plains region. It was officially dedicated on July 4, 1976 as a part of the American national bicentennial and consists of a complex of buildings housing various items demonstrating the everyday life of the plains settlers along with agricultural history.

(Source: www.plainsmanmuseum.org/)

Edgerton Explorit Center

The Edgerton Explorit Center exists to instill and nurture in all people the joy of scientific discovery and exploration through hands-on learning experiences. Located in Dr. Harold Edgerton's home town, the Edgerton Explorit Center inspires kids age 2 to 92 through exciting activities and state -of-the-art programming.

(Source: http://www.upperbigblue.org/about/recreation-areas)

Historical Sites

Deep Well Irrigation, Aurora

During the 1930's, Nebraska suffered one of the most serious droughts in its recorded history. In all parts of Nebraska rainfall was far below normal. In 1936, corn yielded only 1/10 as much per acre as it had during the years 1923-1932. The dry powdered soil began to blow, and as dust storms obscured the sun, parts of Nebraska and the Great Plains became "the Dust Bowl." Between 1930 and 1940, the state declined in population because of the unfavorable agricultural conditions. This experience resulted in the increased use of deep-well irrigation. Nebraska is fortunate in having the largest supply of groundwater in the central part of the United States. Hamilton County lies somewhat east of the center of the irrigation well area in Nebraska. A 225 foot deep well, sunk in the county by F. E. Edgerton in 1931, remains one of the deepest in the area. It is not uncommon for irrigated land to produce more than twice the crop raised on non-irrigated land. Irrigation is an important factor in the occupation of Nebraska by an agricultural population.

(Source: www.e-nebraskahistory.org/)

Farmers' Valley Cemetery, Hamilton County

The Farmers' Valley Cemetery, east of Stockham, was founded in 1876 on land donated by John Brown, is the final resting place of many pioneers of Hamilton County. On three sides winds the Big Blue River, along whose banks the first settlers in the county built their soddies and log houses. Among the historic graves here are those of nine Civil War veterans; Marion Littlefield, killed by Indians at Pebble Creek; Mary Kaily and her child, frozen in the l873 Easter Blizzard; and Perry Reed, Nebraska State Senator.

(Source: www.e-nebraskahistory.org)

The Hamilton County Courthouse, Aurora

The Hamilton County Courthouse, as we know it today, was actually the third courthouse constructed for Hamilton County. The first courthouse was built in 1870 in Orville City, the County Seat at that time.

Photograph 6.13 Hamilton County Courthouse

In the fifth election, Aurora finally won the battle between the two cities for the location of the Hamilton County Seat. To make the victory certain, Aurora built one of the finest courthouses in Western Nebraska. A square block was also deeded to the county around which the town was built. The building was completed in 1877 but was destroyed by fire in January 1894. The new $60,000 Hamilton County Courthouse was under construction before the end of the year.

The Courthouse in Aurora is locally significant as the seat of the county government for all of Hamilton County.

Architect William Gray of Lincoln, Nebraska, known for his competent court- house architecture, was the architect for the Hamilton County Courthouse. He was also the architect for four other outstanding courthouses in Nebraska: Cass, 1891-92; Butler c. 1889-90 (non-extant); Johnson 1888-89; and York, 1885-88 (non-extant).

The courthouse in Hamilton County is an excellant representative example of the formal, symmetrical and symbolic courthouse which characterized courthouse construction during the period following the Nation's Centennial celebration through the turn of the century. This was known loosely as the County Capitol style, derived from the form of the Nation's Capitol with the exception of the tower, which does not imitate the dome in Washington but follows Richardsonian ideals in its design. The building is an excellent Nebraska example of the Richardsonian Romanesque style. A comparison could be made with Gray's other courthouses in Nebraska^ two of which were "County Capitols" in style.

Siloa Cemetery, Aurora

Swedish immigrants, known as Mission Friends, moved from Princeton, Illinois, to Monroe Precinct, Hamilton County, in 1880-82. They organized the Swedish Evangelical Lutheran Mission congregation at S. P. Swenson's home in February 1883 and affiliated with the Mission Covenant in 1885. A building was erected in 1890 and a parsonage in 1893. The first pastor was Rev. C. M. Youngquist, 1883-89. The final service was in the summer of 1935. The building was later razed and the materials used to build a Covenant church in Hastings, Nebraska.

(Source: www.e-nebraskahistory.org)

Youst Cemetery, Hampton

About 1871 what is known as Youst Cemetery was established on the homestead of Samuel B. and Mary Elizabeth Hunt Youst. Youst, S.B. Chapman, and Richard M. Hunt were the first settlers on Beaver Creek, arriving from Lucas County, Iowa in 1870. After the village of Hampton was established in 1880, approximately one mile to the north, many early residents were buried here. Civil War veterans buried in the cemetery are Samuel B. Youst, Lewis M. Hunt, Stanford May, G.W. Hiatt, Benjamin Conner, Alva Misner, and Fred Smith.

(Source: www.e-nebraskahistory.org)

Streeter-Peterson House

The Streeter-Peterson House, constructed in 1900-01, is a significant local example of early twentieth century Neo-Classical Queen Anne-style domestic architecture in Aurora. Substantial in size, the dwelling is further enhanced by its location on a large landscaped.

(Source: http://www.nebraskahistory.org/histpres/nebraska/hamilton.htm)

United Brethren Church

Designed by a Hastings architect, the United Brethren Church in Aurora is architecturally significant. The building was initially completed in 1912 and a 1922 addition converted it to the Akron Plan. Stylistically, the building exhibits characteristics of an English variant of the Tudor Revival style that includes a steeply gabled parapet flanked by castellated parapets. The contrasting dark brick and light decorative stone are another hallmark of this style. **(Source: http://www.nebraskahistory.org/histpres/nebraska/hamilton.htm)**

Photograph 6.14 United Brethren Church, Aurora
Source: http://www.nebraskahistory.org/histpres/nebraska/hamilton.htm

I.O.O.F. Opera House

Built by owners James M. and Joshua Cox in Hampton, the two-story brick building housed retail businesses on the first level, with the opera house and lodge hall on the second floor. The stage has a wooden proscenium arch and a vintage curtain, depicting a nude with flower garlands, fringes, and tassels. The Holden Comedy Company gave the first performance in the opera house in December 1893. **(Source: http://www.nebraskahistory.org/histpres/nebraska/hamilton.htm)**

St. Johannes Danske Lutherske Kirke

Built between 1899 and 1915 in Kronborg, the St. Johannes Danske Lutherske Kirke is significant for its representation of a religious grouping of Danish-American buildings in Nebraska, and for its associations with the folk school philosophies of the Danish religious leader, poet, and historian N. F. S. Grundtvig. Many of the activities held in the church

and gymnasium hall/school centered on the Grundtvigian teachings. The property is also significant for its instrumental role in the establishment and early development of a Danish-American community in the state. The church and its associated buildings played an important role in the religious beliefs, cultural traditions, and social activities practiced by Danish immigrants in the Kronborg community beginning in the late nineteenth century.

(Source: http://www.nebraskahistory.org/histpres/nebraska/hamilton.htm)

Photograph 6.15
St. Johannes Danske Lutherske Kirke

Temple Craft Building, Aurora

The Temple Craft building is a two story commercial building in Aurora. The building was originally constructed in 1889 as a fraternal hall with retail space by an alliance of Masonic lodges, which banded together as the Temple Craft Association for a period of fifty years.

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.

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

- High Plains Community Schools
- Hampton Public Schools
- Heartland Community Schools
- Sutton Public Schools
- Aurora Public Schools
- Harvard Public Schools
- Giltner Public Schools

Aurora Public Schools

Aurora Public Schools serves the City of Aurora as well as a large portion of central Hamilton County, including the Villages of Marquette, Phillips and Stockham. There are four public schools managed by Aurora Public Schools, serving 1,223 students. Minority enrollment is 8% of the student body (majority Hispanic), which is less than the Nebraska state average of 32%. The student-teacher ratio of 13:1 is less than the state average of 14:1.

The Districts four facilities include:

- Aurora Elementary School
- Aurora High School
- Aurora Middle School
- Aurora Preschool

(Source: https://aurorahuskies.org)

Photograph 6.16 Hampton High School, Hampton

Hampton Public Schools

Hampton has an elementary, Middle School and High School in the district. The district as of this Plan served 79 students. Minority enrollment is 4% of the student body (majority Hispanic), which is less than the Nebraska state average of 32%.
(Source: http://hamptonhawks.us/)

Giltner Public Schools

There are two public schools managed by Giltner Public Schools, serving 192 students. Minority enrollment is 4% of the student body (majority Hispanic), which is less than the Nebraska state average of 32%. The student-teacher ratio of 11:1 is less than the state average of 14:1.
(Source: www.giltner.k12.ne.us)

The Districts two facilities include:

- Giltner Elementary School
- Giltner High School

Central City Public Schools

Education in central Merrick County is provided to the public by the Central City Public Schools. CCPS is accredited by the State of Nebraska. The district is a Class 3 school district as previously defined. The District operates three facilities:

- Central City Elementary School located at 1711 15th Avenue in Central City
- Central City Middle School located at 2815 17th Avenue in Central City
- Central City High School located at 1510 28th Street in Central City

Early Childhood Programs

The Central Nebraska Community Action Partnership provides Early Childhood Programs to 12 counties in Central Nebraska, including Hamilton County. Further, Aurora Public Schools operates Aurora Preschool, which serves children who have special needs.
(Source: https://www.education.ne.gov &

Photograph 6.17 Hampton Lutheran School, Hampton
Source: http://hamptonlutheran.org

Parochial Schools serving Hamilton County

Besides the public school districts serving Hamilton County, there is one parochial school serving residents in Hamilton County. Hampton Lutheran School in Hampton is operated by the Lutheran Church Missouri Synod and serves 47 students in grades PK to 6.
(Source: hamptonlutheran.org/)

Post-Secondary Education

There are no post-secondary educational facility located in Hamilton County. The residents of Hamilton County and the surrounding area have a large selection of in-state post-secondary schools to select. Some of these include:

- 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

Fire Protection

Fire and Rescue

Fire and rescue in Hamilton County is handled through nine different departments / agencies:

- Hordville
- Marquette
- Phillips
- Aurora
- Hampton
- Henderson
- Giltner
- Harvard
- Trumbell

Hamilton County Ambulance Service provides advanced and basic life support emergency and non-emergency transport to all of Hamilton County, hospital to hospital transport and nursing home transfers as well as tiered response to other basic life support services. Hamilton County Ambulance Service also offers advanced life support services to surrounding counties. **(Source: www.co.hamilton.ne.us)**

Figure 6.3 shows a map of the nine fire agencies serving Hamilton County:

FIGURE 6.2: HAMILTON COUNTY SCHOOL DISTRICTS

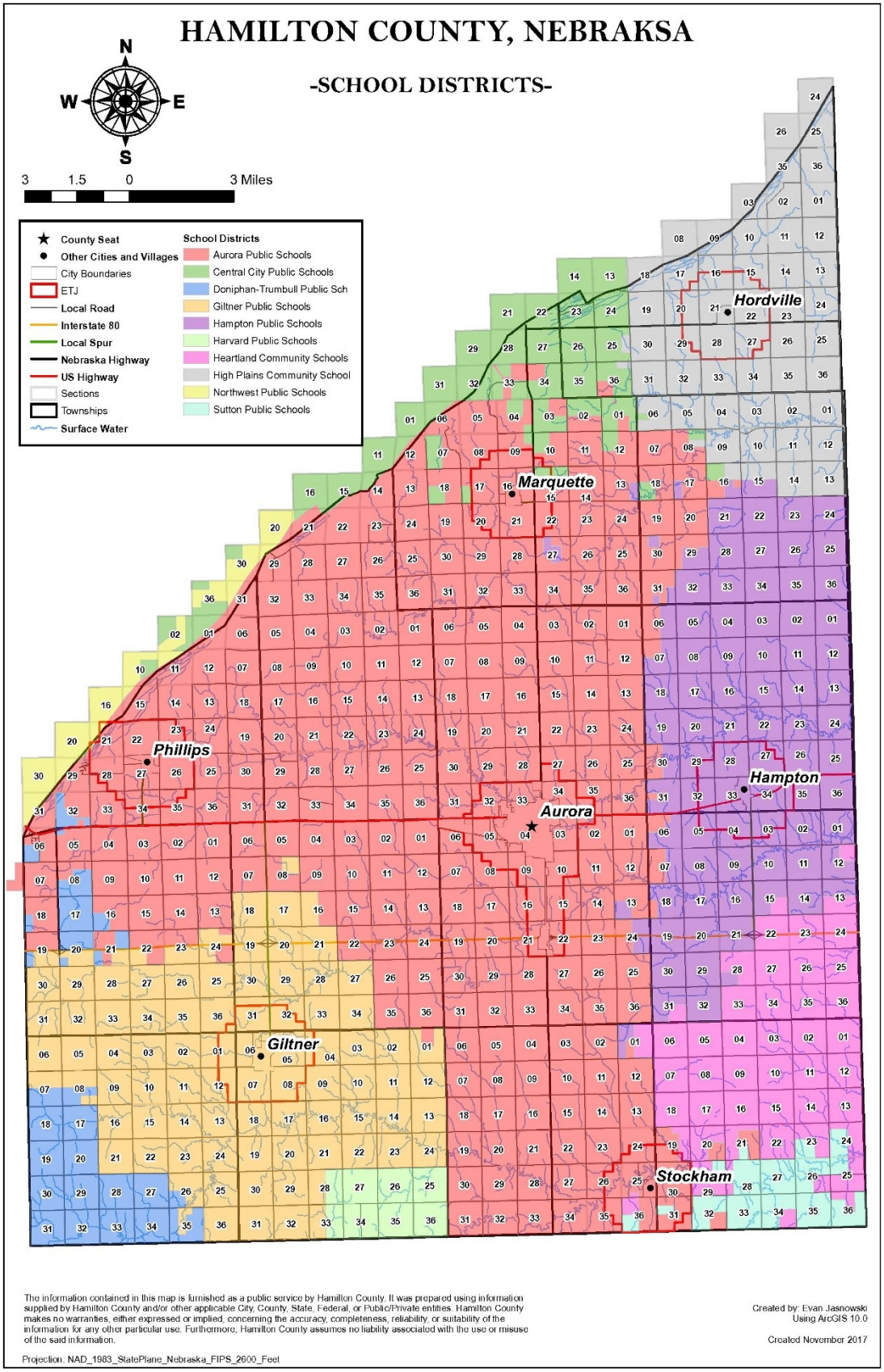
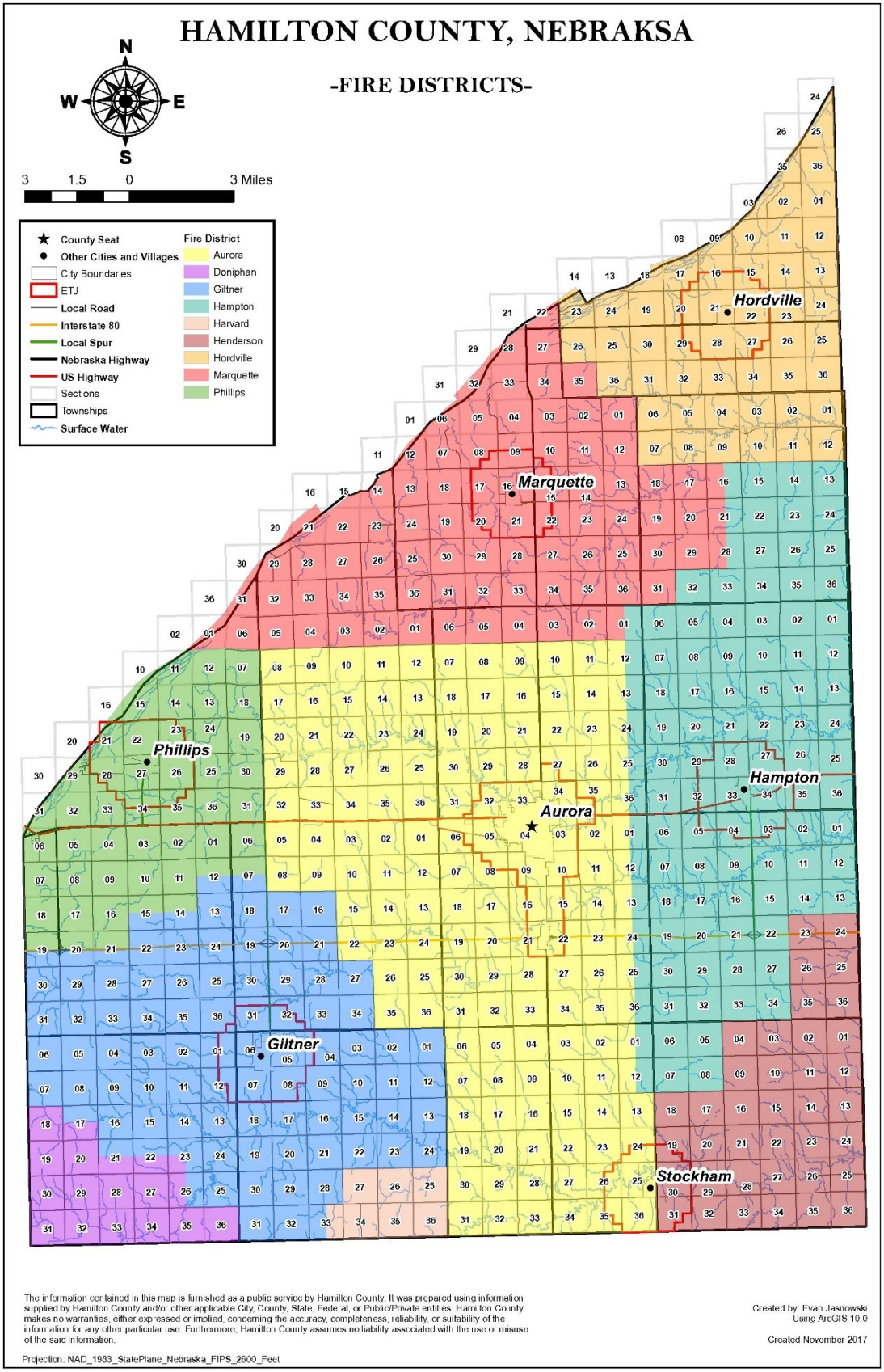


FIGURE 6.3: HAMILTON COUNTY FIRE DISTRICTS



Law Enforcement

Hamilton County Sheriff's Department

Hamilton County is served by the Hamilton 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 City of Aurora is served by the Aurora Police Department. Further, the Nebraska State Patrol provides support on state and federal highways, as well as law enforcement support in the county as needed. **(Source: www.co.hamilton.ne.us/sheriff.html & www.aurorapolice.net)**

Photograph 6.18 Hampton County Sheriff's Department
Source: www.co.hamilton.ne.us

Based upon data from the Nebraska Commission on Law Enforcement and Criminal Justice, the Hamilton County Sheriff's Department had 9 full-time sworn officers from 2014 to 2016, as shown in Table 6.1. When examining the number of sworn officers per 1,000 people, the Hamilton County Sheriff's Department had an average of 1.9 sworn officers per 1,000 people in from 2014 to 2016, which is below the state averages of 2.0 in 2014, 3.6 in 2015 and 3.6 in 2016. Table 6.1 also shows that the Aurora Police Department has maintained 8 sworn officers from 2014 to 2016, which equates to 1.8 sworn officers per 1,000 people. 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 Hamilton County has been maintaining a ratio of 1.9 sworn officers per 1,000 people over a period of time; apparently this is a good balance for Hamilton County. Table 6.1 also shows the number of sworn officers and officers per 1,000 persons in the surrounding counties.

Table 6.1: Sworn Officer Comparison

Agency	2014		2015		2016	
	Sworn Officers	Officers per 1,000 Population	Sworn Officers	Officers per 1,000 Population	Sworn Officers	Officers per 1,000 Population
Hamilton Co. Sheriff	**9**	**1.9**	**9**	**1.9**	**9**	**1.9**
Aurora PD	**8**	**1.8**	**8**	**1.8**	**8**	**1.8**
Clay Co. Sheriff	7	1.4	6	1.2	7	1.4
Hall Co. Sheriff	31	3.0	30	1.9	31	3.0
York Co. Sheriff	10	1.7	10	1.7	10	1.7
State Average		**2.0**		**3.6**		**3.6**

Source: Nebraska Commission on Law Enforcement and Criminal Justice 2016

County Buildings

County Courthouse

The Hamilton County Courthouse, completed in 1895, is located in the center of Aurora's business district and housed Hamilton County's Government Offices to this day. Designed by William Gray, an early Nebraska courthouse architect, the building is an exceptionally fine example of the Richardsonian Romanesque style, as applied to the County Capitol form.

(**Source: http://www.nebraskahistory.org/histpres/nebraska/**

Photograph 6.19 Hamilton County Fair
Source: hamiltoncountyfair.org

Hamilton County Fairgrounds

The Hamilton County Fair takes place in August each year in Aurora and is operated by the Hamilton County Ag Society.
(Source: www.hamiltoncountyfair.org/)

Communication

Telephone Services

The primary telephone provider in Hamilton County is Hamilton Communications based in Aurora.

Radio Stations

While there are no commercial radio stations based in Hamilton County, the county receives many commercial radio frequencies based in surrounding areas such as Grand Island, Hastings, Kearney, Columbus, and Lincoln.

Television Stations

Presently there are no local television stations located in Hamilton County. The over the air stations that serve the area originate out of Grand Island, Hastings, and Lincoln.

Internet/World Wide Web Service Providers (ISP)

High speed Internet service in Hamilton County is primarily provided by several providers including:

- Hamilton Communications based in Aurora
- Eagle Communication in Central City
- Charter Communications
- Glenwood Telecommunications

Newspapers

The residents of Hamilton County are served locally by the Aurora News-Register.

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Listed below are newspapers with daily circulation within the Hamilton County area:

- Lincoln Journal Star
- Omaha World-Herald
- Grand Island Independent

Public Utilities

Electricity

The Nebraska Public Power District provides power to Hamilton County via the Southern Power District.

Natural Gas

Natural gas supplies in Hamilton County is provided by Black Hills Energy.

Solid Waste

Sanitation collection in Hamilton County is provided by private haulers.

Health Care

Memorial Community Health, based in Aurora, is a private, nonprofit corporation providing health care services to residents of central Nebraska through Memorial Hospital, Memorial Health Clinic, Memorial Community Care and East Park Villa. Memorial Community Health is a not for profit, non-tax supported, 501(c)(3) organization which opened in February 1964. Memorial Community Health is a member of the American Hospital Association, the Nebraska Hospital Association, the Nebraska Nursing Home Association and the Nebraska Assisted Living Association. Memorial Hospital's Emergency Care Department provides full time immediate evaluation, stabilization and treatment to more than 2,000 patients annually. Memorial Health Clinics schedule more than 21,000 office visits per year.

(Source: www.memorialcommunityhealth.org)

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

Parks and Recreation Goal 2

Hamilton 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.

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 Hamilton 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.

Public Safety Goals

Public Safety Goal 1

The goal of Hamilton 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 Hamilton 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 Hamilton County.

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

Public Safety Goal 3

The goal of Hamilton 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.

Chapter 7 Energy

Introduction

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 Hamilton County Comprehensive Development Plan should be something desired as opposed to required. However, during the 2010 Legislative Session of the Nebraska Unicameral, the State Senators passed LB 997 which required this section become a part of all community and county comprehensive plans, except for villages.

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.

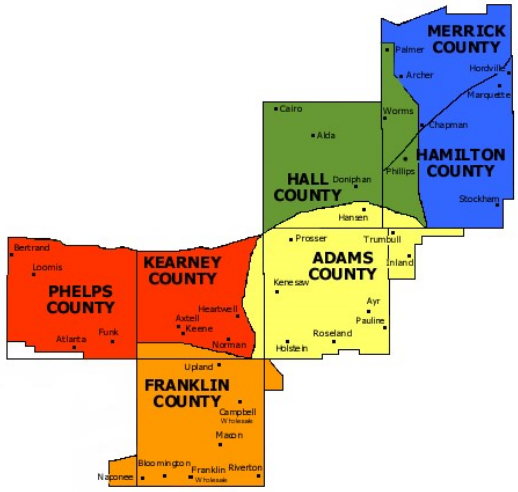
So, what can Hamilton County do to be more sustainable? There are a number of activities that can be undertaken and pursued to make an impact. The following information will meet at a minimum, the requirements of LB 997 but will also provide basic strategies Hamilton County can undertake to make a contribution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

ENERGY INFRASTRUCTURE

Electrical Power

Electrical power in Hamilton County is supplied by the Southern Public Power District (SPPD). SPPD operates over 7,085 miles of distribution and sub-transmission lines that are served by 78 substations located throughout the District's 4,028 square mile service area (see Figure 7.1). SPPD purchases all of its power from Nebraska Public Power District (NPPD). Currently, NPPD has a mixture of power generation including a nuclear plant, three steam plants, a combined-cycle facility, wind generation facilities, seven hydro facilities, nine diesel plants and three peaking units. NPPD also purchases electricity from the Western Area Power Administration, which is operated by the federal government. As shown in Figure 7.2, approximately 60% of power provided by NPPD is carbon free as of 2016.

Figure 7.1: SPPD Service Area & Board Districts



Sources: http://www.southernpd.com

Figure 7.2: NPPD Electricity Sources

Sources: www.nppd.com/about-us/

Electrical Distribution
The overall distribution system is in good condition. The systems are owned and operated by SPPD. The distribution systems not only supply power throughout Hamilton County but are the foundation for power transmitted to other customers in southern Nebraska.

Natural Gas Service
Natural gas supplies in Hamilton County are controlled by Black Hills Energy. Based in Rapid City, South Dakota, the company serves 1.2 million natural gas and electric utility customers in eight states.
Source: https://www.blackhillscorp.com/about

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 Hamilton 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 Hamilton 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 Hamilton 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
Hamilton 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
Hamilton 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 Hamilton 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 many 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) to 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 costlier 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 costlier 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 costlier 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) that 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

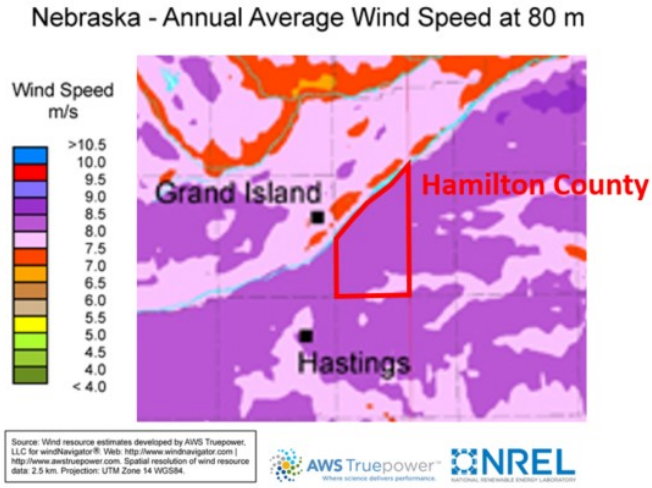
examples of how these renewable resources can be used to reduce dependency on fossil fuels.

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.

Figure 7.3: Annual Average Wind Speed @ 80 Meters



Source: https://windexchange.energy.gov/maps-data/80

According to the US Department of Energy's Office of Energy Efficiency & Renewable Energy, "*Areas with annual average wind speeds around 6.5 meters per second and greater at 80-m height are generally considered to have a resource suitable for wind development. Utility-scale, land-based wind turbines are typically installed between 80- and 100-m high although tower heights for new installations are increasing—up to 140 m—to gain access to better wind resources higher aloft.*" As shown in Figure 7.3, a majority of Hamilton County receives at least 8.0 meters per second of annual wind speeds when measured at 80 meters aloft. Therefore, Hamilton County, like much of Nebraska, is suitable for wind energy generation.

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).

Solar energy includes solar water and space heating as well as taking solar photovoltaic panels to convert the sun's rays into electricity. Solar panels can typically produce between 120 and 200 watts per square meter at an installed cost of $11 to $22 per watt, according to the American Solar Energy Society, but these costs are becoming less every year as more solar units are commissioned and new more cost effective technologies are developed.

According to the Solar Energy Industries Association, there is great potential for solar generation in Hamilton County as a majority of the county and the state lies within some of the better areas in the country for solar potential.

In addition, special urbanized solar farms can be constructed as a dual purpose for generating shade and electricity, as seen below at Creighton University in Omaha.

In the future, it may become desirable for new subdivisions/developments to incorporate renewable energy systems such as solar and wind. In order for this to occur, a standard subdivision regulation and zoning code would likely need to be modified in order to allow these systems. In addition, the state regulations under the C-Bed program, described in this chapter, would likely need to be updated.

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, Southern Public Power District, Nebraska Public Power District, or Black Hills Energy.

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.

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 utility providers 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 Hamilton County

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

Energy Goals and Policies

Energy Goal 1

Hamilton County can take steps to encourage greater participation in wind generation.

Energy Policies and Strategies

EN-1.1 Develop or amend existing zoning regulations to allow small-scale wind turbines as an accessory use in all districts.

EN-1.2 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.

EN-1.3 Work with power providers on ways to use wind turbines on small-scale individual projects or as a source of power for the community.

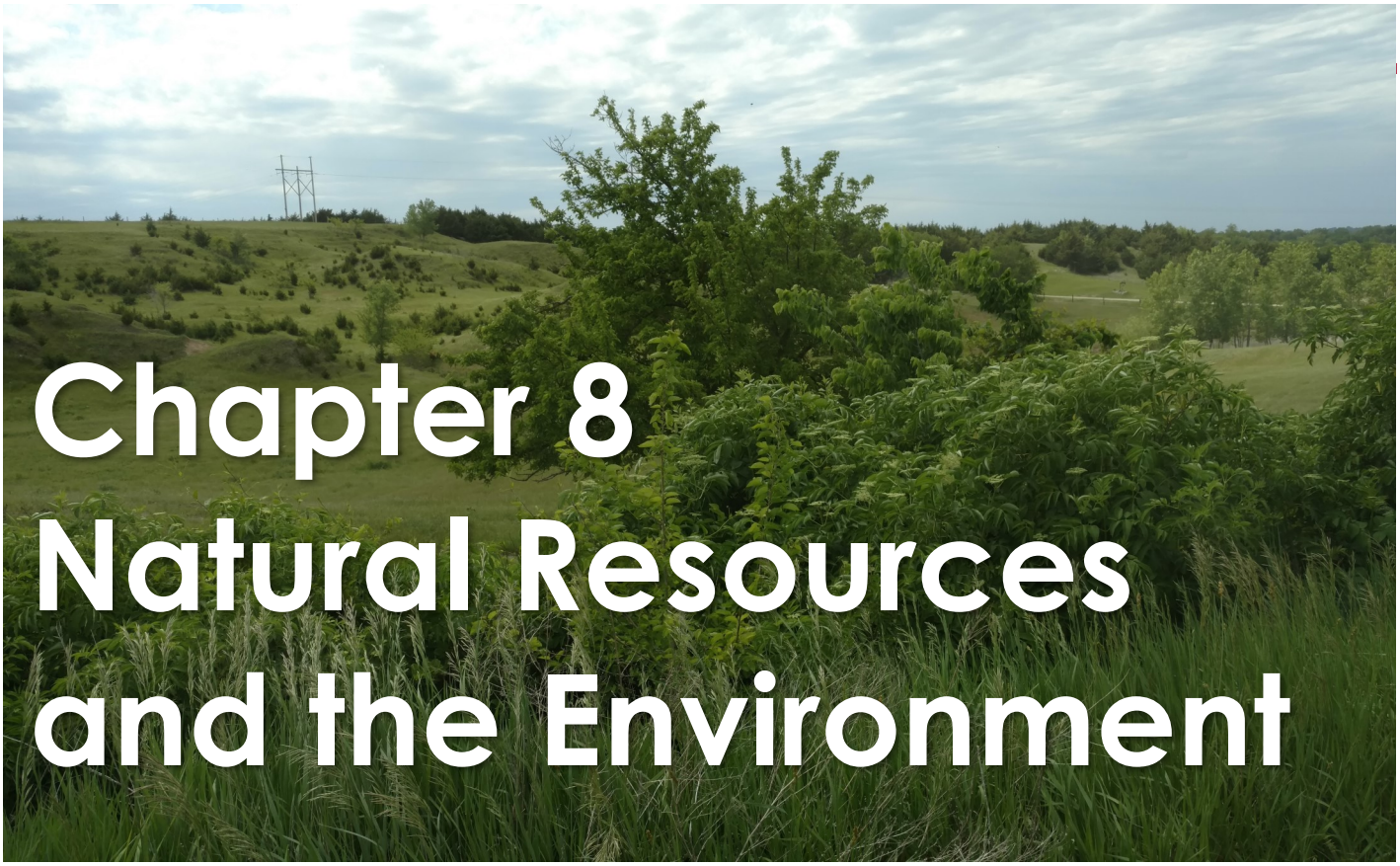
ENERGY GOAL 2

Hamilton County can take steps to encourage greater participation in solar energy production.

Energy Policies and Strategies

EN-2.1 Work with local power providers and developers to install community solar projects in appropriate locations in the county.

EN-2.2 Encourage individual solar, primarily as a ground mounted system as opposed to building mounted.



Chapter 8 Natural Resources and the Environment

Introduction

In order to formulate a truly valid and "comprehensive" plan for the future development of Hamilton 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 Hamilton 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
- Wildlife
- Wetlands
- Soil Association
- Capability Grouping
- Prime Farmland
- Soil Limitations

Natural Conditions

Climate

(This information was taken from the Hamilton County Soil Survey by the United States Department of Agriculture – Soil Conservation Service – March 1985)

In Hamilton County, winters are cold because of frequent incursions of cold, continental air. Summers are hot with occasional interruptions of cooler air from the north. Snowfall is fairly frequent in winter, but snow cover is usually not continuous. Rainfall is heaviest in late spring and early summer. Annual precipitation is normally adequate for wheat, sorghum, and range grasses.

The following information is located in the Nebraska Databook. The temperatures and averages presented were collected in Grand Island and averaged out from data collected from 1961 to 1990.

Between December and February, the average temperature is 24.9 degrees Fahrenheit. Between June and August, the average daily temperature is 74 degrees

The total annual precipitation is 24.9 inches, as measured in Grand Island. About 70 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 15 inches. Thunderstorms occur on about 50 days each year, and most occur in summer.

The average seasonal snowfall is 31 inches. On an average of 20 days, at least 1 inch of snow is on the

ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 55 percent. Humidity is higher at night, and the average at dawn is about 80 percent. The sun shines 70 percent of the time possible in summer and 55 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 14 miles per hour, in spring.

Strong, dry winds blowing over unprotected soils in spring cause occasional severe duststorms. There are occasional tornadoes and severe thunderstorms, some with hail. These storms are local and of short duration, and the pattern of damage is variable and spotty.

Geology

(This information was taken from the Hamilton County Soil Survey by the United States Department of Agriculture – Soil Conservation Service – March 1985)

The general formation within Hamilton County is Quaternary age sand, silt, clay, and gravel mantled with loess overlie Tertiary and Cretaceous age rocks.

The Ogallala Formation (Tertiary) is the youngest bedrock in Hamilton County and underlies the western edge of the county at a depth of 160 to 220 feet. Throughout the rest of the county the Niobrara and Carlisle Formations (Cretaceous) are the uppermost bedrock at a depth of 150 feet to more than 400 feet.

The older Quaternary sediments contain much sand and gravel, and they are the principal aquifer tapped by the irrigation and municipal wells. The Quaternary sediments at or near the surface are loess and eolian sand on the uplands and clayey to gravelly alluvium in the valleys. Loveland Loess mantled the entire county and is exposed on valley sides. This loess is brown with a pinkish to reddish tint and is moderately fine textured. Above the Loveland deposit is Peorian Loess. It mantles the uplands throughout the county and is the principal soil parent material. It is pale brown, slightly clayey, and weakly calcareous.

The most recent sediments are Bignell Loess, eolian sand, and alluvium in the valleys. Bignell Loess is several feet thick on stream terraces and on the uplands bordering the Platte River valley, but it thins rapidly to a foot or less in thickness in southeastern Hamilton County. It is similar to Peorian Loess in color. The eolian sand is closely associated in age and occurrence with Bignell Loess. The alluvium in the valleys is the most recently deposited soil parent material in the county. Two to four feet of alluvium has been deposited in most valleys since the native sod was plowed, and there is annual flooding on most valley areas except along the Platte River.

Physiography, Relief and Drainage

(This information was taken from the Hamilton County Soil Survey by the United States Department of Agriculture – Soil Conservation Service – March 1985)

Hamilton County is on the Central Loess Plains, which is part of the Great Plains. In general, the county is a nearly level and very gently sloping plain. The elevation ranges from 1,660 feet above sea level in the eastern part of the county to 1,900 feet in the western part.

The most prominent relief is the breaks paralleling the Platte River. The average elevation from the river valley to the uplands is about 100 feet. After the Platte, the West Fork of the Big Blue River is the most deeply entrenched stream in the county. The floor of the river valley is about 50 to 60 feet below the surrounding uplands. The river valley averages less than 1 mile in width.

Between drainage systems where the relief is more undulating, a few depressions or basins modify the landscape. These depressions are less than 10 feet to 30 feet below the surrounding land surface. Water ponds in these undrained areas for brief to very long periods.

Hamilton County is drained by several streams that flow generally eastward and by the Platte River. The Platte flows northeasterly along the northern border of the county. The West Fork of the Big Blue River and its tributaries dissect the southern part of the county. A tributary of the West Fork is known as the North Branch of the West Fork of the Big Blue River.

Other major drainageways are Beaver Creek, Lincoln Creek, and Big Blue River and their tributaries. Beaver Creek originates in Hall County and flows through the south-central part of Hamilton County. Lincoln Creek also originates just inside Hall County and flows through the central part of Hamilton County. The Big Blue River originates in Hamilton County as a large basin and flows through the north-central part of the county. Because these streams are close to their places of origin, they are not deeply entrenched nor do they

have wide bottomlands. Davis Creek, in northeastern Hamilton County, also originates in this county. It flows easterly into Polk County.

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 Hamilton County are most common on floodplains along the Platte River and other streams (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).

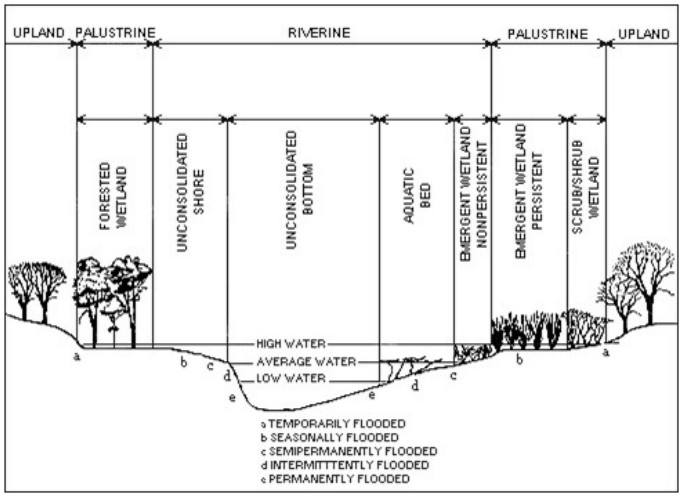
Partnerships to manage whole watersheds have developed among federal, state, tribal, and local governments; nonprofit organizations; and private landowners. The goal of these partnerships is to implement comprehensive, integrated watershed protection approaches. A watershed approach recognizes the inter-connection 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 Hamilton 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.

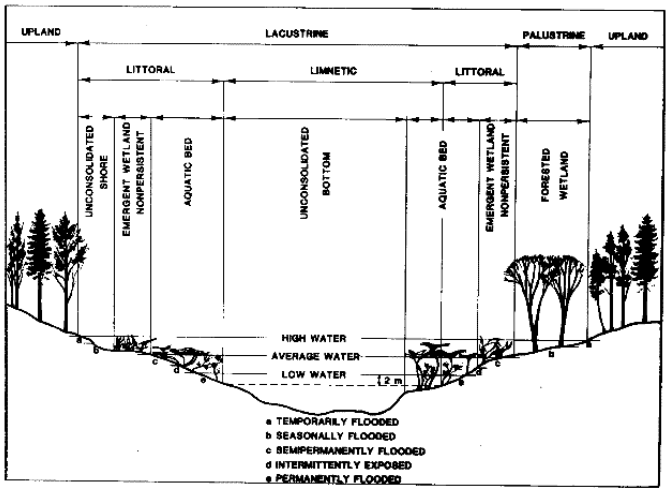
The U.S. Fish and Wildlife Service (FWS) produce information on the characteristics, extent, and status of the Nation's wetlands and deep-water habitats. This information has been compiled and organized into the National Wetlands Inventory (NWI).

Figure 8.1: Riverine Wetland System



Source: National Wetlands Inventory

Figure 8.2: Lacustrine 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.

Hamilton 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 Hamilton County.

Figures 8.1, 8.2, and 8.3 depict common examples of the riverine, lacustrine, and palustrine wetlands, respectively. Figure 8.4 shows the occurrence of wetlands in Hamilton 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.

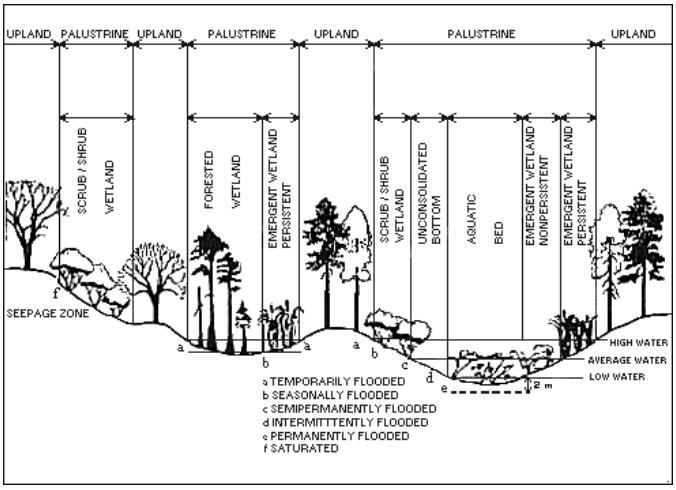
Figure 8.1 shows the riverine system includes all wetlands occurring in channels, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergent, emergent mosses, or lichens, and (2) habitats with water containing ocean derived salts in excess of 0.5%. A channel is an open conduit 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 8.3: 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 Hamilton County Soils Survey dated March 1985)

Soil Associations

1. Gothenburg-Platte-Alda Association

General Soil Description

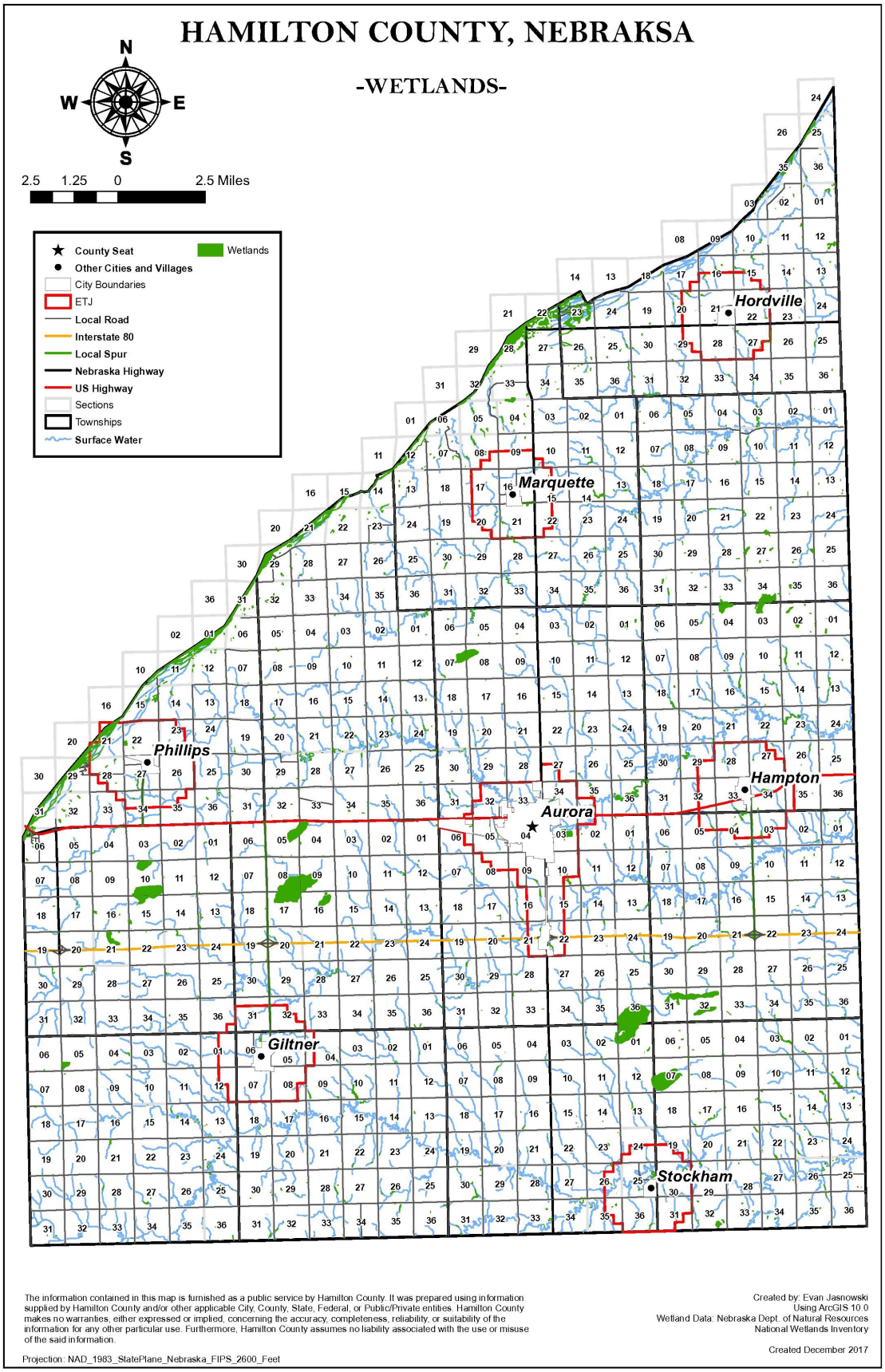
Nearly level, somewhat poorly drained and poorly drained, loamy soils that are very shallow to moderately deep over sand and gravel and that formed in recent alluvium

This association consists mainly of soils on nearly level, low, ridge-like areas intervening with shallow braided channels and areas of riverwash on bottom lands of the Platte River valley (Figure 8.5). The fluctuating high water table and occasional or frequent flooding influence plant growth.

This association occupies about 7,300 acres, or about 2 percent of the county. Gothenburg soils make up about 31 percent of this association, Platte soils make up 27 percent, and Alda soils make up about 17 percent. The remaining 25 percent is minor soils.

Gothenburg soils are very shallow to gravelly sand and are poorly drained. Typically, the surface layer is dark gray, very friable, calcareous sandy loam about 3 inches thick. The upper part of the underlying material is light gray fine sand, and the lower part is light gray, mottled gravelly sand to a depth of 60 inches or more.

Figure 8.4: Wetlands Map



Platte soils are shallow to coarse sand or gravelly sand and are somewhat poorly drained. Typically, the surface layer is dark gray, very friable, calcareous loam about 7 inches thick. The next layer is light gray, friable, calcareous fine sandy loam about 5 inches thick. The underlying material is very pale brown; the upper 4 inches is mottled fine sand, and the lower part is gravelly sand to a depth of 60 inches or more.

Alda soils are moderately deep to sand or gravelly coarse sand and are somewhat poorly drained. Typically, the surface layer is dark gray, very friable loam about 4 inches thick. The subsurface layer is dark gray, very friable loam about 7 inches thick. The next layer is brown, very friable, calcareous fine sandy loam about 3 inches thick. The upper part of the underlying material is pale brown, mottled fine sandy loam about 8 inches thick; the middle part is very pale brown, mottled loamy sand and sand about 16 inches thick; and the lower part is very pale brown, mottled gravelly coarse sand to a depth of 60 inches or more. Carbonates are below a depth of 4 inches.

Minor in this association are Fonner variant, Inavale, and Cozad wet substratum soils and Pits and Dumps. Cozad wet substratum soils are in slightly higher positions than the major soils, and Fonner variant soils are in positions similar to those of the major soils. Inavale soils are in the low ridge-like areas. Pits and Dumps are on the bottom lands where sand and gravel have been mined.

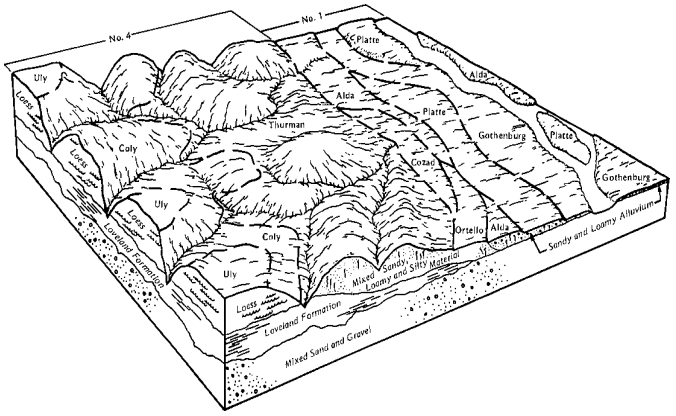
Farming on the soils in this association is mainly forage production for livestock. Some areas of the minor soils and Platte soils are cultivated, and these areas are generally irrigated. Gothenburg soils support a mixed vegetation of largely-annual grasses, sedges, weeds, shrubs, and cedar. These soils have very limited use for grazing. The native grassland is used for hay and grazing, principally of beef cattle. The rest of the areas provide limited grazing and are used mainly for wildlife habitat.

Good range management, such as proper grazing and a planned grazing system, help to keep the native grasses in good condition.

Most farmsteads or headquarters are on land in other associations or on the minor soils that are more suitable for cultivation. The parts of farms in areas of this association range from 40 to 500 acres and average about 140 acres. Nearly all farms have access to good gravel or improved dirt roads along section lines. Some of the roads on section lines near the Platte River are trails and extend only to the south channel of the river.

Nearly all areas of these soils are used for crops. Most are irrigated, generally by gravity or sprinkler systems. Wind erosion is the main hazard. Maintaining fertility is also a concern in management of these soils.

FIGURE 8.5: GOTHENBURG-PLATTE-ALDA ASSOCIATION/THURMAN-COLY ASSOCIATION



2. Ortello-Cozad Association

General Soil Description

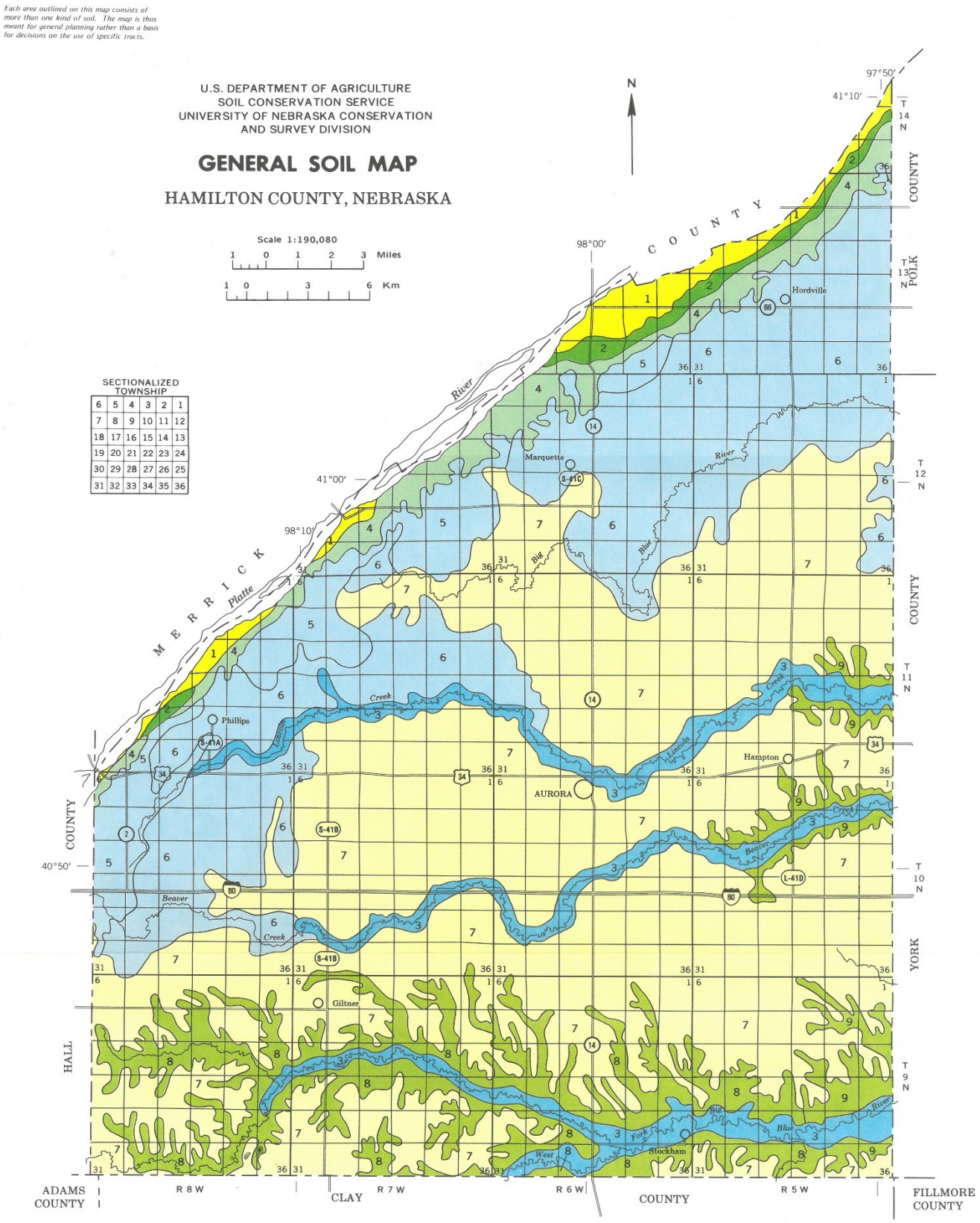
Deep, nearly level and very gently sloping, well drained, loamy and silty soils that formed in alluvium
This association consists mainly of soils on smooth stream terraces of the Platte River valley.

This association occupies about 3,940 acres, or about 1 percent of the county. Ortello soils make up about 53 percent of this association, and Cozad soils make up about 35 percent. The remaining 12 percent is minor soils.

Ortello soils are on stream terraces and foot slopes. Typically, the surface layer is grayish brown, very friable fine sandy loam about 5 inches thick. The subsurface layer is grayish brown, very friable fine sandy loam about 7 inches thick. The subsoil is pale brown, very friable fine sandy loam about 28 inches thick. The underlying material is very pale brown sandy loam to a depth of 60 inches or more.

Cozad soils are on stream terraces. Typically, the surface layer is grayish brown, very friable silt loam about 7 inches thick. The subsoil is light brownish gray, friable silt loam about 13 inches thick. The underlying material is calcareous silt loam; the upper part is pale brown, the middle part is very pale brown, and the lower part is light brownish gray to a depth of 60 inches.

Figure 8.6: Soils Association Map



LEGEND

SOMEWHAT POORLY DRAINED AND POORLY DRAINED, NEARLY LEVEL SOILS ON BOTTOM LANDS

1 — Gothenburg-Platte-Alda association: Nearly level, somewhat poorly drained and poorly drained, loamy soils that are very shallow to moderately deep over sand and gravel and that formed in recent alluvium

WELL DRAINED, NEARLY LEVEL AND VERY GENTLY SLOPING SOILS ON STREAM TERRACES

2 — Ortello-Cozad association: Deep, nearly level and very gently sloping, well drained, loamy and silty soils that formed in alluvium

WELL DRAINED, NEARLY LEVEL TO GENTLY SLOPING SOILS ON STREAM TERRACES AND BOTTOM LANDS

3 — Hord-Hobbs association: Deep, nearly level to gently sloping, well drained, silty soils that formed in alluvium

EXCESSIVELY DRAINED TO WELL DRAINED, GENTLY SLOPING TO VERY STEEP SOILS ON UPLANDS

4 — Thurman-Coly association: Deep, gently sloping to very steep, excessively drained to well drained, loamy and silty soils that formed in loamy and sandy materials or in loess

WELL DRAINED, NEARLY LEVEL TO GENTL' S ON UPLANDS

5 — Uly association: Deep, nearly level to gently slopi lty soils that formed in loess

6 — Holder association: Deep, nearly level to gently sl , silty soils that formed in loess

WELL DRAINED AND MODERATELY WELL DRAINED, NEARLY LEVEL TO GENTLY SLOPING SOILS ON UPLANDS

7 — Hastings-Crete-Holder association: Deep, nearly level to gently sloping, well drained and moderately well drained, silty soils that formed in loess

WELL DRAINED AND SOMEWHAT EXCESSIVELY DRAINED, GENTLY SLOPING TO STEEP SOILS ON UPLANDS

8 — Holder-Geary association: Deep, gently sloping to steep, well drained and somewhat excessively drained, silty soils that formed in loess

9 — Hastings association: Deep, gently sloping and strongly sloping, well drained, silty soils that formed in loess

* Texture terms in the descriptive headings refer to the texture of the surface layer of the major soils.

Minor in this association are Hobbs channeled soils and Hord and Thurman soils. Hobbs channeled soils are along the entrenched channels of intermittent drainageways. Hord soils are in positions similar to those of the Cozad soils. Thurman soils are on foot slopes and in higher positions than the major soils.
Farming on the soils in this association is diversified, mainly a combination of cash-grain and livestock enterprises. Nearly all of the areas are used for cultivated crops and are irrigated by gravity or sprinkler systems. Corn, grain sorghum, soybeans, and alfalfa are the principal irrigated crops. In some places land grading increases the efficiency of gravity irrigation. Wheat, grain sorghum, and alfalfa are the main dryfarmed crops.

Wind erosion is the main hazard. The principal concerns in management are controlling soil blowing, maintaining a high level of fertility, and conserving soil moisture.

Farms average about 320 acres. Nearly all farms have access to good gravel or hard-surface roads, nearly all of which run along section lines.

Nearly all areas of these soils are used for crops. Most are irrigated, generally by gravity or sprinkler systems. Water erosion and flooding are the main hazards. Maintaining fertility is also a concern in management of these soils.

3. Hord-Hobbs Association

General Soil Description

Deep, nearly level to gently sloping, well drained, silty soils that formed in alluvium

This association consists mainly of soils on nearly level stream terraces and bottom lands, see Figure 8.7.

This association occupies 22,000 acres, or about 6 percent of the county. Hord soils make up about 47 percent of this association, and Hobbs soils make up about 41 percent. The remaining 12 percent is minor soils.

Hord soils are on stream terraces. They are nearly level to gently sloping. Typically, the surface layer is grayish brown, very friable silt loam about 5 inches thick.

The subsurface layer is dark grayish brown, very friable silt loam about 9 inches thick. The very friable silt loam subsoil is about 28 inches thick. It is grayish brown in the upper part and light brownish gray in the lower part. The underlying material is light brownish gray silt loam to a depth of 60 inches or more.

Hobbs soils are on bottom lands. They are nearly level and are occasionally flooded. Typically, the surface layer is grayish brown, very friable silt loam about 7 inches thick. The subsurface layer is dark grayish brown, friable silt loam about 13 inches thick. The underlying material is silt loam. The upper part consists of thin, horizontally bedded strata of grayish brown and dark grayish brown, the middle part is light brownish gray, and the lower part is pale brown to a depth of 60 inches or more.

Minor in this association are Hobbs channeled soils on bottom lands along the entrenched channeled area of South Fork Big Blue River, Lincoln Creek, and Big Blue River. These areas are frequently flooded.

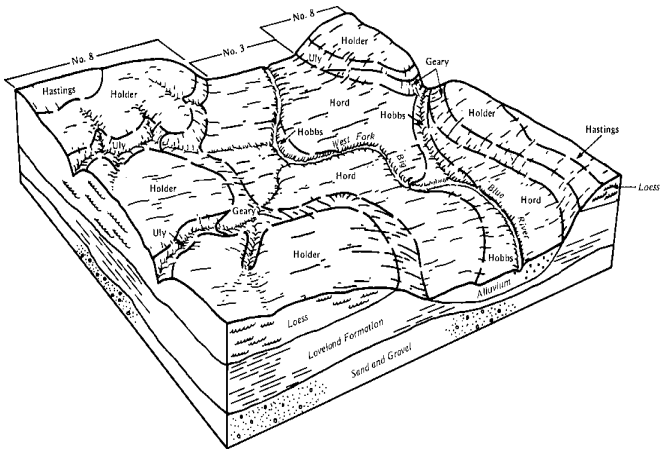
Farming on the soils in this association is diversified, mainly a combination of cash-grain and livestock enterprises. Nearly all of the areas are used for crops irrigated by gravity or sprinkler systems. Corn, grain sorghum, soybeans, and alfalfa are the principal irrigated crops. Winter wheat, grain sorghum, and alfalfa are the main dryfarmed crops. The channeled areas adjacent to the perennial streams are used for limited grazing and for wildlife habitat.

Occasional or rare flooding is the main hazard. The main concerns in management are maintaining a high level of fertility, conserving soil moisture, and reducing flooding along the streams. Water erosion is a hazard in a few areas where slope increases rapidly within a short distance.

Farms range from 80 to 640 acres average about 320 acres. Nearly all farms have access to good gravel or hard-surface roads. Some section lines do not have roads or trails.

Most areas of these soils are in native or introduced grasses for grazing and hay. The main hazards are wind and water erosion. Maintaining good range condition is a concern in managing these soils.

FIGURE 8.7: HORD-HOBBS ASSOCIATION/HOLDER-GEARY ASSOCIATION



4. Thurman-Coly Association

General Soil Description

Deep, gently sloping to very steep, excessively drained to well drained, loamy and silty soils that formed in loamy and sandy materials or in loess

This association consists mainly of soils on strongly sloping and steep ridges and valley sides that are dissected by deeply entrenched drainageways having very steep sides (Figure 8.5).

This association occupies about 8,430 acres, or about 3 percent of the county. Thurman soils make up about 51 percent of this association, and Coly soils make up 43 percent. The remaining 6 percent is minor soils.

Thurman soils are on tops and sides of smooth ridges on the foot slopes along the Platte River valley. They are gently sloping to steep and are somewhat excessively drained. Typically, the surface layer is dark grayish brown, very friable fine sandy loam about 6 inches thick. The subsurface layer is grayish brown, very friable fine sandy loam about 3 inches thick. The next layer is brown, very friable fine sandy loam about 7 inches thick. The underlying material is light yellowish brown, mottled loamy fine sand in the upper part and brownish yellow, mottled loamy fine sand in the lower part to a depth of 60 inches or more.

Coly soils are on side slopes of intermittent drainageways on the loess uplands. They are strongly sloping to very steep and are excessively drained to well drained. Typically, the surface layer is dark grayish brown, very friable silt loam about 5 inches thick. The next layer is pale brown, friable silt loam 4 inches thick. The underlying material is very pale brown, calcareous silt loam to a depth of 60 inches or more.

Minor in this association are Ortello soils. Ortello soils are well drained and are on foot slopes between the uplands and the stream terraces.

Farming on the soils in this association is diversified, mainly livestock enterprises with some cash-grain crops. About 80 percent of the acreage is native grassland and is used for hay and grazing, primarily by beef cattle. The native grassland consists of tall, mid, and short grasses. The remaining 20 percent usually has smoother slopes and is used for cultivated crops. Winter wheat, grain sorghum, and alfalfa are the main dryfarmed crops. Corn and grain sorghum are the principal irrigated crops. Nearly all irrigation is done by sprinkler systems.

Water erosion and soil blowing are the principle hazards in cultivated areas. In cultivated areas, erosion has removed the original dark surface layer and part of the underlying material. Maintaining good range condition is the primary concerning in range management. Proper grazing, timely deferment of grazing and haying, and a planned grazing system in which the order of grazing and rest are changed each year maintain or improve range condition.

Farms average about 480 acres. Most farm headquarters have access to good roads.

Nearly all areas of these soils are used for crops. Most areas are irrigated by either gravity or sprinkler systems. The principal hazards are soil blowing and water erosion. Maintaining fertility is also a concern in managing these soils.

5. Uly Association

General Soil Description

Deep, nearly level to gently sloping, well drained, silty soils that formed in loess

This association consists mainly of soils in nearly level to gently sloping smooth areas or undulating low ridges and intervening swales of loess-mantled uplands. Natural drainageways are not always well defined.

This association occupies about 16,540 acres, or about 5 percent of the county. Uly soils make up about 81 percent of this association, and the remaining 19 percent is minor soils.

Uly soils typically have a surface layer of grayish brown, very friable silt loam about 7 inches thick. The subsoil is pale brown, very friable silty clay loam in the upper part and very pale brown, very friable, calcareous silt loam in the lower part. The subsoil is about 10 inches thick. The underlying material is very pale brown, calcareous silt loam to a depth of 60 inches or more.

Minor in this association are Ortello loamy substratum soils and Rusco soils. The Ortello soils are on low ridges in slightly higher positions than the Uly soils. Rusco soils are in lower positions than the Uly soils.

Farming on the soils in this association is diversified, mainly a combination of cash-grain and livestock enterprises. Nearly all of this association is irrigated by gravity or sprinkler systems. Corn, grain sorghum, soybeans, and alfalfa are the principal irrigated crops. Land grading is needed in most areas to increase efficiency of gravity irrigation systems. Winter wheat, alfalfa, and grain sorghum are the main dryfarmed crops.

Soil blowing is the principal hazard. The main concerns in management are maintaining a high level of fertility, conserving soil moisture, and controlling soil blowing.

Farms average about 400 acres. Nearly all farms have access to good gravel or hard-surface roads, which generally run along section lines.

6. Holder Association

General Soil Description

Deep, nearly level to gently sloping, well drained, silty soils that formed in loess

This association consists mainly of soils on smooth side slopes on the loess-mantled uplands.

This association occupies 70,700 acres, or about 20 percent of the county. Holder soils make up about 86 percent of this association, and the remaining 14 percent is minor soils.

Holder soils typically have a surface layer of dark grayish brown, very friable silt loam about 5 inches thick. The subsurface layer is dark grayish brown, very friable silt loam about 5 inches thick. The upper part of the subsoil is grayish brown, friable silty clay loam about 8 inches thick; the middle part is brown silty clay loam about 5 inches thick; and the lower part is pale brown, friable silt loam about 6 inches thick. The underlying material is very pale brown silt loam to a depth of 60 inches or more. The lower part of the underlying material is calcareous.

Minor in this association are Ortello loamy substratum soils and Holder thick surface soils. The Ortello soils are nearly level to gently sloping and generally are above the Holder soils. Holder thick surface soils are nearly level and are at about the same elevation as the major soils.

Farming on the soils in this association is diversified, mainly a combination of cash-grain and livestock enterprises. Some farms are entirely cash-grain. Nearly all areas are used for cultivated crops irrigated by gravity or sprinkler systems. Some of the irrigation wells have a low pumping capacity. Corn, grain sorghum, and soybeans are the principal irrigated crops. Wheat and grain sorghum are the main dryfarmed crops.

The main concerns in management are maintaining a high level of fertility and conserving soil moisture. Water erosion is a hazard mainly on the gently sloping soils.

Farms average about 480 acres. Gravel or hard-surface roads run along most section lines.

Well drained and moderately well drained, nearly level to gently sloping soils on uplands

Nearly all areas of these soils are used for crops. Most areas are irrigated by either gravity or sprinkler systems. The principal hazards are wind and water erosion. Maintaining fertility is also a concern in managing these soils.

7. Hastings-Crete-Holder Association

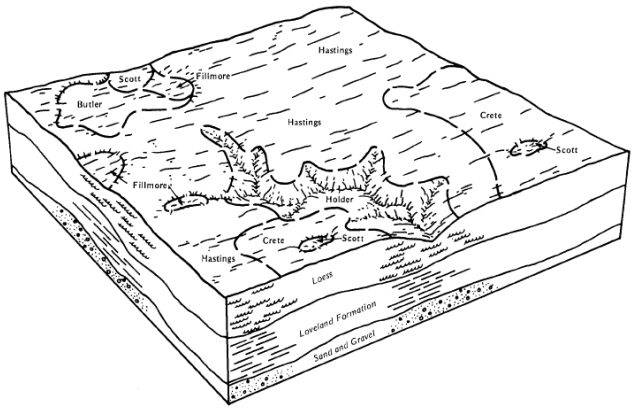
General Soil Description

Deep, nearly level to gently sloping, well drained and moderately well drained, silty soils that formed in loess

This association consists mainly of soils on smooth side slopes on the loess-mantled uplands (Figure 8.8).

This association occupies 183,310 acres, or about 52 percent of the county. Hastings soils make up about 67 percent of this association, Crete soils make up about 12 percent, and Holder soils make up about 11 percent. The remaining 10 percent is minor soils.

FIGURE 8.8: HASTINGS-CRETE-HOLDER ASSOCIATION



Hastings soils are nearly level and gently sloping and are well drained. Typically, the surface layer is dark grayish brown, friable silt loam about 6 inches thick. The subsurface layer is dark grayish brown, friable silty clay loam about 6 inches thick. The subsoil is about 16 inches thick. The upper part of the subsoil is dark grayish brown, friable silty clay loam; the middle part is brown, firm silty clay; and the lower part is yellowish brown, friable silty clay. The underlying material is pale brown silt loam to a depth of 60 inches or more. It is calcareous in the lower part.

Crete soils are nearly level and moderately well drained. Typically, the surface layer is dark grayish brown, friable silt loam about 5 inches thick. The subsurface layer is dark grayish brown, friable silt loam about 6 inches thick. The subsoil is 19 inches thick. It is grayish brown, friable silty clay loam in the upper part; brown, firm silty clay in the middle part; and pale yellow, friable silty clay loam in the lower part. The underlying material is light gray, calcareous silt loam to a depth of 60 inches or more.

Holder soils are nearly level to gently sloping and are well drained. Typically, the surface layer is dark grayish brown, very friable silt loam about 5 inches thick. The subsurface layer is dark grayish brown, very friable silt loam about 5 inches thick. The upper part of the subsoil is grayish brown, friable silty clay loam about 8 inches thick; the middle part is brown, friable silty clay loam about 5 inches thick; and the lower part is pale brown, friable silt loam about 6 inches thick. The underlying material is very pale brown silt loam to a depth of 60 inches or more. The soil is calcareous below a depth of 50 inches.

Minor in this association are Butler, Fillmore, Scott, and Massie soils. These soils are all nearly level and are below the major soils.

Farming on the soils in this association is diversified, mainly a combination of cash-grain and livestock enterprises. However, some enterprises are only cash grain. Nearly all of the acreage of this association is used for cultivated crops irrigated by gravity or sprinkler systems. Corn, grain sorghum, soybeans, and alfalfa are the principal irrigated crops. A few areas of dryfarmed winter wheat and grain sorghum are grown.

The main concerns in management are maintaining a high level of fertility and conserving soil moisture. Water erosion is a hazard in a few areas where the soils are gently sloping.

Farms range from 80 to 960 acres and average about 480 acres. Nearly all farms have access to good gravel or hard-surface roads. Some section lines do not have roads or trails.

These soils are mostly well drained. Some areas are used for crops and some are in range or pasture. Some cultivated areas are irrigated, generally by sprinkler systems. The principal hazard is water erosion. Maintaining fertility or good range condition is a concern in managing these soils.

8. Holder-Geary Association

General Soil Description

Deep, gently sloping to steep, well drained and somewhat excessively drained, silty soils that formed in loess

This association consists mainly of soils on gently sloping and strongly sloping ridges and valley sides. They are dissected by deeply entrenched drainageways that have moderately steep and steep side slopes (Figure 8.7).

This association occupies about 29,140 acres, or about 9 percent of the county. Holder soils make up about 71 percent of this association, and Geary soils make up 13 percent. The remaining 16 percent is minor soils.

Holder soils are on smooth ridgetops and side slopes on loess-mantled uplands. They are gently sloping or strongly sloping, well drained, and eroded. Typically, the surface layer is pale brown, friable silty clay loam about 6 inches thick. The underlying material is light gray and very pale brown silt loam to a depth of 60 inches or more.

Geary soils are on the sides of intermittent drainageways on loess-mantled uplands. They are strongly sloping to steep and are well drained and somewhat excessively drained. Typically, the surface layer is brown, very friable silt loam about 7 inches thick. The subsoil is brown, friable silty clay loam in the upper part; light brown, friable silty clay loam in the middle part; and light brown, very friable silt loam in the lower part. The subsoil is about 29 inches thick. The underlying material is light gray, calcareous silt loam to a depth of 60 inches or more.

Minor in this association are Uly and Hobbs soils. Uly soils are moderately steep or steep and are on side slopes in the upper reaches of the intermittent drainageways. They are well drained and somewhat excessively drained. Hobbs soils are on the narrow bottom lands of intermittent drainageways and are occasionally flooded.

Farming on the soils in this association is diversified, mainly a combination of cash-grain and livestock enterprises. Most of the steeper soils are in native grasses that are grazed by beef cattle. Soils on the smoother side slopes are cultivated. The main dryfarmed crops are grain sorghum and winter wheat. Most irrigation is by sprinkler systems, and the irrigated crops are corn, grain sorghum, and alfalfa.

Water erosion is a serious hazard in the cultivated areas. Much of the original surface layer has been removed, and many small gullies form after heavy rains. Controlling erosion, conserving moisture, and maintaining soil fertility are the main concerns in management.

Range supports mid and short grasses.

Farms average about 400 acres. Nearly all farms have access to good gravel roads. Some section lines do not have roads or trails.

9. Hastings Association

General Soil Description

Deep, gently sloping and strongly sloping, well drained silty soils that formed in loess

This association consists mainly of soils on ridges and side slopes of the loess-mantled uplands.

This association occupies about 8,400 acres, or about 2 percent of the county. Hastings soils make up about 53 percent of this association, and the remaining 47 percent is minor soils.

Hastings soils are eroded. Typically, the surface layer is brown, firm silty clay loam about 5 inches thick. The subsurface layer is brown, firm silty clay loam about 3 inches thick. The subsoil is light yellowish brown silty clay loam about 5 inches thick. The underlying material is very pale brown silt loam to a depth of 60 inches or more.

Minor in this association are Geary, Hobbs, and Uly soils. Geary soils are strongly sloping to steep and are well drained. They are on side slopes below the Hastings soils. Hobbs soils are on narrow bottom lands of intermittent drainageways and are occasionally flooded. Uly soils are moderately steep or steep and are well drained or somewhat excessively drained. They are on side slopes below the Hastings soils.

Farming on the soils in this association is diversified, mainly a combination of cash-grain and livestock enterprises. Much of the steeper soils are in native grasses grazed by cattle. The smoother slopes are used for cultivated crops. The main dryfarmed crops are grain sorghum and winter wheat. Most irrigation is done by sprinkler systems, and the irrigated crops are corn, grain sorghum, and alfalfa.

Water erosion is a serious hazard in cultivated areas. Much of the original surface layer has been removed, and many small gullies form after heavy rains if the soil is left unprotected. Controlling erosion, conserving moisture, and maintaining soil fertility are the main concerns in management.

Farms average about 400 acres. Nearly all farms have access to good gravel roads. Some section lines do not have roads or trails.

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 Hamilton 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 Hamilton 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.

Photograph 8.1 Existing soil cross-section in Hamilton County

Dwellings without Basements

Figure 8.9 shows the soil suitability conditions for constructing dwelling without a basement (slab on-grade construction). In addition Table 7.1 provides the suitability by soil types and the specific conditions impacting the soil.

Very Limited Conditions

Based on Table 8.1, a majority of the soils in Hamilton County are considered Very Limited for a Dwelling Unit without a Basement. There are five major conditions impacting the soils (not all five are present in any one soil type). The conditions present in the different soils are:

- Flooding
- Depth to saturation zone
- Slope
- Shrink-Swell
- Ponding

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:

- Slope
- Shrink-swell

Dwellings with Basements

Figure 8.10 shows the soil suitability conditions for constructing Dwellings with basements. In addition Table 8.1 provides the suitability by soil types and the specific conditions impacting the soil.

Very Limited Conditions

Based on Table 8.1, the Very Limited conditions are very similar to Dwellings without Basements. As noted above, a majority of the soils in Hamilton County are considered Very Limited for a Dwelling Unit with a Basement. There are five major conditions impacting the soils (not all five are present in any one soil type). The conditions present in the different soils are:

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

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:

- Slope

TABLE 8.1: SOIL PROPERTIES BY TYPE AND USE

Soil Symbol/Soil Name Bolded soil represents specific soil in a complex	Dwellings without Basements		Dwellings with Basements		Septic tank and absorption fields		Sewage Lagoons		Sanitary Landfill		Small Commercial Businesses	
	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions
8403 Alda	2	1,2	2	1,2	2	1,2,10,11	2	1,2,11	2	1,2,11,12	2	1,2
8405 Alda	2	1,2	2	1,2	2	1,2,11	2	1,2,11	2	1,2,11,12	2	1,2
6312 Barney	2	1,2	2	1,2	2	1,2,10,11	2	1,2,11	2	1,2,11,12	2	1,2
3820 Butler	2	2,8,9	2	2,8,9	2	2,4,9	2	2,9,11	2	2,9,11,12	2	2,8,9
3824 Crete	2	2,8,9	2	2,8,9	2	2,4,9	1	11	1	12	2	2,8
2533 Coly	2	1,2,5	2	1,2,5	2	1,4,5	2	1,2,5,11	2	1,2,5,12	2	1,2,5
2536 Coly	2	5	2	5	2	4,5	2	1,11	2	5,12	2	5
2538 Coly	1	5	1	5	2	4,5	2	1,11	1	5,12	2	5
3715 Cozad	2	1	2	1	1	1,4	1	1,11	1	1,12	2	1
8446 Cozad	2	1	2	1,2	1	1,2,4	1	1,2,11	2	1,2,12	2	1
8816 Cozad	2	1	2	1	1	1,4	1	1,11	1	1,12	2	1
3720 Detroit	2	1,8	2	1,8	2	1,4	1	1,11	1	1,12	2	1,8
3726 Detroit	2	2,8,9	2	2,8,9	2	2,4,9	1	11	1	12	2	2,8,9
3727 Detroit	2	8	2	8	2	4	1	11	1	12	2	8
3952 Fillmore	2	2,8,9	2	2,8,9	2	2,4,9	2	2,9,11	2	2,9,12	2	2,8,9
3953 Fillmore	2	2,8,9	2	2,8,9	2	1,2,4	1	2,11	1	2,12	2	2,8,9
8458 Fonner	2	1	2	1,2	2	1,2,10,11	2	1,2,11	2	1,2,1/2	2	1
3835 Geary	2	1,5,8	2	1,5,8	2	1,4,5,10,11	2	1,5,11	2	1,5,11,12	2	1,5,8
3837 Geary	1	5,8	1	5,8	1	4,5	2	1,5,11	1	5,12	2	1,5,8
3840 Geary	1	5,8	1	5,8	1	4,5	2	1,2,5,11	1	5,12	2	1,2,5,8
8491 Gothenburg	2	1,2	2	1,2	2	1,2,10,11	2	1,2,5,11	2	1,2,11	2	1,2
8493 Gothenburg	2	1,2	2	1,2	2	1,2,10,11	2	1,2,11	2	1,2,11	2	1,2
8495 Gothenburg	2	1,2	2	1,2	2	1,2,10,11	2	1,2,11	2	1,2,11	2	1,2
3864 Hastings	2	2,8,9	1	8	2	2,4,9	1	11	1	12	2	2,8,9
3866 Hastings	2	2,8,9	1	8	2	2,4,9	1	11	1	12	2	2,8,9
3870 Hastings	1	8	1	8	2	1,2,4	1	5,11	1	12	1	5,8
3962 Hastings	1	5,8	1	5,8	2	1,2,4,5	2	1,2,5,11	1	5,12	2	1,2,5,8
3545 Hobbs	2	1,2	2	1,2	2	1,2,4	2	1,2,11	2	1,2,12	2	1,2
3553 Hobbs	2	1,2	2	1,2	2	1,2,4	2	1,2,11	2	1,2,12	2	1,2
3561 Hobbs	2	1,2,8	2	1,2	2	1,2,4	2	1,2,11	2	1,2,12	2	1,2,5,8
3755 Hord	2	1	2	1	1	1,4	1	1,11	1	1,12	2	1
8866 Hord	0	-	0	-	1	4	1	5,11	1	12	0	-
8870 Hord	0	-	0	-	1	4	1	11	1	12	0	-
8872 Hord	0	-	0	-	1	4	1	5,11	1	12	1	5
2333 Inavale	2	1	2	1	2	1,10,11	2	1,11	2	1,11	2	1
3730 Massie	2	2,8,9	2	2,8,9	2	2,4,9	2	1,2,11	2	2,9,12	2	2,8,9
6578 Ortello	0	-	0	-	2	11	2	5,7	2	11,12	0	-
6843 Ortello	0	-	0	-	2	11	2	11	2	11,12	0	-
6852 Ortello	0	-	0	-	2	4	2	11	2	11,12	0	-
6853 Ortello	0	-	0	-	1	4	2	11	2	11,12	0	-
6857 Ortello	0	-	0	-	1	4	2	11	2	11,12	0	-
3910 Scott	2	2,8,9	2	2,8,9	2	2,4,9	2	2,9,11	2	2,9,12	2	2,8,9
3913 Scott	2	2,8,9	2	2,9	2	2,4,9	2	2,9,11	2	2,9,12	2	2,8,9

Soil Symbol/Soil Name	Dwellings without Basements		Dwellings with Basements		Septic tank and absorption fields		Sewage Lagoons		Sanitary Landfill		Small Commercial Businesses	
	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions
6726 Thurman	2	5	2	5	2	5,10,11	2	5,11	2	5,11	2	5
6727 Thurman	0	-	0	-	2	10,11	2	5,11	2	11	2	5
2814 Uly	0	-	0	-	1	4	1	11	1	12	0	-
2815 Uly	0	-	0	-	1	4	1	11	1	12	0	-
2816 Uly	0	-	0	-	1	4	1	5,11	1	12	0	-
2817 Uly	0	-	0	-	1	4	1	5,11	1	12	1	5,8
2818 Uly	0	-	0	-	1	4	1	5,11	1	12	1	5,8
2823 Uly	1	5,8	1	5,8	1	4,5	2	1,2,5,11	1	5,12	2	1,2,5,8
2824 Uly	2	5	2	5	2	5	2	1,2,5,11	2	5,12	2	5

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

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.

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 Hamilton 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

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

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.

Legend for Table 8.1

Suitability	Conditions
0 = Not Limited	1= Flooding
1 = Somewhat Limited	2 = Depth to saturated zone
2 = Very Limited	3 = Poor filter
	4 = Slow water movement
	5 = Slope
	6 = Depth to Rock
	7 = Seepage
	8 = Shrink-swell
	9 = Ponding
	10 = Filtering Capacity
	11 = Seepage
	12 = Dusty

- Shrink-swell

Septic Tank and Absorption Fields

Figure 8.11 shows the soil suitability conditions for placement of a septic tank and absorption field in Hamilton County. Table 8.1 provides the suitability by soil types and the specific conditions impacting the soil.

Very Limited Conditions

Based upon the Table 8.1, there are seven conditions impacting the use of septic tanks and absorption fields in Hamilton County. The major conditions impacting the soils are:

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

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
- Slow water movement
- Slope

Sewage Lagoons

Figure 8.12 shows the soil suitability conditions for placement of Sewage Lagoons in Hamilton County. Table 8.1 provides the suitability by soil types and the specific conditions impacting the soil.

Very Limited Conditions

Based on Table 8.1, there are five conditions impacting the use of sewage lagoons in Hamilton County. The major conditions impacting the soils are:

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

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

Sanitary Landfills

Figure 8.13 shows the soil suitability conditions for placement of sanitary landfills in Hamilton County. Table 8.1 provides the suitability by soil types and the specific conditions impacting the soil.

Very Limited Conditions

Based on Table 8.1, there are five conditions impacting the use of sanitary landfills in Hamilton County. The major conditions impacting the soils are:

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

- Flooding
- Slope
- Dusty

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

Small Commercial Businesses

Figure 8.14 shows the soil suitability conditions for placement of small commercial businesses in Hamilton County. Table 8.1 provides the suitability by soil types and the specific conditions impacting the soil.

Very Limited Conditions

Based on Table 8.1, there are five conditions impacting the use of small commercial buildings in Hamilton County. The major conditions impacting the soils are:

- Flooding
- Depth to saturated zone
- Slope
- Shrink-swell
- Ponding

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:

- Slope
- Shrink-swell

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 Hamilton 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 8.15 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 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 299,000 acres, or nearly 86 percent, of Hamilton 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 8.2: 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 8.16 shows the percent slope for Hamilton County. Based upon the map, the only areas with steep slopes is on the northern edge near the Platte River and is the southern part of the county near Stockham. There are small pockets of steep slopes scattered throughout the county.

Based upon Table 8.1 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. However, it is important to involve an engineer, geologist, or soil scientist in the issue in order to make the correct modifications.

FIGURE 8.9: SOIL SUITABILITY MAP - DWELLINGS WITHOUT BASEMENT

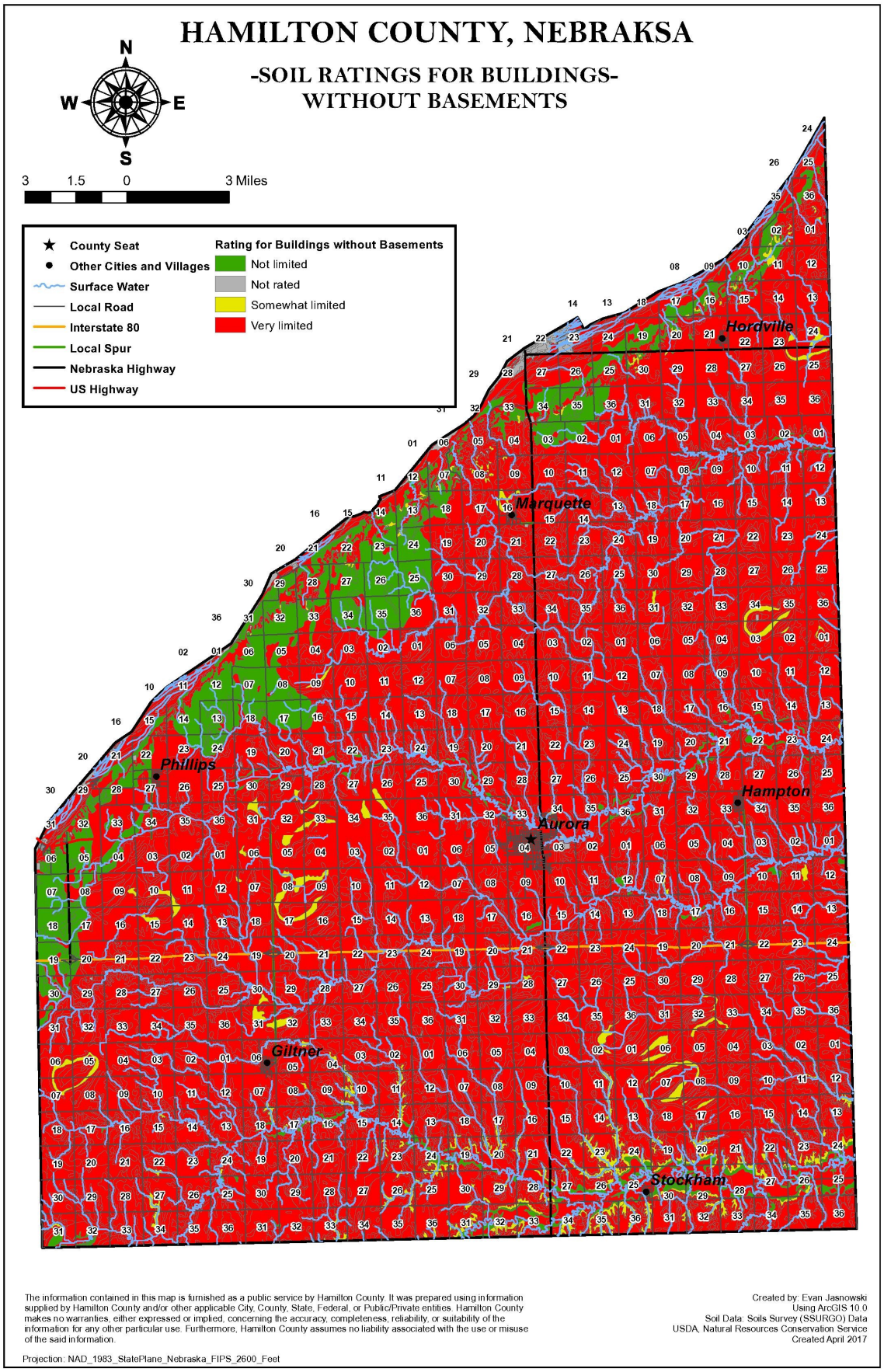


FIGURE 8.10: SOIL SUITABILITY MAP - DWELLINGS WITH BASEMENT

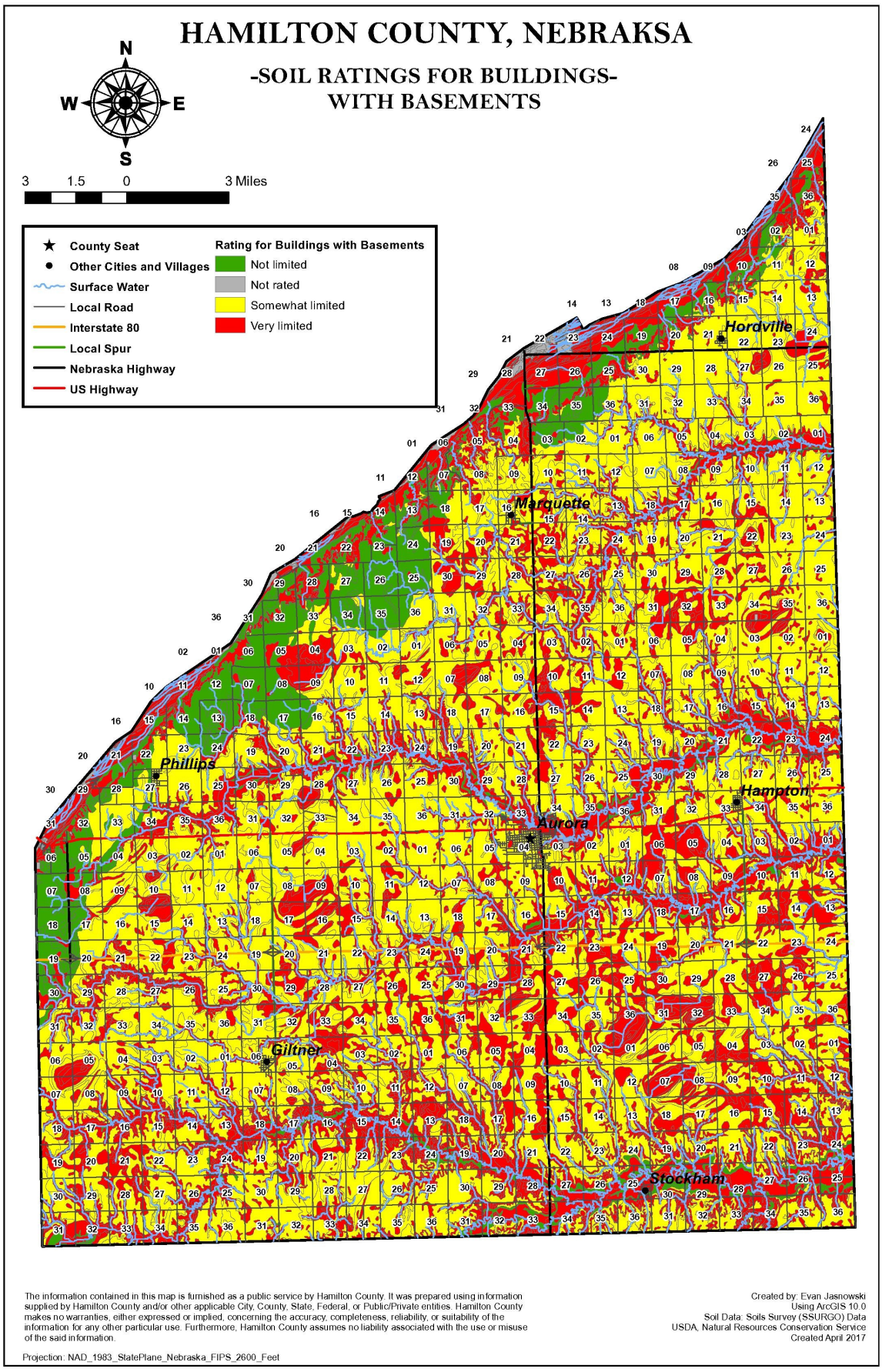


FIGURE 8.11: SOIL SUITABILITY MAP - SEPTIC TANK ABSORPTION FIELDS

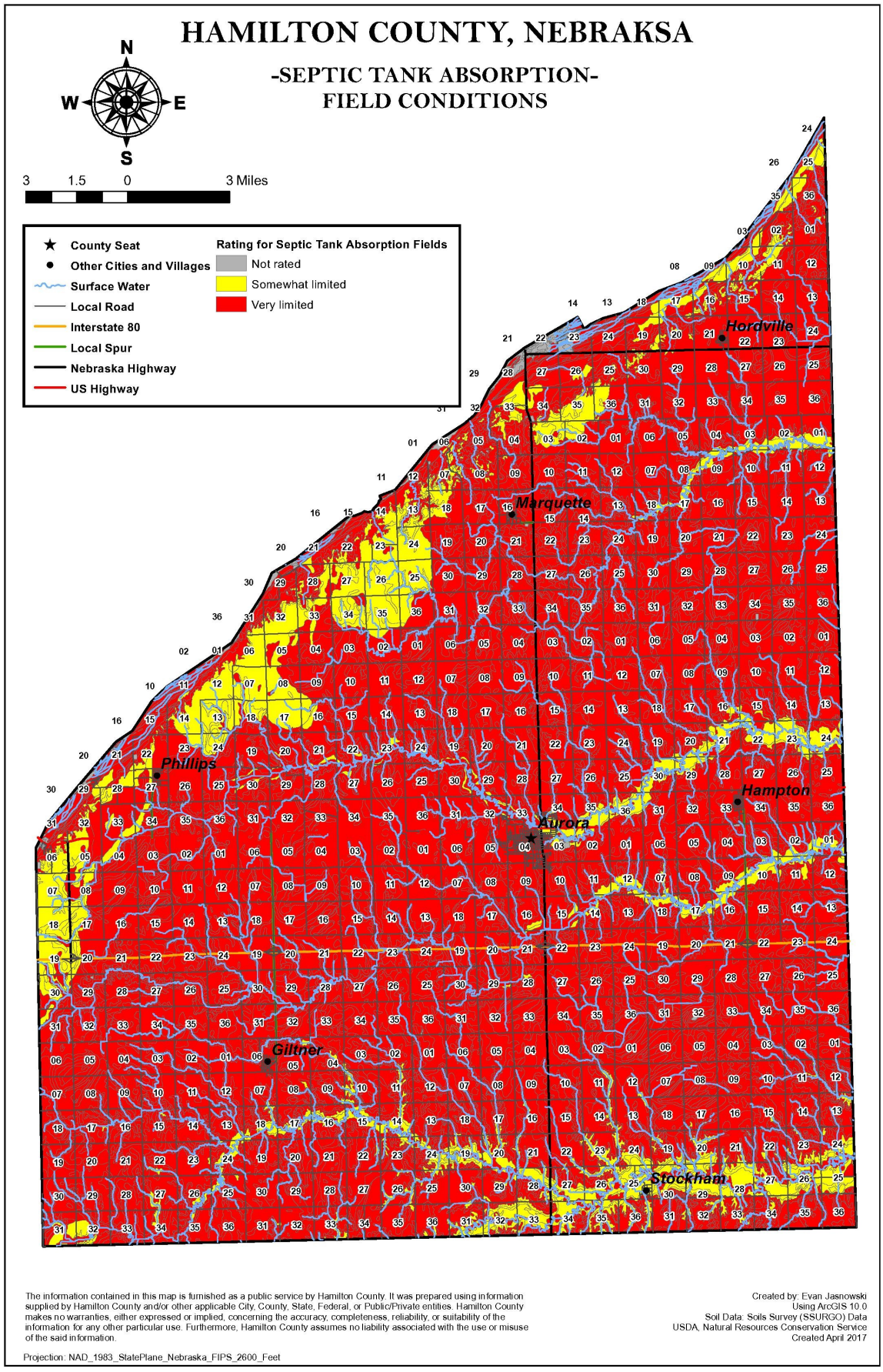


FIGURE 8.12: SOIL SUITABILITY MAP - SEWAGE LAGOONS ABSORPTION FIELDS

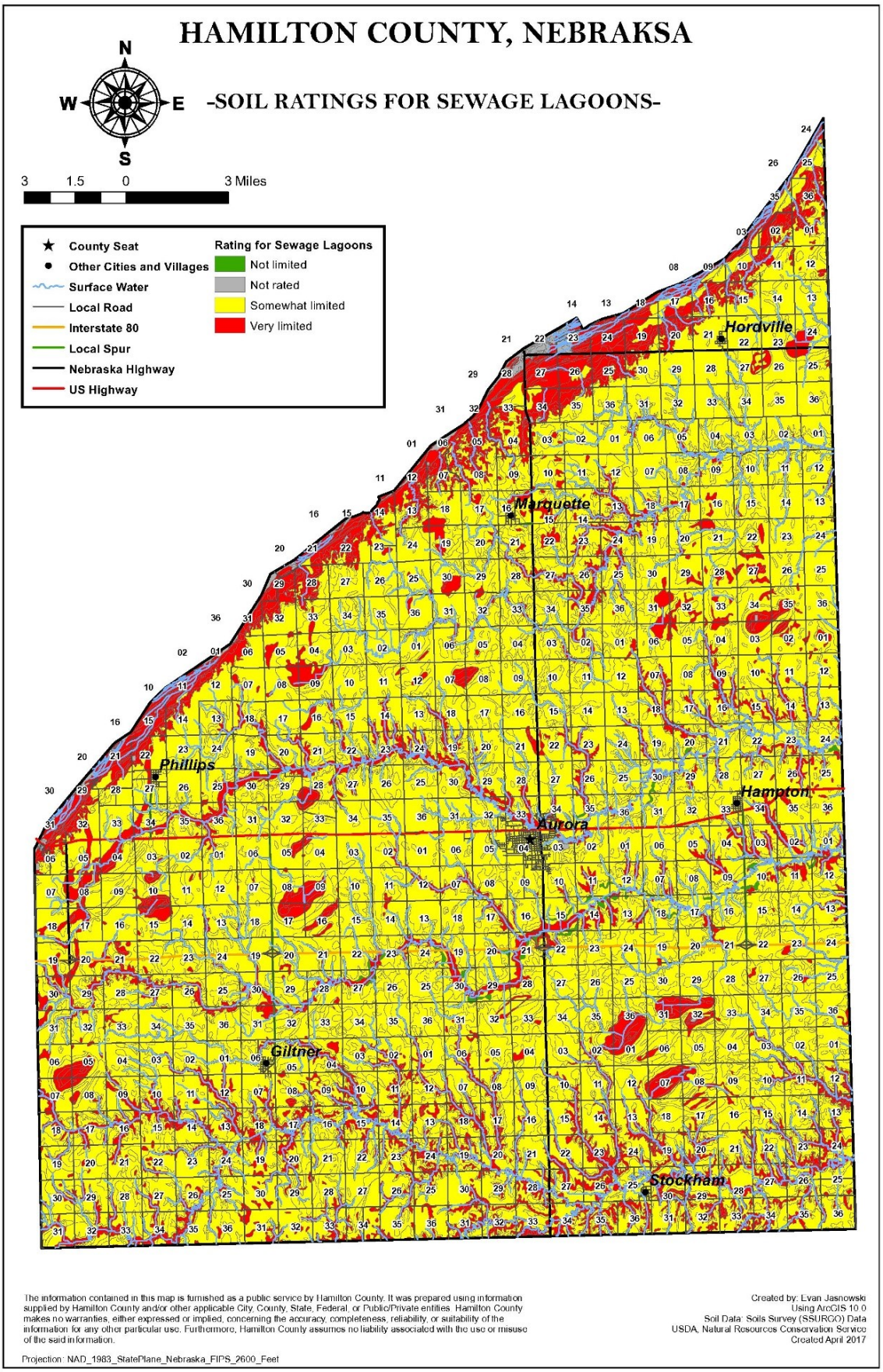


FIGURE 8.13: SOIL SUITABILITY MAP - SANITARY LANDFILLS

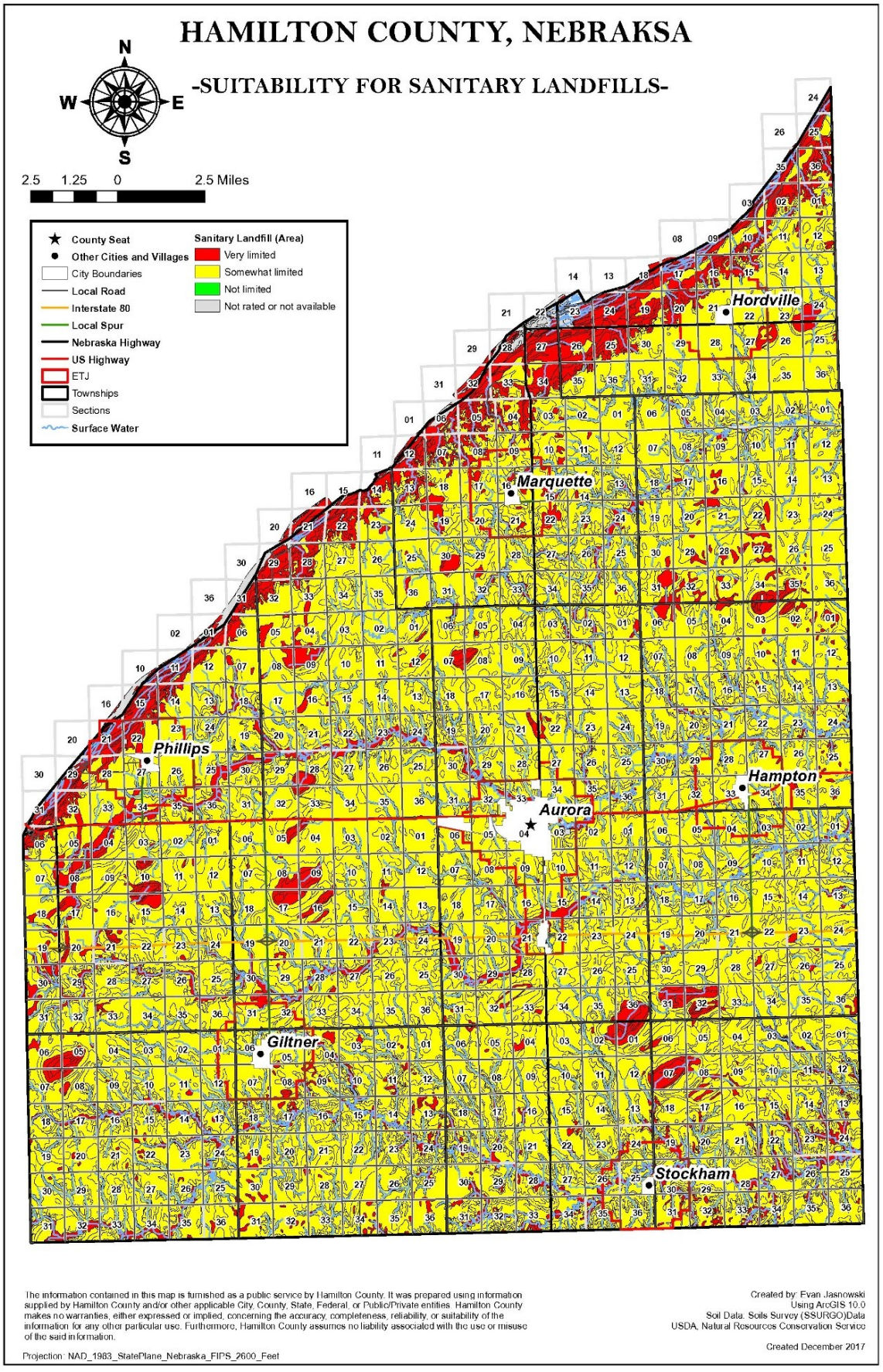


FIGURE 8.14: SOIL SUITABILITY MAP - SMALL COMMERCIAL BUSINESSES

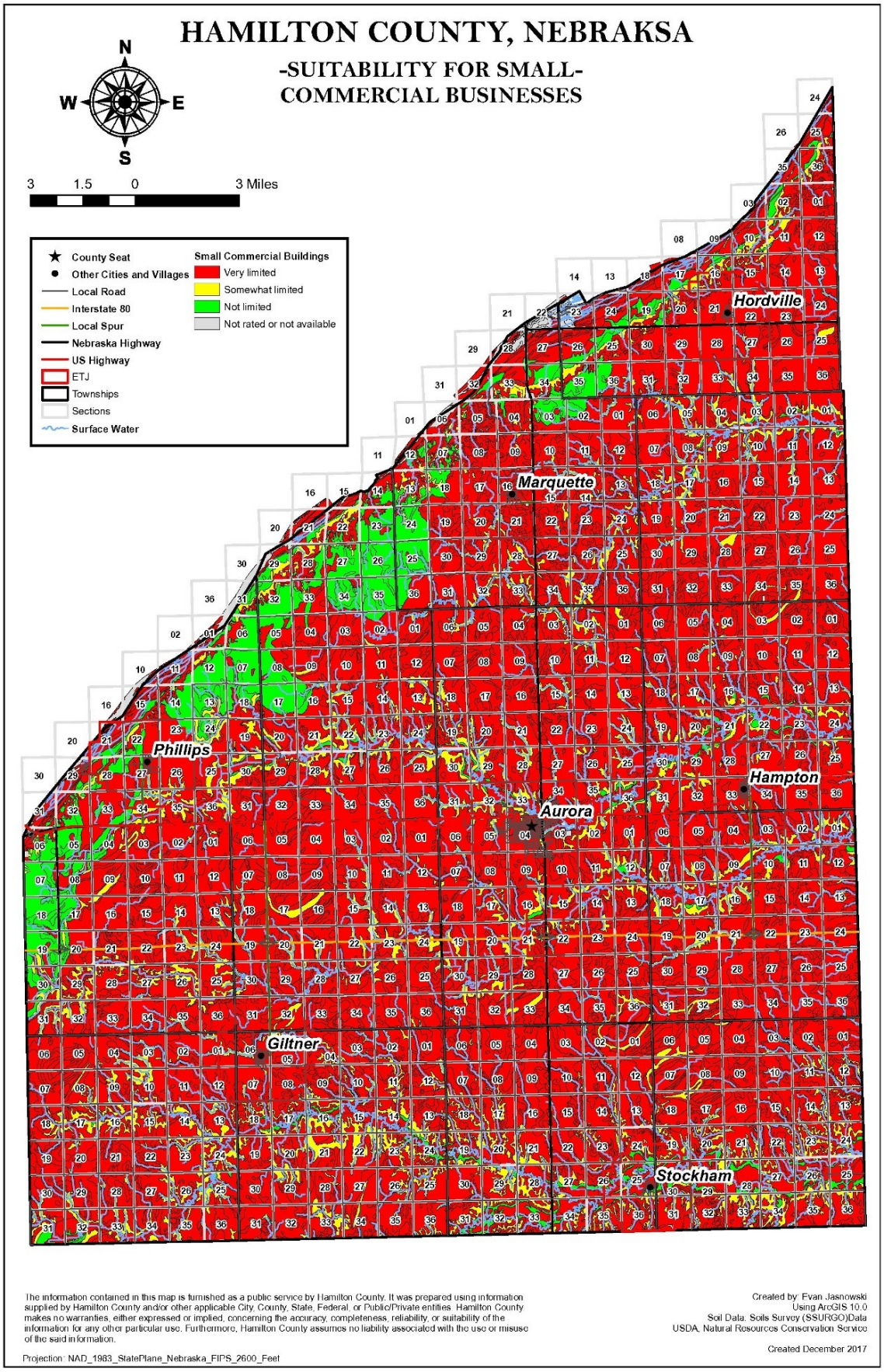


FIGURE 8.15 PRIME FARMLAND

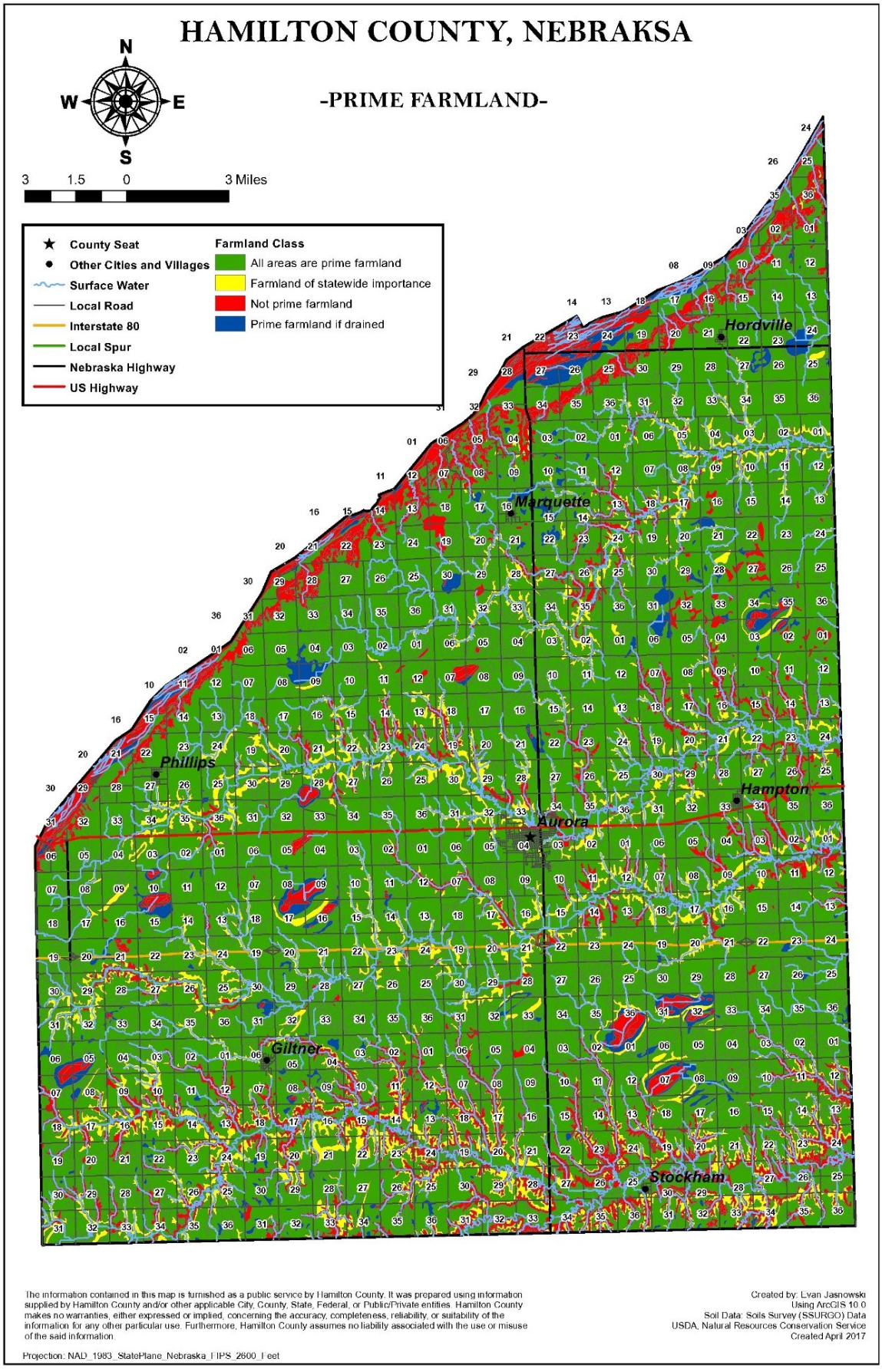


FIGURE 8.16 SLOPES

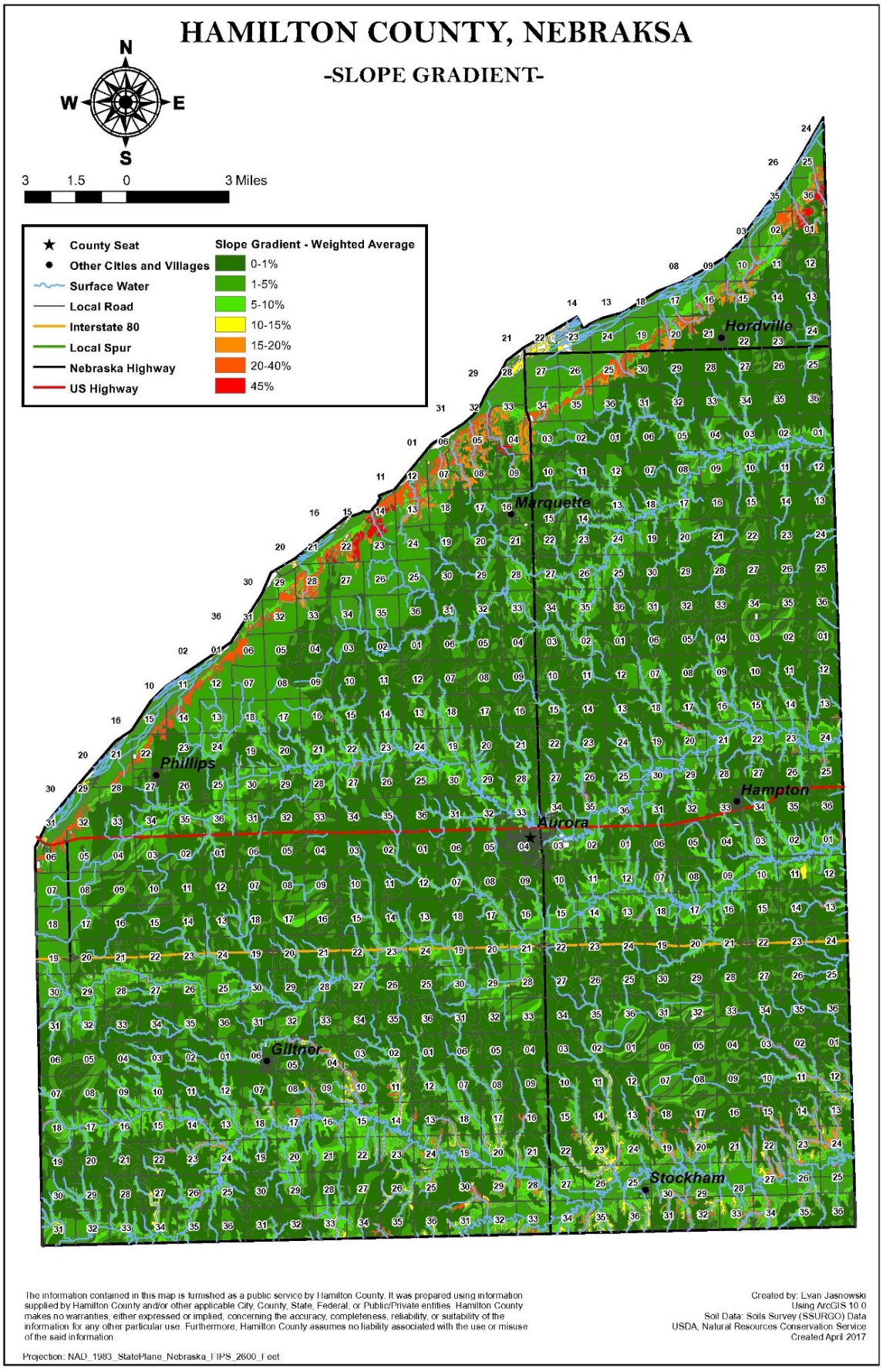


TABLE 8.3: PERMEABILITY/SHRINK-SWELL BY SOIL TYPE

Soil Symbol/Soil Name	Depth (inches)	Permeability (inches/hour)	Shrink-Swell potential
8403 Alda	0-11 **11-22** **22-38** **38-80**	0.6-2.0 **2.0-6.0** **6.0-20** **20-100**	Low Low Low Low Low
8405 Alda	**0-12** **12-25** **25-60**	**2.0-6.0** **2.0-6.0** **20-100**	Low Low Low
6312 Barney	0-9 **9-18** **18-60**	0.6-2.0 **2-20** **20-100**	Low Low Low
3820 Butler	0-9 9-13 13-34 34-41 41-79	0.6-2.0 0.6-2.0 0.06-0.2 0.2-0.6 0.6-2.0	Moderate Low **Very High** **High** Moderate
3824 Crete	0-6 6-15 15-25 25-33 33-40 40-79	0.6-2.0 0.2-0.6 0.06-0.2 0.06-0.2 0.2-0.6 0.6-2.0	Low Moderate **Very High** Moderate **High** Moderate
2533 Coly	0-4 4-79	0.6-2.0 0.6-2.0	Moderate Low
2536 Coly	0-2 2-80	0.6-2.0 0.6-2.0	Low Low
2538 Coly	0-5 5-80	0.6-2.0 0.6-2.0	Low Low
3715 Cozad	0-13 13-80	0.6-2.0 0.6-2.0	Low Low
8446 Cozad	0-10 10-15 15-80	0.6-2.0 0.6-2.0 0.6-2.0	Low Low Low
8816 Cozad	0-12 12-80	0.6-2.0 0.6-2.0	Low Low
3720 Detroit	0-6 6-16 16-21 21-37 37-53 53-79	0.6-2.0 0.2-0.6 0.06-0.2 0.06-0.2 0.2-0.6 0.6-2.0	Moderate Moderate **High** **High** **High** Moderate
3726 Detroit	0-6 6-16 16-21 21-37 37-53 53-79	0.6-2.0 0.2-0.6 0.06-0.2 0.06-0.2 0.2-0.6 0.6-2.0	Moderate Moderate **High** **High** **High** Moderate
3727 Detroit	0-6 6-16 16-21 21-37 37-53 53-79	0.6-2.0 0.2-0.6 0.06-0.2 0.06-0.2 0.2-0.6 0.6-2.0	Moderate Moderate **High** **High** **High** Moderate
3952 Fillmore	0-9 9-14 14-39 39-49 49-79	0.6-2.0 0.6-2.0 0.001-0.06 0.2-0.6 0.2-0.6	Moderate Low **Very High** **High** **High**
3953 Fillmore	0-12 12-40 40-52 52-60	0.2-0.6 0.001-0.06 0.2-0.6 0.06-2.0	Low **High** **High** Moderate
8458 Fonner	**0-6** **6-19** **19-80**	**6-20** **6-20** **20-100**	Low Low Low
3835 Geary	0-7 7-11 11-24 24-32 32-38 38-79	0.6-2.0 0.6-2.0 0.2-0.6 0.6-2.0 0.6-2.0 0.6-2.0	Moderate Moderate Moderate Moderate Moderate Moderate
3837 Geary	0-6 6-17 17-25 25-32 32-79	0.6-2.0 0.2-0.6 0.6-2.0 0.6-2.0 0.6-2.0	Moderate Moderate Moderate Moderate Moderate
3840 Geary	0-6 6-22 22-33 33-38 38-79	0.6-2.0 0.2-0.6 0.6-2.0 0.6-2.0 0.6-2.0	Moderate Moderate Moderate Moderate Moderate
8491 Gothenburg	0-4 **4-5** **5-80**	0.6-2.0 **20-100** **20-100**	Low Low Low
8493 Gothenburg	**0-3** **3-9** **9-80**	**2.0-6.0** **6.0-20** **20-100**	Low Low Low
8495 Gothenburg	**0-3** **3-60**	**6.0-20** **20-100**	Low Low
3864 Hastings	0-6 6-13 13-17 17-32 32-39 39-79	0.6-2.0 0.2-0.6 0.2-0.6 0.2-0.6 0.2-0.6 0.6-2.0	Moderate Moderate **High** **High** Moderate Moderate
3866 Hastings	0-6 6-11 11-14 14-31 31-38 38-79	0.6-2.0 0.2-0.6 0.2-0.6 0.2-0.6 0.2-0.6 0.6-2.0	Moderate Moderate **High** **High** Moderate Moderate
3870 Hastings	0-8 8-14 14-32 32-38 38-79	0.2-0.6 0.2-0.6 0.2-0.6 0.2-0.6 0.6-2.0	Moderate **High** **High** Moderate Moderate
3962 Hastings	0-8 8-14 14-32 32-38 38-79	0.2-0.6 0.2-0.6 0.2-0.6 0.2-0.6 0.6-2.0	Moderate **High** **High** Moderate Moderate
3545 Hobbs	0-6 6-79	0.6-2.0 0.6-2.0	Moderate Moderate
3553 Hobbs	0-6 6-79	0.6-2.0 0.6-2.0	Moderate Moderate
3561 Hobbs	0-6 6-79	0.6-2.0 0.6-2.0	Moderate Moderate
3755 Hord	0-14 14-42 42-80	0.6-2.0 0.6-2.0 0.6-2.0	Low Low Low
8866 Hord	0-20 20-36 36-79	0.6-2.0 0.6-2.0 0.6-2.0	Moderate Moderate Low

TABLE 8.3: PERMEABILITY/SHRINK-SWELL BY SOIL TYPE

Soil Symbol/Soil Name	Depth (inches)	Permeability (inches/hour)	Shrink-Swell potential
8870 Hord	0-20 20-36 36-79	0.6-2.0 0.6-2.0 0.6-2.0	Moderate Moderate Moderate
8872 Hord	0-5 5-19 19-80	0.6-2.0 0.6-2.0 0.6-2.0	Low Low Low
2333 Inavale	**0-7** **7-42** **42-80**	**6.0-20** **6.0-20** **6.0-20**	Low Low Low
3730 Massie	0-4 4-18 18-27 27-80	0.6-2.0 0.001-0.06 0.2-0.6 0.6-2.0	Low **High** Moderate Low
6578 Ortello	**0-12** **12-40** **40-80**	**2.0-6.0** **2.0-6.0** **2.0-6.0**	Low Low Low
6843 Ortello	**0-10** **10-34** **34-80**	**2.0-6.0** **2.0-6.0** **2.0-6.0**	Low Low Low
6852 Ortello	0-5 5-22 22-60 60-80	0.6-2.0 0.2-0.6 0.2-0.6 0.6-2.0	Low Low Low Low
6853 Ortello	0-18 **18-50** 50-80	0.6-2.0 **2.0-6.0** 0.6-2.0	Low Low Low
6857 Ortello	**0-8** **8-14** **14-19** **19-24** **24-29** **29-35** 35-43 43-79	**2.0-6.0** **2.0-6.0** **2.0-6.0** **2.0-6.0** **2.0-6.0** **2.0-6.0** 0.6-2.0 0.6-2.0	Low Low Low Low Low Low Low Low
3910 Scott	0-5 5-7 7-38 **38-48** 48-79	0.6-2.0 0.6-2.0 0.001-0.06 **12-16** 0.2-0.6	Moderate Moderate **Very High** Moderate Moderate
3913 Scott	0-4 4-37 37-80	0.2-0.6 0.001-0.06 0.2-0.6	Moderate **High** Moderate
6726 Thurman	**0-16** **16-80**	**2.0-6.0** **6.0-20**	Low Low
6727 Thurman	**0-15** **15-80**	**2.0-6.0** **6.0-20**	Low Low
2814 Uly	0-9 9-25 25-79	0.6-2.0 0.6-2.0 0.6-2.0	Moderate Moderate Low
2815 Uly	0-8 8-15 15-80	0.6-2.0 0.6-2.0 0.6-2.0	Low Low Low
2816 Uly	0-5 5-10 10-79	0.6-2.0 0.6-2.0 0.6-2.0	Low Low Low
2817 Uly	0-9 9-25 25-79	0.6-2.0 0.6-2.0 0.6-2.0	Moderate Moderate Low
2818 Uly	0-5 5-16 16-42 42-79	0.6-2.0 0.6-2.0 0.6-2.0 0.6-2.0	Low Low Low Low
2823 Uly	0-9 9-25 25-79	0.6-2.0 0.6-2.0 0.6-2.0	Moderate Moderate Low
2824 Uly	0-4 4-30 30-80	0.6-2.0 0.6-2.0 0.6-2.0	Low Low Low

Permeability

Permeability is defined in the Hamilton 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 8.3 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 Hamilton County that can see a permeability of twenty inches per hour or more.

There are a number of specific uses not compatible for soils rated as Moderately rapid or worse. 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.

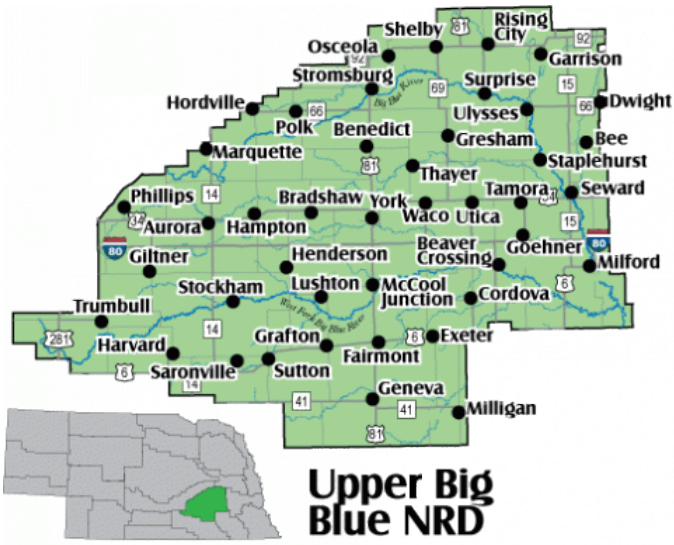
Water Impact on Hamilton County

Water, along with the soils are the two most restricting environmental conditions faced by Hamilton 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 Hamilton 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 Platte River or Missouri 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.

Hamilton County lies in the Upper Big Blue watershed, these are defined and drainage areas controlled by the respective Natural Resource District. The primary Natural Resource District is the Upper Big Blue NRD; the second and smaller district is the Central Platte NRD which is restricted along the Platte River corridor.

Figure 8.17: Upper Big Blue Watershed and the Natural Resource District



Source: https://www.nrdnet.org/nrds/upper-big-blue-nrd

Hydric Soils

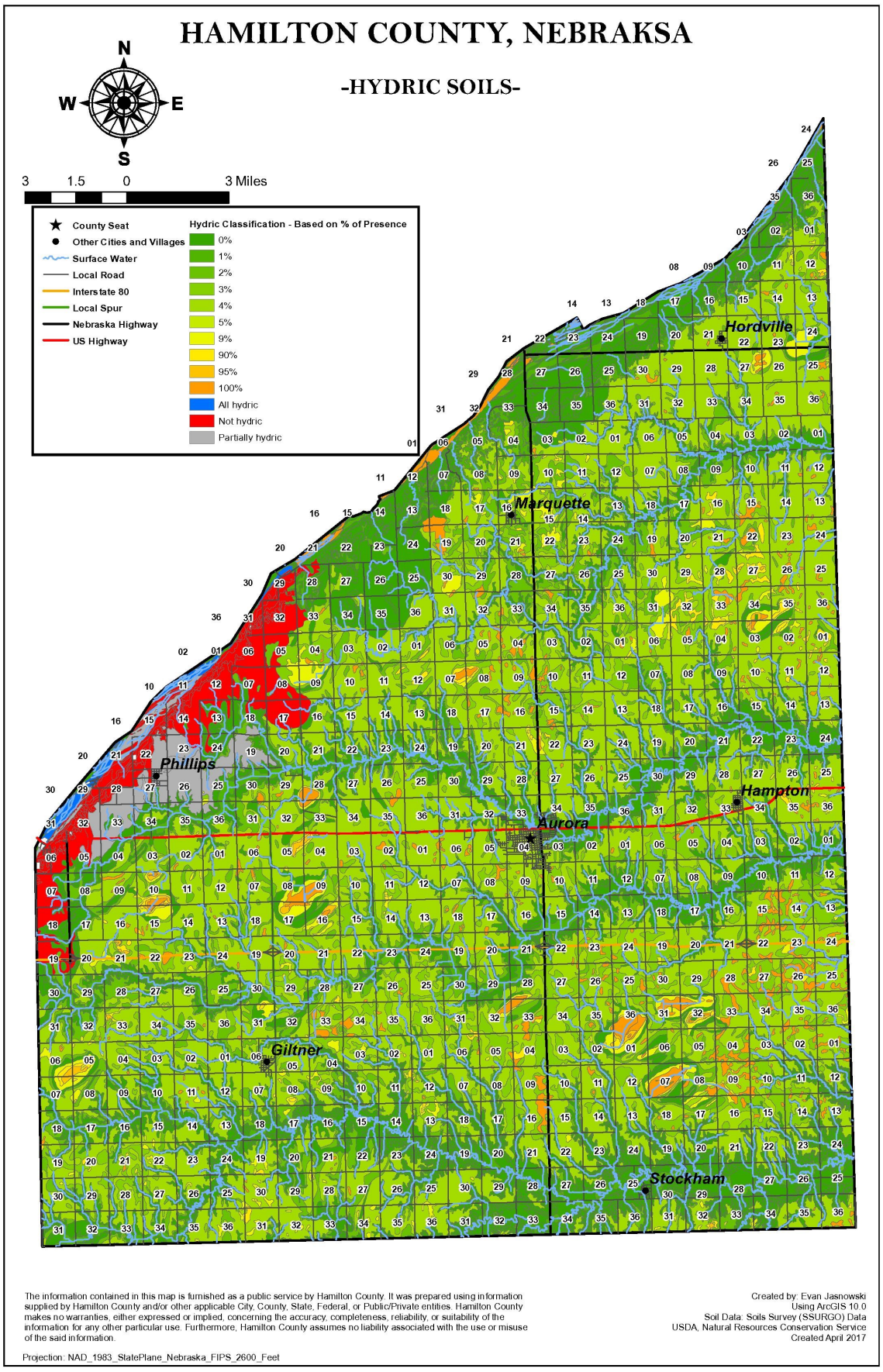
Hydric soils are formed under conditions of saturation, flooding, or ponding. The process has to occur long enough during the growing season to develop anaerobic conditions in the upper part. Hydric soils along with hydrophytic vegetation and wetland hydrology are used to define wetlands. (USDA/NRCS,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

Figure 8.18 indicates where the hydric soils are located in Hamilton County. The soils are classified as the following:

- All Hydric;
- Not Hydric; and
- Partially Hydric, including a percent hydric.

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

FIGURE 8.18: HYDRIC SOILS



Groundwater/Water Table Elevations

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 Hamilton 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 Hamilton County is in three forms; domestic and livestock supply, public water supplies, and irrigation. Each use is important to the overall viability of Hamilton 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 Hamilton County, all of the incorporated communities, except Stockham, have a publicly owned water supply system.

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 Environmental Quality. 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 a 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 Environmental Quality's Wellhead Protection Program "...is to protect the land and groundwater surrounding public drinking water supply wells from Contamination". Within the NDEQ'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 NDEQ 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 8.19 shows the documented wellhead protection areas impacting Hamilton 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 Hamilton County have been a long standing practice. This process has become increasingly important to the production of crops within Hamilton 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.

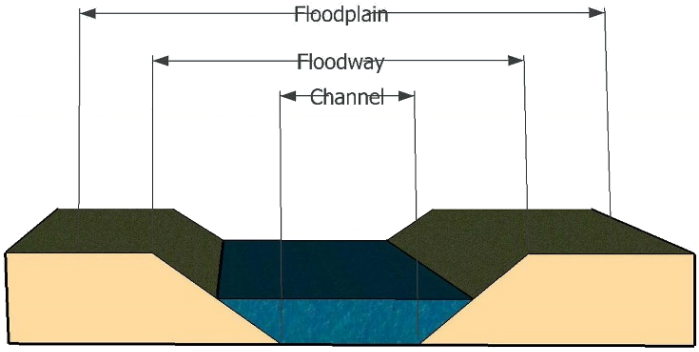
The use of irrigation is critical during the growing and finishing periods of the crop lifecycle. The demand for irrigation can have major impacts on the draw down of the aquifer and the aquifers ability to recharge itself in an appropriate time period.
Irrigation in Hamilton County does have some limitations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

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 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 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

Photograph 8.2
A home north of Quincy, Illinois within the 100- year floodplain - river is between 1 and 2-miles away

Photograph 8.3
Same house during the 2008 Mississippi River floods

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

FIGURE 8.19: WELLHEAD PROTECTION AREAS

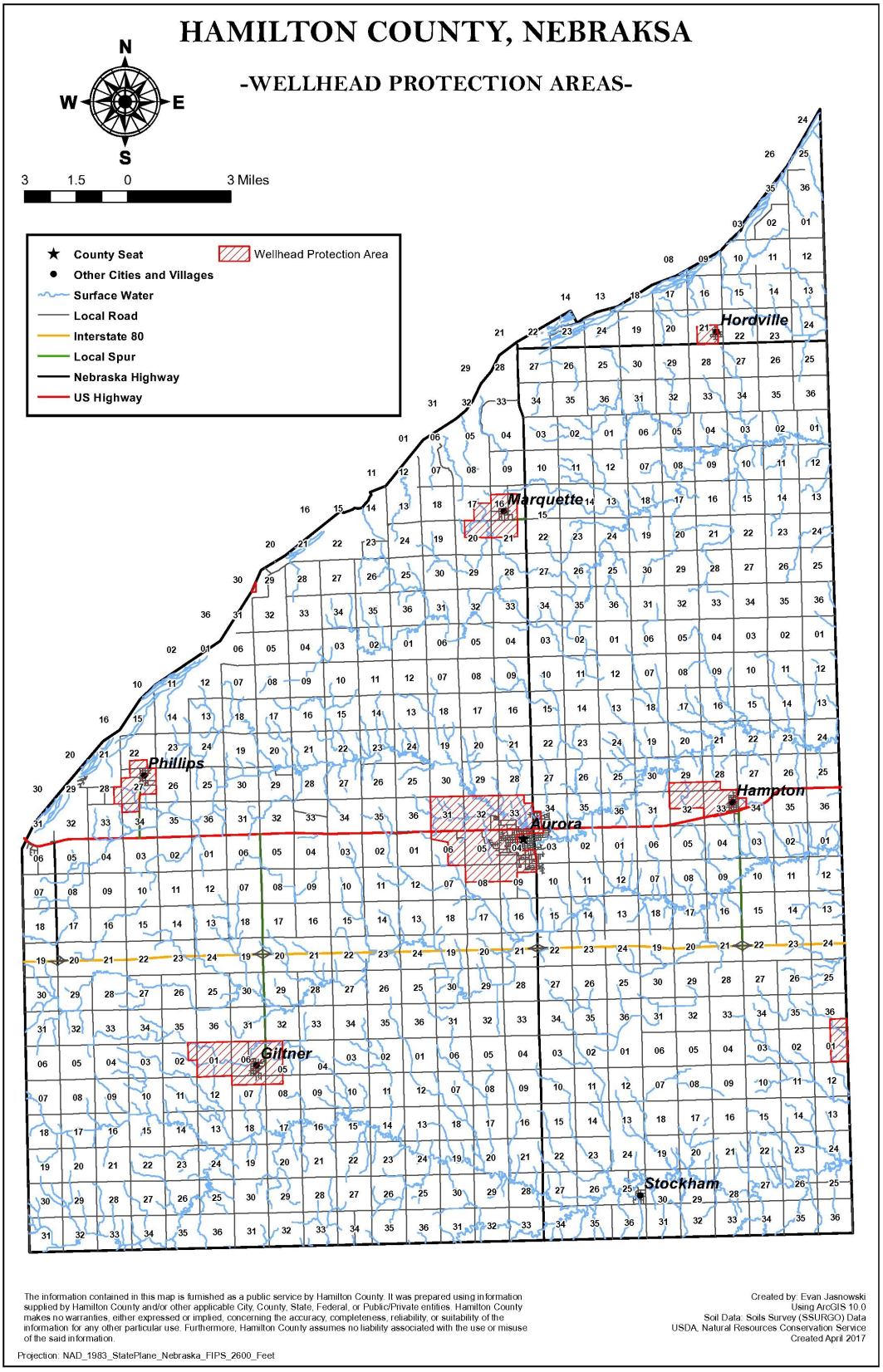
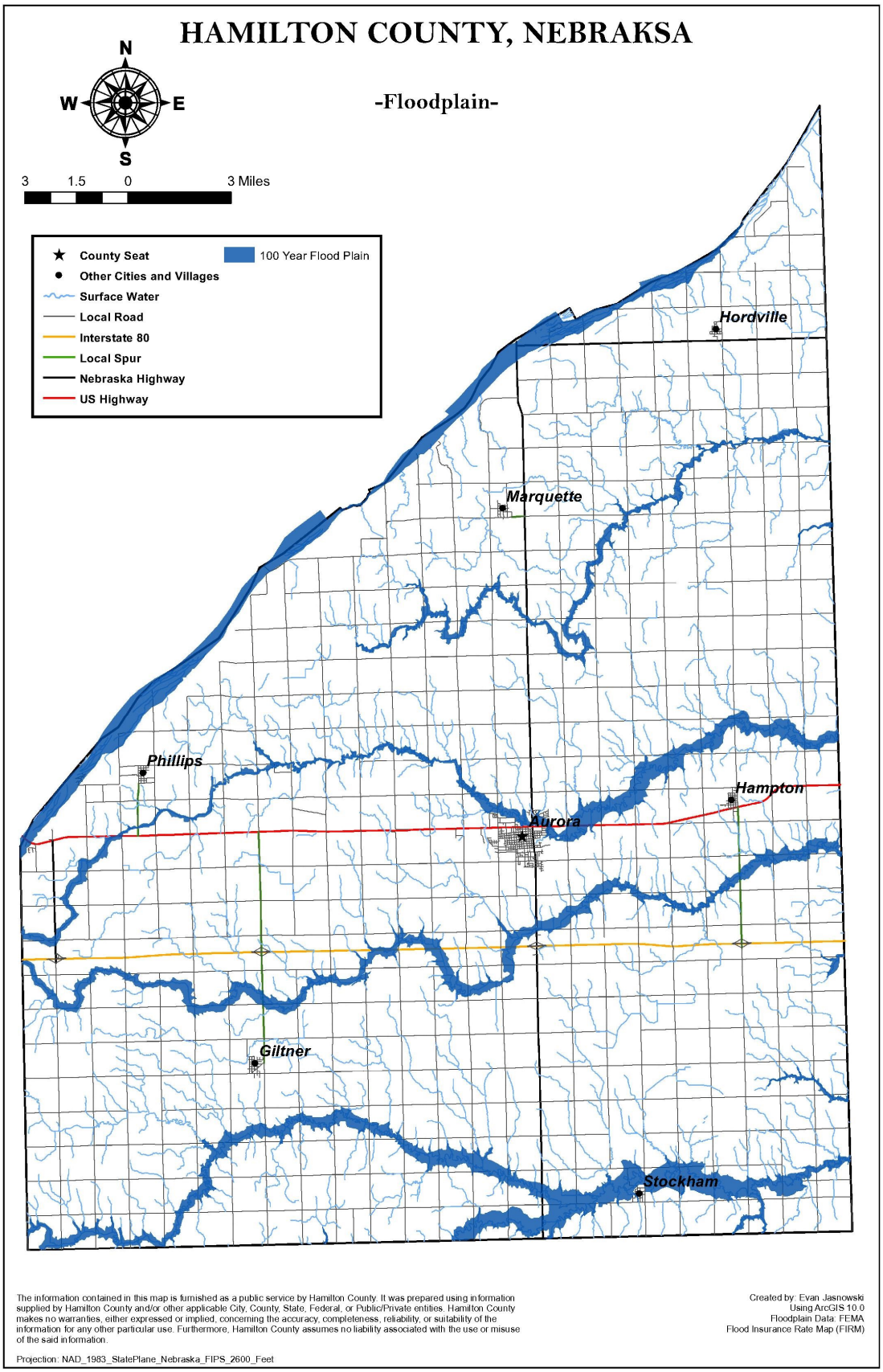


FIGURE 8.20 FLOODPLAIN AND FLOODWAY MAP



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 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.

Additionally, in 2011, the state of Nebraska and Iowa saw similar destruction when the Missouri River flooded. That flooding destroyed large sections of Interstates 680 and twenty-nine in Iowa, which were laying flat on the ground. In themed 2000's, Cedar Rapids. Iowa saw numerous structures swept off their foundations and sent downstream creating huge losses and large amounts of recovery dollars to be spent.

Natural Resources/Environment Goals and Policies

Soils

Soil Goal 1

Hamilton 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 Hamilton County should discourage land use development within the floodplains of the county.

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

W-1.6 Hamilton 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 Hamilton 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 Hamilton 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.

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Chapter 9 Land Use

Introduction

The purpose of the Hamilton County Land Use Chapter is to provide a general guide to land use which directs future uses and zoning criteria. The resulting land uses are intended to be a guide without creating multiple incompatibilities with what currently exists within Hamilton 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.

The Hamilton 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.

Hamilton County Land Use Elements

The elements of the Hamilton County Land Use Chapter include:

- Existing Land Use, and
- Future Land Use Plan

Both 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 Hamilton County have been influenced by topography, water, soils and manmade features such as four Nebraska highways, one U.S. Highway and several 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 that provide 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. Hamilton 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 Hamilton 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 Hamilton 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 Hamilton County has a variety of different environmentally sensitive landscapes. The county is a variety of environments including:

- Platte River valley
- Cropland
- Rolling hills

County Land Use Management Policy (CLUMP)

Purpose of CLUMP

The purpose of the CLUMP system is to develop a broad policy acknowledging existing land use patterns, existing and future market demands, and manages these factors in relation to one another. CLUMP establishes a long-range management policy providing guidance for future development.

CLUMP Process

This specific CLUMP was devised to identify and examine existing development trends within Hamilton County. The CLUMP process includes a review of two critical elements of the existing land use fabric within the County; which are:

- Existing Land Use patterns and locations (see Figure 9.1), and
- Areas where development will likely move towards during the planning period.

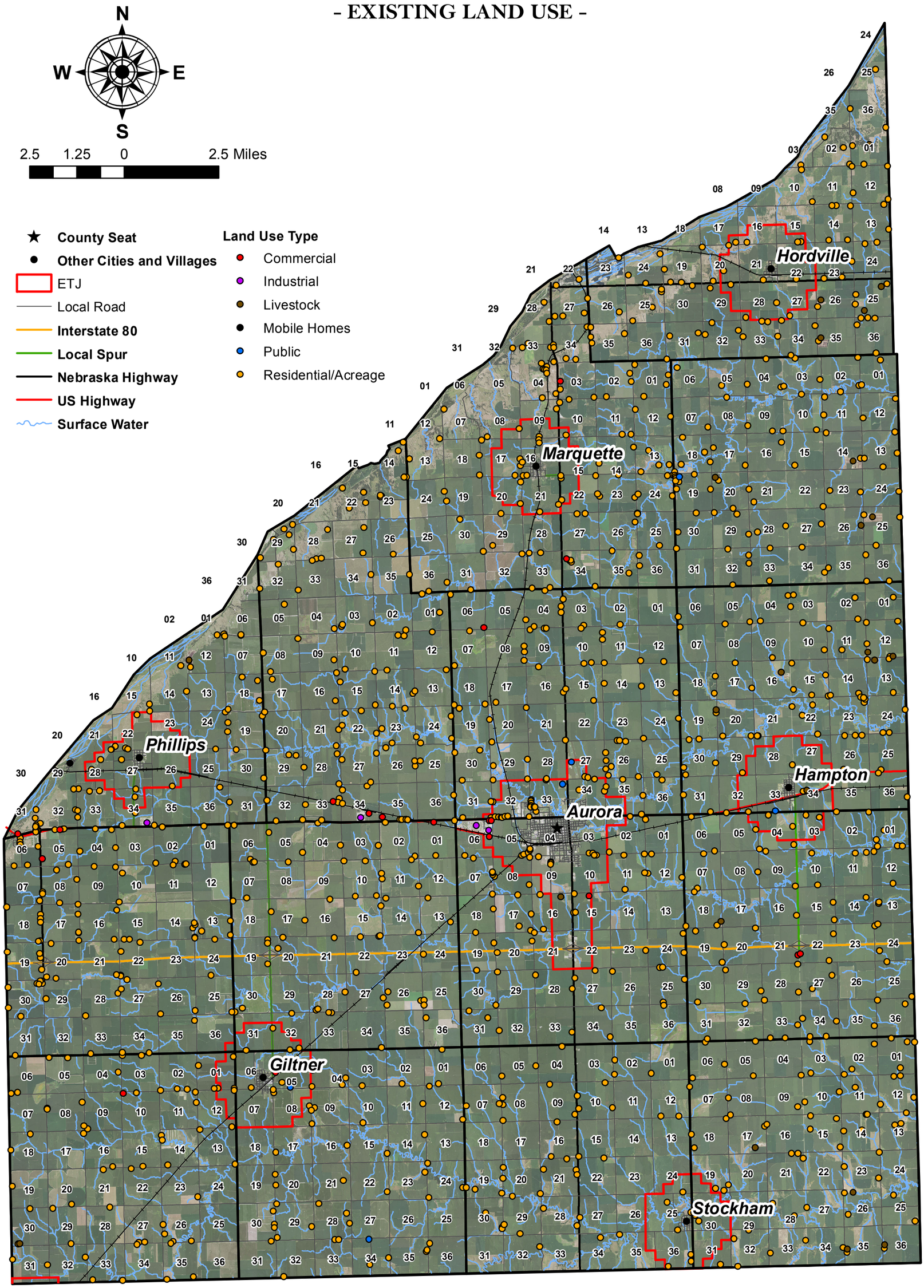
CLUMP balances the demand for urban and non-urban development with the preservation and conservation of agriculture and the fiscal responsibilities to provide services either at the County or the municipal level. CLUMP utilizes principles found within the "Smart Growth" movement. According to the Urban Land Institute's publication Smart Growth: Myth or Fact, a major myth is "Smart growth is a code word for no growth". However, as the ULI points out, a major fact is "Smart growth recognizes that growth and development are both inevitable and beneficial".

"The goal of smart growth is not "no growth" or even slow growth. Rather, the goal is sensible growth that balances our need for jobs and economic development with our desire to save our natural environment"

-Parris Glendening,
former Governor State of Maryland

HAMILTON COUNTY, NEBRASKA

- EXISTING LAND USE -



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Soil Data: Soils Survey (SSURGO)Data
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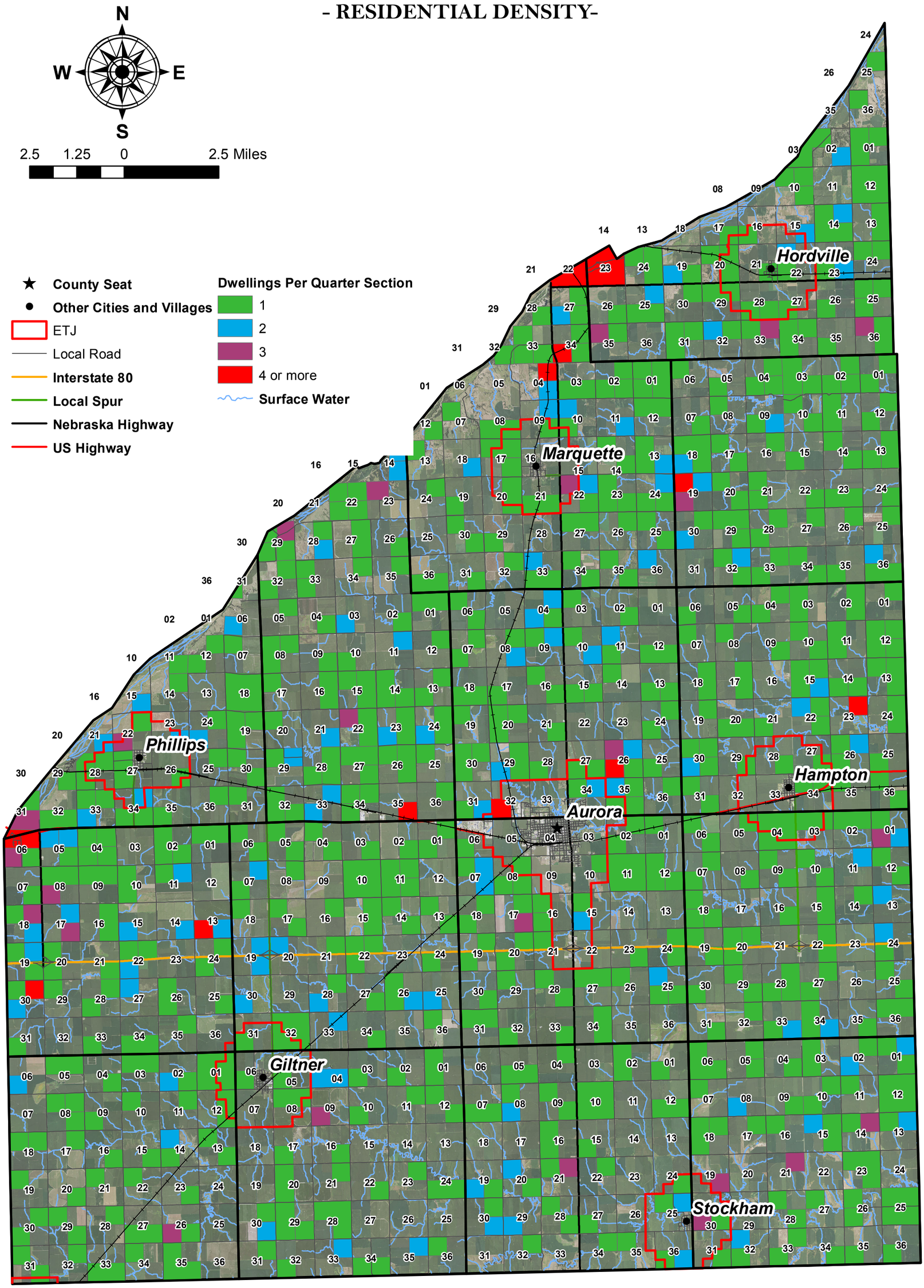
HAMILTON COUNTY, NEBRASKA

- RESIDENTIAL DENSITY-



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Created August 2018

The development of CLUMP was premised on the belief that development pressures and demands exist and the best approach is to acknowledge and accommodate these pressures through diligent planning. However, these pressures must be managed and channeled to areas in the process of developing, or areas that can accommodate this development over the long term.

The CLUMP Concept

The CLUMP concept centers on three policy areas. These areas are:

- Agricultural
- Transitional,
- Urban Reserve

These three policy areas are indicated on Figure 9.2 of this document. These areas generally identify different levels of development based upon proximity to existing urban centers or smaller developments; proximity to major transportation routes; existing land use densities; and potential land uses to be allowed in the future. The intent is to concentrate each of the different policy considerations into areas based upon these factors.

Intense development (major commercial centers, densely populated subdivisions, etc.) should be encouraged to locate within or adjacent to the existing communities of Hamilton County. Ultimately, the CLUMP concept is to control growth and development within the unincorporated areas of Hamilton County using a well-considered management approach.

Policy Areas

Agriculture Policy Area

The Agriculture policy area is intended to accommodate the following policies:

- The preservation of agricultural uses,
- Low density residential development, primarily farmsteads and residences connected to an existing farming operation.

The Agriculture policy area covers the majority of Hamilton County.

The proposed land uses for the Agriculture policy areas are:

- General Agriculture,
- Transitional Agriculture,
- Mixture of Agriculture and agri-businesses,
- Public
- Parks / Recreation

When making future land use and zoning decisions, the policy would allow only these use types to be located within an Agriculture policy area. These areas have been identified based upon their lack of development and the ability to preserve the agricultural base of Hamilton County. All future development of this type should be located in the designated areas in order to minimize future sprawl and haphazard development.

Transitional Policy Area

The Transitional Policy Area is intended to accommodate the following policies:

- Higher density development than allowed in the Agricultural areas. Typically, residential acreages,
- Located along major transportation routes within the county,
- Location of higher intensity uses,
- Potential growth areas adjacent to the smaller communities.

The Transitional Policy Areas are generally located throughout Hamilton County. The locations are as follows:

- Along the Platte River
- Along Nebraska Highway 14 north of Interstate 80
- Along western portions of Interstate 80
- Around major exits and overpasses

The proposed land uses for the Transitional policy areas are:

- General Agriculture,
- Transitional Agriculture,
- Lakeside Residential
- Rural Residential
- Mixture of Agriculture and agri-businesses,
- Public, and
- Parks / Recreation

When making future land use and zoning decisions, the policy requires any of these use types to be located within an Transitional policy area. These areas, as well as the area within the extraterritorial jurisdictions of the communities should allow for ample development opportunities while allowing for a controlled growth policy. All future development of this type should be located in the designated areas in order to minimize future sprawl and haphazard development.

Urban Reserve Policy Area

The Urban Reserve policy area is intended to accommodate the following policies:

- More dense development including residential and commercial,
- Residential development could reach densities typically seen in urban areas provided some level of centralized water and sewerage is in the development,
- Major areas along the highways are intended to aid in strengthening the economic base of Hamilton County.

The Urban Reserve policy areas are approximately located:

- Along US Highway 34/Nebraska Highway 2,
- Along portions of US Highway 34 at the Syngenta plant,
- Along Nebraska Highways 14 and 66

The proposed land uses for the Urban Reserve policy areas are:

- Rural Residential,
- Lakeside Residential
- Commercial,
- Commercial/Industrial Flex
- Industrial,
- Transitional Agriculture,
- Agri-businesses,
- Public
- Parks / Recreation.

When making future land use and zoning decisions, the policy requires any of these use types to be located within a Urban Reserve policy area unless a specific land use district overlaps into another policy area. Future development, especially the commercial and industrial uses and rural residential should be designed in ways to minimize impact on surrounding uses (i.e. cluster development, development away from environmentally sensitive conditions). One key factor determining the Urban Reserve locations was based upon the density of existing residential development. Due to the sensitivity of the soils regarding percolation, and flooding hazard and slopes, any land use and zoning changes to the maps must consider the potential impacts on the soils and other natural resources and the impact on adjacent properties. All future development of this type should be located in the designated areas in order to minimize future sprawl and haphazard development.

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 Hamilton 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:

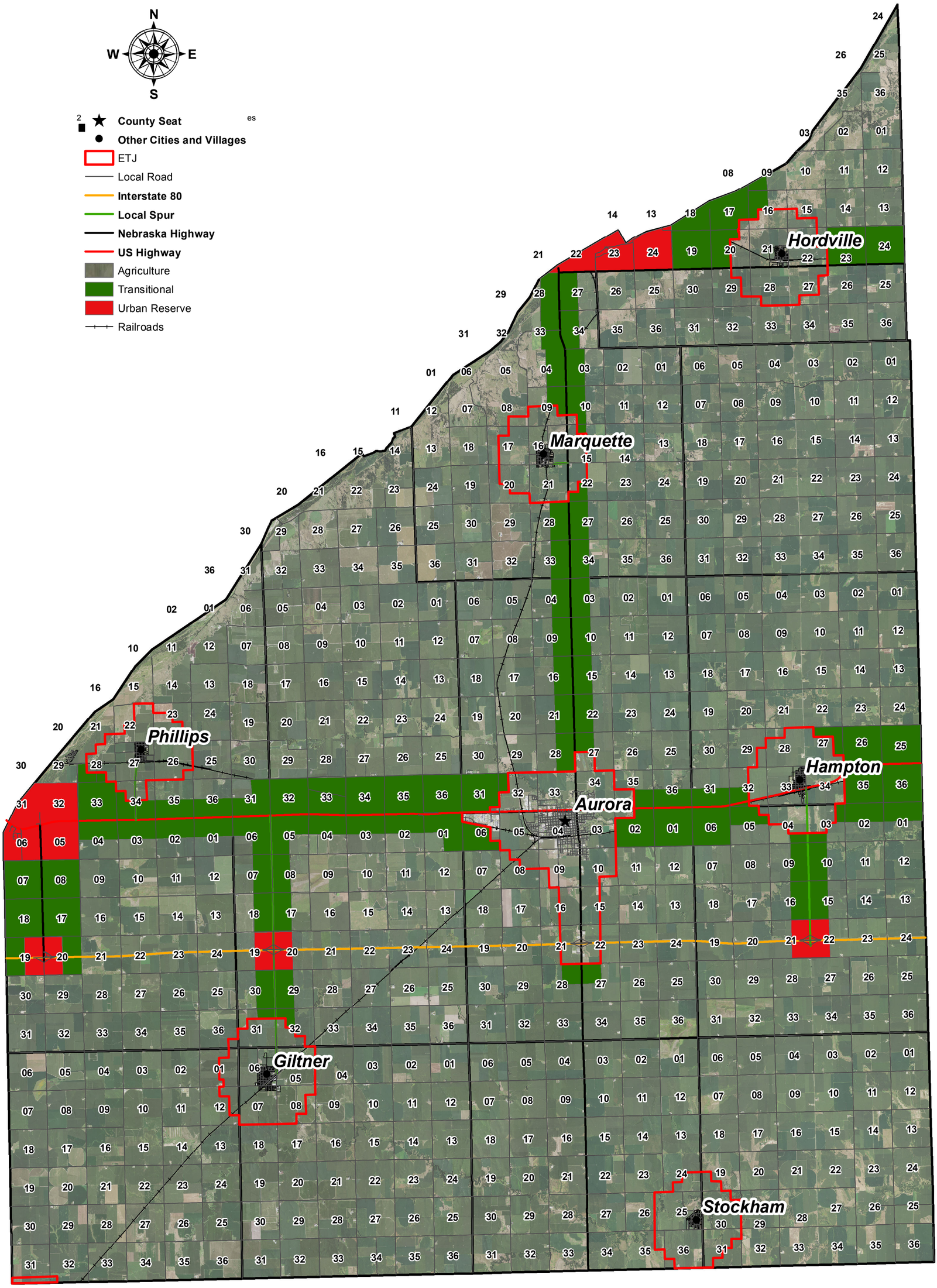
- the current use of land within and around the county
- the desired types of growth, including location of growth
- future development activities
- physical characteristics, opportunities and constraints of future growth areas
- current population and economic trends affecting the county

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 Hamilton 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.

The land uses for Hamilton County are becoming more and more critical as the county continues to feel growth pressures from the west and around Aurora. The future policies within this plan will be critical to directing growth in Hamilton County for the next 10 to 20 years.

HAMILTON COUNTY, NEBRASKA

- CLUMP MAP -



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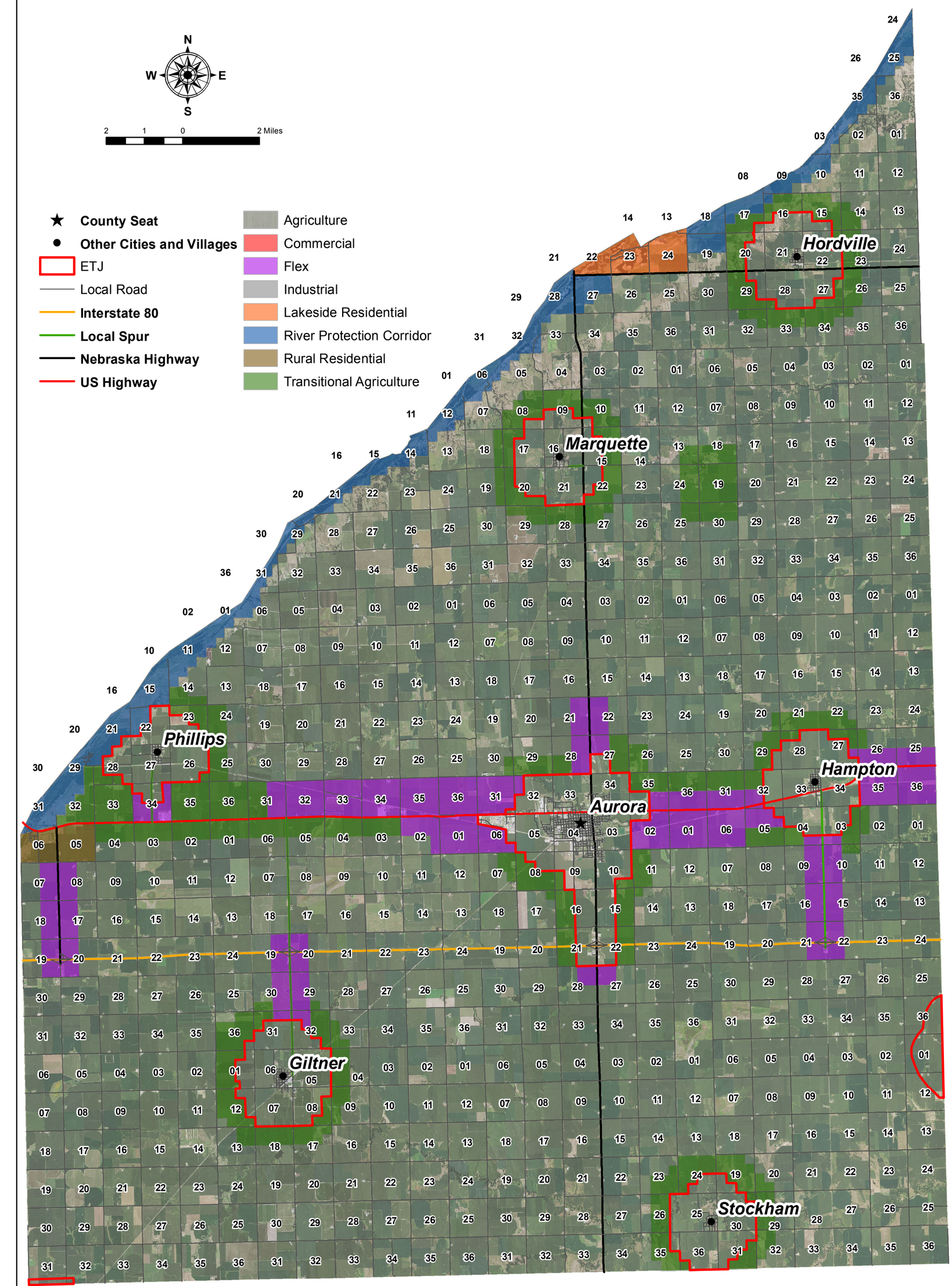
HAMILTON COUNTY, NEBRASKA
- FUTURE LAND USE -



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Land Use Categories

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

- Primary Agricultural
- Transitional Agricultural
- River Protection Corridor
- Lakeside Residential
- Rural Residential
- Commercial
- Commercial/Industrial Flex
- Industrial
- Parks and Recreation

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

Incompatible Uses

1. Residential/Acreage developments not associated with a farming operation
2. Mobile homes as a single-family dwelling
3. Large commercial developments

Potential issues to consider

1. Slopes
2. Topography
3. Natural amenities such as trees, ponds, and streams
4. Site drainage
5. Flooding hazards.
6. Groundwater availability
7. Groundwater contamination
8. Minimum lot sizes and residential densities
9. Wetlands
10. Existing and/or proposed sanitary system
11. Potable well locations
12. Wellhead protection areas
13. Proximity to conflicting uses such as new acreages near livestock confinements

Special Policies

1. Minimum residential lot sizes should be kept at the lowest possible size accommodating both private water and sanitary sewer.
2. Residential densities within this land use category should be no more than 1 dwelling units per 80 contiguous acres. However, provisions should be put into place to allow further splits under specific conditions.
3. Cluster developments should be considered and used whenever soils, topography, natural amenities warrant.
4. Separation distances should be applied only to the livestock facility.
5. Smaller livestock facilities, up to 5,000 animal units should be a permitted use; while larger livestock feeding operations be regulated through the conditional use process in order to help minimize environmental impacts and the health, safety and general welfare of the public.

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 operations over 1,000 animal units
3. Large commercial developments

Potential issues to consider

1. Slopes
2. Proximity to existing livestock facilities
3. Topography
4. Natural amenities such as trees, ponds, and streams
5. Site drainage
6. Flooding hazards.
7. Groundwater availability
8. Groundwater contamination
9. Wetlands
10. Existing and/or proposed sanitary system
11. Potable well locations
12. Wellhead protection areas

Special policies

1. Residential lot sizes may vary depending upon the types of sanitary system installed and the source of potable water.
2. Residential densities within this land use category should be no more than 4 dwelling units per 1/4 section.
3. Cluster developments should be considered and used whenever soils, topography, natural amenities warrant.

River Protection Corridor

General Purpose

This land use district is shown along the Platte 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

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. Proximity to existing livestock facilities
4. Wetlands
5. Depth to groundwater
6. Topography
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

Special policies

1. Residential lot sizes may vary depending upon the types of sanitary system installed and the source of potable water.
2. Residential densities within this land use category should be no more than 1 dwelling units per 80 contiguous acres. However, provisions should be put into place to allow further splits under specific conditions.
3. When a sandpit development or mining operation is proposed and the development is the proposed reclamation solution, the density should be greater.
4. Cluster developments should be considered and used whenever soils, topography, natural amenities warrant.

LAKESIDE RESIDENTIAL

General Purpose

This land use area is intended to provide for existing and future sandpit developments in along the Platte River valley. The future application of this district will likely require for a land use map amendment. This use district will be designated on a case by case basis, as a developer demonstrates the location and design will have minimal impacts on any floodplain and will have limited impact on the local environment.

Compatible uses

1. Crop production, including grazing lands
2. Religious uses and structures
3. Educational uses and structures
4. Community/Recreational Center
5. Sand and gravel extraction when the reclamation plan indicates residential development in the future.
6. Sandpit/residential developments when above the base flood elevation or outside the floodplain

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. Floodway
2. Floodplain and flooding hazard
3. Proximity to existing livestock facilities
4. Wetlands
5. Depth to groundwater
6. Natural amenities such as trees, ponds, and streams
7. Site drainage
8. Groundwater contamination
9. Existing and/or proposed sanitary system
10. Potable well locations
11. Wellhead protection areas

Special policies

1. Residential lot sizes may vary depending upon the types of sanitary system installed and the source of potable water.
2. Residential densities within this land use category should be no more than four dwelling units per 1/4 section; except when a sandpit development is proposed.
3. Cluster developments should be considered and used whenever soils, topography, natural amenities warrant.
4. New developments are encourage to contain internal water and/or sanitary sewer systems.

Rural Residential

General Purpose

This land use is intended to provide for residential development adjacent to and in close to proximity to the municipalities and highways where conditions prove favorable. Industrial, commercial or livestock operations of any size would not be permitted and buffers in the residential land use area would be critical. Lot size requirements would be based upon the capacity of the area to provide potable water and to properly handle sanitary waste systems. However, it is intended that densely developed areas would be connected to a rural water district.

Compatible uses

1. Residential uses
2. Acreages and associated accessory uses
3. Religious uses and structures
4. Educational uses and structures
5. Community/Recreational Center/Recreational facilities

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. Floodplain and flooding hazard
2. Slopes
3. Proximity to existing livestock facilities
4. Wetlands
5. Depth to groundwater
6. Topography
7. Natural amenities such as trees, ponds, and streams
8. Site drainage
9. Existing and/or proposed sanitary system
10. Potable well locations
11. Wellhead protection areas.

Special policies

1. Residential lot sizes may vary depending upon the types of sanitary system installed and the source of potable water.
2. Density of lots could be similar to an adjacent community unless the development is on individual septic and water, then the minimum sanitary standards would apply.
3. Cluster developments should be considered and required in this land use area.

Flex Land Use

General Purpose

The Flex land use provides for larger commercial and industrial development where transportation routes and other conditions prove favorable. This land use is to promote commercial, industrial and any value added agricultural industry in Hamilton County and to provide services and development opportunities at key locations within the County.

Compatible uses

1. Agricultural/commercial uses including implement stores
2. Commercial grain facilities
3. Mobile home parks
4. Uses serving the motoring public (truck stops, convenient stores, etc.)
5. Religious uses and structures
6. Educational uses and structures
7. Self-storage facilities including recreational vehicles, boats, etc.
8. Community/Recreational Center
9. Adult entertainment where appropriate
10. Light manufacturing and assembly
11. Meat packing
12. Storage and warehousing
13. Trucking terminals
14. Commercial grain facilities
15. Secondary Educational uses and structures
16. Renewable energy facilities including Ethanol and Bio-Diesel
17. Self-storage facilities including recreational vehicles, boats, etc.

Incompatible Uses

1. Livestock operations
2. Residential developments
3. Mobile homes as a single-family dwelling unless located within a mobile home park

Potential issues to consider

1. Floodplain and flooding hazard
2. Groundwater availability
3. Slopes
4. Erosion controls
5. Wetlands
6. Depth to groundwater
7. Topography
8. Natural amenities such as trees, ponds, and streams
9. Site drainage
10. Existing and/or proposed sanitary system
11. Potable well locations
12. Wellhead protection areas

Special policies

1. No minimum lot size other than adequate space for vehicular movement, parking and septic and water systems.
2. Developments of 1 acre or more may be required to meet the standards of NPDES permitting.
3. Developments that create more than a 5% increase in runoff may be required to construct a detention basin to control runoff.

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

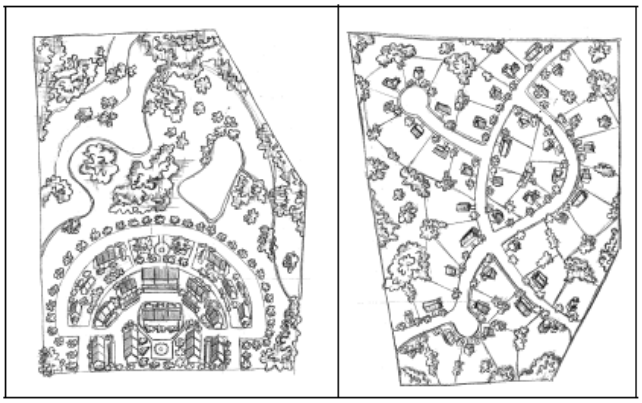
1. See underlying land use category.

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 Hamilton 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
- Steep slopes
- Floodplains
- Streams
- Natural prairie

The concept allows the developer and county to negotiate the lot sizes through a plan unit development (PUD) concept. 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.

FUTURE LAND USE GOALS

Land Use Goal and Objectives

Guiding future growth and development in Hamilton County in order to insure compatible uses locate together is essential during this planning period.

General Land Use Policies and Strategies

GENLU-1.1 New residential development within Hamilton 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 Hamilton County should work toward compact patterns of land uses.

GENLU-1.4 Hamilton County should consider limited future development to identified areas along the major highways spanning the county.

GENLU-1.5 The Hamilton 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 Hamilton County.

Agricultural Land Use Policies and Strategies

AGLU-1.1 Hamilton County should continue to develop policies that enhance the "Livestock Friendly" designation.

AGLU-1.2 Hamilton County should encourage uses referred to as "Agri-tourism" (Wineries and orchards).

AGLU-1.3 Livestock production should be encouraged in Hamilton 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 Hamilton 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 a reward program regarding the separation/buffer requirements for the use of newer livestock best practices.

AGLU-1.10 Establish adequate separation distances between livestock facilities and residential uses and vice versa.

AGLU-1.11 Hamilton County should minimize encroachment of non-agricultural uses into areas designated as "Prime Farmland".

AGLU-1.12 Encourage low to zero non-farm densities in prime farmland areas and other agricultural districts by providing residential lot size requirements, densities and separation distances between residential and agricultural uses.

AGLU-1.13 Protect the quality of groundwater in agricultural areas of Hamilton County.

AGLU-1.14 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 Platte River Corridor should be protected due to the nature of the soils in the area and the occasional flooding occurring in the area.

RPCLU-1.2 The County should not allow the introduction of new livestock operations into the Platte 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 Platte River 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 Hamilton 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 Encourage low to zero non-farm densities in prime farmland areas and other agricultural districts by providing residential lot size requirements and proper separation distances between residential and agricultural uses.

RESLU-1.4 Develop subdivision regulations to provide a quality living environment while avoiding inefficient and expensive public infrastructure expansions.

RESLU-1.5 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-1.6 Establish zoning and subdivision design standards requiring buffers, and screening standards and functional usable green space, for new developments.

RESLU-1.7 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 geologic hazard, 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-1.8 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-1.9 Hamilton 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.

Flex Land Use Policies and Strategies

FLU-1.1 Encourage the location of commercial and industrial uses to locate within the communities of Hamilton County or along the major highways.

FLU-1.2 Encourage the location and clustering of commercial and industrial uses within the rural areas of Hamilton County at major transportation intersections and/or along major railroad.

FLU-1.3 Utilize frontage roads within clustered commercial centers when locating

along major roads/highways.

FLU-1.4 Commercial uses should be required to provide their own adequate water supply without negatively impacting existing neighboring properties.

FLU-1.5 Industrial development not utilizing rail transport should be discouraged from locating next to a railroad right-of-way.

FLU-1.6 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.

FLU-1.7 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, rail, sanitary sewer and water can be provided, and where appropriate, gas lines are available.

FLU-1.8 Commercial and industrial uses should be located so an adequate buffer space is provided between incompatible land uses.

FLU-1.9 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.

FLU-1.10 The county should encourage industrial development that bases its products on renewable and indigenous raw materials.

FLU-1.11 The county should recognize and encourage small-scale industries as viable alternatives to larger, conventional enterprises.

FLU-1.12 Discourage the construction of "strip" commercial developments in rural areas of the county.

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Chapter 10 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 Hamilton County, including major projects that ensure implementation of the Land Use Plan.

Existing 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 Hamilton County.

Railroad Service

The closest rail freight service to Hamilton County is in Grand Island and Lincoln. The nearest passenger service is located in Lincoln or Hastings through Amtrak.

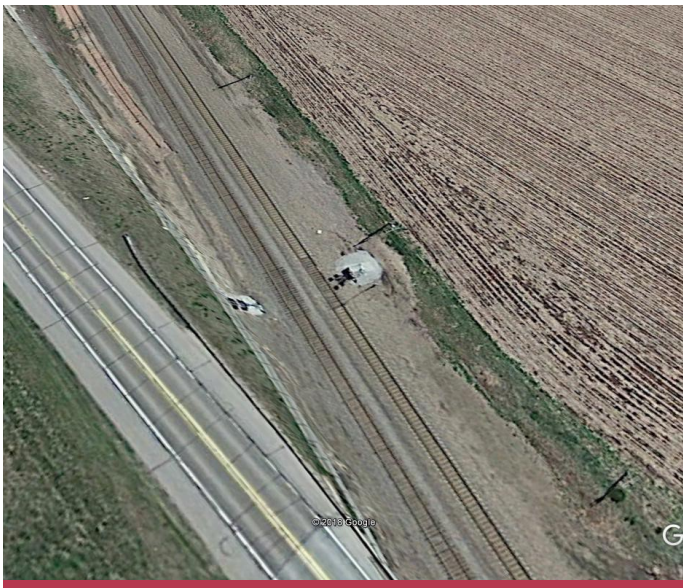


Photo 10.1

BNSF Mainline west of Aurora

Bus Service

The nearest commercial bus service with ticketing services is available in Grand Island via Arrow Stage Lines and Burlington Trailways.

Commercial Airport Service

Central Nebraska Regional Airport in Grand Island is the nearest commercial facility to residents in Hamilton County. However, arrivals and departures are limited to major airlines. Currently, the airport

and commercial service connects people to Phoenix and Las Vegas through Allegiant Airlines and points across the U.S. through Dallas-Ft. Worth via American Airlines.

Lincoln Airport in Lincoln is the next closest point for commercial service. However, airlines and flight schedules are limited. The airport is served by Delta and United Airlines.

Small craft Public Airports

The Aurora Municipal Airport (Al Potter Field) is the nearest small aircraft facility. Runway #16/34 is 4300 feet by 75 feet with asphalt surfacing.

The fixed based operator (FBO) for this facility is Traudt Aerial Services. Elevation is listed at 1804 feet.

Photo 10.2

Aerial of Aurora Municipal Airport

State and Federal Highways

Hamilton County has five major highways running through the county. The major north-south highway is Nebraska Highway 14. US Highway 34 and Interstate 80 crosses the county east and west as well. Other east-west connections are Nebraska Highways 2 and 66.

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

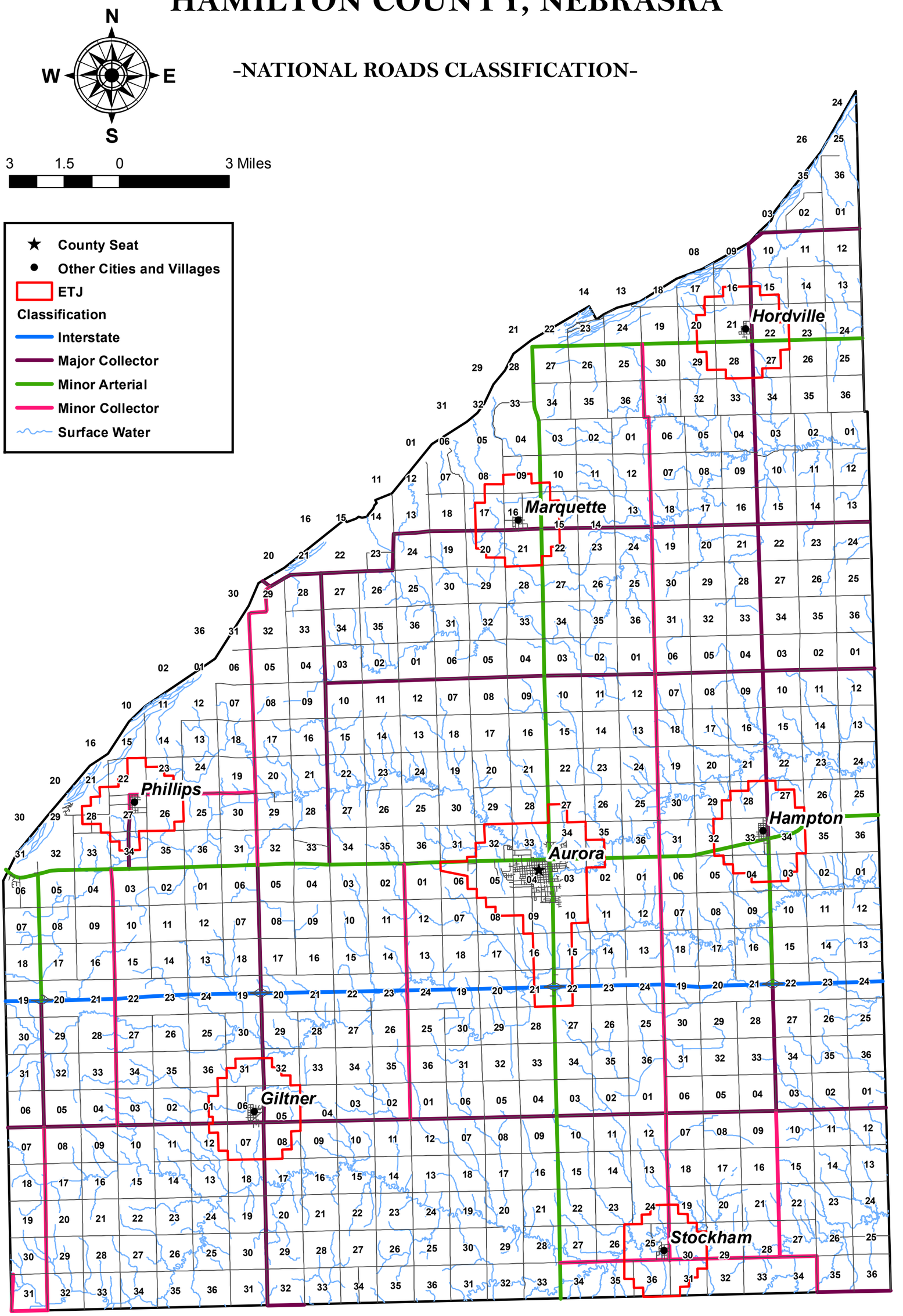
All of the public highways, roads, and streets in Nebraska are divided into two broad categories, and each category is divided into multiple functional classifications. The two broad categories are Rural Highways and Municipal Streets. State statute defines Rural Highways as "all public highways and 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:

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

HAMILTON COUNTY, NEBRASKA

-NATIONAL ROADS CLASSIFICATION-



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Projection: NAD_1983_StatePlane_Nebraska_FIPS_2600_Feet

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Using ArcGIS 10.0
Soil Data: Soils Survey (SSURGO)Data
USDA, Natural Resources Conservation Service

Created August 2018

HAMILTON COUNTY, NEBRASKA

-STATE ROADS CLASSIFICATION-

Projection: NAD_1983_StatePlane_Nebraska_FIPS_2600_Feet

Created by: Evan Jasnowski
Using ArcGIS 10.0
Soil Data: Soils Survey (SSURGO)Data
USDA, Natural Resources Conservation Service

Created August 2018

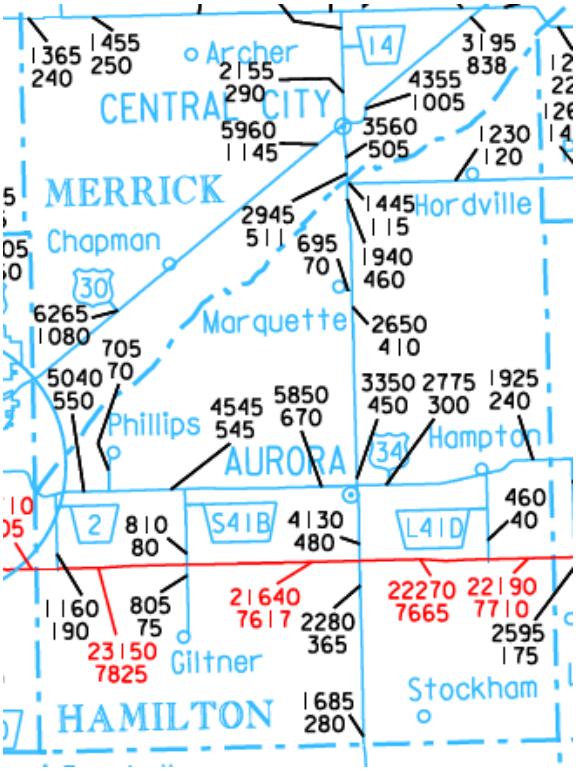
distances, travel patterns;

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 Hamilton County

Traffic flow within the county on these highways varies considerably.

FIGURE 10.3:
TRAFFIC FLOW MAP



Source: Nebraska Department of Transportation

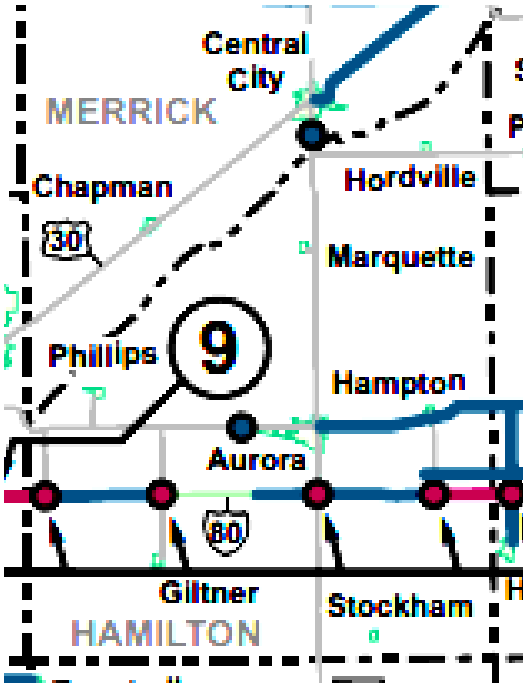
Figure 10.1 indicates the greatest traffic flows are along I-80 with over 23,000 vehicles daily near the Nebraska Highway 2 exit. The overall vehicular traffic on Interstate 80 ranges from 22,000 to over 23,000 daily within Hamilton County. The second greatest traffic flow is along US Highway 34 which ranges from nearly 2,000 vehicles on the east side of the county to over 5,000 vehicles near Grand Island. Truck traffic in Hamilton County is obviously greatest along Interstate 80, the daily truck traffic ranges from near 7,600 trucks to over 7,800 trucks daily. Besides Interstate 80, US Highway 34 and Nebraska Highway 14 have similar amounts but are significantly less than traffic on I-80.

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 six years and beyond. Hamilton County is in the Department of Road's District 4. Between Fiscal Years 2018 and 2023, there are five projects budgeted for the Hamilton County area. These projects include:

- I-80 between Hampton and Waco - 22.1 miles of crack seal
- US Highway 34 Aurora West - 10.2 miles of milling, resurfacing and bridge work
- I-80 between Phillips and Giltner - 6.3 miles of milling, resurfacing, bridge repair
- I-80 between Aurora East and west - 8.6 miles resurfacing and bridge
- I-80 between Hampton and Henderson, 7.4 miles resurfacing

FIGURE 10.4:
NDOR SIX-YEAR HIGHWAY PROGRAM



Source: Nebraska Department of Transportation

Overall the Nebraska Department of Transportation is expecting to spend over $26,000,000 in repairs and upgrades in the Hamilton County over the next six years.

Transportation Policies and Strategies

TRAN-1.1 Development in Hamilton County should be guided to safely utilize existing and future investment.

TRAN-1.2 Development should be discouraged from occurring in areas where the road system is insufficient to handle any additional traffic load.

TRAN-1.3 Improve, develop, and maintain well-traveled roads with hard surfacing, when possible.

TRAN-1.4 Hamilton 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 11 Implementation

Achieving Hamilton 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 Hamilton County.

Support Programs for the Action Agenda

Five programs will play a vital role in the success of Hamilton 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 Hamilton 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