Merrick County, Nebraska
Comprehensive Plan 2016

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Introduction

Location

Merrick County is located in far south central Nebraska. The county is bounded on the west by Hall County and Howard County; on the north by Nance County; on the east by Platte and Polk Counties and on the south by Hamilton County. The county has three highways crossing the county including US Highway 30, Nebraska Highway 14 and Nebraska Highways 92. The county is home to the communities of Central City (county seat), Chapman, Clarks, Palmer, and Silver Creek all incorporated. In addition the county is home to the unincorporated communities of Archer and Worms.

History of Merrick County

The following information is a mixture of the community histories found at http://www.casde.unl.edu/history/counties/Merrick. Some modifications have been made to bring the information up to date.

Central City

The town of "Lone Tree" came into being in 1866 a few miles from the landmark by that name on the north bank of the Platte River, on the overland trail, as the Union Pacific Railroad laid tracks through Merrick County. J.H. Berryman erected the first substantial building in 1868, which served as a store, hotel, bar, court, revival meeting hall, and his home. Lone Tree was named the county seat, and soon became the largest town in Merrick County. A courthouse, built in 1871, was replaced by the present structure in 1912.

Photograph 1.1
Historic photo of Central City

In 1875 a vigorous battle ensued. A petition was presented to the Merrick County Court asking to change the name of the town from Lone Tree to "Central City." Those promoting the change said, "...Lone Tree, gives the impression that the area is so desolate that it can afford support to only one solitary tree, and that the inhabitants are a wild, rough, uncouth, and uncivilized people." That image would not bring settlers, thus limiting growth to the area, which they felt "would hold agricultural bounty for those willing to work for it." A counter petition was also circulated which claimed that Lone Tree portrayed a "beautiful spot and is a name dear to the pioneers." On July 1, 1875, however, the name was officially changed.

By 1880 a second railroad, the Burlington & Missouri River, had arrived. Central City enjoyed a "boom," during which time many brick buildings were built. There were three banks, a wholesale hardware house, a roller mill, two newspapers, three lumberyards, a cracker factory, a cigar factory, a new brick school, nine churches, and a college.

Originally built in 1885 as a Methodist college, the Nebraska Central College was operated by the Society of Friends (Quaker) from 1899 to 1953. The college served many students and contributed greatly to the educational and cultural climate of the area. Built just west of town, Old Main still stands and is now part of the Nebraska Christian High School campus.

Around 1900 T.B. Hord's enterprises contributed greatly to the economy of Merrick County. Hord, whose home-ranch is located east of town, arrived in the 1880s, and began building his empire, feeding cattle and sheep. His business interests grew to include grain elevators, lumber yards, feed, and farm supply houses in Nebraska and Iowa.

Wright Morris, regarded in literary circles as one of this country's most gifted writers, was born in Central City in 1910. Morris received the National Book Award in 1956 for Field of Vision and the American Book Award in 1980 for Plains Song.

The first meeting of the Lincoln Highway Association was held in Central City in October 1913. (All other meetings were held in Detroit.) Dr. H.E. Glatfelter of Central City, chairman of the Platte Valley Good Roads Association, strongly encouraged the Association to use the central Platte River route. His efforts brought the transcontinental highway across Nebraska. The east-west Highway 30, and Highway 14, running north-south, through Merrick County makes Central City "a convenient crossroads" just 20 miles from Interstate 80.

Merrick County's first irrigation well was put down in 1924. In 1986 there were 3,896 registered wells, the highest number of any county in the state. Based upon recent data from the Department of Natural Resources in 2014 there were 7,396 wells in Merrick County.

The friendly people of this community have a diversified background. The early settlers were a microcosm of the United States' melting-pot. Many cultures found their way to the bountiful Platte River Valley, and more than a dozen religions still active in the city attest to this fact.

Educational and cultural growth continue to enrich the lives of those who call this place "home." The positive work-ethic that prevails provides an opportunity for modern industrial growth, as new farming techniques continue to evolve. Through the ensuing decades, the town's economy -- based upon retailing, light manufacturing, and agriculture -- has grown and prospered with the times. The present population is just over 3,000, and growing.

On the Fourth of July weekend in 1988 a new community celebration, "Lone Tree Days," was introduced. To be held annually, the Lone Tree symbol of Central City's heritage stands majestic and proud.

Nancy B. Johnson, 1111 - 17th Avenue, Central City, NE 68626

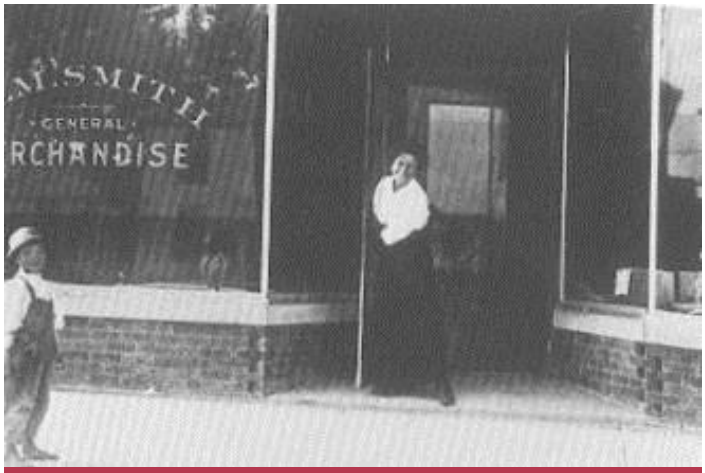
ADDITIONAL MATERIAL: History of Merrick County, Dallas: Taylor publishing Company, 1981. History of Merrick County-Volume II. Dallas: Taylor Publishing Company, 1987. Merrick County Book Committee; and Persinger, C.E. A History of Merrick County, Nebraska. Central City: The Nonpareil Press, 1898.

Chapman

Was Coronado the first white man to walk upon the town site that now is Chapman? The log kept by this Spanish explorer in 1541, described the terrain and streams in such detail that many of the citizens of Chapman feel..."it could be none other than Warm Slough, Silver Creek, and Prairie Creek." If so, he left no lasting mark to indicate his presence. (Current historians, however, doubt that the Coronado Expedition made it to Nebraska.)

The first official white settler in Chapman Township was James Vieregg, who proceeded by two hours Jesse Shoemaker and Charles Eggerton. The first house was probably that of the John Donovan family. Donovan, local railroad section foreman, had a sod house in the vicinity in 1866.

The history of the town really dates only from 1869, three years after the Union Pacific Railroad staked its right-of-way, locating its town sites approximately 11 miles apart. The UP section house served as a depot, post office, and a store. At Donovan's request, the station was named "Chapman" for the company's roadmaster at that time.



Photograph 1.2
Historic photo of Chapman

There was little development until construction was completed down the line. In 1871 a general store was built by L. Reed and C.A. Leake, and Hannah Aurand organized a school for local children in her home. It was another ten years before there were enough people and businesses to support a newspaper.

An I.O.O.F lodge was organized in 1883, and a Masonic Fraternity in 1894. Their buildings added to the prestigious look of main street. Two churches -- Methodist and a Baptist -- were organized in the mid 1880s.

"During the years the Lincoln Highway went through the Main Street of town, the streets teemed with activity and dust," commented June Vipperman in her story of Chapman in a Merrick County history book. "A favorite pastime of the young set was to go to the old hotel and meet overnight visitors from faraway places."

In due time the town became incorporated. The

school went from a one-room schoolhouse to a two-room brick building in 1887. This served the community until 1917, when it was torn down to make room for a K-12 building.

In the years from 1900 to 1965 or so, Chapman was a busy village. Farmers brought butter, cream, and eggs in to town to sell, and then purchased groceries, dry goods, shoes, and other necessities. Even during the Depression the community pulled together and provided home-spun activities, such as band concerts, ball games, and free movies to attract customers.

During World War II the role of the community started to change. Workers were needed in the defense plants in near-by Grand Island. There was less dependency on an agricultural-based economy, and more emphasis on jobs, education, and housing. Chapman changed from a service-oriented town to an urban residential community. During the 1970s, with supermarkets in Grand Island and Central City, the lumber yard closed, as did the meat market, locker plant, and the grocery stores. When school enrollment finally started to decline in the late 1960s the high school closed, and Chapman became part of a Class VI high school district with its own K-8 elementary system.

Chapman did not dry up and blow away, but instead, started to grow in new directions. Hard-surfaced streets, a sewage system, a good school system, and active churches have made this a good place to live.

Since the Bicentennial in 1976, there has been a new addition to the school, additions to the park, lighted ball fields and restrooms, and a new fire station. The 1980 population was the all-time high of 343.

With employment opportunities available, the population continues to hold fast and even increase a little. New homes add to the town's potential, another sign that Chapman will be here for years to come.

By Jane Graff. Photos by C.R. Johnson and June Vippermann, Rte 1 Box 7, Chapman, NE 68827.

ADDITIONAL MATERIAL: The story of Chapman in the Merrick County History, 1982, by the MCHS; Merrick County's 100th Year 1858-1958; A Word and Picture Glimpse into the Past of the Chapman, Nebraska Community, 1976.

Clarks

Perhaps Calvin Blanchard Hartwell envisioned the area near Junction Ranch along the Platte River as a thriving community when he and his family arrived April 1, 1865, to operate a stagecoach stopover and trading post. It did attract settlers, as did the area three miles west, chosen by the railroad as the location for its station the following year.

Photograph 1.3
Historic photo from Clarks area

In the fall of 1866, when the Union Pacific laid rails through the area, a town was platted and named for Silas H.H.Clark, a superintendent on that line. For a time referred to as Clark's Station, the post office, established in 1869, called it "Clarksville." The name was changed to "Clarks" in 1880. Postal Rural Free Delivery (RFD), that began with four routes in 1900, currently provides mail service to over 360 families in Clarks and on two rural routes.

Religious services were first held in 1869. A Methodist Episcopal minister, Rev. David Marquette, held services at Junction Ranch, and Father Ryan of Columbus conducted Catholic services at John Higgins' home. Although other churches existed for short periods of time, the United Methodist, St. Peter's Catholic, and the Congregational Church which was organized in 1878, are still very active today.

The first general store opened in 1871, as did the Clarks school district. The first school, a one-room frame structure, was located south of the railroad tracks. The 100th anniversary of the first graduating class was celebrated with true "Blue Bomber" spirit by the Clarks High alumni in 1987. The area's rural schools have all closed their doors and now hold only fond memories of fun-times and quality education.

In the 1900s Clarks was a thriving community of over 600. The opera house was the scene of musicals, lectures, dances, graduations, and basketball. In 1912 Clarks hosted the Merrick County Fair, which is said to have ranked among the best in the state.
We are especially proud of the businesses which have prevailed through the years.

- *Wm. Douglas & Co., begun as a general merchandise store but today specializes in the grocery line, has been in continuous business under the Douglas family's ownership since 1888.*
- *Beginning in 1908 when Otis Bittinger purchased the Clarks Telephone Exchange, three generations of that family have provided phone service to the area. Today the latest equipment, using Digital Central Office Equipment, makes custom calling features available.*
- *Pollard Propane & Oil of Clarks, founded in 1917 by J.H. Pollard, continues under the ownership of his great-grandsons.*
- *Until Leonard Strobel sold his share in January 1990, three generations made up the corporation of Strobel Industries, which was purchased as a blacksmith shop in 1946 from W.O. Golder.*

Other Clarks businesses include: Trickee's Bar & Grill, McQuinn's Garage, Sweet's Electric, Luana's Drive-In, Diane's Decorating, Clougherty Packing, Shorty's Bar, Brown's aerial spraying, J-K Trucking, Clarks Agri-Service, Guilford's meat processing, plus the Kuhn and Caley insurance companies, a veterinary clinic, a lumber company, a bank, four beauty shop, and an auto repair shop. Together they provide many goods and services for the community, which currently numbers nearly 450.

With easy access to neighboring towns, we now rely on their medical facilities, dentists, and pharmacies to fill our health needs. Our fire and rescue unit, with 16 dedicated EMTs, is available for quick response in emergencies.

The Business Peoples' Association remains an active organization in Clarks and sponsors the popular "Bean Days," when ham 'n beans and the hand of friendship are shared with folks far and wide. Many organizations and facilities provide our citizens with opportunities to grow spiritually, emotionally, physically, and intellectually, and help our town to continue as a progressive village in the peaceful Platte Valley.
A granite marker, placed on the site of Junction Ranch, presently owned by Ronald and Dorothy Glasser, commemorates the foresight of the Hartwells and the important role they played in the settling of Clarks 125 years ago. While Clarks has suffered its share of disasters -- floods, fires, cyclones, droughts, and depression -- its citizens have always worked together to face the future with courage and a positive outlook.

By Ronald and Dorothy Glasser, Rte 2 Box 7, Clarks, NE 68628

ADDITIONAL MATERIAL: Heritage of Clarks, Nebraska , Clarks Bicentennial Heritage Committee 1865-1976; History of Merrick County Nebraska 1981 and History of Merrick County Nebraska, Volume II, 1987, by Merrick Co. History Book Committee, (Available at Clarks and Central City libraries, and NSHS); and Perkey's Nebraska Place Names.

Palmer

It is said that Indian Hills, located near the river not far from Palmer, was once the site of the Pawnee "Morning Star Ceremony," a sacrifice of human life to assure bountiful crops for the Indians who made their home in this part of Nebraska.
The first white settlers arrived in 1872, homesteading

Photograph 1.4
Historic photo of Palmer

north and east of the present town. When the railroads pushed across the prairies in 1886, an ambitious project was designed by the Lincoln & Black Hills Railroad Company. Near the edge of Merrick County the route would divide, with one going to the Black Hills and the other to the "great Northwest."

There were great plans for the division point named for Major H.E. Palmer of Plattsmouth, one of the L&BH officials. In 1887 the Lincoln Land Company purchased 480 acres from Wes Templin, Robert Lambert, and Mrs. Samuel Lambert. In anticipation of the scope of the project, the railroad built a huge

water tank, a big coal shed, several switching tracks, and "the finest depot west of the Mississippi River." A 40-stall brick roundhouse was laid out. However, adverse circumstances caused the bubble to burst, and track-laying ended at Burwell and Sargent. Only five stalls of the roundhouse were completed.

Many businesses and homes were built in 1887. Joe Hays built the first store, and Dr. Hoshaw hung out his shingle. The first newspaper was published in October of 1887, and the Christian congregation built the first church in 1888.

In 1900 brick buildings began to appear. A telephone system was installed in 1902. In 1911 Bill Heck and his father built the first light plant. About 1918 the town assumed ownership of the plant and built a larger unit at the west end of main street. City water was introduced in 1919.

Soon after the first opera house burned, Mark and Thomas Lambert built a large brick building that housed the Loup Valley State Bank and several offices on the main floor, with a larger opera house upstairs. The building was used for silent movies, school plays, home talent, traveling theatre company performances, dances, and commencement exercises. Community dinners were held in the basement. The building was used for various purposes until the 1950s.

Dr. C.S. Minnich, local doctor, dentist, oculist, and pharmacist, was also interested in astronomy. Designing a lens-grinding machine, he obtained two 12-inch glass "blanks" from Germany. After months of work and numerous trips to see Dr. Swayzee, director of the physics department at the University of Nebraska to make optical correctness checks, the instrument was pronounced perfect. The lenses, with a 19-foot focal length, was donated to UN for an observatory. While supports were cast, no structure or housing was built, and the lenses later disappeared from a safe in the administration building.

A hospital and sanitarium was built in 1916-17 on land donated by Charles Coolidge. Revisions in the law caused the status to change to "rest home" in 1957. After acquiring the assets, Darr Avenue Partnership built a new Cooledge Center in 1975-76.

A cooperative creamery opened in the 1920s with Charles Fitzpatrick as manager. It provided a market for dairy farmers within a 15-mile radius until 1964, when it closed.

A bridge over the Loup River north of Palmer provided a safe crossing for settlers wanting to get to the rail terminal. The original wooden structure was later replaced by one of steel, and now a concrete bridge links the two sides.

School district 49 was organized in 1885, even before the town was platted. Improved roads and modern transportation provided the opportunity to consolidate small rural schools into a larger one. The present building, built in 1961, serves the entire Palmer area.

By Darlene Gee, Rte 1 Box 167, Palmer, NE 68864

Silver Creek

Silver Creek, at the east edge of the county, derives its name from the sparkling, clear creek which meanders near the town site platted by the Union Pacific Railroad in 1866. The first residents, Frank Hobert and his family, homesteaded in the early 1870s. A hotel called "Lee House" was built by Cyrus Lee in September of that year. Soon other settlers arrived: Howland, Brown, Wooster, and the Shaw Brothers. The Silver Creek Post Office was established in 1877, moved from one maintained at the Lathrop Ranch two miles south of town.

A school was established by Supt. E.L. Robinson with about 30 students attending. A brick structure was built in 1910, which is still in use by the K-12 district. A gym was built in the 1930s by the WPA, an elementary wing in 1959, and an addition, containing a cafeteria, gymnasium, and locker rooms, was completed in 1973.

Thomas Gannon and Mary Foster were the first couple to be wed in Silver Creek in a ceremony performed on the Fourth of July, 1881.

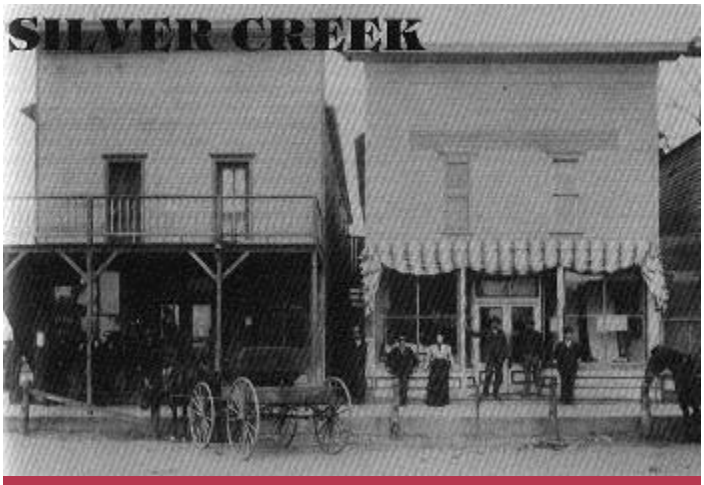
News hit the dusty streets in 1877 with the publication of "Silver Creek Times." The paper changed hands several times until 1903, when D.F. Davis and son Dyo began to edit "The Sand." It remained in circulation until the 1960s.

Rev. H.S. Shaw, an Episcopal minister and early settler, organized a society in Silver Creek. In 1874 the Congregational Church was formed, with a church built in 1879. Methodist Church records indicate that they held church classes in the Hill Hall in the late 1870s, with a church built in 1889. A larger building was dedicated in 1921. Fr. Rembort Stanowski

traveled from his parish at Duncan to organize a Catholic Church in Silver Creek in the early 1900s. Mass was held at the home of Frank Pollard until the church was completed in 1903. The new church was dedicated in 1967.

Very early in our history, a wagon bridge was built across the Platte River just south of town. This made trade and rail transportation accessible to people on both sides of the river. Telephones came to the area in 1906, and lights were changed to electricity in 1914.

Both instrumental and vocal musical talent were encouraged by regular practices held in Silver Creek. Two good bands performed regularly in the small grandstand, and were also invited to perform in surrounding towns. One year two teams of horses pulled the band wagon to the State Fair in Lincoln, where the band received the top award for their performance.



Photograph 1.5
Historic photo from Silver Creek

Silver Creek's centennial was held on November 5, 1966. There was a 50-entry parade, greased pig contest, horse shoe tournament, pony rides, and games. An Olde Country Feed for $1 was held, after which residents and neighbors enjoyed dancing to the Al Grubnick Orchestra at the Pioneer Ballroom.

The abundance of water and wildlife has proven to be a great drawing-card for Silver Creek. Dr. Bruce Cowgill initiated the "Grand National Mixed Bag Hunt" in Silver Creek in the fall of 1972. A number of actors, astronauts, major league ball players, and Olympians came to participate in the event. A banquet held at the conclusion included awards for wildlife essays, photography, habitat enhancement, etc. Silver Creek received recognition in Sports Illustrated, Outdoor Life, N.R.A. Journal, and other publications for the "total community effort that made such a project successful." After four years, the event moved to Columbus, and later to Grand Island.

The present village of 500 people is still a hub of activity for the area it serves. Nearly 35 businesses operate in Silver Creek. Agriculture, still the mainstay of the residents, is augmented by industrial opportunities in nearby communities.

Silver Creek boasts parks with two baseball fields, tennis court, horseshoe pits, playgrounds, grills, and shelters. A Nebraska Game & Parks Commission grant was used to complete the newest park facility in 1972.

The morale and attitude of Silver Creek is a good example of Nebraska...the Good Life.

By Karen Euse, Village Clerk, Box 6, Silver Creek, NE 68663, with the help of Dr. Bruce Cowgill. Pictures submitted by Euse, Cowgill, and John Bryant.

Comprehensive Development Planning

The Merrick 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 Merrick 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 are collected to provide a snapshot of the past and present conditions within the community. 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, community 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 Merrick County Planning Commission, with the assistance and participation of the Merrick County Board of Supervisors; County staff; the Plan Review Committee and citizens of Merrick County. The time period for achieving the goals, programs, and developments identified in the Merrick County Comprehensive Plan is 20 years. However, the County should review the Plan annually and update the document every 10 years (2025), or when an 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
- Resources/Environmental Chapter
- Energy Chapter
- Land Use Chapter
- Transportation Chapter
- Implementation Chapter
- Zoning and Subdivision Regulations

In addition to the work completed for Merrick County, a similar document will be produced for the communities of Chapman, Palmer, and Silver Creek.

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

Jurisdictional Organization

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

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

2

Community Engagement

Community Engagement

Community engagement is critical 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.

Town Hall Meetings

The team attended three meetings with regard to the county. The meetings were:

- August 19, 2014 in Palmer
- August 20, 2014 in Silver Creek
- August 21, 2014 in Chapman

Attendance at these meetings was limited; however, there was good discussion regarding the future of the county. The following section will provide a summary of the issues discussed.

Town Hall Meetings

At each meeting, the attendees were engaged in a discussion on the following three topic areas:

- What needs to be addressed
- What is your vision for Merrick County
- How does the county achieve this vision

Palmer

What needs to be addressed

1. Subdivision regulations for rural areas
2. Money for blacktop – elevator west
3. Drainage problem along the blacktop
4. Personnel in key county offices
5. Cross training within key departments
6. Response times for law enforcement
7. Identity of western Merrick County versus the entire county
8. Pollution in the Loup River
9. Livestock waste draining into Loup River
10. Elk Creek is polluted?
11. Need to look at lot size requirements
12. No nuisance controls
13. Maintaining county roads
14. Examine corridor development
15. Commercial/industrial uses in agricultural areas, especially along corridors

What is your vision for Merrick County

1. Talk about corridor development
2. Palmer sign on other blacktop
3. Remain as an Ag. Friendly County
4. Planned and zoned properly for new businesses
5. Rural county

Silver Creek

What needs to be addressed

1. Health care – specifically hospital care...the next year or so there may be a new facility constructed in Central City – likely by Bryan LGH....
2. Mentality today is different and less community focused
3. People in the Silver Creek area work in Columbus
4. Attitude regarding Merrick Manor Assisted Living facility

What is your vision for Merrick County

1. County-wide trails plan, especially along the Platte River
2. Redevelopment of Merrick Manor

Chapman

What needs to be addressed

1. Cut trees down in the ditches before they get to 10" diameter
2. Railroad and blocking crossing
3. Re-examine zoning along highways especially along US 30
4. Visual screening of more industrial uses, similar to the pallet company
5. Three major problems...pallet business, 2 junk yards
6. Nuisances
7. Speed limits along US 30...60 mph starts while it is in the corporate limits
8. Railroad, highway and crossings
9. County road intersections in the county... people speeding through them... trees and crops
10. Cellular....rules need to be updated
11. Wind farm regulations
12. Lack of funds for development

What is your vision for Merrick County

1. Growth
2. Maintain separation of agricultural and residential
3. Economic development in the county...
4. A mixture of housing

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?

This was reviewed during the initial kick off meeting with the Merrick County Joint Planning Commission.

Steering Committee Meetings

With the assistance of Merrick County, a steering committee was formed to provide regular input on all phases of the planning project. This group also provided the internal assistance the planning effort needed to get more people involved in the process.

The steering committee also 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.

Goals and Policies

The public participation process is critical to soliciting public input as well as establishing goals and policies for the community. Planning for the future land uses of the community is an ongoing process of goal setting and problem solving aimed at encouraging and enhancing a better community with a better quality of life. Planning focuses upon ways of solving existing problems within the community, and providing a management tool enabling Merrick 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 Merrick County's vision, the community can decide where it wants to be in the future, and then develop a "roadmap" guiding decisions of the community. However, the plan cannot only be based upon this "vision" and "road map" concept. The residents of Merrick County must also act or implement the necessary steps involved in achieving this "vision".

Change is continuous, therefore, Merrick County must decide specific criteria that will be used to judge and manage change. Instead of reacting to development pressures after the fact, the community along with their strategic vision, can better reinforce the desired changes, and discourage negative impacts that may undermine the vision. A shared vision allows Merrick 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 Merrick 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. Merrick 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 community. 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.

The goals and policies assure the Comprehensive Development Plan accomplishes the desires of the residents. This section of the Plan is therefore, a compilation of local attitudes collected through public meetings and surveys. When followed, development proposals in the community should be evaluated as to their relationship with the citizens' comments. Therefore, "goals and policies" should be referred to as diligently as the Future Land Use Map or any other part of the Comprehensive Development Plan. Likewise, they should be current, in order to

reflect the attitudes and desires of the County and its residents.

It is important for communities to establish their goals and policies in a manner that allows 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.

Merrick County Vision and the Plan

The Merrick County Comprehensive Plan provides a broadly painted picture for the community'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 Merrick County.

The core promise embedded in the Merrick County Plan 2015 is designed to maintain and enhance the heath, safety and welfare of the community 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 community. The plan is a combination of practicality and vision, and provides guidelines for sustaining the rich fabric of the Merrick County community.

Merrick County Plan Goals and Policies

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

3

Population

Demographic Profile

Demographics aid in understanding the past and existing conditions; while applying these to the future. It is critical for Merrick County, including the decision-makers to understand where the county has been, where it is and where it appears to be going.

Population drives all of the major components making up the county including housing, local employment, economic, and the fiscal stability of the county. Historic population assists in developing projections for the future, which in turn assists in determining future housing, retail, medical, employment and educational needs within Merrick 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

Table 3.1 contains the historic population for Merrick County, and the incorporated communities in Merrick County, and the unincorporated areas, between 1980 and 2012. The data provides look at where Merrick County has been and allows for the eventual projection of populations in the county.

Table 3.1: Population Trends and Analysis
Merrick County 1980 to 2012

Community	1980	1990	2000	2010	% Change 2000 to 2010	2012 est.	% Change 2000 to 2012	% Change 1980 to 2012
Central City	3,083	2,868	2,934	2,893	-1.4%	2,915	0.8%	-5.4%
Chapman	349	292	341	287	-15.8%	284	-1.0%	-18.6%
Clarks	445	379	361	369	2.2%	360	-2.4%	-19.1%
Palmer	487	434	472	472	0.0%	469	0.0%	-3.7%
Silver Creek	496	437	441	362	-17.9%	360	-17.9%	-27.4%
Incorp. Areas	4,860	4,410	4,549	4,383	-3.6%	4,388	-3.6%	-9.7%
Unincorp. Areas	4,085	3,639	3,655	3,462	-5.3%	3,392	-2.0%	-17.0%
Merrick County	8,945	8,049	8,204	7,845	-4.4%	7,780	-0.8%	-13.0%

Source: U.S. Census Bureau, 1980 - 1990, 2000, 2010, 2012 est.

Overall, the population decreases have been the result of losses in the unincorporated areas and in all of the incorporated communities. The incorporated communities had a change of –9.7%; while the unincorporated areas changed –17.0%.

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.

Table 3.2: Migration Analysis
Merrick County 1980 to 2010

Time Period	Total Change (persons)	Natural Change (persons)	Total Migration (persons)
1980-1989	(896)	314	(1,210)
1990-1999	155	100	55
2000-2009	(359)	32	(391)
Total	(1,100)	446	(1,546)

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

Table 3.2 indicates the primary issue with the decreasing population in Merrick County is people moving out of the county. Overall from 1980 to 2010, Merrick County has actually seen an increase in population due more people being born versus dying. During the 30 year period births exceeded deaths by 446 people.

Between 1980 and 2010, the county lost, overall, 1,100 people; however, during the same period there were 1,546 people that moved away. The period where the county saw the greatest exodus was from 1980 to 1989 when 1,210 people moved away. This exodus equaled approximately one person in eight leaving Merrick County for somewhere else.

Since the 1980's the scale of the exodus has been slowing dramatically. Between 1990 and 2000, Merrick County saw 55 people move into the county while there were 100 more births than deaths. Finally, the people that moved away between 2000 and 2010 equaled 391 or 25.3% of the total out-migration. These are some encouragement in the slower shifts in the out-migration from Merrick County.

Age Structure Analysis

Age structure is an important component of population analysis. By analyzing age structure, one can determine other dynamics affecting the population of Merrick County.

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

TABLE 3.3: AGE AND SEX CHARACTERISTICS MERRICK COUNTY 2000 TO 2010

Age	2000	2010	2000-2010	
	Male and Female	Male and Female	Cohort Change	% Change
0-4	522	474	474	-
5-9	628	536	536	-
10-14	681	547	25	4.8%
15-19	614	564	-64	-10.2%
20-24	336	353	-328	-48.2%
25-29	390	399	-215	-35.0%
30-34	432	386	50	14.9%
35-44	1,208	914	92	11.2%
45-54	1,110	1,183	-25	-2.1%
55-64	846	1,073	-37	-3.3%
65-74	700	726	-120	-14.2%
75 & older	737	690	-747	-52.0%
Total	**8,204**	**7,845**	**-359**	**-4.4%**

U.S. Census Bureau 2000, 2010

Table 3.3 Contains the age group structure for Merrick County in 2000 and 2010. The examination of population age structure allows for 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.

Realizing how many persons are in each age group, and at what rate the age groups are changing in size, will allow for informed decision-making in order to maximize the future use of resources. As shown in Table 3.3, significant changes between 2000 and 2010 occurred within a number of different age groups.

A review of population by this method permits one to undertake a detailed analysis of which specific groups are moving in and out of the community. Negative changes in a group indicates out-migration or a combination of out-migration and deaths.

Merrick County saw growth in five age groups. The 0 to 4 and 5 to 9 groups always indicate an increase, since these persons were not born when the 2000 Census was completed. Outside of the 2010 age groups of 0-4 and 5-9 years, the other increase were in the 10-14 (2010), the 30-34 (2010), and the 35-44 (2010). Overall, there was an increase of 1,177 persons in these five age groups. When you eliminate the first two younger populations, there were 167 people that moved in during this period. This population increase consisted primarily of family aged adults and children.

TABLE 3.4: NEGATIVE AGE GROUPS MERRICK COUNTY 2000 TO 2010

2000 Age Group	Persons	2010 Age Group	Persons	Change
5 - 9 years	628 persons	15 - 19 years	564 persons	- 64 persons
10 - 14 years	681 persons	20 - 24 years	353 persons	-328 persons
15 - 19 years	614 persons	25 - 29 years	399 persons	- 215 persons
35-44 years	1,208 persons	45-54 years	1,183 persons	-25 persons
45-54 years	1,110 persons	55-64 years	1,073 persons	- 37 persons
55–64 years	846 persons	65–74 years	726 persons	- 120 persons
65 years +	1,437 persons	75 years +	690 persons	- 747 persons
Total Change				**- 1,536 persons**

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

There were seven age groups from 2000 that declined by 2010. The group with the greatest loss was the 75 years + (2010) which lost 747 persons over the period. This loss is can be attributed to two causes, 1) people moving on after 65 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 885 resident deaths in Merrick County.

Table 3.5: Positive Age Groups Merrick County 2000 to 2010

2000 Age Group	Persons	2010 Age Group	Persons	Change
NA	NA	0 - 4 years	474 persons	+ 474 persons
NA	NA	5 - 9 years	536 persons	+ 536 persons
0-4 years	522 persons	10-14 years	547 persons	+ 25 persons
20-24 years	336 persons	30-34 persons	386 persons	+ 50 persons
25 - 34 years	822 persons	35 - 44 years	914 persons	+ 92 persons
Total Change				+ 1,177 persons

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

Overall, Merrick County has had a unique population pattern occur during this past ten year period. Solid in -migration from family age groups but then still being negatively impacted by the out-migration of the elderly and post high school youth/adults.

Median Age

Between 2000 and 2010 the median age in Merrick County increased from 39.2 years to 42.5 years. This increase equaled 3.3 years or an increase of 8.4.

Table 3.6: Median Age/Dependency Ratio Merrick County 2000 to 2010

Source: U.S. Census Bureau 2000 and 2010

2000		2010	
Under 18 years of age	2,260	Under 18 years of age	1,945
% of total population	27.5%	% of total population	24.8%
Total 65 yrs and older	1,437	Total 65 yrs and older	1416
% of total population	17.5%	% of total population	18.0%
Median Age	39.2	Median Age	42.5
Total Females	4,187	Total Females	3,965
Total Males	4,017	Total Males	3,880
Dependency Ratio	0.82	Dependency Ratio	0.75
Total Population	**8,204**	**Total Population**	**7,845**

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

$$\frac{\%\text{18 years and younger} + \%\text{ 65 years} +}{\%\text{ of remaining population}}$$

Dependency Ratio

The dependency ratio examines the portion of a county that is spent supporting age groups that have historically been dependent upon others for survival (those under 18 years and those 65 years and more). See the box above for details on calculating the ratio.

Table 3.3 indicates the dependency ratios for 2000 and 2010 in Merrick County. The proportion of persons less than 18 years of age decreased by 13.9% between 2000 and 2010; while those aged 65 years and older decreased by 1.5% overall.

In 2000, Merrick County had a Dependency Ratio of 0.82 (45.0%/55.0%); however, by 2010 the Ratio had decreased to 0.75 (42.8%/57.2%). This is supported by the substantial decrease in the 18 and under age group.

Ethnicity

Merrick County during the past decade has seen a shift in the ethnicity within the county. The dynamic ethnicity adds to the overall population can be complex and can cause considerable growing pains and cultural shifts regardless of the ethnic background. The shifts seen in Merrick County are large considering the Hispanic population increased 103 persons or 61.3%. However, Merrick County saw an increase in several categories including Asian and Pacific Islander, which increased by 48 people or 266.7%. These two ethnic groups are likely immigrants.

TABLE 3.7: POPULATION BY ETHNICITY MERRICK COUNTY 2000 TO 2010

Race	2000		2010	
	Number	% of total	Number	% of total
White, not Hispanic	8,066	98.3	7,550	96.2
Black	18	0.2	15	0.2
Am. Indian & AK. Native	8	0.1	31	0.4
Asian & Pacific Islander	18	0.2	66	0.8
Other, not Hispanic	55	0.7	105	1.3
Hispanic	168	2.0	271	3.5
Mexican	125	1.5	226	2.9
Puerto Rican	0	0.0	6	0.1
Cuban	1	0.0	1	0.0
Other Hispanic	42	0.5	38	0.5

Source: US Census 2000, and 2010

In addition, the White population saw an 6.4% decrease overall, which equaled 516 less 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 Merrick 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 Merrick County has for predicting future population changes. There are many methods to project the future population trends; the two projection techniques used below are intended to give Merrick 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 Merrick County, three different trend lines were reviewed: 1960 to 2010, 1990 to 2010, and 2000 to 2010. A review of these trend lines indicates Merrick County will see varied levels of decreasing population between now and 2040. The following projections summarize the decennial population for Merrick County through 2040.

Merrick County Trend Analysis

Year	1960 to 2010
2010	7,845 persons
2020	7,748 persons
2030	7,652 persons
2040	7,557 persons

Year	1990 to 2010
2010	7,845 persons
2020	7,746 persons
2030	7,647 persons
2040	7,551 persons

Year	1980 to 2010
2010	7,845 persons
2020	7,523 persons
2030	7,215 persons
2040	6,919 persons

Cohort Survival Analysis

Cohort Survival Analysis reviews the population by different age groups and sex. The population age groups are then projected forward by decade using survival rates for the different age cohorts. This projection model accounts for average birth rates by sex and adds the new births into the future population.

The Cohort Survival Model projection indicates Merrick County's population will decline slightly in 2020 and then begin a steady increase each decade through 2040. The following projection for Merrick County is based on applying survival rates to age cohorts, but does not consider the effects of either in-migration or out-migration.

Merrick County Cohort Survival Analysis

Year	Cohort Survival Model
2020	7,164 persons
2030	7,646 persons
2040	8,180 persons

SUMMARY OF POPULATION PROJECTIONS

Using the modeling techniques discussed in the previous paragraphs, a summary of the two population projections for Merrick 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. All three projections forecast a continuing decline in population for Merrick County through the year 2040.

Low = *1980 to 2010*

2020	7,523 persons
2030	7,215 persons
2040	6,919 persons

Medium = *1990 to 2010*

2020	7,746 persons
2030	7,647 persons
2040	7,551 persons

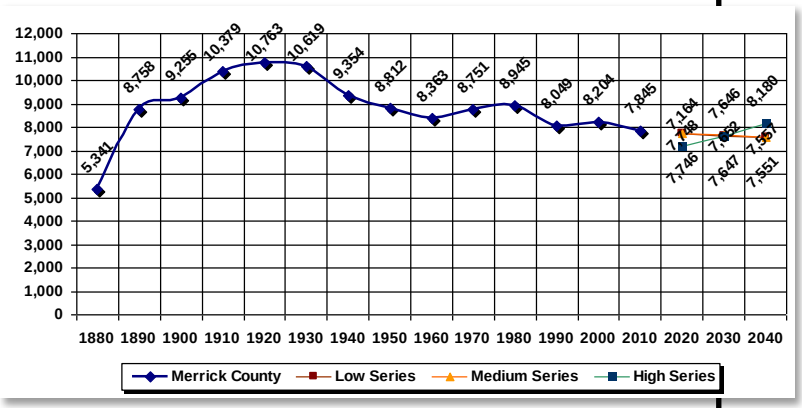
High = Cohort

2020	7,164 persons
2030	7,646 persons
2040	8,180 persons

Figure 3.1 reviews the population history of Merrick County between 1880 and 2010, and identifies the three population projection scenarios into the years 2020, 2030 and 2040. Figure 3.1 indicates the peak population for Merrick County occurred in 1920 with 10,763 people. Throughout the history of Merrick County, the population has had several increases and decreases.

As stated previously, the projections have been developed from data and past trends, as well as present conditions. A number of external and internal demographic, economic and social factors may affect these population forecasts. Merrick County should monitor population trends, size and composition periodically in order to understand in what direction their community is heading. Merrick County's greatest population threats will continue to be out-migration of youth, and strategies should be developed to further examine and prevent this phenomenon.

FIGURE 3.1: POPULATION AND PROJECTIONS



MERRICK COUNTY 1880 TO 2040
Source: U.S. Census Bureau, Marvin Planning Consultants

4

Merrick County Housing Chapter

Housing Profile

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

The housing profile is an analysis that aids in determining the composition of owner-occupied and renter-occupied units, as well as the existence of vacant units. It is important to evaluate information on the value of owner-occupied housing units, and monthly rents for renter-occupied housing units, to determine if housing costs are a financial burden to Merrick County residents.

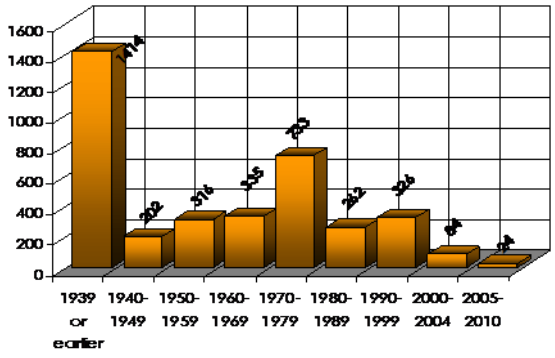
Projecting future housing needs, requires several factors to be considered. These factors include population change, household income, employment rates, land use patterns, and residents' attitudes.

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 Merrick 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 Merrick County.

Figure 4.1: Age of Existing Housing Stock Merrick County 2010



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

Figure 4.1 indicates 1,414 homes or 38.3% of Merrick County's 3,696 total housing units, were constructed prior to 1940. This statistic is county-wide, including each community, and consists of older well-kept homes as well as homes likely in need of repair or demolition.

Merrick County has seen very positive construction activity between 1950 and 2000 with 1,972 (53.4%) homes constructed. This was especially true between 1970 and 1980 saw 733 (19.8%) new homes built during the decade. These data indicate the economy was relatively good during these decades.

Approximately 52% of all housing units in Merrick 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 the communities to bring these homes up to current energy efficiency standards.

Table 4.1: Community Housing Trends Merrick County 2000 to 2010

Selected Characteristics	2000	2010	% Change 2000-2010
Population	8,204	7,845	-4.4%
Persons in Household	8,069	7,648	-5.2%
Persons in Group Quarters	135	197	45.9%
Persons per Household	2.51	2.43	-3.2%
Total Housing Units	3,649	3,698	1.3%
Occupied Housing Units	3,209	3,151	-1.8%
Owner-occupied units	2,379	2,345	-1.4%
Renter-occupied units	830	806	-2.9%
Vacant Housing Units	440	547	24.3%
Owner-Occupied vacancy rate	2.2%	2.4%	9.1%
Renter-Occupied vacancy rate	7.4%	13.6%	83.8%
Single-family Units	2,999	3,159	5.3%
Duplex/Multiple-family units	223	182	-18.4%
Mobile Homes, trailer, other	423	355	-16.1%
Median Gross Rent - 2000-2010			
Merrick County	$401	$551	**37.4%**
Nebraska	**$491**	**$632**	**28.7%**
Median Value of Owner-Occupied Units - 2000-2010			
Merrick County	$62,700	$78,900	**25.8%**
Nebraska	**$88,000**	**$119,700**	**36.0%**

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

Housing Trends

Table 4.1 identifies several different housing trends in Merrick County. The Table indicates the breakdown between owner- or renter-occupied housing as well as the number of people living in Group Quarters. Examining these type of housing trends allow for a better understanding of the overall diversity of the

population and their quality of life within Merrick County.

Persons in Households/Group Quarters

In 2010 there were 421 fewer people living in households than in 2000, this represents a change of –5.2%. The decrease in persons in households is slightly higher than the actual population decrease of 4.4% seen for the same period. Between 2000 and 2010, the number of people living in group quarters went from 135 people in 2000 to 197 in 2010 a change of 45.9%.

Persons per Household

Table 4.1 also includes the number of persons per household. The average persons per household in Merrick County decreased from 2.51 to 2.43 persons. The trend nationally has been towards a declining household size; however, the person per household in Merrick County is similar to the surrounding counties:

- Polk County has 2.39 persons per household
- Platte County has 2.51 persons per household
- York County has 2.32 persons per household
- Nance County has 2.36 persons per household
- Hall County has 2.59 persons per household
- Howard County has 2.38 persons per household

Occupied vs. Vacant Housing Units

Occupied housing units in the county declined by 1.8% between 2000 to 2010; this was a 58 unit decline by 2010.

During the timeframe, vacant housing units grew from 440 units to 547 units or 24.3%. This is a significant increase for the 10 year Census period. The largest increase in vacancy rates was found in rental units which increased 7.4% to 13.6% or an increase of 83.8% from 2000 to 2010.

Median Gross Rent

Median gross rent in Merrick County increased from $401 per month in 2000 to $551 per month in 2010, or 37.4%. The State's median monthly gross rent increased by 28.7%. This indicates Merrick County has seen gross rent increase slightly higher rate than the state. However, the County's Median Gross Rent is still considerably less than that of the State.

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 28.7%, indicating Merrick County's rents exceeded the rate of inflation for the 10-year period. Thus, Merrick County tenants were paying more in monthly rents in 2010, in terms of real dollars, than they were in 2000, on average. Landlords were also making more on their investment.

Median Value of Owner-occupied Units

The Median value of owner-occupied housing units in Merrick County increased from $62,700 in 2000 to $78,900 in 2010 and represents an increase of 25.8%. The median value for owner-occupied housing units in the state showed an increase of 36.0%. Housing values in Merrick County grew at a slower rate than seen statewide. However, the Median Value of an owner occupied unit in Merrick County is still nearly 2/3 of the state median and in reality the 2010 is farther from the state median value than it was in 2000.

In comparison to the CPI, the local value of owner-occupied housing increased at a rate slower than the CPI. This indicates housing values in the community actually were worth less in 2010 compared to 2000 dollars. In 2010, the median value of an owner-occupied dwelling was worth $0.89 for every dollar in 2000.

Tenure of Households by Selected Characteristics

Table 4.2 shows tenure (owner-occupied and renter-occupied) of households by number and age of persons in each housing unit. Analyzing these data gives Merrick County the opportunity to determine where there may be a need for additional housing.

2000

The largest section of owner-occupied housing in Merrick County in 2000, based upon number of persons, was two person households, with 1,008 units, or 42.4% of the total owner-occupied units. By comparison, the largest household size for rentals was the single person households which had 324 renter-occupied housing units, or 39.0% of the total renter-occupied units.

Merrick County was comprised of 2,009 1-or 2-person households, or 62.6% of all households. Households having 5-or more persons comprised only 10.4% of the owner-occupied segment, and 10.8% of the renter-occupied segment. Countywide, households of 5-or more persons accounted for 337 units, or 10.5% of the total.

TABLE 4.2: HOUSEHOLD CHARACTERISTICS
MERRICK COUNTY 2000 TO 2010

Householder Characteristic	2000				2010				O.O.	R.O.
	Owner-Occupied	% O.O	Renter-Occupied	% R.O	Owner-Occupied	% O.O	Renter-Occupied	% R.O	Percent Change	
Tenure by Number of Persons in Housing Unit (Occupied Housing Units)										
1 person	479	20.1%	324	39.0%	503	21.4%	339	42.1%	5.0%	4.6%
2 persons	1,008	42.4%	198	23.9%	1,031	44.0%	209	25.9%	2.3%	5.6%
3 persons	305	12.8%	129	15.5%	318	13.6%	106	13.2%	4.3%	-17.8%
4 persons	340	14.3%	89	10.7%	261	11.1%	81	10.0%	-23.2%	-9.0%
5 persons	164	6.9%	65	7.8%	140	6.0%	49	6.1%	-14.6%	-24.6%
6 persons or more	83	3.5%	25	3.0%	92	3.9%	22	2.7%	10.8%	-12.0%
TOTAL	**2,379**	**100.0%**	**830**	**100.0%**	**2,345**	**100.0%**	**806**	**100.0%**	**-1.4%**	**-2.9%**
Tenure by Age of Householder (Occupied Housing Units)										
15 to 24 years	38	1.6%	99	11.9%	38	1.6%	87	10.8%	0.0%	-12.1%
25 to 34 years	247	10.4%	175	21.1%	226	9.6%	155	19.2%	-8.5%	-11.4%
35 to 44 years	465	19.5%	192	23.1%	344	14.7%	149	18.5%	-26.0%	-22.4%
45 to 54 years	482	20.3%	128	15.4%	512	21.8%	116	14.4%	6.2%	-9.4%
55 to 64 years	416	17.5%	53	6.4%	503	21.4%	106	13.2%	20.9%	100.0%
65 to 74 years	369	15.5%	54	6.5%	364	15.5%	61	7.6%	-1.4%	13.0%
75 years and over	362	15.2%	129	15.5%	358	15.3%	132	16.4%	-1.1%	2.3%
TOTAL	**2,379**	**100.0%**	**830**	**100.0%**	**2,345**	**100.0%**	**806**	**100.0%**	-1.4%	-2.9%

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

In 2000, the age cohorts representing the largest home ownership group was 45-54 years. Of the total residents living in owner-occupied housing units, 20.3% were between 45 and 54 years of age. This group was closely followed by the 35 to 44 years with 19.5%. Overall, 68.8% of all owner-occupied units were owned by individuals 45 years and older.

The renter occupied housing was dominated by two cohort groups; the 35 to 44 years (23.1%) and the 25 to 34 years (21.1%). These two cohorts represent 44.2% of all the renter-occupied units in 2000.

2010

In 2010, the largest section of owner-occupied housing in Merrick County remained with the two-person household, with 1,031 units, or 44.0% of the total owner-occupied units; an increase of 2.3% over 2000. By comparison, the largest household size for rentals was the single person households with 339 renter-occupied housing units, or 42.1% of the total renter-occupied units; a change of 4.6% over 2000. The renter-occupied group having the largest percentage increase was the two-person household.

In 2010, the age cohorts representing the largest home ownership group was those 45 to 54 years. Of the total residents living in owner-occupied housing units, 21.8% were between 45 and 54 years of age. The 55 to 64 years cohort was a close second with 21.4% of the total owner-occupied units.

Merrick County was comprised of 2,082 1-or 2-person households, or 66.1% of all households; which represents an increase of 3.6% from 2000. Households having 5-or more persons comprised 9.9% of the owner-occupied segment, and 8.8% of the renter-occupied segment. Countywide, households with 5-or more persons accounted for 303 units, or 9.6% of the total. The total number of owner-occupied units decreased by 34 units or –1.4%.

The renter occupied housing was again dominated by the two different cohort groups; the 25 to 34 years (19.2%) and the 35 to 44 years (18.5%). These two cohorts represent 37.7% of all the renter-occupied units in 2010. This is a decrease from 2000.

TABLE 4.3: SUBSTANDARD HOUSING CONDITIONS MERRICK COUNTY 2000 TO 2010

Substandard Units	Merrick County		State of Nebraska	
	Total	% of Total	Total	% of Total
Characteristics				
2000 Units Lacking Complete Plumbing Facilities	16	0.8%	6,398	0.9%
2000 Units with More Than One Person per Room	46	2.4%	17,963	2.5%
2010 Units Lacking Complete Plumbing Facilities	27	1.4%	2,540	0.3%
2010 Units with More Than One Person per Room	7	0.4%	12,201	1.5%
Substandard Units				
2000 Total	62	3.2%	24,361	3.1%
2010 Total	34	1.7%	14,741	1.9%

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

Substandard Housing

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

These criteria when applied to Merrick County indicate 62 housing units, or 3.2% of the total 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 46 units.

In 2010 the total number of substandard housing units decreased to 34 units. However, the primary contributing factor was a lack of complete plumbing which accounted for nearly 80% of substandard problem and the actual reported number increased by nine units from 2000 to 2010. Comparing Merrick County to the state of Nebraska as a whole, the percent of substandard housing units in Merrick County was about the same as the state as a whole 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 these data overestimate 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 work with local agencies to provide quality housing.

H-4.1.2 A program to identify substandard housing units throughout Merrick County should be a priority and substandard housing units should be repaired or demolished.

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 work with agencies and funding sources like CDBG to offset development costs in order to bring the overall cost of housing down.

H-4.2.2 The county should continue to focus on affirmatively furthering fair housing throughout the entire county area.

H-4.2.3 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-4.2.4 Support all funding mechanisms available to effectively lower the cost of development and housing.

H-4.2.5 The County should continually work with each community as they strive to provide better housing within the corporate limits.

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 Merrick County. In this section, employment by industry, household income statistics, commuter analyses, and agricultural data were reviewed for Merrick County and Nebraska.

Income Statistics

Income statistics for households are important for determining the earning power of households in a county. The data presented here show household income levels for Merrick 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).

Table 5.1 indicates the number of households in each income range for Merrick County for 2000 and 2010. In 2000, the household income range most commonly reported was $35,000 to 49,999, which accounted for 23.7% of all households. Within the state of Nebraska the income range most reported statewide was the $50,000 to $74,999.

By 2010, the income range reported most was the $50,000 to 74,999 which accounted for 26.7% of the total. The statewide income range was still the $50,000 to $74,999 range. Merrick County saw strong growth in the middle to upper income levels while the lower levels saw some solid declines.

Those households earning less than $15,000 decreased from 16.0% in 2000 to 14.9% in 2010. These household groups account for the poorest of the poor in the county. The decrease between 2000 and 2010 was 38.5%, which indicates some improvement.

The median household income for Merrick County was $34,961 in 2000, which was 89% of the State median income. By 2010, the median household income increased to $46,116 or an increase of 31.9% and was still less than the state median income; however, the median household income in Merrick County was at 96% of the state's. Therefore, the gap between the state and Merrick County is shrinking.

The CPI for this period was 23.6%, indicating household incomes in Merrick County were growing at a faster rate than nation. Households were earning more in real dollars in 2010 than in 2000.

Table 5.1: Household Income Merrick County 2000 to 2010

Household Income Ranges	2000				2010			
	Merrick County	% of Total	State of Nebraska	% of Total	Merrick County	% of Total	State of Nebraska	% of Total
Less than $10,000	276	8.6%	55,340	8.3%	106	3.4%	47,902	6.8%
$10,000 to $14,999	238	7.4%	43,915	6.6%	210	6.7%	41,039	5.8%
$15,000 to $24,999	516	16.1%	98,663	14.8%	513	16.3%	82,906	11.8%
$25,000 to $34,999	571	17.9%	97,932	14.7%	300	9.5%	83,822	11.9%
$35,000 to $49,999	758	23.7%	122,654	18.4%	562	17.9%	109,525	15.6%
$50,000 to $74,999	559	17.5%	136,141	20.4%	839	26.7%	146,852	20.9%
$75,000 to $99,999	187	5.8%	58,361	8.7%	302	9.6%	87,734	12.5%
$100,000 to $149,999	58	1.8%	36,565	5.5%	258	8.2%	69,882	9.9%
$150,000 to $199,999	10	0.3%	8,551	1.3%	36	1.1%	17,498	2.5%
$200,000 or more	25	0.8%	8,873	1.3%	19	0.6%	15,477	2.2%
Total	3,198	100.0%	666,995	100.0%	3,145	100.0%	702,637	100.0%
Median Household Income	$34,961		$39,250		$46,116		$47,995	
Number of Households	3,198		666,995		3,145		702,637	

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

Income Source/Public Assistance

The table below shows personal income by source for Merrick 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 equal to 164.7%.

Table 5.2: Income by Source
Merrick County and Nebraska 1980 to 2010

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

Income Characteristics	1980	1990	2000	2010	% Change 1980-2010	% Annual Change
Merrick County						
Total Personal Income	$57,841,000	$132,259,000	$185,068,000	$283,684,000	390.5%	9.8%
Non-farm Income	$62,891,000	$97,063,000	$89,721,000	$248,857,000	295.7%	7.4%
Farm Income	-$5,050,000	$35,190,000	$18,567,000	$34,827,000	789.6%	19.7%
Per Capita Income	**$6,447**	**$16,415**	**$26,718**	**$36,152**	**460.8%**	**11.5%**
State of Nebraska						
Total Personal Income	$14,394,940,000	$28,388,321,000	$48,997,941,000	$72,189,707,000	401.5%	10.0%
Non-farm Income	$14,296,494,000	$26,201,453,000	$47,577,270,000	$68,743,169,000	380.8%	9.5%
Farm Income	$98,446,000	$2,186,868,000	$1,420,671,000	$3,446,538,000	3400.9%	85.0%
Per capita income	**$9,155**	**$17,948**	**$28,590**	**$39,445**	**330.9%**	**8.3%**

Non-farm and Farm Income

Total non-farm income, in Merrick County, increased from $62,891,000 in 1980 to $248,857,000 in 2010, or an increase of 295.7%, which was more than 1.75 times the CPI. By 2010, farm income had risen from $-5,050,000 to $34,827,000, or 789.6%, which is nearly five times the CPI.

Per Capita Income

The per capita income in Merrick County increased from $6,447 in 1980 to $36,152 in 2010, or an increase of 460.8%. Merrick County's per capita income has grown at a greater rate than the state as a whole.

Transfer Payments

Another income source deserving examination is the amount of Transfer Payments (not including the Farm Program dollars) to individuals in Merrick County from 1970 to 2010, which is provided in Table 5.3. Note the total amount of Transfer Payments equals Government Payments to Individuals plus Payments to Non-Profit Institutions plus Business Payments. The remaining categories listed in the table are subsets of the Government Payments to Individuals category. In 1970, Total Transfer Payments to Merrick County were $3,008,000, and the State was $497,556,000. By 2010, Total Transfer Payments to Merrick County were $59,962,000, or an increase of 1893.4%, and the State total was $11,563,462,000, or an increase of 2224.1%.

Table 5.3: Transfer Payments
Merrick County/Nebraska 1970 to 2010

Payment Type	1970	1980	1990	2000	2010	% Change 1970 to 2010
Merrick County						
Government payments to individuals	$2,810,000	$9,123,000	$16,556,000	$30,730,000	$58,353,000	1976.6%
Retirement, Disability & Insurance Benefits	$1,796,000	$5,869,000	$10,443,000	$15,960,000	$22,848,000	1172.2%
Medical Benefits	$483,000	$1,998,000	$4,436,000	$11,120,000	$25,312,000	5140.6%
Income Maintenance Benefits (SSI, AFDC, Food Stamps, etc)	$134,000	$442,000	$690,000	$1,889,000	$4,667,000	3382.8%
Unemployment Insurance Benefits	$67,000	$158,000	$146,000	$243,000	$1,388,000	1971.6%
Veteran's Benefits	$259,000	$530,000	$618,000	$1,169,000	$3,303,000	1175.3%
Federal Education and Training Assistance	$71,000	$126,000	$221,000	$335,000	$617,000	769.0%
Payment to Non-profit Institutions	$107,000	$328,000	$382,000	$677,000	$948,000	786.0%
Business Payments	$91,000	$248,000	$568,000	$930,000	$661,000	626.4%
Total	**$3,008,000**	**$9,699,000**	**$17,506,000**	**$32,337,000**	**$59,962,000**	**1893.4%**
Transfer Payments Per Capita	$344	$1,084	$2,175	$3,942	$7,643	2124%
Total Per Capita Income	$3,508	$6,639	$16,763	$22,800	$36,152	930.6%
Per Capita Transfer Payments as % of Per Capita Income	**9.8%**	**16.3%**	**13.0%**	**17.3%**	**21.1%**	**115.8%**
State of Nebraska						
Total	**$497,556,000**	**$1,693,802,000**	**$3,365,241,000**	**$6,088,115,000**	**$11,549,607,000**	**2221.3%**
Capita	$335	$1,079	$2,132	$3,558	$6,323.91	1787.8%
Total Per Capita Income	$3,905	$9,386	$18,459	$28,967	$39,935	923%
Per Capita Transfer Payments as % of Per Capita Income	**8.6%**	**11.5%**	**11.6%**	**12.3%**	**15.8%**	**84.6%**

Source: Bureau of Economic Analysis, Regional Economic Information System, 2010

The trend for transfer payments per capita between 1970 and 2010 indicates significant increases. In 1970 the Transfer Payment per capita in Merrick County was $344; by 2010 this increased to $7,643 per person. This is an increase of 2124% or 53.1% annually.

The per capita Transfer Payments can be compared to the total per capita income of Merrick County. When comparing the two, in 1970, Transfer Payments made up 9.8% of the total per capita income in Merrick County; however, by 2010, Transfer Payments per capita comprised 21.1% of the total per capita income of the county (over 1 in 5 dollars per capita were a government payment).

Total transfer payments between 1970 and 2010 have shown an increase in each reporting period. Income maintenance and medical payments comprised the majority of total transfer payments. The largest percentage increase occurred within Medical Payments, which increased by nearly 5200% or 130% annually. Income Maintenance was second at nearly 3400% or 85% annually.

The significance of these numbers is to make the county aware of the impact federal programs,

outside of the Farm Program, are having within Merrick County. Discussion will likely continue in Washington D.C. regarding the cutting or elimination of some or all of these federal programs; as it does continue counties and communities need to realize the impacts and need to be prepared for any negative effects that result.

Industry Employment

Employment by industry shows where the residents of Merrick County are employed. The data in Table 5.4 does not necessarily represent the types and numbers of jobs within Merrick County. Table 5.4 indicates employment size by industry for Merrick County and the State of Nebraska for 2000 and 2010.

Table 5.4 shows the employment sector with the greatest number of employees was Educational, health and social services, as well as Manufacturing. Each sector employed 797 people or 19.8% and 687 people or 17.1% respectively of the total employed residents in 2000.

Table 5.4: Employment by Industry Merrick County 2000 to 2010

Industry Categories	Merrick County			
	2000	% of Total	2010	% of Total
Agriculture, Forestry, Fishing and Hunting and Mining	488	12.1%	527	13.3%
Construction	261	6.5%	301	7.6%
Manufacturing	687	17.1%	441	11.2%
Wholesale Trade	116	2.9%	235	5.9%
Retail Trade	512	12.7%	611	15.5%
Transportation and warehousing and utilities	213	5.3%	236	6.0%
Information	80	2.0%	64	1.6%
Finance, insurance, real estate, and rental and leasing	153	3.8%	133	3.4%
Professional, scientific, management, administrative, and waste management	163	4.1%	170	4.3%
Educational, health, and social services	797	19.8%	701	17.7%
Arts, entertainment, recreation, accommodation and food services	220	5.5%	267	6.8%
Other services (except public administration)	197	4.9%	119	3.0%
Public Administration	134	3.3%	148	3.7%
Total Employed Persons	4,021	100.0%	3,953	100.0%

Source: U.S. Census Bureau 2000 and American Community Survey 2005-2010

By 2010, Educational, health and social services had decreased to 701 employees or 17.7% of the total workforce. In 2010 the second largest employment sector was Retail Trade (up from number 3) with 611 people or 15.5%. Manufacturing drop down to fourth an saw a decrease in employees to 441 people or 11.2%. The new number 3 (up from number 4) was Agriculture, Forestry, Fishing and Hunting and Mining with 527 people or 13.3%.

Overall the top five industries in Merrick County in 2000 were:

1. Educational, health, and social services
2. Manufacturing
3. Retail Trade
4. Agriculture, forestry, fishing and hunting and mining
5. Construction

Overall the top five industries in Merrick County in 2010 were:

1. Educational, health, and social services
2. Retail Trade
3. Agriculture, forestry, fishing and hunting and mining
4. Manufacturing
5. Construction

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

TABLE 5.5: BASIC/NON-BASIC EMPLOYMENT
MERRICK COUNTY 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
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%	7.8
Polk County	32.9%	15.9%	18.7%	16.9%	15.6%	10.6
Hamilton County	33.2%	15.1%	23.6%	10.9%	17.1%	23.4
Nance County	35.8%	14.4%	15.8%	16.3%	17.7%	8.0
Howard County	31.0%	13.1%	24.5%	14.2%	17.2%	12.3
Nebraska	34.8%	16.2%	25.0%	10.1%	13.8%	NA

Source: American Community Survey 2006-2010

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

- Management business, science, and arts occupations
- Service occupations
- Sales and office occupations
- Natural resources, construction and maintenance occupations
- Production, transportation, and materials 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 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 if basic jobs bring new money into a local economy, the money then becomes the wages for workers in the economy. Therefore, more money brought in by basic jobs creates more non-basic jobs that are supported.

Basic Employment

The occupation categories are compared to the same categories for the state and where Merrick County's percentage exceeds the state's percentage there is Basic employment. Table 5.5 indicates there are three categories where Basic employment is present:

- Sales and office occupations
- Natural Resources, construction and maintenance occupations
- Production, transportation, and material moving occupations

Overall, 8.7% of the employment base in Merrick County is tied to the exportation of goods or services in these two categories. The county needs to continually work on their Business Retention and Expansion process in order to make these employers stay in the county.

Base Multiplier

The information in Table 5.5 shows Merrick County has a base multiplier of 10.5, which means every job falling into the basic category, 10.5 other jobs in the county are supported and/or impacted. This is illustrated by comparing the basic and non-basic percentages against each other.

Therefore, these jobs tied to exports are critical to supporting these additional 10.5 jobs and the dollars generated from both sets of employment. Therefore, if Merrick County lost just one of the jobs tied to exports then there is the potential to lose approximately 10.5 jobs from the non-basic employment side. There is no magical multiplier a county should aim to achieve. Every county is

different and the dynamics involved are different. The unique and ever changing dynamics are what make a particular county unique and attractive to different employers.

There is one concern showing up in Table 5.5, the large amount of basic employment found in the Natural Resources, construction and maintenance occupations. This area has 63.0% of all the Basic employment in Merrick County. Major decisions could have major economic impacts on the county. Future economic development efforts need to focus on improving the basic activity found in the other four categories.

It is critical for a county to determine their future vision for business and industry and work towards that end goal. 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

Table 5.6 show the commuter characteristics for Merrick County in 2000 and 2010. Travel time to work is another factor used to gauge where Merrick County's workforce is employed. Table 5.6 shows how many residents of Merrick County travel to work in several time categories.

Table 5.6: Travel Time to Work Merrick County 2000 to 2010

Travel Time Categories	2000	% of Total	2010	% of Total	% Change
Less than 10 minutes	1,162	29.3%	1,008	59.3%	-13.3%
10 to 14 minutes	504	12.7%	325	14.1%	-35.5%
15 to 19 minutes	430	10.8%	285	2.4%	-33.7%
20 to 29 minutes	608	15.3%	712	3.0%	17.1%
30 to 44 minutes	712	18.0%	869	12.0%	22.1%
45 to 59 minutes	159	4.0%	170	3.4%	6.9%
60 minutes or more	145	3.7%	96	5.8%	-33.8%
Worked at home	245	6.2%	408	10.5%	66.5%
Total	3,965	100.0%	3,873	100.0%	-2.3%
Mean Travel Time (minutes	20.7		21.7		4.8%

Source: U.S. Census Bureau 2000 and American Community Survey 2005-2010

Table 5.6 indicates there was an overall decrease in the number of people from Merrick County working in 2010 compared to 2000. The number of people working decreased from 3,965 in 2000 to 3,873 in 2010 or a change of –2.3%. The –2.3% change in persons working compared to an overall population change of –4.4% and the level of out-migration from the county would suggest the overall change in commuter population was due to those leaving Merrick County.

Table 5.6 indicates the workforce in 2010 spent more time traveling to work than in 2000. The average travel time increased from 20.7 minutes in 2000 to 21.7 minutes in 2010. The largest increase occurred with those traveling 30 to 44 minutes, which increased by 157 people or 22.1%. The second greatest group was the 20 to 29 minutes category, which increased by 104 persons, or 17.1%. One item of note contributing to the drive time is those working from home increased by 163 people or 66.5%. All of the drive times less than 19 minutes all saw sharp decreases in the number of people driving those distances.

Agricultural Profile

The agricultural profile evaluates key elements of the agriculture industry. Since most Nebraska counties were formed around county seats and agriculture, the agricultural economy, historically, has been the center of economic activity for counties. The U.S. Census Bureau, through the Census of Agriculture tracks agricultural statistics every five years. Since the frequency and years do not coincide with the decennial U.S. Census, it is difficult to compare sets of data.

Agriculture Trends

Table 5.7 identifies key components affecting Merrick 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

Table 5.7 shows the number of farms in Merrick County decreased between 1997 and 2012. This has been a normal trend throughout the entire state; fewer but larger farms. In 1997 there were 553 farms in the county; by 2012 the number decreased to 492 or a change of –11.0%. The state of Nebraska, for the same period, saw a decrease of over 5,200 farms for a total change of -9.8%. Therefore, the number of farms in Merrick County are decreasing at a faster rate than the state as a whole.

TABLE 5.7: AGRICULTURAL PROFILE
MERRICK COUNTY 1997 TO 2012

Agricultural Characteristics	1997	2002	2007	2012	% Change 1997-2012
Number of Farms	553	513	473	492	-11.0%
Land in Farms (acres)	273,892	283,026	247,927	235,072	-14.2%
Average size of farms (acres)	495	552	524	478	-3.4%
Total area for Merrick County	316,608	316,608	316,608	316,608	0.0%
Percentage of land in farms	86.5%	89.4%	78.3%	74.2%	-14.2%
Total cropland (acres)	220,316	216,711	199,641	200,159	-9.1%
Harvested cropland (acres)	198,457	200,573	187,894	193,720	-2.4%
Estimated Market Value of Land & Bldg (avg./fa	$657,609	$684,366	$959,888	$1,833,841	178.9%
Estimated Market Value of Land & Bldg (avg./a	$363	$1,339	$1,821	$3,838	957.3%

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

Average Size

The average size of each farm decreased from 495 acres in 1997 to 478 acres in 2012; however, in both 2002 and 2007 the average went above 500 acres. The overall decrease from 1997 to 2012 was 3.4%. Merrick County's farms are considerably smaller on average than the state of Nebraska. The average farm in Nebraska was 839 acres in 1992 and increased to 953 acres in 2007, an increase of 13.6%.

Total Cropland

The total cropland in Merrick County has been decreasing between 1997 until 2012; during this period the amount went from 220,316 acres to 200,159 acres. In 1997, 86.5% of the land within Merrick County was considered to be in farms and by 2012 the amount of the county considered to be in farms decreased to 74.2%.

Harvested Cropland

The next term/data is harvested cropland. Harvested cropland is as it sounds, cropland actually harvested. In 1997 the Harvested Cropland in Merrick County was 198,457 (90.0% of Total Cropland and only 72.5% of the Total Land in Farms). By 2012, the Harvested Cropland decreased to 193,720 acres (96.8% of Total Cropland and 82.4% of the Total Land in Farms).

Estimated Market Value

Table 5.7 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 $363. The average value increased in every Census of Agriculture and in 2012 it reached an average per acre of $3,838; an increase of 957.3% from 1997. The CPI for this same period was approximately 50%; therefore the average value per acre increased at nearly 20 times the rate of inflation in Merrick 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 $657,609 and increased to $1,833,841 in 2012, an overall increase of 178.9%. Again, this increase exceeded the CPI and the rate of inflation for the period.

The average per farm, statewide, was $567,468 in 1997 and $2,159,268 in 2012, an increase of 280.5%. Therefore, the average farm value in Merrick County is less than the state average.

TABLE 5.8: NUMBER OF FARMS BY SIZE
MERRICK COUNTY 1997 TO 2012

Farm Size (acres)	1997	2002	2007	2012	% Change 1997-2012
1 to 9	20	28	25	38	90.0%
10 to 49	55	55	78	99	80.0%
50 to 179	131	106	105	100	-23.7%
180 to 499	140	121	94	89	-36.4%
500 to 999	122	121	89	81	-33.6%
1,000 or more	85	82	82	85	0.0%
Total	**553**	**513**	**473**	**492**	**-11.0%**

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

Number of Farms

Table 5.8 shows the number of farms by size (in acres) in 1997, 2002, 2007, and 2012. The table between 1997 and 2012 there was a mixed change with regard to farm size. Farms 1 to 9 acres in size saw an increase of 90.0% while those 180 to 499 acres saw a change of –36.4%. Furthermore, the number of farms between 50 acres and 179 decreased by 23.7%. Overall, Merrick County saw an odd occurrence, with farms less than 50 acres increasing and all other sized farms showing a decrease in number or staying equal between 1997 and 2012.

Farms and Livestock

Table 5.9 indicates the number of farms and livestock by type for Merrick County between 1997 and 2012. The predominant livestock raised in Merrick County are Cattle and Calves, and Beef Cows followed by Hogs and Pigs. Livestock production in Merrick County has been varied between 1997 and 2012. Not a single livestock category has seen huge increases; the only increase has been a slight increase within the production of chickens (layers and pullets).

Cattle and calf production has decreased by 43.6% for the total number of animals raised. However, there was also a decline in the number of farms producing Cattle and calves; going from 301 in 1997 to 227 in 2012 or a change of –24.6%. The average per farm also decreased by approximately 1/4 for the same period.

Hogs and Pigs also saw declines from 1997 to 2012. The most significant decline was in the number of farms raising hogs and pigs, which went from 51 in 1997 to only eight in 2012, a decrease of 84.3%. The number of animals being raised declined only slightly from 31,122 animals in 1997 to 29,592 animals in 2012 or a loss of 4.9% The two factors discussed did result in an overall increase in the average per farm which went from 610 animals to 3,699 animals or an increase of 506.2% for the same period.

Sheep and Lambs in Merrick County saw a decrease in the total farms raising the animals from 14 to 11 farms or a change of –21.4%. The total number of animals raised has also deceased significantly going from 535 animals in 1997 to 219 animals in 2012 a change of –59.1%. Both of these combined contributed to the fact that the average per farm also decreased.

TABLE 5.10: FARMS AND LIVESTOCK BY TYPE
1997 TO 2012

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

Type of Livestock	1997	2002	2007	2012	% Change 1997 to 2012
Cattle and Calves					
farms	301	278	227	227	-24.6%
animals	79,641	60,102	59,187	44,952	-43.6%
average per farm	265	216	261	198	-25.2%
Beef Cows					
farms	259	247	206	204	-21.2%
animals	13,582	14,050	(D)	12,026	-11.5%
average per farm	52	57	(D)	59	12.4%
Milk cows					
farms	9	5	2	3	-66.7%
animals	186	434	(D)	153	-17.7%
average per farm	21	87	(D)	51	146.8%
Hogs and Pigs					
farms	51	15	13	8	-84.3%
animals	31,122	21,387	46,669	29,592	-4.9%
average per farm	610	1,426	3,590	3,699	506.2%
Sheep and lambs					
farms	14	10	12	11	-21.4%
animals	535	482	329	219	-59.1%
average per farm	38	48	27	20	-47.9%
Chickens (layers and pullets)					
farms	14	18	22	36	157.1%
animals	(D)	339	471	563	-
average per farm	(D)	19	21	16	-

(D) indicates disclosure problems

Farms raising beef cows decreased from 259 farms in 1997 to 204 farms in 2012 or –21.2%. The number of animals only saw a decrease of 11.5% for the same period going from 13,582 animals to 12,026 animals. The average per farm increased from 52 cows to 59 cows or 12.4%.

Finally, the milk cow operation saw a decline form nine farms in 1997 to only three farms in 2012 or –66.7%. In addition, the actual number of animals also decreased from 186 milking cows to 153 milking cows or a change of –17.7%. As far as number of animals per farm, milk cows had the highest percentage increase for the census period, increasing by 146.8%

(21 milk cows per farm in 1997 to 51 milk cows per farm in 2012).

Farms and Crops

Table 5.10 shows 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 for grain and soybeans have been the two most frequently raised crops in Merrick County since 1997. Corn has historically had the largest number of acres planted in Merrick County during this period. However, corn for grain has seen a decline in the acres planted; this change was –20.9%. At the same time the number of acres planted in soybeans has seen an increase of 113.4%. Examining Table 5.10 indicates that most of the lost acres in corn were made up in the increased soybean production.

TABLE 5.10: FARMS AND CROPS BY TYPE 1997 TO 2012

Type of Crop	1997	2002	2007	2012	% Change 1997 to 2012
Corn for Grain					
farms	425	327	290	280	-34.1%
acres	153,615	121,539	130,785	121,521	-20.9%
average per farm	361	372	451	434	20.1%
Corn for Silage					
farms	33	45	19	25	-24.2%
acres	1,098	2,630	1,297	1,844	67.9%
average per farm	33	58	68	74	121.7%
Sorghum					
farms	7	6	2	1	-85.7%
acres	486	302	(D)	(D)	-
average per farm	69	50	(D)	(D)	-
Wheat					
farms	37	10	32	18	-51.4%
acres	642	284	3,506	1,176	83.2%
average per farm	17	28	110	65	276.5%
Oats					
farms	14	5	2	-	-
acres	225	86	(D)	-	-
average per farm	16	17	(D)	-	-
Soybeans					
farms	251	258	167	211	-15.9%
acres	26,915	59,559	39,007	57,448	113.4%
average per farm	107	231	234	272	153.9%
Dry Edible Beans excluding Limas					
farms	-	-	-	-	-
acres	-	-	-	-	-
average per farm	-	-	-	-	-
Potatoes					
farms	-	2	1	4	-
acres	-	(D)	(D)	(D)	-
average per farm	-	(D)	(D)	(D)	-

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

Two crops have nearly been completely eliminated from production in Merrick County; these are Oats and Sorghum. As of the 2012 Census of Agriculture there was only one farm planting sorghum and no farms in the county planting oats. Both of these have seen a significant decline compared to 1997's data.

One crop that appears to be catching on in Merrick County and in the state of Nebraska is potatoes. As of the 2012 Census of Agriculture there were four operations planting potatoes and this has been increasing slowly during the period indicated in Table 5.10

Wheat during this period has been a stable crop and has seen an increase in the acres planted between 1997 to 2012; going from 642 acres to 1,176 acres or 83.2%. However, the number of farms planting wheat has been cut by one-half.

Agriculture has always been a major part of the Merrick 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 Merrick County on a full-time basis

Economic Development Policies and Strategies

ED-5.1.1 The county needs to develop a joint economic development board charged with promoting Merrick County and all of the communities in the county.

ED-5.1.2 The county along with the new economic development board should raise the necessary revenue to hire a full-time Executive Director.

ED-5.1.3 The new Economic Development Board should work closely with the Merrick Foundation in their endeavors to promote 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

Merrick County.

ED-5.2.2 Merrick 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 Merrick 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 Merrick 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 Columbus.

Economic Development Goal 5.4

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

Economic Development Policies and Strategies

ED-5.4.1 Work with Union Pacific Railroad to identify strategies for expanding rail access in Merrick County.

Economic Development Goal 5.5

Examine the potential and promote Merrick 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 Merrick 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.

6

Merrick County Facilities

County Facilities

State and local governments provide a number of services to their citizens. The people, buildings, equipment and land utilized in the process of providing these goods and services are referred to as public facilities.

Public facilities represent a wide range of buildings and services that are built and maintained by the different levels of government. Such facilities are provided to insure the safety, well-being and enjoyment of the residents of Merrick 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 Plan. 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.

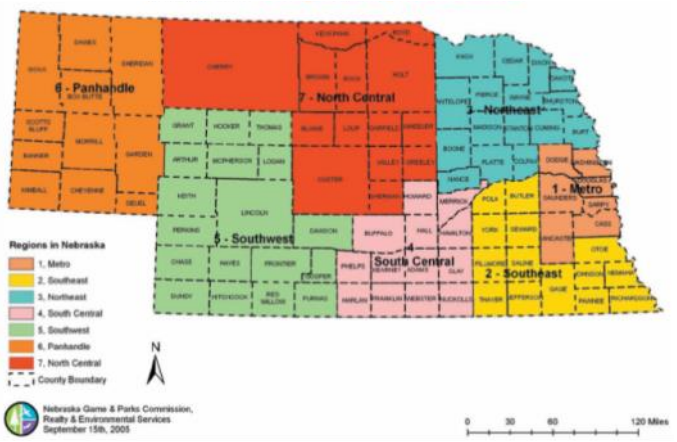
The Facilities Plan for Merrick County is divided into the following categories:

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

Recreation

Merrick County is located in Nebraska's South Central Recreation Planning, Region 4, and a region within the Nebraska Department of Game and Parks system. The Region includes 13 counties in South Central Nebraska.

Figure 6.1: Nebraska Game and Parks Regions



Community Parks and Facilities

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

Central City Parks

Central City has a number of park facilities throughout the community. The primary parks and recreation facilities include:

- South Park
- Lone Tree Park
- North Park
- Downtown Pocket Park
- Kernel Field
- Soccer Fields/Aquatic Center

According to the Central City Comprehensive Plan, the community has a total of 16.2 acres of park and recreational facilities. See the Plan for more detailed information on these facilities.
Source: Central City Comprehensive Plan

Photograph 6.1
Central City Aquatic Center
Source: Central City Comprehensive Plan

Chapman Parks

There is one park in the village of Chapman. The park is located in the northwest corner of the community. The facility includes a playground area, restrooms, picnic shelters as well as a ballfield. The park contains approximately four acres of ground.

Photograph 6.2
Pocket Park in Downtown Chapman

In addition to the City Park, there is a little "pocket park" in downtown Chapman.

Clarks Parks

The village of Clarks has a local public swimming pool, public camp grounds, park, ball field and tennis courts.

Photograph 6.3
Aerial view of Clarks pool and recreational facilities
Source: Google Earth

Palmer Parks

The village of Palmer has a swimming pool, two ballfields, and a basketball court. These facilities all are located near the Palmer School facilities. The baseball field shares space with the football field.

Photograph 6.4
Park facilities in Palmer
Source: Google Earth

In addition to the park area discussed above, Palmer also has the Veterans Memorial Park in downtown. The memorial park is located at the intersection of Commercial Street and Rollins Street.

Photograph 6.5
Photo inside the Palmer Veterans Memorial Park

Silver Creek Parks

The village has camping with electrical hook-ups, playground, baseball and softball fields is available at Silver Creek Park. Area softball and slow pitch ball for youth and adults provide area residents with relaxation and companionship. An annual July 4th horseshoe tournament is held at the Vine Street Mini Park.

Photograph 6.6
View of Silver Creek Mini Park

The Platte River, Prairie Creek, and Silver Creek provide area residents with fishing, canoeing, boating and hunting. Fisher's Cove also provides camping, fishing, boating, paddle boating and a bait shop for the outdoorsman.
Source: http://www.ci.silver-creek.ne.us/attract.htm

Regional Recreation

Bader Memorial Park

Bader Memorial Park is a county park containing 270 acres of ground. The park was established in 1973. The park is located approximately 10 miles east of Grand Island and 2 1/2 miles south of Chapman. The park offers fishing, hiking, camping, swimming and picnicking.

Photograph 6.7
Scene from Bader Park
Source: www.baderpark.com

The 270 acres lie between the Platte River and the Wood River. The park has been described as a microcosm of the Platte River and includes floodplain, woodlands, sandpits, and tall grass prairie. The river and ponds are used by migrating ducks and geese in February and March.

Trails have been developed around and through all of the major habitat types.
Source: www.baderpark.com/baderparkamenities.htm

Dr. Bruce Cowgill Wildlife Management Area

This WMA contains 216.67 acres northeast of Silver Creek in Merrick County and is along the Platte River. Hunting is allowed for deer, quail, turkey and water fowl.
(Source: http://outdoornebraska.ne.gov/gisapps/default.asp

Golf Courses

The following is a brief description of the local golf courses in and around Merrick County.

Riverside Golf Club

The Riverside Golf Club is located two miles from Central City. The course is a nine-hole course and is open to the public. The course opened in 1955.

Other golf courses serving the Merrick County area include:

Course	Community
Valley View Country Club	Rural Hamilton County
Fonner View Golf Course	Grand Island
Indianhead Golf Club	Grand Island
Riverside Country Club	Grand Island
Jackrabbit Run Golf Course	Grand Island
Poco Creek Golf Course	Aurora
St. Paul Country Club	St. Paul
Dannebrog Golf Course	Dannebrog
York Golf Course	York
Kemp Country Club	Fullerton
Pawnee Hills Golf Course	Fullerton

Museums

Merrick County Historical Museum

The local society promotes this historical heritage of the county by maintaining a museum in Central City and at the Merrick County Fairgrounds. The furnishings of the Cahow Barber Shop of Chapman, featured in the books of author Wright Morris was donated to the museum by the Village of Chapman, and a room in the museum is dedicated to this important display.

The Merrick County Historical Museum conducts bi-monthly meetings, conducts tours and hosts the Teddy Bear Picnic and Parade, as well as an annual Christmas Open House. Members of the society have been responsible for compiling and publishing two volumes of Merrick County History; the first in 1981 and the second in 1988. The Historical Museum purchased the old Traver mansion on old Front Street in 1968, and in addition to restoring the home, exhibits many artifacts and records in the house.

The old city fire bell, nearly buried in the Union Pacific right-of-way has been restored and mounted in a decorative tower on the lawn of the Traver home.
Source: w.cc-ne.com/ccne/business-resources/business-directory/?item=91

Historical Sites

Nelson Farm

The historic Nelson Farm includes eighty acres associated with John Magnus Nelson's original 1879 homestead just west of Central City. In addition to the associated fields, the farmstead includes a windbreak, windmill, silo, machine shed, Quonset-style metal building, and two historic farmhouses: the original 1887 Ell-house and the c. 1935 Bungalow. The farmstead is dominated by the large barn constructed by Herman Nelson around 1916. The Nelson Farm grew to include 480 acres by 1921, making it one of the largest in Merrick County's Lone Tree Township. The Nelson Farm is significant for its role in local agricultural development and as a good example of the continual development of the family farm over several decades of use.
(Source: http://www.nebraskahistory.org/histpres/nebraska/Merrick.htm

Photograph 6.8
Wright Morris Boyhood Home
Source: www.nebraskahistory.org

Riverside Park Dance Pavilion

The Riverside Park Dance Pavilion, located near Central City, was constructed in 1940. The structure has a significant historic association with entertainment, diversion, and recreation in Merrick and surrounding counties. The Pavilion has been known throughout much of the area as a central location for social gatherings. It was constructed to replace an outdoor dance floor that had long been a fixture in the community. The rapid success of fund-raising to construct the Pavilion attests to the significance the community placed on the need for this type of facility.
(Source: http://www.nebraskahistory.org/histpres/nebraska/Merrick.htm

Wright Morris Boyhood Home

The Wright Morris Boyhood Home symbolizes the noted author's Nebraska childhood as reflected in his writing and photographs. Central City, originally named Lone Tree (the name Morris used in his fiction), appears in several of his most important works. Built in 1893 the dwelling was the author's home from 1910 to 1919.
(Source: http://www.nebraskahistory.org/histpres/nebraska/Merrick.htm)

Patterson Law Office

The one-story, false-front commercial building was constructed about 1872 and incorporates Greek Revival details in its design. It is one of the oldest frame commercial buildings in Nebraska. John Patterson, a native of Ireland, established a law practice in Central City and became a well-known trial lawyer and public speaker.
(**Source: http://www.nebraskahistory.org/histpres/nebraska/Merrick.htm)**

Merrick County Courthouse

At the time of the county's organization, 1858, the nonexistent town of Elvira was designated temporary county seat. The permanent county seat designation eventually fell to Central City. The first courthouse, a two-story brick building, was constructed in 1871. Because of disrepair to the original courthouse voters approved a bond issue in 1911 for a new facility. Construction began that same year and in 1913 the Classical Revival-style courthouse was completed. The courthouse was remodeled again in 2008.
(Source: http://www.nebraskahistory.org/histpres/nebraska/Merrick.htm)

Photograph 6.9
Merrick County Courthouse

Heber Hord House

The original two-story frame house was built in 1906 and designed by Omaha architects Fisher and Lawrie. A 1923 remodeling by Omaha architect F. A. Henninger gave the house its present appearance. Heber Hord's father, T. B. Hord, established Central City as the base of his vast business operations, which included livestock feeding and ranching, lumber yards, farm supply houses, and grain elevators. Acquiring experience in business matters from his father, Heber Hord established the Alkali Products Company and managed the family operations after the death of T. B. Hord. Heber Hord lived in the house from 1906 until his death in 1949.

Photograph 6.10
Heber Hord House

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

Photograph 6.11
Cahow Barbershop

Martha Allen Auditorium

The one-story brick building was constructed in 1916 in Central City by Colonel William Shelton and named for his daughter. It was the scene of musical concerts, operas, vaudeville performances, and classics like "The Shepherd of the Hills." The balcony retains the original stairs, railings, and opera chairs. The building served as a movie house in later years and was known as the State Theater.

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

Cahow Barbershop

The Cahow Barbershop is important for its association with Central City's noted author, Wright Morris. It appears both in his writing and in his photographs. According to former owner Eddie Cahow, the shop is where Wright Morris's father, Will, met his future wife. Constructed in 1889, the barbershop, located in Chapman is a good local example of a frame, false-front commercial building.

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

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.

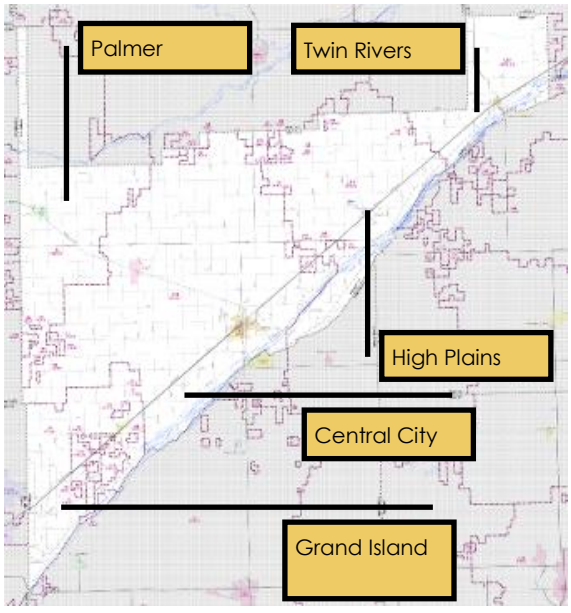
Class 6 Any school district that maintains only a high school under the direction of a single school board. The territory of Class 6 district is made up entirely of Class 1 districts (or portions thereof) that have joined the Class 6.

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

FIGURE 6.2: SCHOOL DISTRICT MAP



Source: US Census 2010

High Plains Community Schools

High Plains Community Schools (HPC) serves a portion of eastern Merrick County. The district covers portions of four counties, including Merrick, Polk, Hamilton and Nance counties. The district is a Class 3 District. HPC is accredited and has the following facilities in the district:

- High Plains Elementary located at 260 S. Pine Street in Polk
- High Plains Elementary located at 205 Pearl Street in Clarks
- High Plains Middle School located at 205 Pearly Street in Clarks
- High Plains High School located at 345 Pine Street in Polk

Palmer Public Schools

Education in northwest Merrick County is provided to the public by the Palmer Public Schools. PPS is accredited by the State of Nebraska. The district is a Class 3 school district. The District operates three facilities:

- Palmer Elementary School
- Palmer Middle School
- Palmer High School
- All three facilities are at the same campus in Palmer at 202 Commercial Street in Palmer.

Twin River Public Schools

Twin River Public Schools (TRPS) serves residents in the northeastern most portion of Merrick County. Similar to HPC the district covers portion of multiple counties. TRPS is accredited by the State of Nebraska. The district is a Class 3 school district. The District operates three facilities:

- Twin River Elementary located at 816 Willard Avenue in Genoa
- Twin River Elementary located at 609 5th Street in Silver Creek
- Twin River Middle/Senior High School located at 816 Willard Avenue in Genoa

Grand Island Northwest Public Schools

Northwest Public Schools (NPS) serves residents in the southwestern most portion of Merrick County. Similar to HPC and TRPS the district covers portion of multiple counties. The District is based in northwest Grand Island and the only facility located in Merrick County is the elementary school located in Chapman.

Other Schools serving Merrick County

Besides the four public school districts serving Merrick County, there are several parochial schools in the

area. These include:

- Nebraska Christian Schools located near Central City
- Zion Lutheran Elementary located in Worms
- Grand Island Central Catholic located in Grand Island

Post-Secondary Education

There are no post-secondary educational facility located in Merrick County.

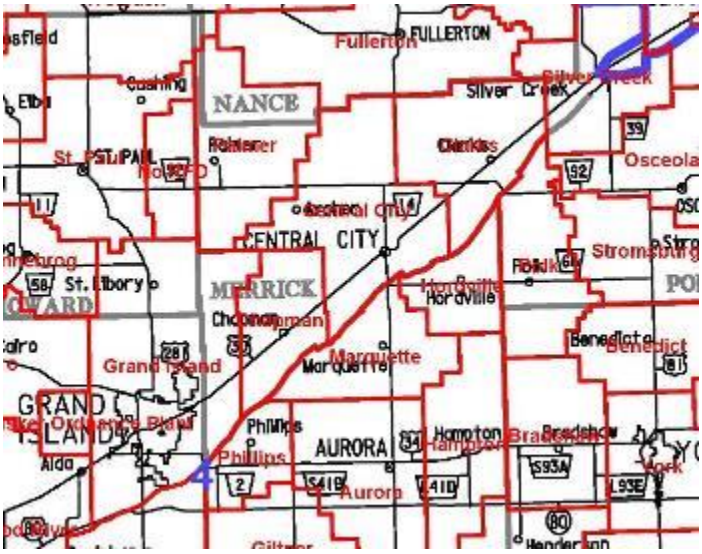
The residents of Merrick County and the surrounding area have a large selection of in-state post-secondary schools to select. Some of these include:

Central Community College
University of Nebraska-Lincoln
University of Nebraska-Omaha
University of Nebraska-Kearney
Nebraska Wesleyan
Union College
Kaplan University
Doane College
Concordia University
Creighton University

Fire and Police Protection

Fire and rescue in Merrick County is handled through multiple volunteer departments. These departments are located in Central City, Chapman, Clarks, Palmer, Silver Creek, and Grand Island Rural District.

Figure 6.3: Fire District Map



Source: Nebraska Department of Roads

Law Enforcement

Merrick County Sheriff's Department

Law enforcement in Merrick County is the responsibility of the Merrick County Sheriff. The office of the Merrick County Sheriff is located at 1821 16th Avenue in Central City. In addition to the Sheriff's office, the facility also contains a county detention center.

Based upon data from the Nebraska Commission on Law Enforcement and Criminal Justice, Merrick County had seven full-time and two part-time sworn officers in 2013. The past three years can be seen in Table 6.1.

When examining the number of sworn officers per 1,000 people, the Merrick County Sheriff's office had an average of 1.4 sworn officers per 1,000 people in 2013.

Table 6.1 also shows the number of sworn officers and officers per 1,000 persons in the surrounding counties. Hall County to the west had the largest number of sworn officers.

Table 6.1: Sworn Officer Comparison

County	2011		2012		2013	
	Sworn Officers FT/PT	Officers per 1,000 Population	Sworn Officers FT/PT	Officers per 1,000 Population	Sworn Officers FT/PT	Officers per 1,000 Population
Merrick	**6/1**	**1.2**	**6/2**	**1.2**	**7/2**	**1.4**
Nance	7/0	1.9	6/0	1.9	7/0	1.9
Hall	27/0	2.8	28/0	2.9	28/0	3.0

Source: Nebraska Commission on Law Enforcement and Criminal Justice 2014

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 community, geographic location and other conditions existing in the area. The data indicate Merrick County has been maintaining a ratio of approximately 1.3 sworn officers per 1,000 people over a period of time; apparently this is a good balance for Merrick County.

Communication

Telephone Services

There are numerous telephone providers serving Merrick County.

Radio Stations

There are several radio stations serving the Merrick County area. The nearest stations are based and broadcast from Grand Island which is approximately 30 miles west of Central City. Other stations serving the area broadcast out of Lincoln and Columbus.

Television Stations

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

Besides over the air television, there are a number of cable television suppliers as well as satellite providers.

Internet/World Wide Web Service Providers (ISP)

High speed Internet service is provided in Merrick County by numerous companies.

Newspapers

The residents of Merrick County are served locally by the Republican-Nonpareil in Central City and the Palmer Journal in Palmer. Listed below are newspapers with daily circulation within the Merrick County area:

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

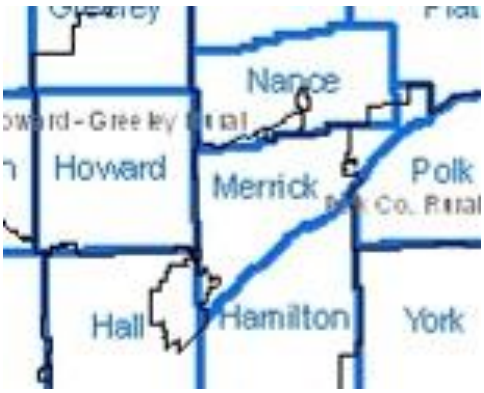
Public Utilities

Electricity

There several public power providers serving Merrick County. These include:

- City of Central City
- Southern Public Power
- Polk County Rural Public Power

Figure 6.4: Service Area Map - Public Power



Natural Gas

Natural gas is supplied to parts of Merrick County by the City of Central City and Kinder-Morgan.

Solid Waste

Sanitation collection in Merrick County is provided by private haulers.

Health Care

Litzenberg Memorial County Hospital

Litzenberg was designated a Critical Access Hospital in June 2000, and, as such, is licensed for 20 beds in acute care. Many changes have occurred inside the facility to meet the demands for changing technology and equipment, as well as adequate care space. With the foresight of an aggressive Board of Trustees and County Board of Supervisors, and the generosity and support of caring employees and friends of the hospital, Litzenberg completed a five-year, $1.5 million capital campaign project that began in 2000.

Source: http://www.lmchealth.com/getpage.php?name=history&sub=Our+History

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 Merrick 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.

Parks and Recreation Goal 2

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

Parks and Recreation Policies and Strategies

PR-2.1 The County should find ways to help promote the area recreational destinations throughout the county.

PR-2.2 The County should work to maintain and update Bader Park during the planning period.

PR-2.3 The County should continue to promote local vineyards especially through 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

EDU-1.1 Cooperate with the school systems in expanding public uses of educational facilities.

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

Educational Goal 2

The county will 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

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

EDU-2.2 Work with students to continually identify new facilities that will be needed in the future.

Public Safety Goals

Public Safety Goal 1

The goal of Merrick 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 County should continue to work with the different elements of the fire and rescue 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 Merrick 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 Merrick County.

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

Public Safety Goal 3

The goal of Merrick 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.

7

Natural Resources and the Environment

Introduction

In order to formulate a truly valid and "comprehensive" plan for the future development of Merrick County, it is first necessary to evaluate the environment and man-made conditions which currently exist to determine the impacts these factors may have on limiting future land uses in the County. This component of the Merrick 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 Merrick County Soil Survey by the United States Department of Agriculture – Soil Conservation Service – February 1981)

Merrick County is cold in winter. Summer is hot with occasional cool spells. Precipitation in winter frequently occurs as snowfall; in warm months it is chiefly showers that are commonly heavy when moist air moves in from the south.

In winter the average temperature is 26 degrees F, and the average daily minimum temperature is 15 degrees. In summer the average temperature is 75 degrees, and the average daily maximum temperature is 87 degrees.

The total annual precipitation is 25 inches. Of this, 80 percent usually falls in April through September, which includes the growing season for most crops. 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.

Average seasonal snowfall is 26 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 60 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 14 miles per hour, in spring.

Merrick County has occasional tornadoes and severe thunderstorms. These storms are local and of short duration and result in damage in narrow belts. Hailstorms occur at times during the warmer part of the year in irregular patterns and in relatively small areas.

Geology

(This information was taken from the Merrick County Soil Survey by the United States Department of Agriculture – Soil Conservation Service – February 1981)

Merrick County is mainly in the Platte River Valley. A long narrow strip in the northwestern corner of the county is loess mantled uplands. This area is about 5 square miles.

Unconsolidated deposits are on the Pierre Shale Formation at the southwestern part of the county, on the Ogallala Formation at the northwestern corner of the county, and on the Niobrara Formation throughout the remainder of the county. The thickness of the unconsolidated deposits over the bedrock varies from about 50 to 300 feet, but only the upper part is recently deposited alluvium, loess, or eolian sand.

The segment of the Platte River in the vicinity of Merrick County did not occupy its present valley until rather late in the Pleistocene Period. The earlier Pleistocene deposits were in place long before the river carved its present valley. They are beneath the present valley and extend beneath the adjacent uplands. Local reworking of the unconsolidated deposits by wind resulted in areas of wind deposited sands resembling the dunes and hills in areas of the Sand Hills. It also resulted in the loess and loesslike silty materials on some of the nearly level terraces, and in undulating areas that have mixed loess and sand materials. These unconsolidated materials and fine to coarse alluvium make up the present surface. The narrow strip of uplands in the northwestern corner of the county is an eroded remnant of the

central Nebraska loess plain. Peoria Loess of Wisconsin age is the principal material at the surface, and Loveland Loess crops out on the slopes. Narrow strips of silty alluvial material, washed from the adjacent slopes, are along the upland drainageways.

Physiography, Relief and Drainage

(This information was taken from the Merrick County Soil Survey by the United States Department of Agriculture – Soil Conservation Service – February 1981)

Merrick County is in the Great Plains physiographic province. The strongest relief in Merrick County is in the narrow strip of uplands extending north from the Loup River between Nance and Howard Counties. The topography ranges from nearly level to steep. Maximum relief between ridgetops and bottoms of the intermittent drainageways is about 90 to 120 feet This upland area has a general slope to the south.

An extensive area of sandhills is in the north-central and northeastern parts of the county. Most of this area has undulating to rolling topography. The relief ranges from 3 to 30 feet in the undulating areas and from 20 to 60 feet in the rolling areas. Much of the surface drainage is not well defined, but flow is directly or indirectly to the Loup and Platte Rivers.

The Platte and Loup River valleys are mainly nearly level or very gently sloping. The difference in elevation between the stream terraces and bottom lands in some areas is so gradual as to be almost imperceptible. Generally, the relief ranges from 1 to 10 feet. This is modified in places by shallow stream channels. The depth to the water table is normally below 20 feet on the stream terraces. The seasonal high water table on the bottom land is generally above a depth of 5 feet. Surface drainage is slow because natural drainageways are not well defined or have been modified by land grading.

Merrick County is drained by the Platte and Loup Rivers and their tributaries. Generally, the streams flow toward the northeast and east. Prairie Creek, Silver Creek, Moores Creek, and Warm Slough are the main tributaries of the Platte River in Merrick County. The Loup River enters the Platte River in adjacent Platte County. Nearly all the rivers and major creeks have low gradients and flow constantly, except during times of prolonged drought or during the irrigation season when the water table is lowered by pump irrigation.

The lowest elevation in the county is on the county line northeast of Silver Creek and is about 1,500 feet above sea level. The highest point is in the narrow strip of uplands between Howard and Nance Counties and is about 2,000 feet above sea level. Central City has an elevation of about 1,700 feet.

Wildlife and Habitat

(This information was excerpted from the Merrick County Soil Survey by the United States Department of Agriculture – Soil Conservation Service – February 1981)

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Examples of grain and seed crops are corn, wheat, oats, and grain sorghum.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Examples of grasses and legumes are fescue, smooth brome, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, wheatgrass, and blue grama.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Examples of these plants are oak, poplar, green ash, honeylocust, apple, hawthorn, dogwood, hickory, eastern cottonwood, and willow. Examples of fruit-producing shrubs that are suitable for planting on soils rated good are common chokecherry, sumac, autumn-olive, and wild plum.

Coniferous plants furnish browse, seeds, and cones. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Shrubs are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Examples of shrubs are American plum, Peking cotoneaster, common chokecherry, and Tatarian honeysuckle.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Examples of wetland plants are smartweed, wild millet, prairie cordgrass, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for open/and wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include bobwhite, pheasant, meadowlark, field sparrow, cottontail, skunk, and red fox.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include cottontail, opossum, woodcock, thrushes, woodpeckers, squirrels, fox, raccoon, deer, and coyote.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Habitat for rangeland wildlife consists of areas of shrubs and wild herbaceous plants. Wildlife attracted to rangeland include badger, antelope, deer, prairie grouse, and meadowlark.

For additional information on these excerpts, please refer to the February 1981 Merrick County Soil Survey.

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 that favor 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 Merrick County are most common on floodplains along rivers and 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 that 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). Beyond the federal level, a number of states have enacted laws to regulate activities in wetlands, and some counties and towns

have adopted local wetlands protection ordinances or have changed the way development is permitted. Few states, however, have laws specifically regulating activities in inland wetlands, although some states and local governments have non-regulatory programs that help protect wetlands.

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, but we still have work to do. You can be a part. Approximately 75 percent of wetlands are privately owned, so individual landowners are critical in protecting these national treasures.

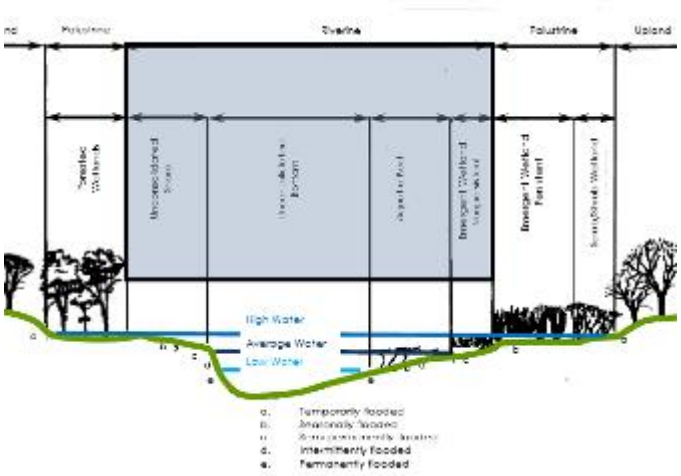
Wetlands play an important role in the ecology of Merrick County. Wetlands are home to many species of wildlife, many of which live only in wetland areas. Wetlands also provide an important service to nearby areas by holding and retaining floodwaters. These waters are then slowly released as surface 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).

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 that share 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.

FIGURE 7.1: RIVERINE WETLAND SYSTEM

Merrick County experiences each of these three other wetland systems. The majority of the wetlands in the county occur, obviously, along the Platte River.



In addition there are several wetland areas around the Archer area and north of Silver Creek. Figures 7.1, 7.2, and 7.3 depict common examples of the riverine, lacustrine, and palustrine wetlands, respectively. Figure 7.4 shows the occurrence of wetlands in Merrick 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.

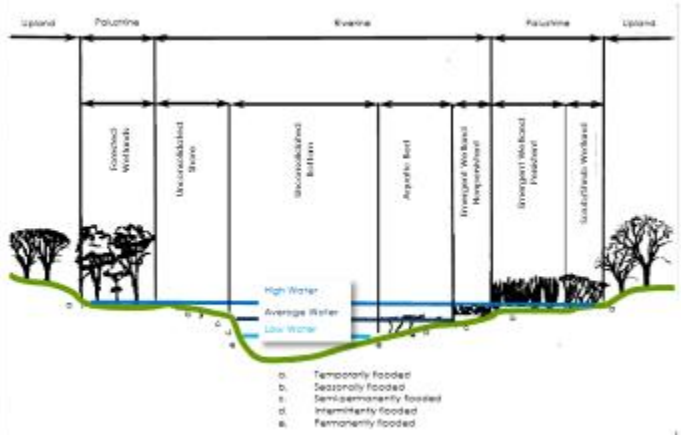
Figure 7.1 shows the riverine system includes all wetlands that occur in channels, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and (2) habitats with water containing ocean derived salts in excess of 0.5%. A channel is an open conduit 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.

FIGURE 7.2: LACUSTRINE WETLAND SYSTEM

The Lacustrine System includes all wetlands with all of the following characteristics: (1) situated in a topographic depression or a dammed river channel;

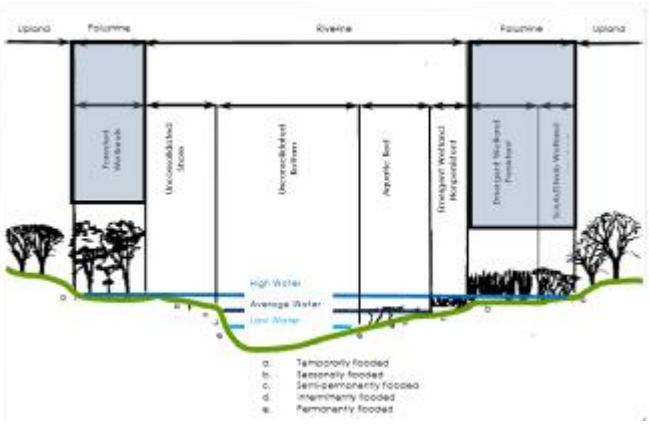


(2) lacking trees, shrubs, persistent emergents, emergent moss or lichens with greater than 30% area coverage; and (3) total area exceeds 20 acres. Similar wetland areas totaling less than 20 acres are also included in the Lacustrine System if an active wave-formed or bedrock shoreline feature makes 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 7.3: PALUSTRINE WETLAND SYSTEM

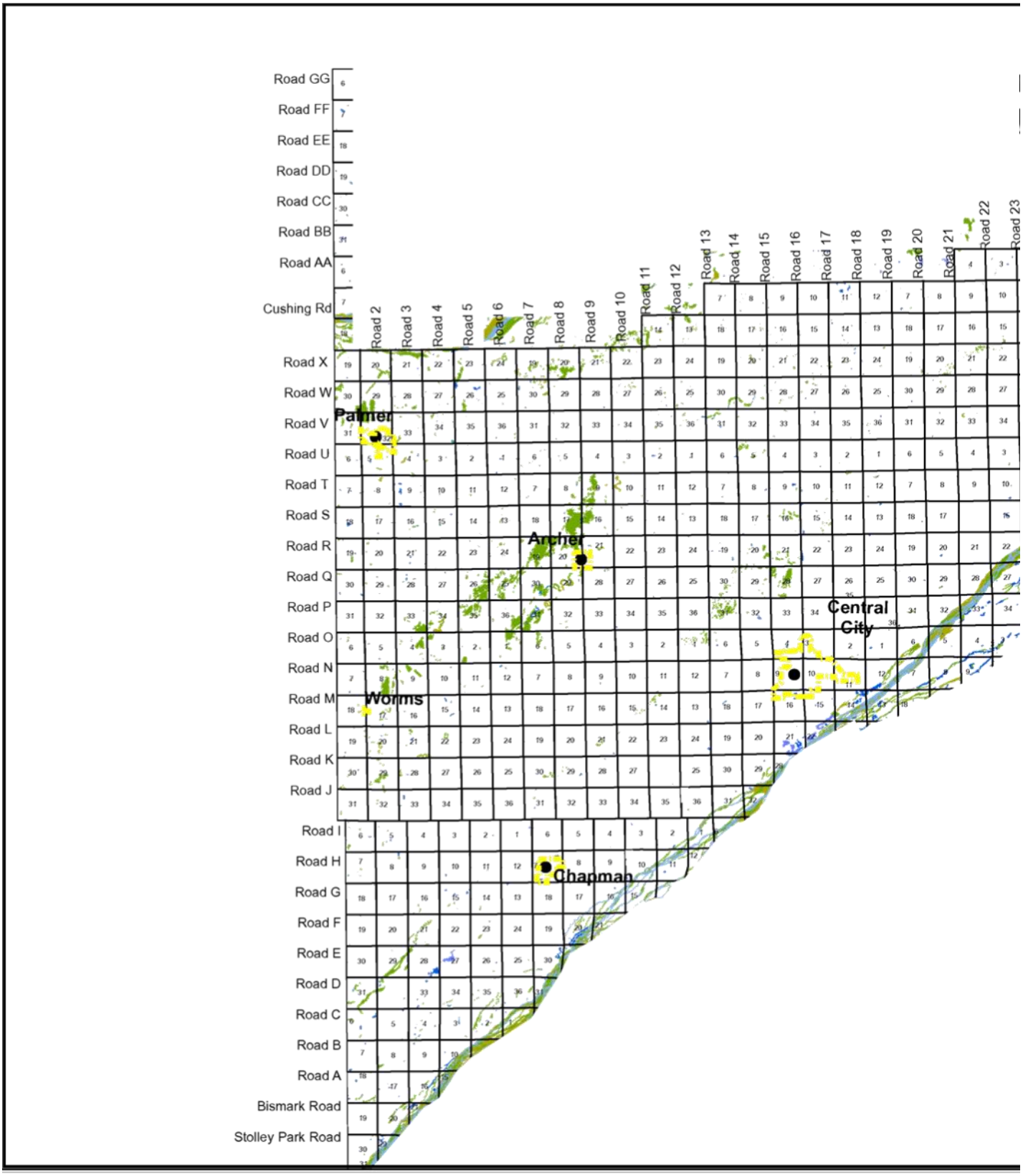
The Palustrine System includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands

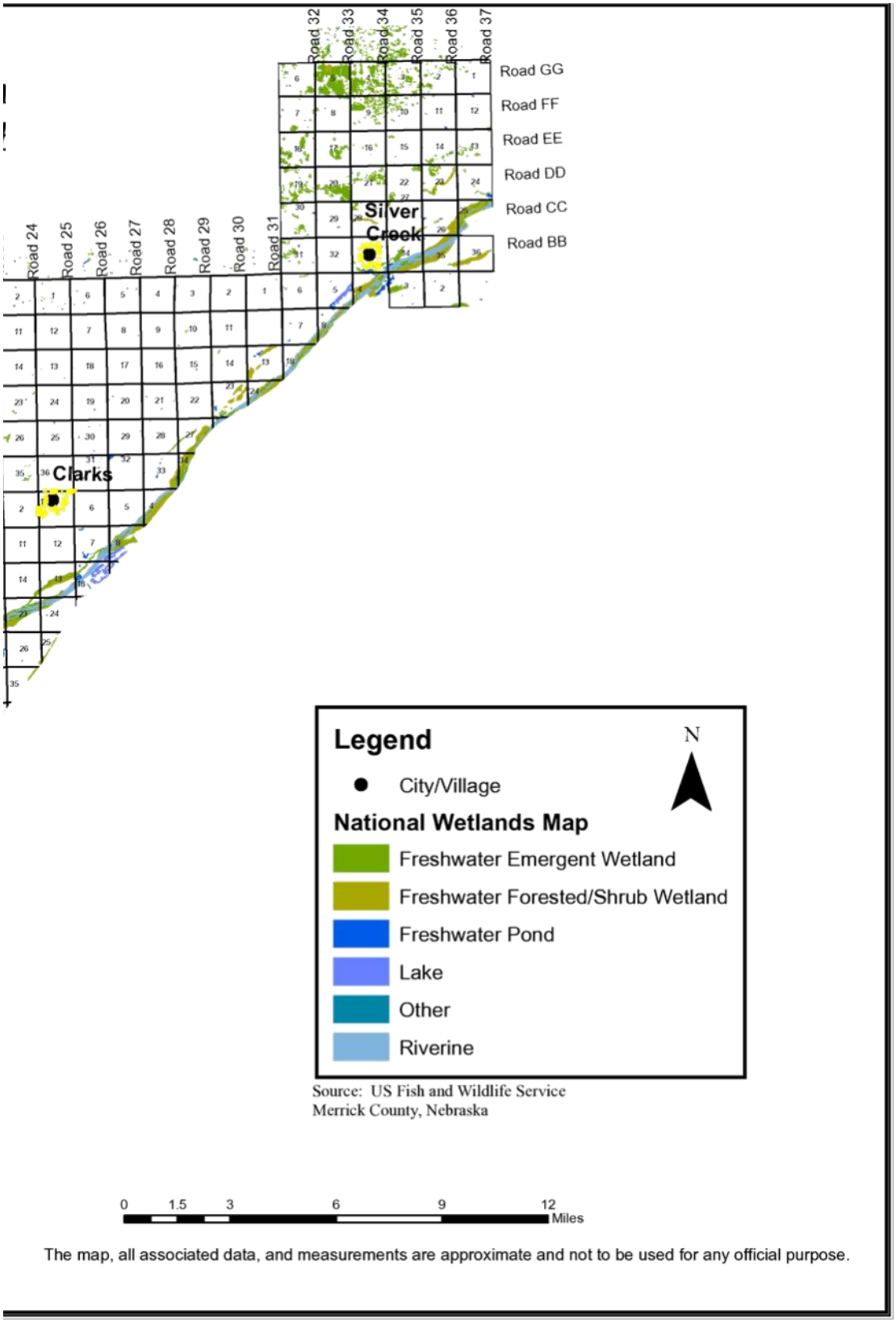


that occur in tidal areas where salinity due to ocean-derived salts is below 0.5%. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 20 acres; (2) lacking active wave-formed or bedrock shoreline features; (3) water depth in the deepest 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.

Figure 7.4: Wetlands Map





Source: US Fish and Wildlife Service
Merrick County, Nebraska

The map, all associated data, and measurements are approximate and not to be used for any official purpose.

Soil Formation and Classification

(The following information has been inserted directly from the Merrick County Solis Survey dated February 1981)

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. It is named for the major soils. The soils making up one association can occur in other associations but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small 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.

Soil Associations

Silty soils on uplands

These soils are strongly sloping to steep and well drained and somewhat excessively drained. Most areas of these soils are in native grassland and are grazed by cattle. The smooth, less sloping areas are used for dryland crops. The principal hazard is erosion by water.

One association is in this group.

1. Crofton -Nora association

Deep, strongly sloping to steep, well drained and somewhat excessively drained, silty soils formed in loess; on uplands

This association consists mainly of strongly sloping ridges of loess that are dissected by deeply entrenched drainageways that have moderately steep and steep side slopes, Figure 7.5. It is in a narrow strip in the loess uplands north of the Loup River.

This association occupies about 3,100 acres or about 1 percent of the county. Crofton soils make up about 73 percent of this association and Nora soils 16 percent. The remaining 11 percent is soils of minor extent.

The Crofton soils are on side slopes of intermittent drainageways on loess uplands. They are strongly sloping to steep and well drained and somewhat excessively drained. Areas are long or irregular in shape. Typically, the surface layer is grayish brown silt loam about 4 inches thick. Beneath this is a transitional layer of light brownish. gray silt loam about 4 inches thick. The underlying material is very pale brown, calcareous silt loam to a depth of 60 inches or more.

Figure 7.5: Crofton-Nora Association

The Nora soils are associated with Crofton soils on smooth ridgetops and side slopes on the loess uplands. They are strongly sloping or moderately steep and well drained. Typically, the surface layer is dark grayish brown silt loam about 5 inches thick. The subsoil is grayish brown and brown silt loam about 14 inches thick. The underlying material is pale brown, calcareous silt loam to a depth of 60 inches or more. Of minor extent in this association are mainly the Holder and Hobbs soils. The Holder soils are nearly level on ridgetops and are well drained. The Hobbs soils are on the narrow bottom lands of intermittent drainageways and are occasionally flooded.

Farming in this association is diversified but is mainly a combination of cash-grain and livestock enterprises. Most of the steeper areas are native grasslands and are used by beef cattle for grazing. The smoother slopes are used for dryland cultivated crops, chiefly grain sorghum and wheat.

Water erosion is a serious hazard in the cultivated areas. Much of the original surface layer has been

removed from these soils, and many small gullies form after heavy rains. Maintaining soil fertility and conserving moisture are the main concerns of management. The areas of native grassland support stands of mid and short grasses.

Farms in this association average about 480 acres. Good gravel roads are few. Some section lines do not have roads or trails.

Silty soils on uplands and stream terraces and in sandhill valleys

These soils are nearly level to moderately steep and somewhat poorly drained to excessively drained. Most areas of these soils are in native grassland and are grazed by beef cattle. Some areas are cultivated and are irrigated. Irrigation is mainly by center-pivot sprinklers. The principal hazard is soil blowing, and the principal limitation is wetness in spring.

Two associations are in this group.

2. Valentine-Thurman-Boelus association
Deep, nearly level to moderately steep, excessively drained to well drained, sandy soils formed in eolian sand and loess; on uplands and stream terraces.

This association consists mainly of nearly level to moderately steep soils on uplands and high stream terraces, Figure 7.6. Natural surface drainageways are generally not well defined.

This association occupies about 28,000 acres or about 9 percent of the county. Valentine soils make up about 63 percent of this association, Thurman soils 12 percent, and Boelus soils 11 percent. The remaining 14 percent is soils of minor extent.

The Valentine soils are on uplands and stream terraces. They are excessively drained and range from very gently sloping to moderately steep. Most areas are rolling. Typically, the surface layer is grayish brown fine sand about 4 inches thick. Beneath this is a transitional layer of pale brown fine sand about 4 inches thick. The underlying material is very pale brown fine sand to a depth of 60 inches or more.

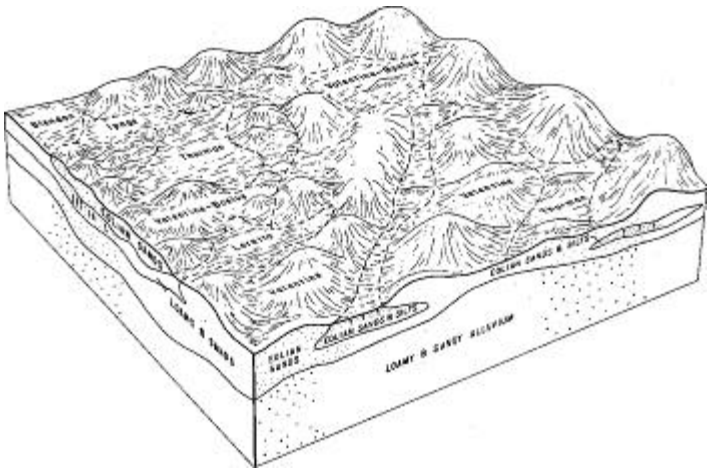
The Thurman soils are on stream terraces. They are somewhat excessively drained and very gently sloping or gently sloping. Most areas are undulating to hummocky. Typically, the surface layer is dark gray and dark grayish brown loamy fine sand about 14 inches thick. Beneath this is a transitional layer of grayish brown loamy fine sand about 5 inches thick. The underlying material is brown and pale brown loamy fine sand to a depth of 60 inches or more.

The Boelus soils are on the lower part of side slopes and swales on stream terraces. They are in complex landscapes with Valentine soils. These soils are well drained and nearly level to strongly sloping. Most areas are hummocky. Typically, the surface layer is grayish brown and brown loamy fine sand about 12 inches thick. Beneath this is light yellowish brown fine sand about 16 inches thick. The subsoil is very pale brown silt loam 24 inches thick. The underlying material is very pale brown silt loam to a depth of 60 inches or more.

Of minor extent in this association are mainly the Blendon, Ipage, Kenesaw, Loretto, and Simeon soils. These soils are at a lower elevation than the major soils.

Most areas of this association are in native grassland and are used by beef cattle for grazing: Farming is diversified but consists mainly of a livestock enterprise that is supplemented with cash grain grown in nearby associations. In recent years, considerable grassland in this association has been cultivated and used for irrigated crops. Irrigation is by pivot sprinklers. Corn and alfalfa are the main irrigated crops.

FIGURE 7.6: VALENTINE-THURMAN-BOELUS ASSOCIATIONS



Soil blowing is moderate or severe if the soils are cultivated or if the native grasses are overgrazed. Controlling soil blowing, maintaining high fertility, and conserving moisture are the main concerns of management in the cultivated areas. Good range

management practices, such as proper grazing use, deferred grazing, and planned grazing systems of use and rest, are important on rangeland.

Farmsteads are few. Fewer than 20 percent of the farm operators have headquarters in areas of this association. Most operators and owners live in other areas that are better suited to cultivation. The part of the farm operating unit that is in this association averages about 800 acres. Good gravel roads are few. Trails are on some section lines.

3. Ipage-Els-Libory association

Deep, nearly level and very gently sloping, moderately well drained and somewhat poorly drained, sandy soils formed in eolian sand, alluvium, and loess; in sandhill valleys and on stream terraces

This association consists mainly of undulating low ridges on stream terraces and in intervening swales and depressions in sandhill valleys.

This association occupies about 20,000 acres or about 6 percent of the county. Ipage soils make up about 39 percent of this association, Els soils 18 percent, and Libory soils 17 percent. The remaining 26 percent is soils of minor extent.

The Ipage soils are in sandhill valleys and on stream terraces. They are moderately well drained and nearly level and very gently sloping. Typically, the surface layer is gray loamy fine sand about 9 inches thick. The underlying material is brown and gray fine sand to a depth of 60 inches or more. It is mottled in the lower part.

The Els soils are in smooth sandhill areas in valleys and on stream terraces. They are nearly level and somewhat poorly drained. Typically, the surface layer is dark gray loamy fine sand about 8 inches thick. Beneath this is a transitional layer of pale brown, mottled loamy fine sand about 3 inches thick. The underlying material is pale brown and light gray loamy fine sand and loamy sand to a depth of 60 inches or more.

The Libory soils are in smooth areas of stream terraces. They are moderately well drained and nearly level or very gently sloping. Typically; the surface layer is gray and grayish brown loamy fine sand. The subsoil is pale brown, mottled silt loam about 14 inches thick. The underlying material is light gray, mottled silt loam to a depth of 60 inches or more.

Of minor extent in this association are mainly the Lamo, Leshara, Marlake, Ovina, Platte, Gothenburg, Simeon, and Valentine soils. The Lamo, Leshara, and Ovina soils are on bottom lands. The Marlake soils are in basins on bottom lands and stream terraces. Water ponds in these basins. The Platte and Gothenburg soils are on bottom lands of major drainageways and are frequently flooded. The Simeon soils are nearly level and on stream terraces. The Valentine soils are excessively drained and occupy rolling areas on uplands and stream terraces.

Farming is diversified but is mainly a combination of cash-grain and livestock enterprises. About 60 percent of the areas in this association is cultivated. Nearly 30 percent of the cultivated cropland is irrigated, mainly by sprinklers. Wheat, grain sorghum, and corn are the main dryland crops, and corn and grain sorghum are the principal irrigated crops. The remaining 40 percent of this association is in native grassland and is used for haying or for grazing by beef cattle. The grassland is mid and tall grasses. A fluctuating water table is sufficiently high to provide moisture for grasses in the low areas.

Wetness in spring and droughtiness in the coarse textured soils are the main limitations in this association. Soil blowing during dry periods is a severe hazard. Wetness delays planting in the low areas in spring. Maintaining fertility and controlling soil blowing are the principal concerns of management. Installation of good range management practices, such as proper grazing, deferred grazing, and a planned grazing system of use and rest, are needed on the native rangeland.

Farms in this association average about 640 acres. Nearly all of the farms have access to good gravel roads or hard surface roads. Some section lines do not have roads or trails. A few highways cross areas of this association.

Sandy, loamy, and silty soils on upland and stream terraces

These soils are nearly level to strongly sloping and excessively drained and well drained. Most areas are cultivated. They are used for both dryland and irrigated crops. Irrigation is mainly by center-pivot sprinklers. The principal hazards are soil blowing and water erosion.

One association is in this group.

4. Valentine-Loretto-Kenesaw association

Deep, nearly level to strongly sloping, excessively drained and well drained, sandy, loamy, and silty soils formed in eolian sand, loess, and alluvium; on uplands and stream terraces

This association consists of low, hummocky to rolling hills on uplands and stream terraces. Natural surface drainageways are not well defined.

This association occupies about 15,000 acres or about 5 percent of the county. Valentine soils make up about 40 percent of this association, Loretto soils 37 percent, and Kenesaw soils 15 percent. The remaining 8 percent is soils of minor extent.

The Valentine soils are on long, hummocky ridges on uplands and stream terraces. They are gently sloping to strongly sloping and excessively drained. Typically, the surface layer is grayish brown fine sand about 4 inches thick. Beneath this is a transitional layer of pale brown fine sand about 4 inches thick. The underlying material is very pale brown fine sand to a depth of 60 inches or more.

The Loretto soils are in low, undulating areas on stream terraces. They are nearly level to strongly sloping and well drained. Typically, the surface layer is brown and grayish brown fine sandy loam about 19 inches thick. The subsoil is brown silty clay loam about 25 inches thick. The underlying material is pale brown silty clay loam to a depth of 60 inches or more.

The Kenesaw soils are on stream terraces. They are nearly level to gently sloping and well drained. Typically, the surface layer is grayish brown silt loam 8 inches thick. The subsoil is brown silt loam 7 inches thick. The underlying material is light yellowish brown and pale brown silt loam and very fine sandy loam to a depth of 60 inches or more.

Of minor extent in this association are mainly the Janude, Ipage, and Rusco soils. The Janude soils are moderately well drained and on bottom lands. The Ipage soils are moderately well drained and on high stream terraces. The Rusco soils are moderately well drained and on stream terraces.

Farming in this association is diversified but is mainly .a combination of cash-grain and livestock enterprises. About 70 percent of the areas in this association is used for cultivated crops, and of this nearly 40 percent is irrigated, mainly by sprinklers. The remaining 30 percent is in native grassland and is used for grazing primarily by beef cattle. The native grassland consists of tall, mid, and short grasses. Wheat, grain sorghum, and alfalfa are the main dryland crops. Corn, grain sorghum, and alfalfa are the principal irrigated crops.

Soil blowing is a hazard in sandy areas that are cultivated. Controlling soil blowing, maintaining high fertility, and conserving moisture are the main concerns of management. Good range management practices, such as proper grazing use, deferred grazing, and a planned grazing system of use and rest, are the principal needs on grassland.

Farms in this association average about 480 acres. Nearly all of the farms have access to gravel roads or hard surface roads. Trails are on some section lines. Paved highways cross this association. The town of Palmer is in this association.

Silty and loamy soils on stream terraces

These soils are nearly level to gently sloping and well drained. Nearly all areas of these soils are used for cultivated crops, and most of the cropland is irrigated. Irrigation is mainly by gravity. Soil blowing is the principal hazard. Many areas are droughty.

Two associations are in this group.

5. Hord-Hall association

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

This association consists mainly of nearly level, long smooth areas on stream terraces.

This association occupies 10,500 acres or about 3 percent of the county. Hord soils make up about 65 percent of this association and Hall soils about 26 percent. The remaining 9 percent is soils of minor extent.

The Hord soils are on stream terraces. They are nearly level and well drained. Typically, the surface layer is dark gray and dark grayish brown silt loam about 21 inches thick. The subsoil is dark grayish brown and brown silt loam about 21 inches thick. The underlying material, to a depth of 60 inches or more, is very pale brown gravelly sand.

The Hall soils are on stream terraces. They are nearly level and well drained. Typically, the surface layer is

dark gray silt loam about 16 inches thick. The subsoil is dark grayish brown and grayish brown silty clay loam about 24 inches thick. The underlying material is pale brown silt loam to a depth of about 46 inches. Below that, it is pale brown fine sand to a depth of 60 inches or more.

Of minor extent in this association are mainly the Blendon and Brocksburg soils. The Blendon soils are nearly level to gently sloping and generally at the highest elevation. The Brocksburg soils are nearly level and at about the same elevation as the major soils.

Farming in this association is diversified. It is mainly a combination of cash-grain and livestock enterprises; however, some enterprises are only cash grain. Nearly all areas of this association are used for cultivated crops and are irrigated by a gravity system. Corn and grain sorghum are the principal irrigated crops. A few areas are dryfarmed to wheat and grain sorghum.

The main concerns of management are maintaining high fertility and conserving soil moisture. Water erosion is a hazard in a few areas where slope gradient increases rapidly within a short distance.
Farms in this association range widely from 80 to 960 acres in size, averaging about 400 acres. Nearly all farms have access to good gravel roads or hard surface roads. Some section lines do not have roads or trails.

6. O'Neill-Brocksburg-Blendon association
Nearly level to gently sloping, well drained, loamy soils that are moderately deep or deep over sand and gravel and formed in alluvium and mixed eolian materials; on stream terraces

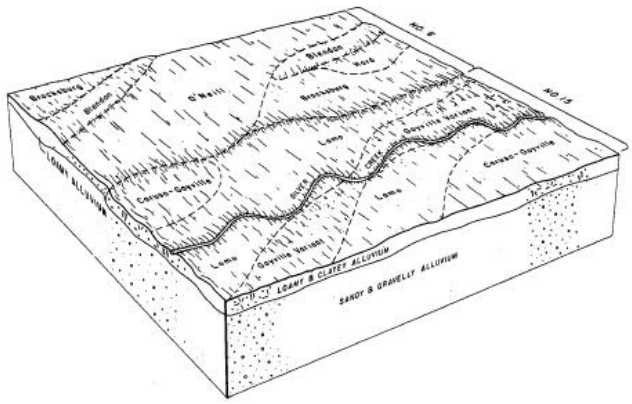
This association consists mainly of nearly level, long smooth areas on stream terraces, Figure 7.7. Gently sloping breaks are between the stream terraces and the adjacent bottom land.

This association occupies 37,000 acres or about 12 percent of the county. O'Neill soils make up about 49 percent of this association, Brocksburg soils 28 percent, and Blendon soils 12 percent. The remaining 11 percent is soils of minor extent.

The O'Neill soils are on stream terraces. They are moderately deep over gravelly sand, nearly level to gently sloping, and well drained. Typically, the surface layer is dark gray sandy loam about 23 inches thick. The subsoil is grayish brown loamy coarse sand about 7 inches thick. The underlying material is light brownish gray, light gray, and very pale brown coarse sand to a depth of 60 inches or more.

The Brocksburg soils are on stream terraces. They are moderately deep over gravelly sand, nearly level, and well drained. Typically, the surface layer is dark grayish brown loam about 20 inches thick. The subsoil is grayish brown clay loam about 7 inches thick. The underlying material is pale brown gravelly sand to a depth of 60 inches or more.

FIGURE 7.7: O'NEILL-BROCKSBURG-BLENDON ASSOCIATIONS



The Blendon soils are on stream terraces. They are deep, nearly level to gently sloping, and well drained. Typically, the surface layer is dark grayish brown fine sandy loam about 16 inches thick. The subsoil is dark grayish brown fine sandy loam and sandy loam. The underlying material is pale brown sandy loam to a depth of 60 inches or more.

Of minor extent in this association are mainly the Hord, Lockton, and Meadin soils. The Hord soils are deep, nearly level, and on stream terraces. The Lockton soils are moderately deep over gravelly sand, nearly level, and orr bottom lands. The Meadin soils are shallow over gravelly sand, gently sloping to strongly sloping, and on breaks between the stream terraces and adjacent bottom lands.

Farming in this association is diversified. It is mainly a combination of cash-grain and livestock enterprises; however, a few enterprises are only cash grain. Nearly all areas of this association are cultivated. About 85 percent of these is irrigated, mainly by gravity irrigation. Wheat and grain sorghum are the main dryland crops. Corn and grain sorghum are the

principal irrigated crops. The areas of native grassland consist of short and mid grasses.

Soil blowing is a hazard if the soils are cultivated. Water erosion is a hazard on the gently sloping soils. Controlling soil blowing and water erosion, maintaining high fertility, and conserving. soil moisture are the main concerns of management in cultivated areas. Generally, some land leveling is necessary for gravity irrigation. Good range management practices, such as proper grazing use, deferred grazing, and a planned grazing system of use and rest, are the chief concerns on rangeland.

Farms in this association range from 80 to 1,280 acres but average about 480 acres. Nearly all the farms have access to good gravel roads or hard surface roads. Some section lines do not have roads or trails.

Loamy and silty soils on bottom lands

These soils are nearly level and are poorly drained, somewhat poorly drained, or moderately well drained. These soils are subject to flooding. About 75 percent of the areas of these soils is cultivated and most of this is irrigated, mainly by gravity irrigation. The principal hazard is soil blowing, and the principal limitation is wetness in spring.

Five associations are in this group.

7. Leshara-Lex-Janude association

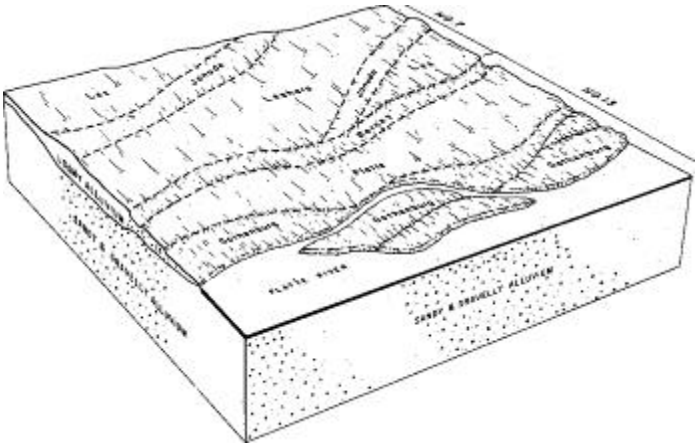
Nearly level, somewhat poorly drained and moderately well drained, loamy and silty soils that are deep and moderately deep over sand and gravel and formed in alluvium; on bottom lands.

This association consists of nearly level, long smooth areas on bottom lands in the Platte River Valley, Figure 7.8. The fluctuating water table influences plant growth in most areas, except on ridges at a higher elevation. Many of the shallow, intermittent drainageways leading to major tributaries are not well defined because of land grading and shaping that was needed for development of irrigation.

This association occupies about 82,666 acres or about 27 percent of the county. Leshara soils make up about 20 percent of this association, Lex soils 17 percent, and Janude soils 16 percent. The remaining 47 percent is soils of minor extent.

The Leshara soils are in smooth areas on bottom lands. They are deep, nearly level, and somewhat poorly drained. Typically, the surface layer is grayish brown and dark grayish brown silt loam about 12 inches thick. Beneath this is a transitional layer of gray silt loam about 8 inches thick. The underlying material is light brownish gray and light gray silt loam to a depth of about 46 inches. Below that, it is very pale brown coarse sand to a depth of 60 inches or more.

FIGURE 7.8: LESHARA-LEX-JANUDE ASSOCIATIONS



The Lex soils occupy smooth areas on bottom lands. They are moderately deep over coarse sand and gravelly sand, nearly level, and somewhat poorly drained. Typically, the surface layer is dark gray, grayish brown, and gray loam about 17 inches thick. The underlying material is light gray loam to a depth of about 24 inches. Below that it is very pale brown, stratified coarse sand and gravelly sand to a depth of 60 inches or more.

The Janude soils occupy long areas on bottom lands that are slightly higher than the adjacent soils. They are deep, noncalcareous, nearly level, and moderately well drained. Typically, the surface layer is grayish brown and gray sandy loam. Beneath this is a transitional layer of light brownish gray fine sandy loam about 8 inches thick. The underlying material is light gray loamy sand to a depth of 60 inches or more.

Of minor extent in this association are the Alda, Fonner, Gibbon, Inavale, Lamo, Lockton, Merrick, Novina, Ovina, and Wann soils. The Alda, Gibbon, Lamo, Ovina, and Wann soils are at about the same elevation as the Leshara and Lex soils. The Fonner, Lockton, Merrick, and Novina soils are at a slightly higher elevation similar to that of the Janude soil. The Inavale soils are nearly level to strongly sloping and are at the highest elevation on the bottom lands.

Farming in this association is diversified. It is mainly a combination of cash-grain and livestock enterprises. About 75 percent of this association is cultivated. Neatly 80 percent of the cultivated acreage is irrigated, mainly by gravity irrigation. Corn, wheat, grain sorghum, alfalfa, and introduced grasses are the main dryfarmed crops. Corn and grain sorghum are the principal irrigated crops, but smaller amounts of soybeans, alfalfa, introduced grasses, popcorn, and potatoes are also grown. Land grading improves the surface drainage and increases efficiency of most irrigation systems. The remaining 25 percent of the association is in native grassland and various land uses. Range consists of mid and tall grasses.

Soil blowing is a hazard in areas of the sandy loam soils that are cultivated. The soils in this association are subject to rare or occasional flooding. The main concerns of management are wetness in spring, the low available water capacity of some soils, controlling soil blowing, maintaining high fertility, and conserving moisture. Good range management practices, such as proper grazing use, deferred grazing, and a planned grazing system of use and rest, are major concerns for maintaining and keeping the native grasses in good condition.

Farms in this association average about 400 acres. Nearly all the farms have access to good gravel roads or hard surface roads. One major highway traverses this association for more than 45 miles. Some section lines do not have roads or trails. The towns of Clarks, Chapman, Silver Creek, and much of Central City are in this association.

8. Lockton association

Nearly level, moderately well drained, loamy soils that are moderately deep over sand and gravel and formed in noncalcareous alluvium; on bottom lands

This association consists mainly of nearly level, smooth areas on high bottomlands. These areas have a fluctuating water table that influences plant growth in the early part of the growing season.

This association occupies about 14,000 acres or about 5 percent of the county. Lockton soils make up about 90 percent of this association. The remaining 10 percent is soils of minor extent.

The Lockton soils are on bottom lands. They are moderately deep over coarse sand or gravelly sand, nearly level, moderately well drained, and noncalcareous. Typically, the surface layer is dark grayish brown and dark gray loam about 13 inches thick.

Beneath this is a transitional layer of grayish brown loam about 10 inches thick. The upper 4 inches of the underlying material is grayish brown sandy loam. Below that, the underlying material is very pale brown gravelly coarse sand to a depth of 60 inches or more.

Of minor extent in this association are the Fonner, Janude, and Lex soils. The Fonner and Janude soils are at a slightly higher elevation than the Lockton soils. The somewhat poorly drained Lex soils are at a slightly lower elevation.

Farming in this association is diversified. It is mainly a combination of grain and livestock enterprises; although, some enterprises are only cash-grain. Nearly all the acreage of this association is used for irrigated crops. Irrigation is by gravity. Some of the irrigation wells have a low pumping capacity. Land grading, if needed, increases efficiency of the irrigation system and improves surface drainage. Corn and grain sorghum are the principal irrigated crops. Wheat and grain sorghum are the main dryland crops.

The main concerns of management in this association are maintaining high fertility, the low available water capacity, and conserving soil moisture. Lime is needed for legume crops that do not tolerate a strongly acid soil reaction.
Farms in this association average about 480 acres. Gravel or hard surface roads are along most section lines.

9. Fonner association

Nearly level, moderately well drained, loamy soils that are moderately deep over sand and gravel and formed in noncalcareous alluvium; on bottom lands

This association consists mainly of nearly level, smooth areas on high bottom lands. These areas generally have a fluctuating water table that influences plant growth in the early part of the growing season. These areas are rarely flooded.

This association occupies about 10,000 acres or about 3 percent of the county. Fonner soils make up about 92 percent of this association. The remaining 8 percent is soils of minor extent.

The Fonner soils are on bottom lands. They are moderately deep over gravelly sand, nearly level, moderately well drained, and noncalcareous. Typically, the surface layer is very dark grayish brown sandy loam about 20 inches thick. Beneath this is a transitional layer of gray loamy sand about 6 inches thick. The underlying material is light brownish gray gravelly sand and coarse sand to a depth of 60 inches or more.

Of minor extent in this association are mainly the Inavale and Platte soils. The Inavale soils are nearly level to gently sloping and occupy areas above the Fonner soils. The Platte soils are nearly level and generally at a lower elevation than the Fonner soils.

Farming in this association is diversified. It is mainly a combination of grain and livestock enterprises. About 85 percent of the areas is used for cultivated crops. Nearly all cultivated crops are irrigated by gravity irrigation or sprinklers. Some of the irrigation wells have a low pumping capacity. Corn and grain sorghum are the principal irrigated crops, but smaller amounts of potatoes and soybeans and introduced grasses for pasture are also grown. Wheat and grain sorghum are the main dryland cultivated crops. Land grading, if needed, increases the efficiency of gravity irrigation. The remaining 15 percent of the association is in native grassland and used for haying or for grazing, primarily by beef cattle. The grassland supports short and mid grasses.

Soil blowing is a hazard in this association. The main limitation is the low available water capacity. The principal concerns of management are controlling soil blowing, maintaining high fertility, and conserving soil moisture. Good range management practices, such as proper grazing use, deferred grazing, and a planned grazing system of use and rest, are major concerns for maintaining the native grasses in good condition.

Farms in this association average about 400 acres. Nearly all the farms have access to good gravel roads or improved dirt roads along most section lines.

10. Wann-Novina association

Deep, nearly level, somewhat poorly drained and moderately well drained, loamy soils formed in alluvium; on bottom lands

This association consists mainly of nearly level areas on bottom lands in valleys of the Loup and Platte Rivers. The fluctuating water table influences plant growth on soils in this association.

This association occupies about 15,000 acres, or about 5 percent of the county. Wann soils make up about 51 percent of this association and Novina soils 34 percent. The remaining 15 percent is soils of minor extent.

The Wann soils are on bottom lands at a lower elevation than Novina soils. They are deep, nearly level, and somewhat poorly drained. Areas are smooth to undulating. Typically, the surface layer is dark gray and dark grayish brown sandy loam about 14 inches thick. Beneath this is a transitional layer of grayish brown sandy loam about 6 inches thick. The underlying material is light brownish gray sandy loam in the upper part and very pale brown sand in the lower part to a depth of 60 inches.

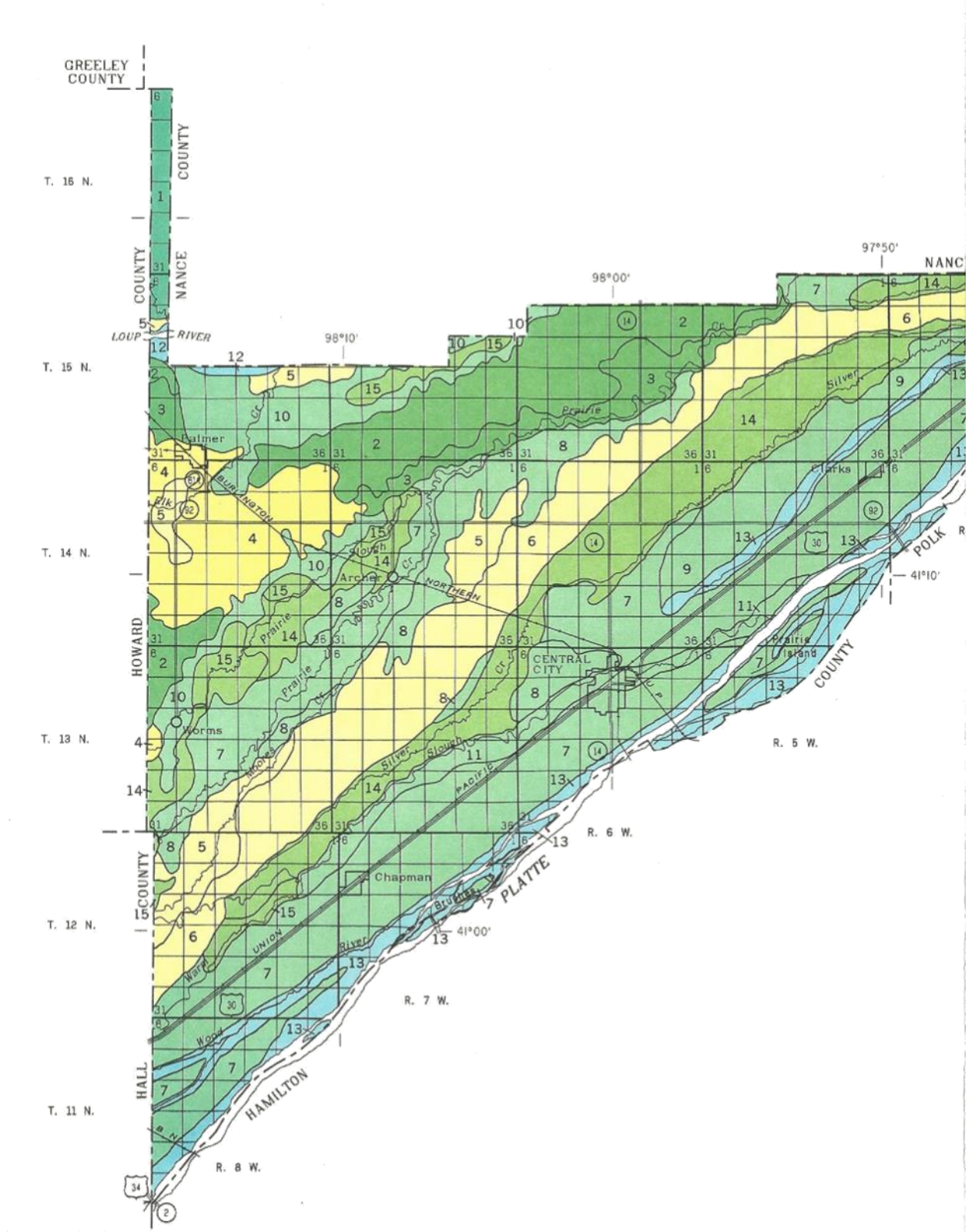
The Novina soils are on the higher parts of bottom lands. They are deep, nearly level, and moderately well drained. Typically, the surface layer is dark gray and gray sandy loam about 19 inches thick. Beneath this is a transitional layer of gray sandy loam about 7 inches thick. The underlying material is light gray and light brownish gray, mottled loam to a depth of 42 inches. Below that, it is grayish brown and white sandy loam and loam to a depth of 60 inches or more.

Of minor extent in this association are mainly the Ipage, Inavale, Lamo, Leshara, Lex, and Ovina soils. The Ipage and Ovina soils are on foot slopes of the high bottom lands. The Inavale soils are in long, narrow areas at the highest elevation in the landscape. The Lamo soils are in low wet areas of the bottom lands. The nearly level Leshara and Lex soils are on bottom lands at about the same elevation as the major Wann soil.

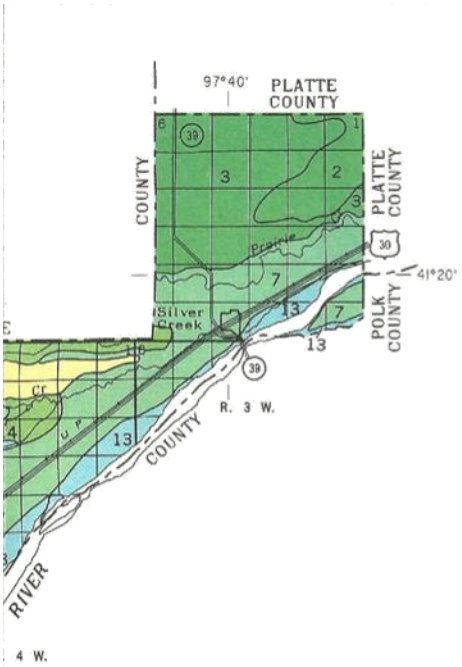
Farming in this association is diversified. It is mainly a combination of cash-grain and livestock enterprises. About 65 percent of the areas is cultivated. Dryland farming is mainly used because of the difficulty in obtaining adequate irrigation water in the Loup River Valley. Some of the irrigation wells have a low pumping capacity. About 35 percent of the cultivated areas is irrigated, by gravity irrigation Or sprinklers. Wheat, grain sorghum, and alfalfa are the main dryland crops, and corn and grain sorghum are the principal irrigated crops. The remaining 35 percent of the areas is in native grassland and used for haying and grazing. The grassland supports mid and tall grasses.

Soil blowing is a hazard in areas that are cultivated. The main limitation is wetness in spring. The main

Figure 7.9: Soils Association Map



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



N

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

GENERAL SOIL MAP

MERRICK COUNTY, NEBRASKA

Scale 1: 253,440

1 0 1 2 3 4 Miles

1 0 1 2 3 4 5 6 Kilometers

SOIL LEGEND*

SILTY SOILS ON UPLANDS

1 — Crofton-Nora association: Deep, strongly sloping to steep, well drained and somewhat excessively drained, silty soils formed in loess; on uplands

SANDY SOILS ON UPLANDS AND STREAM TERRACES AND IN SANDHILL VALLEYS

2 — Valentine-Thruman-Boelus association: Deep, nearly level to moderately steep, excessively drained to well drained, sandy soils formed in eolian sand and loess; on uplands and stream terraces

3 — Ipage-Els-Libory association: Deep, nearly level and very gently sloping, moderately well drained and somewhat poorly drained, sandy soils formed in eolian sand, alluvium, and loess; in sandhill valleys and on stream terraces

SANDY, LOAMY, AND SILTY SOILS ON UPLANDS AND STREAM TERRACES

4 — Valentine-Loretto-Kenesaw association: Deep, nearly level to strongly sloping, excessively drained and well drained, sandy, loamy, and silty soils formed in eolian sand, loess, and alluvium; on uplands and stream terraces

SILTY AND LOAMY SOILS ON STREAM TERRACES

5 — Hord-Hall association: Deep, nearly level, well drained, silty soils formed in alluvium and loess; on stream terraces

6 — O'Neill-Brocksburg-Blendon association: Nearly level to gently sloping, well drained, loamy soils that are moderately deep or deep over sand and gravel and formed in alluvium and mixed eolian materials; on stream terraces

LOAMY AND SILTY SOILS ON BOTTOM LANDS

7 — Leshara-Lex-Janude association: Nearly level, somewhat poorly drained and moderately well drained, loamy and silty soils that are deep and moderately deep over sand and gravel and formed in alluvium; on bottom lands

8 — Lockton association: Nearly level, moderately well drained, loamy soils that are moderately deep over sand and gravel and formed in noncalcareous alluvium; on bottom lands

9 — Fonner association: Nearly level, moderately well drained, loamy soils that are moderately deep over sand and gravel and formed in noncalcareous alluvium; on bottom lands

10 — Wann-Novina association: Deep, nearly level, somewhat poorly drained and moderately well drained, loamy soils formed in alluvium; on bottom lands

11 — Cozad association: Deep, nearly level, moderately well drained, loamy soils formed in alluvium; on bottom lands

SANDY AND LOAMY SOILS ON BOTTOM LANDS

12 — Boel-Inavale association: Deep, nearly level to strongly sloping, somewhat poorly drained and somewhat excessively drained, loamy and sandy soils formed in alluvium; on bottom lands

13 — Gothenburg-Platte-Barney association: Nearly level and very gently sloping, poorly drained and somewhat poorly drained, sandy and loamy soils that are shallow over sand and gravel and formed in recent alluvium; on bottom lands

SILTY AND LOAMY, ALKALINE SOILS ON BOTTOM LANDS

14 — Lamo-Caruso-Gayville association: Deep, nearly level, somewhat poorly drained, loamy and silty soils formed in alkaline alluvium; on bottom lands

15 — Lamo-Gayville Variant association: Deep, nearly level, poorly drained and somewhat poorly drained, silty soils formed in alkaline alluvium; on bottom lands

*Texture named in descriptive headings refers to that of the surface layer of the major soils.

Compiled 1979

SECTIONALIZED TOWNSHIP

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

concerns of management are controlling soil blowing, maintaining high fertility, and conserving soil moisture during the later part of the growing season. Good range management practices, such as proper grazing use, deferred grazing, a planned grazing system of use and rest, and timely haying, are the major concerns for keeping the native grasses in good condition.

Farms in this association average about 320 acres. Gravel roads or improved dirt roads are along most section lines. Some section lines do not have roads or trails. Most of the town of Worms is in this association.

11. Cozad association

Deep, nearly level, moderately well drained, loamy soils formed in alluvium; on bottom lands

This association consists mainly of nearly level smooth areas on bottom lands. A long narrow area parallels the drainageway of Warm Slough.

This association occupies about 7,000 acres or about 2 percent, of the county. Cozad soils make up about 93 percent of this association. The remaining 7 percent is soils of minor extent.

The Cozad soils are in smooth areas on bottom lands. They are nearly level and moderately well drained. Typically, the surface layer is grayish brown loam about 7 inches thick. The subsoil is light brownish gray very fine sandy loam about 15 inches thick. The underlying material is light brownish gray silt loam to a depth of about 36 inches. Below that, it is gray and very pale brown loam and fine sandy loam to a depth of 60 inches or more.

Of minor extent in this association are mainly the Alda, Hobbs, and Lex soils. The nearly level Alda and Lex soils are at a lower elevation than Cozad soils. The Hobbs soils are on bottom lands along the entrenched, channeled area of Warm Slough.

Farming in this association is diversified. It is mainly a combination of cash-grain and livestock enterprises. Nearly all the areas of this association are used for irrigated crops. Irrigation is by gravity systems. Corn, grain sorghum, and alfalfa are the principal irrigated crops. Land grading, if needed, increases the efficiency of gravity irrigation. Wheat, alfalfa, and grain sorghum are the main dryfarmed crops. The channeled areas adjacent to Warm Slough are used for limited grazing and as habitat for wildlife.

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

Farms in this association average about 400 acres. Nearly all the farms have access to good gravel roads or hard surface roads along section lines.

Sandy and loamy soils on bottom lands

Mainly these soils are poorly drained and somewhat poorly drained. Nearly all areas of these soils are in native or introduced grasslands and used for grazing or for haying. Only a small acreage is cultivated. The principal limitation is wetness in spring. Maintaining the grasses in good condition is an important concern of management.

Two associations are in this group.

12. Boel-Invale association

Nearly level, somewhat poorly drained loamy soils that are moderately deep and deep to mixed sand and gravel; formed in alluvium on bottom lands

This association consists mainly of nearly level to very gently sloping, shallow channels and intervening higher areas on bottom lands in the Loup River Valley. The fluctuating water table influences plant growth in most areas.

This association occupies about 800 acres or less than 1 percent of the county. Boel soils make up 81 percent of this association and Inavale soils 13 percent. The remaining 6 percent is soils of minor extent.

The Boel soils are on smooth, alternating low ridge and channel type areas of bottom lands. They are deep, nearly level, and somewhat poorly drained. Typically, the surface layer is dark gray loam about 8 inches thick. The underlying material is light gray very fine sandy loam to a depth of 16 inches. Below that, it is white, mottled fine sand to a depth of 60 inches or more.

The Inavale soils are in long, low ridgelike areas of bottom lands. They are deep, nearly level to strongly sloping, and somewhat excessively drained. Typically, the surface layer is grayish brown loamy fine sand about 7 inches thick. Beneath this is a transitional layer of light brownish gray loamy sand about 13 inches thick. The underlying material is light brownish gray loamy coarse sand to a depth of 60

inches or more. It contains thin strata of finer textured sediment.

Of minor extent in this association are the Barney soils in low channeled areas.

Farming in this association is mainly a livestock enterprise. Nearly all the areas are in native range or introduced grasses and used for haying or for grazing of beef cattle. Most areas of pasture are small. Corn is the principal crop in the small acreage that is cultivated.

The main concerns of management are excessive wetness in spring and soil blowing in areas that are cultivated. Proper haying and grazing practices are needed for maintaining the grasses in good condition.

Most farmsteads or headquarters are on land in other associations that is more suitable for cultivation. That part of the farm operating unit in areas of this association averages about 120 acres. Gravel roads are few, but trails are on most section lines.

13. Gothenburg-Platte-Barney association

Nearly level and very gently sloping, poorly drained and somewhat poorly drained, sandy and loamy soils that are shallow over sand and gravel and formed in recent alluvium; on bottom lands

This association consists mainly of nearly level and very gently sloping, low ridgelike areas intervening with shallow braided channels and areas of riverwash on bottom lands of the Platte River Valley. The fluctuating water table and occasional or frequent flooding influence plant growth in this association.

This association occupies about 23,000 acres or about 8 percent of the county. Gothenburg soils make up about 35 percent of this association, Platte soils 33 percent, and Barney soils 10 percent. The remaining 22 percent is soils of minor extent.

The Gothenburg soils are on bottom lands. They are very shallow or shallow to gravelly sand, nearly level and very gently sloping, and poorly drained. Areas are long and transected by shallow braided channels. Typically, the surface layer is dark gray loamy sand about 3 inches thick. The upper 8 inches of the underlying material is light gray coarse sand. Below that, the underlying material is very pale brown, mottled gravelly sand to a depth of 60 inches or more.

The Platte soils are on bottom lands. They are shallow to coarse sand or gravelly sand, nearly level, and somewhat poorly drained. Areas are long and smooth and have occasional shallow channels or are low and ridgelike. Typically, the surface layer is gray loam about 7 inches thick. Beneath this is a transitional layer of grayish brown loam about 6 inches thick. The underlying material is pale brown gravelly sand to a depth of 60 inches or more.

The Barney soils are in long, low-lying, abandoned channels on bottom lands. They are shallow to gravelly sand, nearly level, and poorly drained. Typically, the surface layer is gray loam about 9 inches thick. The upper part of the underlying material is light brownish gray, mottled sandy loam 9 inches thick, and the lower part is light gray, mottled gravelly sand to a depth of 60 inches or more.

Of minor extent in this association are mainly the Alda, Inavale, Janude, and Wann soils and Pits and Dumps. The Alda and Wann soils are at a slightly higher elevation on bottom lands than the major soils. The Inavale and Janude soils are in the low ridgelike areas on bottomlands. The Pits and Dumps are on the bottom lands where sand and gravel have been mined and the waste material has been deposited.

Farming in this association is mainly a livestock enterprise. Nearly all areas of the Platte and Barney soils are in native grassland. The areas of Barney soils are suitable for mowing. The areas of Gothenburg soils have mixed vegetation, largely annual grasses, sedges, weeds, shrubs, and cedar trees, and have very limited use for grazing. A small acreage of this association is cultivated and generally irrigated, but yields are mainly poor. The areas in native grassland are used for haying and for grazing, principally by beef cattle. The rest of the areas provide very limited grazing and are used mainly as habitat for wildlife.

Good range management practices, such as proper grazing and a planned grazing system of use and rest, help keep the native grasses in good condition.
Most farmsteads or headquarters are on land in other associations that is more suitable for cultivation. That part of the farm operating unit that is in areas of this association ranges from 80 to 960 acres but averages about 320 acres. Gravel roads are few. Many of the dirt roads and trails are on section lines and extend only to the north channel of the Platte River. Some section lines do not have roads or trails.

Silty and loamy, alkaline soils on bottom lands

These soils are nearly level and poorly drained and somewhat poorly drained. They are strongly alkaline or very strongly alkaline. Most of the areas are used for cultivated crops. Some large areas remain in native grassland and are mowed for hay or are grazed, primarily by beef cattle. Most of the cultivated land is irrigated, mainly by gravity irrigation. The principal limitations are wetness in spring and the saline-alkali condition of the soils.

Two associations are in this group.

14. Lamo-Caruso-Gayville association

Deep, nearly level, somewhat poorly drained, loamy and silty soils formed in alkaline alluvium; on bottom lands

This association consists mainly of nearly level areas on bottom lands. Some areas have small microdepressions. Most areas have a moderately deep water table that subirrigates the vegetation.

This association occupies about 38,000 acres or about 12 percent of the county. Lamo soils make up about 23 percent of this association, Caruso soils 17 percent, and Gayville soils 15 percent. The remaining 45 percent is soils of minor extent.

The Lamo soils are on bottom lands. They are nearly level and somewhat poorly drained. Typically, the surface layer is dark gray and gray clay loam. Beneath this is a transitional layer of gray silty clay loam about 9 inches thick. The underlying material is gray sandy clay loam to a depth of 42 inches. Below that it is light brownish gray gravelly sand to a depth of 60 inches or more.

The Caruso soils are in association with the microdepressions generally at a slightly higher elevation than the Gayville soils. The Caruso soils are nearly level and somewhat poorly drained. Typically, the surface layer is about 14 inches thick. The upper part of the surface layer is gray loam, and the lower part is dark gray clay loam. Beneath this is a transitional layer of gray loam about 10 inches thick. The underlying material is stratified light gray clay loam, brown sandy clay loam, grayish brown loam and sandy clay loam, and light brownish gray loamy sand to a depth of 60 inches or more.

The Gayville soils occupy the microdepressions in association with Caruso soils. The Gayville soils are nearly level, somewhat poorly drained, and strongly alkali. Surface water ponds in the microdepressions during and after rains. Typically, the surface layer is gray silt loam about 2 inches thick. The subsoil is dark gray and gray clay loam and silty clay about 26 inches thick. The underlying material is olive, pale olive, and light olive gray sandy loam and sandy clay loam to a depth of 60 inches or more.

Of minor extent in this association are mainly the Alda, Gibbon, Gothenburg, Leshara, Lex, Platte, and Wann soils. The Alda, Lex, Leshara, Wann, and Gibbon soils are at a slightly higher elevation than the major soils. The Gothenburg and Platte soils are on low bottom lands along Silver Creek and are at a lower elevation than the major soils.

Farming in this association is diversified. It is mainly a combination of cash-grain and livestock enterprises. About 65 percent of the areas is cultivated. Nearly 70 percent of the cultivated acreage is irrigated. Irrigation is primarily by gravity. Wheat, grain sorghum, and alfalfa are the main dryland cultivated crops. Corn and grain sorghum are the principal irrigated crops. Land grading has improved surface drainage and increased the efficiency of irrigation in' many areas. The saline-alkali areas are difficult to improve, and crop growth is generally poor. The remaining 35 percent of this association is in native grasses and alkali-tolerant grasses. These areas are used primarily for haying and grazing. The native grasses are mainly mid and tall species.

Flooding is a common hazard in this association. The main concerns of management are wetness from the water table in spring, salinity and alkalinity, maintaining high fertility, and conserving soil moisture. Good range management practices, such as proper grazing use, deferred grazing, a planned grazing system of use and rest, and obtaining a good stand of alkali-tolerant grasses, help keep the range in good condition.

Farms in this association average about 240 acres. Nearly all farms have access to good gravel roads or hard surface roads. Some section lines do not have roads or trails.

15. Lamo-Gayville Variant association

Deep, nearly level, poorly drained and somewhat poorly drained, silty soils formed in alkaline alluvium; on bottom lands

This association consists mainly of nearly level, smooth areas on bottom lands. These areas are transected by shallow, meandering drainageways. The soils have a fluctuating water table that influences plant growth.

This association occupies about 6,000 acres or about 2 percent of the county. Lamo soils make up 75 percent of this association and Gayville Variant soils about 18 percent. The remaining 7 percent is soils of minor extent.

The Lamo soils are in smooth areas on bottom lands. They are nearly level and poorly drained. Typically, the surface layer is dark gray silt loam about 19 inches thick. Beneath this is a transitional layer of gray silty clay loam about 6 inches thick. The underlying material to a depth of 35 inches is gray, mottled silty clay loam. Below that, it is light gray loam to a depth of 60 inches or more.

The Gayville Variant soils are on bottom lands at a slightly higher elevation than the Lamo soils. They are nearly level and somewhat poorly drained. Typically, the surface layer is dark grayish brown silt loam about 4 inches thick. The subsurface layer is gray silt loam about 2 inches thick. The subsoil is very dark grayish brown clay loam about 7 inches thick and is very strongly alkaline. The underlying material is pale olive silt loam and is very strongly alkaline to a depth of 60 inches or more.

Of minor extent in this association are mainly the Caruso and Novina soils. These soils are at a slightly higher elevation than the major Lamo and Gayville Variant soils.

Farming in this association is diversified but is mainly a combination of cash grain, hay, and livestock enterprises. Nearly all the areas of this association are in native grassland and are used for haying or for grazing by beef cattle. These areas support native mid and tall grasses. Many areas support alkali-tolerant grasses. A small acreage is cultivated and generally irrigated by gravity irrigation. Corn and grain sorghum are the principal irrigated crops.

The main concerns of management are excessive wetness in spring, the strong alkalinity of some soils, and proper haying and grazing practices for maintaining the native grasses.

Most farmsteads and headquarters are on land in other associations that is more suitable for cultivation. That part of the farm operating unit in this association ranges from 10 acres to 320 acres but averages about 120 acres. Gravel roads are few, but trails or improved dirt roads are on most section lines.

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 Merrick 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 a specific use is not allowed in those soils. However, the key focus needs to be on the type of special engineering solutions needing 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 Merrick County.

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

Not Limited means that 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 are so unfavorable and so difficult to correct or

TABLE 7.1: SOIL PROPERTIES BY TYPE AND USE

Soil Symbol/Soil Name	Dwellings without Basements		Dwellings with Basements		Commercial Uses		Septic tank and absorption fields		Sewage Lagoons		Area Sanitary Landfills	
	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions
Ac, Ag Alda	2	1	2	1,2	2	1	2	1,2,3	2	2,7	2	1,2,7
Bb Barney	2	1,6	2	1,6	2	1,6	2	1,6,7	2	7,1,6	2	1,7,6
Bd Blendon	0	-	0	-	0	-	2	7	2	7	2	7
BdC Blendon	0	-	0	-	1	5	2	7	2	7	2	7
Bf Blendon V	0	-	1	8	0	-	1	4	2	7	2	7
Bk Boel	2	1	2	1,2	2	1	2	1,2,3	2	7,1,2	2	1,7,2
Br Brocksburg	0	-	0	-	0	-	2	3	2	7	2	7
Cg Caruso	2	1	2	1,2	2	1	2	1,2,4	2	2	2	1,2
Co Cozad	2	1	2	1	2	1	1	2,1	2	7	1	7,2
CrF Crofton	2	5	2	5	2	5	2	5	2	5	2	5
Eb Els	2	1	2	1,2	2	1	2	2,3	2	7,2	2	7,2
Fn Fp Fonner	2	1	2	1	2	1	2	2,3	2	7,2	2	7,2
Fv Fonner V	2	1	2	1	2	1	2	2,3	2	7,2	2	7,2
Gc Gayville	2	1	2	1,2	2	1	2	1,2,4	2	2	2	1,2
Gf Gayville V	2	1	2	1	2	1	2	2	2	2	2	2
Gg Gibbon	2	1	2	1,2	2	1	2	2,1,4	2	2,7	2	1,2,7
Gt Gothenburg	2	2,1	2	2,1	2	2,1	2	2,1,3	2	2,7,1	2	2,7,1
Ha Hall	1	8	1	8	1	8	2	4	2	7	0	-
Hb, HbC Hobbs	2	1	2	1	2	1	2	1	2	1	2	1
Hg Holder	1	8	1	8	1	8	1	4	1	7	0	-
HrB Hord	0	-	0	-	0	-	0	-	1	7,5	0	-
Hs Hord	0	-	0	-	0	-	0	-	2	7	0	-
IfD, In Invale	2	1	2	1	2	1	2	3	2	7	2	7
Iv , Iw Ipage	0	-	1	2	0	-	2	2,3	2	7,2	2	7,2
Jm Jaunde	2	1	2	1,2	2	1	1	1,2	2	7	2	7
Ks Kenesaw	0	-	0	-	0	-	0	-	1	7	0	-
KsC Kenesaw	0	-	0	-	1	5	0	-	1	7,5	0	-
La Lamo	2	1,2,8	2	1,2	2	1,2,8	2	1,2,4	2	2	2	1,2
Lb Lamo	2	1,8	2	1,2	2	1,8	2	1,2,4	2	7,2	2	1,2
Lc Lamo	2	1,8	2	1,2	2	1,8	2	1,2,4	2	2	2	1,2
Ld Lawet V	2	1,2	2	1,2	2	1,2	2	1,2	2	7,2	2	1,7,2
Le Leshara	2	1	2	1,2	2	1	2	1,2	2	7,2	2	1,2
Lg, Lk Lex	2	1	2	1,2	2	1	2	2,1,3	2	2,7	2	1,7,2
Lm Lex V	2	1,2	2	1,2	2	1,2	2	1,2,3	2	7,2	2	1,7,2
LoB Libory	1	2	2	2	1	2	2	2	2	7,2	2	7
Lp Lockton	2	1	2	1,2	2	1	2	2,3	2	7,2	2	7,2
LrB Loretto	0	-	0	-	0	-	0	-	2	7	2	7
LvD Loretto		-	0	-	1	5	0	-	2	7	2	7
Ma Marlake	2	6	2	6	2	6	2	7,3	2	7,6	2	7,6
MdD Meadin	0	-	0	-	1	5	2	3	2	7	2	7
Me Merrick	2	1	2	1	2	1	1	1,2,4	1	2	1	1,2
Nv Novina	2	1	2	1	2	1	2	2	2	7,2	2	7,2
Om, On O'Neill	0	-	0	-	0	-	2	3	2	7	2	7

Soil Symbol/Soil Name	Dwellings without Basements		Dwellings with Basements		Commercial Uses		Septic tank and absorption fields		Sewage Lagoons		Area Sanitary Landfills	
	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions	Suitability	Conditions
OmC O'Neill	0	-	0	-	1	5	2	3	2	7	2	7
Ow Ovina	2	1	2	1,2	2	1	2	2	2	7,2	2	7,2
Pt Platte	2	1,2	2	1,2	2	1,2	2	1,2,3	2	7,2	2	1,7,2
Pv Platte	2	1,2	2	1,2	2	1,2	2	1,2,3	2	7,2	2	1,7,2
PwB Platte	2	1,2	2	1,2	2	1,2	2	1,2,3	2	7,1,2	2	1,7,2
Ru Rusco	2	1	2	1	2	1	2	1	0	-	2	1
Sm Simeon	0	-	0	-	0	-	2	3	2	7	2	7
ThB Thurman	1	5	0	-	0	-	2	3	2	7	2	7
ThC Thurman	0	-	0	-	1	5	2	3	2	7	2	7
VbD Valentine	0	-	0	-	1	5	2	3	2	7	2	7
VbE Valentine	1	5	1	5	2	5	2	3	2	7,5	2	7
VcB Valentine	0	-	0	-	0	-	2	3	2	7	2	7
VcD Valentine	0	-	0	-	1	5	2	3	2	7	2	7
VeB Valentine	0	-	0	-	0	-	2	3	2	7	2	7
VeD Valentine	0	-	0	-	1	5	2	3	2	7	2	7
Wb, Wm Wann	2	1	2	1,2	2	1	2	1,2	2	7,2	2	1,7,2

Legend for Table 7.1

Suitability	Conditions	
0 = Not Limited	1= Flooding	5 = Slope
1 = Somewhat Limited	2 = Wetness	6 = Ponding
2 = Very Limited	3 = Poor filter	7 = Seepage
	4 = percs slowly	8 = Shrink-swell

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

Wetness 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.

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

Slope means the inclination of the land surface from the horizontal. Within Merrick 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

Ponding means standing water on soils in closed depressions. The water can be removed only by percolation or evapotranspiration.

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.

TABLE 7.2: PERMEABILITY/SHRINK-SWELL BY SOIL TYPE

Soil Symbol/Soil Name	Depth (inches)	Permeability (inches/ hour)	Shrink-Swell potential
Ac, Alda	0-12 12-15 25-60	2.0-6.0 2.0-6.0 >20	Low Low Low
Ag Alda	0-10 10-26 26-60	0.6-2.0 2.0-6.0 >20	Low Low Low
Bb Barney	0-9 9-18 18-60	0.6-2.0 2.0-20 >20	Low Low Low
Bd BdC Blendon	0-16 16-30 30-60	2.0-6.0 2.0-6.0 0.6-2.0	Low Low Low
Bf Blendon V	0-22 22-33 33-60	2.0-6.0 2.0-6.0 0.6-2.0	Low Low Moderate
Bk Boel	0-17 17-60	0.6-2.0 6.0-20	Low Low
Br Brocksburg	0-20 20-27 27-60	0.6-2.0 0.6-2.0 >20	Low Moderate Low
Cg Caruso	0-14 14-53 53-60	0.6-2.0 0.2-2.0 6.0-20	Low Low Low
Co Cozad	0-7 7-36 36-52 52-60	0.6-2.0 0.6-2.0 0.6-2.0 2.0-6.0	Low Low Moderate Low
CrF Crofton	0-8 8-60	0.6-2.0 0.6-2.0	Low Low
Eb Els	0-20 20-60	6.0-20 6.0-20	Low Low
Fn Fonner	0-20 20-26 26-60	2.0-6.0 6.0-20 >20	Low Low Low
Fp Fonner	0-13 13-24 24-60	0.6-2.0 6.0-20 >20	Low Low Low
Fv Fonner V	0-9 9-18 18-60	6.0-20 6.0-20 >20	Low Low Low
Gc Gayville	0-2 2-14 14-22 22-28 28-60	0.6-2.0 <0.06 0.2-0.6 0.2-2.0 0.2-2.0	Low High High Low Low
Gf Gayville V	0-6 6-13 13-60	0.6-2.0 0.06-0.2 0.6-2.0	Low Moderate Low
Gg Gibbon	0-14 14-37 37-60	0.2-2.0 0.2-2.0 0.2-6.0	Moderate Moderate Low
Gt Gothenburg	0-3 3-11 11-60	6.0-20 6.0-20 >20	Low Low Low
Ha Hall	0-16 16-40 10-46 46-60	0.6-2.0 0.2-0.6 0.6-2.0 6.0-20	Moderate Moderate Moderate Low
Hb, HcB Hobbs	0-6 6-60	0.6-2.0 0.6-2.0	Low Low
Hg Holder	0-18 18-32 32-60	0.6-2.0 0.6-2.0 0.6-2.0	Low Moderate Moderate
HrB Hord	0-21 21-42 42-60	0.6-2.0 0.6-2.0 0.6-2.0	Low Low Low
Hs Hord	0-21 21-42 42-60	0.6-2.0 0.6-2.0 >20	Low Low Low
IfD, Invale	0-3 3-7 7-60	6.0-20 6.0-20 6.0-20	Low Low Low
In Invale	0-7 7-20 20-60	6.0-20 6.0-20 6.0-20	Low Low Low
Iv Ipage	0-9 9-60	6.0-20 6.0-20	Low Low
Iw Ipage	0-5 5-60	6.0-20 6.0-20	Low Low
Jm Jaunde	0-30 30-38 38-60	2.0-6.0 2.0-6.0 0.6-6.0	Low Low Low
Ks KsC Kenesaw	0-8 8-15 15-60	0.6-2.0 0.6-2.0 0.6-2.0	Low Low Low
La Lamo	0-19 19-25 25-35 35-60	0.6-2.0 0.2-2.0 0.2-0.6 0.2-2.0	Moderate High High Moderate
Lb Lamo	0-30 30-42 42-60	0.2-0.6 0.2-0.6 >20	High High Low
Lc Lamo	0-10 10-60	0.2-0.6 0.2-0.6	High High
Ld Lawet V	0-19 19-29 29-46 46-60	2.0-6.0 0.6-2.0 0.6-2.0 >20	Low Moderate Low Low
Le Leshara	0-12 12-46 46-60	0.6-2.0 0.6-2.0 >6.0	Low Low Low
Lg Lex	0-13 13-24 24-60	0.6-2.0 0.2-6.0 >20	Low Low Low
Lk Lex	0-19 19-27 27-60	0.2-0.6 0.2-6.0 >20	Moderate Low Low
Lm Lex V	0-10 10-26 26-60	0.6-2.0 0.6-2.0 >20	Low Low Low
LoB Libory	0-16 16-21 21-60	6.0-20 6.0-20 0.6-2.0	Low Low Low
Lp Lockton	0-13 13-27 27-60	0.6-2.0 0.6-2.0 >20	Moderate Moderate Low
LrB Loretto	0-19 19-60	2.0-6.0 0.6-6.0	Low Low
LvD Loretto	0-14 14-60	2.0-6.0 0.6-6.0	Low Low
Ma Marlake	0-8 8-60	2.0-6.0 6.0-20	Low Low
MdD Meadin	0-7 7-11 11-60	0.6-2.0 6.0-20 >20	Low Low Low
Me Merrick	0-30 30-60	0.6-2.0 0.6-2.0	Low Low
Nv Novina	0-19 19-26 26-60	2.0-6.0 2.0-6.0 0.6-2.0	Low Low Low
Om O'Neill	0-23 23-30 30-60	2.0-20 6.0-20 >20	Low Low Low
On O'Neill	0-21 21-27 27-60	0.6-2.0 6.0-20 >20	Low Low Low
Ow Ovina	0-12 12-22 22-42 42-60	0.6-2.0 2.0-6.0 0.6-2.0 2.0-6.0	Low Low Low Low
Pt Platte	0-7 7-12 12-60	0.6-2.0 2.0-6.0 >20	Low Low Low
Pv Platte	0-6 6-10 10-60	0.6-2.0 2.0-6.0 >20	Low Low Low
PwB Platte	0-5 5-15 15-60	0.6-2.0 2.0-6.0 >20	Low Low Low
Ru Rusco	0-12 12-24 24-60	0.6-2.0 0.2-0.6 0.6-2.0	Low Moderate Low
Sm Simeon	0-15 15-60	6.0-20 6.0-20	Low Low
ThB ThC Thurman	0-19 19-60	6.0-20 6.0-20	Low Low
VbD, VbE Valentine	0-8 8-60	6.0-20 6.0-20	Low Low
VcB, VcD Valentine	0-12 12-60	6.0-20 6.0-20	Low Low
VeB, VeD Valentine	0-12 12-60	6.0-20 6.0-20	Low Low
Wb Wann	0-14 14-42 42-60	2.0-6.0 2.0-6.0 2.0-6.0	Low Low Low
Wm Wann	0-16 16-42 42-60	0.6-2.0 2.0-6.0 2.0-6.0	Low Low Low

overcome as to require major soil reclamation, special designs, or intensive maintenance.

Dwellings without Basements

Figure 7.10 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 upon the Table 7.1, a majority of the soils in Merrick 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
- Wetness
- Ponding
- Slope
- Shrink-Swell

Again, these conditions may are 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 to eliminate potential problems in the future.

Somewhat Limited Conditions

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

- Shrink-swell
- Slope
- Wetness

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

Dwellings with Basements

Figure 7.11 shows the soil suitability conditions for constructing Dwellings with basements. In addition Table 7.1 provides the suitability by soil types and the specific conditions impacting the soil.

Very Limited Conditions

Based upon the Table 7.1, the Very Limited conditions are very similar to Dwellings without Basements. As noted above, a majority of the soils in Merrick County are considered Very Limited for a Dwelling Unit with a Basement. There are four major conditions impacting the soils (not all four are present in any one soil type). The conditions present in the different soils are:

- Flooding
- Wetness
- Ponding
- Slope

Again, these conditions may are 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

Besides the Very Limited soils, the soils considered Somewhat Limited are fewer but still have fewer issues when developing. The conditions that are creating the Somewhat Limited classification are:

- Shrink-swell
- Slope
- Wetness

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

Commercial Uses

Figure 7.12 shows the soil suitability for constructing commercial uses in Merrick County. Table 7.1 provides the suitability by soil types and the specific conditions impacting the soil.

Very Limited Conditions

Based upon the Table 7.1, there are only three conditions impacting Commercial Uses in Merrick County. The soils impacted are very similar to those impacting Dwelling Units in the county. There are three major conditions impacting the soils (not all three are present in any one soil type). The conditions present in the different soils are:

- Flooding
- Ponding
- Slope

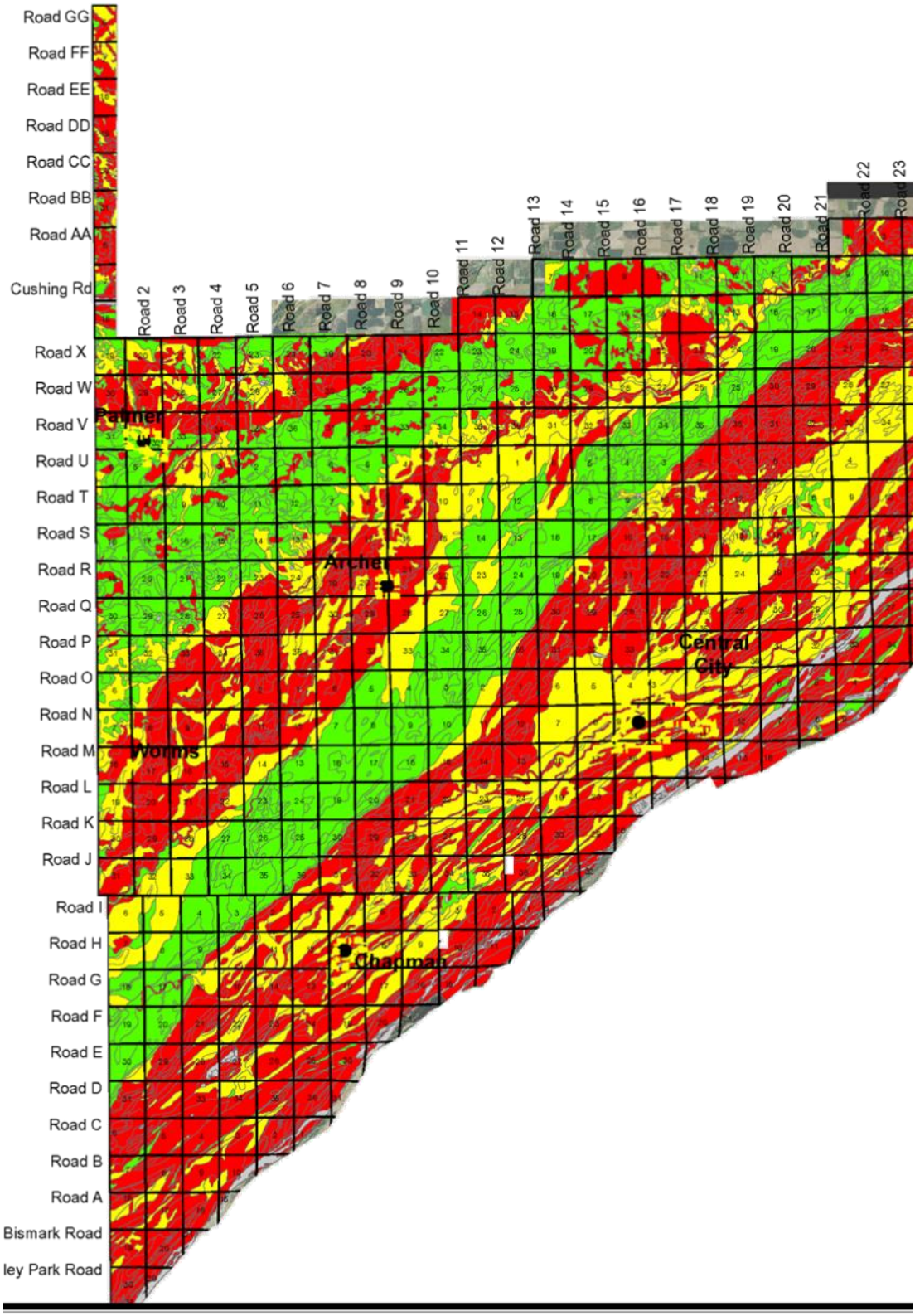
Again, these conditions may are may not eliminate the ability of a land owner to build a commercial structure, but specific conditions will need to be engineered to overcome to eliminate potential problems in the future.

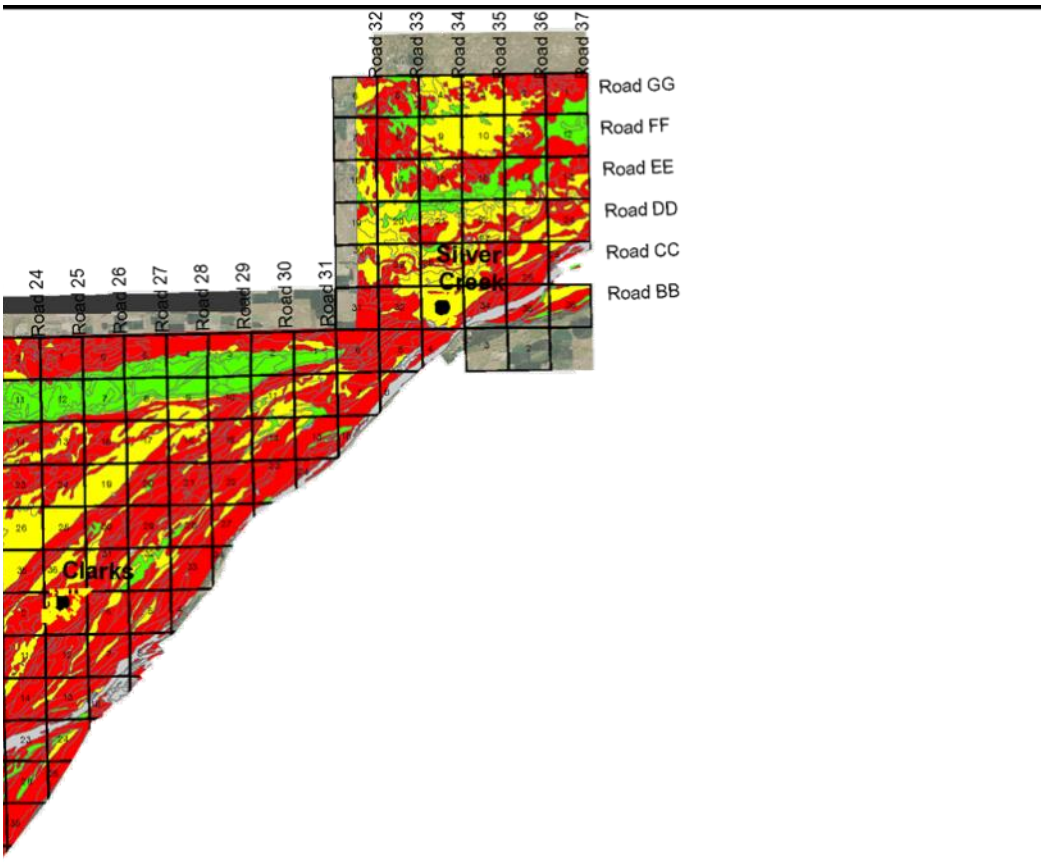
Somewhat Limited Conditions

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

- Shrink-swell

Figure 7.10: Dwellings without Basements





Legend

N

City/Village

Dwellings Without Basements

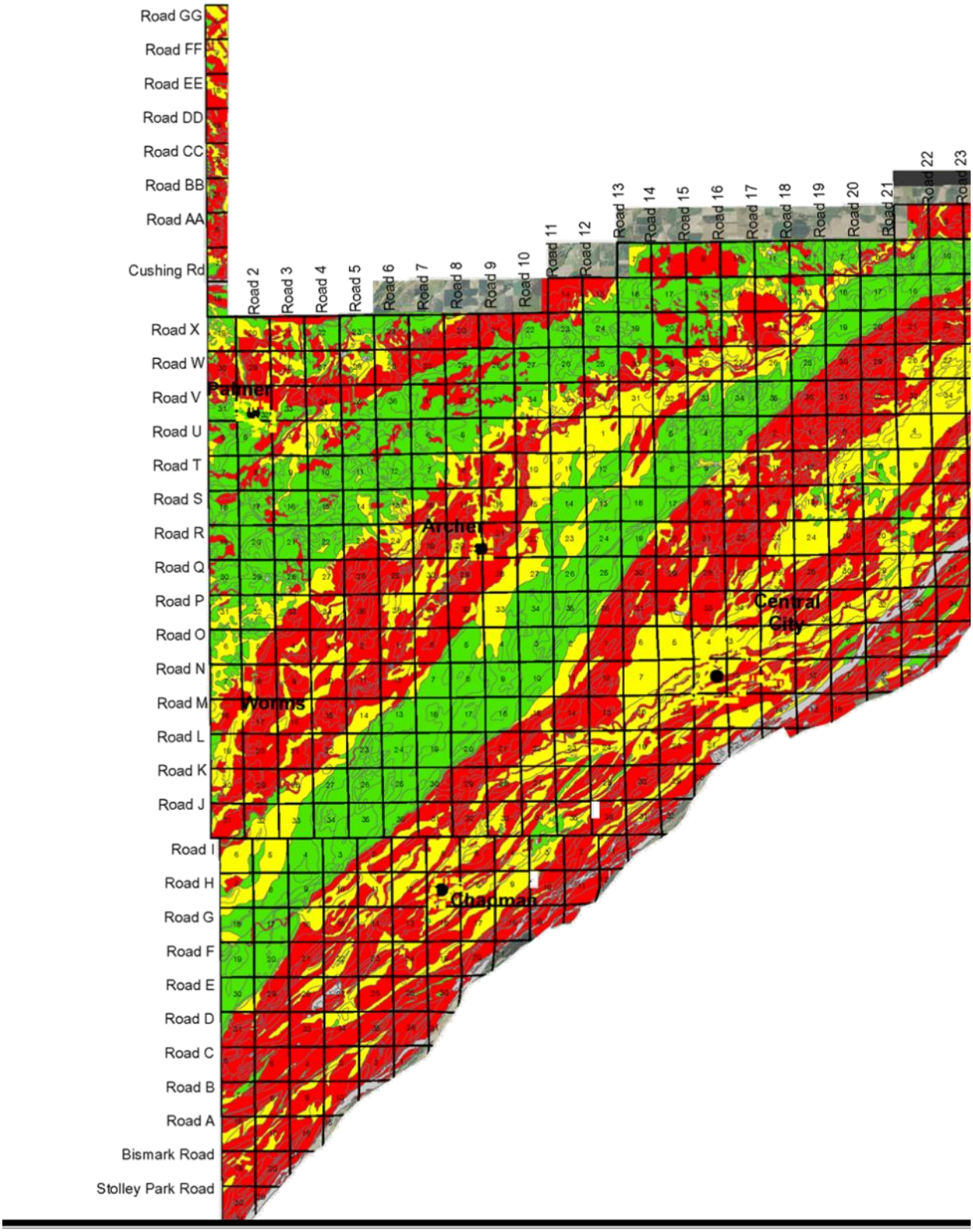
- Not limited
- Not rated
- Somewhat limited
- Very limited

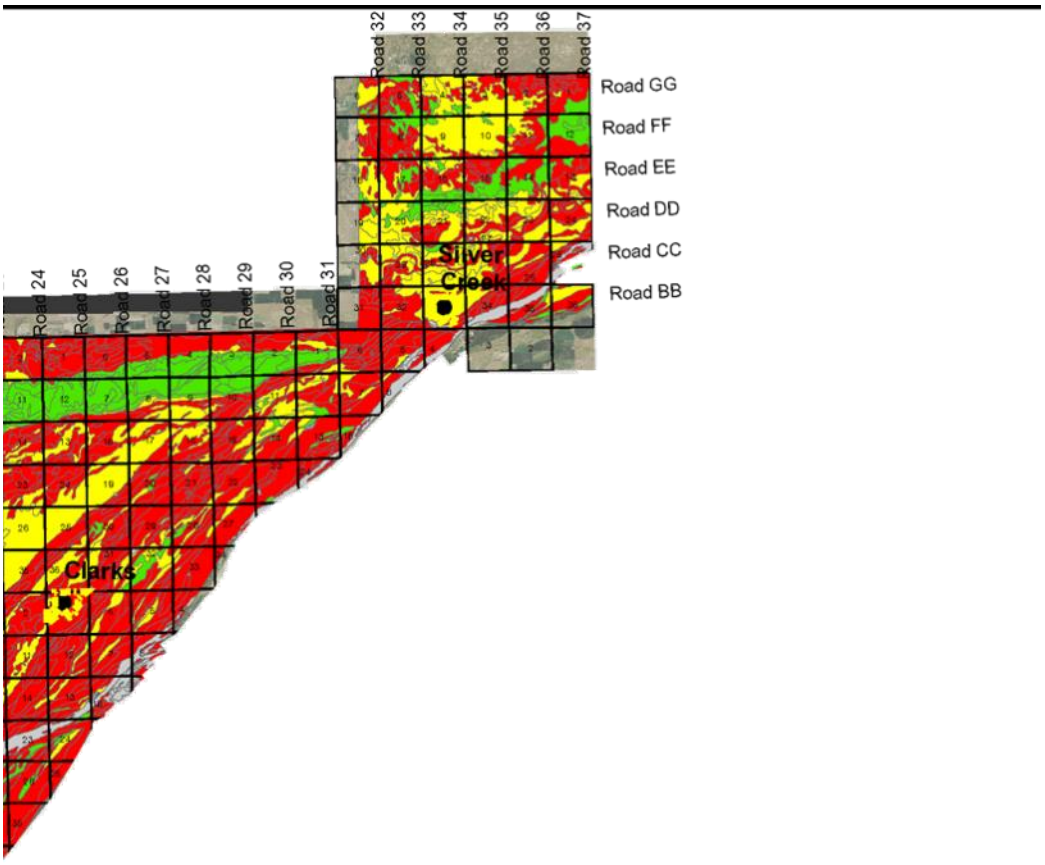
Source: US Department of Agriculture Natural Resources Conservation Service-Soil Data Mart

0 1.5 3 6 9 12 Miles

The map, all associated data, and measurements are approximate and not to be used for any official purpose.

Figure 7.11: Dwellings with Basements





Legend

N

- City/Village

Dwellings With Basement

- Not limited
- Not rated
- Somewhat limited
- Very limited

Source: US Department of Agriculture Natural Resources Conservation Service-Soil Data Mart

0 1.5 3 6 9 12 Miles

The map, all associated data, and measurements are approximate and not to be used for any official purpose.

- Slope
- Wetness

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

Septic Tank and Absorption Fields

Figure 7.13 shows the soil suitability conditions for placement of a septic tank and absorption field in Merrick County. Table 7.1 provides the suitability by soil types and the specific conditions impacting the soil.

Very Limited Conditions

Based upon the Table 7.1, there are seven conditions impacting the use of septic tanks and absorption fields in Merrick County. The major conditions impacting the soils are:

- Flooding
- Wetness
- Poor Filter
- Seepage
- Percs Slowly
- Ponding
- Slope

Again, these conditions may are 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

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:

- Percs Slowly
- Wetness
- Flooding

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

Sewage Lagoons

Figure 7.14 shows the soil suitability conditions for placement of Sewage Lagoons in Merrick County. Table 7.1 provides the suitability by soil types and the specific conditions impacting the soil.

Very Limited Conditions

Based upon the Table 7.1, there are five conditions impacting the use of sewage lagoons in Merrick County. The major conditions impacting the soils are:

- Flooding
- Wetness
- Seepage
- Ponding
- Slope

Again, these conditions may are 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.

Photograph 7.1
Residential Sewage Lagoon
Source: water.unl.edu

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:

- Seepage
- Slope
- Wetness

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

Area Sanitary Landfills

Figure 7.14 shows the soil suitability conditions for placement of Sewage Lagoons in Merrick County. Table 7.1 provides the suitability by soil types and the specific conditions impacting the soil.

Very Limited Conditions

Based upon the Table 7.1, there are five conditions impacting the use of sewage lagoons in Merrick County. The major conditions impacting the soils are:

- Flooding
- Wetness
- Seepage
- Ponding
- Slope

Again, these conditions may are 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:

- Seepage
- Slope
- Wetness

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

Other Factors Impacting Land Uses

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 7.16 identifies Prime Farmland, Prime Farmland if Drained, Farmland of Statewide Importance, and Not Prime Farmland.

According to the USDA, Prime farmland

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

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 7.3: Defintion of Soil Slopes
Merrick County

Classes Simple Slopes	Slope Gradient Limits	
	Lower Percent	Upper Percent
Nearly level	0 0	1 2
Very gently sloping	1	3
Gently sloping	2 3	6 6
Strongly sloping	6 6	9 11
Moderately sloping	9 11	20 15
Steep	15	30

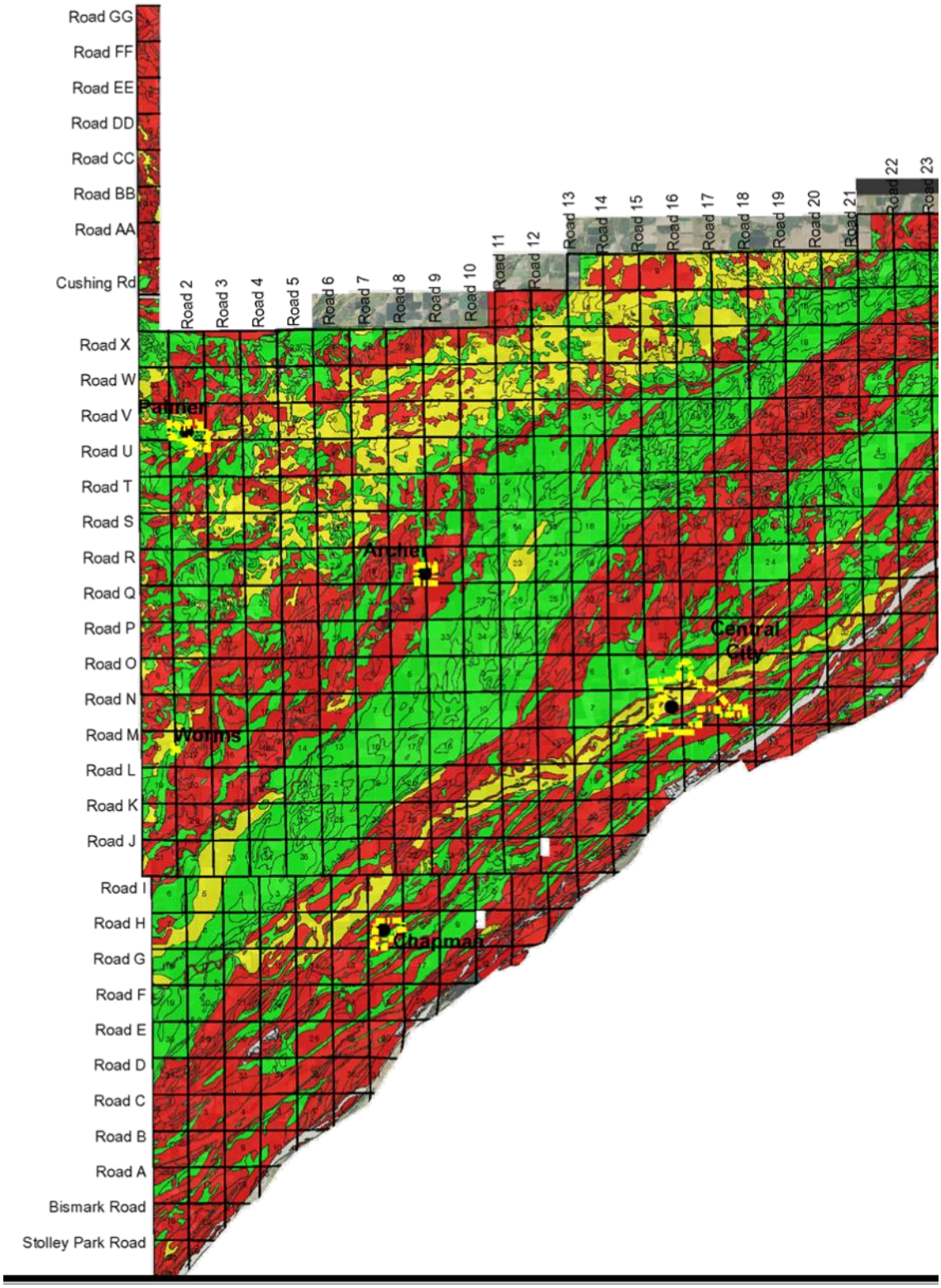
Permeability

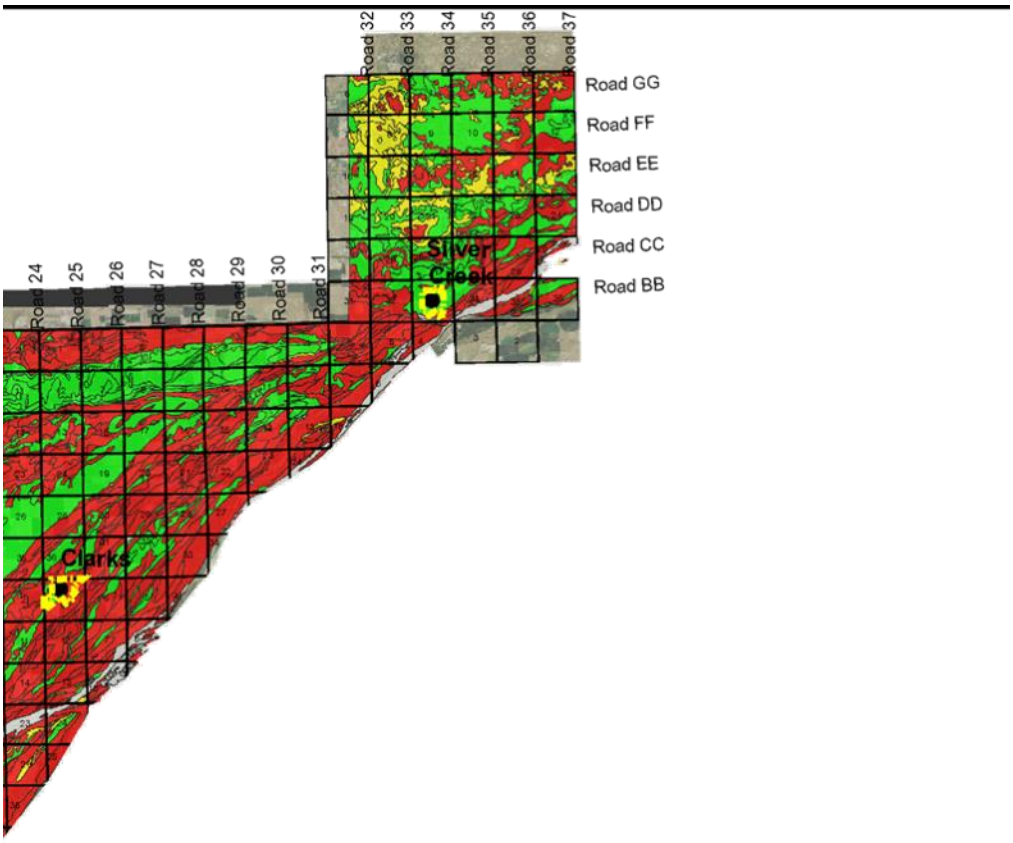
Permeability is defined in the Merrick County Soil Survey as…"The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through saturated soils." Permeability is rated as:

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

Table 7.2 indicates the various permeability rates for each soil and at what depth the rating was taken. The Table indicates those considered to moderately

Figure 7.12: Commercial Structures





Legend

N

- City/Village

Soil Limitations

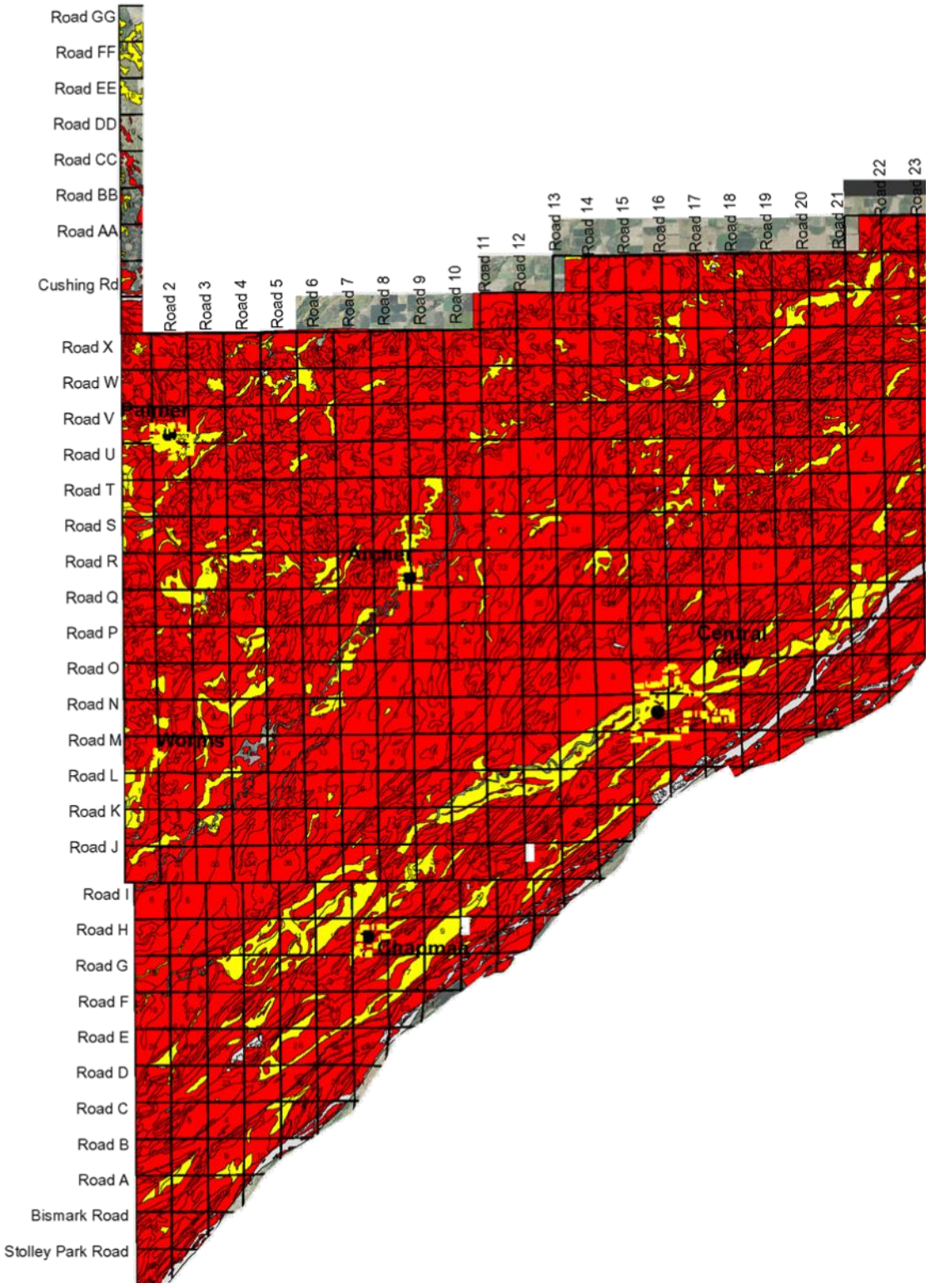
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

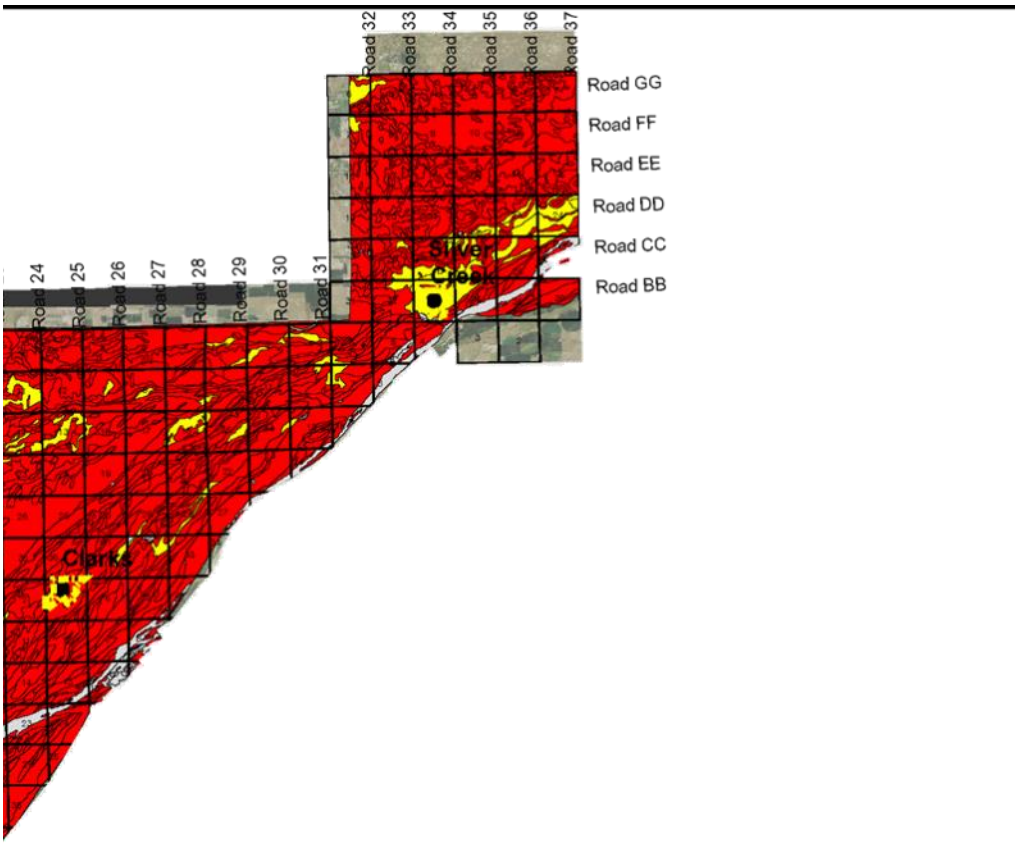
Source: US Department of Agriculture Natural Resources Conservation Service-Soil Data Mart

0 1.5 3 6 9 12 Miles

The map, all associated data, and measurements are approximate and not to be used for any official purpose.

Figure 7.13: Septic Tank and Absorption Fields





Legend

N

- City/Village

Septic Tank Absorption Field Conditions

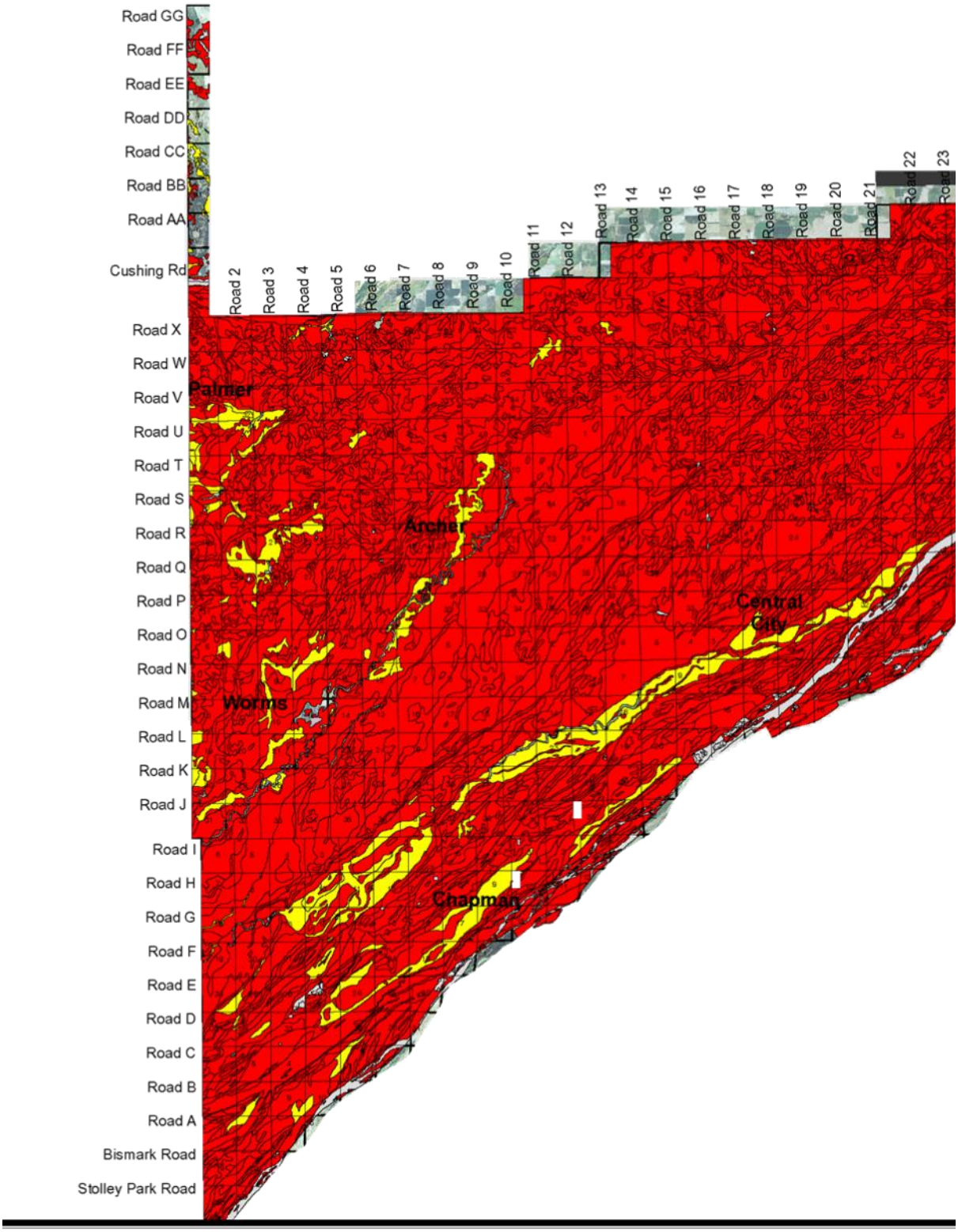
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

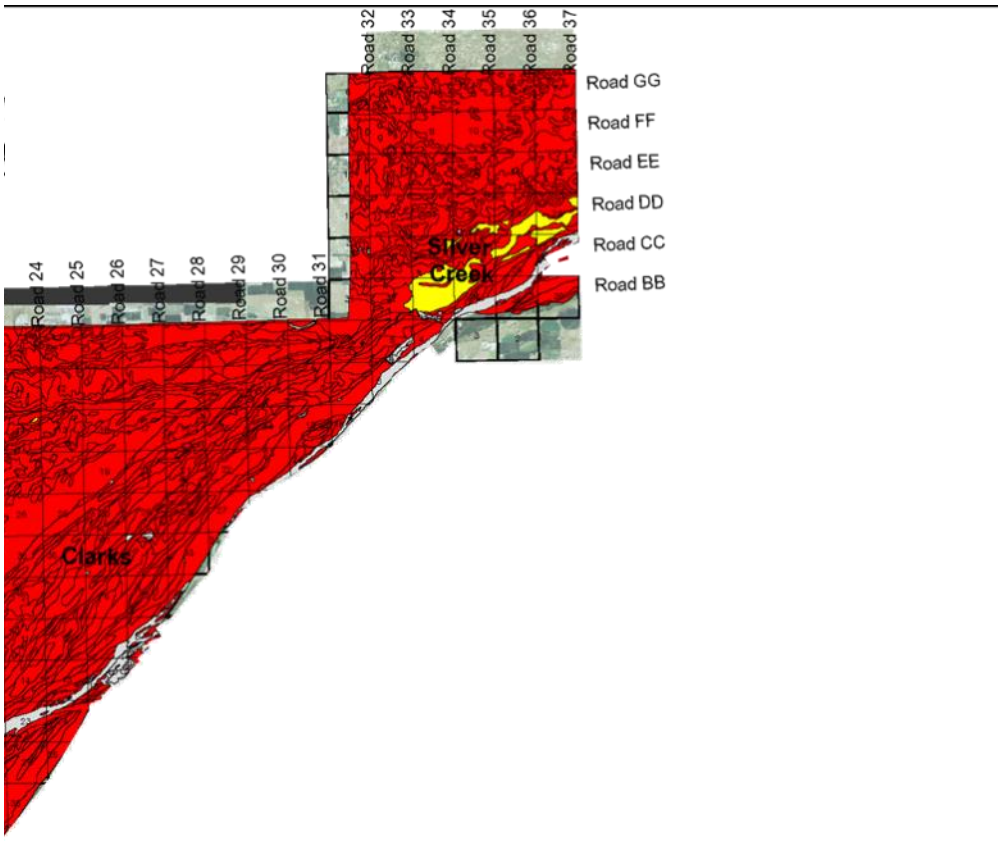
Source: US Department of Agriculture Natural Resources Conservation Service-Soil Data Mart

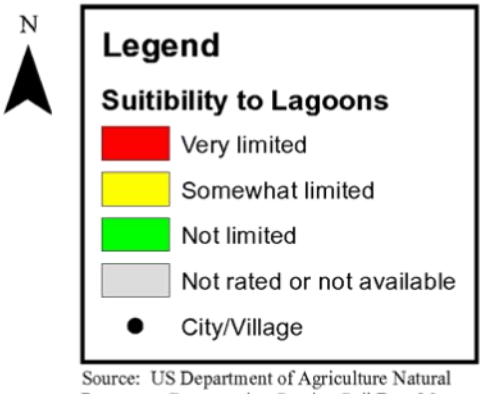
0 1.5 3 6 9 12 Miles

The map, all associated data, and measurements are approximate and not to be used for any official purpose.

Figure 7.14: Sewage Lagoons





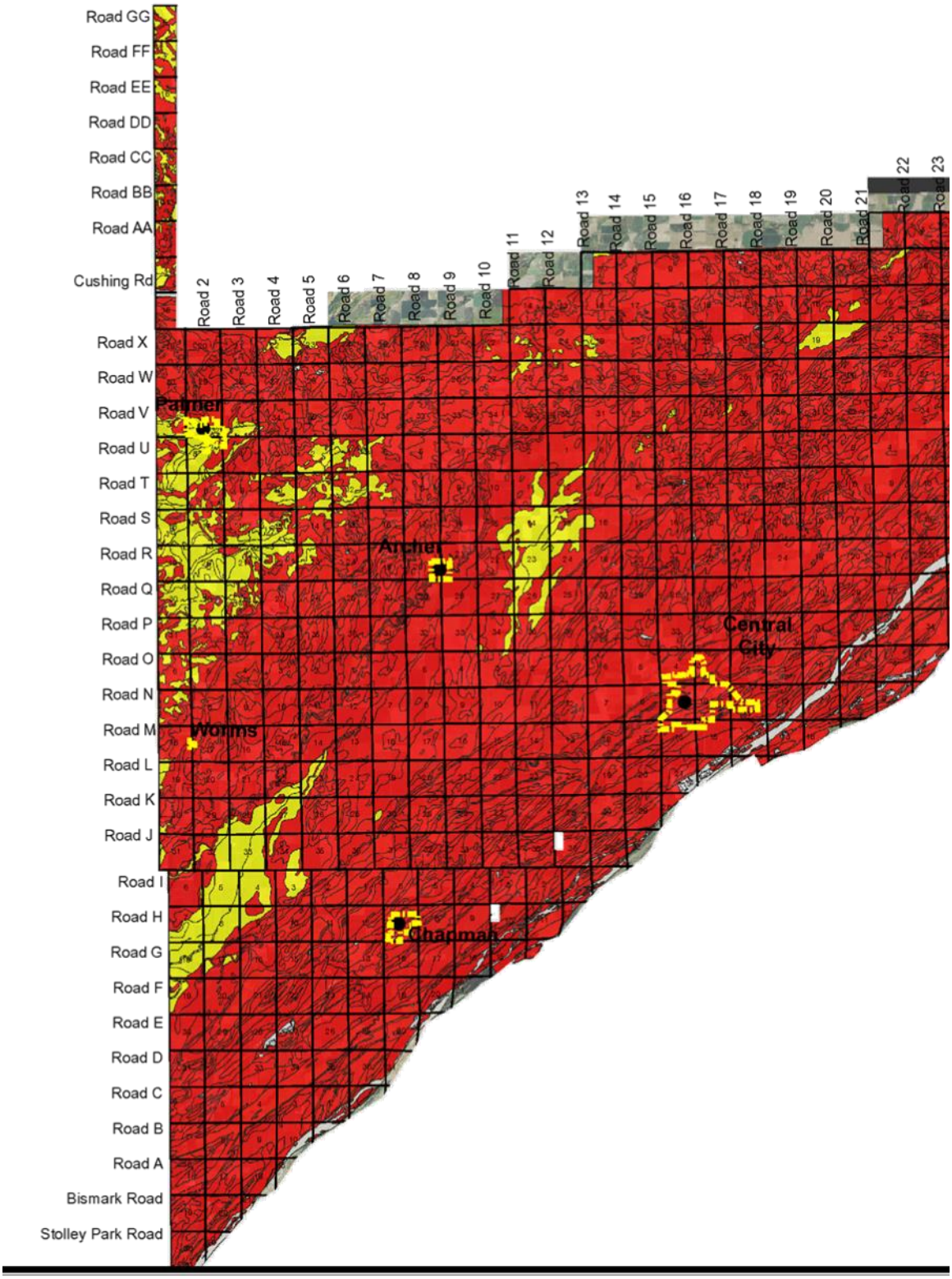


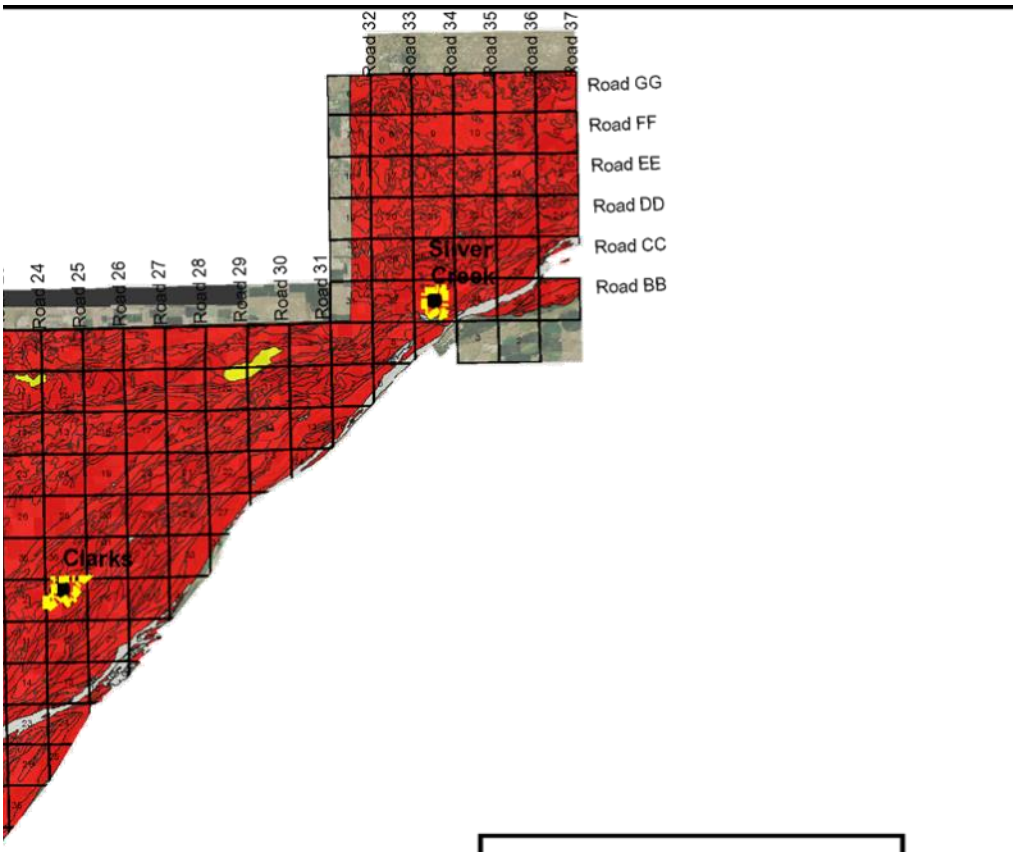
Source: US Department of Agriculture Natural Resources Conservation Service-Soil Data Mart

0 1.5 3 6 9 12 Miles

The map, all associated data, and measurements are approximate and not to be used for any official purpose.

Figure 7.15: Area Sanitary Landfills





Legend

N

City

- City/Village

Landfill Limitations

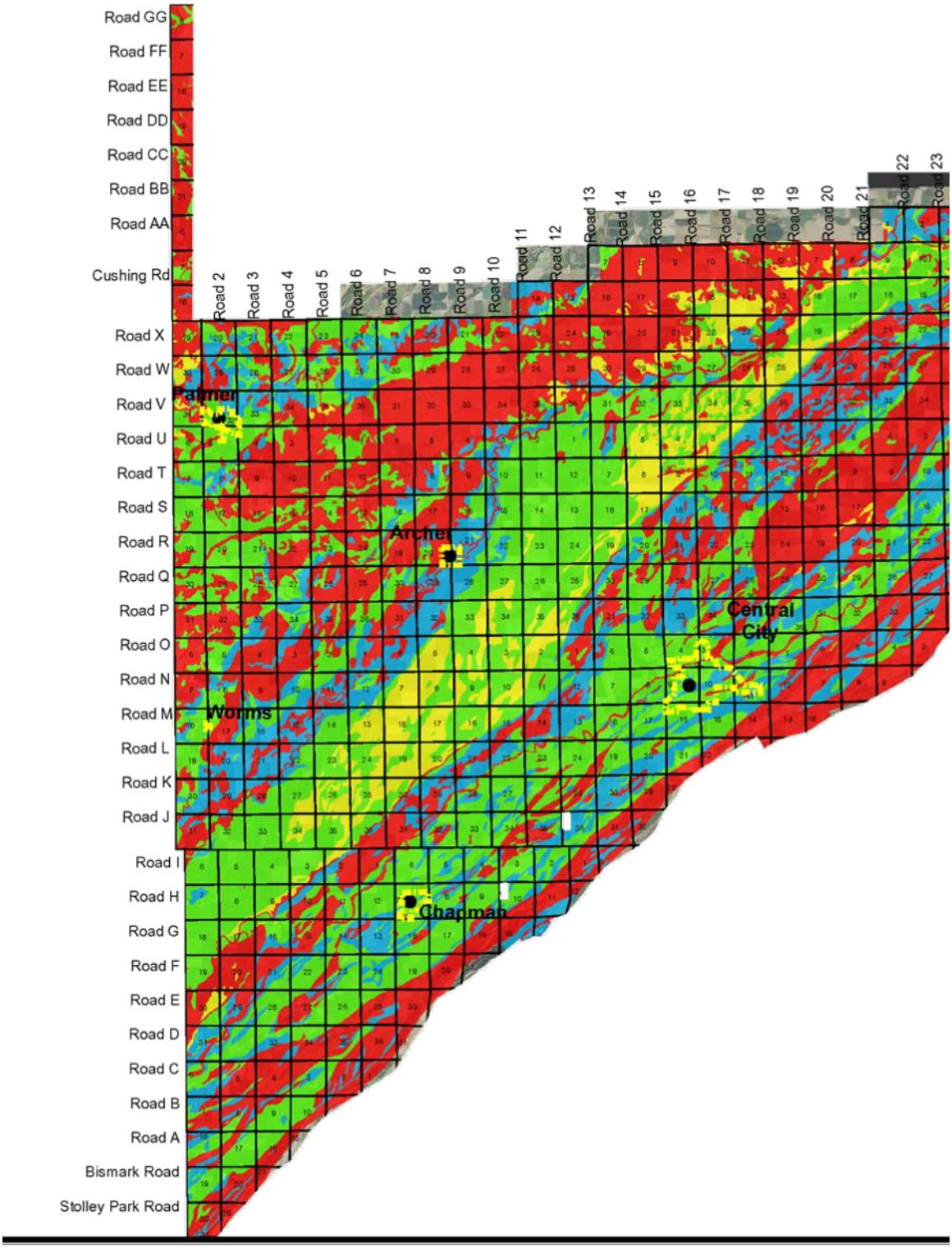
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

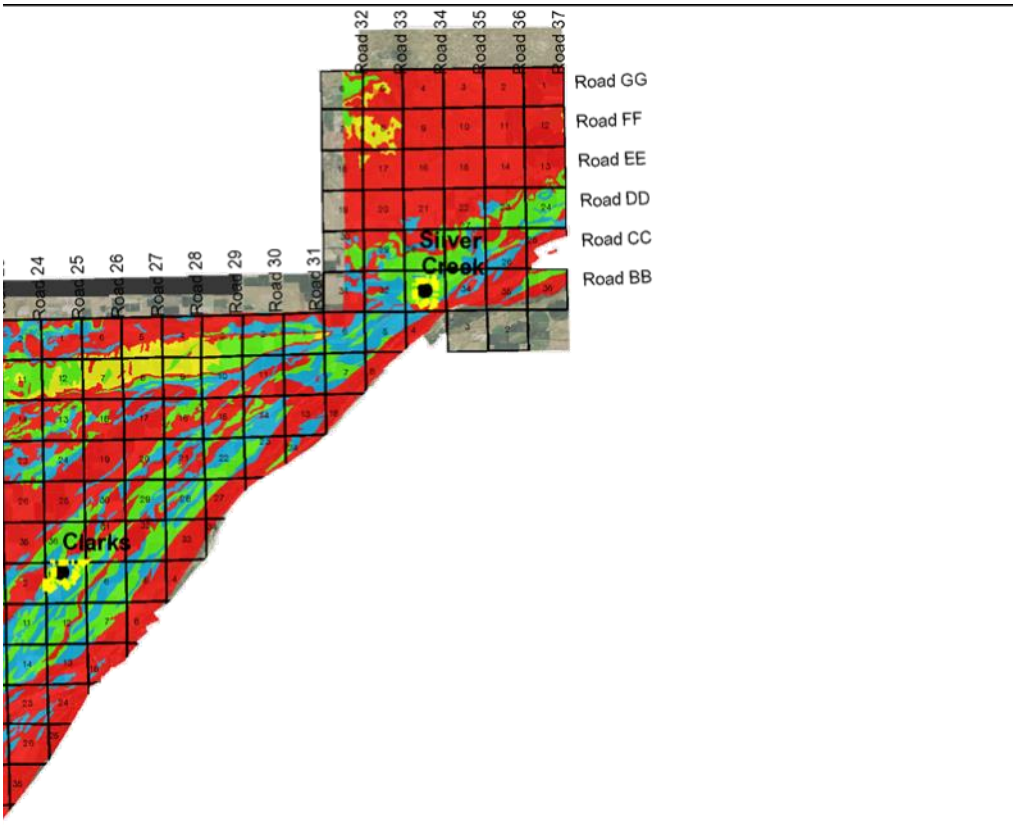
Source: US Department of Agriculture Natural Resources Conservation Service-Soil Data Mart

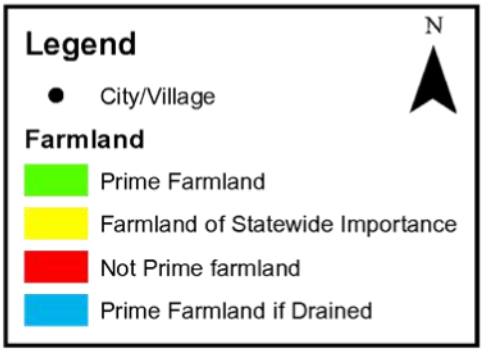
0 1.5 3 6 9 12 Miles

The map, all associated data, and measurements are approximate and not to be used for any official purpose.

Figure 7.16: Prime Farmland







Source: US Department of Agriculture Natural Resources Conservation Services-Soil Data Mart

The map, all associated data, and measurements are approximate and not to be used for any official purpose.

rapid or higher in red. There are a number of soils in Merrick County that can see a permeability of 20 inches per hour or more; most of these are located along the Platte River valley.

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

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

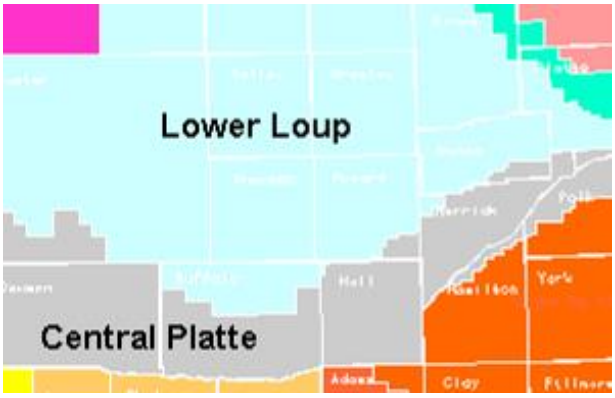
Water and Its Impact on Merrick County

Water, along with the soil conditions discussed in this section are the two most restricting environmental conditions faced by counties in Nebraska. 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 Merrick County during the present and the coming planning period. Water in this section will apply to two different 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. 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.

Merrick County lies mostly within the Platte River watershed and some within the Loup River watershed. The Natural Resources Districts assigned to cover Merrick County are the Central Platte NRD and the Lower Loup NRD.

Figure 7.17: Watersheds and the Natural Resource Districts



Source: www.lancaster.unl.edu

Hydric Soils

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

Figure 7.18 indicates where the hydric soils are located in Merrick County. The soils are classified as the following:

- Hydric (100%),
- Predominately Hydric (66% to 99%)
- Partially Hydric (33% to 65%)
- Predominately non-hydric (1% to 32%)
- Non Hydric (0%)

The majority of the soils in Merrick County are in the non-hydric categories. The largest areas of Hydric soils is located along the Platte River as well as smaller areas scattered around the county.

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 Merrick County, 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.

Depth to Water

Figure 7.19 indicates the approximate water table/ aquifer elevations. The water table elevation, in Merrick County, varies from 0 feet below grade to over 200 feet below grade. The largest grouping of shallow water lie along the Platte River; while areas are scattered throughout the county. Within Merrick County there are two large bands where the depth is over 200 feet. The county has large areas where the depth to water varies greatly even within a given section of ground.

Thickness of Principal Aquifer

Figure 7.20 indicates the thickness of the water table/ aquifer. Once water is found, depending upon the depth, the pockets may not be very thick. Throughout the county the depth of the principal aquifer ranges between 100 feet and 200 feet depending on which part of the county one is located.

Use of Groundwater

Groundwater use in Merrick County is in three forms, domestic and livestock supply, public water supplies, and irrigation. Each of these uses is important to the overall viability of Merrick County. As long as drought conditions of any level exist in Nebraska and the Great Plains, groundwater will become a major factor as to land use and consumption, even in Merrick County.

Groundwater aquifers have been dropping in their overall thickness during the years leading up to this planning period. It will be critical for the County to work closely with both NRD's to monitor available water levels and adjust specific land use policies having a negative impact on the overall groundwater availability and quality.

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. Most of these wells are low production wells, 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 Merrick County, all of the incorporated communities have a publicly owned water supply system.

The State of Nebraska places a great deal of value on these systems. The value is so high, 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.

Wellhead Protection

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

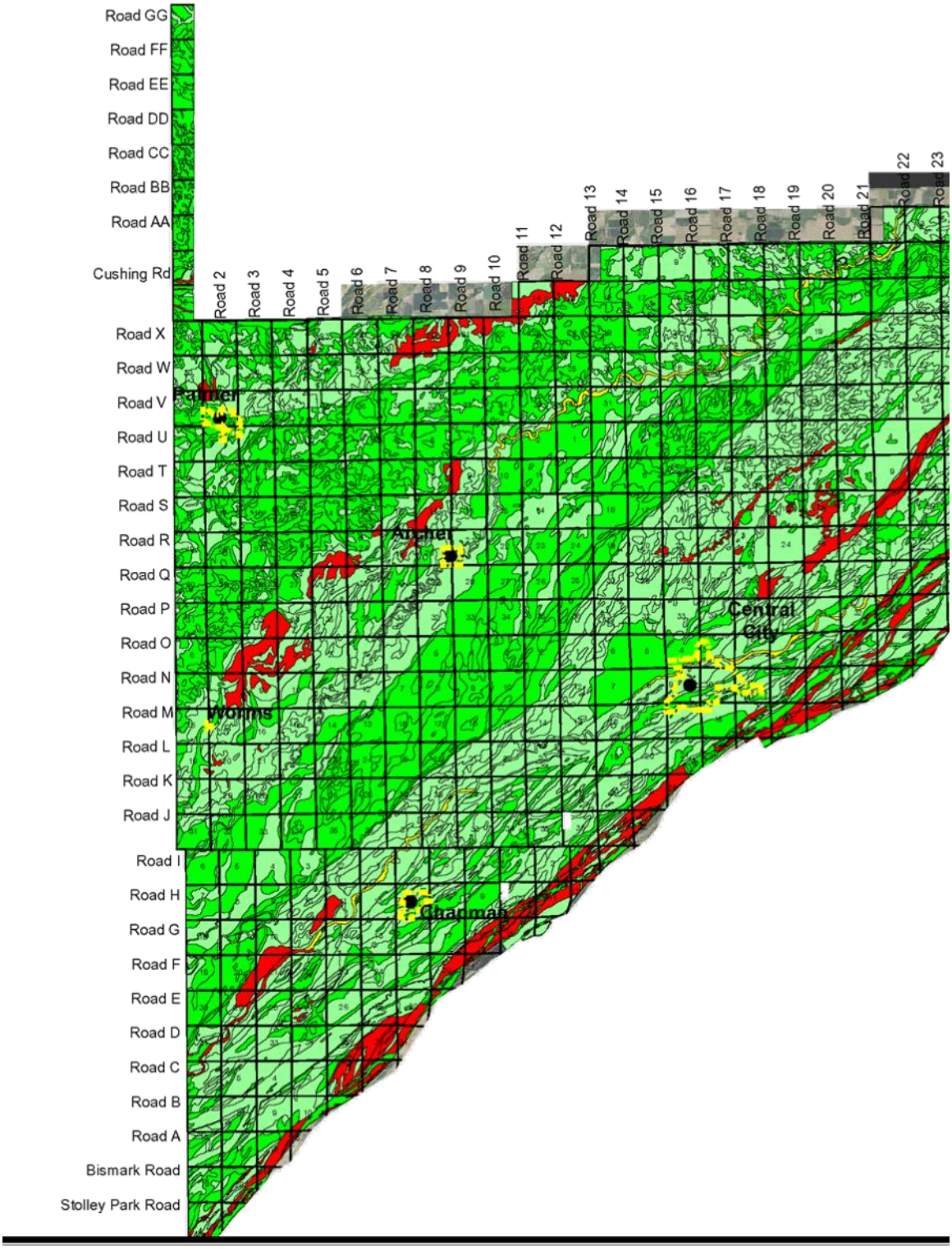
In Nebraska, the goal of the Nebraska Department of Environmental Quality's Wellhead Protection Program "...is to protect the land and groundwater surrounding public drinking water supply wells from Contamination". Within the NDEQ's program there are five steps to developing a wellhead protection area,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

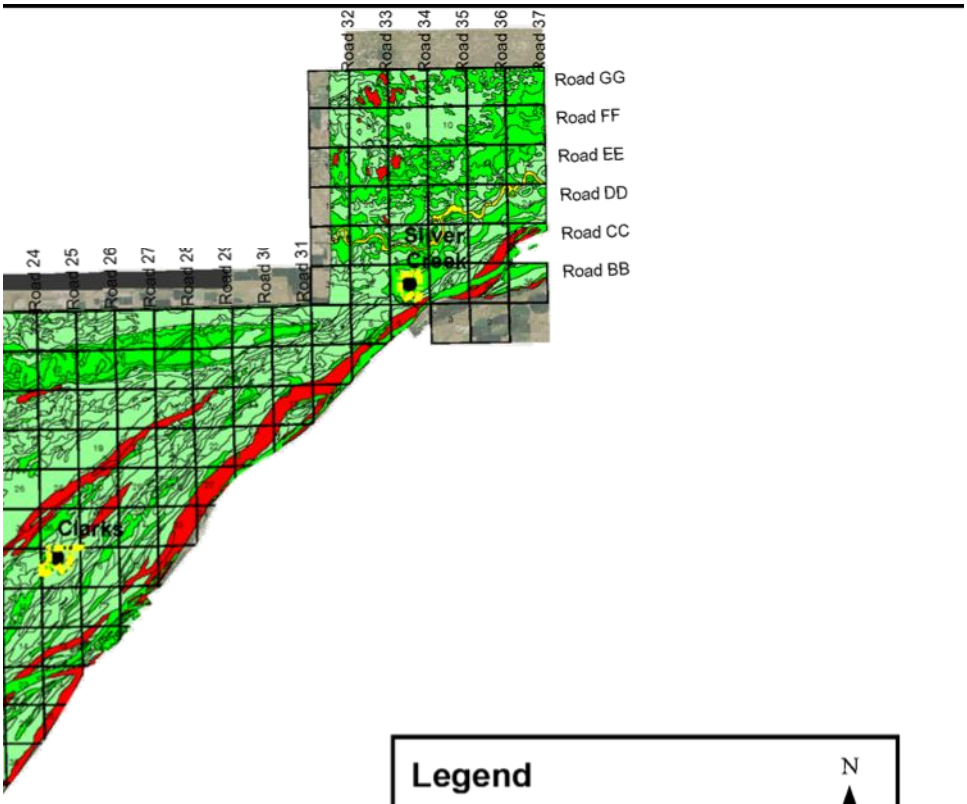
1. Delineation
2. Contamination Source Inventory
3. Contaminant Source Management
4. Emergency, Contingency, and Long-term Planning
5. Public Education

Photo 7.2 Photo of Palmers Wellhead Protection Area south of the community.

The mapping process includes the use of computer modeling and other data. From this the NDEQ can generate a map indicating the wellhead Protection

Figure 7.18: Hydric Soils





Legend

N

City

- City/Village

Hydric Soils

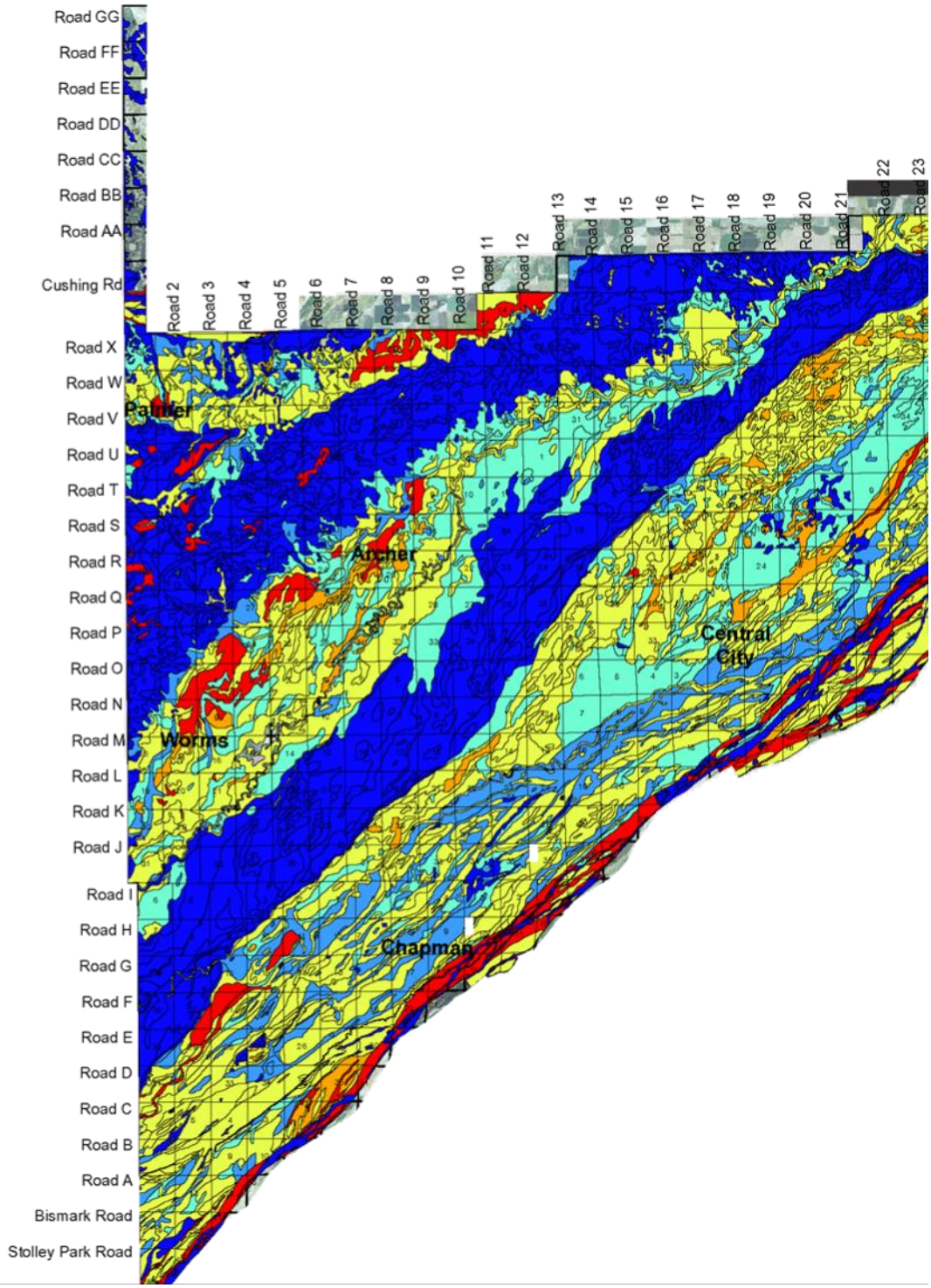
- Hydric (100%)
- Predominantly Hydric (66 to 99%)
- Partially hyrdic (33 to 65%)
- Predominatly nonhydric (1 to 32%)
- Nonhydric (0%)

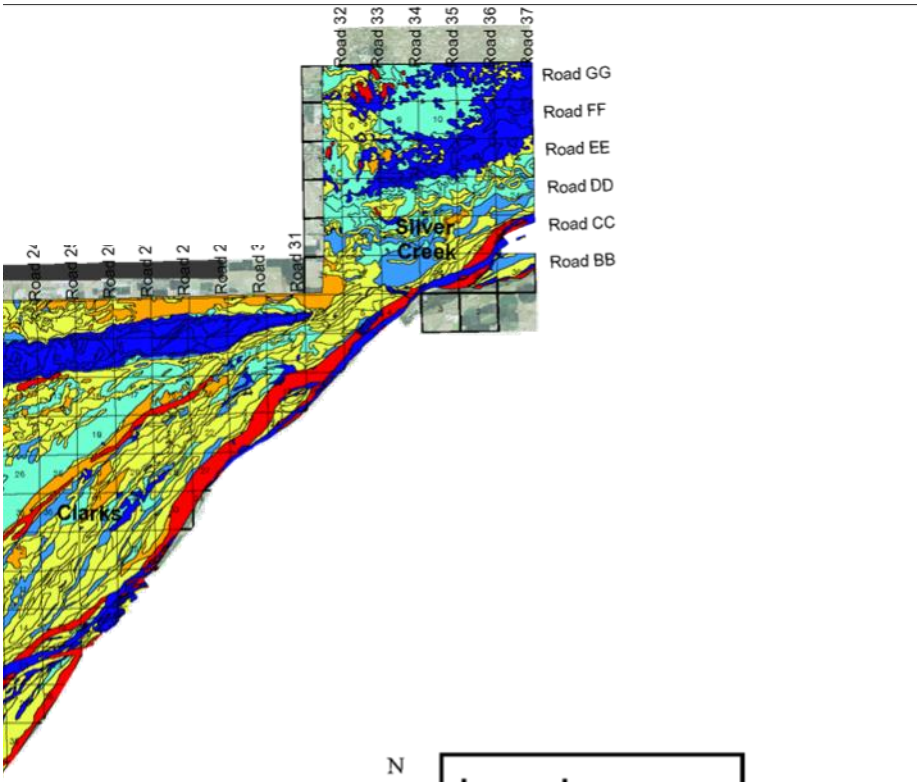
Source: US Department of Agriculture Natural Resources Conservation Service-Soil Data Mart

0 1.5 3 6 9 12 Miles

The map, all associated data, and measurements are approximate and not to be used for any official purpose.

Figure 7.19: Depth to Water





N

Legend

Depth To Grounwater

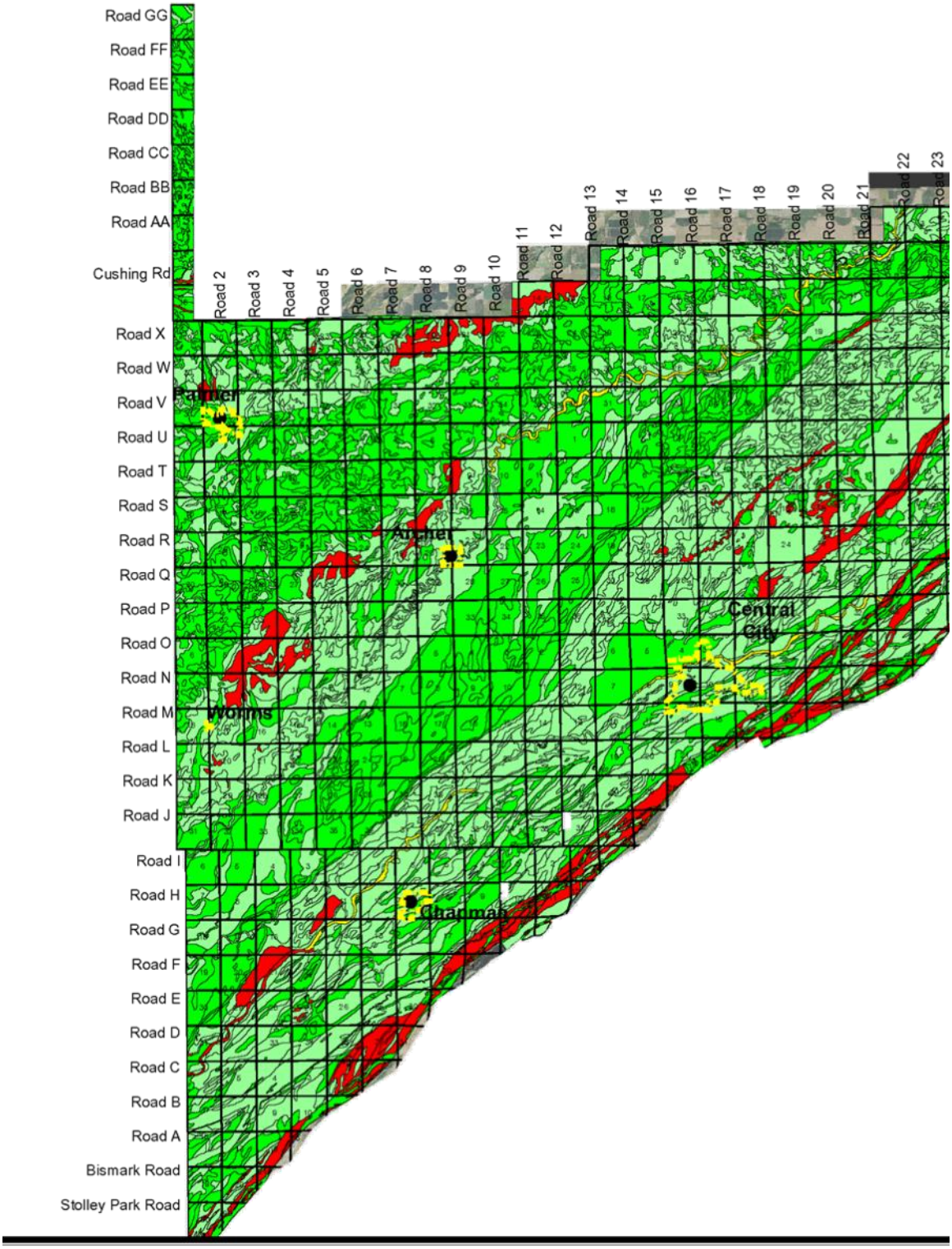
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- City/Village

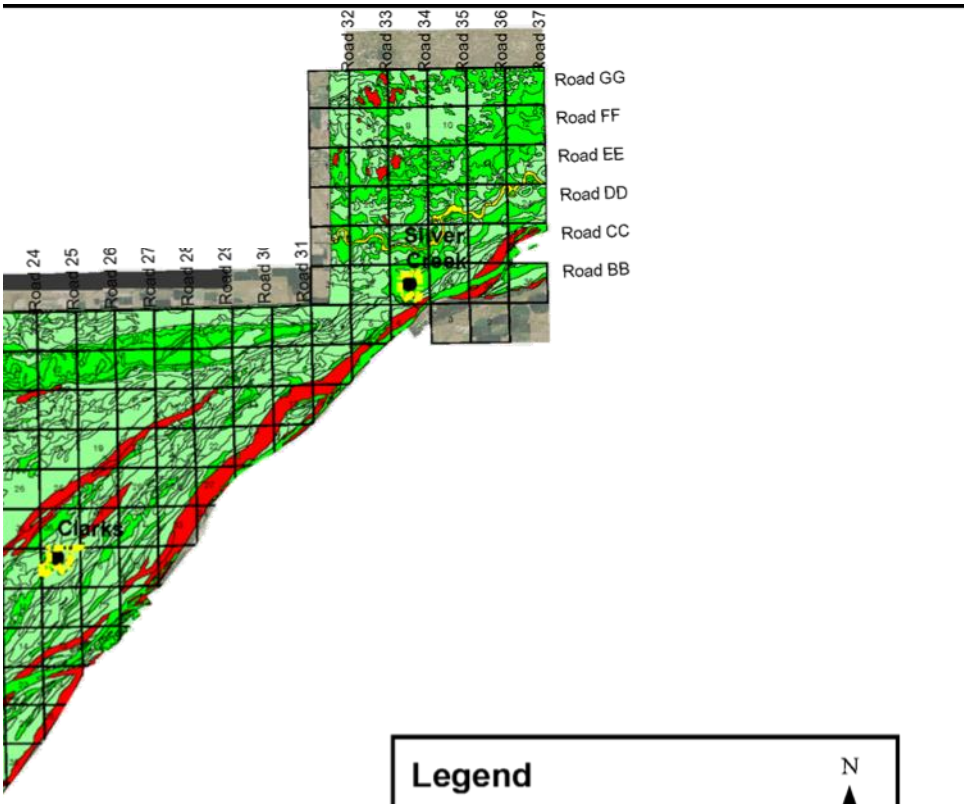
Source: US Department of Agriculture Natural Resources Conservation Service-Soil Data Mart

0 1.5 3 6 9 12 Miles

The map, all associated data, and measurements are approximate and not to be used for any official purpose

Figure 7.20: Thickness of Principal Aquifer NEED





Legend

N

City

- City/Village

Hydric Soils

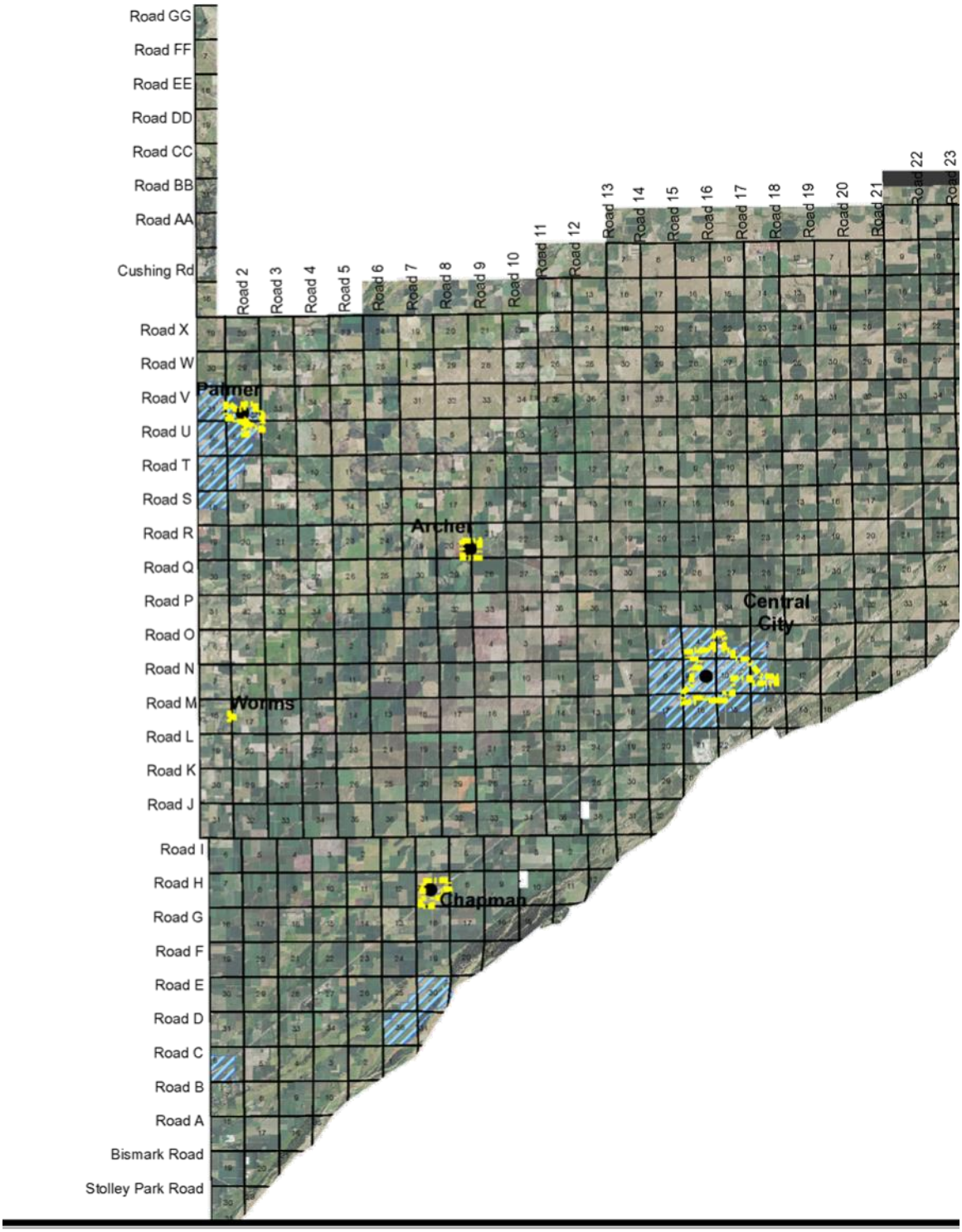
- Hydric (100%)
- Predominantly Hydric (66 to 99%)
- Partially hyrdic (33 to 65%)
- Predominatly nonhydric (1 to 32%)
- Nonhydric (0%)

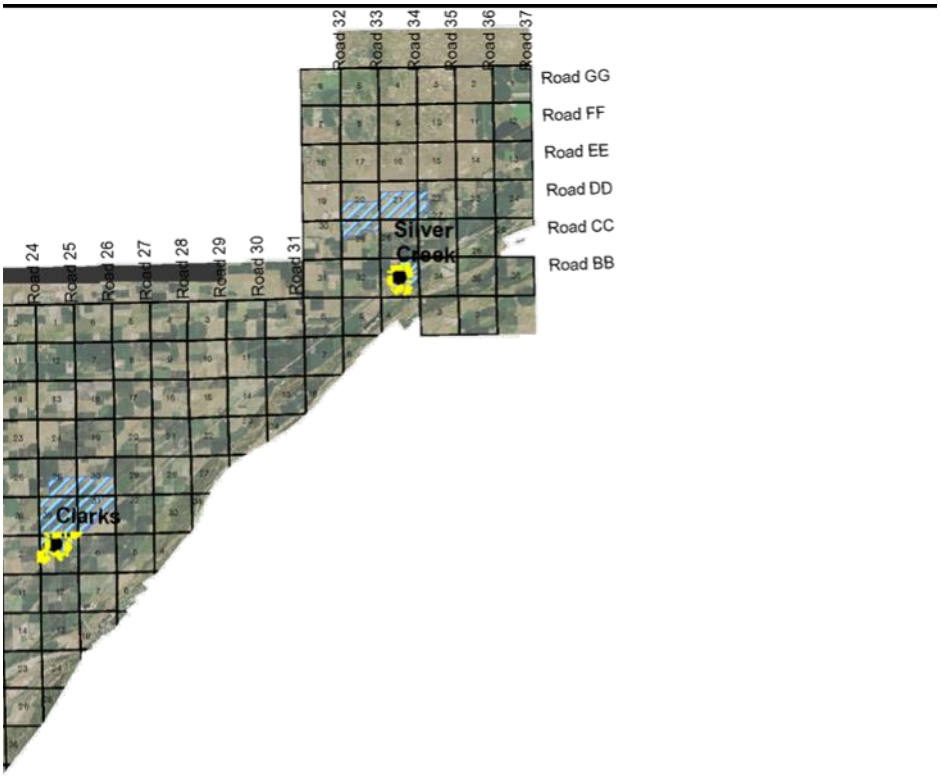
Source: US Department of Agriculture Natural Resources Conservation Service-Soil Data Mart

0 1.5 3 6 9 12 Miles

The map, all associated data, and measurements are approximate and not to be used for any official purpose.

Figure 7.21: Wellhead Protection Areas





N

Legend

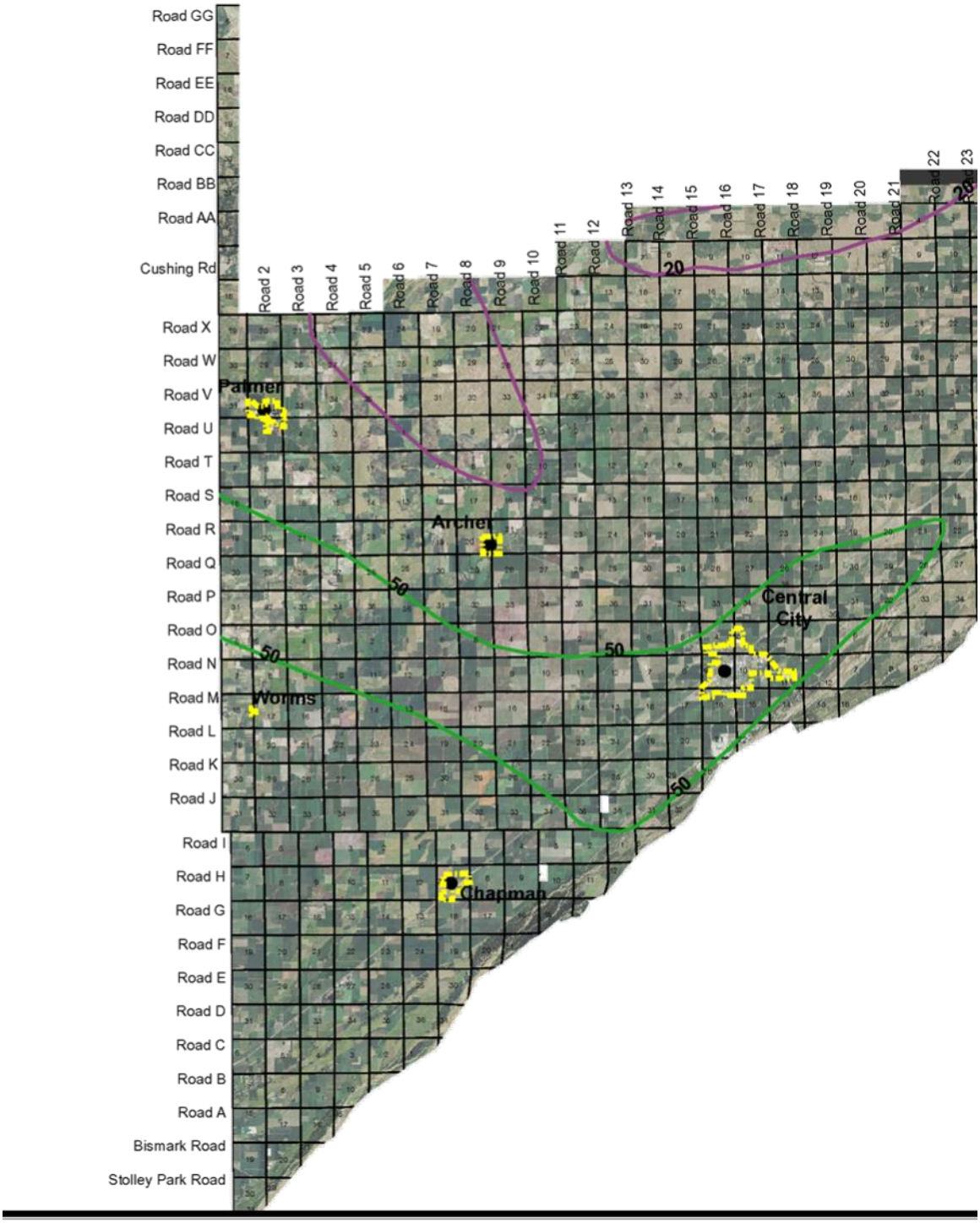
- City/Village
- Wellhead Proection Area

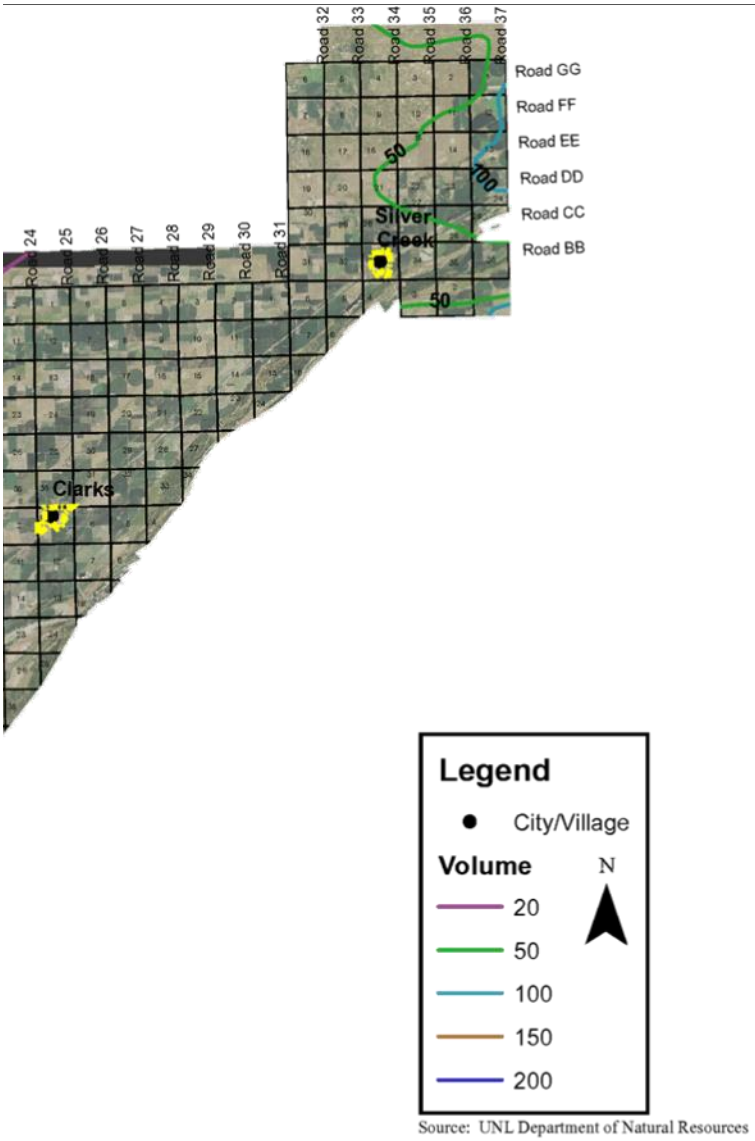
Source: US Department of Agriculture Natural Resources Conservation Service-Soil Data Mart

0 1.5 3 6 9 12 Miles

The map, all associated data, and measurements are approximate and not to be used for any official purpose.

Figure 7.22: Transmissivity



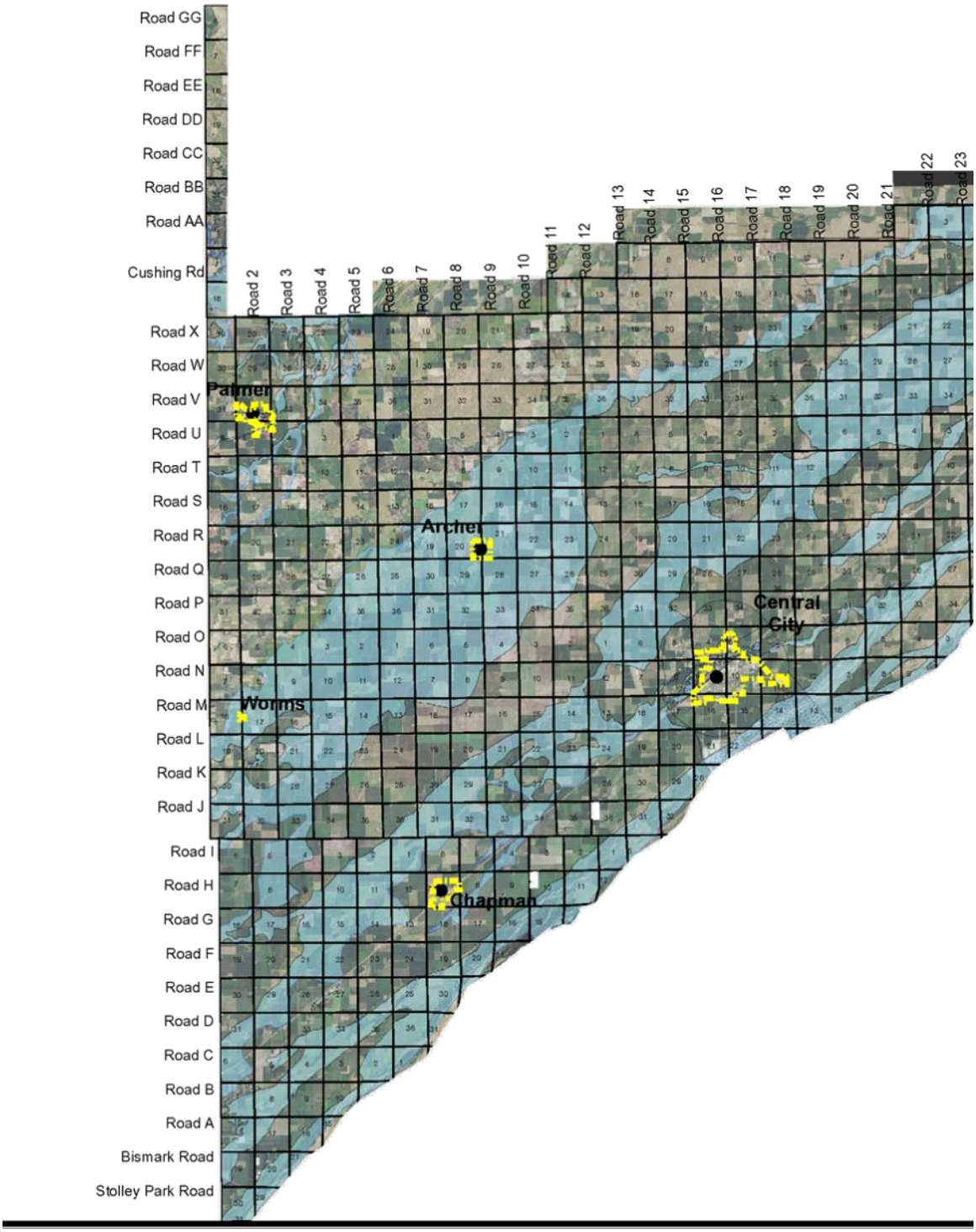


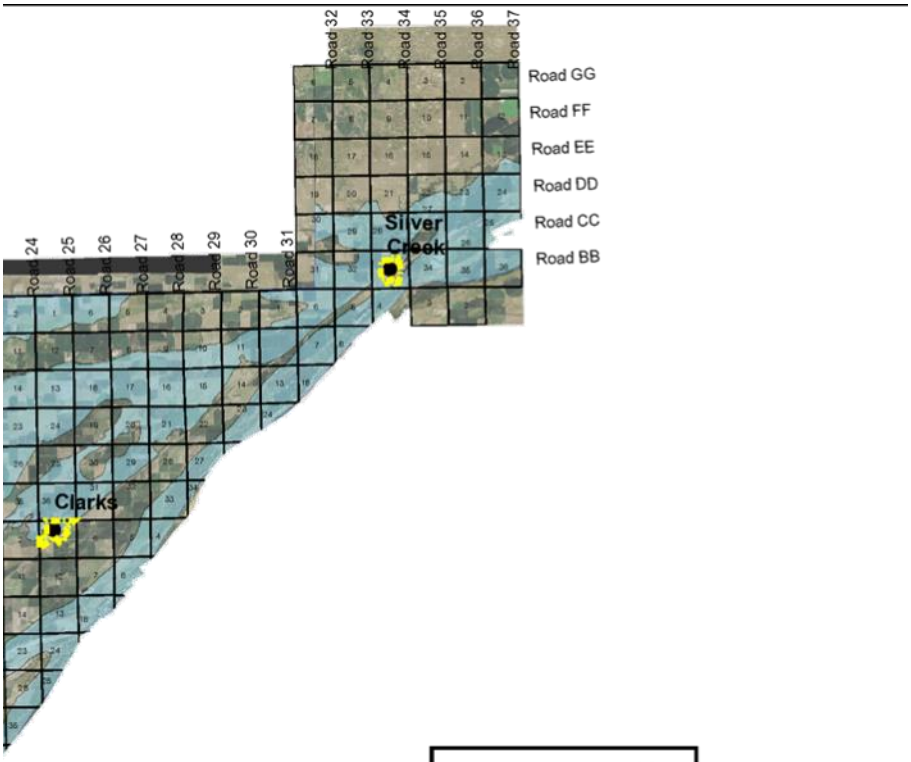
Source: UNL Department of Natural Resources

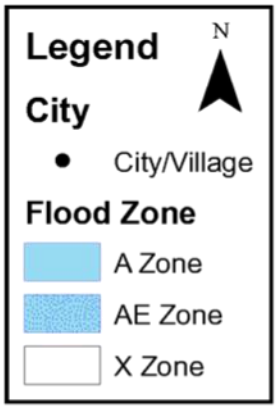
0 1.5 3 6 9 12 Miles

The map, all associated data, and measurements are approximate and not to be used for any official purpose.

Figure 7.23: Floodplain







Source: FEMA NFHL DATA

The map, all associated data, and measurements are approximate and not to be used for any official purpose.

Area. However, delineating an area is not sufficient for protecting the groundwater around a public supply well; the governmental entity must adopt an ordinance in order to enforce the area and the regulations used to protect this water supply. Another way to officially regulate a wellhead protection area is for the community to create an interlocal agreement with the county to regulate these areas as part of the county comprehensive plan and zoning regulations.

Figure 7.21 shows the documented wellhead protection areas impacting Merrick 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.

Transmissivity

Transmissivity is the term used to describe the ability of water to move through different soils. The data are described in terms of "1,000 gallons/day/foot". Table 7.22 indicates different contours below grade. The higher numbers represent areas where more water is being transmitted through the soils. Therefore, if an area indicates a transmissivity of 50 to 100, then 50,000 to 100,000 gallons/day/foot are being transmitted through those soils.

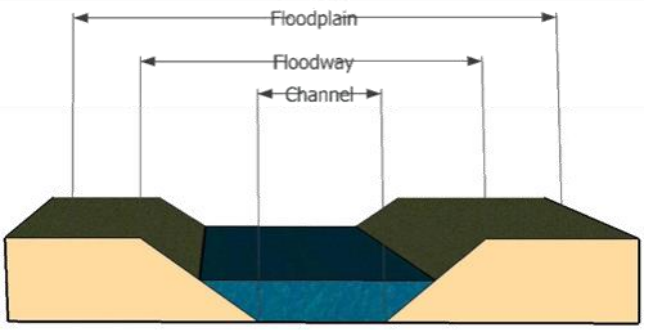
The majority of Merrick County has very low transmissivity. With the exception of a small area east of Silver Creek, the entire county is covered by 20 and 50 contours. Comparing these data with Table 7.1, the soils appear to be very saturated since one of the most common factors in the soils is wetness.

Transmissivity is a critical component to determining the wellhead protection areas. Since the rate of flow below the surface is critical to identifying how much time is required for water to travel from one spot to the wellhead.

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.

Figure 7.24: Floodplain Profile



The components of a floodplain include the following:

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 of a 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.

Photo 7.3
A home north of Quincy, Illinois within the 100 year floodplain - river is between 1 and 2-miles away

Photo 7.4
Same home during the 2008 Mississippi River floods

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 limited the level of property damage that can occur as well as the level of damage to life of the occupants of the area. Land, when not flooded, seems to be harmless but its 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 ones 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 29 in Iowa, which were laying flat on the ground. In the mid 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

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

Soil Policies and Strategies

Soil-1.1 The County should require individuals and businesses wishing to build in areas with moderate and severe limitations to provide an engineering statement signed by a licensed engineer stating the issues have been considered in the design of the project.

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

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

W-1.6 Merrick 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 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-1.8 Merrick 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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8

Energy Element

Energy Element

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. In addition, some of these energy sources are not friendly to our environment, especially the ozone layer.

Energy usage comes in several forms, such as:

- Lighting our homes and businesses
- Heating our homes and businesses
- Heating our water for homes and businesses
- 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. With this increased concern for the environment came 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 that footprint. In addition, the phrase and concept of sustainability has become more widely used, even in the smaller communities of Nebraska and United States.

Energy and the issues connected to the different sources are becoming more critical every year. The need for the Energy Element in the Merrick County Comprehensive 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. The passage of LB 997 appears to be a first step toward comprehensive plans addressing the entire issue of energy conservation and/or sustainability.

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 Brundtland Commission Report in 1987,[1] described sustainability as ***"...development that meets the needs of the present without compromising the ability of future generations to meet their own needs"***. 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.

The generations living in today's world need to begin switching 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 place in the future.

Americans have grown to rely more heavily on electricity. However, state and federal policies have been increasingly more insistent on curbing this increasing 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.

People question what a smaller county like Merrick County can do to make for a better environment. There are a number of activities that can be undertaken and pursued to make an impact in this small part of Nebraska. The following information will perform at a minimum the requirements of LB 997 but they will also examine strategies that counties like Merrick County can undertake to make a contribution to the overall solution.

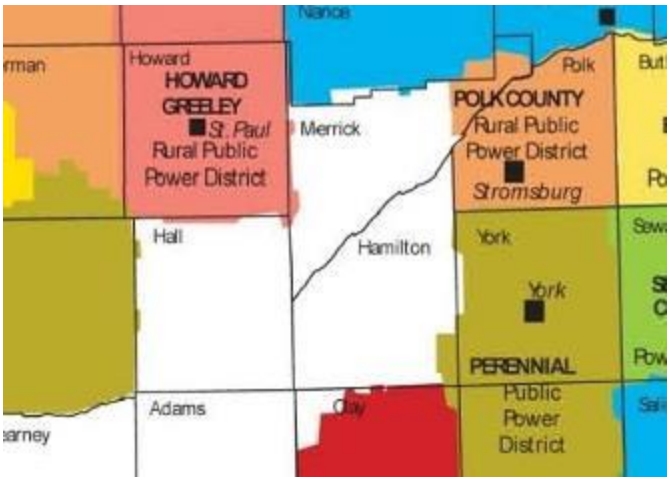
Most of the power in the rural areas of Merrick County is provided by Southern Power District. However, smaller portions of the county are served by Polk County Rural Public Power District, and Cornhusker Public Power District.

Energy Infrastructure

Electrical Power

Southern operates over 6,900 miles of distribution lines that are served by 73 substations located throughout the District's 4,028 square mile service area. Southern purchases all of its power from Nebraska Public Power District (NPPD) of Columbus, Nebraska.

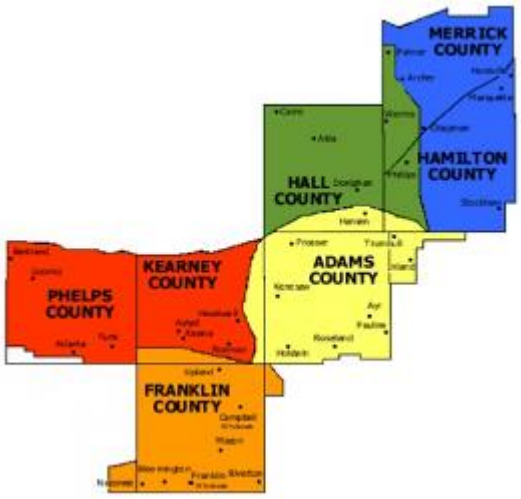
Figure 8.1
Service Area around Merrick County



Our chartered service area extends through the rural areas of seven counties: Adams, Franklin, Hall, Hamilton, Kearney, Merrick, Phelps, and a small portion of Clay County.

The District has five different service regions within their service area, see Figure 8.2.

Figure 8.2
Southern Power District Service Area



The second entity supplying power to rural Merrick County is the Polk County Rural Power District. The District is based in Stromsburg, Nebraska . The overall service area includes Polk County and parts of Merrick, York, Nance and Butler Counties.

The Districts has over 4,600 total customers including residential, irrigation, commercial, industrial, and public street lighting.

Electrical Distribution

The overall distribution system is in good condition. The distribution system not only supplies power throughout Merrick County but is the foundation for power that is transmitted to other customers in adjacent to the county.

Natural Gas Service

Natural gas supplies in Merrick County appear to be minimal. Portions of the county are serviced by Central City (immediately around the community) and Kinder Morgan. Unfortunately, as privately owned and operated companies, these utilities, in the past, have not provided the necessary data. Therefore, there is no data for the system available as well as consumption.

Energy Use by Sector

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

Residential Uses

Within Merrick County the 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 Merrick 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 urban parts of Merrick 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 available.

Commercial Uses

Merrick 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.

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. Again, similar to residential uses, commercial uses located within the more urban parts of Merrick County are more likely to have natural gas heating or electrical furnaces. Propane and wood stoves are most likely to be found in the rural parts of the county where natural gas infrastructure is not available. 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

Merrick 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. This is very dependent upon how a manufacturing facility is set up and how much electrical power they self-generate via diesel generators. In most cases, if diesel is used to heat and cool a building then it is done indirectly through the generation of electricity.

Short-term and Long-term Strategies

As the need and even regulatory requirements for energy conservation increases, residents of communities and even rural areas will need to:

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

Residential Strategies

There are a number of different strategies that can be undertaken to improve energy efficiency and usage in residences. These strategies range from simple (less costly) to complex (costly). Unfortunately not all of the solution will have an immediate return on investment. As individual property owners, residents 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 a residence more energy efficient. Some of the easiest include:

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

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

- New insulation in exterior walls.
- Addition of solar panels for either electrical conversion and/or water heater systems.
- Adding individual scale wind energy conversion systems.
- Installing 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 in 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. Again, property owners 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 a commercial business more energy efficient. Some of the easiest include:

- Converting all incandescent light bulbs to Florescent Lights or Compact Florescent Lighting on small fixtures.
- Converting standard thermostats to digital/ programmable thermostats.
- Installing additional insulation in an attic space.
- Changing out older less efficient air conditioners and furnaces/boilers to newer high-efficiency units.
- Exchanging less efficient water heaters with EnergyStar units or on demand systems.

Some of the more costly ways to make a business

more energy efficient include:

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

Public Strategies

Similar to commercial and industrial uses, strategies for energy efficiency within public facilities can be more difficult to achieve than those in the other uses. 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 strategies that can be undertaken to improve energy efficiency and usage in public facilities similar to commercial and industrial facilities.

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

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

Some of the more costly ways to make the 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 geothermal heating and cooling system
- New storefronts with insulated panels and insulated Low-E glazing

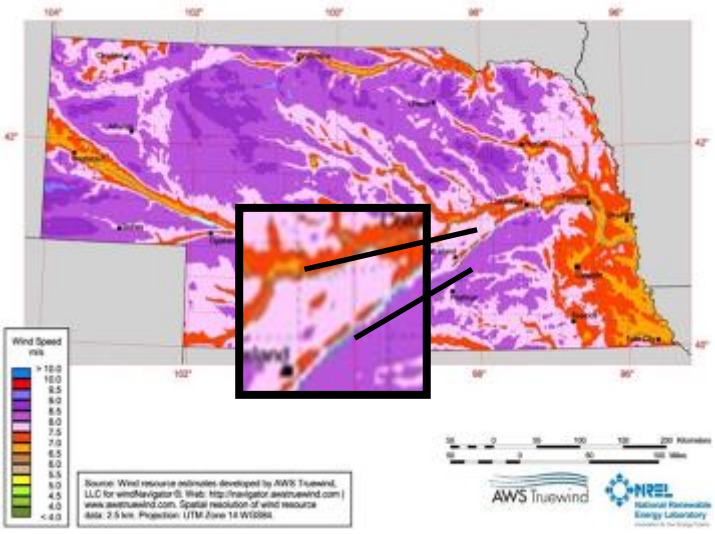
Renewable Energy Sources

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

Wind

The wind is one of those resources that seem to be 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.

Figure 8.3: Average Wind Speed at 80 Meters Nebraska
Source: AWS Truewind



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.

Solar

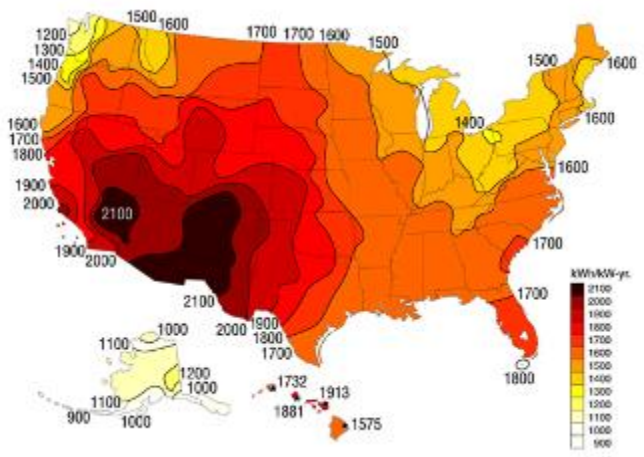
Solar energy has been around for decades and it last hit a high in popularity in the 1970's. However, today's solar energy design is much more efficient and are

more 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 coat 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.

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

FIGURE 8.4: SOLAR CONTOURS UNITED STATES



Source: Solar Energy Industries Association

Geothermal Energy

Geothermal energy includes 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 call a geothermal heat exchange system or ground source heat pumps. 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 within the rural areas of Nebraska. Methane electrical generation can be accomplished through the use of a methane digester which takes the raw gas, naturally generate from some form of waste 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.

In addition to converting methane into electricity, it can also provide a source of power by replacing natural gas as a heating source.

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

AGRICULTURE AND RENEWABLE RESOURCES

The discussion of sustainability and renewable energy sources should be music to the ears of the Nebraska agricultural community. The state's agricultural base has long been involved in the production of corn based ethanol and soy diesel.

However, at this point in time corn based ethanol tends to be heavy on water use versus the outputs of the process. In other states crops such as switch grass is being used in a more economical and

environmentally manner (Water usage). Nebraska's agricultural community needs to work closely with industry leaders to produce more corn based ethanol with less water inputs.

Merrick County and Renewable Energy

According to the Figure 8.3 in this Plan, this area has the wind potential necessary to supply a wind farm. Besides this specific part of the county, Merrick County based upon Figure 8.3 has a great deal of potential across the entire county. Therefore, this proposed farm may be the first of others to eventually look at Merrick County. However, one obstacle could impede wind generation in Merrick County, along the Platte River Valley, is the county's proximity to the Spring migratory flyway of geese and cranes.

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 or by the tribal council for a C-BED project located within the boundaries of an Indian reservation.

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; or
- a tribal council.

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.

** LB 561 of 2009 established that gross power purchase agreement payments do not include debt financing if the agreement is entered into on or before December 31, 2011, and the qualified owners have a combined total of at least 33% of the equity ownership in the C-BED project.*

Local Government and Renewable Energy Policies

Local governments need to take steps to encourage greater participation in wind generation. Cities and counties can do a number of items to make these projects more attractive. Some of the things that could be done are:

- Develop or amend existing zoning regulations to allow small-scale wind turbines as an accessory use in all districts
- Develop or amend existing zoning regulations to exempt small-scale turbines from maximum height requirements when attached to an existing or new structure.
- Work with the Nebraska Public Power District and/ or local public power district on ways to use wind turbines on small-scale individual projects or as a source of power for the community.

Net Metering in Nebraska

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

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

State Law of Solar and Wind Easements

Nebraska's solar and wind easement provisions allow property owners to create binding solar and wind easements for the purpose of protecting and maintaining proper access to sunlight and wind. Originally designed only to apply to solar, the laws were revised in March 1997 (Bill 140) to include wind. Counties and municipalities are permitted to develop zoning regulations, ordinances, or development plans that protect 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 each of the Power District 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 in Lincoln.

Please consult the Power Districts in a particular part of Merrick County to see what is available.

Energy Goals and Policies

Energy Goal 1

Merrick County will work to become more energy efficient during the planning period.

Policies and Strategies

ENG-1.1 The County in conjunction with local power utilities should continually promote the use of energy reducing compact fluorescent bulbs within the community.

ENG-1.2 The County should adopt zoning regulations allowing the use of solar and personalized wind turbines.

ENG-1.3 The County should adopt regulations encouraging the use of methane digesters in confined feeding operations.

ENG-1.4 The County should promote more energy efficient construction practices within the County.

ENG-1.5 The County should develop standards allowing for the use of geothermal heating and cooling systems for different uses.

9

Land Use

Introduction

The purpose of the Merrick 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 Merrick County. This Chapter reflects the existing conditions and should be flexible in order to meet the needs of its citizens as well as their vision for the community's future.

The Merrick 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.

Merrick County Land Use Elements

The elements of the Merrick 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 Merrick 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. Merrick 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 Merrick 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.

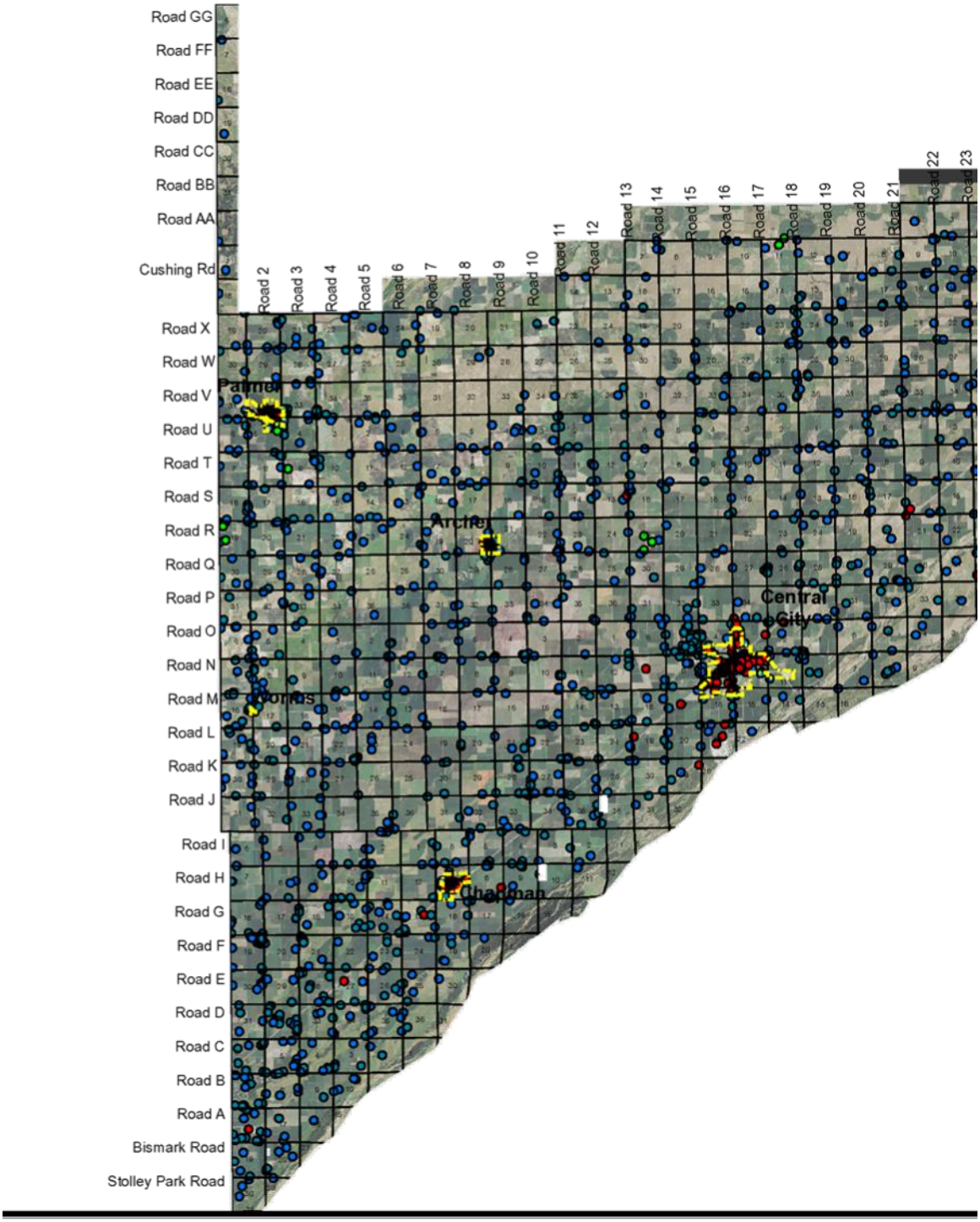
Commercial- Uses in this category consist of convenient stores; feed, seed, automobile and machinery sales; petroleum sales, etc. Commercial uses tend to be located near urban areas or in proximity to major highways for accessibility.

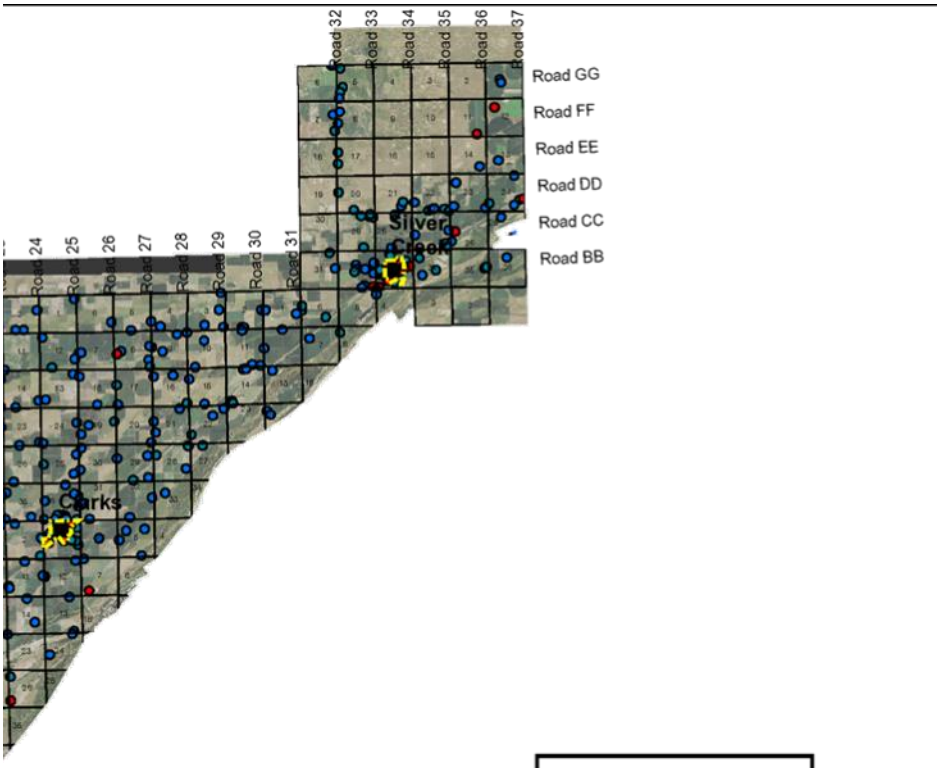
Industrial/Railroad Right-of-Way - Land uses of this nature may include communication plants, light manufacturing, commercial storage, industrial parks, large salvage yards, etc. These uses tend to be located near municipalities and major transportation routes for accessibility purposes.

Livestock Friendly Designation

During the process of developing this comprehensive plan, Merrick County met the criteria of a voluntary program called Livestock friendly. The designation identifies counties within Nebraska that

Figure 9.1
Existing Land Use Map





Legend

N

City

- City/Village

USE

- COMMERCIAL
- FARM SITE
- FEEDLOT
- ACREAGE

Source: Merrick County Assessor's Office

0 1.5 3 6 9 12 Miles

The map, all associated data, and measurements are approximate and not to be used for any official purpose.

have met certain criteria for promoting livestock production through their comprehensive plan and zoning codes, as well as other programs. It is the desire of Merrick County, at the time of adoption to continue with this program and remain livestock friendly.

Physical Character of Merrick 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 Merrick County has a variety of different environmentally sensitive landscapes. The county a variety of environments including:

- Platte River valley
- Cropland
- Rolling hills

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 Merrick 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 Merrick County. A Future Land Use Plan is intended to be a general guide to future land uses that balance private sector development (the critical growth element in any county) with the concerns, interests, and demands of the overall local economy.

Land Use Categories

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

- Primary Agricultural
- Transitional Agricultural
- Platte River Corridor
- Lakefront Residential
- Rural Residential
- Commercial
- Industrial

Primary Agriculture

General Purpose

This land use 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.

Within the County's Zoning Regulations, it is suggested smaller livestock facilities, up to 1,000 animal units 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.

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. Manure/fertilizer applications
6. Public recreational, wildlife and historical areas
7. Renewable energy equipment
8. Tourism activities such as: hunting preserves, fishing, vineyards etc.
9. Religious uses and structures
10. Educational uses and structures
11. Community/Recreational Center
12. Larger park and recreation areas

Incompatible Uses

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

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 2 dwelling units per 1/4 section.
3. Cluster developments should be considered and used whenever soils, topography, natural amenities warrant.

Figure 9.2
Future Land Use Map

Transitional Agriculture

General Purpose

The Transitional Agriculture represents an area in the County where agriculture is protected, but limited. The location of these land use areas are near jurisdictional intersections of the larger communities of Merrick County. The district is generally located 1/2 mile around the extraterritorial jurisdictions of the communities with planning and zoning. In addition, there will be a 1/2 mile band around the communities without any planning and zoning.

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. Private and commercial grain storage
4. Manure/fertilizer applications
5. Public recreational, wildlife and historical areas
6. Renewable energy equipment
7. Tourism activities such as: hunting preserves, fishing etc.
8. Religious uses and structures
9. Educational uses and structures
10. Community/Recreational Center
11. Larger park and recreation areas

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 300 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.

Platte River Corridor

General Purpose

This land use area follows the Platte River and 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.

Residential development, limited agricultural uses, mining operations and recreation will be the primary uses in this land use. It is suggested, if these areas are further developed, trails and designated open spaces should be considered to provide for increased recreational opportunities in the County. 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. Public recreational, wildlife and historical areas
5. Tourism activities such as: parks, hunting preserves, fishing etc.
6. Religious uses and structures
7. Educational uses and structures
8. Community/Recreational Center
9. Larger park and recreation areas

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. 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 2 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.

LAKEFRONT 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.

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

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 used whenever soils, topography, natural amenities warrant.

Commercial Land Use

General Purpose

The Commercial land use provides for larger commercial development where transportation routes and other conditions prove favorable. This land use is to promote the agricultural industry of Merrick 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. Uses serving the motoring public (truck stops, convenient stores, etc.)
4. Religious uses and structures
5. Educational uses and structures
6. Self-storage facilities including recreational vehicles, boats, etc.
7. Community/Recreational Center

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. Slopes
3. Erosion controls
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. 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.

Industrial Land Use

General Purpose

This land use provides for industrial development to continue where transportation routes and other conditions prove favorable, including rail access. These industrial land use areas are to promote the ag-industry of Merrick County and to provide services and development opportunities at key locations within the County.

Compatible uses

1. Light manufacturing and assembly
2. Meat packing
3. Storage and warehousing
4. Trucking terminals
5. Commercial grain facilities
6. Secondary Educational uses and structures
7. Renewable energy facilities including Ethanol and Bio-Diesel
8. Self-storage facilities including recreational vehicles, boats, etc.
9. Adult Entertainment

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. Slopes
3. Erosion controls
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

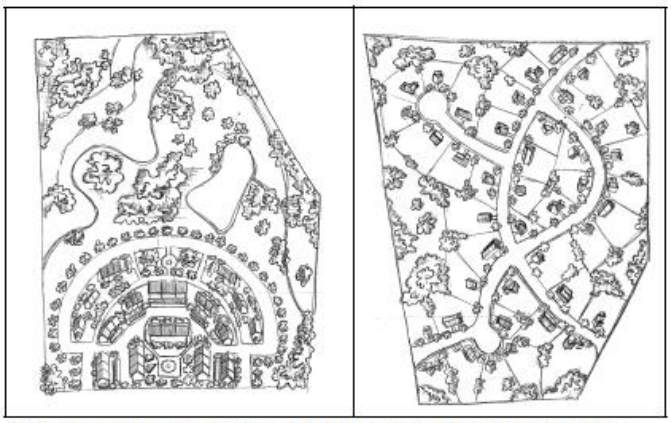
1. No minimum lot size other than adequate space for vehicular movement, parking and septic and water systems.
2. Developments of 1 acre or more may be required to meet the standards of NPDES permitting.
3. Developments that create more than a 5% increase in runoff may be required to construct a detention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

Conservation Subdivisions

The graphic above represents a standard subdivision and how it can be redrawn into a conservation subdivision. The primary usage of this technique in Merrick 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 Merrick County in order to insure compatible uses locate together is essential during this planning period.

General Land Use Policies and Strategies

GENLU-1.1 Future land uses in the county should carefully consider the existing natural resources of the area, including soils, rivers, and groundwater.

GENLU-1.2 Future growth and development in Merrick County should work toward compact patterns of land uses.

GENLU-1.3 The County should minimize leapfrog development beyond the extraterritorial jurisdictions of the communities in Merrick County.

GENLU-1.4 The Merrick County Land Use Plan and Zoning Regulations should be designed to expedite the review and approval process where possible.

GENLU-1.5 All land uses and structures should be carefully reviewed for compliance with the duly adopted floodplain and floodway regulations in Merrick County.

Agricultural Land Use Policies and Strategies

AGLU-2.1 Merrick County should continue to develop policies that enhance their "Livestock Friendly" designation.

AGLU-2.2 Merrick County should continue to encourage uses referred to as "Agri-tourism" (Prairie Creek Winery).

AGLU-2.3 Livestock production should be encouraged in Merrick County provided environmental conditions are appropriate.

AGLU-2.4 Livestock production should be protected from the establishment of conflicting uses such as acreages.

AGLU-2.5 New livestock operations should be located in areas where their impact on neighboring land uses will be minimal.

AGLU-2.6 Merrick County should allow agricultural production throughout the county; except where there may be potential conflicts with other policies of this plan.

AGLU-2.7 Livestock operations should encouraged to utilize odor reducing technologies such as methane digestion and composting .

AGLU-2.8 Regulations should be established and

implemented that create setback and buffer requirements to minimize the impacts of solid, liquid, and gas emissions from livestock operations.

AGLU-2.9 Establish adequate separation distances between livestock and residential uses.

AGLU-2.10 Establish adequate separation distances between residences and livestock operations that allow for potential expansion of livestock operations.

AGLU-2.11 Non-agricultural development within agricultural areas should be allowed only in specifically designated areas where the impact on agriculture is minimal.

AGLU-2.12 Non-agricultural development within the county may be limited based upon certain soil and environmental conditions.

AGLU-2.13 Merrick County should minimize encroachment of non-agricultural uses into areas designated as "Prime Farmland". Special consideration for preserving these areas through special land use controls and practices should assist in protecting these lands for traditional agricultural purposes.

AGLU-2.14 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-2.15 Protect the quality of groundwater in agricultural areas of Merrick County.

AGLU-2.16 Work with livestock producers on a continual basis in evaluating protections and regulations.

Platte River Corridor Land Use Policies and Strategies

PRCLU-3.1 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.

PRCLU-3.2 The County should not allow the introduction of new livestock operations into the Platte River Corridor, especially in any designated floodway.

PRCLU-3.3 The establishment of chemical storage facilities including the manufacturing of chemicals should not be allowed in this area.

PRCLU-3.4 Existing uses within the Platte River Corridor that have a high contaminate potential should be relocated to a more suitable location when possible.

PRCLU-3.5 The County should 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-4.1 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-4.2 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-4.3 Utilize informational tools such as slopes, soil types, floodplain, road and bridge development and maintenance plans, when identifying areas for residential development.

RESLU-4.4 Develop subdivision regulations that provide for a quality living environment while avoiding inefficient and expensive public infrastructure expansions.

RESLU-4.5 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-4.6 Encourage new residential developments to locate near urban areas of Merrick County, especially when direct access to existing, hard-surfaced roads or highways can be accomplished.

RESLU-4.7 Establish zoning and subdivision design standards that require buffers, and screening standards and functional usable green space, for new developments.

RESLU-4.8 All new sandpit residential developments should be required to incorporate community water and sanitary sewer where possible in order to:

1) Minimize contamination of groundwater and surface water

2) Minimize the number of individual wells constructed in a limited area.
3) Require individual lots, blocks and streets (private or public) to be platted prior to construction of any new residences.
4) New developments having direct access to a paved road or highway should be required to construct a concrete apron at the intersection that is 50 feet in depth.

RESLU-4.9 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 that mitigates 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-4.10 Examine implementation of a planned unit development (PUD) concept which provides a viable alternative to conventional urban development patterns, while providing a means to encourage creative yet responsible/ sensitive developments.

RESLU-4.11 Merrick 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-4.12 New residential construction or relocations should not be allowed along any minimum maintenance road.

Commercial Land Use Policies and Strategies

COMLU-5.1 Encourage the location of commercial uses to locate within the communities of Merrick County.

COMLU-5.2 Encourage the location and clustering of commercial uses within the rural areas of Merrick County at major transportation intersections.

COMLU-5.3 Utilize frontage roads within clustered commercial centers when locating along major roads/highways.

COMLU-5.4 Commercial uses should be required to provide their own adequate water supply without negatively impacting existing neighboring properties.

COMLU-5.5 Landscaping standards for all new commercial construction and expansion to existing operations should be implemented.

COMLU-5.6 Discourage the construction of "strip" commercial developments in rural areas of the county.

Industrial Land Use Policies and Strategies

INDLU-6.1 Encourage the location of industrial uses to locate within the communities of Merrick County.

INDLU-6.2 Where industrial uses need to locate in the rural areas of the county and need rail access, the county should work with Union Pacific Railroad to identify strategies for spur lines/sidetracks that will work with their main line.

INDLU-6.3 Industrial development not utilizing rail transport should be discouraged from locating next to a railroad right-of-way.

INDLU-6.4 Merrick County should identify new industrial sites within the county where industrial development can be

successfully marketed.

INDLU-6.5 Heavy industrial uses with a high water and/or waste disposal requirement should be encouraged to locate or relocate only in or immediately adjacent to urban areas where all required services are available.

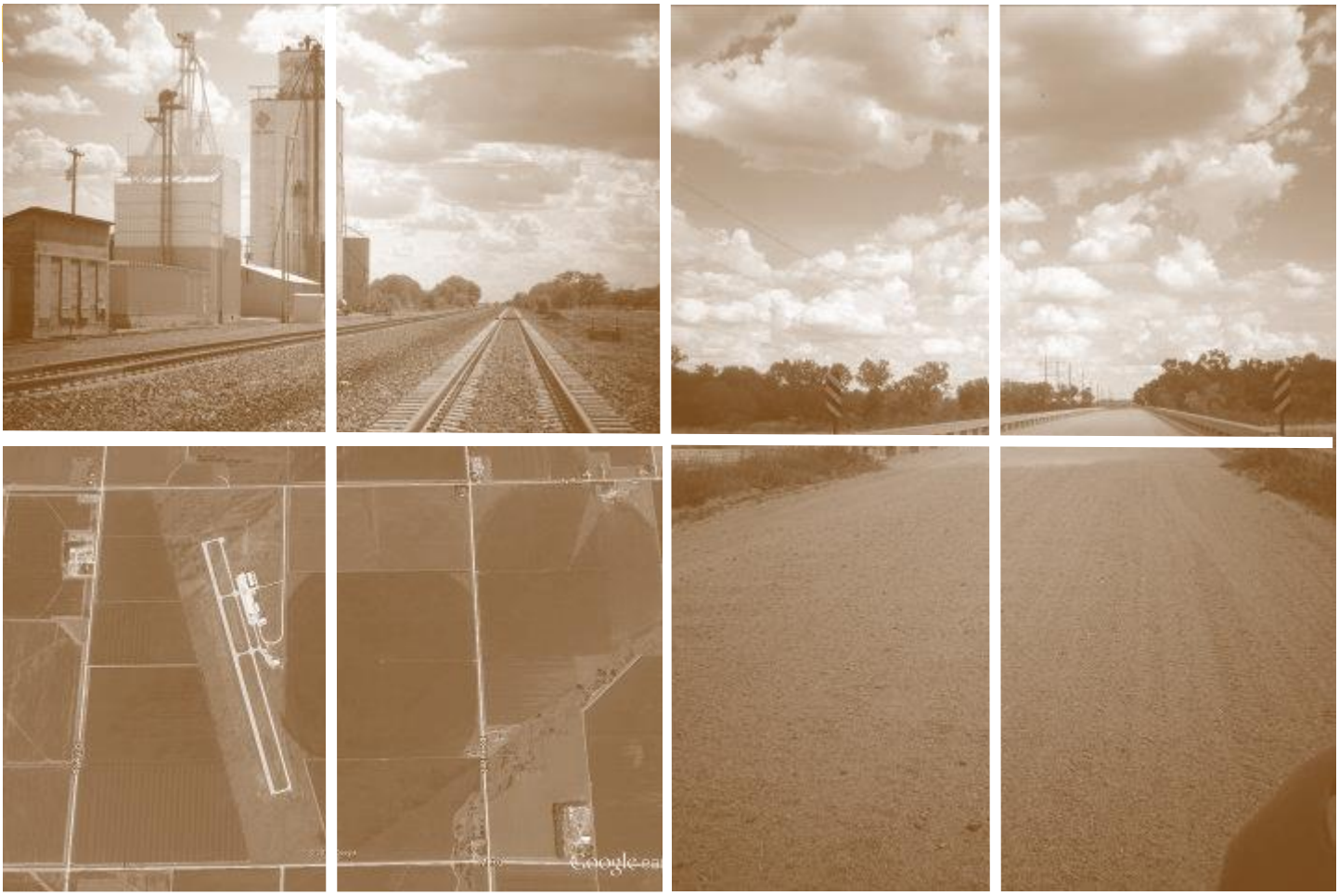
INDLU-6.6 Industrial areas located outside a community's extraterritorial jurisdiction should have adequate services, including major utility lines, electric power substations and transmission lines, rail, sanitary sewer and water can be provided, and where appropriate, gas lines are available.

INDLU-6.7 Industrial uses should be located so an adequate buffer space is provided between incompatible land uses.

INDLU-6.8 The County should develop appropriate performance, design and specification standards and requirements for all existing and future industrial uses to guide their location or relocation in the County.

INDLU-6.9 The County should encourage industrial development that bases its products on renewable and indigenous raw materials.

INDLU-6.10 The County should recognize and encourage small-scale industries as viable alternatives to larger, conventional enterprises.



10

Transportation

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 Merrick 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 Merrick County.

Railroad Service

The closest rail freight service to Merrick County is in Grand Island or Lincoln. However, the Union Pacific Railroad does have a rail line through Merrick County and they operate approximately 64 trains per day on this line. The nearest passenger service is located in Hastings through Amtrak.

Photo 10.1
Union Pacific Mainline near Chapman

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 Merrick 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 Central City Municipal Airport is the nearest small aircraft facility. The primary runway #1634 is 3700 feet by 60 feet with concrete surfacing. The fixed based operator (FBO) for this facility is Central Nebraska Aeronautics. Elevation is listed at 1715 feet.

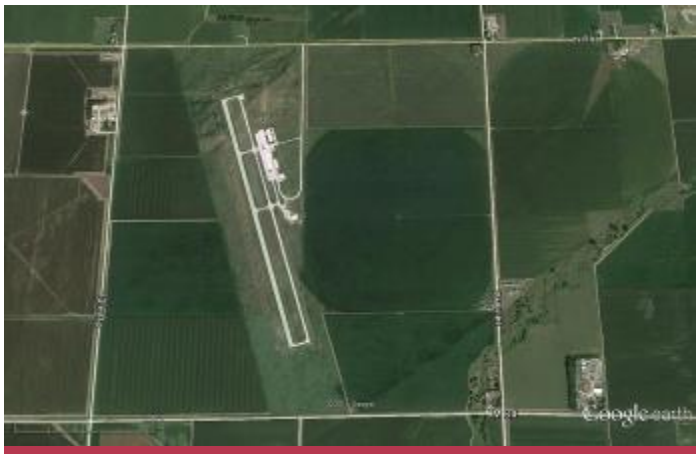


Photo 10.2
Aerial of Central City Municipal Airport
Source: Google Earth

State and Federal Highways

Merrick County has three major highways running through the county. The major north-south highways are Nebraska Highways 14 and 39 and the east-west connections are US Highway 30 and Nebraska Highway 92.

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 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 Merrick County

Traffic flow within the county on these four highways varies considerably.

Figure 9.1:
Traffic Flow Map

Source: Nebraska Department of Roads

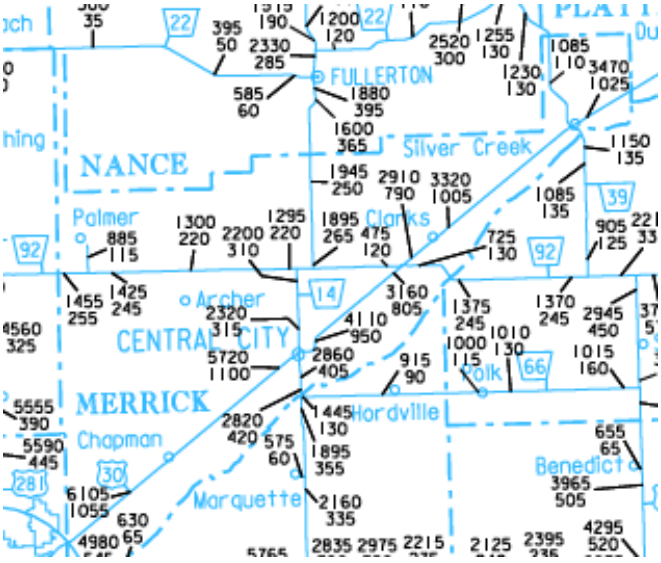


Figure 9.1 indicates the greatest traffic flows are between Chapman and Hall County along US highway 30 with over 6,100 cars and 1,100 trucks per day. The second greatest traffic flow is between

Central City and Chapman with over 5,700 cars and 1,100 trucks per day. US Highway 30 sees significant decreases as it goes northeast from Central City. Nebraska Highways 14, 39 and 92 each have significantly less traffic than US highway 30.

Nebraska Department of Roads' Improvements

The Nebraska Department of Roads 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. Merrick County is in the Department of Road's District 4. Between Fiscal Years 2015 and 2020, there are five projects budgeted for the Merrick County area. These projects include:

- US Highway 34 - Bridge
- Nebraska Highway 92 - 13.5 miles resurfacing
- Nebraska Highway 14 - 4.2 miles resurfacing, bridge repair
- US highway 30 - Silver Creek west bridge
- Nebraska Highway 92 - 8.4 miles resurfacing

Overall the Nebraska Department of Roads is expecting to spend nearly $18,000,000 in repairs and upgrades in the Merrick County over the next six years.

FIGURE 9.2:
NDOR SIX-YEAR HIGHWAY PROGRAM
MERRICK COUNTY

Source: Nebraska Department of Roads

TRANSPORTATION GOALS

Transportation Goal 1

The transportation goal of Merrick County is to develop and support an efficient road system to serve current and future circulation and access needs.

Transportation Policies and Strategies

TRAN-1.1 Development in Merrick County should be guided to safely utilize existing public investment in roads, and programs to reduce road development or maintenance costs.

TRAN-1.2 New development should be reviewed with due consideration to the carrying capacity of the existing road system in the area.

TRAN-1.3 Development should be discouraged from occurring in areas where the road system is insufficient to handle any additional traffic load.

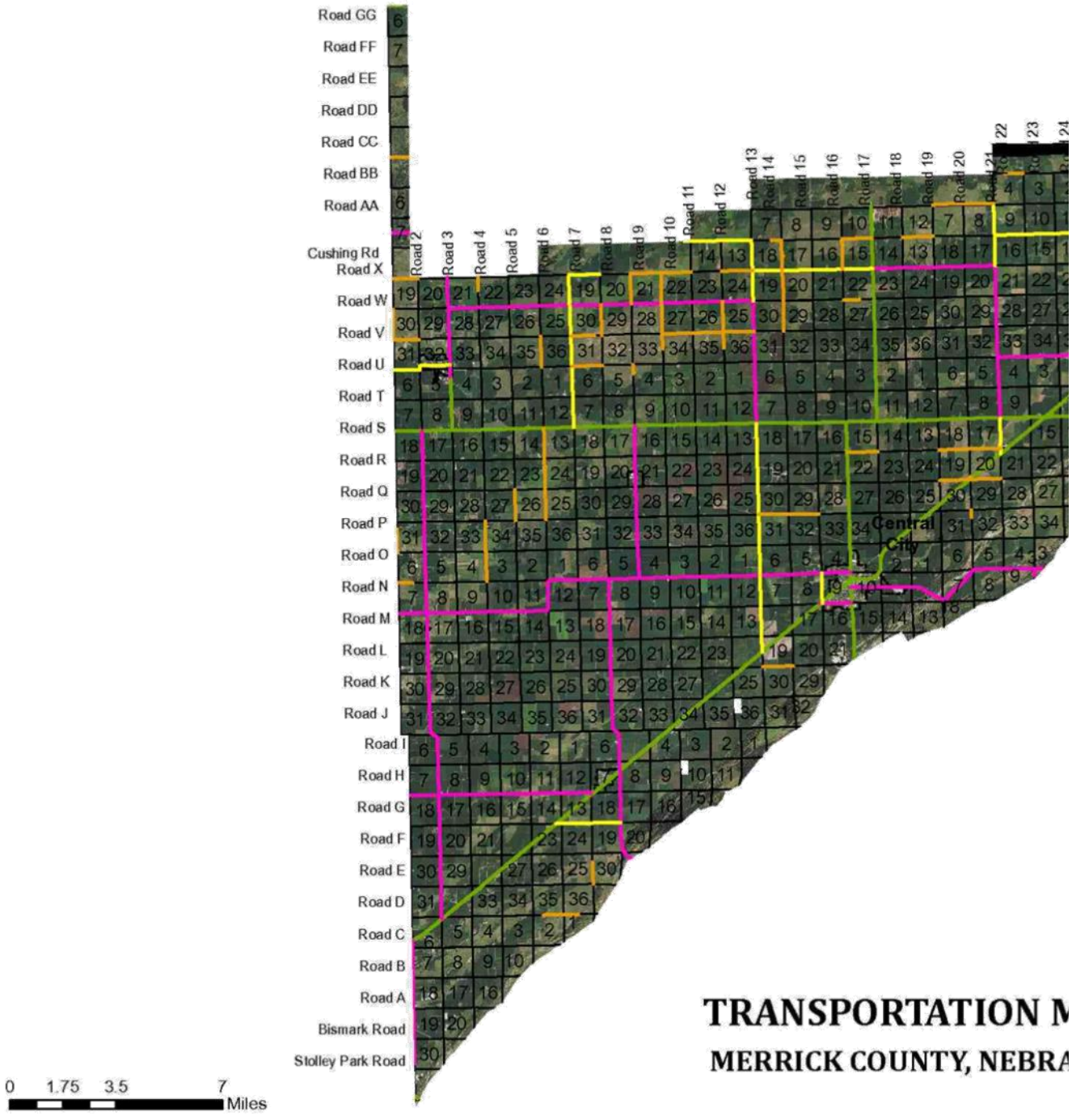
TRAN-1.4 Improve, develop, and maintain well-traveled roads with hard surfacing, when possible.

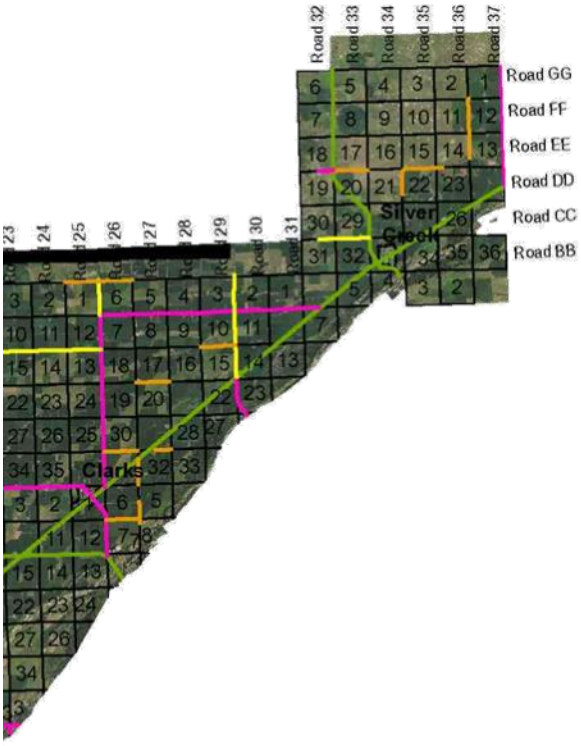
TRAN-1.5 Develop land use policies that work strongly with existing and proposed transportation systems and upgrades.

TRAN-1.6 Merrick 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 right-of-ways by encouraging the utilization of common driveways.
3) New development should not be located along roads officially designated as "Minimum Maintenance"

Figure 10.1
Transportation System





Legend

Classification

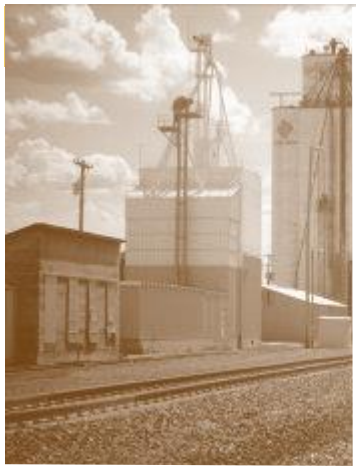
- Collector
- Major Arterial
- Minimum Maintenance
- Other Arterial

Source: Nebraska Department of Roads

N MAP

BRASKA

The map, all associated data, and measurements are approximate and not to be used for any official purpose.








11
Implementation




Achieving Merrick 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 Merrick County.

Support Programs for the Action Agenda

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