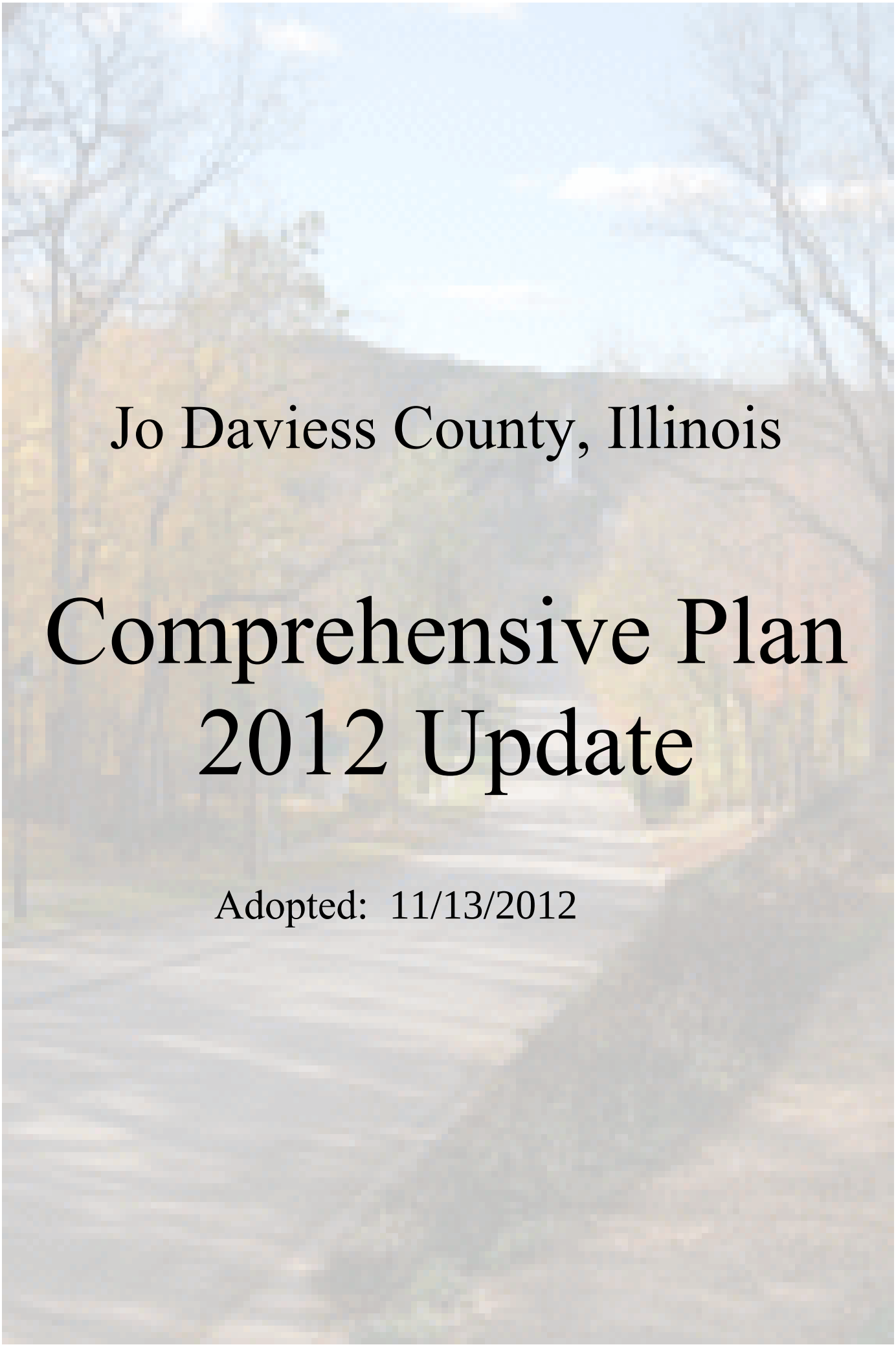

Jo Daviess County, Illinois

Comprehensive Plan 2012 Update

Adopted: 11/13/2012

Comprehensive Plan 2012 Update
Jo Daviess County, Illinois

Adopted by the Jo Daviess County Board on _____

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JO DAVIESS COUNTY 2020 VISION STATEMENT

The following statement, adopted by the Jo Daviess County Board on August 12, 1997, reflects the desired character of the County in the year 2020, as seen by the residents in 1996:

Jo Daviess County is a uniquely beautiful place. We the residents of Jo Daviess County proudly affirm a balanced respect for the past with a spirited determination for our future.

As stewards, we value the land and our strong agricultural heritage. Our careful use and protection of natural and historic resources assure their preservation for future generations.

We encourage responsible growth and planned development. We accept self-imposed limitations to safeguard and enhance broad county goals, including preservation of the county's rural character, conservation of scenic areas and development of year-round recreational opportunities.

We celebrate our small town traditions of hospitality, cultural heritage, neighborliness and community involvement. Our communities have a cooperative spirit where we cheer individual successes and share common challenges. We appreciate our diverse population composed of many ages, races, lifestyles, backgrounds, faiths and gifts. We are enhanced by the arts. As compassionate caretakers, we provide essential social services to those in need.

Meaningful education opportunities are available for individuals of all ages and we continually improve the quality of education so that our students are competitive in the world market. We enthusiastically embrace technologies of the new millennium and provide appropriate infrastructure which strengthens and diversifies our economy. Our quality of life and well-educated workforce attract environmentally-sound and technologically advanced employment opportunities.

Our county is acclaimed by visitors as a beautiful and dynamic place. We are proud to call Jo Daviess County home.

Introduction

Welcome to the Jo Daviess County, Illinois Comprehensive Plan "2012 Update". This Comprehensive Plan is the center-piece of the community development planning process, stating our community's development goals and outlining public policies for guiding future growth. It establishes an identifiable destination that allows both the governing body and private interests to plan and budget with an idea as to the direction the County may move in the future, and helps to ensure that future growth is not only anticipated, but planned for. The Plan functions as a practical guide to coordinate day-to-day decisions so they make sense in the future.

Jo Daviess County is located in the mid-western United States, in the northwest corner of Illinois. The county is bounded by the Mississippi River/Iowa border to the west, and the Wisconsin border to the north. Stephenson County lies to the east, and Carroll County lies to the south. The county has an area of 395,850 acres or 618.5 square miles. The primary industries are agriculture, tourism services and manufacturing. There are ten incorporated communities ranging in population from 121 (Nora) to 3,429 (Galena). Galena, the largest community, serves as the county seat. According to the U.S. Census Bureau, the County population in the year 2010 was 22,678, an increase of 389, or 1.7%, from the 2000 population of 22,289.

Jo Daviess County is a beautiful place where agriculture, small friendly communities, manufacturing and tourism support a blend of long-standing families and new residents. Increased rural residential development and the desire to promote job creation in the area prompted County officials to initiate a comprehensive planning process. The desire to encourage development and create better paying jobs in the County is coupled with an understanding that new development should be located to efficiently provide services and infrastructure and to ensure wise use of the County's many natural resources. The County is challenged to maintain a balance between serving the interests of individual property owners and directing development in ways that will benefit the entire County. The manner in which this balance is achieved will determine the legacy passed on to future generations.

The comprehensive planning process is designed to set common goals, and to relate these goals to land use issues. Following adoption of the comprehensive plan, ordinances and policies that direct land use decisions should be revised as necessary to support the land use plan goals. Relating ordinances and policies to commonly held goals will allow incremental development decisions to have a cumulative effect of utilizing or preserving the County's assets in the optimal way.

The heart of the plan relates to its recommendation to direct residential, commercial and industrial development to communities and the areas immediately surrounding them (contiguous growth areas). This approach supports the vitality of communities, while preserving productive farmland and the rural character of the County. Where residential development in unincorporated areas is allowed, clustering is recommended to minimize land used for residential development in these areas and to design these developments to be inconspicuous in the rural landscape. Cooperative planning between the County, communities, townships, and state and regional entities will be required for success. These approaches will promote well-planned, efficiently served development while protecting the natural, historic and scenic assets of the county that define its character.

To achieve this, the Plan should be:

1. Comprehensive - The Plan must address all sections of the community as well as all activities associated with managing development;

2. Flexible - The Plan must be structured to summarize policies and proposals and allow for flexibility to facilitate the ever-changing needs of the community;

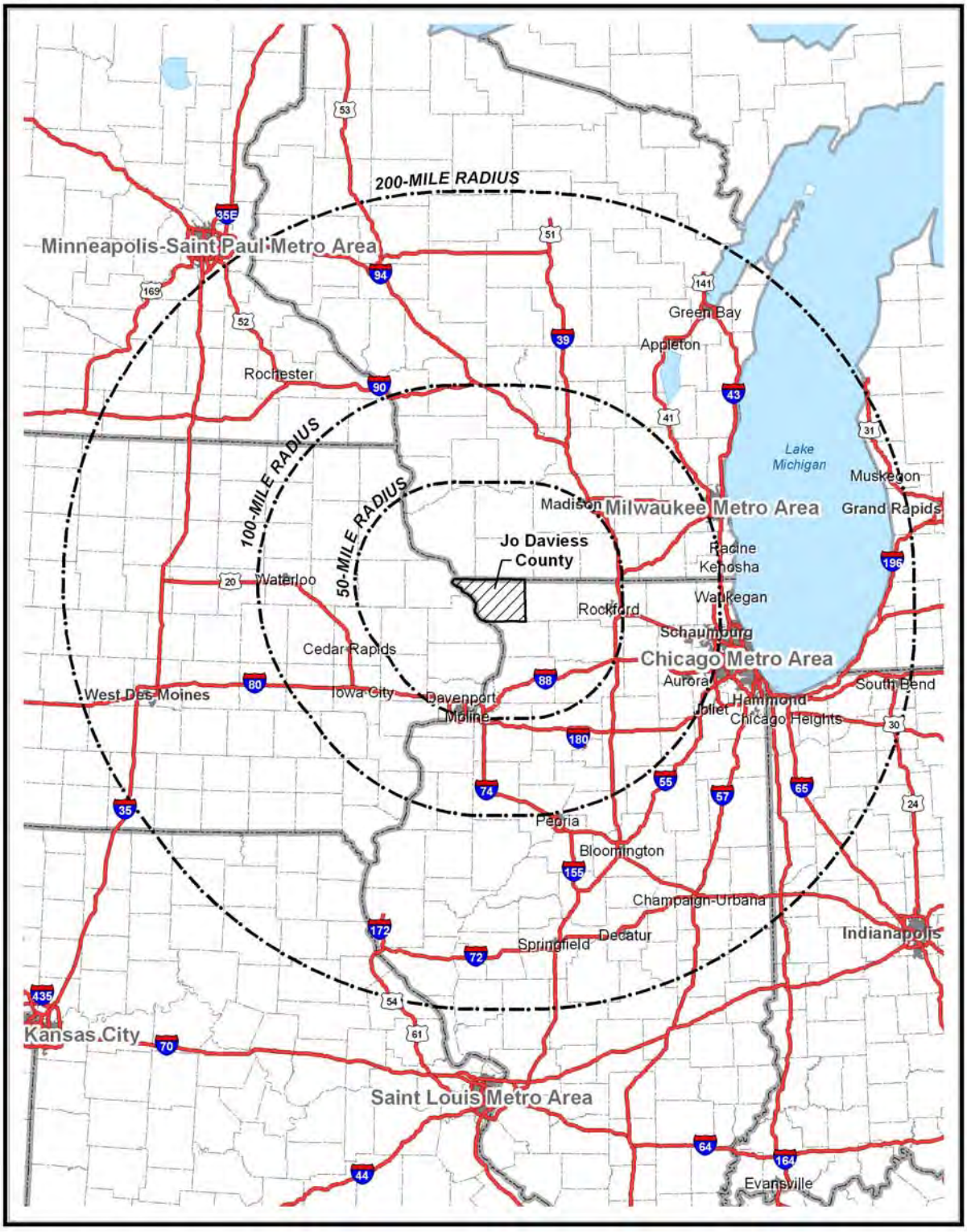
3. Provident - The initial requirements of the Plan are to achieve solutions to short term issues, whereas, the ultimate goal of the Plan is to provide a perspective of future development and predict possible problems as far as 20 or more years into the future.

With these general guidelines as a basis, specific issues may be addressed by analyzing the growth patterns and physical features of the County. While a variety of factors influence where and when development takes place, several basic elements can be analyzed to assess the impact of past or future growth. The elements that this plan addresses are: Issues and Opportunities (Chapter 1); Housing (Chapter 2); Transportation Facilities (Chapter 3); Utilities and Community Facilities (Chapter 4); Agriculture, Natural and Cultural Resources (Chapter 5); Economic Development (Chapter 6); Land Use (Chapter 7); Land Use Recommendations (Chapter 8); Goals and Objectives (Chapter 9); and, Implementation (Chapter 10).

Citizen input/participation is an important component of the planning process. Numerous citizens have been involved in the development and evolution of this Comprehensive Plan, and their input is reflected in the goals and objectives formulated herein.

The resulting Jo Daviess County Comprehensive Plan represents the consensus of the County in 1999 and as affirmed in 2012. The plan is a living document which should be reviewed and updated as needs and opportunities present themselves to ensure its validity as a reference point for decision making. It is recommended that the Plan be updated at least every five years.

Figure 1.1: Jo Daviess County in Regional Context



CHAPTER 1
Issues and Opportunities for Planning

The purpose of a comprehensive planning program is to promote orderly and beneficial development, helping to create a community that offers residents an attractive, efficient, and "resident-friendly" environment in which to live. Such an environment can be realized in part by creating a financially sound governmental structure, supporting good schools, a variety of community facilities and services, efficient land use and transportation systems, and encouraging sufficient employment opportunities and adequate, affordable housing.

The planning process involves understanding the various physical, economic, and social issues within the County. It examines where the County has been, where it is now, what goals or targets the community hopes to achieve, and what actions are necessary to reach these goals. A successful planning program can provide the direction needed to manage future growth by offering guidelines to government leaders, private enterprise, and individuals so that the County development-related decisions are sound, practical, and consistent.

Section 1.1 History of the Planning Area

A. Human Prehistory of Jo Daviess County

The human prehistory of Jo Daviess County spans the time period from 10,000 B.C. to the 1600's when the first Europeans entered the area. The long-term occupation of the area has left a rich archaeological record that includes village sites, rock shelters and burial mounds. These sites are a valuable historic testament to the people who occupied the area for many millennia prior to European contact.

Continental ice sheets had retreated from the perimeter of the Driftless Area by 12,000 years ago, ushering in the Paleo-Indian Period. The Paleo-Indians were nomadic hunters and gatherers, who hunted large game animals, including the mammoth and mastodon. Examples of Paleo Indian points have been found in the county indicating that people were moving through the area at a very early date.

About 9,000 years ago the Archaic Period began, which lasted approximately 7,000 years. During this time the climate as well as flora and faunal communities began to represent a more modern situation. Archaic people began to settle in mor localized areas and use projectile points that identify distinct regional cultures. During this time people also began to mark territories with visible cemeteries and experiment with plant domestication. These peoples often spent the colder months in upland rock shelters, moving down to the Mississippi River during the summer to fish and harvest various plants and animals. This seasonal cycle would be continued by later cultures for many millennia.

The Woodland Period dates from 2,000 years ago to roughly 1200 A.D. During this time, complex cultures appeared with elaborate burial practices and extensive inter-continental trade networks. The mounds that dot the bluffs of the Mississippi River and its tributaries are from this period. The Indian mounds of Gramercy Park in East Dubuque are burial mounds from the Hopewell phase, which occurred roughly from 100-200 A.D. Other burial mounds, and later effigy mounds, were constructed during the late Woodland period, or 600 to 1200 A.D. Effigy mounds were made in the shape of mammals, birds or snakes. Some were for burial, but others may have been territorial markers or totem symbols. Jo Daviess County has hundreds of Indian mounds, but a systematic survey has never been undertaken.

Archeologists next define the Mississippian Period, which overlaps the late Woodland Period, running from about 1000 A.D. to 1500 A.D. The Mississippian Indians were farmers and lived in large villages. Their influence spread into the upper Midwestern tribes, and is characterized by distinctive pottery and reliance upon agriculture and the growing of corn, beans and squash. For reasons not fully understood, the period ended about 1500 A.D., when modern-day tribes began moving into the region.

B. Fox and Sauk History

Various tribes moved through Jo Daviess County during the 1500's and 1600's. The Miami temporarily occupied northwestern Illinois and had several villages and lead mines along the Galena River in the late 1600's. It was the Miami who convinced Frenchman Nicholas Perrot to establish a post near East Dubuque to trade for lead. Pressure from Europeans farther east, disease, and inter-tribal warfare all played a part in the complex migrations that took place during this unsettled time. The Fox (or Meskwaki) and Sauk (or Sac) were originally from Michigan and northwestern Ohio, respectively. They were forced, however, for the reasons mentioned, to relocate in northeastern Wisconsin. The two tribes were allies and eventually united. They built large towns with wide streets and large bark-covered lodges. Agriculture was heavily practiced during the growing season, while hunting occupied them during the fall and winter months.

By the 1760s, the Fox and Sauk had begun to establish villages along the Mississippi River from Rock Island to Prairie du Chien. The total population of the Sauk was about 4,000-5,000, while the Fox may have had 2,000-3,000 members. Saukenuk, the single largest Sauk village, located at Rock Island, had a population of over 2,000 with 100 lodges. There was a heavy Meskwaki and Sac presence in the Galena River where they had several settlements, mined and smelted lead, and bartered with traders at the small village that would become Galena. The Native American mining, smelting and trading of lead was large scale and drew the attention of the Americans. An additional Meskwaki village under Wapello was present at Hanover in the early 1820's.

A questionable treaty between some of the tribes' leaders and Governor William Henry Harrison was signed in 1804. With this treaty, the Sauk and Fox gave up their lands east of the Mississippi, but retained the right to live there until the U.S. Government sold the land.

The federal government was very aware of the lead mines in the region, particularly along the Fever (now Galena) River. They began issuing leases for mineral lands in 1822, thus initiating a rush to the lead fields. Settlers quickly began squatting on Indian lands and tensions increased. The rush of lead miners had largely pushed the Meskwaki out of the Galena River by the mid-1820's, although a band under The Buck was still camped along the Sinsinawa River in 1829.

C. Black Hawk War

As wars go, the Black Hawk War was not a large one (being more of a conflict), but it did mark the end of Indian resistance to white encroachment east of the Mississippi River. It also opened wide the doors to settlement of the upper Midwest.

Black Hawk was a Sauk leader who thoroughly disliked the Americans. He had fought against them with the British in the War of 1812. Things heated up in 1828 when the government offered the lands in and around Saukenuk for sale. Most of the Fox and Sauk left for Iowa under the leadership of Keokuk. Black Hawk (and his followers) refused to follow, and continued for several years to cross back over to the Illinois side to hunt and farm. Things came to a head after the winter of 1831-32 when the tribes found themselves short of food. Black Hawk collected about 500 warriors and about 1,000 women and children and moved back into Illinois just above present-day Rock Island. He hoped to plant corn, but must also have known that his action would provoke another incident with the American government. It did.

Illinois Governor Reynolds called for 2,000 volunteer militia, who joined 1,000 federal troops to pursue Black Hawk. An attempt by Black Hawk to surrender was botched by ill-trained and drunken militia at Stillman’s Run. Enraged and emboldened, Black Hawk sent out raiding parties while retreating up the Rock River. Thus began a series of skirmishes and a wave of panic which spread throughout the region. Many settlements built stockades, the largest being at Galena. At the site of Elizabeth, then a small lead mining settlement, a hastily constructed fort was attacked by Black Hawk and a raiding party of 150 warriors. After a brief siege that cost the life of one defender, the Indians then raided and destroyed the cabins and livestock around the fort and left.

Two months later, American troops caught up with Black Hawk's band at the Battle of Bad Axe in Wisconsin. The ensuing battle ended Black Hawk's dreams and all claims by the Fox and Sauk to lands east of the Mississippi River. Thus began a torrent of Euro-American immigrants into the region, with most coming to Galena and the lead mines in the region.

D. Galena History

During the earliest years, the history of Jo Daviess County is largely the history of Galena. "Galena" is the Latin name for lead sulfide and was given to the small lead mining settlement in 1826 by its mining population.

Lead had been sporadically mined along the Fever (now Galena) River for thousands of years prior to the arrival of Europeans. The Native Americans used it for ceremonial powder, paint and sometimes magical charms. The French noted their shallow mines as early as 1690 and quickly moved to gain control of the lead trade. Julien Dubuque, through a treaty with the Fox and Sauk Indians in 1788, either mined or encouraged the mining of lead on both sides of the river. Dubuque, Iowa is named after him.

The Americans began moving into the Galena area in large numbers following the first government issued leases in 1822. Aware of the value of lead, the federal government would only lease mineral lands, thus retarding permanent improvements in the lead region. The law was changed to permit private ownership in 1836-7 for Galena and several other towns, but not until 1846-7 for the rest of Jo Daviess County.

Because of the value of lead, which was used for musket balls, paint, roofing and flashing, water pipes, pewter and tin, a rush for the lead region began. It peaked in 1845, when the region (with Galena as the hub) produced 55,000,000 pounds, or 85 percent of the nation's lead.

During this time, Galena gained state and national prominence. The lead rush here was the first major mineral rush in U.S. history and preceded the California Gold Rush by 20 years. Because of the lead trade, Galena entrepreneurs were able to establish a near monopoly on the Upper Mississippi River steamboat trade that lasted until the Civil War. Although three miles from the Mississippi, Galena was the largest port north of St. Louis for 30 years. The town's business interests had invested heavily in every sector of the economy, from smelting to wholesaling and retailing stores that serviced the present states of Iowa, Wisconsin, Minnesota and beyond.

It was during this time that fortunes were amassed and mansions of all types and sizes were built. Galena became a "must see" place for the early travelers of the period. Its population peaked at 12,000 in 1857, but declined steadily thereafter. Immigration also peaked then. The first miners and settlers were from southern Illinois, Missouri, Kentucky and other Ohio River states. Many of them had strong ties to southern traditions and beliefs. These connections gave Galena, an otherwise "northern" city, a somewhat "southern" quality, particularly as it related to politics. These people tended to be Protestants, Democrats and States' Rights advocates. Many had no particular problem with slavery, provided it was kept in the southern states.

With time, however, Galena became home to many other groups as well. A relatively large number of free Blacks (perhaps 250 by the time of the Civil War) lived in town. Their numbers decreased rapidly after the War, as they left to find jobs. Many Germans (often highly skilled) came in the 1840s and 50s. They came because of political and economic conditions in Europe. Large numbers of Irish came, too, particularly with the potato famines of the 1840s. Cornish and English miners came hoping to work the mines. And large numbers of New Englanders and New Yorkers came, too, many looking for farms, not mines.

Into this mix came Ulysses S. Grant in April of 1860, with his wife and four children. Grant's father was in the tannery business in southern Ohio. He was involved in a leather goods store in Galena as early as 1841. Business was so good that he sent Grant’s two younger brothers, Simpson and Orvil, to manage the store in Galena. Meanwhile, Ulysses had resigned from the Army and gone to St. Louis to be with his wife and her family. After failing at several business ventures, Grant's father finally sent him to Galena to help his brothers. One year later the

Civil War erupted. U.S. Grant, a West Point graduate, left Galena a little known private citizen, but returned in 1865 as the victorious general of the Union Armies. Eight other Galenians also achieved the rank of General for services rendered during the War, more than any other town of Galena's size.

Upon his return, Grant was given a new home on the east side of town. Although he was able to spend little time there, he maintained Galena as his official residence for 20 years (1860-1880). His home, always open to the public, was given to the City in 1904 and then to the State of Illinois in 1931. The State also owns the City's Old Market House and the Congressman Elihu B. Washburne Home. Washburne was one of the founders of the Republican party in Jo Daviess County in 1855-566 and also one of the most powerful lawmakers in Washington at the outbreak of the Civil War. He was a central figure in furthering the military and political careers of U.S. Grant.

Galena declined rapidly with the Civil War. Low lead prices and reduced production were the rule after 1847 when all mineral lands were put up for sale. Agriculture had become dominant in Jo Daviess County. The Galena River had silted in so badly (from soil loosened by picks and plows), that steam boats were avoiding it. The coming of the Illinois Central Railroad in 1854 further weakened Galena's trade monopolies. The Illinois Central was controlled by Chicago investors; over the next few years they successfully challenged Galena's trade. The Panic of 1857--a nationwide depression--hurt Galena further at a critical time. This, combined with the Civil War which disrupted Galena's river trade with St. Louis and beyond, hurt the town even more. Finally, increasingly bitter politics between Democrats and the new Republicans weakened City government. They found themselves unable to effectively address the City's problems. Following the War, Galena became a small, increasingly agricultural trade center.

Today, Galena is nationally recognized for its history and architecture. Over 85 percent of the town was listed in the National Register of Historic Places in 1969. Its location within the Driftless Area--with its unglaciated hills, valleys, ridges and scenic vistas--adds to its attractiveness. Over one million people visit the community annually. Other communities and sites have tied into this phenomenon, such that the entire county now represents a strong tourist destination.

E. Jo Daviess County Beyond Galena

While lead mining and Galena dominate the story of early Jo Daviess County, they are by no means the only story. The County was established in 1827 and included all or parts of nine present-day counties. It was named after Col. Joseph Hamilton Daveiss ("Daviess" was an incorrect spelling that was included in the original legislation). Daveiss was a prominent Kentucky lawyer who married the sister of U.S. Chief Justice John Marshall. In 1811 he was appointed a Colonel in the Kentucky militia and achieved considerable fame by leading a gallant charge against the Indians at the Battle of Tippecanoe (Indiana). Unfortunately, he died in the process, but his name lived on, given to counties in Kentucky, Indiana, Illinois and Missouri-- wherever Kentuckians migrated. Because early Illinois and Jo Daviess County were settled by so many with Kentucky roots, our county was so named.

Following the initial migration from the southern part of the State, Jo Daviess County attracted other groups as well. Tin miners from Cornwall and lead miners from the Yorkshires of northeast England came. Many Irish came, most as unskilled laborers who worked in the mines, on the farms and elsewhere. Most of the Irish were Catholic, but some were Protestants, most from what is now Northern Ireland. The largest numbers of Irish came during the 1840s because of the potato famines.

Huge numbers of Germans also came during the 1840s and 1850s, often because of political and economic unrest in Europe. Galena took in large numbers, but so, too, did farming areas like Menominee, Guilford and Elizabeth townships. In addition to farming, the Germans came as furniture makers, cobblers, carpenters and professionals. Some of the farmers who bought up land in the eastern side of the county moved there from southeastern Pennsylvania, where they had lived for generations.

Perhaps the largest influx of new residents prior to the Civil War were those from New England and New York. With the opening of the Erie Canal and Great Lakes to steam boat travel, they flooded northern Illinois and Southern Wisconsin. As a result, the County became more like the rest of northern Illinois in terms of its outlook and

institutions. Southern traditions were still strong, however, and it took three tries before the County gave up its southern county commissioner form of government and adopted the New England Township and County Board of Supervisors form of government in 1853.

The new Republican party, in place by 1856, was overwhelmingly adopted by these northern settlers--New England was traditionally anti-slavery and this central tenant of the new Republican party caused most of Jo Daviess County to vote overwhelmingly Republican. Congressman Elihu Washburne, Robert Norris, Augustus Chetlain, Simeon Miner and brothers Halstead S. and George N. Townsend were key players in the formation of the party in the county.

There were two exceptions to this trend, still evident in the county today in the Galena and the Dunleith-Menominee areas. Many Galenians still had economic, if not social, ties to the South. While not pro-slavery, many believed in the Democratic party's "go slow" attitude on the slavery issue and many felt that individual states should have the right of self-determination. The Republicans were too radical for them.

The Dunleith-Menominee area, like Galena, received large numbers of Irish and German Catholics. They were part of a larger movement that saw the early Catholic Church actively soliciting Catholic immigrants to come to Dubuque and the surrounding area. Due to the efforts of Church leaders like Father Samuel Mazzechelli and Bishop Loras, the Dubuque area became a welcoming destination for the Catholics on an otherwise Protestant frontier. The Democratic party, after a slow start, began to actively court the Irish and Catholic vote, making much progress by the time of the Civil War. Thus, the ethnic and political nature of Jo Daviess County was largely in place by 1861 and has largely remained so to the present day. It was out of this wealth of peoples, occupations and values that came the self-reliance, thrift, independence and enterprise that have traditionally characterized the county's population.

The Civil War marked the end of new migrants coming into Jo Daviess County. The land had all been taken up--new settlers had to go west to find more. Agriculture was the overwhelmingly dominant industry in the county, as it had been since 1850. The coming of the Illinois Central Railroad in 1854 had given an incredible boost to commercial, market-oriented agriculture with wheat becoming the number one cash crop. By the time of the Civil War, the northern Illinois counties that lay along the Illinois Central Railroad represented the largest single wheat producing region in the world. After the War, stock raising took precedence.

Jo Daviess County's population peaked in the 1870s. Thereafter, most townships slowly declined in population as agriculture became increasingly mechanized and efficient, a trend still going on today. The towns and villages grew somewhat, particularly those along the railroad. Agriculture has continued as the dominant industry in most of the county, but with larger farm units and fewer farmers.

F. Outlines of Community Histories

Apple River:

1854	Village platted in response to the coming of the Illinois Central Railroad. Population swells when people living in Millville (Apple River Canyon State Park) move to Apple River (and Warren) to be near the railroad and its commerce. William Hoskins Lumber Yard established.
1868	Village of Apple River incorporated.
1873	First High School.
1880	Population peaks at 626; listed as 414 in 1990.
1900	A number of manufacturing enterprises present: plows wagons and brooms produced. Large lumber yard and stock yard present. Stock raising, particularly Hereford cattle, is very important to the area.
1947	Stagecoach Trail ("Galena-Scales Mound Road") hard surfaced.

East Dubuque:

1832 With conclusion of the Black Hawk War, settlers began moving into this part of Jo Daviess County. Eleazor Frentress takes up residence on 320 acres of land.
1854 "Dunleith" officially laid out in anticipation of the coming of the railroad.
1855 Illinois Central Railroad arrives from Galena.
1856 Town incorporated; flurry of business activity in response to the railroad.
1868 Illinois Central Railroad bridge crosses the Mississippi River, thus slowing Dunleith's rapid growth.
1879 Dunleith name changed to East Dubuque.
1894 East Dubuque Register began. 1902, 1916, 1923, 1951, 1965, 1969, 1993 all mark years of severe floods for East Dubuque.
1914 Prohibition in the State of Iowa makes East Dubuque a "watering hole" for Dubuque and eastern Iowa, changing the nature of the downtown business district.
1938 Civilian Conservation Corps (CCC) improves Gramercy Park, site of 26 Indian Mounds overlooking the Mississippi River.

Elizabeth:

1825 Lead miners moving into the area from Galena; A.P. Van Matre establishes a smelter.
1830s John D. Winters establishes one of the first stagecoach lines in northern Illinois.
1832 Black Hawk War and battle of Apple River Fort take place; settlement is named Elizabeth.
1839 Village is platted; mining on the decline, farmers moving to the area in large numbers.
1868 Village incorporated.
1887 Chicago Great Western Railroad comes to Elizabeth; town gets first newspaper, first bank and first lawyer; building boom results.
1910 Population hits 700, remains stable to present day.
1914 First electric street lights.
1915 "Grant Highway" (U.S. 20) planned (190 miles for $3,160,000), would go through Stockton, Elizabeth, Galena. Road completed in the 1920s.
1920 Jo Daviess County Farm Bureau, organized the previous year, locates first office here.

Galena:

1818 John Tyler Armstrong builds cabin on east bank of Fever River, probably in vicinity of present information center (Illinois Central Depot). First recorded permanent settlement on the Fever River.
1822 First mining lease granted by federal government to Col. James Johnson, who brings 20 white miners and as many slaves from Kentucky to work his claim. Winnebago Indians resist Johnson's landing, insisting they had not ceded land to the United States, as had the Sauk and Fox tribes.
1823 The VIRGINIA becomes the first steamboat to ascend the Mississippi River.
1826 First office in northern Illinois is established at the corner of Main and Perry Streets. The name "Galena" is chosen for the growing community.
1834 First printing of the Galena Gazette
1841 State legislature grants charter of incorporation to the City of Galena.
1844 Jo Daviess County courthouse completed on Bench Street
1845 Lead ore production in Galena area and adjacent Wisconsin peaks at 54 million pounds.
1846 Market House opens for business.
1854 Name of Fever River changed to Galena River by state legislature. Illinois Central Railroad arrives in Galena. Fire causes extensive damage to wooden buildings on Main Street.
1855 The DeSoto House opens for business.
1856 Abraham Lincoln speaks from balcony of the DeSoto House. Worst fire ever devastates many Main Street buildings. Ordinances now prohibit buildings constructed of wood downtown.
1858 Galena's population reaches an all time high of roughly 14,000.

1860 Ulysses S. Grant moves to Galena with his family so he can work as a clerk in his father's leather goods store.
1861 War between the States breaks out. Jo Daviess Guards formed and drills on Congressman Washburne's lawn. Ulysses S. Grant trains troops, departs with militia for Springfield.
1865 Grant returns from Civil War in triumph and is given huge reception and a home in Galena.
1868 Grant runs for president. Campaign headquarters at the DeSoto House. Receives election returns in library of Elihu B. Washburne's house.
1874 Turner Hall built by the Turner Society for community events.
1893 Economic depression nationwide. Many Galena businesses fail.
1951 Construction completed on dike and floodgates, finally protecting Galena from flood waters.
1965 Galena becomes first community after Springfield to adopt a local historic preservation ordinance which established a local historic district.
1969 Over 85% of Galena is listed on the National Register of Historic Places.

Hanover:

1828 James Craig erects saw mill, grist mill and dam.
1836 Village platted.
1849 Name changed to Hanover.
1864 Hanover Woolen Mill organized.
1877 Village incorporated.
1917 13,000 acres purchased for the Savanna Proving Grounds.
1921 New Woolen Mill completed (closed 1949).
1930 Highway 84 getting hard surfaced north to Il Rt. 5 (Hwy 20).
1960 Chestnut Mountain Ski Resort opens.
1965 Eaton Corporation opens in old woolen mill site.

Menominee:

1830s Miners and farmers begin moving into the area, including many German and Irish
1838 Father Samuel Mazzuchelli begins serving the needs of the large number of Catholic settlers.
1853 Township named Menominee
1864 Nativity of the Blessed Virgin Mary Parish established. BVM church building erected in 1877.
1935 Village of Menominee incorporated; population about 125

Nora:
1853 Platted in response to the coming of the Illinois Central Railroad. Develops in a manner similar to other small agricultural trade centers along the railroad.
1880 Population peaks at 333. Drops to 162 for 1990.
1883 Village of Nora incorporated.

Scales Mound:

1820s First lead miners move into the area, including some farmers.
1828 Elijah Charles, a permanent settler, built a log cabin at the base of what is now Charles Mound, highest point in Illinois at 1235' elevation.
1830 Samuel Scales settled at the base of a nearby mound (now called Scales Mound) and established a tavern and served travelers and miners coming up from Peoria and westward from Chicago. The latter route is now called Stagecoach Trail in recognition of the Frink and Walker Stage Line which ran regular stages through the county from 1841-1856.
1853 Village of Scales Mound platted in response to the coming of the Illinois Central Railroad, a magnet for farmers.

1877 Village incorporated, has become an important local trade center for farmers, but nearby lead and zinc mining are also important. Three hotels, warehouses and stockyards are present. Two story Allen Warehouse is a focal point for community. Second floor of this structure serves as a community hall.
1890 Creamery constructed in response to growth of the dairy industry in the area.
1900 Scales Mound peaks in population at about 420; has been around 375 ever since.
1916 "Cement" sidewalks became universal and electricity comes to the village.
1925 Village motion "that six signs be printed to read 'Scales Mound Tourist Camp' and erected in conspicuous places heading into village."
1990 Scales Mound Historic District added to the National Register of Historic Places.

Stockton:

1887 Village laid out on land adjacent to new Chicago Great Western Railroad Line. Area noted for rich soils, corn, cattle, horses and tobacco.
1890 Village of Stockton incorporated.
1909 Chicago Great Western established just east of town one of the largest railroad workshops on the line. Employs 150 people with a $300,000 payroll by 1929.
1914 J.L. Kraft and Bros. Co. started when they purchased a creamery in town.
1950 Atwood Manufacturing Co. opens Stockton plant, providing seat adjusters and hood hinges to the automotive industry. (Now owned by Excel Corp.)

Warren:

1851 Freeman Tisdel builds stone hotel (Warren Community Building), anticipating the coming of the railroad.
1854 Illinois Central Railroad passes through Warren, insuring the success of the new community and dooming its rival, Millville (Apple River Canyon State Park).
1857 Village of Warren incorporated; first newspaper started.
1858 Mineral Point Railroad comes to Warren bringing lead and zinc trade to Warren and the Illinois Central. Warren quickly becomes Jo Daviess County's second largest community.
1895 Water works installed with 102 foot tower.
1913 First electric light plant.
1990 Warren has 1,550 residents.
1995 Warren Commercial Historic District listed on the National Register of Historic Places.

Woodbine (unincorporated):

1887 Coming of Chicago Great Western Railroad. Woodbine, consisting of only a few buildings south of the new tracks, gets a lift.
1894 Creamery established in town, which has become a small local trading center tied to the railroad.

Section 1.2 Past Planning In Jo Daviess County

The Jo Daviess County Board adopted a document titled "Land Use Plan: Jo Daviess County, Illinois," in March of 1990. The Jo Daviess County Board adopted the first County comprehensive plan document (Jo Daviess County Comprehensive Plan) on September 14, 1999. An amendment to the original Comprehensive Plan was adopted on November 14, 2006 (update to Contiguous Growth Area of the City of Galena), and a subsequent amendment to incorporate the *Jo Daviess County Greenways & Trails Plan* was adopted on March 10, 2009.

Section 1.3 The Comprehensive Planning Process

The comprehensive planning process involves several basic phases. The first phase involves research. Activities include acquiring a thorough knowledge of the existing community setting, identifying problems that require solutions, analyzing critical factors that need to be changed before progress can be made toward community goals, and establishing goals and objectives for growth and development.

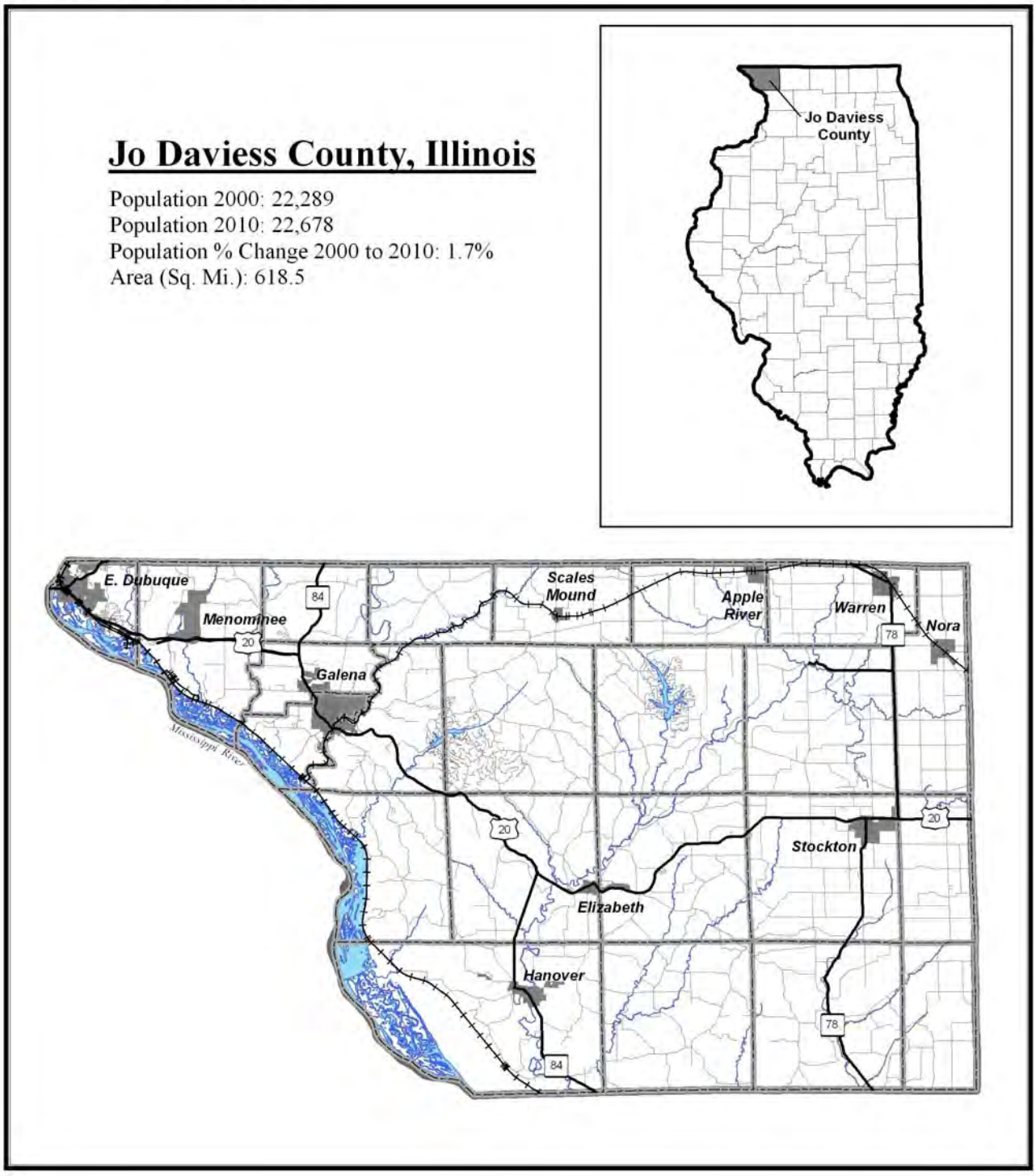
The second phase of the comprehensive planning process involves the formation of planning policy. Planning policies recommend a course of action that will accommodate expected change, produce desired change, or prevent undesirable change.

The next phase involves the selection of a preferred alternative for guiding future growth. The Land Use Element relates how the County is expected to grow, identifying in general terms how development should proceed in the future to achieve community goals.

The final phase involves implementation of the plan and programs that will influence the day-to-day decisions made by government officials, private enterprise, and individuals. Plan implementation provides the means by which community goals can be achieved. Three major tools of implementation are the zoning ordinance, subdivision regulations, and capital improvements program. Zoning regulations act to control growth and development so that it is harmonious with the proposals and recommendations set forth in the Comprehensive Plan. They promote sound, orderly development directed toward the preservation of property values and the improvement of the overall appearance of the community. Subdivision regulations assure that new land divisions are designed in an orderly and efficient manner and are in accordance with the Comprehensive Plan. The capital improvements program is a long-range financial plan for major public improvements. It proposes the best means for utilizing available financial resources to provide residents with necessary facilities and services.

The Comprehensive Plan is the primary link between the past, the present, and the future, making it perhaps the best resource for achieving continuity over a period of time. It is to be used as a guide by those making decisions with regard to development. The Comprehensive Plan must also remain flexible so that it can be modified to reflect the processes of actual development and the changing attitudes and priorities of the community. To maintain an updated Comprehensive Plan, new information must be continually gathered and studied to determine trends and re-evaluate projections, forecasts, and plans. Even policy recommendations, which are relatively permanent statements, may require periodic review to determine their appropriateness and suitability in relation to the direction and character of community development at that time. A well thought-out and updated Comprehensive Plan, with a solid base of public involvement, is one of the most fruitful investments a County can make. As a collection of policies and plans designed to guide future growth and development, it will help ensure continuity over time as changes occur within Jo Daviess County.

Figure 1.2: Jo Daviess County, Illinois



Section 1.4 Demographic Trends

A. Population Growth

Every 10 years the Federal government performs the National Census, and these Census results are the primary source of the information used to understand how communities change over time. As indicated in Table 1.1 below, the population of Jo Daviess County showed a downward trend from 1900 to 1940. Since 1940, the population has shown a general upward trend in population with the exception of the 1960-1970 Census period and the 1980-1990 Census period. Since 1900, the County registered its most significant growth in terms of overall population increase and population percentage increase between 1970 and 1980, growing by 1,754 persons, or 8.1%, during this 10-year period.

The population trends between Census periods seen in Jo Daviess County since 1900 are not comparable to those of the State of Illinois as a whole, which has seen an increase in population during each Census period since 1900. However, Jo Daviess County population percentage increases in the Census periods since 1940 have been relatively similar to the State as a whole.

Table 1.1
1900 - 2010 Population, Population Change and Population % Change
Jo Daviess County and State of Illinois

	Jo Daviess Co.			Illinois		
Year	Population	Change	% Change	Population	Change	% Change
1900	24,533	---	---	4,821,550	---	---
1910	22,657	(1,876)	-7.6%	5,638,591	817,041	16.9%
1920	21,917	(740)	-3.3%	6,485,280	846,689	15.0%
1930	20,235	(1,682)	-7.7%	7,630,654	1,145,374	17.7%
1940	19,989	(246)	-1.2%	7,897,241	266,587	3.5%
1950	21,459	1,470	7.4%	8,712,176	814,935	10.3%
1960	21,821	362	1.7%	10,081,158	1,368,982	15.7%
1970	21,766	(55)	-0.3%	11,113,976	1,029,127	10.2%
1980	23,520	1,754	8.1%	11,426,518	317,129	2.9%
1990	21,821	(1,699)	-7.2%	11,430,602	3,188	0.0%
2000	22,289	468	2.1%	12,419,293	415,942	3.6%
2010	22,678	389	1.7%	12,830,632	411,339	3.3%
2011 (Est.)*	22,712	34	0.2%	12,869,257	38,625	0.3%

Source: U.S. Bureau of the Census; *July 1, 2011 Population Estimates

As seen in Table 1.2 below, the six-county area of Carroll, Jo Daviess, Lee, Ogle, Stephenson and Whiteside Counties (Northwest Illinois) grew by 3.7% between 1990 and 2000. During this period, Jo Daviess County registered the fourth greatest growth in terms of total population increase (468) and the third greatest percentage increase (2.1%). Between 2000 and 2010 the growth of Northwest Illinois decreased by 0.8%, with Jo Daviess and Ogle Counties being the only two counties in the six-county area to register population increases.

Table 1.2
2000 - 2010 Population, Population Change and Population % Change
Northwest Illinois Counties

	Carroll County	Jo Daviess County	Lee County	Ogle County	Stephenson County	Whiteside County	NW IL Counties
1990 Pop.	16,805	21,821	34,392	45,957	48,052	60,186	227,213
2000 Pop.	16,674	22,289	36,062	51,032	48,979	60,653	235,689
Pop. Ch.	(131)	468	1,670	5,075	927	467	8,476
Pop. % Ch.	-0.8	2.1	4.9	11.0	1.9	0.8	3.7
2010	15,387	22,678	36,031	53,497	47,711	58,494	233,798
Pop. Ch.	(1,287)	389	(31)	2,465	(1,268)	(2,159)	(1,891)
Pop. % Ch.	-7.7	1.7	-0.1	4.8	-2.6	-3.6	-0.8

Source: U.S. Bureau of the Census

It is interesting and revealing to examine the differences in population change between the municipalities and the unincorporated area of the County. As seen in Table 1.3 below, since 1970, the unincorporated County population has seen an upward population growth trend, and the combined population of municipalities within the County has seen a downward population growth trend. Correspondingly, the ratio of the County unincorporated population to the population within municipalities has become increasingly in favor of the unincorporated area of the County. In 2010, the percentage of the County's population in the unincorporated areas topped 50% (50.9%) compared to 40.3% in 1970.

Table 1.3
2000 - 2010 Population, Population Change and Population % Change
Jo Daviess County Unincorporated Area Population and Jo Daviess County Population Within Municipalities

	Jo Daviess County Unincorp.			% Ratio Uninc. Pop. / Municipal Population	Jo Daviess County Municipal		
Year	Population	Change	% Change		Population	Change	% Change
1970	8,769	---	---	40.3 / 59.7	12,997	---	---
1980	10,907	2,138	24.4%	46.4 / 53.6	12,613	(384)	-3.0%
1990	10,139	(768)	-7.0%	46.5 / 53.5	11,682	(931)	-7.4%
2000	10,759	620	6.1%	48.3 / 51.7	11,530	(152)	-1.3%
2010	11,539	780	7.3%	50.9 / 49.1	11,139	(391)	-3.4%

Source: U.S. Bureau of the Census

As seen in Table 1.4 below, Elizabeth, Hanover, Menominee and Nora all increased in population between 2000 and 2010, whereas Apple River, East Dubuque, Galena, Scales Mound, Stockton and Warren decreased in population during the same period.

Elizabeth demonstrated the most dramatic increase in population between 2000 and 2010, growing by 79 persons or 11.6%, followed by Menominee (growing by 11 persons or 4.6%), Hanover (growing by 8 persons or 1.0%), and Nora (growing by 3 persons or 2.5%). East Dubuque demonstrated the most dramatic decrease in population between 2000 and 2010, losing 291 persons or 14.6% of its population, followed by Warren (decrease of 68 persons or 4.5%) and Stockton (losing 64 persons or 3.3%).

Table 1.4
1970 - 2010 Population, Population Change and Population % Change
Jo Daviess County Municipalities

	1970	1980	1990	2000	2010
Apple River Pop.	482	472	414	379	366
Pop. Change	---	(10)	(58)	(35)	(13)
Pop. % Change	---	-2.1%	-12.3%	-8.5%	-3.4%
East Dubuque Pop.	2,408	2,194	1,914	1,995	1,704
Pop. Change	---	(214)	(280)	81	(291)
Pop. % Change	---	-8.9%	12.8%	4.2%	-14.6%
Elizabeth Pop.	707	772	641	682	761
Pop. Change	---	65	(131)	41	79
Pop. % Change	---	9.2%	-17.0%	6.4%	11.6%
Galena Pop.	3,930	3,876	3,647	3,460	3,429
Pop. Change	---	(54)	(229)	(187)	(31)
Pop. % Change	---	-1.4%	-5.9%	-5.1%	-0.9%
Hanover Pop.	1,243	1,069	908	836	844
Pop. Change	---	(174)	(161)	(72)	8
Pop. % Change	---	-14.0%	-15.1%	-7.9%	1.0%
Menominee Pop.	217	231	187	237	248
Pop. Change	---	14	(44)	50	11
Pop. % Change	---	6.5%	-19.0%	26.7%	4.6%
Nora Pop.	175	185	162	118	121
Pop. Change	---	10	(23)	(44)	3
Pop. % Change	---	5.7%	-12.4%	-27.2%	2.5%
Scales Mound Pop.	382	347	388	401	376
Pop. Change	---	(35)	41	13	(25)
Pop. % Change	---	-9.2%	11.8%	3.4%	-6.2%
Stockton Pop.	1,930	1,872	1,871	1,926	1,862
Pop. Change	---	(58)	(1)	55	(64)
Pop. % Change	---	-3.0%	-0.1%	2.9%	-3.3%
Warren Pop.	1,523	1,595	1,550	1,496	1,428
Pop. Change	---	72	(45)	(54)	(68)
Pop. % Change	---	4.7%	-2.8%	-3.5%	-4.5%

Source: U.S. Bureau of the Census

B. Age Distribution

Table 1.5 below details the number of Jo Daviess County residents that occupied specific age groups in the past two Census years. Insight into the nature of the County population's change over time can be gained through examining how these age groups change as they move through their life cycles. The age groups (or "cohorts" as they are called when tracking a group of same-aged people) have been displayed within Table 1.5 in ten-year increments to more easily see how their numbers increase or decline over different Census years. The diagonal series of gray or white boxes within Table 1.5 indicate the path of each age cohort through the two Census periods.

Table 1.5
Distribution of Population by Ten-Year Age Groups (Cohorts)
Jo Daviess County, Illinois

	2000	2010	Cohort Change 2000-2010	Cohort % Change 2000-2010	Class Change 2000-2010	Class % Change
Under 5-9 years	2,655	2,471	23	0.9%	(184)	-6.9%
10-19 years	3,017	2,678	(1,011)	-33.5%	(339)	-11.2%
20-29 years	2,114	2,006	125	5.9%	(108)	-5.1%
30-39 years	2,811	2,239	140	5.0%	(572)	-20.3%
40-49 years	3,378	2,951	251	7.4%	(427)	-12.6%
50-59 years	3,027	3,629	357	11.8%	602	19.9%
60-69 years	2,394	3,384	(358)	-15.0%	990	41.4%
70-79 years	1,870	2,036	(586)	-31.3%	166	8.9%
80-90 years and over	1,023	1,284	---	---	261	25.5%
Median Age (Jo Daviess County)	41.6	47.1	---	---	5.5	13.2%
Median Age (Illinois)	34.7	36.6	---	---	1.9	5.5%

Source: U.S. Bureau of the Census

An examination of Table 1.5 above reveals a County population that has grown older between 2000 and 2010. In the cohorts below 40 years of age, three out of the four cohorts (the 10-19 being the exception) increased between 2000 and 2010; however, in examining the age classes, all age classes below 40 years of age decreased between 2000 and 2010. Particularly revealing is the dynamics of the 10-19 years age cohort and age class, which both declined significantly between 2000 and 2010, indicating both an exodus of the school-age population upon entering adult-hood, and a general decline in the school-age population of the County.

In 2000, 47.5% of the County population was under 40 years of age; in 2010, 41.4% of the County population was under 40 years of age. This is reflected in the increasing median age as indicated in the above Table 1.5, which increased from 41.6 in 2000 to 47.1 in 2010. The "median age" is the point where ½ of the population lies above and ½ lies below; the older this age is, the older the overall population for a place is becoming. For comparison, Jo Daviess County's 2010 median age of 47.1 is 28.7% higher than the 2010 median age of the State of Illinois (36.6).

C. Education Levels

Table 1.6 below compares the educational attainment information for Jo Daviess County residents age 25 and above. Between 2000 and 2010 the County population shows an increase in the level of formal education. The percentage of persons with "some college education, no degree", an "Associate's degree", a "Bachelor's degree", or a "Graduate or professional degree" increased from 42% in 2000 to 49.8% in 2010. This percentage compares to 59.2% of the persons in the State of Illinois as a whole who attained some level of college education in 2010.

Table 1.6
Educational Attainment of Persons 25 Years and Over
Jo Daviess County, Illinois

	2000	**2010**	**Change (+/-)**	**% Change**
Less than 9th Grade	1,093 *7.0%*	630 *3.8%*	(463)	-42.4%
9th - 12th Gr., no diploma	1,463 *9.4%*	1,177 *7.1%*	(286)	-19.5%
High School Graduate	6,505 *41.6%*	6,514 *39.3%*	9	0.1%
Some college, no degree	3,340 *21.4%*	3,249 *19.6%*	(91)	-2.7%
Associate's degree	846 *5.4%*	1,193 *7.2%*	347	41.0%
Bachelor's degree	1,673 *10.7%*	2,403 *14.5%*	730	43.6%
Graduate or professional degree	705 *4.5%*	1,409 *8.5%*	704	99.9%
Total	15,625	16,575	950	6.1%

Source: U.S. Bureau of the Census; 2010 American Community Survey

D. Households and Income

The Jo Daviess County residential community is made up of different types of households. Table 1.7, below, details the changes in the make-up of County households between 2000 and 2010. Family households have seen their number increase, although family households as a percentage of total households has decreased between 2000 and 2010. Non-family households have increased from 2000 to 2010 in both number (from 2,931 to 3,239) and percentage of total households (from 31.8% to 33.2%). Husband-wife family households increased in number, but decreased as a percentage of total family households between 2000 and 2010. Single-mother family households (female householder, no husband present) have increased from 9.5% of family households in 2000 to 10.5% in 2010. Both Average Household Size and Average Family Size have decreased slightly.

Table 1.7
Households, Average Household Size and Household Type
Jo Daviess County, Illinois

	2000	2010	Change (+/-)	% Change
Households	9,218	9,753	535	5.8%
Average Household Size	2.40	2.31	(0.09)	-3.8%
Average Family Size	2.92	2.81	(0.11)	-3.8%
Households by Type:				
Family Households [1] *(% of Total Households)*	6,287 *(68.2%)*	6,514 *(66.8%)*	227	3.6%
Husband-wife families [3] *(% of Family Households)*	5,368 *(85.4%)*	5,448 *(83.6%)*	80	1.5%
Female householder, no husband present *(% of Family Households)*	599 *(9.5%)*	687 *(10.5%)*	88	14.7%
Non-Family Households [2] *(% of Total Households)*	2,931 *(31.8%)*	3,239 *(33.2%)*	308	10.5%
Male householder *(% of Total Non-Family Households)*	1,369 *(46.7%)*	1,587 *(49.0%)*	218	15.9%
Female householder *(% of Total Non-Family Households)*	1,562 *(53.3%)*	1,652 *(51.0%)*	90	5.8%

Source: U.S. Bureau of the Census
[1] A household that has at least one member of the household related to the householder by birth, marriage, or adoption is a "Family household." Same-sex couple households are included in the family households category if there is at least one additional person related to the householder by birth or adoption. Same-sex couple households with no relatives of the householder present are tabulated in nonfamily households. Responses of "same-sex spouse" were edited during processing to "unmarried partner."
[2] "Nonfamily households" consist of people living alone and households which do not have any members related to the householder.
[3] "Families" consist of a householder and one or more other people related to the householder by birth, marriage, or adoption. They do not include same-sex married couples even if the marriage was performed in a state issuing marriage certificates for same-sex couples. Same-sex couples are included in the families category if there is at least one additional person related to the householder by birth or adoption. Responses of "same-sex spouse" were edited during processing to "unmarried partner." Same-sex couple households with no relatives of the householder present are tabulated in nonfamily households.

Another instructive piece of information on the state of households within the County is the level of income that each household achieves. Again the Census provides insight into the range of incomes present within Jo Daviess County.

Table 1.8
Household Income 1999 - 2010
Jo Daviess County, Illinois

Household Income ($)	1999	2010	Change (+/-)	% Change
Less than 10,000	687 *(7.5%)*	562 *(5.6%)*	(125)	-18.2%
10,000 - 14,999	516 *(5.6%)*	522 *(5.2%)*	6	1.2%
15,000 - 24,999	1,384 *(15.0%)*	1,035 *(10.3%)*	(349)	-25.2%
25,000 - 34,999	1,335 *(14.5%)*	1,321 *(13.2%)*	(14)	-1.0%
35,000 - 49,999	1,845 *(20.1%)*	1,540 *(15.4%)*	(305)	-16.5%
50,000 - 74,999	2,012 *(21.9%)*	2,163 *(21.6%)*	151	7.5%
75,000 - 99,999	752 *(8.2%)*	1,444 *(14.4%)*	692	92.0%
100,000 - 149,999	412 *(4.5%)*	930 *(9.3%)*	518	125.7%
150,000 - 199,999	135 *(1.5%)*	317 *(3.2%)*	182	134.8%
200,000 or more	122 *(1.3)*	167 *(1.7%)*	45	36.9%
Total Households	9,200 *(100%)*	10,001 *(100%)*	801	8.7%
Jo Daviess County Median Household Income ($)	40,411	50,279	9,868	24.4%
State of Illinois Median Household Income ($)	46,590	52,972	6,382	13.7%

Source: U.S. Bureau of the Census; American Community Survey

Table 1.8 above describes how household incomes have changed between 1999 and 2010. The percentage of households making greater than $50,000 per year has increased from 37.4% in 1999 to 50.7% in 2010. Median household income has increased from $40,411 to $50,279 over the same period, a 24.4 increase. This percentage increase in median household income is greater than the State of Illinois as a whole (13.7%) over the same time period; also, the median household income for Illinois was 15.3% higher than Jo Daviess County in 1999, but only 5.4% higher than Jo Daviess County in 2010. These are indicators that median household income is increasing at a more rapid pace in Jo Daviess County compared to the State of Illinois as a whole.

With the examination of income information, the County should also assess the poverty status of its residents. "Poverty" is generally defined as a set of money income thresholds that vary by family size and composition to determine who is poor. If a family's total income is less than that family's threshold, then that family, and every individual in it, is considered poor. The poverty thresholds do not vary geographically. That is, they are the same throughout the United States. However, the poverty thresholds are updated annually for inflation using the Consumer Price Index (CPI-U). The official poverty definition counts money income before taxes and does not include capital gains and non-cash benefits (such as public housing, food stamps, and Medicaid). Poverty is not defined for people in military barracks, institutional group quarters, or for unrelated children under age 15 (such as foster children). Table 1.8 below outlines poverty thresholds for years 1999 and 2010. Table 1.9 lists the Census and American Community Survey information on poverty for the total number of residents, children and adults 65 years of age and older within Jo Daviess County.

Table 1.9
Weighted Average Poverty Thresholds - 1999 and 2010

Size of Family Unit	1999	2010
One Person	$8,499	$11,139
Two Persons	$10,864	$14,218
Three Persons	$13,289	$17,374
Four Persons	$17,030	$22,314
Five Persons	$20,128	$26,439
Six Persons	$22,730	$29,897
Seven Persons	$25,918	$34,009
Eight Persons	$28,970	$37,934
Nine Persons or more	$34,436	$45,220

Source: U.S. Bureau of the Census

Table 1.10
Poverty Status - 1999 and 2010
Jo Daviess County, Illinois

	1999	2010	Change (+/-) 2000-2010	% Change 2000-2010
Individuals*	22,011	22,416		
Below Poverty Level	1,468	1,881	405	27.6%
% Below Poverty Level	*6.7*	*8.4*		
Children under 18 years	5,038	4,607		
Below Poverty Level	390	528	138	35.4%
% Below Poverty Level	*7.7*	*11.5*		
65 years and over	3,844	4,518		
Below Poverty Level	289	287	(2)	-0.7%
% Below Poverty Level	*7.5*	*6.4*		

Source: U.S. Bureau of the Census; American Community Survey
*All individuals for whom poverty status is determined.

Poverty status increased within Jo Daviess County between 1999 and 2010 among individuals (from 6.7% to 8.4% of the population) and children under 18 years (from 7.7% to 11.5%). Poverty status among persons 65 years of age and older decreased (from 7.5% to 6.4%). Compared to Illinois as a whole, poverty status increased between 1999 and 2010 among individuals (from 10.7% to 13.1% of the population), children (from 14.3% to 18.5%), and persons 65 years of age and older (8.3% to 8.7%).

E. Employment Characteristics

Table 1.11 below summarizes employment by industry data provided for the last two Census years. This information represents what type of industry that the working residents of the County were employed by, and is not a listing of the employment currently located within Jo Daviess County. The discussion of the County economy will take place within the Economic Development Element of this Comprehensive Plan.

The "wholesale trade" industry registered the greatest loss in terms of percentage decrease (-18.9%) between 2000 and 2010, followed by "construction" (-12.2%), "wholesale trade" (-12.8%), "manufacturing" (-11.9%), "agriculture, forestry, fishing and hunting, and mining" (-11.5%), "transportation and warehousing, and utilities" (-7.6%) and "retail trade" (-4.0%). All other industry classifications increased in number and percent, the greatest percentage increases being registered in "information" (53.8%), "public administration" (35.7%), and "arts, entertainment, recreation, accommodation and food services" (17.4%).

Table 1.11
Summary of Employment by Industry
Jo Daviess County, Illinois

Industry	2000	2010	Change (+/-)	% Change
Agriculture, forestry, fishing and hunting, and mining	798	706	(92)	-11.5%
Construction	990	863	(127)	-12.8%
Manufacturing	2,023	1,782	(241)	-11.9%
Wholesale trade	280	227	(53)	-18.9%
Retail trade	1,264	1,213	(51)	-4.0%
Transportation and warehousing, and utilities	537	496	(41)	-7.6%
Information	158	243	85	53.8%
Finance, insurance, real estate, and rental and leasing	584	654	70	12.0%
Professional, scientific, management, administrative, and waste management services	700	785	85	12.1%
Educational, health and social services	1,994	2,200	206	10.3%

Arts, entertainment, recreation, accommo-dation and food services	1,383	1,623	240	17.4%
Other services (except public administration)	537	597	60	11.2%
Public administration	280	380	100	35.7%
Total Employed Persons 16 Years and Over	11,528	11,769	241	2.1%

Source: U.S. Bureau of the Census; American Community Survey

Section 1.5 Population Projections

Projections are estimates of future populations based on statistical models that extrapolate past and present trends into the future. Projections can be created through very simple or very complex calculations. The type of calculations used is based on the available data and desired use of the projection.

Forecasts are also estimates of a future population based on statistical models. Forecasts, however, include additional adjustments made to reflect assumptions of future changes.

Targets express desirable future populations based on policies and goals.

Developing population projections is a complex process. There is always a greater difficulty in deriving population projections for small geographic areas such as townships and small cities or villages. Projections for larger geographic areas are more reliable, since the large population base will be less likely to exhibit short term variations. Likewise, any projection results that extend for periods longer than ten years become statistically less reliable as inputs to the projection are based on calculations rather than actual numbers. In summary, the smaller the area and the longer the period, the less likely a projection will be accurate.

The population of Jo Daviess County showed a downward trend from 1900 to 1940. Since 1940, the population has shown a general upward trend in population with the exception of the 1960-1970 Census period and the 1980-1990 Census period. Since 1900, the County registered its most significant growth in terms of overall population increase and population percentage increase between 1970 and 1980, growing by 1,754 persons, or 8.1%, during this 10-year period. Between 2000 and 2010, the County population increased by 389 persons, or 1.7%. According to the Census data displayed in Table 1.7 above, in 2000 Jo Daviess County averaged 2.40 persons per household (PPH) in 9,218 households. In 2010, the estimated number of PPH declined to 2.31 in 9,753 households. It is anticipated that this trend of a gradually increasing number of households and a declining number of persons per household will continue into the future.

To estimate the Jo Daviess County population for 2020, 2030 and 2040, two different methodologies were employed, as follows:

Population Projection Methodology A:

The number of households and persons per household within the County was projected out to 2020, 2030 and 2040 using a simple mathematical progression projection assuming a 7.96% increase per 10-year period for housing units and a 5.44% decrease per 10-year period for persons per household. The projected number of housing units was multiplied by the projected number of persons per household to yield a projected population in households. Since an average (over the past Census period) of 0.7% of the population does not live in a household, the estimated population in households was then increased by 0.7% to yield the total projected population.

Population Projection Methodology B:

The 10-year growth rates from 1990-2000 and 2000-2010 were averaged to yield an average growth rate per Census period. This average growth rate was then used to project the population for 2020, 2030 and 2040.

This population projection does not include any large-scale development of vacant land for residential uses within the planning period. Large-scale residential development could have a significant impact on the number of housing units, households and the County's population.

Table 1.12A
Methodology A Projected Population
Jo Daviess County, Illinois

Year	2020	2030	2040
Population	23,114	23,580	24,098

Table 1.12B
Methodology B Projected Population
Jo Daviess County, Illinois

Year	2020	2030	2040
Population	23,109	23,548	23,995

Calculating an average of the projected populations of the two methodologies yields somewhat of a hybrid result of the two population projection methodologies.

Table 1.12C
Projected Population
Based on Average Projected Population of Methodology A and Methodology B
Jo Daviess County, Illinois

Year	2020	2030	2040
Population	23,112	23,564	24,047

The Illinois Department of Commerce and Economic Opportunity (IDCEO) provides population projections for Illinois counties. The IDCEO population projections for Jo Daviess County are below in Table 1.12D.

Table 1.12D
Projected Population by IL Dept. of Commerce and Economic Opportunity
Jo Daviess County, Illinois

Year	2020	2030	2040
Population	27,932	29,574	*Not calculated*

Source: Illinois Department of Commerce and Economic Opportunity

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CHAPTER 2
Housing in Jo Daviess County

Section 2.1 Introduction

The definition of the county's population is open to interpretation. The county is influenced by three distinct population sectors: full-time residents, second-home owners and tourists. Census figures record the individuals whose primary residence is located in Jo Daviess County - the 2010 census population was 22,678. Second-home owners, best quantified by the number of "seasonal, recreational or occasional use" housing units in the census data, represent a population with partial responsibilities and rights in the county - the 2010 census recorded 2,734 "seasonal, recreational or occasional use housing units" (assuming only 2 persons per household, this is 5,468 people). Finally, the Galena/Jo Daviess County Convention and Visitors Bureau estimates that, conservatively, over one million people visit the county each year; these visitors bring revenue into the county and require facilities and services. The three population groups are somewhat linked. In many cases, tourists have become second-home owners or full-time residents. The county is influenced by a population with a wide diversity of backgrounds and interests. This diversity brings both challenges and opportunities.

Section 2.2 Housing Inventory

A. Housing Tenure

Housing tenure information sheds light on how residents live in the community. Occupancy and vacancy characteristics can help indicate if the current amount of housing stock is sufficient to meet existing demand. Between 2000 and 2010, Jo Daviess County experienced a net increase of 1,571 units to its housing stock (Table 2.1). Over that time period, Jo Daviess County owner-occupied housing units increased by 8.6%, while renter-occupied housing units decreased by 3.7%. For comparison, Illinois overall had a lower percentage of owner-occupied housing units in the 2010 Census year (67.5% to 79.4%), and a higher percentage of renter-occupied housing units (32.5% to 20.6%).

Table 2.1
Comparison of Housing Occupancy, Jo Daviess County and State of Illinois

	Jo Daviess County 2000	**Jo Daviess County 2010**	**Illinois 2000**	**Illinois 2010**
Occupied Housing Units ***% of Total Housing Units***	9,218 *76.8%*	9,753 *71.9%*	4,591,779 *94.0%*	4,836,972 *91.3%*
Owner-occupied ***% of Occupied Units***	7,129 *77.3%*	7,740 *79.4%*	3,088,884 *67.3%*	3,263,639 *67.5%*
Renter-occupied ***% of Occupied Units***	2,089 *22.7%*	2,013 *20.6%*	1,502,895 *32.7%*	1,573,333 *32.5%*
Vacant Housing Units ***% of Total Housing Units***	2,785 *23.2%*	3,821 *28.1%*	293,836 *6.0%*	459,743 *8.7%*
For seasonal, recreational, or occasional use ***% of Vacant Housing Units***	1,971 *70.8%*	2,734 *71.6%*	29,712 *10.1%*	47,289 *10.3%*
Total Housing Units	12,003	13,574	4,885,615	5,296,715

Source: U.S. Bureau of the Census

The U.S. Department of Housing and Urban Development has established a minimum target rate for overall unit vacancy of 3% to assure an adequate choice of housing for consumers. An acceptable vacancy rate for owner-occupied housing is 1.5%, while a vacancy rate of 5% is acceptable for rental units. According to Census data, Jo Daviess County has a homeowner vacancy rate of 2.5% and a rental vacancy rate of 14.0%, indicating an adequate supply of housing choices for consumers.

Table 2.1 shows that Jo Daviess County had an overall year 2010 vacancy rate of 28.1%, a rate significantly higher than Illinois as a whole. However, 71.6% of the vacant housing units are "for seasonal, recreational, or occasional use" (i.e. summer/weekend homes), compared to 10.3% in Illinois as a whole, and 32.6% for the six-county Northwest Illinois region comprised of Carroll, Jo Daviess, Lee, Ogle, Stephenson and Whiteside Counties. This high percentage of summer/weekend homes inflates the overall vacancy rate for the County. Summer/weekend homes account for 20.1% of the total number of housing units in the County, compared to 0.9% of the total number of housing units in Illinois as a whole, and 8.3% for the six-county Northwest Illinois region comprised of Carroll, Jo Daviess, Lee, Ogle, Stephenson and Whiteside Counties.

B. Structure Type

Structure type information (single family, duplex, multi-family, etc.) is a common method used for describing the physical characteristics of housing stock. The following "number of units in structure" information provides insight into the mix of housing types in the County. Table 2.2 below compares the distribution of structure types within Jo Daviess County with the State of Illinois as a whole, over two Census periods. In the year 2010, single-family homes (1-unit detached) made up 82.2% of Jo Daviess County housing units, a significantly higher percentage than Illinois (58.5%). The single-family detached homes within Jo Daviess County increased in number and in percentage of total units over the last ten years. Illinois as a whole has also seen the number of single family homes increase, and single family homes as a percentage of total units increase. Jo Daviess County has seen an increase in the number 1-unit (both attached and detached), slight increases in the number of 3 or 4 unit structures and 10 to 19 unit structures, and decreases in other types of categorized housing structure types. Illinois as a whole has seen increases in the number of 1-unit (both attached and detached), 3 or 4 unit, 5 to 9 unit, 10 to 19 units, and 20 or more unit housing structure types, and decreases in 2-unit, mobile home and boat, RV, van, etc. housing structure types.

Table 2.2
Comparison of Total Housing Units and Structure Type
Jo Daviess County and State of Illinois

	Jo Daviess County 2000	**Jo Daviess County 2010**	**Illinois 2000**	**Illinois 2010**
1-unit, detached	9,437 *78.6%*	11,037 *82.2%*	2,831,011 *57.9%*	3,080,828 *58.5%*
1-unit, attached	409 *3.4%*	633 *4.7%*	235,485 *4.8%*	304,782 *5.8%*
2 units	409 *3.4%*	296 *2.2%*	338,065 6.9%	316,577 *6.0%*
3 or 4 units	398 *3.3%*	399 *3.0%*	318,494 *6.5%*	357,363 *6.8%*
5 to 9 units	331 *2.8%*	301 *2.2%*	301,361 *6.2%*	327,237 *6.2%*

10 to 19 units	122 *1.0%*	134 *1.0%*	211,482 *4.3%*	214,592 *4.1%*
20 or more units	151 *1.3%*	166 *1.2%*	491,167 *10.1%*	520,702 *9.9%*
Mobile home	721 *6.0%*	455 *3.4%*	156,584 *3.2%*	144,150 *2.7%*
Boat, RV, van, etc.	25 *0.2%*	0 *0.0%*	1,966 *0.0%*	1,383 *0.0%*
Total Housing Units	12,003 *100%*	13,421 *100%*	4,885,615 *100%*	5,267,614 *100%*

Source: U.S. Bureau of the Census; American Community Survey (2006-2010 ACS 5-Year Estimates)

C. Housing Conditions: Age and Value

Age is often used as a measure of a houses condition. It should, however, not be the sole criterion since many older homes are either remodeled or kept in a state of good repair to maintain their value. Table 2.3 below shows a comparison of housing age between Jo Daviess County and the State of Illinois as a whole.

In 2000, 53.2% of the homes in Jo Daviess County were constructed prior to 1970 (compared to 61.6% in Illinois as a whole), and in 2010, 49.5% of the homes in Jo Daviess County were constructed prior to 1970 (compared to 55.7% in Illinois as a whole). In 2010, 32.0% of the homes in Jo Daviess County were constructed prior to 1940, a percentage higher than Illinois as a whole (23.1%).

The county has a rich supply of older housing stock which enhances the historic ambiance of the area and provides opportunities for home ownership in a lower price range. This inventory of older homes is more significant than may be apparent at first glance. For example, it provides a "stepping-up" process in home ownership. Just as one can purchase a good used car if one cannot afford a new car, so it is with housing. These older homes play an important role in defining the ambiance of the County.

Table 2.3
Comparison of Housing Age
Jo Daviess County and State of Illinois

Year Structure Built	**Jo Daviess County 2000**	**Jo Daviess County 2010**	**Illinois 2000**	**Illinois 2010**
2005 or later	---	280 *2.1%*	---	171,665 *3.3%*
2000-2004	---	1,040 *7.7%*	---	358,774 *6.8%*
1990 to 1999	2,004 *16.7%*	1,881 *14.0%*	604,961 *12.4%*	560,625 *10.6%*
1980 to 1989	1,648 *13.7%*	1,652 *12.3%*	473,462 *9.7%*	468,049 *8.9%*
1970 to 1979	1,962 *16.3%*	1,917 *14.3%*	798,295 *16.3%*	775,239 *14.7%*

1960 to 1969	912 *7.6%*	660 *4.9%*	715,007 *14.6%*	635,128 *12.1%*
1940 to 1959	1,175 *9.8%*	1,690 *12.6%*	1,190,514 *24.4%*	1,080,066 *20.5%*
1939 or earlier	4,302 *35.8%*	4,301 *32.0%*	1,103,376 *22.6%*	1,218,078 *23.1***%**

Source: U.S. Bureau of the Census; American Community Survey (2006-2010 ACS 5-Year Estimates)

Housing value is another important aspect for gauging the overall condition of the current housing stock. The value of housing has risen significantly since 2000 in Jo Daviess County and in the State of Illinois as a whole. The growing number of visitors to Jo Daviess County who have purchased homes in the County at near Chicago market prices have been a factor in driving up housing prices.

Table 2.4 shows the distribution of specified housing values across various price ranges, as well as the median home price, for Jo Daviess County and the State of Illinois. In 2000 Jo Daviess County had 58.2% of its owner-occupied houses valued at less than $100,000; by 2010, only 34.9% of owner-occupied houses remained valued at less than $100,000. In 2000 Jo Daviess County had 9.1% of its owner-occupied houses valued at $200,000 or more; in 2010 31.2% were valued at $200,000 or more. The 2010 median value for owner-occupied housing within Jo Daviess County was $138,000, representing an increase of 54.9% over the median value in the 2000. The 2010 Jo Daviess County median value of owner-occupied housing was 46.7% lower than the median value for Illinois as a whole ($202,500).

Table 2.4
Comparison of Owner-Occupied Housing Values
Jo Daviess County and State of Illinois

	Jo Daviess County 2000	**Jo Daviess County 2010**	**Illinois 2000**	**Illinois 2010**
Less than $50,000	782 *14.6%*	604 *7.7%*	230,049 *9.3%*	216,017 *10.3%*
$50,000 - $99,999	2,333 *43.6%*	2,126 *27.2%*	651,605 *26.4%*	450,834 *13.7%*
$100,000 - $149,999	1,262 *23.6%*	1,567 *20.1%*	583,409 *23.6%*	455,950 *13.8%*
$150,000 - $199,999	480 *9.0%*	1,082 *13.8%*	429,311 *17.4%*	505,936 *15.3%*
$200,000 - $299,999	343 *6.4%*	1,156 *14.8%*	344,651 *14.0%*	723,366 *21.9%*
$300,000 - $499,999	120 *2.2%*	763 *9.8%*	163,254 *6.6%*	643,537 *19.5%*
$500,000 - $999,999	21 *0.4%*	463 *5.9%*	55,673 *2.3%*	250,844 *7.6%*
$1,000,000 or more	5 *0.1%*	52 *0.7%*	12,386 *0.5%*	54,217 *1.6%*
Median Value	$89,100	$138,000	$130,800	$202,500

Source: U.S. Bureau of the Census; American Community Survey (2006-2010 ACS 5-Year Estimates)

D. Housing Affordability

According to the U.S. Department of Housing and Urban Development, no more than 30% of household income should be spent on monthly housing costs in order for that home to be considered affordable. The U.S. Census provides data on housing costs as a percentage of household income for home owners (Table 2.5) and renters (Table 2.6). The following information for taken from the U.S. Census Summary File 3, which is based on a sample of households within a community and not a total count of all households, and the American Community Survey 2006-2010 5-Year Estimates, which are also based on a sample and are subject to sampling variability. The "not computed" category represents units occupied by households reporting no income or a net loss, or for which no cash rent was paid, and is excluded from to counts and percent of total calculation in Tables 2.4 and 2.5.

Table 2.5 below shows monthly housing costs for home owners as a percentage of their household income for Jo Daviess County and Illinois as a whole. In 2010, 67.8% of the homeowner households within Jo Daviess County paid less than 30% of their monthly income toward housing costs (compared to 82.6% in 1999), and those units were therefore considered affordable to those living in them. This percentage is higher than that of Illinois as a whole (61.2%).

Table 2.5
Monthly Owner Costs as a Percentage of Household Income
Jo Daviess County and State of Illinois

	Jo Daviess County 1999	**Jo Daviess County 2010**	**Illinois 1999**	**Illinois 2010**
Less than 20.0%	3,392 *63.5%*	1,762 *40.6%*	1,336,560 *54.5%*	733,286 *32.1%*
20.0% to 24.9%	587 *11.0%*	712 *16.4%*	356,666 *14.5%*	369,874 *16.2%*
25.0% to 29.9%	434 *8.1%*	467 *10.8%*	241,928 *9.9%*	295,295 *12.9%*
30.0% to 34.9%	250 *4.7%*	298 *6.9%*	151,094 *6.2%*	217,434 *9.5%*
35.0% or more	653 *12.2%*	1,101 *25.4%*	368,276 *15.0%*	671,472 *29.4%*
Not Computed	30 ---	15 ---	15,814 ---	9,011 ---

Source: U.S. Bureau of the Census; American Community Survey
(Note: Some columns may not total exactly 100% due to rounding.)

Table 2.6 below shows gross rent as a percentage of household income for renters in Jo Daviess County and Illinois as a whole. In 2010, 63.9% of renters in Jo Daviess County were paying a monthly rent which was affordable to them (compared to 59.7% in 1999). This percentage is higher than that of Illinois (49.6%) as a whole.

Table 2.6
Gross Rent as a Percentage of Household Income
Jo Daviess County and State of Illinois

	Jo Daviess County 1999	Jo Daviess County 2010	Illinois 1999	Illinois 2010
Less than 20%	706 *37.8%*	698 *35.3%*	523,787 *37.6%*	348,647 *25.5%*
20.0% to 24.9%	209 *11.2%*	381 *19.2%*	194,637 *14.0%*	176,020 *12.9%*
25.0% to 29.9%	199 *10.7%*	187 *9.4%*	149,844 *10.8%*	152,973 *11.2%*
30.0% to 34.9%	93 *5.0%*	249 *12.6%*	104,711 *7.5%*	119,068 *8.7%*
35.0% or more	449 *24.0%*	465 *23.5%*	420,404 *30.2%*	570,805 *41.7%*
Not Computed	212 ---	208 ---	94,121 ---	101,747 ---

Source: U.S. Bureau of the Census (Note: Some columns may not total exactly 100% due to rounding.)

Section 2.3 Housing Demand

A. Population Trends

The population of Jo Daviess County showed a downward trend from 1900 to 1940. Since 1940, the population has shown a general upward trend in population with the exception of the 1960-1970 Census period and the 1980-1990 Census period. Since 1900, the County registered its most significant growth in terms of overall population increase and population percentage increase between 1970 and 1980, growing by 1,754 persons, or 8.1%, during this 10-year period. The County registered is most significant growth in terms of population increase between 1990 and 2000, growing by 5,075 persons (11.0% increase). According to the Census data displayed in Table 1.7 of Chapter 1 Issues and Opportunities for Planning, in 2000 Jo Daviess County averaged 2.40 persons per household (PPH) in 9,218 households. In 2010, the estimated number of PPH declined to 2.31 in 9,753 households. It is anticipated that this trend of a gradually increasing number of households and a declining number of persons per household will continue into the future.

B. Household Trends

Jo Daviess County has seen the average number of residents that inhabit each home or apartment decrease over time. This statistic as identified by the U.S. census as “average household size” or persons per household (PPH), and it is calculated by dividing the number of residents living in occupied housing units (those not living in group or institutional quarters) by the number of occupied housing units (those not classified as vacant). In order for the County to begin to approximate the future needs for housing units, an assumption must be made on how the units will be occupied. An analysis of the PPH and the vacancy rate trend over time suggests a future average occupancy rate of 1.95 persons per household and an average vacancy rate of 28.1% by the year 2040. When PPH is combined with the anticipated future population of 24,047 persons, and taking into consideration an average vacancy rate of 28.1% for the County, we can project a total of 17,150 housing units in 2040. If the number of housing units in 2010 (13,574) is

subtracted from the anticipated number of housing units in 2040 (17,150) we can anticipate that there will be a need for approximately 3,576 new housing units over the next thirty years. These units can be contained in either single-unit or multiple-unit structures.

Section 2.4 Summary/Conclusions – Housing Analysis

A. Between 2000 and 2010, Jo Daviess County experienced a net increase of 1,571 units to its housing stock (Table 2.1). Over that time period, Jo Daviess County owner-occupied housing units increased by 8.6%, while renter-occupied housing units decreased by 3.7%. For comparison, Illinois overall had a lower percentage of owner-occupied housing units in the 2010 Census year (67.5% to 79.4%), and a higher percentage of renter-occupied housing units (32.5% to 20.6%).

B. The overall housing vacancy rate of 28.1% indicates that there is an adequate supply of available housing within the County. However, 71.6% of the vacant housing units are "for seasonal, recreational, or occasional use" (i.e. summer/weekend homes), compared to 10.3% in Illinois as a whole, and 32.6% for the six-county Northwest Illinois region comprised of Carroll, Jo Daviess, Lee, Ogle, Stephenson and Whiteside Counties. This high percentage of summer/weekend homes inflates the overall vacancy rate for the County. Summer/weekend homes account for 20.1% of the total number of housing units in the County, compared to 0.9% of the total number of housing units in Illinois as a whole, and 8.3% for the six-county Northwest Illinois region comprised of Carroll, Jo Daviess, Lee, Ogle, Stephenson and Whiteside Counties.

C. In the year 2010, single-family homes (1-unit detached) made up 822% of Jo Daviess County housing units, a significantly higher percentage than Illinois (58.5%). The single-family detached homes within Jo Daviess County increased in number and in percentage of total units over the last ten years.

D. In 2000, 53.2% of the homes in Jo Daviess County were constructed prior to 1970 (compared to 61.6% in Illinois as a whole), and in 2010, 49.5% of the homes in Jo Daviess County were constructed prior to 1970 (compared to 55.7% in Illinois as a whole). In 2010, 32.0% of the homes in Jo Daviess County were constructed prior to 1940, a percentage higher than Illinois as a whole (23.1%).

E. The 2010 median value for owner-occupied housing within Jo Daviess County was $138,000, representing an increase of 54.9% over the median value in the 2000. The 2010 Jo Daviess County median value of owner-occupied housing was 46.7% lower than the median value for Illinois as a whole ($202,500).

F. In 2010, 67.8% of the homeowner households within Jo Daviess County paid less than 30% of their monthly income toward housing costs (compared to 82.6% in 1999), and those units were therefore considered affordable to those living in them. This percentage is higher than that of Illinois as a whole (61.2%).

G. In 2010, 63.9% of renters in Jo Daviess County were paying a monthly rent which was affordable to them (compared to 59.7% in 1999). This percentage is higher than that of Illinois (49.6%) as a whole.

H. Projections indicate that there will be a need for approximately 3,576 new housing units over the next thirty years.

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CHAPTER 3
Transportation Facilities

Section 3.1 Transportation Facilities Inventory

Jo Daviess County has relatively easy access to a variety of transportation options. Significant improvements to some of these transportation facilities are presently being planned or constructed. Completion of these improvements will create new development opportunities and pressures within the county. The county (government officials, staff and residents) is participating, to the degree possible, in planning activities associated with these projects.

A. Roads & Highways

The existing functional class system (see Appendix I Maps, Map 3.1 Functional Transportation Classification, Jo Daviess County, Illinois) categorizes streets and highways according to their two primary purposes: 1) to move vehicles (traffic mobility), and 2) to serve adjacent land (land access). Arterials accommodate the movement of vehicles, while local road and streets provide a land access function (farms, residential areas, etc.). Collectors serve both local and through traffic by providing a connection between arterials and local roads. According to the Illinois Department of Transportation (*Illinois Highway and Street Mileage Statistics 2011*), the Jo Daviess County public road system consists of a total of approximately 1,100.98 miles of public roadway within the County. State highways account for approximately 92.26 miles; County highways account for approximately 175.22 miles; and, township/road district roads and streets account for approximately 732.36 miles. Municipal-jurisdiction roads and streets account for approximately 101.14 miles.

1. Arterials

IL Route 35, IL Route 84 (except portion between U.S. Route 20 and Wisconsin state line) and U.S. Route 20 serve as principal arterial transportation routes both to and through the County. Badger Road, IL Route 78, and IL Route 84 (portion between U.S. Route 20 and Wisconsin state line) serve as minor arterial routes to, through and within the County. The Illinois Department of Transportation (IDOT) periodically collects information on the average daily traffic volume (ADT) and average daily truck traffic volume (ADTT) for U.S. Highways and State Routes. Refer to Appendix I Maps, Map 3.2 Average Daily Traffic (ADT) on U.S. and State Routes and Map 3.3 Average Daily Truck Traffic (ADTT) on U.S. and State Routes. Traffic mobility is the major function of these highways, although land access is important for the farms, businesses and residences along them (with the exception of the interstate highways). There are approximately 89.47 miles of arterial highways in Jo Daviess County (59.14 miles principal arterial; 30.34 miles minor arterial) according to the Illinois Department of Transportation (*Illinois Highway and Street Mileage Statistics 2011*).

2. Collectors

The following roads/highways (all or portions thereof) are considered major collectors within the County: Albrecht Road, Bethel Road, Blackjack Road, Canyon Road, Canyon Park Road, Derinda Road, Elizabeth-Scales Mound Road, Frentress Lake Road, Massbach Road, Menominee Road, Scout Camp Road, Stagecoach Trail, Willow Road and Winslow Road. According to the Illinois Department of Transportation(*Illinois Highway and Street Mileage Statistics 2011*), there are approximately 137.84 miles of major collector roads/highways in Jo Daviess County.

The following roads/highways (all or portions thereof) are considered minor collectors within the County: Council Hill Road, Fiedler Road, Hanover Road, Loran Road, Massbach Road, Schapville Road, and Willow Road. According to the Illinois Department of Transportation(*Illinois Highway and Street Mileage Statistics 2011*), there are approximately 49.08 miles of minor collector roads/highways in Jo Daviess County.

Refer to Appendix I Maps, Map 3.1 Functional Transportation Classification. As previously mentioned, portions of these "collector roads/highways" may lie within municipalities. Also, the entire length of a named road may not necessarily be classified as a collector.

3. Local Roads and Streets

The remaining roads are classified as local streets. Their primary function is land access. According to the Illinois Department of Transportation(*Illinois Highway and Street Mileage Statistics 2011*), there are approximately 824.58 miles of local road/streets including municipalities.

4. Future Highway Improvements

The Illinois Department of Transportation (IDOT) is planning future highway improvement projects on U.S. Highways, State Routes and Interstate Highways. The following projects (Table 3.1 below) are planned for Fiscal Years 2013-2018:

Table 3.1
Planned IDOT Highway Improvement Projects 2013 through 2018
Jo Daviess County, Illinois

Route Street Name	Location / Improvement	Estimated Cost
U.S. Route 20	Mississippi River in East Dubuque / Land acquisition	$166,000
U.S. Route 20	Mississippi River in East Dubuque / Bridge painting	$400,000*
U.S. Route 20	Mississippi River in East Dubuque / Bridge joint repair, pier repair, bridge repair	$350,000*
U.S. Route 20	East of Imbus Road and northwest of Evergreen Lane / Drainage work, culvert repair	$600,000
U.S. Route 20/IL Route 84	Gear Street to Main Street in Galena / Reconstruction, drainage work, new storm sewer, culvert removal, retaining wall, utility adjustment, land acquisition	$11,401,000
U.S. Route 20/IL Route 84	Creek 0.4 mile southeast of Devil's Ladder Road / Culvert replacement	$670,000
U.S. Route 20/IL Route 84	Tippett Road to 0.1 mile west of IL Route 84 / Resurfacing	$2,250,000
U.S. Route 20	Logemann Road to 0.2 mile west of Rush Street in Stockton / Resurfacing, bridge replacement, detour, horizontal realignment, vertical realignment, shoulder repair, culvert replacement, culvert removal, land acquisition, utility adjustment	$15,790,000

Route Street Name	Location / Improvement	Estimated Cost
U.S. 20 Galena Bypass	Galena to Freeport / Land acquisition	$5,931,000
U.S. 20 Galena Bypass	IL Route 84 northwest of Galena to Horseshoe Mound interchange southeast of Galena / Preliminary engineering (Phase II), preliminary engineering (consultant plans)	$3,700,000
IL Route 35/Wisconsin Avenue	Cherry Street in East Dubuque / Land acquisition, utility adjustment, paving, grading, retaining wall, curb and gutter, new storm sewer	$2,450,000
IL Route 78/Canyon Road	IL Route 78: 0.2 mile north of Mahoney Road & 0.2 mile south of Chelsea Road; Canyon Road: 0.5 mile west of Has Road / Land acquisition, utility adjustment, culvert replacement, culvert rehabilitation	$660,000
IL Route 78	Culverts between Grandview Avenue in Stockton to Carroll County line / Land acquisition, culvert replacement	$1,350,000
IL Route 84	0.8 & 0.9 mile north of Council Hill Road north of Galena / Land acquisition, utility adjustment, culvert replacement, grading	$690,000
IL Route 84	Apple River in Hanover / Utility adjustment, bridge replacement, vertical realignment	$2,245,000
Schapville Road (C.H. 15)	Mill Creek 6 miles north of Elizabeth / Bridge rehabilitation	$300,000
Stagecoach Trail Road (F.A.S. 67)	Clear Creek 1 mile west of Warren / Bridge replacement	$500,000

Source: Illinois Department of Transportation District 2, FY 2013-2018 Highway Improvement Program
*Iowa lead agency; Illinois share of total project cost

IDOT has selected and recorded an alignment for “Glacier Shadow Pass”, a proposed freeway through Jo Daviess County.

B. Rail

Jo Daviess County is served by two rail lines: the Burlington Northern/Santa Fe and Canadian National railroads.

The Burlington Northern Santa Fe Railroad (BNSF) is one of the largest railroad networks in North America. Not including second, third and fourth main-line trackage, yard trackage, and siding trackage, BNSF directly owns and operates over 24,000 miles of track. When these additional tracks are counted, the length of track which the railway directly controls rises to more than 50,000 miles. Additionally, BNSF Railway has gained trackage rights on more than 8,000 miles of track throughout the United States and Canada. These rights allow the BNSF to operate its own trains with its own crews on competing railroads' main tracks. BNSF trackage covers 28 states and two Canadian provinces across the western two-thirds of the United States, stretching from major Pacific Northwest and Southern California ports to the Midwest, Southeast and Southwest, and from the Gulf of Mexico to Canada.

The Canadian National Railway Company is a Canadian Class I railway headquartered in Montreal, Quebec. CN's slogan is *"North America's Railroad"*. Following CN's purchase of the Illinois Central Railroad and a number of smaller U.S. railways it also has extensive trackage in the central United States along the Mississippi River valley from the Great Lakes to the Gulf of Mexico. It operates a network of about 21,000 route miles of track spanning Canada and the U.S., connecting the Atlantic, the Pacific, and the Gulf of Mexico. Crossing the continent north-south and east-west, CN hauls such freight as coal, forest products, petroleum and chemicals, and grain and fertilizers. It operates about 20 intermodal terminals, which transfer freight between truck and train, and 80 warehousing and distribution facilities. Other transportation services include international freight forwarding. The Canadian National Railway is a public company with 22,000 employees and market capitalization of 32 billion CAD in 2011. CN was government owned, having been a Canadian crown corporation. It was privatized in 1995.

While passenger service was provided in the past, the existing lines currently accommodate freight transport only. Additionally, these routes are, in general, not providing a significant amount of service to local industrial producers because of decreased reliance on rail transportation with the exception of the East Dubuque area. While the decreases in the use of the rail lines coincide with national trends, the existing rail lines do provide an in-place infrastructure available to certain industrial users.

In 2014, perhaps sooner depending on completion of the minor track upgrades (including upgrading and adding crossing signals, banking of curves, etc.), passenger rail service is scheduled to serve Jo Daviess County via Amtrak's "Black Hawk Route" that will serve northwest Illinois and far eastern Iowa with one round-trip train per day, allowing for schedule adjustments during the weekend; additional trains per day may be added depending upon the success of the route. A passenger terminal is planned for Galena (the Old Galena Train Depot, which will be the second oldest station in Amtrak's service); other stops include downtown Chicago, South Elgin, Genoa, Rockford, Freeport and Dubuque, Iowa. This will be a "corridor" or "regional" train part of Amtrak's "Illinois Service". The Amtrak Black Hawk train will provide a critical mass transportation and intermodal transit option for residents, students, tourists and businesses in northwestern Illinois. The route will connect a region that is greatly lacking passenger rail service (since the Black Hawk Route was discontinued in 1989) and will provide a critical passenger rail connection between Dubuque and Chicago. The Black Hawk Route will provide direct access to Chicago's Loop which, in turn, provides a rail transfer connection to 3 international airports: Midway (via the CTA 'L' orange line), O'Hare (via Metra's North Central Service or the CTA 'L" blue line), and Milwaukee Airport (via Amtrak Hiawatha). Once arriving downtown, passengers may not even need to leave Union Station to transfer to the train taking them directly to their airport (Metra NCS and Amtrak Hiawatha both depart Union Station). The route will also directly connect Jo Daviess County to the second largest central business district in the United States. Upon arrival downtown passengers may connect to another train, travel by subway ('L'), cab, passenger boat, or bus to local, national or international destinations. The route will also allow travelers wishing to connect to northwest Illinois after arriving in Chicago. International travelers, travelers coming from other cities (or Chicago) visiting for business, students, or leisure travelers (family, tourism) expect an efficient mass transportation system and the Black Hawk line will provide that additional access to the rich Chicago rail infrastructure. Visitors traveling to northwest Illinois may meet family or friends' cars or shuttles (to schools, hotels or businesses) at their respective stations. The newest study estimates more than 76,000 passengers would use this line annually generating $1.6 million in revenue.

C. Truck Transportation

Semi-truck shipments in Jo Daviess County are most prevalent along the arterial highways. Several highways that are under the jurisdiction of Jo Daviess County (Jo Daviess County Highway Department) are designated truck routes, and townships, cities and villages in the County may have designated truck routes to guide truck traffic from the major highways into industrial and business areas (see Table 3.2 below). Map 3.2 (Appendix I Maps) details the average daily truck traffic on the County's highways.

Table 3.2
Designated (Class III) Truck Routes on Non-State Streets, Roads and Highways

Road Name (Jurisdiction)	Location
N. Commerce St. (Galena)	N. Main St. to N. Main St.
N. Main St. (Galena)	Meeker St. to Franklin St.
N. Water St. (Galena)	S. Main St. to N. Commerce St.
S. Main St. (Galena)	U.S. Route 20 to Main St.
Blackhawk Terrace (Guilford Township)	Eagle Ridge Dr. to W. Wachter Rd.
Eagle Ridge Dr. (Guilford Township)	U.S. Route 20 to W. Wachter Rd.
W. Wachter Rd. (Guilford Township)	Eagle Ridge Dr. to Territory Dr.
N. Elizabeth-Scales Mound Rd. (Jo Daviess County)	U.S. Route 20 to Scales Mound
N. Menominee Rd. (Jo Daviess County)	U.S. Route 20 to Menominee

Source: Illinois Department of Transportation
*Maximum Gross Vehicle Weight: 80,000 lb (Class III Truck Route); Maximum Axle Weight: 20,000 lb; Maximum Width: 8'-6"; Maximum Length: 65'-0"; Maximum Height: 13'-6"

D. Air Transportation Facilities

Foster Field Airport in Apple River is the only public-use airport in Jo Daviess County. The remaining airports in the County are what could be considered private or semi-private turf strips. These fields have limited potential for providing any kind of service other than presenting individuals with commuting options or personal recreational opportunities.

Other nearby public-use airports include Dubuque Regional Airport in Dubuque, IA; Platteville Municipal Airport in Platteville, WI; Tri-Township Airport in Savanna, IL; Iowa County Airport in Mineral Point, WI; and, Monroe Municipal Airport in Monroe, WI.

1. Foster Field Airport

Foster Field Airport (FAA identifer “7A4”) is located at 6144 N. Lake No. 1 Road north of Apple Canyon Lake. It is a privately-owned, public-use airport consisting of approximately 20.3 acres. Foster Field Airport has one runway (18/36) that is 2,996' long by 30' wide with a surface consisting of asphalt in fair condition. There are 13 aircraft based at Foster Field (12 being single-engine aircraft and 1 ultralight). Aircraft operations average 38 per week (75% transient general aviation and 25% local general aviation).

2. Dubuque Regional Airport

Dubuque Regional Airport (FAA identifier “DBQ") is located approximately 7 miles southwest of Dubuque, IA and is owned by the City of Dubuque. DBQ has two runways (13/31 and 18/36). Runway 13/31 is 6,502' long by100' wide with a concrete/grooved surface in good condition. Runway 18/36 is 6,327' long x 150' wide with a concrete/grooved surface in good condition. There are 74 aircraft based at the facility (61 single-engine aircraft, 11 multi-engine aircraft and and 2 jet aircraft). Aircraft operations average 133 per day (48% local general aviation, 45% transient general aviation and 7% air taxi).

3. Platteville Municipal Airport

Platteville Municipal Airport (FAA identifier “PVB”) is located approximately 3 miles southeast of Platteville, WI and is owned by the City of Platteville. It has two runways (15/33 and 7/25). Runway15/33 is 3,999' x 75' and consists of asphalt in fair condition. Runway 7/25 is 3,599' x 75' consisting of asphalt in fair condition. There are 22 aircraft based at the facility (20 single-engine aircraft, 1 multi-engine and 1 helicopter). Aircraft operations average 43 per day (51% local general aviation, 45% transient general aviation, 3% air taxi and less than 1% military).

4. Tri-Township Airport

Tri-Township Airport (FAA identifier “SFY”) is located approximately 3 miles southeast of Savanna, IL and is owned by the Tri-Township Municipal Airport Authority. It has one runway 13/31) that is 4,001' long by 75' wide consisting of asphalt in good condition. There are 4 single-engine aircraft based at the facility, and aircraft operations average 77 per week (50% transient general aviation, 50% local general aviation).

5. Iowa County Airport

Iowa County Airport (FAA identifier “MRJ") is located approximately 3 miles northeast of Mineral Point, WI and is owned by Iowa County, WI. It has two runways 11/29 and 4/22). Runway 11/29 is 5,000' x 75', and consists of asphalt in good condition. Runway 4/22 is 3,601' x 60' and consists of asphalt in good condition. There are 23 aircraft based at the facility (21 single-engine aircraft, 2 multi-engine aircraft). Aircraft operations average 34 per day (49% transient general aviation and 41% local general aviation, 6% air taxi and 4% military).

6. Monroe Municipal Airport

Monroe Municipal Airport (FAA identifier “EFT”) is located approximately 3 miles northeast of Monroe, WI and is owned by the City of Monroe. EFT has two runways (12/30 and 2/20). Runway 12/30 is 5,000' x 75' and consists of asphalt in good condition. Runway 2/20 is 3,000' x 75' and consists of asphalt in good condition. There are 31 aircraft based at the facility (28 single-engine aircraft, 1 jet aircraft and 2 ultralights). Aircraft operations average 47 per day (49% local general aviation, 47% transient general aviation, 3% air taxi and less than 1% military).

E. Water Transportation Facilities

IEI Barge Service, Inc., located near East Dubuque on the Mississippi, is comprised of 125 acres. The facility has truck, rail and barge access, and a load/unload capacity of 300 tons/hr. PV Barge in Dubuque, Iowa on the Mississippi River, handles 30 million bushels of corn and soybeans per year. The facility, comprised of about 10 acres, has truck, rail and barge access, and a load/unload capacity of 200 tons/hour. Continental Grain Co., also in Dubuque, Iowa has truck, rail and Mississippi River barge access, and a load/unload capacity of 150 tons/hour. Consolidated Grain & Barge in Savanna, IL is comprised of about 1/3 acre. The facility handles grain (corn and soy bean) and offers 120,000 bushels of storage area, truck access, Mississippi River barge access, and a load/unload capacity of 500 tons/hour.

F. Greenways and Trails

On March 10, 2009, the Jo Daviess County Board adopted the Jo Daviess County Greenways & Trails Plan as an amendment to the county's comprehensive plan. The plan brings information together in a usable format to enhance our understanding of the county's resources and the greenway and trail opportunities that exist here. The Plan is available to the public and can be used in many ways.

The Greenways & Trails Plan is a reference tool for communities and entities interested in greenway and/or trail development and maintenance. Reference to the plan in pertinent grant applications generally increases the likelihood of project funding. The Planning Commission/Zoning Board of Appeals can use the plan as a reference tool when considering development proposals. The plan provides a starting point for regional planning: the other five counties in the Blackhawk Hills Regional Council area (Stephenson, Ogle, Lee, Carroll, and Whiteside) have also completed greenways and trails plans, and it is likely that a 6-county regional plan will be developed now that the Jo Daviess County's Plan has been adopted. The plan provides residents with educational information about the resources in the county and contact information for land stewardship guidance.

The *Jo Daviess County Greenways and Trails Plan* provides information about the County; an inventory of natural and cultural resources; an inventory of existing parks, greenways and trails; and identifies opportunities for future greenways and trails.

The *Jo Daviess County Greenways and Trails Plan* is hereby incorporated into this Comprehensive Plan by reference.

A greenway is a corridor of open land that is designated for conservation and/or recreation. Greenways may follow natural land or water features such as rivers, shorelines or ridges, or human landscape features such as abandoned railroad corridors, trails or canals. Greenways may form connections between communities, parks, historic and cultural sites, and nature preserves. Greenways differ in their location and function. Overall, a greenway can provide:

- Recreational benefits
- Protect natural areas
- Protect water quality
- Enhance natural beauty and quality of life in neighborhoods and communities
- Buffer incompatible or adjacent land uses
- Stimulate economic development opportunities.

A trail or path is a type of greenway that is separated from vehicular traffic and is dedicated to the use of pedestrians, bicyclists, roller skaters, wheelchair users, etc. Trails can be used for recreational purposes as well as to connect different sites and facilities.

Greenways and Trails:

- Are not all owned by the government;
- Do not need to be fenced;
- Do not take land from people;
- Do not require public access on all the land.

G. Public Transportation

Public transportation in the County is provided by Jo Daviess County Transit (JDCT), located at 710 S. West Street in Galena. JDCT is operated by The Workshop. All transportation services provided are available to the general public. All Transit vehicles are equipped with lifts and are handicapped accessible. Jo Daviess County Transit operates within the territorial boundaries of Jo Daviess County and provides the following transportation services:

- Intra-Community General Public Services (routes run weekday mornings and afternoons between all communities in Jo Daviess County).

- Inter-Community General Public Services (mid-day transportation is available within Warren (Mondays 10 a.m. to 2 p.m.), Elizabeth (Tuesdays 10 a.m. to 2 p.m.), Stockton (Wednesdays 10 a.m. to 2 p.m.), Hanover (Thursdays 10 a.m. to 2 p.m.), Scales Mound (Fridays 10 a.m. to 2 p.m.), and Galena (Monday through Saturday: 9 a.m. to 1 p.m.).
- General Public Medical Transportation (transportation is available for medical appointments to hospitals, clinics, doctor's Offices and dialysis facilities located in: 1) all communities within Jo Daviess County; 2) Freeport and Rockford, Illinois; 3) Dubuque and Iowa City, Iowa; and, 4) Platteville, Monroe and Madison, Wisconsin.

All services are demand responsive- require reservations. Reservations are on a first-come, first served basis and must be made at least 24 hours in advance of trips.

CHAPTER 4
Utilities and Community Facilities

Section 4.1 Public Utilities Inventory

The physical well-being of Jo Daviess County is dependent upon the adequacy of its public utilities and services. A safe and ample source of water, an adequate means of disposing of solid and liquid waste, and adequate supplies of energy are essential in maintaining the public health, economy and natural resource base of the County.

A. Water Supply

According to the Illinois Environmental Protection Agency's "Source Water Assessment Program" Jo Daviess County has nineteen (19) "community water supplies" and fifteen (15) "non-community" water supplies. A "community water supply" serves at least 15 service connections used by year-round residents or regularly serves 25 year-round residents. "Non-community water supplies" may be one of two types: "Non-Transient Non-Community water supplies" serve at least 25 non-residential individuals during 6 months of the year; "Transient Non-Community water supplies" regularly serve at least 25 non-residential individuals (transient) during 60 or more days per year. All of the "community water supplies" and "non-community water supplies" in the County access ground water via wells.

The community water supplies in the County are: Apple Canyon State Park; Apple Canyon Utilities Company; Apple River; Bahl Water Corporation; East Dubuque; Elizabeth; Frentress Lake; Galena; Galena Golfview Estates; Galena Territory; Hanover; Kraft, Inc.; Longhollow Point; Mount Vernon Association, Inc.; Scales Mound; Stockton; Warren; Wienen Estates; and, Woodland Valley.

The non-community water supplies in the County are: Eagle's Nest; Stockton Golf Course; Blanding Landing Comfort Station; Storybrook Country Club; Moon's Little Acres; Galena Golf Club; Lacoma Golf Club; Blanding Landing Picnic/Campground; Outer Limits; Moonlight Reflections; Swiss Inn; Old Blanding Tavern; Bittersweet on the Bluff; 19th Hole; and, Jim's Tap.

13,946 people in Jo Daviess County, or 61.4% the total County population, receive their domestic water from a community water supply. The remainder of the population is served by private wells. Chapter 5: Agricultural, Natural, and Cultural Resources provides more detailed information on the quantity and quality of Jo Daviess County's groundwater supply.

B. Sanitary Sewer Service / Private On-site Wastewater Disposal Systems (POWDS)

Apple Canyon Utilities Company (Apple Canyon Lake subdivision development), Village of Apple River, City of East Dubuque, Village of Elizabeth, City of Galena, Galena Territory (Galena Territory subdivision/planned development), Village of Hanover, Village of Scales Mound, Village of Stockton, and Village of Warren all have municipal wastewater treatment facilities. In other parts of the County's unincorporated areas, the disposal of domestic and commercial wastewater is handled through the use of private on-site wastewater disposal systems (POWDS). These on-site systems, often referred to as septic systems, generally discharge the wastewater to subsurface drainage fields. There are several types of on-site disposal system designs typically used in rural areas including: conventional (septic tank/seepage field), mound, pressure distribution, and sand filter systems. In some cases, alternative waste disposal systems can be used in areas where conventional systems are not feasible due to unsuitable soil conditions. The County regulates septic systems through authority granted by the state. The state's Department of Public Health establishes the statewide code for siting, design, installation, and inspection of POWDS.

A. Storm Water Management

Stormwater is rainwater and melted snow that runs off streets, lawns, and other sites. When stormwater is absorbed into the ground, it is filtered and ultimately replenishes aquifers or flows into streams and rivers. In developed areas, however, impervious surfaces such as pavement and roofs prevent precipitation from naturally soaking into the ground. Instead, the water runs rapidly into storm drains, sewer systems, and drainage ditches and can cause:

- Downstream flooding;
- Stream bank erosion;
- Increased turbidity (muddiness created by stirred up sediment) from erosion;
- Habitat destruction;
- Changes in the stream flow hydrograph (a graph that displays the flow rate of a stream over a period of time);
- Combined sewer overflows;
- Infrastructure damage;
- Contaminated streams and rivers.

“Stormwater management” means managing the quality and quantity of stormwater to mitigate adverse affects. “Best Management Practices” (BMP) are often employed as stormwater management tools, and refer to both structural or engineered control devices and systems (e.g. retention ponds) to treat polluted stormwater, as well as operational or procedural practices. There are many forms of stormwater management and BMPs, including: manage stormwater to control flooding and erosion; manage and control hazardous materials to prevent release of pollutants into the environment (source control); plan and construct stormwater systems so contaminants are removed before they pollute surface waters or groundwater resources; acquire and protect natural waterways where they still exist or can be rehabilitated; build "soft" structures such as ponds, swales or wetlands to work with existing or "hard" drainage structures, such as pipes and concrete channels; revise current stormwater regulations to address comprehensive stormwater needs; enhance and enforce existing ordinances to make sure property owners consider the effects of stormwater before, during and after development of their land; educate a community about how its actions affect water quality, and about what it can do to improve water quality; and plan carefully to create solutions before problems become too great.

Traditional stormwater management design has been focused on collecting stormwater in piped networks and transporting it off site as quickly as possible, either directly to a stream or river, to a large stormwater management facility (basin), or to a combined sewer system flowing to a wastewater treatment plant. Low impact development (LID) and wet weather green infrastructure address these concerns through a variety of techniques, including strategic site design, measures to control the sources of runoff, and thoughtful landscape planning. LID aims to restore natural watershed functions through small-scale treatment at the source of runoff. The goal is to design a hydrologically functional site that mimics pre-development conditions. Wet weather green infrastructure encompasses approaches and technologies to infiltrate, evapotranspire, capture, and reuse stormwater to maintain or restore natural hydrologies.

Stormwater management has gained more attention statewide in recent years as an environmental concern due to flooding, property damage, and surface water quality issues. Many communities are adopting stormwater management rules to control run-off, such as establishing maximum impervious surface ratios, requiring that the amount of run-off occurring after development is the same as before development, and setting minimum water quality standards. Controlling run-off during site grading and construction has been viewed as particularly important. Under State law, construction site erosion control plans are required for all sites over 1 acre in area.

B. Solid Waste Disposal

Jo Daviess County has no active landfills. A solid waste transfer station located in Elizabeth accepts waste from local haulers for transfer to out-of-county landfills. According to the *Jo Daviess and Carroll County Solid Waste Management Plan 10-year Update* dated April 2007, there is significant regional landfill capacity until 2035.

Nearly all the residences in Jo Daviess County have curbside recycling available to them. Residents are required by ordinance to separate recyclables for pick-up and waste haulers are required to provide recycling services to residential customers. The transfer stations also act as recycling drop-off locations. There are no requirements for commercial or institutional recycling.

C. Public Utilities

1. Natural gas - Natural gas is provided by Alliant Energy, NiCor Gas, and JoCarroll Energy, depending on location.
2. Electric Power - Electricity is provided by ComEd/Exelon Corporation and JoCarroll Energy, depending on location.
3. Telephone Service - Local telephone service is provided by Gallatin River Communications, Frontier Communications, Verizon and U.S. Cellular. Long distance, cellular and other specialized phone services are available from a number of private firms.
4. Cable television service is provided by Mediacom.
5. Satellite television service is available from a number of private firms.
6. Internet service is available to County residents through a variety of sources.

D. Broadband Technology - iFiber

Created in January 2011, iFiber (Illinois Fiber Resources Group) is a not-for-profit (NFP) organization that will build, oversee, and own much of the 900 mile network. iFiber includes representation from NIU, Blackhawk Hills Regional Council, the City of Rockford, Boone County, and LaSalle County/NCICG.

Limited broadband capacity, speed, and service in northwestern Illinois inhibits our public sector and not-for-profit institutions like K·12 schools, public safety entities, libraries, government facilities, community colleges, and health care providers to serve their communities. To address these limitations, Northern Illinois University in partnership with Blackhawk Hills Regional Council, the City of Rockford, and LaSalle County/North Central Illinois Council of Governments partnered to develop a proposal in response to the National Telecommunications and Information Administration's (NTIA) Broadband Technology Opportunity Program (BTOP).

In September 2010, NIU and its partners were awarded a $68.5 million NTIA BTOP grant to deploy a 900-mile network across the northwest Illinois region. The project will bring 10 Mbps to 10 Gbps speeds to more than 500 community anchor institutions. The network will improve their ability to leverage broadband technology for improvements in rural education, economic opportunities and public safety. See Appendix I Maps, Map 4.1 iFiber BTOP Northwest Region.

iFiber will tie into to the Illinois Century Network, the state's educational network, and interconnect with NIUNet and the Northern Illinois Technology Triangle. It will enable 20 Gbps service for manufacturing technology parks across the region and promote job growth, entrepreneurship and economic development.

The project objectives include:

- Connect 533 community anchor institutions (CAIs), including as many as 190 K-12 schools, 80 public safety entities, 40 libraries, 100 government facilities, 8 community colleges, and 60 healthcare providers, with the capability to serve an additional 130 anchor institutions.

- Construct 700 miles of new fiber and incorporate 233 miles of existing fiber to facilitate more affordable and accessible broadband service for up to 280,000 households and 16,000 businesses by enabling Internet service providers to utilize the project's open network.
- Provide backbone infrastructure to a region of northwestern Illinois with significant economic vulnerability, including Jo Daviess, Stephenson, Winnebago, Boone, Carroll, Lee, Whiteside, Ogle and LaSalle Counties. The project includes installation of 144 fibers, 48 of which are dedicated for public sector use. The remaining fiber will be available to Internet Service Providers and other carriers to deploy throughout their respective regions, fulfilling the public/private partnership goals of the NTIA BTOP program.

Section 4.2 Community Facilities Inventory

A. County Facilities

Jo Daviess County operates under the township form of government. The governing body is the County Board. The County Board's primary function is to establish the various budgets of the County funds and to levy taxes for County purposes. The County Board also adopts all ordinances and rules pertaining to the management and business of the County departments and offices. The County Board meets at 7:00 pm on the second Tuesday of each month in the County Board room on the third floor of the Jo Daviess County Courthouse in Galena. A special meeting may be called at any time upon submission to the County Clerk of a petition signed by at least one-third of the members. Only such business may be transacted at the special meeting as has been stated in the notice of the special meeting called.

The County Board operates on the committee system. There are currently eight standing committees. Committee appointments are made by the chairman, with the concurrence of the Board. The chairman makes appointments of all special committees and various other boards and commissions, with the concurrence of the Board.

Jo Daviess County's government offices operate out of several facilities in Galena, East Dubuque, Hanover and Stockton.

The Jo Daviess County Courthouse, located at 330 N. Bench Street, Galena, houses the County Board, County Administrator, County Clerk/Recorder, Treasurer/Collector, Sheriff's Office, Emergency Telephone System (E 9-1-1) Board, State's Attorney, Public Defender, Probation Department, Clerk of the Circuit Court, Circuit Court 15th Judicial Circuit, Court Security, GIS/Information Technology, and the Assessment Office. The Jo Daviess County Courthouse was placed into service in 1845. Additions were completed in 1900, 1970 and 1976 (Public Safety Building addition).

The Jo Daviess County Coroner's Office is located at 1185 Hwy. 35 N., East Dubuque.

The Carroll, Jo Daviess & Stephenson Regional Superintendent of Schools is located at 500 N. Rush Street, Stockton.

Three County departments occupy a County-owned facility in Hanover at 1 Commercial Drive: The Jo Daviess County Highway Department; the Jo Daviess County Building and Zoning Office, and the Jo Daviess County Animal Control Department.

The Jo Daviess County Health Department operates from a facility located at 9483 U.S. Route 20 West, Galena.

B. Parks, Recreation Facilities and Conservation Land/Open Space

The Jo Daviess County Greenways and Trails Plan, incorporated herein by reference (see Chapter 3 Transportation), contains a county-wide inventory of existing parks, outdoor recreation areas, and other open spaces.

C. Police, Fire, Emergency and Health Care Services

1. Police Service

The Jo Daviess County Sheriff's Office is located in the Jo Daviess County Public Safety Building, 330 N. Bench St., Galena and serves as the primary law enforcement agency for County residents located outside of a city or village. The Jo Daviess County Sheriff's Office is responsible for numerous and diverse services. In addition to providing direct law enforcement and public safety service to all citizens in unincorporated Jo Daviess County, the Sheriff's Office also supplements and assists other law enforcement agencies in the County as needed. The Sheriff's Office works closely with and provides assistance to the social service agencies in the County: Riverview Center, DCFS and Jane Addams. Along with providing law enforcement service, the Sheriff maintains the Jo Daviess County Jail, which is located within the Public Safety Building and has a total capacity of 27 inmates. Also located within the Public Safety Building is the Emergency Enhanced 9-1-1 Communications Center. The Sheriff is responsible for all communication and dispatching of all fire, medical, and law enforcement services throughout the County. Along with general law enforcement, criminal investigations, public safety services, maintaining the County jail, and Emergency 911, the Sheriff also provides other services including, but not limited to, water patrol and rescue, mounted and radio patrols (auxiliary patrols), a search and rescue canine unit, vehicle investigations, emergency services and disaster agency services, and Hazardous Materials Response Unit. The Sheriff also maintains dockets, registers, jail records, fingerprints, and arrest files. Writs and warrants are executed, and summons and subpoenas are served. The Sheriff's deputies also attend all courts on record, and accept and receipt bail in accordance with the rules of the Circuit Court.

The City of Galena, City of East Dubuque, Village of Elizabeth, Village of Hanover, Village of Stockton and Village of Warren also operate their own municipal police departments. The Village of Apple River and Village of Scales Mound operate part-time municipal police departments.

2. Fire and Emergency Service

There are ten (10) fire protection/ambulance districts that serve Jo Daviess County:

- Apple River Fire Protection District, 4941 N. Scout Camp Rd., Apple River, IL
- Menominee-Dunleith Fire Protection District, 201 Thomas Ave., East Dubuque, IL
- Elizabeth Community Fire Protection District, 2692 U.S. 20 West, Elizabeth, IL
- Galena Rural Fire Protection District
- Hanover Fire Protection District, 201 Fillmore, Hanover, Il
- Lena Fire Protection District,
- Mt. Carroll Fire Protection District
- Pearl City Fire Protection District
- Scales Mound Fire Protection District, 130 Franklin St., Scales Mound, IL
- Stockton Fire Protection District

The City of East Dubuque, City of Galena and Village of Warren maintain municipal fire departments.

There are seven (7) emergency medical service/ambulance providers that serve the County:

- East Dubuque Ambulance, 183 Sinsinawa, East Dubuque, IL
- Elizabeth Ambulance, P.O. Box 325, Elizabeth, IL

- Galena Ambulance, 508 Mars Ave., Galena, IL
- Hanover Ambulance, Inc., 10 Fox Ave., Hanover, IL
- Menominee-Dunleith Fire Department, 201 Thomas Ave., East Dubuque, IL
- Stockton Ambulance, 113 Queen St., Stockton, Il
- Warren Ambulance, 103 W. Main St., Warren, IL

3. Health Care Services

The county has nine family practice physicians that cover the entire county. There are ten dentists in the county and human service agencies that provide mental health, domestic violence, and other related social services. It is not unusual for people to travel outside the county for specialized services for health care, psychiatric services or rehabilitation for physical or mental health care.

In terms of availability of health care services, there is one hospital located in the County (Midwest Medical Center, One Medical Center Dr., Galena). Other hospitals serving the residents of Jo Daviess County include:

- Mercy Medical Center, 250 Mercy Dr., Dubuque, IA
- The Finley Hospital, 350 North Grandview Ave., Dubuque, IA
- Southwest Health Center, 1400 Eastside Rd., Platteville, WI
- Monroe Clinic, 515 22nd Ave., Monroe, WI
- Memorial Hospital of Lafayette County, 800 Clay St., Darlington, WI
- Mercy Medical Center, 1410 N. 14th St., Clinton, IA
- FHN Memorial Hospital, 1045 West Stephenson Street, Freeport, IL
- Swedish American Hospital, 1401 East State Street, Rockford, IL
- OSF Saint Anthony Medical Center, 5666 East State Street, Rockford, IL
- Rockford Memorial Hospital, 2400 North Rockton Avenue, Rockford, IL 61103

There are seven (7) medical clinic located in the County:

- Midwest Health Clinic, One Medical Center Dr., Galena
- Galena Clinic, Inc., 9567 W. U.S. Hwy. 20 #102, Galena
- Medical Associates Physical, 10988 Bartel Blvd. #102, Galena
- Medical Associates Clinic, P.C., 219 Summit St., Galena
- Medical Associates Clinic, P.C., 560 Pleasant St., Elizabeth
- FHN Family Healthcare Center, 725 N. Pearl St., Stockton
- FHN Family Healthcare Center, 606 Tisdel Ave., Warren

There are a number of dental clinics, eye care clinics, and chiropractic clinics throughout the County.

The county offers three nursing homes and two assisted living complexes and one adult day care facility. Most of these senior facilities have waiting lists, so it is not unusual for the elderly who require more care, to seek housing at facilities outside the county.

Mental health services are provided by the FHN Jane Addams Family Counseling Center in Galena and Freeport. The Center offers the following programs: Individual and Group Counseling, Marriage and Family Counseling, Family Education, Substance Abuse Prevention Program, and Youth Services. The Center is staffed by certified, professional staff and maintains a 24-hour emergency service.

The Jo Daviess County Health Department, based in Galena, offers a variety of health-related services. These services include, but are not limited to: Home Health Care, Public Health Nursing, Maternal and Child Health, Vital Statistics, Family Planning, Environmental Health, Infectious Diseases, Vision and Hearing, Dental Health and Health Promotion. Some services, such as child and adult immunization, are provided at various towns throughout the county.

Every five years, the Jo Daviess County Health Department conducts a Community Health Needs Assessment. In the 2009 assessment, the Community Review Panel identified the following four health needs for the County to address over a five-year period from 2010-2015, listed in order of priority: 1) Obesity; 2) Intimate Partner Personal Contact; 3) Breast Cancer; 4) Prostate Cancer. The hope is that best practices and research based interventions will be used whenever possible for these health issues. This effort will involve many community partners including health and human service agencies, the medical community, law enforcement and government agencies.

D. Schools

The residents of Jo Daviess County are served by nine (9) community unit school districts, four (4) elementary school districts and one (1) high school district as detailed in Table 4.2 below:

Table 4.1: School Districts in Jo Daviess County, IL
Ranked by Area of District

School District	Area (square miles)
River Ridge Community Unit School District No. 210	171.2
Stockton Community Unit School District No. 206	166.5
Galena Community Unit School District No. 120	91.6
Warren Community Unit School District No. 205*	78.1
Scales Mound Community Unit School District No. 211	71.6
East Dubuque Community Unit School District No. 119	27.6
Pearl City Community Unit School District No. 200*	5.5
Lena-Winslow Community Unit School District No. 202*	3.4
West Carroll Community Unit School District No. 314*	3.0

*Districts that are not wholly within Jo Daviess County. Note: Area of district indicated is only area of district that is within Jo Daviess County.

The following information for each school district in Jo Daviess County is from the 2011 Illinois School District Report Card (Illinois State Board of Education):

1. East Dubuque Community Unit School District No. 119

   The district consists of the East Dubuque Elementary School - Junior High School (pre-kindergarten through grade 8), and East Dubuque High School (grades 9-12).

   The district has a student enrollment of 706. 32% of students are classified as low income.

   In Fiscal Year 2009-10, 52.0% of the district revenue was derived from local property taxes, compared to the state average of 58.9%. The district 2009-10 instructional expenditure per pupil was $5,248 (state average: $6,773). The district 2009-10 operating expenditure per pupil was $8,766 (state average: $11,537).

   The district average teaching experience is 14.2 years, which is above the state average of 13.2 years. The average teacher salary in the district is $46,547, which is below the state average of $64,978. The average administrator salary in the district is $114,555, which is above the state average of $109,759.

In 2011, 81.1% of the students in the district met/exceeded the State standards for all subjects as determined by the Illinois State Board of Education compared to 76.5% State-wide. The district did not make "Adequate Yearly Progress" in 2011.

2. Galena Community Unit School District No. 120

The district consists of the Galena Primary School (pre-kindergarten through grade 4), Galena Middle School (grades 5-8), and Galena High School (grades 9-12).

The district has a student enrollment of 823. 33% of students are classified as low income.

In Fiscal Year 2009-10, 77.5% of the district revenue was derived from local property taxes, compared to the state average of 58.9%. The district 2009-10 instructional expenditure per pupil was $7,702 (state average: $6,773). The district 2009-10 operating expenditure per pupil was $11,823 (state average: $11,537).

The district average teaching experience is 13.7 years, which is above the state average of 13.2 years. The average teacher salary in the district is $56,298, which is below the state average of $64,978. The average administrator salary in the district is $96,640, which is below the state average of $109,759.

In 2011, 82.2% of the students in the district met/exceeded the State standards for all subjects as determined by the Illinois State Board of Education compared to 76.5% State-wide. The district did not make "Adequate Yearly Progress" in 2011.

3. Lena-Winslow Community Unit School District No. 202

The district consists of the Lena Elementary School (pre-kindergarten - grade 5), Lena-Winslow Junior High School (grade 6-8) and Lena-Winslow High School (grade 9-12).

The district has a student enrollment of 928. 34% of students are classified as low income.

In Fiscal Year 2009-10, 53.3% of the district revenue was derived from local property taxes, compared to the state average of 58.9%. The district 2009-10 instructional expenditure per pupil was $5,015 (state average: $6,773). The district 2009-10 operating expenditure per pupil was $8,093 (state average: $11,537).

The district average teaching experience is 17.6 years, which is above the state average of 13.2 years. The average teacher salary in the district is $50,020, which is below the state average of $64,978. The average administrator salary in the district is $97,916, which is below the state average of $109,759.

In 2011, 85.8% of the students in the district met/exceeded the State standards for all subjects as determined by the Illinois State Board of Education compared to 76.5% State-wide. The district did not make "Adequate Yearly Progress" in 2011.

4. Pearl City Community Unit School District No. 200

The district consists of the Pearl City Elementary School (pre-kindergarten, grade 6), Pearl City Junior High School (grades 6-8) and Pearl City High School (grades 9-12).

The district has a student enrollment of 513. 20% of students are classified as low income.

In Fiscal Year 2009-10, 37.8% of the district revenue was derived from local property taxes, compared to the state average of 58.9%. The district 2009-10 instructional expenditure per pupil was $5,460 (state average: $6,773). The district 2009-10 operating expenditure per pupil was $9,443 (state average: $11,537).

The district average teaching experience is 14.7 years, which is above the state average of 13.2 years. The average teacher salary in the district is $49,364, which is below the state average of $64,978. The average administrator salary in the district is $104,292, which is below the state average of $109,759.

In 2011, 89.3% of the students in the district met/exceeded the State standards for all subjects as determined by the Illinois State Board of Education compared to 76.5% State-wide. The district made "Adequate Yearly Progress" in 2011.

5. River Ridge Community Unit School District No. 210

The district consists of the River Ridge Elementary School (pre-kindergarten through grade 5), River Ridge Middle School (grades 6-8), and River Ridge High School (grades 9-12).

The district has a student enrollment of 509. 37% of students are classified as low income.

In Fiscal Year 2009-10, 76.9% of the district revenue was derived from local property taxes, compared to the state average of 58.9%. The district 2009-10 instructional expenditure per pupil was $8,154 (state average: $6,773). The district 2009-10 operating expenditure per pupil was $13,173 (state average: $11,537).

The district average teaching experience is 14.0 years, which is above the state average of 13.2 years. The average teacher salary in the district is $63,732, which is below the state average of $64,978. The average administrator salary in the district is $119,450, which is above the state average of $109,759.

In 2011, 81.7% of the students in the district met/exceeded the State standards for all subjects as determined by the Illinois State Board of Education compared to 76.5% State-wide. The district did not make "Adequate Yearly Progress" in 2011.

6. Scales Mound Community Unit School District No. 211

The district consists of the Scales Mound Elementary School (pre-kindergarten through grade 5), Scales Mound Junior High School (grades 6-8), and Scales Mound High School (grades 9-12).

The district has a student enrollment of 241. 27% of students are classified as low income.

In Fiscal Year 2009-10, 83.2% of the district revenue was derived from local property taxes, compared to the state average of 58.9%. The district 2009-10 instructional expenditure per pupil was $8,614 (state average: $6,773). The district 2009-10 operating expenditure per pupil was $14,260 (state average: $11,537).

The district average teaching experience is 16.0 years, which is above the state average of 13.2 years. The average teacher salary in the district is $58,090, which is below the state average of $64,978. The average administrator salary in the district is $109,691, which is below the state average of $109,759.

In 2011, 81.5% of the students in the district met/exceeded the State standards for all subjects as determined by the Illinois State Board of Education compared to 76.5% State-wide. The district did not make "Adequate Yearly Progress" in 2011.

7. Stockton Community Unit School District No. 206

The district consists of the Stockton Elementary School (kindergarten through grade 5), Stockton Middle School (grades 6-8) and Stockton High School (grades 9-12).

The district has a student enrollment of 617. 38% of students are classified as low income.

In Fiscal Year 2009-10, 63.3% of the district revenue was derived from local property taxes, compared to the state average of 58.9%. The district 2009-10 instructional expenditure per pupil was $5,837 (state average: $6,773). The district 2009-10 operating expenditure per pupil was $9,385 (state average: $11,537).

The district average teaching experience is 16.3 years, which is above the state average of 13.2 years. The average teacher salary in the district is $53,469, which is below the state average of $64,978. The average administrator salary in the district is $97,954, which is below the state average of $109,759.

In 2011, 83.1% of the students in the district met/exceeded the State standards for all subjects as determined by the Illinois State Board of Education compared to 76.5% State-wide. The district did not make "Adequate Yearly Progress" in 2011.

8. Warren Community Unit School District No. 275

The district consists of the Warren Elementary School (pre-kindergarten through grade 5) and Warren Middle School/High School (grades 6-12).

The district has a student enrollment of 449. 35% of students are classified as low income.

In Fiscal Year 2009-10, 59.3% of the district revenue was derived from local property taxes, compared to the state average of 58.9%. The district 2009-10 instructional expenditure per pupil was $7,146 (state average: $6,773). The district 2009-10 operating expenditure per pupil was $12,525 (state average: $11,537).

The district average teaching experience is 19.3 years, which is above the state average of 13.2 years. The average teacher salary in the district is $47,880, which is below the state average of $64,978. The average administrator salary in the district is $96,747, which is below the state average of $109,759.

In 2011, 85.3% of the students in the district met/exceeded the State standards for all subjects as determined by the Illinois State Board of Education compared to 76.5% State-wide. The district made "Adequate Yearly Progress" in 2011.

9. West Carroll Community Unit School District No. 314

The district consists of the West Carroll Primary School (pre-kindergarten through grade 3), West Carroll Intermediate School (grades 4-5), West Carroll Middle School (grades 6-8) and West Carroll High School (grades 9-12).

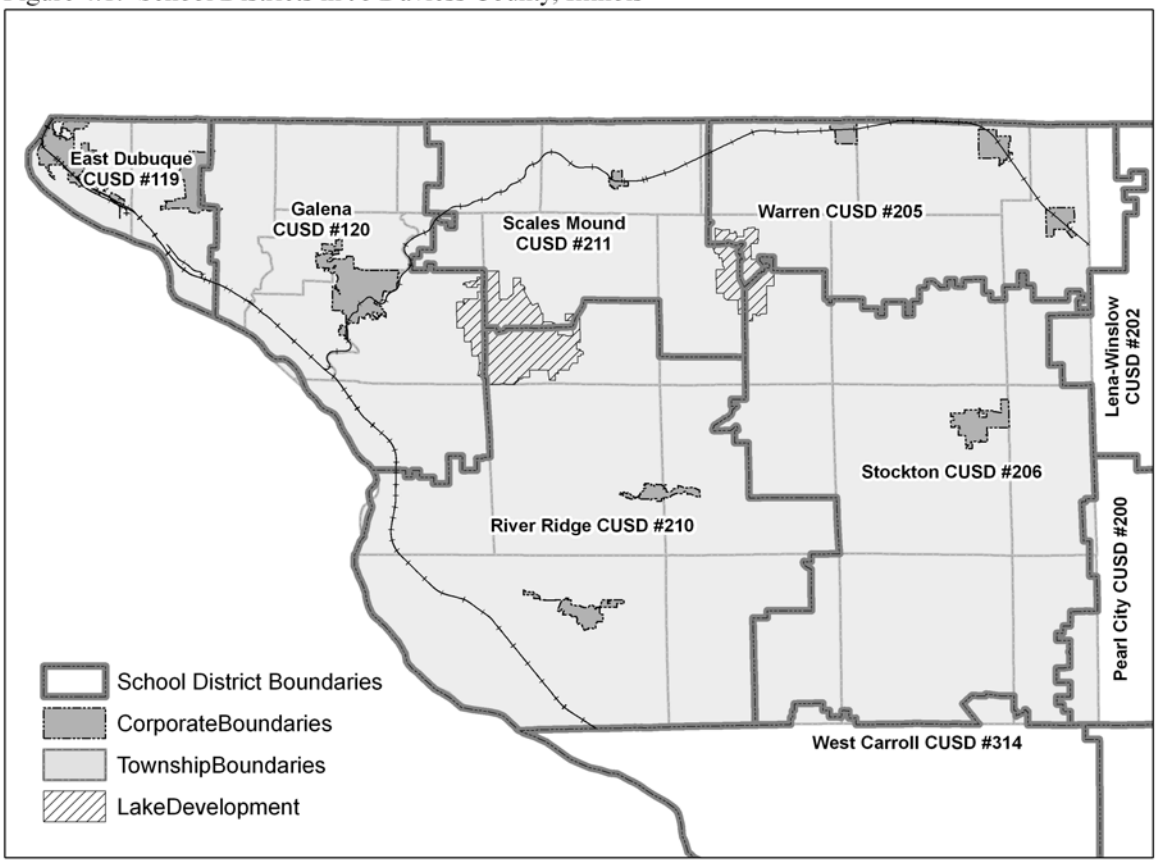
The district has a student enrollment of 1,350. 54% of students are classified as low income.

In Fiscal Year 2009-10, 42.9% of the district revenue was derived from local property taxes, compared to the state average of 58.9%. The district 2009-10 instructional expenditure per pupil was $6,011 (state average: $6,773). The district 2009-10 operating expenditure per pupil was $11,027 (state average: $11,537).

The district average teaching experience is 18.0 years, which is above the state average of 13.2 years. The average teacher salary in the district is $55,206, which is below the state average of $64,978. The average administrator salary in the district is $108,946, which is below the state average of $109,759.

In 2011, 75.4% of the students in the district met/exceeded the State standards for all subjects as determined by the Illinois State Board of Education compared to 76.5% State-wide. The district did not make "Adequate Yearly Progress" in 2011.

Figure 4.1: School Districts in Jo Daviess County, Illinois



E. Libraries

There are eight (8) libraries/library districts serving the residents of Jo Daviess County:

- East Dubuque District Library, 122 Wisconsin Ave., East Dubuque, IL
- Elizabeth Township Library, 210 E. Myrtle St., Elizabeth, IL
- Galena Public Library District, 601 S. Bench St., Galena, IL

- Hanover Township Library, 204 Jefferson St., Hanover, IL
- Lena Community Library District, 300 W. Mason St., Lena
- Pearl City Public Library District, 221 S. Main St., Pearl City, IL
- Stockton Township Library, 140 W. Benton St., Stockton, IL
- Warren Township Library, 210 Burnett Ave., Warren, IL

F. Junior College Facilities

Residents of the Jo Daviess County are served by Highland Community College, a two-year public community college located in Freeport, IL. As a community college, the mission of Highland Community College is built around meeting the needs of the greater northwest Illinois community through quality educational and cultural programs. Highland Community College offers comprehensive academic programming with over 60 degrees and certificates, as well as Adult Basic Education (ABE) and General Educational Development (GED) curricula. The College also provides continuing education courses tailored to specific industry needs. Selected courses are also offered at the Jo Daviess - Carroll Area Vocational Center in Savanna or Elizabeth and throughout the County. The Jo Daviess-Carroll Area Vocational Center, located just outside of Elizabeth, provides vocational courses to both adults and high-school students from the various school systems in Jo Daviess and Carroll Counties. Examples of the many courses available include: construction technology, transportation technology, landscape design and grounds maintenance, business and health occupation courses.

G. Park Districts

The following park districts serve the residents of Jo Daviess County:

- Black Hawk Park District, P.O. Box 624, Warren, IL
- Derinda Park District
- Dunleith Park District, P.O. Box 255, East Dubuque, IL
- Hanover Township Park District, 800 Fillmore St., Hanover, IL
- Pleasant Valley Park District
- Rice Park District
- Stockton Park District, 600 N. Pearl St., Stockton, IL
- Thompson Park District
- Woodbine Park District

H. Cemeteries

There are approximately 76 known cemeteries/burial sites located throughout Jo Daviess County. The detailed locations of most of these sites are available from County plat books, as well as from the Galena-Jo Daviess County Historical Society & Museum located in Galena. The Internet also provides information on County cemeteries and genealogical records, including the following web sites:

- www.ilgenweb.net (The ILGenWeb Project)
- www.graveyards.com (Graveyards of Illinois)

I. Other Community Facilities and Services

1. Jo Daviess County Soil & Water Conservation District:

   The Jo Daviess County Soil & Water Conservation District is located at 227 N. Main St., Elizabeth. The purpose of the Soil & Water Conservation District is to protect and maintain the natural resources of Jo Daviess County and to provide educational opportunities for schools and the public at large.

2. Jo Daviess County Fair

The Jo Daviess County Fair is sponsored by the Jo Daviess County Agricultural Society. The Jo Daviess County Fairgrounds is located on Stagecoach Trail Road at High Street in Warren.

3. Galena-Jo Daviess County Historical Society & Museum:

The Galena-Jo Daviess County Historical Society & Museum is located at 211 S. Bench Street in Galena. Founded in 1938, the Galena-Jo Daviess County Historical Society operates the Galena & U.S. Grant Museum and the Old Blacksmith Shop. The mission and vision of the Society is to, through its collection, Museum, and other resources, educate and culturally enrich the public about the history and material culture of Galena, Jo Daviess County, and the Upper Mississippi River Lead Mine District of Illinois, Wisconsin, and Iowa and Ulysses S. Grant.

4. U.S. Department of Agriculture, Farm Service Agency

The Jo Daviess County USDA Farm Service Agency is located at 225 N. Main Street in Elizabeth. The mission of the U.S. Department of Agriculture's Farm Service Agency (FSA) is to stabilize farm income, help farmers conserve land and water resources, provide credit to new or disadvantaged farmers and ranchers, and help farm operations recover from the effects of disaster.

5. University of Illinois Jo-Carroll Extension Unit

The Jo-Carroll Extension Office is located at 204 Vine Street in Elizabeth. Extension staff offer practical, research-based education to help area residents improve their lives and communities through learning partnerships that put knowledge to work. University of Illinois Extension is the flagship outreach effort of the University of Illinois at Urbana-Champaign, offering educational programs to residents of all of Illinois' 102 counties. Through learning partnerships that put knowledge to work, U of I Extension's programs are aimed at making life better, healthier, safer and more profitable for individuals and their communities. U of I Extension offers educational programs in five broad areas:

- Healthy society
- Food security and safety
- Environmental stewardship
- Sustainable and profitable food production and marketing systems
- Enhancing youth, family and community well-being

6. U.S. Department of Agriculture Rural Development

The local office of the U.S. Department of Agriculture Rural Development serving Jo Daviess County is located at 213 W. Pines Road in Oregon, IL. USDA Rural Development (RD) financial programs support such essential public facilities and services as water and sewer systems, housing, health clinics, emergency service facilities and electric and telephone service. RD promotes economic development by supporting loans to businesses through banks , credit unions and community-managed lending pools, and offers technical assistance and information to help agricultural producers and cooperatives get started and improve the effectiveness of their operations. RD also provides technical assistance to help communities undertake community empowerment programs.

7. Illinois Department of Veteran's Affairs

The local office of the Illinois Department of Veteran's Affairs serving veterans of Jo Daviess County is located at 223 W. Stephenson Street in Freeport. The Illinois Department of Veterans'

Affairs (DVA) is a state agency dedicated to empowering veterans, as well as their dependents and survivors, to thrive. The DVA accomplishes this by helping veterans navigate the complex veteran support system and assisting them in obtaining benefits; by providing long term health care for eligible veterans at one of four Veterans' Homes; and by working with other government agencies and non-profits to help veterans address education, mental health, housing, and employment challenges.

8. Galena/Jo Daviess County Convention and Visitor's Bureau (CVB)

The office of the Galena/Jo Daviess County CVB is located at 720 Park Avenue in Galena. The mission of the CVB is to develop year-round sustainable tourism for Jo Daviess County in a manner which will favorably impact the resident's quality of life and economic well-being.

9. Senior Resource Center

The Senior Resource Center, located at 124 S. Main Street in Galena (Coatsworth Building), is a branch office of the Jo Daviess-Stephenson Senior Resource Center. The main office if located 1237 W. Galena Avenue in Freeport. The Senior Resource Center is a diverse, multi-service agency and designated focal point that provides programs and services to persons 55 years and older and their caregivers. The objective of the Senior Resource Center is to help seniors to maintain their independence and quality of life. To help seniors, the Senior Center provides:

- Information on the various programs and services that are available to seniors such as the Medicare Part D drug program.
- Assistance with selection and application for the various programs for which they qualify.
- Assistance in filing their taxes through the Tax-Aide programs that is jointly supported by the Senior Center and AARP.
- Transportation services medical, dental, training, employment and other life necessities for eligible persons Activities and travel opportunities.
- The Senior Center is also available to help those with disabilities.

10. The Workshop

The Workshop, located at 706 S. West Street in Galena, is a private, not-for profit organization that has been providing services to adults with disabilities since 1961. The mission of The Workshop is to promote the general welfare of individuals with disabilities in Jo Daviess County. The Workshop is actively committed to developing, maintaining and expanding county-based services for individuals with disabilities. The services provided by The Workshop include Developmental Training and Work Services offered through a variety of businesses, including a commercial laundry, janitorial and industrial contracts. Support Programs include the Senior Program funded by the United Way, for consumers who are aging out of the work force and community outings to assist in accessing and becoming aware of community resources. The Workshop Support Services include educational instruction for individualized classes to provide basic academic, social, educational and personal skills and counseling to provide interventions prior to a behavior or a crises. Competitive employment services can be found through The Workshop Community Employment Services. These services include the Transition Program to provide young people with disabilities in high school with opportunities for a work experience at The Workshop prior to graduation. The Placement Program assists individuals in becoming skilled at job seeking and finding and maintaining employment. The Supported Employment Program provides community work experience to individuals that need additional training or assistance on the job. The Job Club provides continuing support for individuals working jobs in the community.

11. Housing Authority of Jo Daviess County

The Housing Authority is located at 347 Franklin Street in Galena. The mission of the Housing Authority is to provide decent, safe and sanitary housing for low-income and elderly families at a cost they can afford. The Housing Authority currently manages 110 publicly-owned housing units and 41 Housing Choice Vouchers. A portion of Housing Authority operating expenses is provided by the U.S. Department of Housing and Urban Development (HUD). The Housing Authority operates a total of five apartment facilities in Jo Daviess County.

12. Jo Daviess County Veterans Assistance Commission (VAC)

The Jo Daviess County VAC is located at 112 N. 4th Street in Oregon. The purpose of the VAC is to provide assistance to military veterans and their dependents who qualify for assistance based upon the financial assistance guidelines as established by the Veteran's Assistance Commission.

13. NICAA Golden Meals

NICAA Golden Meals, located at 524 W. Stephenson Street in Freeport, is a program that offers daily hot, nutritionally balanced noon meals for persons 60 years old and over, plus spouses. Meal sites offer a warm and caring atmosphere with friendship and fun.

Jo Daviess County meal sites are located at:

- George 'n Dale's, 32 Sinsinawa Ave., East Dubuque
- Charlie's Place, 213 Jefferson St., Hanover
- Stella's, 110 Main St., Stockton

Home delivered meals are provided throughout the County and are available to those who are homebound due to illness, handicap or isolated living conditions, and are unable to prepare meals for themselves.

14. Riverview Center, Inc. - Sexual Assault and Domestic Violence Services

Riverview Center, Inc. is located at 705 S. Dodge Street in Galena. All services offered through Riverview Center are completely free and confidential. Those services offered in Jo Daviess County to survivors of sexual assault and domestic violence (and their children) include:

- Legal/Medical Advocacy
- Master Level Counseling
- Play Therapy
- Prevention Education
- 24-Hour Hotline
- General Advocacy
- Support Group
- Emergency Shelter
- Information on Resources and Referrals

Survivor's needs and rights are the first priority of the agency and guide the planning and decision-making. Non-direct services include: Prevention Education, Professional Training, Volunteer Programs and Professional Speaking Opportunities.

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CHAPTER 5
Agriculture, Natural and Cultural Resources

Section 5.1 Climate

Jo Daviess County is cold in winter. In summer it generally is hot but has occasional cool spells. Precipitation falls as snow during frequent snowstorms in winter and chiefly as rain showers, which often are heavy, during the warmer periods when warm moist air moves in from the south. Tornadoes and severe thunderstorms strike occasionally. They are of local extent and short duration, and they cause only sparse damage in narrow belts. Hailstorms sometimes occur during the warmer periods in scattered small areas. The amount of annual rainfall usually is adequate for corn, soybeans, and small grain crops. The prevailing wind is from the northwest, and average wind speed is highest in April.

In winter (December, January, February) the average high temperature is 31.1 degrees F and the average low temperature is 13.6 degrees F. In summer (June, July, August) the average high temperature is 81.2 degrees F, and the average low temperature is 58.7 degrees F. The total annual precipitation is about 36.66 inches, and nearly 66.3% of this falls in April through September. The average seasonal snowfall is about 32 inches. The average number of Heating Degree Days for the County is 7,043; the average number of Cooling Degree Days is 632.

Section 5.2 Land Cover

Land cover is the physical material at the surface of the earth. Land covers include grass, asphalt, trees, bare ground, water, etc. There are two primary methods for capturing information on land cover: field survey and through analysis of remotely sensed imagery. Land cover is distinct from land use despite the two terms often being used interchangeably. Land use is a description of how people *utilize* the land and socio-economic activity - urban and agricultural land uses are two of the most commonly recognized high-level classes of use. Chapter 7 Land Use analyzes the County's land use.

The predominant land cover in Jo Daviess County is agricultural land use. In 2011, approximately 36.3% of the County's land area was in some form of crop production, the predominate crops being corn and soybeans; 21.3% of the County's land area was in grassland, hay production, pasture and shrubland. In addition, 34.4% of the County's land area was in forest cover (deciduous, evergreen or mixed forest), the second most dominant land cover; 6.1% of the County's land area was in urban uses; 5.3% of the County's land area was in open water and wetlands.

The following Table 5.1 details the land cover characteristics of the County. The County's land cover is graphically depicted in the map titled *Map 5.1: Land Cover, Jo Daviess County, Illinois* in Appendix I Maps.

Table 5.1 Land Cover of Jo Daviess County, Illinois

Land Cover Category	Area (Ac.)	Area (Sq. Mi.)	% of Area
Deciduous Forest	122,137.8	190.8	30.8
Corn	110,624.7	172.9	27.9
Herbaceous Grassland	38,792.7	60.6	9.8
Soybeans	31,650.3	49.5	8.0
Alfalfa	28,876.8	45.1	7.3
Developed/Open Space	16,974.7	26.5	4.3

Other Hay/Nonalfalfa	12,435.6	19.4	3.1
Open Water	11,610.1	18.1	2.9
Woody Wetlands	7,167.8	11.2	1.8
Developed/Low Intensity	5,962.0	9.3	1.5
Shrubland	4,143.9	6.5	1.0
Herbaceous Wetlands	2,151.7	3.4	0.5
Winter Wheat	1,344.4	2.1	0.3
Developed/Medium Intensity	791.9	1.2	0.2
Evergreen Forest	671.9	1.1	0.2
Barren	238.2	0.4	0.1
Developed/High Intensity	176.4	0.3	0.0
Oats	82.1	0.1	0.0
Pasture/Hay	60.5	0.1	0.0
Potatoes	40.7	0.1	0.0
Mixed Forest	28.2	0.0	0.0
Walnuts	10.5	0.0	0.0
Fallow/Idle Cropland	6.7	0.0	0.0
Dry Beans	5.8	0.0	0.0
Switchgrass	5.1	0.0	0.0
Clover/Wildflowers	4.7	0.0	0.0
Pop or Ornamental Corn	3.8	0.0	0.0
Sorghum	3.6	0.0	0.0
Rye	1.8	0.0	0.0
Watermelons	1.8	0.0	0.0
Peas	1.8	0.0	0.0
Double Crop Corn/Soybeans	1.8	0.0	0.0
Other Crops	1.3	0.0	0.0
Double Crop Winter Wheat/Soybeans	0.7	0.0	0.0
Pumpkins	0.4	0.0	0.0
Total	**396,012.2**	**618.8**	**100.0**

Source: National Agricultural Statistics Service, 2011 Cropland Data Layer

Section 5.3 Agricultural Resources

The economic activity of agriculture has some very specific land use requirements, depending on the type of farming. The growing of crops for profit necessitates relatively large, contiguous parcels, the slope of which should not be excessive and the soils, fertile and well drained. This is particularly true of grains and soybeans. Other types of agricultural pursuits, such as feed lots, garden farms, and dairies generally demand increased labor and less land to be profitable. Generally, agricultural units are limited to the physical characteristics of the land and are relatively flexible with respect to location. This is in marked contrast to other economic activities where the location of the activity with respect to others is a very important part of their economic framework.

The character of Jo Daviess County is largely defined by agriculture - as a land use, as an industry, and as a way of life. Viewing agriculture from a variety of perspectives provides some indication of how the industry functions and its importance to the county's future.

A. History

Agriculture first became important in the Jo Daviess County area in 1829, partly as a result of a depression in mining due to an over-production in lead. By 1840, there were more farmers than miners in the region. The agricultural pioneers of northern Illinois former were primarily farmers, unlike settlers in the southern part of the state who were subsistence farmers (hunter-farmer types). The thrifty New Englanders, Germans and Irish brought their customs and educational and religious ideals with them, establishing the strong conservative values still largely held in the county.

The traditional 19th-century Illinois farm unit was generally a diverse and productive landscape, in many respects a simplified version of the mixed woodland-grassland ecology it replaced. In the area now known as Jo Daviess County, corn was the leading crop, with about 2,500 acres planted in 1829. Corn was popular because of the high yields, easy cultivation, and its value for both human and livestock consumption. The grass on the prairies and steeply sloping hillsides were available for pasturage, and this led to the development of beef production and then to dairying by the 1880s.

Historically, agricultural products were, to a large extent, processed locally. The region was fortunate in having abundant mill sites. The first saw mill in the county was established in 1827. The first grist mill, run by water power, was built north of Galena in 1828. In 1857 Galena had three saw mills and a steam flour mill. Water power on the Apple River at Hanover was used as early as 1829 to grind wheat and corn. Galena was an important meat-packing center, since the farmers found it profitable to convert their bulky corn into meat before sending it to market. Stock was often driven many miles to Galena to be slaughtered. By 1900, many farmers drove their cattle to railroad sidings to ship it to Chicago packing plants.

Beginning in the 1880s and continuing into the 1930s, a succession of innovations came into wide use, transforming the Illinois farmscape. Commercial fertilizers and hybrid varieties of corn made higher yields possible. Low-cost commercial nitrogen has made it possible to plant twice the once-standard number of rows of corn plants per acre. Since World War II, chemical weed killers have made labor-intensive field cultivation unnecessary.

B. Agriculture in Jo Daviess County Today

Approximately 92% of the County’s land area is in agricultural or agriculturally-related uses and rural lands; approximately 52% of the County land area is used for crop production. Grain farming, hay farming and livestock production are the predominant agricultural activities in Jo Daviess County. Agriculture has always been the major industry in Jo Daviess County, and the character of Jo Daviess County is largely defined by agriculture - as a land use, as an industry, and as a way of life. Jo Daviess County is an agricultural leader in Illinois, ranking first in the state for hay and oats production and in total cattle

inventory, second in the state for beef cows, and third in the state for dairy cows. Agriculture is a major industry in the county, providing about 6% of the employment opportunities and an annual market value of $165,962,000 in agricultural products.

In 2007, the county had 1,016 farms comprising 281,457 acres; the average farm size was 277.0 acres (2007 Census of Agriculture). Corn, soybeans and alfalfa hay are the major crops. In 2010, 96,000 acres of corn was harvested; 32,600 acres of soybeans was harvested, and 24,100 acres of alfalfa hay was harvested (Illinois Agricultural Statistics Service). Livestock is also a major component of the agricultural industry in Jo Daviess County. As of December 1, 2010, there were 21,000 head of hogs and pigs in Jo Daviess County; as of January 1, 2011 there were 50,000 head of cattle and calves in Jo Daviess County (Illinois Agricultural Statistics Service, 2011).

Jo Daviess County is one of the top agricultural producing counties in the State (102 counties). Following are listed several of the more noteworthy state ranking for Jo Daviess County from 2010 according to the Illinois Department of Agriculture:

- 1st in the State for alfalfa hay production.
- 1st in the State for number of cattle & calves.
- 5th in the State for livestock cash receipts.
- 25th in the State for number of farms.
- 36th in the State for average value of land & buildings per acre.
- 40th in the State for number of acres of land in farms.
- 40th in the State for total cash receipts.
- 50th in the State for corn production.
- 51st in the State for crop cash receipts.

Other Jo Daviess County agricultural items and trends of note (Source: 2002 and 2007 U.S. Census of Agriculture):

- The number of farms increased 2.7% between 2002 and 2007 from 989 farms to 1,016 farms.
- The amount of land in farms increased 6.4% between 2002 and 2007 from 264,493 acres to 281,457 acres.
- The average farm size increased 3.7% between 2002 and 2007 from 267 acres to 277 acres.
- The market value of agricultural products sold increased 94.8% between 2002 and 2007 from $70,163,000 to $136,650,984.
- The market value of agricultural products sold (based on average per farm) increased 89.6% between 2002 and 2007 from $70,943 to $134,499.
- Government payments based on average per farm receiving payments decreased 8.0% between 2002 and 2007 from $7,767 to $7,144.
- The average age of principal farm operators increased 2.5% between 2002 and 2007 from 55.4 years to 56.8 years.
- In 2007, 43.6% of principal farm operators indicated farming as their primary occupation compared to 61.4% in 2002.
- The number of female principal farm operators increased from 84 (8.5%) in 2002 to 102 (10.0%) in 2007.

3. Agri-tourism

Agri-tourism, a business venture on a working farm or agricultural enterprise, is growing in popularity throughout the United States, including Jo Daviess County. Agri-tourism blends entertainment, education, and tourism together to provide a fun, exciting, and memorable get-away for school trips and family outings, and provides an additional revenue source for agricultural operators both large or small.

Agri-tourism in Jo Daviess County and the region has the potential to serve as a means to educate visitors about farm products and services, to serve as an accessory use of farmland and to supplement farm incomes. Agri-tourism also brings economic activity to the area through visitor expenditures on goods and services both on-site and at locations near the County's agri-tourism businesses. Jo Daviess County has a number of agri-tourism business including wineries, working farms, produce farms, Christmas tree farms, and nurseries.

Section 5.4 Natural Resources

This section will describe the existing conditions of natural resources in Jo Daviess County. Natural resources include: geology and mineral resources, soils, groundwater and water supply, surface water, wetlands and floodplains, natural areas and open space, vegetation and wildlife. Understanding an area's natural resources is essential to the appropriate use of those resources. Land use directly impacts the availability and sustainability of natural resources. The comprehensive planning process is an opportunity to link policy to sound natural science.

The natural resources in Jo Daviess County are unique relative to the rest of the state and much of the mid-west because the county is part of the Wisconsin Driftless Region bypassed by continental glaciers of the Ice Age. This region covers parts of southern Minnesota and Wisconsin, Northwestern Illinois and Northeastern Iowa. Glaciated areas were leveled, strewn with glacial debris or "drift" and dotted with lakes and ponds. The driftless areas, on the other hand, have bedrock close to the surface into which deep valleys have been carved by millions of years of weathering and erosional processes. In Jo Daviess County, streams are numerous and the only two lakes are man-made. The relief from the higher ridges to the valley floors is typically 300 feet or more creating a rugged and scenic landscape. Ecosystems can be found in this landscape that are older than those found in glaciated areas.

According to the Illinois Department of Natural Resources, in its study of the Driftless Area in Illinois, a majority of which is Jo Daviess County:

- The Driftless Area-primarily Jo Daviess County and part of Carroll County-escaped the continental glaciers of the Pleistocene Epoch.
- Because of its location the Driftless Area has a typical continental climate with cold winters (Jo Daviess is the coldest county in Illinois), hot summers, and abundant rainfall. The soils are composed mostly of wind-blown loess, disintegrated rock, and, along valley floors, flood-deposited soil (alluvium).
- Nowhere else in Illinois is the bedrock elevation so high, nor is the bedrock so close to the surface.
- Throughout the region the highest hills, regardless of the rock composing them, rise from 1,100 to 1,200 feet high. The most notable are Charles Mound and Benton Mound, rising to heights of 1,246 feet and 1,226 feet respectively.
- The area may have been untouched by glaciers, but it was not unaffected. The stream reversal at Apple River Canyon State Park was caused by the Illinois Episode Glacier.
- A rare prairie community is the dolomite hill prairie, which occurs almost exclusively in Jo Daviess County along the Galena and Apple rivers.
- A forest community not typical of Illinois is the early successional forest of aspen-birch; the Driftless Area is one of the few places in Illinois where large stands of paper birch exist naturally.
- Mesic cliff/talus (broken rock) slope communities are often covered with upland forest up to the vertical cliff. Mesic cliff communities can be found at Apple River Canyon State Park.
- Forty-two percent (915 species) of Illinois native flora occurs in the Driftless Area, an area that comprises only 1.7% of the state's total land area!
- Fifty-five of the area's plants are state-endangered and 11 are state-threatened. Of these, 17 listed species are found nowhere else but the Driftless Area. These occur mostly on algific slopes, sand prairies, and dolomite cliffs.

- Approximately 271 bird species regularly occur in the Driftless Area. This represents almost 90% of the 100 species of birds that regularly occur in Illinois. Of these 271 species, 138 breed or formerly bred in this area, including 7 state-threatened and 11 state-endangered species.
- The species diversity of the area is due to its geographical location and its topographic complexity. Here several species of birds reach or are near their geographical limits.
- The Driftless Area is one of the most rural areas of the state, so its public land holdings are relatively large and contiguous, helping to reduce the negative effects of fragmentation.
- Forty-five species of mammals presently occur here, representing 78% of the state's mammal species. The white-tailed jackrabbit, now extirpated from the area and from Illinois, at one time had a safe haven at the Savanna Army Depot.
- Two state-listed species occur in the area - the state-endangered river otter and state-threatened bobcat. The main breeding population of the river otter in Illinois occupies the backwaters and tributaries of the Mississippi River in Jo Daviess, Carroll, and Whiteside counties.
- The Driftless Area is one of two sites in Illinois that has the best potential breeding habitat for bobcats. Bobcats have been reported in four locations in the area; unfortunately, they were all roadkills.
- Eleven amphibian and 25 reptile species occur here, representing 28% of the amphibians and 42% of the reptiles found in Illinois. The state-threatened western hognose snake and the timber rattlesnake are found here. One other state- listed species, the eastern massasauga, has been extirpated from the area.
- The Driftless Area supports 89 species of fish, 39 species of mussels, and nine species of large crustaceans.
- State-endangered fishes found in the basin include the lake sturgeon, western sand darter, and pallid shiner.
- Four state-threatened and three state-endangered mussels have been reported in the area. Of these, only the butterfly, sheepnose, and Higgens eye still exist here.
- The problems of the Driftless Area echo those of most areas of Illinois - habitat fragmentation, exotic species, loss of habitat, siltation, fire suppression, and flooding.
- While growth has been good for the tax base, contiguous land areas are being broken up for "away-from -it-all subdivisions." At the same time rivers are showing an increase in unwanted chemicals and silt, and wildlife is losing valuable habitat.

A. Topography and Physiography

Because of its geologic history, Jo Daviess County has among its elevations most of the highest points in the state of Illinois. In the west are Horseshoe Mound (1065'), Dygerts Mound (1015') and Pilot Knob (1000'). A few miles to the north are Charles Mound (1235' and Illinois' highest point) and Scales Mound (1140'). To the east, Stockton's Benton Mound has an elevation of 1220', the second highest in Illinois. (Stockton is the highest town in Illinois.) U.S. 20 passes over the southern and lower end of this mound. Called "mounds" locally, these are geologic "outliers," or erosional remnants.

At one time, these mounds were part of a relatively flat plain whose rock layers dipped gently from northeast to southwest. These high areas exist because they are capped with Silurian dolomite, a very hard rock resistant to erosion. Immediately underneath, however, are to be found beds of Maquoketa shale, a relatively soft rock. These beds help form the gentle slopes to be found beneath the steep slopes of the Silurian dolomite (see diagrammatic table of rock layers on following page). The old railroad tunnel near Rodden was built through the Maquoketa shale. While this formation may be over 150' thick, good outcrops are not visible because these rocks are soft and weather easily.

Instead, what we see are outcroppings at the tops of the ridges. These are the hard, resistant Silurian dolomites. A unique feature of these hills are the large blocks of rock which are found along some of the steep slopes. These are slump blocks, pieces of the more resistant Silurian dolomite that are undercut as the shale beneath erodes and weathers. The blocks, through the force of gravity, slide or "slump" down the hillside. This process takes thousands of years.

The major streams in the County have over thousands of years cut down through the Silurian dolomite of the ridges, the Maquoketa shales of the gentle slopes, and are now downcutting into the next major formation, the resistant Galena dolomites. These are harder rocks, massively bedded, which erode with steep slopes along streams.

The most pronounced topography of the region lies along the western half of the county, where stream beds are between 700' and 800' above sea level; the Mississippi River is about 600', while surrounding ridges rise to 1000'. Appendix II Geological Maps contains the following maps that graphically depicts the topographical condition of the County, as well as the bedrock surface of the County: *Land Surface Topography Map, Jo Daviess County, Illinois*, *Bedrock Surface Topography Map, Jo Daviess County, Illinois*, and *Shaded Relief Map of Bedrock Surface, Jo Daviess County, Illinois.* Table 5.2 below is a list compiled from information supplied by the Illinois State Geological Survey. It is not complete, but rather is for relative comparisons. There are many points in Jo Daviess County that exceed, for example, 1000 feet in elevation.

Table 5.2 Highest Points in Illinois*

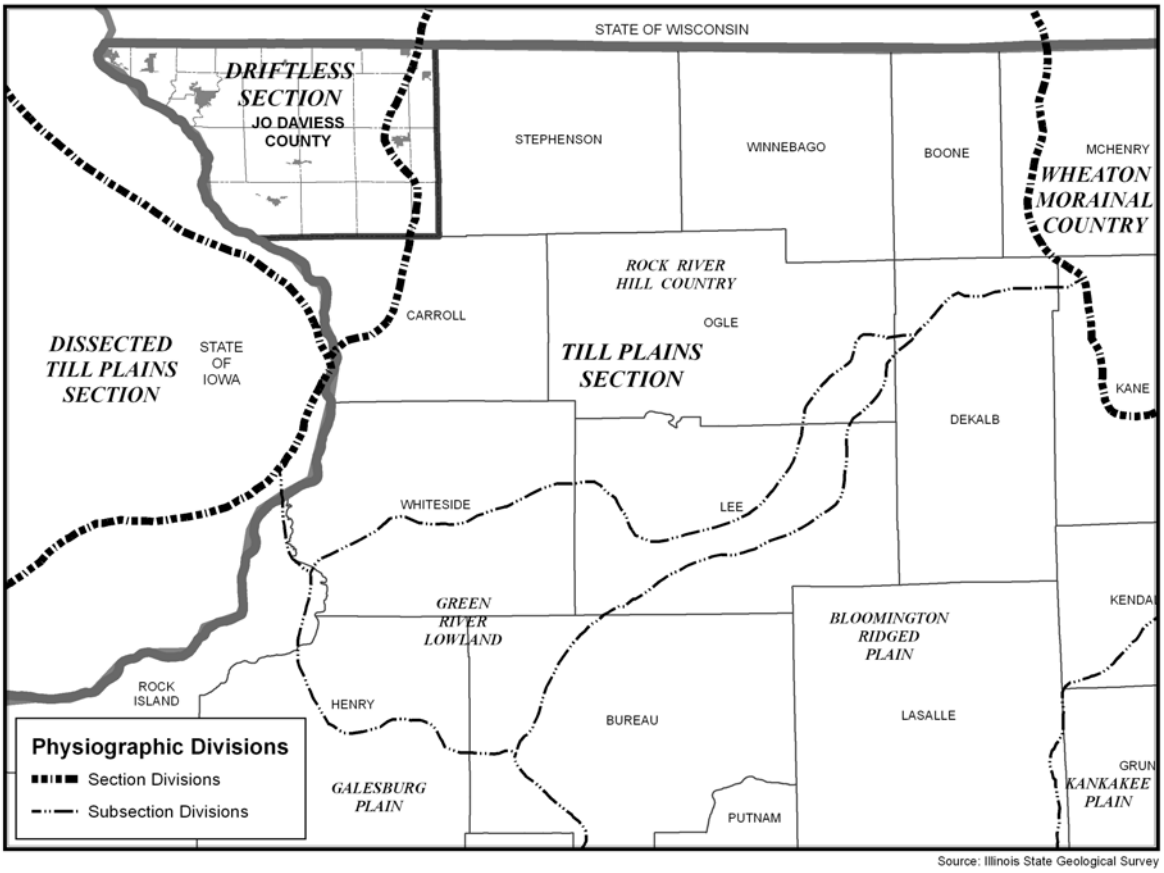
Elevation (Feet Above Mean Sea Level)	Name	County
1,235	Charles Mound	Jo Daviess
1,220	Benton Mound	Jo Daviess
1,194	Squirrel Grove Mound	Jo Daviess
1,192	Unnamed point	McHenry
1,189	Unnamed point	McHenry
1,170	Hudson Mound	Jo Daviess
1,140	Mount Sumner	Jo Daviess
1,140	Scales Mound	Jo Daviess
1,140	Unnamed point	Jo Daviess
1,115	Waddam's Hill	Stephenson
1,082	Simmonds Mound	Jo Daviess
1,065	Hourseshoe Mound	Jo Daviess
1,064	Williams Hill	Pope
1,060	Wenzel Mound	Jo Daviess
1,041	Terrapin Ridge	Jo Daviess
1,030	Bald Knob	Union
1,024	Unnamed point	McHenry
1,020	Unnamed point	Jo Daviess
1,015	Dygerts Mound	Jo Daviess
1,010	Blackhawk Monument Hill	Stephenson

1,007	Unnamed point	Jo Daviess
1,000	Pilot Knob	Jo Daviess

Jo Daviess County is divided into two distinct physiographic regions (see Figure 5.1 below). Most of the County is part of the Driftless Section, which is an area extending from the northwestern corner of Illinois into Iowa, Wisconsin and Minnesota that apparently escaped Pleistocene glaciation. Bordered by the Mississippi River Bottom lands on the west and characterized by rugged terrain that was originally mostly forested, the division contains northern and pre-Ice Age relict species (e.g., Iowa Pleistocene snail), dolomite outcrops and caves. The Driftless area is so named because it has little or no "drift" - the sediments deposited across the remainder of northern and central Illinois by glaciers that bypassed this corner of the state. The rough, unglaciated terrain features wooded uplands, rolling hills, narrow valleys, numerous streams, springs, and cliffs and bluffs.

The extreme eastern edge of the County is located in the Rock River Hill Country of the Till Plains Section of the Central Lowlands Province. The Central Lowlands Province is principally the State of Illinois. This area is characterized by its rolling hills, thin glacial drift and narrow valleys. The Rock River Hill Country Division is divided into two sections; Freeport and Oregon. Two distinct bedrock types are recognized in these section, dolomite and limestone under the Freeport Section and sandstone under the Oregon Section. These different bedrock types have a significant effect on the resultant flora and natural communities of the two sections.

Figure 5.1: Physiographic Divisions



Source: Illinois State Geological Survey

B. Geology and Mineral Resources

1. Geology

The topography of Jo Daviess County is characterized by rugged relief unique to most of Illinois. Our county, located in the far northwestern corner of the state, is in an area spared by the major glaciations of the last two million years. It is, accordingly, called the "Driftless Area" by geologists, the term "drift" referring to material deposited by glacial activity.

The visible landscape that we see today began during the Paleozoic Era (570 to 245 million years ago) when shallow seas repeatedly inundated the interior of the continent. Shells of marine animals, along with muds, silts and sands from eroding highlands, were periodically deposited in those sea bottoms. Gradually, these beds were buried and lithified into rock layers of limestone, dolomite, shale and sandstone. The result over millions of years was hundreds of feet of sedimentary rocks.

Today, geologists classify layers of rock by their chemical and physical properties. Also critical to their classification are fossilized remains of plants and animals, which give clues to the relative ages of the layers. A geological formation is a set of rock layers that are distinctive enough to be identified in the field. They can be anywhere from a few inches to several hundred feet in thickness.

The oldest formations in Jo Daviess are of Ordovician age, or roughly 450 million years old. These are the rock layers seen along the Apple River, the Galena River, or in the large quarry west of Elizabeth. They are made up largely of beds of dolomite (commonly referred to as "limestone"), a rock composed of calcium and magnesium carbonates. Other common rocks are limestone, a chemical precipitate of calcium carbonate; shale, which comes from layers of mud; and sandstone, from layers of sand.

The youngest rocks we see today are of Silurian age, or just over 400 million years old. These layers are those seen on the tops of high ridges and mounds. They are mostly dolomite, a very hard rock that resists the effects of erosion. They underlie Terrapin Ridge and U.S. 20 from the Long Hollow Scenic Overlook to the Galena Territory. The highest points in the state are capped by these rocks, including Charles, Horseshoe and Benton Mounds.

Our part of Illinois has been relatively stable during the last 250 million years. During this long period, many hundreds of feet of rock layers have eroded away. Because of this the area was reduced to a relatively flat erosional plain with sluggish streams flowing southward in broad valleys. This plain was at the level of the highest mounds and ridges that one sees today.

But then the land was uplifted through tectonic activity (movement of crustal plates) and this caused streams to begin cutting downward with increased activity. This increased erosional activity caused a more rugged topography to develop. Stability ensued and a new plain of low relief began to form, this time at the level of the Galena dolomite, or roughly at the elevation of Warren, Woodbine and Eagle Ridge Inn. But then came the glaciers.

Geologists refer to the period of continental glaciations as the Pleistocene Epoch, a period lasting from about 2 million years ago to 10,000 years ago. Major periods of ice advance from northern Canada significantly affected Illinois during this period. These were huge sheets of ice, often more than a mile thick, that originated because of climatic change. These glaciers affected Illinois greatly. They destroyed the drainage patterns of streams while leveling hills and filling in valleys. In the process some plants and animals became extinct while others were forced to "migrate" farther south.

The glacial movement was neither regular nor uniform. Lobes of ice advanced and receded; some areas were more heavily affected than others. During the last 1.6 million years, as many as 14 glaciations may have invaded Illinois, caused each time by global fluctuations in temperature. In between glaciations, erosion continued, new soils began to redevelop, and new flora and fauna moved in. It is a complex period in our earth's history.

For reasons that are not yet fully understood, a small area of land in northwest Illinois, southwest Wisconsin, and northeast Iowa was missed by most, if not all of these glacial advances (see *Figure 5.1 Physiographic Divisions*). As a result, geologists refer to this area as the "Driftless Area." Drift is anything that was glacially deposited and no drift has been found in this region. Jo Daviess County is at the southern end of this area. Stephenson County was glaciated, but long enough ago to have still developed a landscape similar to Jo Daviess but with a more subtle and gently rolling topography.

Prior to glaciation, the streams and drainage patterns that we see today did not exist. The Mississippi River did not exist. Rather, it originated as meltwater flowing along the margin of the ice sheet. Over several ice advances and thousands of years, the river developed the channel we know today.

Although our area was never covered by ice, it was never-the-less affected greatly. In fact, the rugged topography so characteristic of the Driftless Area is due in part to the nearby glacial activity. As the ice sheets with their pulsating lobes ebbed and flowed, meltwater would alternately erode and then fill in stream channels. The channel of the Mississippi River at Savanna, for example, was close to 200 feet deeper than at present.

As the streams in Jo Daviess County realigned themselves with the deepened Mississippi channel, they began to erode more rapidly. It was the same effect as if tectonic activity had uplifted the land, giving new life to sluggish old streams. As a result, our streams began to cut down with renewed vigor, forming narrow valleys with steep bluffs, as seen along the Apple River and its tributary valleys like Long Hollow and Irish Hollow.

The glaciers affected the land in another way, too. During the winters of glacial periods, westerly winds blew dust from the dry flood plains of the Mississippi Valley onto the uplands to the east. This fine material, called loess, developed a thickness of 25 feet in western Jo Daviess County, gradually thinning to 5-8 feet along the eastern border near Stockton. Our modern soils, developed on this mantle of loess, are richer agriculturally than would otherwise have been the case.

The last glacial advance receded from the surrounding area about 20,000 years ago. The farthest extent of ice to the east was near a line running from Stockton to Warren. In fact, Benton Mound (the second highest point of land in Illinois), the large mound immediately to the west and north of Stockton, is the boundary. It was to the east of this mound that glacial meltwater formed, backing up the South Branch of the Apple River, creating a large lake. The Apple River at that time flowed from the northwest to the southeast and emptied into the Pecatonica. As the water level rose, it breached a small divide where Apple River Canyon State Park is now located. This permitted the lake and meltwater to drain into a small stream flowing southwestward. This torrent of water created the "Apple River Canyon" that we know today, one of the most ecologically significant areas in the state. The rock cliffs and steep valley walls of this stream have provided shelter for a host of threatened and endangered plants and animals.

During the last 20,000 years, the Driftless Area has continued to develop. The streams are still cutting down, the hills and ridges are being eroded, soils are still developing, and the flora and fauna are still adjusting. During the last 200 years the greatest changes have been manmade. But despite vegetation being cut, fields plowed, and streams altered, the land still retains a uniqueness and attractiveness not to be found elsewhere in the state.

Appendix II Geologic Maps contains the following maps, produced by the Illinois State Geological Survey, that graphically depict the geology of Jo Daviess County:

- *Map Showing Thickness of Quaternary Deposits, Jo Daviess County, Illinois*
- *Surficial Geology Map, Jo Daviess County, Illinois*
- *Bedrock Geology Map, Jo Daviess County, Illinois*
- *Bedrock Surface Topography Map, Jo Daviess County, Illinois*
- *Land Surface Topography Map, Jo Daviess County, Illinois*
- *Shaded Relief Map of Bedrock Surface, Jo Daviess County, Illinois*
- *Aquifer Sensitivity Map, Jo Daviess County, Illinois*
- *Map Showing Location of Data Points, Jo Daviess County, Illinois*

2. Mineral Resources: Lead Ore and Zinc

In the mid 1840s, the Galena area had become the nation's primary source of lead ore. After the Civil War, the demand for lead declined, but mining continued with zinc being the primary metal and lead a secondary product. Although ore deposits are still substantial, mining operations have ceased and are not likely to be reactivated. The sealing of abandoned mines is an ongoing project to prevent contamination of groundwater supplies. Piles of mine tailings remain in the western part of the county.

3. Mineral Resources: Sand/Gravel and Crushed Stone (Aggregates)

Crushed stone for construction is an important mineral resource derived by quarrying bedrock in Jo Daviess County, as well as surrounding counties. Dolomite and limestone strata of the Ordovician Galena and Platteville Groups, which crop out or are close to the ground surface throughout much of the County and surrounding region, provide a convenient source of this material (see Appendix II Geological Maps). Most of the rock mined in Jo Daviess County is of the Galena Group and Platteville Group. In addition to aggregate and agricultural lime, cement is an important product derived from the Platteville Group carbonate rocks of the County. Demand for this resource will likely increase.

The active mineral industry in Jo Daviess County includes approximately sixteen (16) limestone and dolomite quarries distributed throughout the County, and one sand/gravel quarry (see Appendix II Geological Maps, *Map Showing Location of Data Points, Jo Daviess County, Illinois*). Aggregate products are low-value commodities. Since these are bulk commodities with low unit values and high transportation costs, quarries tend to be located close to the major areas of demand.

Potential mineral resources in Jo Daviess County include sand/gravel, limestone and dolomite. Future development, however, depends on the underlying economic factors, the costs and returns. Accessibility to railroads and roads for transportation are important considerations in the development of quarries. In addition, siting of new quarries and reclamation of inactive quarry sites are significant and in some cases controversial issues in the county.

There is potential for dredging sand and gravel from the Mississippi River channel, flood plain, and terraces. Deposits of sand and gravel also occur within various stream valleys; they have fair to low economic potential. The sand and gravel deposits in the County belong mainly to the Cahokia Alluvium and to the well-sorted sand and gravel of the Henry Formation. Some deposits of medium grained Parkland Sand, which occurs in dunes in the County, may be marketable. The deposits along the flood plains of the rivers are mostly poorly sorted sand, silt, or clay and local deposits of sand and gravel that may be underlain by thicker, better sorted deposits of sand and gravel (Illinois Department of Natural Resources). The potential importance of a sand and gravel deposit as an aggregate resource depends on such factors as: (1) the thickness and extent of the

deposit, (2) the thickness and variability of the overburden, (3) the particle-size distribution and rock types (quality of material) in the deposit, (4) accessibility of the deposit to heavy-duty roads or railroads, and (5) distance of the deposit from the point of use.

4. Importance of Geology Within Jo Daviess County

Unique geological formations and the surface and subsurface distribution of geologic materials provide both exceptional recreational and educational opportunities, and the foundation for unique habitats that contain valuable biotic resources within Jo Daviess County. Following is a list of geologically significant features of Jo Daviess County:

- Bedrock exposures of numerous formations within Jo Daviess County provide unique educational opportunity for studying Earth history. In addition, bedrock exposures provide numerous opportunities for scenic overlooks and path/trail development.

- Plentiful groundwater resources in bedrock are found in Jo Daviess County. Because dolomite and shale of the Galena and Platteville Groups (dolomite), Maquoketa Group (Ordovician shale), and undivided Silurian dolomites are exposed or near the surface over much of Jo Daviess County, rainfall and snowmelt directly recharge these aquifers. It is essential that measures be established to protect recharge areas for these regional aquifer systems.

- Geologic deposits provide the parent materials from which the modern-day soils of Jo Daviess County were developed. To a large degree, the distribution of the natural flora within Jo Daviess County and the surrounding areas depends upon, and can be predicted by, variabilities in geologic materials. Crop productivity and the potential to grow plants are equally dependent on the distribution of soils and their hydrologic characteristics.

- Finally, geologic deposits provide direct habitat for fauna. For example, burrowing and subsurface dwelling insects and mammals, and rock-nesting birds rely on specific geologic materials and/or settings. Bottom-dwelling aquatic life is dependent on specific substrate conditions dictated by the geologic environment. Groundwater seeps and springs provide local habitats often with unique temperatures and water chemistry. When geology, topography and groundwater hydrology are fully understood, areas where critical habitats for rare and endangered species are likely to occur can be predicted and possible impacts of proposed management practices and /or land use changes can be determined.

According to the Illinois Natural History Survey records, eleven natural areas within Jo Daviess County contain outstanding geological features: Apple River Canyon, Hanover Bluff, East Dubuque Geological Area, Galena River Bluff, Apple River, Scales Mound Geological Area, Dixon Creek North Geological Area, Horseshoe Mound Geological Area, Pilot Knob Geological Area, Wise Lake Geological Area, and Royal Princess Geological Area (see Table 5.5 Illinois Natural Areas Inventory [INAI] Sites Within Jo Daviess County, Illinois).

C. Soils

Soil is a natural body comprised of solids (minerals and organic matter), liquid, and gases that occurs on the land surface, occupies space, and is characterized by one or both of the following: horizons, or layers, that are distinguishable from the initial material as a result of additions, losses, transfers, and transformations of energy and matter or the ability to support rooted plants in a natural environment. The upper limit of soil is the boundary between soil and air, shallow water, live plants, or plant materials that have not begun to decompose. Areas are not considered to have soil if the surface is permanently covered by water too deep (typically more than 2.5 meters) for the growth of rooted plants. The lower boundary that separates soil

from the non-soil underneath is most difficult to define. Soil consists of horizons near the earth's surface that, in contrast to the underlying parent material, have been altered by the interactions of climate, relief, and living organisms over time. Commonly, soil grades at its lower boundary to hard rock or to earthy materials virtually devoid of animals, roots, or other marks of biological activity. For purposes of classification, the lower boundary of soil is arbitrarily set at 200 cm (From *Soil Taxonomy*, second edition).

The present soils of Jo Daviess County are composed mostly of wind-blown loess, disintegrated rock, and, along valley floors, flood-deposited soil (alluvium).

22.4% of the soil types identified in Jo Daviess County (approximately 88,801.3 acres) are classified as being “prime farmland”; 43.3% (approximately 171,564.9 acres) are classified as “farmland of statewide importance”. The remaining soils (135,708.6 acres or 34.3% of the County) are classified as “not prime farmland”, “other land”, “water” or “wetland”. "Prime farmland" is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland. See Appendix I Maps for map titled *Map 5.2 Farmland Classification of Soils, Jo Daviess County, Illinois.*

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

For some of the soils identified in the table as prime farmland, measures that overcome a hazard or limitation, such as flooding, wetness, and doughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. A recent trend in land use in some areas has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

In some areas, land that does not meet the criteria for prime or unique farmland is considered to be "farmland of statewide importance" for the production of food, feed, fiber, forage, and oilseed crops. The criteria for defining and delineating farmland of statewide importance are determined by the appropriate State agencies. Generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some areas may produce as high a yield as prime farmland if conditions are favorable.

The United States Department of Agriculture, Natural Resources Conservation Service (in cooperation with other Federal, State and local agencies), has prepared a soil survey for Jo Daviess County. Soil surveys contain information that affects land use planning in the soil survey areas. They include predictions of soil behavior for selected land uses. The survey highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

Soil surveys are designed for many different users. Farmers, foresters, and agronomists can use the surveys to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the surveys to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations. These and many other soil properties that affect land use are described in the Jo Daviess County Soil Survey. The location of each soil is shown on the detailed soil maps found in the Jo Daviess County Soil Survey. Each soil in the survey area is described, and information on specific uses is given.

D. Groundwater and Water Supply

Groundwater quality is a high priority in Illinois. Water quality degradation or contamination resulting from point and nonpoint sources throughout the state is of primary concern. In many industrialized parts of the state (including the metropolitan areas of Chicago, Rockford, and East St. Louis) groundwater in glacial deposits and bedrock aquifers has been degraded by improperly contained or disposed of chemicals. In some agricultural areas, the quality of groundwater in the underlying shallow aquifers has been degraded by the routine application of agricultural chemicals.

Much of Jo Daviess County has a very high aquifer sensitivity because fractured dolomite bedrock aquifers lie beneath thin glacial drift or loess. Areas where dolomite bedrock is exposed are most sensitive. In addition, a high potential for contamination exists where thick coarse- grained unconsolidated sediments occur. In contrast, areas underlain by shale bedrock have a low sensitivity to aquifer contamination. A more moderate sensitivity to aquifer contamination exists in areas where fine- grained unconsolidated deposits overlie dolomite bedrock (such as till-covered landscapes in the east-central portion of the county) or where thin coarse-grained unconsolidated deposits overlie shale. The Illinois State Geological Survey has prepared a titled *Aquifer Sensitivity Map, Jo Daviess County, Illinois* that is found in Appendix II Geological Maps herein.

The Illinois Environmental Protection Agency (IL EPA) has designed and implemented a “probabilistic monitoring network” of community water supply wells (CWS) in the State of Illinois. The goal of the network is to represent contamination levels in the population of all active CWS wells. This probabilistic network is designed to provide an overview of the groundwater conditions in the CWS wells; provide an overview of the groundwater conditions in the principle aquifers (e.g., sand and gravel, Silurian, Cambrian-Ordovician, etc.,); establish baselines of water quality within the principle aquifers; identify trends in groundwater quality in the principle aquifers; and evaluate the long-term effectiveness of the Illinois Groundwater Protection Act, Clean Water Act and Safe Drinking Water Act program activities in protecting groundwater in Illinois. Of the 354 wells in the IL EPA’s probabilistic monitoring network, one is located in Jo Daviess County.

Assessment of overall groundwater use support is based upon application of Illinois’ Ground Water Quality Standards (including non-degradation standards) to water quality sample measurements from the probabilistic network of CWS wells. Generally, a detection of an organic contaminant above the laboratory practical quantification limit or the detection of an inorganic constituent above the naturally occurring background level in a CWS well is considered a cause of less than full use support. Class I standards include the non-degradation standards. The attainment of use support is described as Full and Nonsupport, as described below:

Full Support:

Good - indicates that no detections occurred in organic chemical monitoring data and inorganic constituents assessed were at or below background levels for the groundwater source being utilized.

Nonsupport:

Fair - indicates that organic chemicals were detected and therefore exceed the non-degradation standard, but measured levels are less than the numerical Class I Ground Water Quality Standards (GWQS), and inorganic constituents assessed were above background level (non-degradation standard) but less than the numerical Class I GWQS.

Poor - indicates that organic chemical monitoring data detections were greater than the Class I GWQS and inorganic chemicals assessed were greater than both the background concentration and Class I GWQS.

According to the Illinois Integrated Water Quality Report and Section 303(d) List - 2010 (Clean Water Act Sections 303(d), 305(b) and 314; Water Resource Assessment Information and Listing of Impaired Waters; Volume II: Groundwater) dated March 2012, the Jo Daviess County well in the IL EPA's probabilistic monitoring network was determined to be Fully Supporting ("Good").

For comparison, of the 354 wells in the IL EPA's state-wide probabilistic monitoring network:

- 28 (8 percent [%]) were determined to be Not Supporting ("Poor") due to the elevated levels of nitrate and VOCs that include trichloroethylene and of these wells draw their water from shallow sand & gravel aquifers, except for one, which is using a deep well from the Cambrian/Ordovician bedrock aquifer in the northern part of the state);
- 91 (25%) were determined to be Not Supporting ("Fair") due to statistically significant increases in chloride (Cl-) above background, detections of VOCs, nitrate (total nitrogen) greater than 3 mg/l, but have not exceeded the health-based Groundwater Quality Standards; and
- 235 (67 %) were determined to be Fully Supporting "Good"), which show no detections of any of the above analytes.

The summary and conclusions of the Illinois Integrated Water Quality Report and Section 303(d) List - 2010 are that, "*Illinois groundwater resources are being degraded. Degradation occurs based on the potential or actual diminishment of the beneficial use of the resource. When contaminant levels are detected (caused or allowed) or predicted (threat) to be above concentrations that cannot be removed via ordinary treatment techniques, applied by the owner of a private drinking water system well, potential or actual diminishment occurs. At a minimum private well treatment techniques consist of chlorination of the raw source water prior to drinking. This groundwater degradation is exacerbated due to the predicted shortages of drinking water sources in the northeastern Illinois. It should be noted that groundwater that is consumed via a CWS has to be treated before it is delivered to the users. This treatment often includes methods for removing various contaminants*."

Groundwater is generally plentiful in Jo Daviess County and the surrounding area. According to the Illinois Environmental Protection Agency's "Source Water Assessment Program" Jo Daviess County has nineteen (19) "community water supplies" and fifteen (15) "non-community" water supplies (see Chapter 4, Section 4.1 Public Utilities Inventory, Paragraph A. Water Supply). A "community water supply" serves at least 15 service connections used by year-round residents or regularly serves 25 year-round residents. "Non-community water supplies" may be one of two types: "Non-Transient Non-Community water supplies" serve at least 25 non-residential individuals during 6 months of the year; "Transient Non-Community water

supplies" regularly serve at least 25 non-residential individuals (transient) during 60 or more days per year. All of the "community water supplies" and "non-community water supplies" in the County access ground water via wells.

13,946 people in Jo Daviess County, or 61.4% the total County population, receive their domestic water from a community water supply. The remainder of the population is served by private wells.

The Illinois Environmental Protection Act provides minimum protection zones of 200 feet for community wells, which is regulated by IEPA. However, to further minimize the risk to a community's groundwater supply, IEPA recommends that communities consider three additional actions: 1) Enact a "maximum setback zone" ordinance. These ordinances are authorized by the Illinois Environmental Protection Act and allow county and municipal officials the opportunity to provide additional protection up to a fixed distance, normally 1,000 feet from their well; 2) The water supply staff may wish to revisit their contingency planning documents. Contingency planning documents are a primary means to ensure that, through emergency preparedness, a community will minimize their risk of being without safe and adequate water; and, 3) The water supply staff is encouraged to review their cross connection control program to ensure that it remains current and viable. Cross connections to either the water treatment plant (for example, at bulk water loading stations) or in the distribution system may negate all source water protection initiatives provided by the community.

Community drinking water systems are inspected and monitored under the supervision of the Illinois Environmental Protection Agency (IEPA), while non-community drinking water systems are the responsibility of the Illinois Department of Public Health (IDPH). In addition, IDPH reviews water well installation plans, issues permits for new well construction, and inspects wells. However, private water well owners themselves have the primary responsibility to test well water for potential contaminants.

An estimated 38.6% of the population of Jo Daviess County receives its domestic water supply via a private well. Groundwater (the source of fresh water for households with a well) can become contaminated in many ways: through contact with natural pollutants, such as arsenic and radon, and by human activities, such as chemical spills and failing septic systems. The degree to which a potential health threat may exist depends on the amount and type of the contamination. In some cases, contamination of the water can be detected by sight, taste or smell; however, many of the most serious problems can only be detected through laboratory testing of the water.

E. Surface Water

A watershed is defined as the land area that directly drains water, sediment, and other materials to a common stream, river or lake (often considered synonymous with a drainage basin or catchment). Watershed (drainage basin) boundaries follow topographic highs - land elevation, not political borders, defines watershed boundaries. Watersheds are important as the viability of the watershed directly affects the health of the communities within that watershed. Water for human consumption, wildlife, industry and recreation are all impacted by activities that occur within the watershed.

Watersheds may be broken down into smaller and smaller units based on drainage area. For example, a large stream's watershed, such as the Mississippi River watershed, may be broken down into smaller watersheds based on the streams that flow into it. In turn, these streams may be broken down into smaller units and so on. In Illinois, watersheds are categorized (from largest unit to smallest) as basins, sub-basins, and local watersheds.

Most of Jo Daviess County is drained by the Upper Mississippi-Maquoketa-Plum River Basin and Apple-Plum River Sub-basin, and portions of the extreme eastern and northeastern portions of the County are drained by the Rock River basin and Pecatonica River Sub-basin (see Appendix I Maps, *Map 5.3 Watershed Sub-basins, Jo Daviess County, Illinois*). Local watersheds within Jo Daviess County are:Apple River; Beaver Creek-Mississippi River; Camp Creek; Canyon Lake; Crooked Slough-Mississippi River;

East Fork Galena River; East Plum Creek; Frentress Lake-Mississippi River; Furnace Creek; Galena River; Headwaters Smallpox Creek; Irish Hollow; Kelsey Branch-Galena River; Lawhorn Creek-Rush Creek; Little Menominee River-Mississippi River; Little Rush Creek; Menominee River; Mill Creek; Mud Run-South Fork Apple River; Muddy Plum River-Plum River; North Fork Plum River-Plum River; Rush Creek Sinsinawa River; Smallpox Creek; South Fork Apple River; Spafford Creek; Spruce Creek-Mississippi River; Upper Yellow Creek; Welsh Hollow-Apple River; and, West Fork Apple River-Apple River (see Appendix I Maps, *Map 5.4 Local Watersheds, Jo Daviess County, Illinois*).

The Mississippi River is the largest river in the United States, draining about 41% of the entire country. The Mississippi River forms the entire western border of Jo Daviess County. Over the years, the Mississippi ("The father of the waters") has greatly affected the county through river transportation, wildlife, recreation, tourism, and flooding. Water levels in the Mississippi are controlled through lock and dam system operated by the U.S. Army Corps of Engineers (U.S.A.C.E.).

The two major types of lakes in Jo Daviess County are man-made impoundments of streams, and backwater lakes or navigation pools along the Mississippi River. The two major stream impoundments in the County are Lake Galena and Apple Canyon Lake. Lake Galena is a 213 acre lake constructed in 1975 for recreation/residential development purposes. Apple Canyon Lake is a 419 acre impoundment constructed in 1969 for recreation/residential development purposes. There are may additional small impoundments (lakes and ponds) in the County, most of which are private, unnamed, less than 10 acres in area and are used for agricultural, recreational or erosion control/sediment management purposes. Backwater lakes and navigation pools along the Mississippi River have a total surface area of approximately 10,164 acres.

The Illinois Environmental Protection Agency (IEPA) annually collects chemical, physical, biological, habitat and toxicity data on rivers and streams, inland lakes, Lake Michigan and groundwater to satisfy reporting requirements found in Section 305(b) of the Federal Clean Water Act (CWA). The primary purpose of the Section 305(b) process is to provide for an assessment of the overall water quality conditions of Illinois waters. The IEPA provides the following assessment of streams in Jo Daviess County (not all streams are assessed):

Table 5.3
Stream Quality Data
IEPA Assessed Streams Within Jo Daviess County

Stream Segment ID	Stream Segment Name	Segment Length (mi.) or Size (Ac.)	Designate Uses	Potential Causes of Impairment	Potential Sources of Impairment
IL_MU	Menominee River	6.28	Fully supportive of aquatic life.	N/A	N/A
IL_MT	Little Menominee River	8.85	Fully supportive of aquatic life.	N/A	N/A
IL_MS	Sinsinawa River	10.23	Not supportive of aquatic life.	Sedimenta-tion/siltation	Agriculture
IL_MQA	Hughlett Branch	4.57	Not assessed.	---	---

Stream Segment ID	Stream Segment Name	Segment Length (mi.) or Size (Ac.)	Designate Uses	Potential Causes of Impairment	Potential Sources of Impairment
IL_MQ-01	Galena River	8.61	Not supportive of aquatic life, fish consumption, primary contact, secondary contact and aesthetic quality.	Alteration in stream-side or littoral vegetative covers; sedimenta-tion/siltation; total suspended solids (TSS); zinc; polychlorina-ted biphenyls; fecal coliform.	Channeliza-tion; livestock (grazing/feed ing); urban runoff/storm sewers; impacts from abandoned mine lands (inactive); other unknown sources.
IL-_MQ-02	Galena River	8.58	Not supportive of aquatic life, fish consumption, primary contact, secondary contact and aesthetic quality.	Alteration in stream-side or littoral vegetative covers; aquatic algae; polychlorina-ted biphenyls; unknown causes.	Livestock (grazing/feed ing); loss of riparian habitat; other unknown sources.
IL_MQB	East Fork Galena River	11.7	Fully supportive of aquatic life	N/A	N/A
IL_MPA	Smallpox Creek	14.32	Fully supportive of aquatic life	N/A	N/A
IL_MN-01	Apple River	17.22	Not assessed.	N/A	N/A
IL_MN-03	Apple River	8.96	Fully supportive of aquatic life; not supportive of primary contact.	Fecal coliform	Unknown source(s).
IL_MN-04	Apple River	11.7	Fully supportive of aquatic life.	N/A	N/A
IL_MN-07	Apple River	4.64	Fully supportive of aquatic life.	N/A	N/A

Stream Segment ID	Stream Segment Name	Segment Length (mi.) or Size (Ac.)	Designate Uses	Potential Causes of Impairment	Potential Sources of Impairment
IL_MN-08	Apple River	3.01	Not supportive of aquatic life.	Unknown cause(s).	Unknown source(s).
IL_MN-19	Apple River	7.13	Fully supportive of aquatic life.	N/A	N/A
IL_MN-A	Duke Creek	3.05	Not assessed.	N/A	N/A
IL_MNB	Wolf Creek	6.61	Not assessed.	N/A	N/A
IL_MND	Furnace Creek	4.74	Fully supportive of aquatic life.	N/A	N/A
IL_MNDA-01	Long Hollow Creek	5.88	Fully supportive of aquatic life.	N/A	N/A
IL_MNE	Mill Creek	13.19	Fully supportive of aquatic life.	N/A	N/A
IL_MNEA	Hell's Branch	11.7	Not assessed.	N/A	N/A
IL_MNF-01	Welsh Hollow Creek	7.3	Fully supportive of aquatic life.	N/A	N/A
IL_MNG	Coon Creek	6.28	Not assessed.	N/A	N/A
IL_MNK	West Fork Apple River	8.94	Not assessed.	N/A	N/A
IL_MNJ-01	Kentucky Creek	2.44	Not supportive of aquatic life.	Unknown cause(s)	N/A
IL_MNIA-11	Clear Creek	6.51	Fully supportive of aquatic life.	N/A	N/A
IL_MNIB	Birch Branch	4.2	Not assessed.	N/A	N/A
IL_MNIC	Wolf Creek	7.71	Not supportive of aquatic life.	Phosphorus (total); unknown causes.	Municipal point source discharge(s)
IL_MNI-12	South Fork Apple River	10.97	Not assessed.	N/A	N/A
IL_TM-35	Mud Run	3.5	Fully supportive of aquatic life.	N/A	N/A

Stream Segment ID	Stream Segment Name	Segment Length (mi.) or Size (Ac.)	Designate Uses	Potential Causes of Impairment	Potential Sources of Impairment
IL_TM_36	Mud Run	4.91	Not supportive of aquatic life.	Ammonia (total); oxygen (dissolved); phosphorus (total)	Municipal point source discharge(s)
IL_PWN-02	Yellow Creek	30.51	Fully supportive of aquatic life.	N/A	N/A
IL_ML	Rush Creek	30.14	Not assessed.	N/A	N/A
IL_MLA	Little Rush Creek	12.74	Not assessed.	N/A	N/A
IL_MLB	Lawhorn Creek	5.33	Not assessed.	N/A	N/A
IL_MLC	Rindes-bacher Creek	3.59	Not assessed.	N/A	N/A
IL_MJAA	Scrub Creek	4.13	Not assessed.	N/A	N/A
IL_MJA-02	Camp Creek	18.28	Not assessed.	N/A	N/A
IL_MJ-02	Plum River	19.05	Fully supportive of aquatic life.	N/A	N/A
IL_MJD	Davis Creek	6.4	Not assessed.	N/A	N/A
IL_MJE	Muddy Plum River	10.06	Fully supportive of aquatic life.	N/A	N/A
IL_MJF	North Fork Plum River	4.25	Not assessed.	N/A	N/A
IL_MJG	Middle Fork Plum River	4.55	Not assessed.	N/A	N/A
IL_MJH	Hammond Branch	3.32	Not assessed.	N/A	N/A
IL_M-12	Mississippi River	59.72	Fully supportive of aquatic life; not supportive of fish consumption; fully supportive of primary and secondary contact;	Mercury; polychlorina-ted biphenyls	Atmospheric deposition - toxics; unknown source(s)

Stream Segment ID	Stream Segment Name	Segment Length (mi.) or Size (Ac.)	Designate Uses	Potential Causes of Impairment	Potential Sources of Impairment
IL_RMJ	Apple Canyon Lake	450 Ac.	Insufficient information for assessment of aquatic life and aesthetic quality; not assessed for fish consumption, primary contact, and secondary contact.	N/A	N/A
IL_RMA	Frentress Lake	92 Ac.	Not supportive of aquatic life and aesthetic quality; not assessed for fish consumption, primary contact, and secondary contact.	Oxygen, dissolved; total suspended solids (TSS); phosphorus (total); aquatic algae	Agriculture; urban runoff/storm sewers
IL_RMM	Lake Galena	220	Insufficient information for assessment of aquatic life and aesthetic quality; not assessed for fish consumption, primary contact, and secondary contact.	Phosphorus (total); aquatic plants (macro-phytes)	Source unknown

Source: Illinois Integrated Water Quality Report and Section 303(d) List - 2010 (IL Environmental Protection Agency)
Note: Some streams/stream segments are not entirely within Jo Daviess County. This table does not reflect all Jo Daviess County streams/stream segments, but only those assessed and/or monitored by IEPA.)

F. Wetlands

In general terms, wetlands are lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface. The single feature that most wetlands share is soil or substrate that is at least periodically saturated with or covered by water. The water creates severe physiological problems for all plants and animals except those that are adapted for life in water or in saturated soil. Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of the year. (*U.S. Fish & Wildlife Service*)

Wetlands found to occur within Jo Daviess County are classified by the U.S. Fish & Wildlife Service as "Lacustrine", "Palustrine" or "Riverine" wetlands.

The Lacustrine System includes wetlands and deepwater habitats with all of the following characteristics: 1) situated in a topographic depression or a dammed river channel; 2) Lacking trees, shrubs, persistent emergents, emergent mosses or lichens with greater than 30% areal coverage; and, 3) Total area exceeds 20 acres.

The Palustrine System includes all non-tidal wetlands dominated by trees, shrubs, emergents, and mosses or lichens. The Palustrine System was developed to group the vegetated wetlands traditionally called by such names as marsh, swamp, fen, and prairie, which are found throughout the United States. It also includes the small, shallow, permanent or intermittent water bodies often called ponds. Palustrine 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.

The Riverine System includes all wetlands and deepwater habitats contained in natural or artificial channels periodically or continuously containing flowing water or which forms a connecting link between the two bodies of standing water. Upland islands or Palustrine wetlands may occur in the channel, but they are not part of the Riverine System.

The National Wetlands Inventory (U.S. Fish & Wildlife Service) indicates the presence of approximately 20,919.7 acres of wetlands within Jo Daviess County (see Appendix I Maps, *Map 5.5: Wetlands, Jo Daviess County, Illinois*). Approximately 56.8% of these wetlands are classified as Lucustrine; approximately 40.4% are classified as Palustrine; and, approximately 2.8% are classified as Riverine. The descriptive (Cowardin classification system) types of wetlands found in Jo Daviess County are indicated in the following Table 5.3.

Table 5.4
Wetland Type and Acreage
Jo Daviess County, IL

Wetland Type	Area (Ac.)
Freshwater Emergent (Palustrine)	708.9
Freshwater Forest/ Shrub (Palustrine)	7,241.9
Pond (Palustrine)	499.4
Lake - includes much of Mississippi River, Lake Galena and Apple Canyon Lake (Lacustrine)	11,872.7
Riverine	596.0
Other (Palustrine)	0.8
TOTAL	20,919.7

Source: U.S. Fish & Wildlife Service, National Wetlands Inventory

G. Floodplains

Flood plain lands and adjacent waters combine to form a complex, dynamic physical and biological system found nowhere else. When portions of floodplains are preserved in (or restored to) their natural state, they provide many benefits to both human and natural systems. These benefits range from providing aesthetic pleasure to reducing the number and severity of floods, helping handle stormwater runoff and minimizing non-point water pollution. For example, by allowing floodwater to slow down, sediments settle out, thus maintaining water quality. The natural vegetation filters out impurities and uses excess nutrients. Such natural processes cost far less money than it would take to build facilities to correct flood, stormwater,

water quality and other community problems. Natural resources of floodplains fall into three categories: water resources, living resources and societal resources. The following sections describe each category's natural and beneficial functions.

Natural flood and erosion control

Over the centuries, floodplains develop their own ways to handle flooding and erosion with natural features that provide floodwater storage and conveyance, reduce flood velocities and flood peaks, and curb sedimentation. Natural controls on flooding and erosion help to maintain water quality by filtering nutrients and impurities from runoff, processing organic wastes and moderating temperature fluctuations. These natural controls also contribute to recharging groundwater by promoting infiltration and refreshing aquifers, and by reducing the frequency and duration of low surface flows.

Biologic resources and functions

Floodplains enhance biological productivity by supporting a high rate of plant growth. This helps to maintain biodiversity and the integrity of ecosystems. Floodplains provide excellent habitats for fish and wildlife by serving as breeding and feeding grounds. They also create and enhance waterfowl habitats, and help to protect habitats for rare and endangered species.

Societal resources and functions

People benefit from floodplains through the food they provide, the recreational opportunities they afford and the scientific knowledge gained in studying them. Wild and cultivated products are harvested in floodplains, which are enhanced agricultural land made rich by sediment deposits. They provide open space, which may be used to restore and enhance forest lands, or for recreational opportunities or simple enjoyment of their aesthetic beauty. Floodplains provide areas for scientific study and outdoor education. They contain cultural resources such as historic or archaeological sites, and thus provide opportunities for environmental and other kinds of studies. Floodplains can increase a community's overall quality of life, a role that often has been undervalued. By transforming floodplains from problem areas into value-added assets, the community can improve its quality of life. In Illinois, Chicago's lakefront, Peoria's riverfront, Naperville's Riverwalk, and Lockport's historic canal district are well-known examples. Parks, bike paths, open spaces, wildlife conservation areas and aesthetic features are important to citizens. Assets like these make the community more appealing to potential employers, investors, residents, property owners and tourists.

The Federal Emergency Management Agency (FEMA) has designated and mapped floodplains, or "Special Flood Hazard Areas" within Jo Daviess County (for specific information, the Jo Daviess County Flood Insurance Rate Maps and Flood Insurance Study should be reviewed [available from the Jo Daviess County Zoning Administrator / Flood plain Administrator]). Encroachment on flood plains by development, such as structures and fill, reduces the flood-carrying capacity, increases the flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. Development can occur in Special Flood Hazard Areas if structures are constructed above the elevation of the 100-year flood plain, but flood plain development should be discouraged.

In order to have common standards, the National Flood Insurance Program (NFIP) and the State of Illinois adopted a baseline flooding probability called the base flood. The base flood is the one percent chance flood. The one percent chance flood is the flood that has a one percent (one out of 100) chance of occurring in any given year. The one percent chance was chosen as a compromise between excessive exposure to flood risk from using a lower standard (such as a 10 percent chance flood) and applying such a high standard (say, a 0.1 percent chance flood) that it would be considered excessive and unreasonable for the intended purposes of requiring the purchase of flood insurance and regulating new development. The one percent chance flood has also been called the 100-year flood. The term 100-year flood is often misconstrued. Commonly, people interpret the 100-year flood definition to mean "once every 100 years." This is wrong. You could have a 100-year flood two times in the same year, two years in a row, or four

times over the course of 100 years. You could also not have a 100-year flood over the course of 200 years. To avoid confusion (and because probabilities and statistics can be confusing), the NFIP uses the term base flood. A 100-year flood is defined as having a one-percent chance of being reached or exceeded in any single year. Thus, the 100-year flood also is called the "one-percent annual chance flood." To restate, the 100-year flood, the base flood, refers to a flood that the one percent chance of occurring in any given year. The terms base flood, 100-year flood and one-percent annual chance flood are used interchangeably throughout the NFIP. Another term used is the "500-year flood." This has a 0.2% chance of occurring in any given year. While the odds area more remote, it is the standard used for protecting critical facilities, such as hospitals and power plants.

Development within Special Flood Hazard Areas is regulated to the "Base Flood." The land area covered by the floodwaters of the base flood is the base flood plain. On FEMA maps, the base flood plain is called the Special Flood Hazard Area (SFHA). The SFHA is the area where the NFIP's flood plain management regulations must be enforced by the community and the area where the federal mandatory flood insurance purchase requirement applies. The computed elevation to which floodwater is anticipated to rise during the base flood is the base flood elevation **(**BFE).

The term "100-year flood" has caused much confusion for people not familiar with statistics. Another way of looking at it is to think of the odds that a base flood will happen sometime during the life of a 30-year mortgage (26% chance) as indicated in Table 5.4 below.

Table 5.5
Chance of Flooding Over a Period of Years

	Flood Size			
Time Period	**10-Year**	**25-Year**	**50-Year**	**100-Year**
1 Year	10%	4%	2%	1%
10 Years	65%	34%	18%	10%
20 Years	88%	56%	33%	18%
30 Years	96%	71%	45%	26%
50 Years	99%	87%	64%	39%

Source: National Flood Insurance Program

Even these numbers do not convey the true flood risk because they focus on the larger, less frequent, floods. If a house is low enough, it may be subject to the 10- or 25-year flood. During the proverbial 30-year mortgage, it may have a 26% chance of being hit by the 100-year flood, but the odds are 96% (nearly guaranteed) that it will be hit by a 10-year flood. Compare those odds to the only 5% chance that the house will catch fire during the same 30-year mortgage. (Source: CFM Study Guide, IL Assoc. of Flood plain and Stormwater Managers).

H. Natural Areas and Open Spaces

With settlement, the nation's natural systems have changed. Like the Nation, Illinois has moved from complex natural systems toward simpler ones, from stable natural systems toward unstable ones, from native species toward non-native ones, from integrated natural systems toward fragmented ones, from self-sustaining natural systems toward managed ones. The result is a trend toward a generic Illinois environment populated by "generalist" species able to exploit simplified ecosystems. Complexity lingers mainly in habitats of only marginal use to humans, such as river bottomlands, swamps, hillsides and bogs.

The ecology of Jo Daviess County is even older than its hills and valleys. Indeed, living systems have been developing here since before the evolution of flowers. Over the last 10,000 years, the local ecology has been a combination of southern Ozarkian systems (oak, woodpecker, elk) and western Prairie systems (bluestem, meadowlark, bison). Within protected physical recesses, the landscape has also harbored species from the eastern Allegheny systems (maple, thrush, deer) and northern Boreal systems (white pine, yew, primrose).

In spite of general degradation of natural systems, Jo Daviess County retains an impressive array of regionally important natural resources. The Driftless Area in Jo Daviess and Carroll counties is designated as a Resource Rich Area under the Critical Trends Assessment Program, and has many unique characteristics. The area is characterized by rolling hills, canyons, mounds, palisades, caves, sinkholes and talus slopes.

Natural areas and open space provide Jo Daviess County with recreational opportunities, resource protection and aesthetic beauty, and are an important part of the County's identity. Jo Daviess County is host to a variety of natural communities and vegetation types. The distribution and extent of these natural communities has been altered significantly since European settlement. Many of the natural communities that remain were spared the conversion to cultivation due to uncompromising topography, unproductive soils, or preservation efforts on the part of the land owner.

1. Nature Preserves

Nature preserves are areas of land or water in public or private ownership that are formally dedicated to receive maximum protection of significant natural features. The central goal of the nature preserve system is to protect and preserve examples of all significant natural features found in Illinois for the purpose of scientific research, education, conserving biodiversity, and aesthetic enjoyment. Nature preserves are administered by the Illinois Nature Preserves Commission (INPC). Preserves usually are the shared responsibility of the INPC, the Illinois Department of Natural Resources, and the land owners. Three Illinois nature preserves occur within Jo Daviess County: Apple River Canyon, Hanover Bluff and Ward's Grove. There are thirteen other INPC protected areas in Jo Daviess County as follows:

- Tapley Woods Land and Water Reserve
- Apple River Canyon Land and Water Reserve
- Hanover Forest Land and Water Reserve
- Hanover Bluff Land and Water Reserve
- Wapello Land and Water Reserve
- Casper Bluff Land and Water Reserve
- Keough Effigy Mounds Land and Water Reserve
- Rall Woods Land and Water Reserve
- Asgard Natural Heritage Landmark
- Princess Mine Algific Slope Natural Heritage Landmark
- Gramerey Park Natural Heritage Landmark
- Rice Algific Slope Natural Heritage Landmark
- Eagle's Nest Land and Water Reserve

2. Illinois Natural Area Inventory

The Illinois Natural Areas Inventory (INAI) was conducted by the University of Illinois, the Natural Land Institute and the Illinois Department of Conservation (now Illinois Department of Natural Resources) over a three-year period in the mid-1970's to document remaining examples of the natural communities of Illinois. Results from the Inventory indicated that, statewide, only

0.07% of Illinois' total land and water area remained in what the INAI described as "high quality, relatively undisturbed" condition at the time. The Inventory established seven categories of natural areas based on significant features. The categories are:

I - High quality natural communities and natural community restorations;
II - Specific suitable habitat for state-listed species of state-listed species relocations;
III - State dedicated Nature Preserves, Land and Water Reserves, and Natural Heritage Landmarks;
IV - Outstanding geological features;
V - Category unused at this time;
VI - Unique concentrations of flora or fauna and high quality streams; and,
VII - Category not used at this time.

The INAI established a grading system to designate natural quality. The natural quality of a natural community was graded from A (relatively stable or undisturbed) to D (very early successional or severely disturbed). Grade E was reserved for cropland or other highly developed lands. In general, only A and B communities are designated as significant or exceptional features.

The INAI recognized twenty-one (21) sites totaling 26,081 acres in Jo Daviess County as indicated in the following Table 5.5.

Table 5.6
Illinois Natural Areas Inventory (INAI) Sites within Jo Daviess County, Illinois

Natural Area Name **-Category: (# of occurrences)** ***Significant/exceptional features**	**Categories**	**Acreage**
Apple River	II, VI	51.81
Apple River Canyon	I, II, III, IV	1436.95
Casper Bluff	III	71.03
Dixon Creek North Geological Area	IV	1.28
East Dubuque Geological Area	II, IV	4.95
Falling Down Prairie	I, III	294.76
Galena River Bluff	II, IV	25.52
Hanover Bluff	I, II, III, IV	1390.48
Horseshoe Mound Geological Area	IV	12.63
Keough Effigy Mounds	III	29.94
Mississippi River Backwaters - Jo Daviess County	II	7246.07
Pilot Knob Geological Area	IV	6.59
Princess Mine Algific Slope	I, II, III	173.18
Rice Algific Slope	I, II, III	56.31
Royal Princess Geological Area	IV	3.08
Savanna Army Depot	II	14289.33

Natural Area Name **-Category: (# of occurrences)** ***Significant/exceptional features**	**Categories**	**Acreage**
Scales Mound Geological Area	IV	1.03
Tapley Woods	III	303.58
Wapello	III	63.36
Ward's Grove	I, III	616.09
Wise Lake Geological Area	IV	2.68

Source: Illinois Department of Natural Resources

3. Upper Mississippi Wildlife and Fish Refuge:

The Upper Mississippi River National Wildlife and Fish Refuge (Refuge) forms the western boundary of Carroll County. For the most part, the Mississippi River shoreline along this 24-mile stretch is owned by the federal government, either the U.S. Army Corps of Engineers or the U.S. Fish and Wildlife Service. This area is managed as public lands within the National Wildlife Refuge System.

The Refuge includes about 240,000 acres and extends 261 miles along the Mississippi River from Princeton, Iowa to Wabasha, Minnesota and includes lands within four states (Iowa, Illinois, Wisconsin and Minnesota). The refuge is unique in that it is overlaid on a nationally important commercial navigation system and a nationally important recreation area, the Mississippi River. In addition, it interfaces with 70 communities. It is the most visited national wildlife refuge in the U.S. and is a national scenic treasure.

The Refuge completed a Comprehensive Conservation Plan (CCP) in August 2006 and began implementation of the 15-year plan in 2007. Proposed actions include revised regulations for public recreation and commercial activities (such as commercial fishing, guiding services, and fishing tournaments). The CCP document, along with related materials and the actions being implemented, are identified on the Refuge website at the following web address: http://www.fws.gov/midwest/UpperMississippiRiver/.

National wildlife refuges are managed primarily for the conservation of fish and wildlife and operate under a set of national guidelines that allow compatible uses. A compatible use is a use that will not materially interfere with or detract from the fulfillment of the National Wildlife Refuge System or the purposes of the Refuge. Commercial development of the Refuge, such as harbors, marinas, and barge terminals are incompatible uses.

Since 1995, Refuge staff have been working on the re-development of the closed Savanna Army Depot, now called the Lost Mound Unit of the Upper Mississippi Refuge. Most of the 10,000 acres of Lost Mound are in Jo Daviess County, and there are about 1,000 acres in Carroll County.

4. Driftless Area National Wildlife Refuge:

The Driftless Area National Wildlife Refuge was established in 1989, and is responsible for managing scattered tracts of land in the driftless area in portions of Minnesota, Wisconsin, Iowa and Illinois. These areas are important to the National Wildlife Refuge System because they possess unique physical and climatic conditions that are essential to the endangered Iowa Pleistocene snail (*Discus macclintocki*) and the threatened northern monkshood plant (*Aconitum*

noveboracense). In addition, these areas provide a refuge for a community of other rare plants and snails that have survived since glacial times. Some of these other species are candidates for listing under the provisions of the Endangered Species Act.

The Driftless Area derives its name from the fact that it has not been recently glaciated. A variety of microclimates is created by the unique physical characteristics of the land. Especially important to these rare species are steep, moist, north-facing slopes many of which are classified as "algific talus slopes". On these slopes, constant cold air and/or cold groundwater exiting from a cliff or talus slope creates a unique microclimate, one that may be considerably different from areas only meters away. This cool, moist habitat is necessary for the continued survival of these rare species. The refuge is currently 775 acres, consisting of nine units in four counties in northeastern Iowa. When the proposed acquisition is completed, at least 70 percent of the known northern monkshood population and 75 percent of the known population of the Iowa Pleistocene snail will be protected. The ultimate goal is recovery and removal of both species from the Federal list of endangered and threatened species.

I. Wildlife

Much of Jo Daviess County is suitable habitat for a variety of species of wildlife including birds, mammals, amphibians, reptiles, fish and other aquatic biota. Even in the intensive agricultural areas, scattered woodlands and fence rows exist which provide habitat for various wildlife species.

1. Mammals

Many mammals are generalists that use a variety of habitat types and have adapted to living in areas that have been transformed by humans. Mammals known or likely to occur in Jo Daviess County include:

- Virginia opossum
- Several species of Insectivores (masked shrew, northern short-tailed shrew, least shrew, eastern mole)
- Several species of bats
- Eastern cottontail rabbit
- Numerous species of rodents (including, to name a few, eastern chipmunk, woodchuck, thirteen-lined ground squirrel, Franklin’s ground squirrel, gray squirrel, fox squirrel, beaver, muskrat, and several species of mouse and vole)
- Several species of carnivores (including, coyote, red fox, gray fox, raccoon, mink, badger, striped skunk, river otter, bobcat, least and long-tailed weasel)
- White-tailed deer
- There have been several reports of wolf, bear and mountain lion sightings in Jo Daviess County in recent years.

2. Birds

The bird species that live in Jo Daviess County are ecologically diverse, and although some species are able to live in a variety of habitats, many species are adapted to living in only one or a few habitats. Many species of birds live year-round in Jo Daviess County or are migratory visitors during various times throughout the year. The Driftless Area and Jo Daviess County are a very distinctive part of Illinois. Similar habitats extend into Wisconsin and parts of Minnesota and Iowa that are both botanically and geologically unique in the upper Midwest. These traits help create a wide variety of natural communities. Because of the geographic position of the area (in the extreme northwest corner of the state), several species of birds either reach or are near the northern (e.g. Yellow-throated and Worm-eating Warblers), southern (e.g. Yellow-bellied Sapsucker and Sandhill Crane), or eastern (Yellow-headed Blackbirds) limits of their range, or are virtually disjunct outliers of their populations because of the unique botanical and geological traits of the area. Most, if not all native habitats in Jo Daviess County are chronically fragmented, and will likely remain so for the foreseeable future. For many birds of forest habitats, these are likely population "sinks" in which there is insufficient reproductive success to replace adults that die each year of natural causes. Nevertheless, the existence of large public land holdings (open space/habitat) such as Apple River Canyon State Park, Hanover Bluff, Savanna Army Depot, Upper Mississippi River National Fish and Wildlife Area, and other areas on which there are natural sand prairies, wetlands, riparian forest and upland forest, creates some opportunities for reducing the effects of habitat fragmentation. *(Adapted from Illinois Department of Natural Resources, Driftless Area Assessment, Volume 3 Living Resources)*

3. Amphibians and Reptiles

Several species of reptiles and amphibians are known to occur in Jo Daviess County, including salamanders and newts, frogs, turtles and snakes. The State-threatened timber rattlesnake and western hognose snake are known to occur in Jo Daviess County. Most amphibian and reptile species are not restricted to a single habitat type. For example, the timber rattlesnake requires forest habitat, but pregnant females also require open rocky areas. On the other hand, some species have narrower habitat requirements such as the smooth soft-shell turtle, a species likely to occur in the County, is only found in medium-sized creeks with sandy substrates and clear water.

4. Aquatic Biota

Jo Daviess County waters support a wide variety of aquatic biota including numerous species of fishes; freshwater mussels; and, crayfishes, isopods and amphipods.

Threatened or endangered species of aquatic biota known to occur or that have been observed in Jo Daviess County include the lake sturgeon, western sand darter, longnose sucker, pallid shiner and weed shiner (fishes); and, the slippershell, butterfly, higgins eye and black sandshell (freshwater mussels).

Stream habitat fragmentation, stream channelization, and stream degradation from agricultural and other point- and non-point sources, siltation and increased water temperatures are the greatest threats to aquatic biota in Jo Daviess County. Given the opportunity, streams will restore themselves and, often, the best approach to restoration may be to encourage restoration of the native vegetation of the drainage basin, in particular the riparian zone, correct any additional existing pollution problems, and let the stream return to natural conditions.

5. Threatened or Endangered Species

The Illinois Natural Heritage Database lists twenty-two (22) species of threatened or endangered animals that have been observed in Jo Daviess County as of September 12, 2011, as follows:

Scientific Name	Common Name	State Status	Last Observed
Acipenser fulvescens	Lake Sturgeon	Endangered	1998-09-14
Alasmidonta viridis	Slippershell	Threatened	2010-09-14
Ammocrypta clarum	Western Sand Darter	Endangered	2004-07-13
Bartramia longicauda	Upland Sandpiper	Endangered	2008-07-10
Canis lupus	Gray/timber Wolf	Threatened	2008-02-21
Catostomus catostomus	Longnose Sucker	Threatened	2005-06-15
Crotalus horridus	Timber Rattlesnake	Threatened	2008-09-23
Discus macclintocki	Iowa Pleistocene Snail	Endangered	1994-08-31
Ellipsaria lineolata	Butterfly (mussel)	Endangered	2001-08-31
Emydoidea blandingii	Blanding's Turtle	Endangered	2007-07-12
Hemidactylium scutatum	Four-toed Salamander	Threatened	2005-05-03
Heterodon nasicus	Plains Hog-nosed Snake	Threatened	2009-06
Hybopsis amnis	Pallid Shiner	Endangered	2010-06-28
Lampsilis higginsii	Higgins Eye	Endangered	2001-09-16
Lanius ludovicianus	Loggerhead Shrike	Endangered	2009-08
Ligumia recta	Black Sandshell	Endangered	2001-09-16
Myotis sodalis	Indiana Bat	Endangered	1954
Notropis texanus	Weed Shiner	Endangered	2004-09-22
Stygobromus iowae	Iowa Amphipod	Endangered	1965-11-30
Terrapene ornata	Ornate Box Turtle	Threatened	2010
Tropidoclonion lineatum	Lined Snake	Threatened	2009-06-04
Xanthocephalus xanthocephalus	Yellow-headed Blackbird	Threatened	1992-07-08

J. Flora.

Prior to settlement, the area of present-day Jo Daviess County consisted of approximately 72 percent forest, 17.7 percent prairie, and the remainder were bottom land, sloughs and water. As people settled the County, wetlands were drained and prairies tilled for agricultural purposes, and forests were utilized for building materials and fuel. In present-day Jo Daviess County, native prairie is all but non-existent, except for scattered prairie remnants found mostly in the Savanna Army Depot, along railroad right-of-ways, in old pioneer cemeteries and on rocky and/or sandy ridges and hillsides that have not been tilled. Primarily deciduous forest is still a predominate land use throughout the County due to the topography and geology of the County.

Jo Daviess County is floristically rich, due in part to the County's geologic and climatic history. A number of plant species are known to occur in Illinois only in Jo Daviess County. These are in specialized habitats such as algific slopes and dolomite cliff communities. Algific slopes are rare communities with species of plants that are disjunct from their northern range and are considered to be communities of special concern.

The open spaces, Natural Areas, State Park and Nature Preserves in the County are host to a wide variety of floral species - some of which are unique or rare. The Illinois Natural Heritage Database lists thirty-eight (38) species of threatened or endangered plant species that have been observed in Jo Daviess County as of September 10, 2011, as follows:

Scientific Name	Common Name	State Status	Last Observed
Adoxa moschatellina	Moschatel	Endangered	1986-05-23
Amelanchier interior	Shadbush	Threatened	1995
Asclepias lanuginosa	Wooly Milkweed	Endangered	1995
Besseya bullii	Kittentails	Threatened	2009-SU
Bouteloua gracilis	Blue Grama	Endangered	2008-09-18
Carex inops ssp. heliophila	Sedge	Endangered	1985-05-26

Carex prasina	Drooping Sedge	Threatened	1996-06-25
Carex woodii Pretty	Sedge	Threatened	1988-08-26
Ceanothus herbaceus	Redroot	Endangered	2006-06-07
Circaea alpina Small	Enchanter's Nightshade	Endangered	1987
Clematis occidentalis	Mountain Clematis	Endangered	2003-08-20
Conioselinum chinense	Hemlock Parsley	Endangered	1996-09-19
Corylus cornuta	Beaked Hazelnut	Endangered	1992-07-16
Cyperus grayoides	Umbrella Sedge	Threatened	1997
Elymus trachycaulus	Bearded Wheat Grass	Threatened	1997
Equisetum pratense	Meadow Horsetail	Threatened	2006-12-12
Gymnocarpium dryopteris	Oak Fern	Endangered	1991
Hackelia deflexa var. americana	Stickseed	Endangered	1995-06-27
Hudsonia tomentosa	False Heather	Endangered	2006-03-08
Juniperus communis	Ground Juniper	Threatened	1994-06-08
Lathyrus ochroleucus	Pale Vetchling	Threatened	1987
Luzula acuminata	Hairy Woodrush	Endangered	1996-05-07
Mirabilis hirsuta	Hairy Umbrella-wort	Endangered	2003-08
Nothocalais cuspidata	Prairie Dandelion	Endangered	2009-05-14
Opuntia fragilis	Fragile Prickly Pear	Endangered	2005-10-27
Polanisia jamesii	James' Clammyweed	Endangered	2005-10-27
Primula mistassinica	Bird's-eye Primrose	Endangered	2004-10-21
Rosa acicularis	Rose	Endangered	2003-08-20
Salvia azurea ssp. pitcheri	Blue Sage	Threatened	1997
Schizachne purpurascens	False Melic Grass	Endangered	2009-05-06
Solidago sciaphila	Cliff Goldenrod	Threatened	2011-06-14
Speyeria idalia	Regal Fritillary	Threatened	2006-06-23
Sullivantia sullivantii	Sullivantia	Threatened	2011-06-14
Symphoricarpos albus var. albus	Snowberry	Endangered	1995
Ulmus thomasii	Rock Elm	Endangered	1988-05-12
Viola blanda	Hairy White Violet	Endangered	1968
Viola canadensis	Canada Violet	Endangered	2006-06-02
Zigadenus elegans	White Camass	Endangered	2011-06-14

Section 5.5 Cultural Resources

Cultural and historic resources often help link the past with the present and can give a community a sense of place or identity. These resources can include historic buildings and structures along with ancient, historic and archeological sites.

Jo Daviess County is incredibly rich in historical and cultural resources. Prehistoric archaeological sites are to be found throughout the county (see Appendix I Maps, *Map 5.6 Archaeological Resource Potential, Jo Daviess County, Illinois*). These include camp and settlement sites along the river valleys, Indian mounds on the bluff-tops, and rock shelters in the uplands. Significantly, these Indian groups were the first miners in the county, some having mined and traded lead for over 6,000 years. It was the presence of lead that caused the first American settlers to move into the area. The resultant mineral rush of the 1820s and 30s made Galena the largest river port north of St. Louis. The town became a mecca for easterners, southerners, Germans, Irish, English and others. They created a wealth of residential and commercial architecture that has survived to the present day. Ulysses S. Grant also came, and his subsequent military and political career gave Galena national recognition. Agriculture flourished throughout the county as new communities blossomed; today, Galena, Warren and Scales Mound all have historic districts.

Early trails were important to the settlement and development of Jo Daviess County. Many trails that later became wagon roads and stage routes were originally Indian trails. As settlers moved to the area, many trails were blazed across the County to make travel and marketing of agricultural products easier and safer.

Despite Jo Daviess County's wealth of historical and cultural resources, no systematic county-wide survey has ever been undertaken to identify and evaluate archaeological and historical sites. Examples of successful utilization of these resources include the reconstruction of the Apple River Fort in Elizabeth, the

development of East Dubuque's Gramercy Park with its Indian mounds, and the lead mines of Vinegar Hill and the Galena History Museum. Waiting to be surveyed, however, are over 600 Indian mounds, early mines and smelter sites, historic houses, barns and bridges (iron bridges in the county were surveyed in 1980 as a personal effort by Daryl Watson, using survey sheets provided by the Historic American Engineering Record - records include location, date of construction, dimensions and photographs), rural school houses, creameries, cheese factories, stagecoach stops and mill sites. These treasures, properly preserved and managed, can provide the county with significant new opportunities for educational programming, tourism and promotion. The county is also blessed with a number of historic roads/trails (in addition to Stagecoach Trail) that provide scenic vistas of rugged, unglaciated topography and storybook farms. All represent valuable county assets that enhance the cultural environment for resident and visitor alike.

The Illinois Historic Preservation Agency (IHPA) manages the National Register program in Illinois. In general, sites selected for inclusion in the National Register of Historic Places, in addition to being at least fifty years old, must meet one of the following four criteria:

1. It is associated with significant historic events or activities (history).
2. It is associated with important persons (history).
3. It possesses distinctive design or physical characteristics, or high artistic value (architecture).
4. It has the potential through physical investigation to provide important information about prehistory or history (archeology).

Table 5.6 below summarizes the sites and districts in Jo Daviess County that are listed on the National Register of Historic Places. The National Historic Landmark designation for the Ulysses S. Grant House indicates that it has been identified by the U.S. Department of the Interior as a place of national significance.

Table 5.7
Sites Listed on the National Register of Historic Places
Jo Daviess County, Illinois

Site	Location	Historic Significance (Period)	Architectural Style	Historic Function	Current Function
Galena Historic District–added 1969	Galena and environs (+/- 1,000 buildings)	Politics/Gov-ernment, Commerce, Community Planning And Development, Transporta-tion, Military, Industry (1850-1874, 1825-1849, 1800-1824)	Greek Revival, Late Victorian	Agriculture/ Subsistence, Commerce/ Trade, Domestic, Education, Social	Commerce/ Trade, Domestic, Education, Government, Industry/ Processing/ Extraction, Landscape, Recreation And Culture, Religion, Transportation

Scales Mound Historic District–added 1990	Roughly bounded by village corporate limits, Scales Mound (960 acres, 184 buildings, 1 structure)	Commerce, Agriculture, Architecture (1925-1949, 1900-1924, 1875-1899, 1850-1874)	Queen Anne, Greek Revival, Stick/Eastlake	Agriculture/ Subsistence, Commerce/ Trade, Domestic, Education, Social	Agriculture/ Subsistence, Commerce/ Trade, Domestic, Religion
Warren Commercial Historic District–added 1995	102-165 E. Main St., 204-210 E. Burnett, 102-108 S. Railroad, Warren (90 acres, 35 buildings, 1 structure)	Commerce, Architecture (1925-1949, 1900-1924, 1875-1899, 1850-1874)	Classical Revival, Late Victorian	Commerce/ Trade, Education, Government, Social	Agriculture/Subsistence, Commerce/Trade, Education, Government
Apple River Fort Site–added 1997	0.25 mi. ESE of jct. of Mrytle and Illinois Sts., Elizabeth	Historic - Non-Aboriginal, Agriculture, Military (1825-1849, 1800-1824)	N/A	Defense (battle site, fortification)	Vacant/not in use
Chapman, John, Village Site–added 2009	Location restricted	Prehistoric (1499-1000 AD)	N/A	Village site	Conservation area; Monument/marker
Chicago Great Western Railroad Depot–added 1996	Myrtle St. between N. Madison and Vine Sts. , Elizabeth	Transportation (1925-1949, 1900-1924, 1875-1899	N/A	Rail-related transportation	Work in progress
East Dubuque School (a/k/a Esther Hillman House)–added 1982	Montgomery Ave., East Dubuque	Architecture/ Engineering, Event (1975-2000, 1950-1974, 1925-1949, 1900-1924, 1875-1899)	Romanesque	School	Vacant/not in use

Grant, Ulysses S., House--added 1966 (National Historic Landmark)	511 Bouthillier St., Galena	Person; politics, government (1867, 1879, 1865)	N/A	Single dwelling	Museum
Millville Town Site–added 2003	Apple River Canyon State Park, 8663 E. Canyon Rd., Apple River	Social History, Historic - Non-Aboriginal Period of Significance: 1875-1899, 1850-1874, 1825-1849	N/A	Commerce/ Trade, Domestic, Industry/Processing/Extraction, Transportation	Recreation and culture (outdoor recreation)
Old Market House–added 1973	Market Square-Commerce St., Galena	Politics/government; architecture (1825-1849)	No style listed.	Commerce/ Trade; Government; Social	Museum
Old Stone Hotel (a/k/a Warren Community Building)–added 1975	110 W. Main St., Warren	Architecture, Transportation (1850-1874)	Other, Georgian	Hotel, Medical Business/ Office	Museum
Townsend House–added 2005	117 N. Canyon Park Rd., Stockton	Architecture (1850-1874)	Other, Greek Revival	Secondary Structure, Single Dwelling	Secondary Structure, Single Dwelling
Washburne, Elihu Benjamin, House--added 1973	908 3rd St., Galena	Politics/ Government, Architecture (1875-1899, 1850-1874, 1825-1849)	Greek Revival	Single Dwelling	Museum
Wenner, Charles, House–1984	Rocky Rd., Galena	Exploration/ Settlement, Architecture (1850-1874)	No style listed.	Single Dwelling	Vacant/not in use
White, W.E., Building–added 1997	100 N. Main St., Stockton	Architecture (1875-1899)	Queen Anne, Late Victorian	Department Store	Restaurant

Miller, Henry W. House–added October 13, 2010	11672 W. Norris Ln., Galena	Architecture, Agriculture (1847)	Not available	Single Dwelling	Business Office
Frentress, Henry N., Farmstead–added 2011	19140 U.S. Route 20 West, East Dubuque, IL	Agriculture (1880-1899)	Italianate	Farmstead	Museum

Source: National Register of Historic Places

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CHAPTER 6
Economic Development

Section 6.1 Introduction

As Jo Daviess County moves into the new millennium, it remains firmly committed to supporting sound economic development projects. A high priority is to retain and grow the county's existing business and industry. Tourism continues to thrive and should be encouraged, but it primarily offers jobs at lower wage levels. National trends show that agriculture will become increasingly competitive. Consequently, county leaders recognize the importance of creating new jobs, particularly higher paying jobs. Seventy-seven percent of those responding to the Vision Survey identified "lack of good paying jobs" as either a "very serious" or "somewhat serious" problem. Diversification of the economy is also a prime concern. Groups are now exploring technology and communications upgrade as a cornerstone for attracting high-tech industries. Educational upgrade of a labor force in transition is also a growing need.

This section of the Comprehensive Plan summarizes Jo Daviess County's existing economic activity and conditions, and looks to what future conditions might be desirable. Economic development, which can be defined as the type and level of business activity within an area, is often based on a combination of market forces, regulation, and the extent of local government encouragement. State economic development information is included to help the County identify potential opportunities that could be used to pursue appropriate economic development activities.

Section 6.2 Economic Base Characteristics

A. Labor Force Analysis

1. Educational Attainment

Paragraph C of Section 1.4 (Demographic Trends) of the Issues and Opportunities Chapter (Chapter 1) details educational attainment for Jo Daviess County adults.

2. Earnings and Income

Wages are not the only form of income that residents receive. "Total income" is defined by the US Census as the sum of the amounts reported separately for wages, salary, commissions, bonuses, or tips; self-employment income from non-farm or farm businesses, including proprietorships and partnerships; interest, dividends, net rental income, royalty income, or income from estates and trusts; Social Security or Railroad Retirement income; Supplemental Security Income (SSI); any public assistance or welfare payments from the state or local welfare office; retirement, survivor, or disability pensions; and any other sources of income received regularly such as Veterans' (VA) payments, unemployment compensation, child support, or alimony.

According to the 2010 American Community Survey, 7,733 (77.3%) of the 10,001 Jo Daviess County households sampled were classified as households with earnings in the past 12 months; 3,837 38.4%) were households with social security income; 2,281 (22.8%) were households with retirement income; 583 (5.8%) were households with food stamps/SNAP benefits; 252 (2.5%) were households with supplemental security income; and, 115 (1.1%) were households with cash public assistance income. In order to better understand the existing wage-earning realities within Jo Daviess County, "earnings" data was considered to be more informative. "Earnings" are defined by the US Census Bureau as the algebraic sum of wage or salary income and net income from self-employment, representing the amount of income received regularly before deductions for personal income taxes, Social Security, bond purchases, union dues, Medicare deductions, etc.

Table 6.1 compares income for households and individuals for Jo Daviess County with the State of Illinois as a whole. Jo Daviess County has increased both median household income and per capita income at a rate greater than the State of Illinois overall. In 1990, the median income per household and per capita income were 20.0% and 21.3%, respectively, less than Illinois as a whole; in 2012, they were 10.9% and 7.3% less, respectively, than Illinois as a whole.

Table 6.1
Comparison of Household and Per Capita Income
Jo Daviess County and State of Illinois

	Median Income Per Household				Per Capita Income			
	1990	2000	2010	% Change 2000-2010	1990	2000	2010	% Change 2000-2010
Jo Daviess County	$35,072	$40,411	$50,279	43.4%	$16,304	$21,497	$26,819	64.5%
State of Illinois	$42,078	$46,590	$55,735	32.5%	$19,832	$23,104	$28,782	45.1%

Source: U.S. Bureau of the Census; American Community Survey

Table 1.8 of the Issues and Opportunities Chapter details changes in household income between 1999 and 2010.

3. Percent in Labor Force and Unemployment

Table 6.2 below shows the number of residents 16 years and above living in Jo Daviess County and the State of Illinois. Age sixteen is considered to be the lower threshold for being eligible for employment. Jo Daviess County has a percentage of residents in the labor force equal to the State of Illinois as a whole (66.5%). Jo Daviess County has a lower percentage of unemployed persons in the labor force (5.3%) compared to the State of Illinois (8.6).

Table 6.2
Employment Status of Population 16 Years and Above (2010)
Jo Daviess County and State of Illinois

	Jo Daviess County	**State of Illinois**
Population 16 yrs. and over	18,684	9,967,535
In Civilian Labor Force *% in Civilian Labor Force*	12,424 *66.5*	6,632,592 *66.5*
Employed *% in Civilian Labor Force Employed*	11,769 *94.7*	6,062,848 *91.4*
Unemployed *% in Civilian Labor Force Unemployed*	655 *5.3*	569,744 *8.6*
Not in Labor Force *% Not in Labor Force*	6,260 *33.5*	3,313,487 *33.2*

Source: 2006-2010 American Community Survey 5-Year Estimates

The Illinois Department of Employment Security, Labor Market Information Unit provides unemployment rate data that differs from the census period data provided by the U.S. Bureau of the Census, and is also calculated annually. Illinois Department of Employment Security data for January 2011 through December 2011 indicates that Jo Daviess County had a monthly average of 12,847 persons in the labor force and a monthly average of 997 persons unemployed. The 2011 average monthly unemployment rate (January through December) for Jo Daviess County was 7.8%, which is lower than the average monthly unemployment rate for the State of Illinois of 9.8% over the same time period. The 2012 average monthly unemployment rate (January through March) for Jo Daviess County was 9.3%, compared to 9.4% for Illinois as a whole.

4. Labor Force Participation Characteristics

An analysis of the data represented in Table 6.3 below reveals the following regarding the characteristics of the Jo Daviess County labor force:

- The County labor force increased between 2000 and 2010 by 416 persons, or 3.5%.
- A lower percentage of the population is in the labor force in 2010 (66.5%) compared to 2000 (67.5%).
- The 16-24 years population class showed a decrease in the percent of population in the labor force between 2000 and 2010; all other population classes showed an increase.
- All population classes increased in the percentage of the population class unemployed between 2000 and 2010. Both the 25-54 and the 55-64 years age classes displayed the greatest change in the percentage of the age class unemployed, the 25-54 years age class increasing from 3.2% of the age class in 2000 to 4.7% of the age class in 2010, and the 55-64 years age class increasing from 1.8% in 2000 t0 3.3% in 2010.
- A shift in the dynamics of the civilian labor force occurred between 2000 and 2010. In 2000, the 25-54 years age class accounted for 65.4% of the labor force, but in 2010 accounted for 60.5% of the labor force. The 16-24 years age class also declined in the percentage of the age class in the civilian labor force. The 55-64 years age class displayed the greatest positive change in terms of percentage of the civilian labor force (14.9% in 2000 to 19.3% in 2010), and the percentage of the civilian labor force 65 years and over also increased from 6.0% in 2000 to 7.5% in 2010 - likely due to people delaying retirement and working longer.
- The percentage of women in the civilian labor for increased from 46.1% in 2000 to 47.2% in 2010.

Table 6.3
Labor Force Participation Characteristics 2000 and 2006
Jo Daviess County, IL

	2000	2010	Change 2000-2010	% Change 2000-2010
Population 16 years and over	17,779	18,684	905	5.1
In Civilian Labor Force (LF)	12,008	12,424	416	3.5
% in Civilian Labor Force	67.5	66.5	---	---
Population 16 to 24 years	2,154	2,109	(45)	-2.1
Employed	1,512	1,440	(72)	-4.8
% Employed	70.2	68.3	---	---
Unemployed	138	137	(1)	-0.7
% Unemployed	6.4	6.5	---	---
Not in labor force	504	532	28	5.6
% not in labor force	23.4	25.2	---	---
% in labor force	76.6	74.8	---	—

Population 25 to 54 years	8,889	8,147	(742)	-8.3
Employed	7,567	7,143	(424)	-5.6
% Employed	85.1	87.7	---	---
Unemployed	288	379	91	31.6
% Unemployed	3.2	4.7	---	---
Not in labor force	1,034	661	(373)	-36.1
% not in labor force	11.6	8.1	---	---
% in labor force	88.4	91.9	---	—
Population 55 to 64 years	2,740	3,649	909	33.2
Employed	1,738	2,272	534	30.7
% Employed	63.4	62.3	---	---
Unemployed	48	121	73	152.1
% Unemployed	1.8	3.3	---	---
Not in labor force	954	1,256	302	31.7
% not in labor force	34.8	34.4	---	---
% in labor force	65.2	65.6	---	—
Population 65 years and over	3,996	4,743	747	18.7
Employed	711	914	203	28.6
% Employed	17.8	19.3	---	---
Unemployed	6	18	12	200
% Unemployed	0.2	0.4	---	---
Not in labor force	3,279	3,811	532	16.2
% not in labor force	82.1	80.3	---	---
% in labor force	17.9	19.7	---	—
% of women in civilian labor force	46.1	47.2	---	---
% of civilian LF 16-24 years	13.7	12.7	---	---
% of civilian LF 25-54 years	65.4	60.5	---	---
% of civilian LF 55-64 years	14.9	19.3	---	---
% of civilian LF 65 years and over	6.0	7.5	---	---

Source: U.S. Bureau of the Census; American Community Survey

5. Type of Employment for County Residents

Table 6.4 below provides information regarding the type of occupation that Jo Daviess County residents are employed in. Table 1.11 of the Issues and Opportunities Chapter summarizes resident employment by industry for the 2000 Census year and 2010. Information for both these tables represents what type of occupation/industry the working residents of the County were employed in, and is not a listing of the employment opportunities currently located in the County.

Table 6.4
Jo Daviess County Resident Employment by Occupation

	Number	Percentage
Occupation **Employed civilian population >16 yrs.**	11,769	100.0%
Management, business, science, and arts occupations	3,662	31.1%
Service occupations	2,159	18.3%
Sales and office occupations	2,594	22.0%
Natural resources, construction, and maintenance occupations	1,273	10.8%
Production, transportation, and material moving occupations	2,081	17.7%

Source: American Community Survey
*May not total 100% due to rounding.

6. Commuting

The mean travel time to work for Jo Daviess County residents is lower than the mean travel time for the State of Illinois as a whole; it is the third lowest among the six northwest Illinois counties of Carroll, Jo Daviess, Lee, Ogle, Stephenson and Whiteside, and below the average mean travel time for said area of 21.8 minutes.

Table 6.5
Mean Travel Time to Work in 2000 and 2010

	2000	2010	Change 2000-2010	% Change 2000-2010
Carroll County	23.1 minutes	25.2 minutes	2.1	9.1
Jo Daviess County	21.0 minutes	20.3 minutes	(0.7)	-3.3
Lee County	21.8 minutes	21.4 minutes	(0.4)	-1.8
Ogle County	22.8 minutes	24.4 minutes	1.6	7.0
Stephenson County	19.9 minutes	19.7 minutes	(0.2)	1.0
Whiteside County	18.5 minutes	19.6 minutes	1.1	5.9
State of Illinois	28.0 minutes	28.1 minutes	0.1	0.4

Source: U.S. Bureau of the Census; American Community Survey

It is helpful to understand the nature of the place of work of the County work force. As illustrated in Table 6.6 below, 74.9% of Jo Davies County workers 16 years of age and over worked in Illinois, and 25.1% worked in another state. Of those workers that worked in Illinois, 82.9% worked in Jo Daviess County. 62.1% of all Jo Daviess County workers 16 years of age and over worked in Jo Daviess County.

Table 6.6
Place of Work for Workers 16 Years and Over in 2010 - State and County Level
Jo Daviess County, IL

	Total	% of Total
Workers 16 years and over	11,474	100.0%
Worked outside state of residence	2,876	25.1%
Worked in state of residence	8,598	74.9%
Of those worker that worked in state of residence:		
Worked in county of residence	7,127	82.9%
Worked outside county of residence	1,471	17.1%

Source: 2006-2010 American Community Survey 5-Year Estimates

Table 6.7 below illustrates the place of work for workers 16 years and over by Metropolitan and Micropolitan Statistical Area level. United States Micropolitan Statistical Areas, as defined by the United States Office of Management and Budget, are urban areas in the United States based around a core city or town with a population of 10,000 to 49,999. A micropolitan area is a geographic entity used for statistical purposes based on counties and county-equivalents. A Metropolitan Statistical Area is a geographical region with a relatively high population density at its core and close economic ties throughout the area. A typical metropolitan area is centered around a single large city the wields substantial influence over the region (e.g. Chicago or Rockford). Metropolitan Statistical Areas are defined by the U.S. Office of Management and Budget only, and used by the U.S. Census Bureau and other U.S. government agencies for statistical purposes only. Jo Daviess County is not part of a Metropolitan or Micropolitan Statistical Area, but is adjacent to the Platteville, Wisconsin and Freeport, Illinois Micropolitan Statistical Areas, and the Dubuque, Iowa Metropolitan Statistical Area.

63.9% of Jo Daviess County workers 16 years of age and over worked outside any Metropolitan or Micropolitan Statistical Area, which corresponds closely to the percentage of all Jo Daviess County workers 16 years of age and over that worked in Jo Daviess County (62.1%) as noted above; 24.9% worked in a Metropolitan Statistical Area, which corresponds closely to the number of Jo Daviess County residents that work outside the State of Illinois, also as noted above.

Table 6.7
Place of Work for Workers 16 Years and Over in 2010 -
Metropolitan or Micropolitan Statistical Area Level
Jo Daviess County, IL

	Total	% of Total
Workers 16 years and over	11,315	100.0%*
Worked in a Metropolitan Statistical Area	2,814	24.9%
Worked in a Micropolitan Statistical Area	1,273	11.3%
Worked outside any Metropolitan or Micropolitan Statistical Area	7,228	63.9%

Source: 2008-2010 American Community Survey 3-Year Estimates
*Does not total 100% due to rounding.

B. Economic Base Analysis

Jo Daviess County's major employers are indicated in Table 6.8 below:

Table 6.8
Major Employers* in Jo Daviess County, Illinois

Employer (City or Village)	Product/Service	No. of Employees
Galena Territory (Galena)	Vacation/recreation	650
Dura (Stockton)	Auto parts	300
Chestnut Mountain Lodge (Galena)	Recreation	250
Invensys Appliance Controls (Hanover)	Auto/appliance controls	186
Jo Daviess County (Galena)	County government	154
Tri-State Tours (Galena)	Charter bus service	150
Americold	Cold storage	125
Signcraft (Galena)	Metal engraving	125
Micro Switch (Galena)	Electrical switches	120
Galena-Stauss (Galena)	Health care	120
Rentech (East Dubuque)	Chemical fertilizer	106
Stockton Public Schools (Stockton)	Public schools	101
East Dubuque Schools (East Dubuque)	Public schools	100
River Ridge School District (Elizabeth)	Public schools	95
Crescent Electric Supply (East Dubuque)	General office	75
Stockton Cheese (Stockton)	Cheese/dairy Products	73
Elizabeth Nursing Home (Elizabeth)	Assisted living	65
Runde Chevrolet	Auto dealer	65
Warren Public Schools (Warren)	Public schools	63
Galena Public Schools (Galena)	Public schools	61
Scales Mound Public Schools (Scales Mound)	Public schools	60
Sullivan's (Stockton)	Grocery store	54
Jo Carroll Electric Cooperative (Elizabeth)	Electrical provider	53
Stockton Travel Center/McDonald's (Stockton)	Gas/convenience/food	50
Stockton Healthcare	Health care	46
River Ridge School District (Hanover)	Public schools	46

I.E.I. Barge Company (East Dubuque)	Transportation - barge terminal	39
Design Mill (Elizabeth)	Sign design/builder	31
City of East Dubuque (East Dubuque)	Municipal government	30

Source: Illinois Department of Commerce and Economic Opportunity
*Employers of 30 persons or more

The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy. The following Table 6.9 displays the average quarterly employment and average monthly earnings by NAICS subsector.

Table 6.9
2010 Average Quarterly Employment and Average Monthly Earnings per NAICS Sector

NAICS Subsector	**Average Quarterly Employment (2010Q1, 2010Q2, 2010Q3, 2010Q4)**	**Average Monthly Earnings ($) (2010Q1, 2010Q2, 2010Q3, 2010Q4)**
All NAICS Subsectors	12,885	$3,608
722 Food Services and Drinking Places	738	$934
721 Accommodation	728	$1,436
238 Specialty Trade Contractors	334	$3,091
561 Administrative and Support Services	262	$3,538
445 Food and Beverage Stores	238	$1,785
541 Professional, Scientific, and Technical Services	210	$4,201
713 Amusement, Gambling, and Recreation Industries	178	$1,198
522 Credit Intermediation and Related Activities	168	$3,311
813 Religious, Grantmaking, Civic, Professional, and Similar Organizations	163	$1,782
621 Ambulatory Health Care Services	139	$2,348
441 Motor Vehicle and Parts Dealers	124	$3,369
623 Nursing and Residential Care Facilities	123	$1,427
311 Food Manufacturing	115	$3,376
811 Repair and Maintenance	113	$2,615
447 Gasoline Stations	107	$1,356

236 Construction of Buildings	106	$2,045
323 Printing and Related Support Activities	105	$2,721
484 Truck Transportation	100	$2,722

Source: U.S. Census Bureau, Local Employment Dynamics

Section 6.3 Economic Development Programs

This section contains a brief description of the Jo Daviess County development actions and various programs that could potentially assist the County's businesses with loans and grants.

A. Jo Daviess County

1. Jo Daviess County Comprehensive Economic Development Strategy (CEDS)

The Comprehensive Economic Development Strategy (CEDS) is a comprehensive economic development plan that is created through a process that brings together public and private sector stakeholders to provide a regional economic roadmap to diversify and strengthen a regional economy. The CEDS analyzes the regional economy, addresses regional economic problems, and serves as a guide for establishing regional goals and objectives, developing and implementing a regional plan of action, identifying investment priorities and funding sources, and assigning lead organizations responsibilities for execution of the strategy. Goals and Objectives are developed by the CEDS committee, organized and prioritized by the Blackhawk Hills Regional Council staff, and then considered and approved by the CEDS Prioritization Committee.

2. Jo Daviess County Revolving Loan Fund

The Jo Daviess County Revolving Loan Fund (RLF) is established to provide a source of financing, which may not otherwise be available within the county, for expanding or start-up businesses. Used to fill a "financing gap" in a business development project, the RLF offers a low-interest option to complete a financing package. A "gap" occurs when the business lacks the funds to meet the equity requirements of bank financing or needs a lower interest rate.

Further, the RLF seeks to:

- Retain and attract businesses that provide permanent jobs;
- Maximize investment within the County;
- Redevelop vacant and/or blighted land;
- Promote sales and tax generating projects;
- Provide financial assistance to eligible businesses;

The Revolving Loan Fund adds another tool to the "tool box" of the county's economic development efforts. The incentives provided to business through this RLF are a fixed rate, low interest, and/or long-term financing for a business wanting to expand or locate within the county. The RLF is not the primary source of financing for a project, however, the combination of public and private financing lessens the risk for the primary lender and yields an overall lower cost of money for the borrower.

It is the intent of the RLF to view both existing and start-up business as equal under the criteria, with preference given to those expansions and start-ups that result in retained or new jobs and/or new sources of economic activity within the county. Jo Daviess County seeks to work with healthy

companies that have excellent potential for growth, will provide increased employment in the county, and will help diversify our economy. For existing business the primary criteria to be considered are the following:

- Dedicated and experienced management;
- Past performance;
- Current economic viability of the business;
- High potential for profitability;
- High potential for growth;
- Sufficient collateral and cash flow to service and secure the loan;
- Inability to obtain conventional financing at rates and terms that make the project viable.

In the case of entrepreneurial start-up business the following will also be considered:

- Market strengths such as providing a new service or product development or distribution in Jo Daviess County as demonstrated by local market and/or feasibility study;
- Complementary business development that serves an existing county business entity;
- Consistent with County and/or Community Comprehensive plan and goals of the Overall Economic Development Plan for types of business and industry.

3. Galena/Jo Daviess County Convention & Visitors Bureau

The Galena/Jo Daviess County Convention & Visitors Bureau is focused on the County's tourism industry, and it is funded primarily by the 5% Hotel-Motel Tax. The Bureau promotes county-wide tourism through comprehensive publications and an Internet site; funding the tourism information toll-free-numbers; advertising placement and publicity; aggressive sales and service programs; event and festival planning assistance; grant programs to non-profit industry organizations; and partnership programs with regional, state, and national tourism organizations.

A 9-member Board of Directors serves as an advisory body to the Jo Daviess County Board regarding the use of the Hotel-Motel Tax fund.

B. Regional

1. Blackhawk Hills Economic Development District (EDD)

The mission of the Blackhawk Hills EDD is to develop and implement a regional Comprehensive Economic Development Strategy that will enhance job opportunities and improve the quality of life for local communities. The focus that the Council has adopted for economic development issues is to:

- Promote the importance of the planning process to facilitate positive and desirable economic growth within the individual communities of the EDD;
- Assemble and implement a regional plan based on the needs of the communities within the region;
- Provide technical assistance to the communities in the EDD by connecting local people, with specific projects, to the appropriate local, state, and federal offices;
- Provide assistance in grant or loan applications; and
- Provide support for communities in the form of statistical, demographic, and economic data.

2. Tri-County Economic Development Alliance, Inc.

The Tri-County Economic Development Alliance, Inc. (TCEDA) is a private, not for profit 501 c(6) corporation formed to develop a regional public/private partnership to promote, encourage, and support industrial and economic development in Jo Daviess, Carroll and Whiteside counties.

The mission of TCEDA is to significantly enhance economic development progress in Northwest Illinois and beyond, as measured ultimately by job creation.

Specific objectives include:

- Focus on supporting and maintaining existing business enterprises;
- Encourage the expansion of existing business enterprises;
- Develop quality sites for industrial and commercial endeavors;
- Assist with acquiring appropriate grants and financing;
- Develop and maintain a rapid response to outside inquiries and requests;
- Maintain and improve critical economic development infrastructure.

3. Jo-Carroll Local Redevelopment Authority

The Jo-Carroll Local Redevelopment Authority (LRA) represents the people affected by the closure fo the Savanna Army Depot Activity in March 2000. The LRA is responsible for the re-use and re-development of approximately 3,000 acres known as the Savanna Depot Business, Industry and Technology Park ("Savanna Depot Park"). The LRA's mission is to provide economic growth, help create quality employment and improve property values in consideration of th e surrounding environment of Carroll and Jo Daviess Counties. Its duty is to implement the re-use plan.

The LRA provides economic growth by purchasing goods and services in the counties and encouraging visitors to the tourist attractions at the Savanna Depot Park, the adjoining Lost Mound Unit of the Upper Mississippi River National Wildlife and Fish Refuge and elsewhere in Carroll and Jo Daviess Counties. The LRA helps to create quality employment primarily by leasing and selling property in the Savanna Depot Park to businesses and industries that create jobs and by supporting the business and marketing efforts of the Savanna Depot Park tenants. The LRA seeks to improve property values by managing and improving the depot buildings, infrastructure and grounds.

The LRA seeks to privatize the Savanna Depot Park properties by selling them to private owners that will create jobs and add to the tax bases of Jo Daviess and Carroll Counties.

C. State

1. Upper Mississippi River Port District and Port District Authority

Public Act 96-636, signed into law in August 2009 by the State of Illinois, establishes the Upper Mississippi River Port District and Port District Authority. The Act provides the Port District with rights to construct, operate, and maintain port, harbor, water, and land facilities. These development rights include channels, and port-related facilities and services, such as airports, airfields, and terminals. It also permits the district to enter into any agreement or contract with any airport for the use of its facilities, as well as develop, expand, and construct those facilities as necessary. The Port District encompasses all of Jo Daviess and Carroll Counties. Pursuant to law (70 ILCS 1863/5) , the Port District has the following duties:

- To study the existing harbor plans within the area of the District and to recommend to the appropriate governmental agency, including the General Assembly, any changes and modifications that may, from time to time, be required by continuing development and to meet changing business and commercial needs.
- To make an investigation of conditions within the area of the District and to prepare and adopt a comprehensive plan for the development of port facilities and intermodal facilities for the District. In preparing and recommending changes and modifications in existing harbor plans or a comprehensive plan for the development of port facilities and intermodal facilities, the District may, if it deems desirable, set aside and allocate an area or areas within the land acquired by it or held by it to be used and operated by the District or leased to private parties for industrial, manufacturing, commercial, recreational, or harbor purposes, where the area or areas are not, in the opinion of the District, required for its primary purposes in the development of intermodal, harbor, and port facilities for the use of public water and land transportation, or will not be immediately needed for those purposes, and where the use and operation or leasing will in the opinion of the District aid and promote the development of intermodal, terminal, and port facilities.
- To study and make recommendations to the proper authority for the improvement of terminal, lighterage, wharfage, warehousing, transfer, and other facilities necessary for the promotion of commerce and the interchange of traffic within, to, and from the District.
- To study, prepare, and recommend by specific proposals to the General Assembly changes in the jurisdiction of the District.
- To petition any federal, State, municipal, or local authority, administrative, judicial, and legislative, having jurisdiction in the District for the adoption and execution of the physical improvement, change in method, system of handling freight, warehousing, docking, lightering, and transfer freight that, in the opinion of the District, may be designed to improve or better the handling of commerce in and through the District or improve terminal or transportation facilities within the District.
- To foster, stimulate, and promote the shipment of cargoes and commerce through ports, whether originating within or without the State of Illinois or the United States of America.
- To acquire, construct, own, lease, and develop terminals, harbors, wharf facilities, piers, docks, warehouses, bulk terminals, grain elevators, boats, and other harbor crafts, and any other port facility or port-related facility or service, such as railroads, that it finds necessary and convenient.
- To perform any other act or function that may tend to or be useful toward development and improvement of harbors, river ports, and port-related facilities and services and to increase foreign and domestic commerce through the harbors and ports within the Port District.
- To study and make recommendations for river resources management and environmental education within the District, including but not limited to, wetlands banks, mitigation areas, water retention and sedimentation areas, fish hatcheries, or wildlife sanctuaries, natural habitat, and native plant research.

2. The Illinois Department of Commerce and Economic Opportunity (DCEO)

DCEO has a broad range of financial assistance programs to help communities with economic development. DCEO offers a number of innovative programs to augment conventional sources of financing and help with business locations, relocations, and expansions:

Illinois Enterprise Zone Program
Certain specifically-designated portions of Jo Daviess County are located within an Illinois Enterprise Zone (Jo-Carroll Enterprise Zone and Freeport/Stephenson County/Jo Daviess County Enterprise Zone). The Illinois Enterprise Zone Act was signed into law December 7, 1982. The

purpose of the Act is to stimulate economic growth and neighborhood revitalization in economically depressed areas of the state. Businesses located (or those that choose to locate) in a designated enterprise zone can become eligible to obtain special state and local tax incentives, regulatory relief, and improved governmental services, thus providing an economic stimulus to an area that would otherwise be neglected.

Businesses located or expanding in an Illinois enterprise zone may be eligible for the following incentives: an exemption on the retailers' occupation tax paid on building materials, an investment tax credit of .5 percent of qualified property, and an enterprise zone jobs tax credit for each job created in the zone for which a certified dislocated worker or economically disadvantaged individual is hired. Additional exemptions, such as an expanded state sales tax exemption on purchases of personal property used or consumed in the manufacturing process or in the operation of a pollution control facility and an exemption on the state utility tax for electricity, natural gas and the Illinois Commerce Commission's administrative charge and telecommunication excise tax are available for companies that make the minimum statutory investment that either creates or retains the necessary number of jobs. These exemptions require a business to make application to, and be certified by, the Department. In addition to the state incentives, each zone offers distinctive local incentives to enhance business development projects.

Each enterprise zone has a designated zone administrator who is responsible for zone compliance and is available to answer questions regarding the zone. The Jo-Carroll Enterprise Zone Administrator is:
Betty Steinert
200 East Knox St.
Morrison, IL
Phone: (815) 772-5182
E-mail: bsteinert@whiteside.org

The Freeport/Stephenson County/Jo Daviess County Enterprise Zone Administrator is:

Ronald A. Kane
50 W. Douglas St., Ste 500
Freeport, IL 61032
Phone: (815) 235-8260
E-mail: ezone@co.stephenson.il.us

Participation Loan Program
The program works through banks and other conventional lenders to generally provide subordinated financial assistance to small businesses that will employ Illinois workers. The state will participate in loans up to 25 percent of the total amount of a project, but not less than $10,000 nor more than $750,000.

Minority, Women and Disabled Participation Loan Program
This program is similar to the Participation Loan Program, except that participation may not exceed 50 percent of the project, subject to a maximum of $50,000.

Enterprise Zone Financing Program
Similar to the Participation Loan Program, except that DCEO will generally provide favorable interest rates to businesses either locating in or expanding in one of the certified Enterprise Zones located throughout the state.

Development Corporation Participation Loan Program
This program provides financial assistance through a Development Corporation to small businesses that provide jobs to workers in the region served by the Development Corporation. The state will participate in loans up to 25 percent of the total amount of a project, but not less than $10,000 nor more than $750,000.

Capital Access Program (CAP)
The Capital Access Program is designed to encourage financial institutions to make loans to new and small businesses that do not qualify for conventional financing. A reserve fund is established at the lending bank and is available to draw upon should any of the bank's CAP loans default. There is a maximum loan amount of $100,000.

The Technology Venture Investment Program (TVIP)
The Technology Venture Investment Program was created to provide seed and early stage capital, in the form of a qualified security investment, to Illinois entrepreneurs that are developing an advanced technological device or process commercially exploitable by Illinois businesses. DCEO may invest up to $500,000, but no more than 50 percent of the equity financing of the project. A qualified co-investor(s) with expertise in the related field of technology must assume at least 50 percent of the additional equity contribution.

Surety Bond Guaranty Program
The program is designed to assist Illinois' small, minority and women contractors with technical assistance; help them receive experience in the industry; and assist in obtaining bid, performance and payment funds for government, public utility and private contracts.

Business Development Public Infrastructure Program
The Business Development Public Infrastructure Program provides low-interest financing to units of local government for public improvements on behalf of businesses undertaking expansion or relocation projects that meet the program criteria and demonstrate great potential for creating and retaining jobs. The infrastructure improvements must be made on public property and must directly result in the creation or retention of private-sector jobs. The local government must demonstrate clear need for the financial assistance to undertake the improvements.

Affordable Financing of Public Infrastructure Program
This program provides financial assistance to, or on behalf of local governments, public entities, medical facilities and public health clinics for the purpose of making affordable the financing of public infrastructure improvements needed to insure health, safety and economic development in a community.

Community Development Assistance Program (CDAP)
CDAP is a federally funded program that assists smaller Illinois local governments in financing public facilities, housing rehabilitation projects or economic development needs. Grants are made to units of local government and may be loaned to businesses for projects that will create or retain jobs in the community. Grant funds may also be used by the local government for improvements to public infrastructure that directly support economic development. The program is limited to communities with populations under 50,000 that are not located within one of the eight large urban counties that receive funds directly from the federal government. Funds are targeted toward projects that primarily benefit low- and moderate-income people.

Community Services Block Grant Loan Program (CSBG)
This program provides long-term, fixed-rate financing to new or expanding businesses that create jobs and employment opportunities for low-income individuals. The program links federal, state and private financing by using CSBG funds at low interest rates in combination with bank funds and equity.

Large Business Development Program
The Illinois Large Business Development Program (LBDP) provides incentive financing to encourage large out-of-state companies to locate in Illinois or existing large companies to undertake substantial job expansion or retention projects. Funds available through the program can be used by large businesses (500 or more employees) for typical business activities, including financing the purchase of land and buildings, construction or renovation of fixed assets, site preparation and purchase of machinery and equipment. LBDP funds are targeted to extraordinary economic development opportunities; that is, projects that will result in substantial private investment and the creation and/or retention of 300 or more jobs.

Employer Training Investment Program (ETIP)
This state-funded program assists Illinois companies in training new workers or upgrading the skills of their existing workers. ETIP grants may be awarded to individual companies, multi-company efforts and intermediary organizations offering multi-company training.

Technology Challenge Grant Program
The Technology Challenge Grant Program provides grants to fund science and technology projects, partnerships between universities and industry, high-tech commercialization projects, transfer projects and infrastructure improvements.

Illinois Technology Enterprise Center (ITEC) Program
The ITEC program provides operational support for regional centers that serve technology entrepreneurs, innovators and small businesses and provide investments to or on behalf of young or growing companies in cooperation with private sector investments. Centers assist entrepreneurs to locate critical pre-seed and early stage financing, help entrepreneurs in high growth, high technology fields to further their technical and/or managerial skills, and assist with new product development and marketing in support of new venture formation within Illinois.

Illinois Technology Enterprise Development and Investment Program
Provides investment, loans or qualified security investments to or on behalf of young or growing businesses in cooperation with private investment companies, private investors or conventional lending institutions. Investors assume a portion of the investment loan or financing for a business project. New or emerging businesses also are eligible through financial intermediaries as they commercialize advanced technology projects.

Recycling Industry Modernization (RIM) Program
The Recycling Industry Modernization Program provides grants to manufacturers to encourage them to modernize their operations and divert materials from the solid waste stream. RIM projects require the use of recycled materials and/or solid waste reduction activities. Grants of $30,000 are available for modernization assessments, with grants up to $150,000 available for modernization implementation projects. Grants require an applicant investment.

Recycling Market Development Program
Provides grants to encourage private-sector investment in the manufacture, marketing and procurement/demonstration of products containing recycled commodities. These funds may be used for capital equipment, certain marketing expenses, and to offset costs to procure and demonstrate the use of recycled-content products. The Recycling Market Development Program provides grants up to $250,000. Grants require an applicant investment.

D. Federal

Foreign Trade Zone

The Savanna Depot Park is located within a Foreign Trade Zone (Jo-Carroll Foreign Trade Zone #271). Foreign Trade Zones (FTZs) were created in the United States to provide special customs procedures to U.S. plants engaged in international trade-related activities. Duty-free treatment is accorded items that are processed in FTZs and then re-exported, and duty payment is deferred on items until they are brought out of the FTZ for sale in the U.S. market. This helps to offset customs advantages available to overseas producers who compete with domestic industry. The Foreign-Trade Zones (FTZ) Board (composed of representatives from the U.S. Departments of Commerce and Treasury) has its operational staff in the International Trade Administration's Import Administration.

FTZs are considered to be outside of U.S. Customs Territory for the purpose of customs duty payment. Therefore, goods entering FTZs are not subject to customs tariffs until the goods leave the zone and are formally entered into U.S. Customs Territory. Merchandise that is shipped to foreign countries from FTZs is exempt from duty payments. This provision is especially useful to firms that import components in order to manufacture finished products for export.

There is no time limit on goods stored inside a FTZ and certain foreign and domestic merchandise held in FTZs may be exempted from state and local inventory taxes. This allows firms to minimize their costs while their products are waiting to be shipped. In addition, quota restrictions are in some cases waived for items entering an FTZ; however, the restrictions would apply if the items were to enter the U.S. market.

A variety of activities can be conducted in a zone, including assembling, packaging, destroying, storing, cleaning, exhibiting, re-packing, distributing, sorting, grading, testing, labeling, repairing, combining with foreign or domestic content, or processing. Manufacturing and processing require specific FTZ Board approval, however.

CHAPTER 7
Land Use

The purpose of this plan's land use chapter is to compile an inventory of existing land use information, and establish the goals, objectives and policies which will be used to guide public and private actions concerning future land use and development. These goals, objectives and policies express ideas that are consistent with the desired character of the community and the other chapters of the Comprehensive Plan.

Section 7.1 Existing Land Use Within Jo Daviess County

An accurate depiction of Jo Daviess County's existing land use pattern is the first step in planning for a desired *future* land use pattern. It is important to recognize that existing land use is not always the same as the current zoning of a property.

A. Existing Land Use Map Categories:

Existing Land Use in Jo Daviess County is categorized as follows:

Agriculture & Rural Lands: Land used primarily for farming, farmsteads, nurseries, and farm support activities, and limited single-family residential uses, generally with densities at or below 1 dwelling unit per 40 acres. This category also includes grasslands, timber, shrub land, and water (except the Mississippi River and adjacent federally-owned waters).

Vacant Rural Small Tracts: Individually-owned rural tracts of land less than 10 acres in area that are not classified as "Residential".

Residential: Groupings of predominantly single-family residential development, including vacant residential subdivision lots, generally with densities at or below 1 dwelling unit per 10 acres. Typically, residential land uses will be zoned residential and may by platted or subdivided.

Commercial: Land used for commercial trade purposes such as wholesale and general retail. Uses include such items as building materials, hardware, food stores, equipment stores, truck stops, auto sales, gas stations, eating and drinking establishments, etc. Also includes land used for commercial services such as finance, insurance, real estate, repair, motels, medical, professional (i.e. legal, accounting) and private (i.e. daycare, laundry) type services, golf courses, public-use aircraft landing fields and commercial campgrounds.

Industrial: Land occupied for industrial purposes, including light and heavy industry and the production and/or manufacturing of durable and non-durable goods. Also includes land occupied by transportation-related uses (such as warehousing/distribution), utilities and extractive uses (quarries and sand/gravel pits).

Public/Governmental: Land occupied for public or governmental use, such as schools and municipal, township, county or state buildings and/or land. Also includes land occupied by private utility companies that provide sanitary sewer and/or water service.

Private Camp/Recreation Area: Privately-owned camps such as Camp Far Horizons (owned an operated by the Girls Scouts of Northern Illinois) and Canyon Camp (owned and operated by the Boy Scouts of America, Blackhawk Area Council) that provide recreational/educational programs, camping, retreats and other activities for youth and adults. Also includes the Jo Daviess County Fairgrounds in Warren.

Church/Cemetery: Land occupied by churches and cemeteries.

Public Open Space/Public Parks/Public Preservation Lands: Includes all publicly-owned land that is permanently preserved as open space, and passive or active recreation. This land use category includes all federally-owned land within and adjacent to the Mississippi River.

Privately Conservation Land: Land owned by private conservation organizations such as The Natural Land Institute, Jo Daviess Conservation Foundation, and Prairie Enthusiasts. This land use category also includes private open space owned by Apple Canyon Lake Property Owner's Association and Galena Territories Association.

Incorporated: Incorporated cities and villages within the County.

Other: Land unaccounted for in other land use categories (publicly-owned and dedicated road rights-of-ways and railroad rights-of-ways).

B. Existing Land Use Pattern:

Jo Daviess County's existing land use pattern is primarily rural, consisting of: farmland related uses including farmsteads and farm buildings; pasture and grazing land; timber lands; grasslands; and, other rural open space land uses. The County's population and most intensive development is concentrated in municipalities and two planned residential developments (Galena Territory and Apple Canyon Lake). The rural population is in residential developments and scattered residential parcels. Isolated commercial and industrial uses are found throughout the County, as well. The County's municipalities contain the most intensive land uses in the County - the municipalities cumulatively account for 2.5% of the land area of the County, but contain 49.1% of the population. Each local community's existing land use map, if available, should be referenced for a more detailed review of these land use patterns. Table 7.1 below provides an amount, type and intensity (or percentage) of the acreage within each existing land use category in Jo Daviess County as of 2012. These acreage totals do not include lands within the municipalities. Map 7.1 Existing Land Use, Jo Daviess County, IL found in Appendix I Maps graphically details existing land uses.

Table 7.1
Existing Land Use Within Jo Daviess County Ranked by Amount of Land Area

Land Use	Area (Acres)	% of County
Agriculture and Rural Lands	333,390.5	84.2
Public Open Space/Public Parks/Public Preservation Lands	28,331.5	7.2
Residential	13,146.4	3.3
Incorporated Cities/Villages	9,821.1	2.5
Other	2,909.2	0.7
Private Conservation Land	2,829.3	0.7
Commercial	2,531.7	0.6
Vacant Rural Small Tracts	1,084.3	0.3
Industrial	732.0	0.2
Private Camps/Recreation Areas	585.6	0.1

Church/Cemetery	278.4	0.1
Public/Governmental	210.0	0.1
Total Area of County	**395,850.0**	**100.0**

Section 7.2 Land Development and Market Trends

According to the Jo Daviess County Building & Zoning Department, there were 2,146 zoning permits issued for new dwelling construction in unincorporated Jo Daviess County from 1995 through 2011, for an average of 126.2 dwelling starts per year over the past seventeen years. The majority of dwelling starts were in Guilford Township (32.5% of total), Thompson Township (18.2% of total), Dunleith Township (9.1% of total) and East Galena Township (8.8% of total). These four townships accounted for 68.5% of the dwelling starts in unincorporated Jo Daviess County from 1995 through 2011. The County's two largest residential development, Galena Territory and Apple Canyon Lake, accounted for 52.7% of the dwelling starts in the County between 1995 and 2011 (35.9% and 16.8%, respectively).

Figure 7.1: Township Dwelling Starts 1995-2011 Unincorporated Jo Daviess County, IL

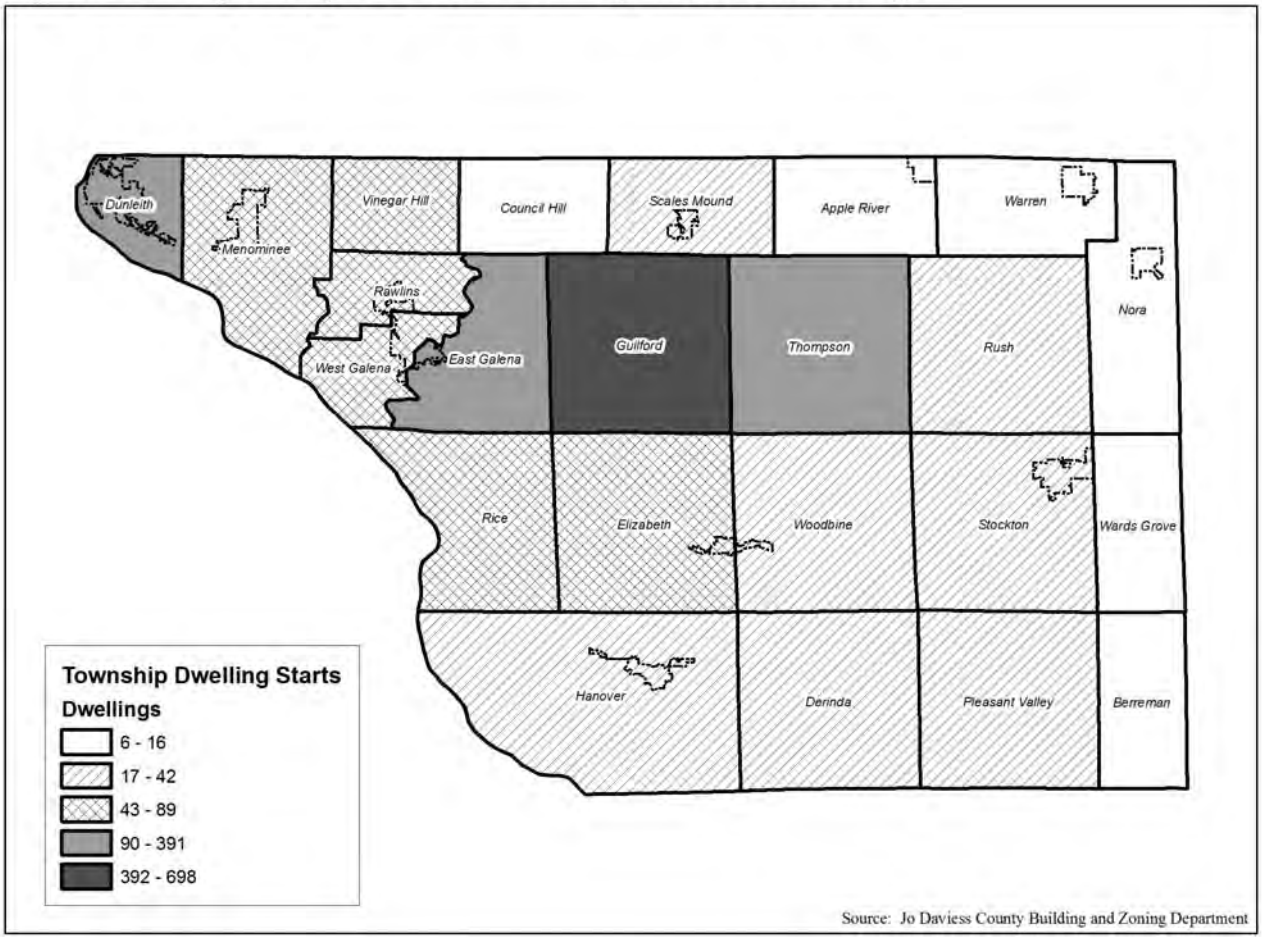

Table 7.2 below shows the comparison of equalized assessed valuations (EAV) by class of property from Assessment Year 2002 through Assessment Year 2011 in Jo Daviess County.

Table 7.2
Comparison of Equalized Assessed Valuations by Class of Property
in Assessment Years 2001 Through 2010
Jo Daviess County, Illinois

	Residential	Farm	Commercial	Industrial	Total	% Change
2002	$310,251,540	$157,500,736	$60,027,235	$13,158,591	$540,938,102	---
2003	$334,488,310	$160,952,332	$61,923,464	$13,114,992	$570,479,098	5.5%
2004	$360,170,863	$172,934,288	$65,611,890	$12,574,290	$611,291,331	7.2%
2005	$387,434,611	$182,749,692	$68,145,805	$12,522,134	$650,852,242	6.5%
2006	$427,739,920	$202,374,955	$71,614,123	$12,712,400	$714,441,398	9.8%
2007	$485,281,205	$214,255,290	$76,256,317	$12,871,898	$788,664,710	10.4%
2008	$526,629,554	$232,019,987	$92,549,194	$13,182,025	$864,380,760	9.6%
2009	$539,686,915	$237,141,222	$93,484,333	$13,173,468	$883,485,938	2.2%
2010	$510,154,234	$239,146,698	$93,853,343	$12,893,018	$856,047,293	-3.1%
2011	$473,441,729	$242,841,727	$93,619,701	$12,807,594	$822,710,751	-3.9%

Source: Jo Daviess County Supervisor of Assessments

The total County Equalized Assessed Value (EAV) increased every year from 2002 to 2009, but has decreased from 2009 to 2010 and from 2010 to 2011. The average annual increase in EAV from 2002 to 2011 is 4.9% per year. The total County EAV increased 52.1% from 2002 to 2011.

Residential EAVs, which account for 57.5% of the total County EAV in the 2011 assessment year, increased every year from 2002 to 2009; however, in response to the recessional economy, residential EAVs decreased 5.5% from 2009-2010, and decreased 7.2% from 2010-2011. Residential EAVs increased 52.6% from 2002 to 2011.

Farm EAVs, which account for 29.5% of the total County EAV in the 2011 assessment year, have increased every year from 2002 to 2011. Farm EAVs increased 54.2% from 2002 to 2011.

Commercial EAVs, which account for 11.4% of the total County EAV in the 2011 assessment year, have shown an upward trend from 2002 to 2009, but decreased slightly from 2010 to 2011 (0.2%). Commercial EAVs increased 56.0% from 2002 to 2011.

Industrial EAVs, which account for 1.6% of the total County EAV in the 2011 assessment year, decreased every year between 2002 and 2005, but increased from 2005 to 2008. Industrial EAVs have decreased every year from 2008 to 2011. Industrial EAVs decreased 2.7% from 2002 to 2011.

Section 7.3 Land Use Conflicts

As growth occurs in Jo Daviess County and as urban areas expand, there will likely be increasing land use conflicts. Urban and rural residential, commercial and industrial land use development will require the conversion and possible fragmentation of more farmland, woodlots, and open fields in the County. Conflicts between non-farm residential development and surrounding farms and farm activities could become increasingly common in the rural parts of Jo Daviess County. Other potential rural land uses that could conflict with neighboring uses include large-scale farm operations, mining/quarrying operations, and rural manufacturing plants. This *Plan* seeks to avoid potential *future* land use conflicts through thoughtful and comprehensive land use planning at the local and county level. Municipal comprehensive plans should document specific localized existing and potential land use conflicts.

Section 7.4 Projected Land Demand

A. Residential Land Demand:

Projected residential land use demands are typically based on year-round population, household size, housing unit forecasts, and an assumption of a typical size of a future residential home site. Jo Daviess County has experienced a gradually increasing population, and is projected to moderately increase in population into the future (see Chapter 1, Issues and Opportunities for Planning). A reasonable amount of land should be designated for future residential development based on stated planning policies, goals and objectives. Residential land demand and, in particular, consumption, relate largely to planning policy implementation and where/how residential development occurs. Rural residential development where few services are available demands a much greater land area than residential development where urban services and infrastructure are available.

B. Commercial and Industrial Land Demand:

Jo Daviess County's dominant land use is agriculture, although there are numerous commercial and industrial uses located throughout the County. However, commercial and industrial land uses are predominately, and will likely continue to be, located within the County's municipalities. The County should work cooperatively with the municipalities to plan for and encourage new commercial and industrial uses where identified as appropriate, and plan for and prepare infrastructure to accommodate potential commercial and industrial uses.

Section 7.5 Land Use Plan

Map 7.2 Jo Daviess County Land Use Plan found in Appendix I Maps identifies how development should proceed in the future to meet the County's goal of encouraging a pattern of growth and development that will provide a quality living environment. Future development and redevelopment should be encouraged in an orderly pattern adjacent to and compatible with existing development. Where differences exist, the long range Land Use Plan recommendations are not considered to be inconsistent or in conflict with the County's existing zoning map because they will be implemented over a period of many years as development proposals and land use changes are presented to the County for consideration.

The Jo Daviess County Land Use Plan map is intended to incorporate the land use recommendations of the various municipalities that have adopted comprehensive plans. For land areas located within the 1.5 mile extraterritorial planning jurisdiction of any municipality, the controlling municipality's comprehensive plan should be consulted for specific planning guidance. It is the intent of this Comprehensive Plan to incorporate by reference comprehensive plans that have been adopted by municipalities within Jo Daviess County or any municipality located outside of Jo Daviess County that has extended its extraterritorial jurisdiction into Jo Daviess County.

Section 7.6 Relationship Between Planned Land Use Designations and Future Zoning

The Land Use Plan map is not a zoning map. However, the planned land use designations shown on the Land Use Plan generally advise appropriate future zoning and land use decisions. In many cases, existing zoning districts reflect desired future land uses as indicated by the planned land use designations mapped over those areas. In some cases, zoning map or text changes may be required to meet some of these planned land use recommendations.

The identification of desired future land use types through the Land Use Plan does not imply that any area is immediately appropriate for re-zoning. Given service demands and a desire for controlled growth, careful consideration to the timing of zoning decisions is essential. In some places, it may be desirable to re-zone land to reflect the planned land use designations as soon as possible. In other cases, it may be appropriate to wait to re-zone the area until an actual development proposal is brought forward by the landowner.

CHAPTER 8
Land Use Recommendations

Section 8.1 Land Use Problem Statement

Jo Daviess County is rich in resources that contribute to its economic vitality and the quality of life of its residents. The natural resources, historical features and the aesthetic qualities of the area are valued by the county's citizens. Protecting these resources is crucial for the public good and the future well being of the county.

Land Use Issues: The county's tourism economy is strong. The agricultural economy, while still strong here, can expect increasing pressure from encroachment of development into agricultural areas, rising land values and competition from large-scale operations and foreign markets. These pressures on agriculture are seen not only here, but nationwide. At the same time, the scenic beauty and pastoral appearance of the county have been identified among the most significant attributes and are the very underpinnings of the tourism economy.

Random rural development threatens agriculture, the scenic beauty and other resources. Scattered rural residential development, in particular, has been increasing over the past twenty years, and has in some cases compromised the ability of agriculture to flourish. Residential uses are not entirely compatible with agricultural practices.

A continued increase in scattered rural residential development will ultimately result in the same problems generally associated with urban sprawl -- inefficient use of large areas of land to house a small number of residents, increased traffic, and excessive energy usage as residents drive longer distances to acquire goods and services. Infrastructure and services required to support rural development (e.g. country road upgrades to accommodate increased traffic; longer routes for school buses, emergency services, fire and police protection) are more costly per housing unit than the same services provided to concentrated development in communities and planned developments. Scattered rural development is not a cost-effective form of development for the county.

The Need: Residents of the county strongly support creation and retention of good paying jobs. They want diversification of the economy through growth of clean industry and technology-based businesses. They want development which will allow young people to find meaningful career opportunities here. Residents support rural ambiance and preservation of productive farmland. They value tourism. Careful, planned use of the land allows for growth and development while preserving the natural beauty and rural character of the county.

By managing development and directing it to areas best able to support it, county revenues can be used more efficiently. The agricultural economy, rural character and scenic beauty of the county, valued by county residents, can be protected to a greater degree. The principles on which this plan are based are not anti-growth, but rather "smart growth."

Section 8.2 Agriculture and Agricultural Preservation Areas

Agriculture and tourism are the two largest sectors of the county's economy. It is fortunate that both rely on the land itself for their success. The land is the greatest asset of the farmer. The rural landscape, pastoral beauty, and scenic countryside are what motivate the tourist to visit. Both industries rely on the preservation and protection of farmland for a successful future.

The scenic beauty of the area is also alluring to people who want to live in a rural setting in order to enjoy the ambiance, serenity, and privacy of country living. The demand for rural residential development is steadily increasing. Also increasing is the potential for conflict between rural residential growth and agriculture. The benefits of rural residential growth are discussed in Section 8.5 Residential Uses of this Chapter. Here the focus is on the policies and approaches which will be used to preserve the highly valued agricultural land.

A. Presently, the Jo Daviess County Planning Commission is using the Land Evaluation and Site Assessment (LESA) system to evaluate development proposals for impacts on productive farmland. This system also rates other factors including: distance from urban services; percent of land adjacent to and within one (1)

mile of the requested site's boundaries that are used agriculturally; size of parent parcel; average slope of site; financial commitment to agricultural on adjacent sites; fire district rating class; transportation; central water and sewer; and consistency with County and municipal plans. This LESA criteria has been tested for a number of years and has proven a workable and valuable tool in evaluating projects. The LESA system was approved by the Illinois Department of Agriculture, Bureau of Land & Water Resources and the USDA Natural Resources Conservation Service and was adopted July 11, 2006 by the Jo Daviess County Board.

B. The Land Use Plan (Appendix I Maps, Map 7.2 Land Use Plan) delineates three types of agricultural areas. Areas with a high concentration of Prime Farmland have been designated as "Agriculture Preservation Area 1," concentrated areas of Important Farmland have been designated "Agriculture Preservation Area 2," and the remainder of the county is simply designated as "Agricultural." During ordinance review, these areas could be designated AP1, AP2 and AG respectively.

It should be noted that the boundaries of the three agricultural areas shown on the Land Use Plan are general rather than rigid. Site specific information from the Natural Resources Conservation Service (NRCS) and other sources should be considered in the evaluation of every specific application.

The County strongly supports a diverse agricultural environment in which sustainable agriculture can survive. This includes not only crop production, but also dairy, livestock and timber. It is desirable to preserve the most productive prime farmland to the fullest extent possible, while preserving large areas of important and other farmland as much as possible without being unduly restrictive.

C. It is also recommended that the County provide a similar mechanism for allowing appropriate rural residential development as described in Section 8.5 Residential Uses of this Chapter. The Land Evaluation and Site Assessment (LESA) system should be adjusted to favor cluster and/or conservation development over solitary single housing units. This will help to keep large tracts of productive agricultural land intact, while allowing residential uses on the less productive land.

D. The County will allow, through a special use permit, compatible commercial and industrial uses which are supplemental to the primary agricultural use.

E. The County will require development to provide adequate buffer between adjacent uses.

Periodically, the County should evaluate its progress in preserving productive agricultural land. The table provided in the V. Baseline Data Summary, Section E. "Existing Land Use" of the Comprehensive Plan adopted in 1999 (and amended in 1996), and Chapter 7 Land Use of this Comprehensive Plan document, may be used for comparison.

Section 8.3 Communities and Their Contiguous Growth Areas

The county's small friendly communities are highly valued by county residents. Therefore, throughout the Comprehensive Plan process, great care was taken to promote the economic viability and social vitality of the communities. The County recognizes the importance of cooperating with municipalities in guiding growth and development to those areas within or near communities where services are most readily available and where growth is desired. Toward this end, the Comprehensive Plan designates "Contiguous Growth Areas." These areas are illustrated on the Land Use Plan (Appendix I Maps, Map 7.2 Land Use Plan) and are referenced in Chapter 9 Goals and Objectives.

A "Contiguous Growth Area", or CGA, is defined as that area around a municipality in which that community anticipates and desires growth to occur in the foreseeable future. These areas were identified with input from the communities and take into consideration a number of factors including, but not limited to: 1) the community's official plan(s); 2) the feasibility of providing the area with municipal water, sewer and other infrastructure; and 3) the community's expressed desires with regard to the amount and location of growth. In some cases (e.g. East Dubuque) the CGA is large, while in others it is small, or identical to the existing corporate limits (e.g. Menominee). Boundaries of the CGA's shown on the Land Use Plan (Appendix I Maps, Map 7.2 Land Use Plan) are approximate.

They will be more clearly defined as the County progresses in the joint planning activities with municipalities described below. While these plans for CGA growth will provide a useful guide for sound growth management, each application for zoning change still must be reviewed for its specific impact on the site, area, community and county as a whole. By defining CGA's, the County has expressed its intent to strongly encourage and guide residential, commercial and industrial development to those areas most ready to receive and serve it. The CGA approach encourages efficient use of resources and reduces sprawl.

As stated in Chapter 9 Goals and Objectives, the County will cooperate with the respective community in its land use decisions for projects within a CGA whenever possible. Effective implementation of this approach will require ongoing joint planning between the County and the municipality. It is expected that, over time, the County will negotiate and enter into a "joint planning agreement" with each municipality ensuring that not only the community's needs and desires are met, but also the planning standards the County deems important for protection of the health, safety and welfare of county residents are upheld.

Any substantial new development near a community should annex to the municipality. Where there is no land contiguity or immediate annexation is not possible, an annexation agreement between the municipality and the developer would be appropriate to allow the municipality control over the new growth.

The Comprehensive Plan repeatedly stresses the importance of preserving prime and important or productive farmland as well as the pastoral appearance of the county. At the same time, the Plan recognizes the critical need to stimulate economic development. The County acknowledges that within the defined CGA's some farmland may be developed for the overall good of the people of the community and the county as a whole. The particular areas, now used for agriculture, but most likely to be impacted by growth contiguous to the municipality, should be scrutinized carefully as the joint planning agreements are developed and implemented.

A. Apple Canyon Lake and the Galena Territory:

In the application of the Contiguous Growth Area policy, three communities are exceptional. Two, Apple Canyon Lake and the Galena Territory, are planned residential communities. Each offers a lake, golf, and other amenities, and includes some commercial uses. Both are legally recognized as subdivisions. Each is represented by an owners association and has its own plan and design guidelines. Parts of each subdivision are served by central water and sewer. Some areas are served by septic systems and wells. Roads are maintained by the townships. Socially, both function as communities. Since neither is incorporated, neither community has a designated CGA. However, during the planning process, both were consulted with regard to their preferences for future land use in adjacent areas. Both cited the preservation of the rural character as a priority. It is recommended that both these communities be included in County planning efforts. (See Chapter 9 Goals and Objectives)

B. Woodbine:

The third exceptional community, Woodbine, presents several challenging issues. Because of its location on the county's major highway, U.S. Highway 20, it merits special consideration. Woodbine was built long before county zoning or subdivision ordinances were enacted. It consists mostly of single-family residences, laid out in a traditional community pattern. It has numerous commercial uses, several home-based businesses, a church, the township hall and garage, and several historically significant structures including the railroad depot. U.S. Highway 20 serves as its "main street." Socially, Woodbine functions as a community. Yet, Woodbine is unincorporated. In fact, it is prevented from incorporating because it does not meet the minimum size threshold required under the State statutes. Legally, it is represented by only its township government and the County.

Woodbine has expressed concern that, as a result of its status and the Plan policy of directing commercial growth to the contiguous growth areas of municipalities, it will be prohibited from pursuing the economic and residential growth it desires. Zoning remains a concern, as under the existing ordinance, the commercial uses in Woodbine are legal "grandfathered" uses. They may continue to operate, but expansion

is currently limited. Under policies stated in the Plan, new commercial growth might not be easily accomplished. The County is eager to resolve these problems. It will actively work with the community of Woodbine toward that end. One viable option is to develop a joint land use plan between the Woodbine Township and the County.

C. Other Unincorporated Communities:

In Jo Daviess County there are numerous other small unincorporated communities which may experience challenges similar to those of Woodbine. Among them are Council Hill, Council Hill Station, and Schapville. The approach used and the experience gained in working with Woodbine may serve as an example for cooperatively resolving matters with these other communities. (See Chapter 9 Goals and Objectives)

Section 8.4 Commercial and Industrial Growth

Jo Daviess County is strongly supportive of commercial and industrial growth. It recognizes existing businesses for the contribution they have made to the local economy and the tax base over the years. Existing business and industry have the greatest likelihood of new job creation. The County is eager to support existing business and industry in their efforts to expand. The County will also work to retain businesses and industries as well as the jobs they provide.

The County also supports the tourism industry. Annually, tourism provides an enormous contribution to county in a wide variety ways. It not only stimulates the restaurant and lodging businesses, but also supports many ancillary businesses from professional firms to the construction trades. Not all jobs provided by the tourism industry are low paying, service sector jobs.

Nonetheless, the County recognizes the need to stimulate and diversify the economy. It places a high value on new well-planned commercial, and industrial growth. There is strong support for new manufacturing, high-tech and professional growth. There is a great demand for new jobs, in particular, jobs which provide wages sufficient to sustain families. Many residents of the county have to rely on several part-time jobs in order to provide adequate household income. For these reasons, the County will encourage commercial and industrial growth.

In its land use policies, the County will encourage new commercial and industrial growth in the areas which have the best capacity for supporting such growth. It must balance the desire for new commercial uses with the equally important needs of health, safety and welfare and those of preserving productive farmland and the scenic beauty of the county. The two most significant economic sectors of the county, agriculture and tourism, both rely on preserving the rural character of the county. Therefore the County will:

A. Encourage new commercial and industrial growth to locate within the Contiguous Growth Areas (CGA) of communities, where services are available or easily provided. This is generally the most logical location from the perspective of the business as well.

B. Encourage sound planning and multi-use redevelopment of the Savanna Army Depot. The County will cooperate with the Local Redevelopment Authority (LRA) in review and approval of redevelopment plans and proposals. This will be done through its representatives on the LRA and through the County Board as appropriate in accordance with established procedures. At such time as title to parcels of land within the Depot area is to be transferred from federal ownership to non-federal owners, the County will expedite zoning, subdivision or other reviews necessary for the new proposed uses.

C. Discourage commercial development in rural areas at a distance from communities or near rural intersections, i.e. those intersections outside of Contiguous Growth Areas. To the extent that commercial growth is too far from a community to be within the already ample CGA's, such growth could detract from the vitality of the community. When growth is widely distributed in rural areas, essential services (e.g. fire, police, ambulance and school transportation) are more expensive to provide, due to distances of travel.

It should be noted that a community's Contiguous Growth Area is defined with input from that community and can be as large as needed to include such growth areas the community deems appropriate for its available services within the foreseeable future. For this reason it is to the benefit of the community to work closely with the County to develop agreements for its CGA, particularly with regard to any intersections where it desires growth to occur and can meet the service needs.

D. Strongly support expansion of existing and new industrial growth. In its planning, the County has recognized the fact that the needs of prospective industries cannot always be anticipated. While most are expected to seek locations near communities, some may prefer other locations. The County will carefully evaluate any new industrial proposal to balance the impacts of the proposed development and the health, safety and public welfare needs, with the benefits of economic development and much needed job creation.

Section 8.5 Residential Uses

In Jo Daviess County the demand for rural residential development has increased greatly over the past few decades. All factors indicate that this demand will remain strong. Much of the rural residential development is concentrated in two large planned rural residential communities, Apple Canyon Lake and the Galena Territory. However, in recent years many smaller rural subdivisions have been built, and there is constant demand for new single family rural residential growth. Jo Daviess County is beautiful, and many people want to live in the rural areas to enjoy the beauty, views, serenity and privacy of country living.

A. Benefits:

The county has benefitted in many ways from rural residential growth. Economic benefits include the growth of the construction industry, job creation in the trade/design sector, and an increase in the tax base.

Social benefits accrue simply from the infusion of more people. The population is increasingly diversified as people with different experiences and life views move into the county. Many bring with them both skills and contacts with others who may bring economic growth to the area. Many also have substantial disposable income which helps to support local business and increases the economic viability of the county's small towns.

There are cash benefits to farmers who are able to sell land for residential development at higher prices than it would bring as farmland. Farmers can also benefit as some who buy land use only a portion for their home and lease the remainder for agricultural use.

Along with rural residential development comes the demand for support services. Farmers can benefit from providing services, such as tilling and mowing, for a fee. Businesses which provide home maintenance services also benefit. The increased population, even if some are only part-time residents, helps to support local restaurants and retail businesses.

B. Problems:

As with most things, there is a downside to increased rural residential growth. Loss of farmland for any future agricultural use is perhaps the major concern. Related to this is the increase in the value of farmland. While this is a benefit to the farmer who sells land, it can be a problem for farmers who wish to remain in farming as the purchase of additional acreage is more difficult.

The quality of open land is not always improved by rural residential growth. When large parcels are purchased with only small portions used for the home, the remaining land often grows over with weeds and brush. Land previously open to hunting is often closed, resulting in an exploding deer herd in the county. These deer feed on agricultural crops.

Nuisance conflicts with agricultural uses are often noted. Non-farmers complain of odors, dust and slow-moving farm equipment on the roads. Farmers cannot spray for weed control or spread manure near residential uses, and they complain of fast-moving cars creating hazards on roads. Farmers also note problems with motor bikes, snowmobilers, trespassers and loose pets.

Rural residential growth increases the cost of providing services. Fire, ambulance, police and school buses must travel longer distances. Services needed to support home life require travel in both directions -- e.g. repairmen to the house, and residents to the communities for school and events. These travel distances contribute to dependence on the automobile and increased use of fossil fuels. Power, phone and gas services must extend farther with greater capacity. All these factors present challenges for efficient use of energy and sustainability of community life.

Rural residential growth has potential negative impacts on the environment and public health and safety. It increases the proliferation of septic systems, which is of particular concern in some areas of the county where soil conditions or depth to rock is not optimal for septic use. Rural homes also require water which is generally provided by private wells, requiring perforations into local aquifers.

These factors increase the chances of groundwater contamination. Houses built in rows along rural roads present safety problems at access points, particularly when curves and hills offer little sight distance.

Finally, rural residential growth can have negative impacts on the aesthetics of the area. Preserving the scenic beauty and the rural character of the county are very important to County residents. Residential growth which is not sited with sensitivity can obscure views from scenic roadways and destroy natural features.

C. Striking the balance through sound planning:

In order to enjoy the benefits of rural residential development while minimizing the negative impacts, the County will implement the following policies and approaches:

1. When possible guide new residential growth to the Contiguous Growth Areas (CGA's) around municipalities where services exist or can be provided.

2. Encourage clustered, planned residential development rather than single isolated housing units.

   a. Encourage early consultation. Encourage applicants to consult with the County Zoning Administrator at the "concept sketch plan" and "preliminary plan" stages of development planning. The County may wish to develop a checklist or amend the Zoning and Subdivision Ordinance procedures to ensure early plan review.

   b. Encourage integrated planning. Often requests for subdivision of a parcel from a larger agricultural plot are made piece-meal, lot-by-lot, over a period of years. Encourage integrated planning of all parcels for any proposed subdivision, even if actual development of the lots will occur in phases over several years. The County should consider requiring a plan for all acreage held under a single ownership or control, at the time the first request for subdivision is made.

   c. The County should also explore the feasibility of setting time limits. One approach might be to amend the Subdivision Ordinance to limit the frequency of subdivision requests from a single parcel. For example, a request for a subdivision of land would not be considered within a certain period (e.g. five years) from the date of an earlier subdivision from that parcel. This would encourage land owners to plan subdivisions as an integrated development. The downside of this approach is that it could inadvertently accelerate the subdivision of land, as owners present plans that are more ambitious than they would have otherwise presented. For this reason, further study of time limits is needed.

d. Follow tested methods for "cluster development" or "conservation development" design in rural subdivisions. These methods allow siting at higher than normal densities provided that sensitive areas are protected and efficient provision of services are incorporated into the design. They help to keep larger tracts of productive farmland intact while siting homes on the less productive land. They provide a limited number of access points reducing traffic hazards. Since these methods group homes in a more compact layout, they have less visual impact on scenic views from roadways. Conservation easements can be incorporated into such developments, offering tax benefits to developers. For all these reasons, "cluster" or "conservation" development methods are preferable to single homes aligned along roadways in a strip development pattern. The four-step method of "conservation development" described in "Growing Greener" published by the Natural Lands Trust, Inc. and other works by Randall G. Arendt offer good examples of desirable rural residential subdivision design. This method uses a sliding scale of density to lot size to preserve desirable portions of a site. Its four-step process uses: a) a yield plan, b) the set-aside of primary conservation areas, c) the set-aside of secondary conservation areas, and d) the final plan. Orientation and training of County staff in this method of planning is recommended.

e. Provide orientation and technical assistance about preferred development practices to land surveyors, engineers, realtors, builders and others who work with those seeking to develop homes in the rural areas.

3. Adjust the Land Evaluation and Site Assessment (LESA) scale to add a higher number of points for solitary or isolated residential development proposals, a lower number of points for clustered development, and a still lower number of points for a clustered development consistent with the "conservation development" method described above.

4. Require development to provide an adequate buffer space between residential uses and different adjacent uses, including agricultural use.

5. While not prohibiting people from building on high elevations with beautiful views, require that any such development be as unobtrusive as possible, with the highest point of the roof-line below the predominant elevation of the site, and the site properly screened with natural vegetation. Avoid glaring and excessive lighting.

6. Adopt a voluntary County Historic Preservation Ordinance. Saving historic buildings helps to preserve the rural, pastoral ambiance of the county. There are also substantial financial benefits to the residents of the county. An Historic Preservation Ordinance will formalize the methods for designating historic properties, allowing owners to take advantage of tax incentives not presently available to them. These include the property tax freeze program for owner-occupants of residential property, and a federal income tax credit for commercial properties. From the land use perspective, establishing a means of preserving historic properties could help those who presently own old farmstead buildings which serve no immediate purpose and are likely to be demolished. This program could make the difference between saving these buildings or losing them forever. The Historic Preservation program could make it economically feasible to restore these structures. For the rural land owner, a building that is a liability now could become an asset, available for sale or rent. Moreover, restoring old homes and farmsteads supports the policy of encouraging affordable housing. Older deteriorated homes with little marketability even as a "handyman's special" may become financially feasible projects once the tax incentives are factored in. These structures may provide some of the very needed affordable housing.

7. Encourage the preservation of historic or potentially historic farmsteads and abandoned farm buildings through Zoning and Subdivision Ordinances. The County will be flexible in allowing subdivisions of parcels with historic or potentially historic structures which could be restored or adapted for reuse. Such subdivisions can be beneficial to farmers who own such property. Buildings which are presently considered liabilities for the farmer, could be sold to provide needed

cash to assist in supporting the agricultural operation. Barns not presently in use should be considered for adaptive reuse. Saving old barns helps preserve the heritage and contributes to the pastoral ambiance of the area. Preservation of historical buildings contributes more to the economy than does demolition!

Section 8.6 Environmental Corridors, Parks & Recreation Areas, Conservation Areas and Elevated Areas

A. Environmental Corridors:

The Land Use Plan (Appendix I Maps, Map 7.2 Land Use Plan) identifies certain areas as environmental corridors. These areas, generally following the streambeds, are sensitive and should be preserved. The boundaries of these areas are approximate and may vary with the topography and conditions. The environmental corridors are sensitive areas for a number of reasons:

1. The areas along streams include floodplains which are not suitable for structures.

2. Lowland areas were popular with early populations for use as encampments and are likely to contain archeological sites.

3. Development or intense use along streambanks contributes to degradation of surface water quality. Intense grazing or cattle wading in streams increases erosion and sediment load of streams. Rainfall run-off from row cropping adjacent to streams increases pollution from agricultural chemicals. Vehicular uses (roads and parking areas) near streams contribute to pollution from oil and salt run-off. These impacts can be greatly reduced by vegetative buffer areas along streams.

4. Vegetative areas along streams provide good wildlife habitat for mammals, songbirds, and waterfowl.

5. Maintaining environmental corridors along streams preserves areas which may be used for public access to rivers for recreational uses such as boating, canoeing and fishing. These areas may contribute to the tourism economy.

In general land use planning practice, environmental corridors are not usually confined to areas along streams. Typically, they include areas with other features such as parks, recreational areas, trails, historic sites, and conservation areas. In Jo Daviess County, environmental corridors will be more specifically delineated over time as part of the Comprehensive Plan implementation and the development and zoning process. Streams and rivers will be classified according to their sensitivity (as described above 1-5), and their significance in contributing to the overall goals of this Plan. In the long range, the ideal development pattern for the county would include a network of environmental corridors connecting natural, historic and recreational areas with subdivisions and communities.

Every attempt should be made to preserve the sensitive environmental corridors from inappropriate development. Once these areas are developed their natural qualities and potential benefits to the citizens of the county will be lost. In order to ensure the preservation of the environmental corridors, the County will adopt several policies. Construction is to be set back from these corridors. Set-back standards will be developed in conjunction with the classification of streams and the review of the Zoning and Subdivision Ordinances. These setbacks may vary depending on topography, stream sensitivity, types of adjacent uses, and proximity to other natural or conservation areas. The maintenance of appropriate vegetation within the environmental corridors may also be required as part of the project approval process.

In most cases, the property delineated as "environmental corridor" will remain in private ownership. Private property owners may provide conservation easements for tax benefits while at the same time preserving habitat in these areas. (See Paragraph C. Conservation Areas, below). A subdivision could use the environmental corridor area as part of its requirement for minimum open space. These areas may be privately held by separate lot owners, or commonly owned by an owners association and available for use by all residents of the subdivision. The Galena Territory is a

good example of a community subdivision connected not only by roadways, but also by a system of trails (both pedestrian and equestrian) and greenways, some of which are golf courses of considerable commercial value. In some cases, public access may be appropriate. (See also Paragraph B. Parks and Recreation Areas and Paragraph C. Conservation Areas below). The County will be flexible in the applying the environmental corridor policies when considering a specific case in order to allow the most appropriate methods for preserving these areas.

B. Parks and Recreation Areas:

Jo Daviess County has no park district or forest preserve district serving the unincorporated areas. The State of Illinois owns and operates Apple River Canyon State Park. The State also owns and maintains a scenic overlook located just off U.S. Highway 20 between Elizabeth and The Galena Territory. The U.S. Army Corps of Engineers owns and operates a camping and picnic area at Blanding Landing. Several private sector recreational opportunities are offered throughout the county's rural areas, e.g. the Chestnut Mountain ski area, a marina at Ferry Landing and several private campgrounds. Most of the county's parks are located in and operated by the municipalities.

The County does not have an Open Space and Recreation Plan. Chapter 9 Goals and Objectives lists development of such a county-wide plan as an activity which should be undertaken. This plan should examine the potential (both the short- and long-term) for integrated use and development of parks, recreational and natural areas, historic sites, tourist amenities, trails, environmental corridors, with communities and tourist demand. It should identify areas appropriate for public access. It should consider information obtained about significant natural resources. The planning process should involve input from communities, local, state and regional groups. The Illinois Department of Natural Resources should be contacted for technical assistance. The development of such a Plan does not necessarily imply that County government would undertake purchase of land for park use. In many cases, the county's position may be one of supporting efforts of communities or other groups in providing or improving their recreational amenities, many of which would be utilized by both residents of the county and tourists. The county's role may include assisting in the promotion and marketing of recreational opportunities throughout the county through the Jo Daviess County Convention and Visitors Bureau. The completion of a county-wide Open Space and Recreation Plan will benefit other units of local government or not-for-profit organizations in securing grant funding for projects initiated by those entities.

Rivers to Ridges is a program marketing a network of outdoor recreation sites in northwest Illinois, including many of the site mentioned above. The network covers sites in three counties bordering the upper Mississippi River: Jo Daviess, Carroll and Whiteside. Nineteen sites are ready for visitors now; dozens of additional ones will be included as properties are improved and amenities added. These sites offer glimpses into the incredible natural beauty of this corner of Illinois. They beckon visitors and residents to tread lightly on the region's unique geology: towering bluffs, rugged hills and valleys, ever-changing rivers and flood plains. While dedicated to conserving and preserving wildlife and natural habitats, Rivers to Ridges invites the public to respectfully experience these sites up close. The Rivers to Ridges web address is: www.rivers2ridges.com.

The scenic beauty of Jo Daviess County, the popularity of the area for hunting and fishing, the Mississippi River with its allure for boating and fishing, and the vibrant tourism industry make the county a prime area for expansion of recreational uses. The County will evaluate development proposals on a case by case basis to balance the economic benefits of recreational uses with the need to preserve sensitive areas and productive agricultural lands, and to safeguard public health, safety and general welfare. The County is eager to cooperate with communities, state, regional and local groups in planning recreational projects consistent with the Goals of the Comprehensive Plan.

C. Conservation Areas:

Jo Daviess County has no county-wide conservation district or forest preserve district. Several areas within the county have been set aside for conservation purposes. The U.S. Fish and Wildlife Service controls substantial tracts of land along the Mississippi River, and will gain ownership of considerable acreage in the northern part of the Savanna Army Depot when the Army relinquishes ownership. Many areas within the county have been acquired for

preservation by the Illinois Department of Natural Resources, the Jo Daviess Conservation Foundation (JDCF), a private not-for-profit organization, the Prairie Enthusiasts, and The Nature Conservancy (see *Jo Daviess County Greenways and Trails Plan*, incorporated hereto by reference).

The concept of setting aside land for conservation purposes has been discussed in detail during the Comprehensive Planning process. The Vision Survey indicates strong support for the preservation of the scenic beauty of the area. However, given the pressures on the agricultural economy many farmers feel that, since their primary asset is land, they cannot afford to set it aside without substantial financial remuneration. Private land owners wishing to preserve portions of their land as natural areas may place a covenant on the parcel, known as a "conservation easement." In doing this, the land owner may obtain tax credits. Public access to the area may be provided, but is not required. Several organizations, including the Jo Daviess Conservation Foundation, the Natural Land Institute, the Prairie Enthusiasts, the Nature Conservancy and the Bluffland Alliance, can assist owners in this transaction.

Purchase of development rights (PDR's) were also considered as a tool for preserving sensitive natural areas or open space. However, some people question whether the funding of a PDR program properly rests with County government or with some other not-for-profit entity. Several individuals have suggested that the Comprehensive Plan include an objective to establish a county conservation district. Conversely, others have commented that there is already enough land set aside and off the tax rolls, and that the need for economic development and jobs outweighs the need for more set-aside for land. Lacking consensus, the Plan merely sets forth an objective to "Develop a plan for conserving scenic areas through zoning, easements, acquisition or purchase of development rights", "Identify and generally map significant natural resource areas..." and "Develop a plan for preserving significant natural areas..." The County will evaluate proposals to ensure that development adjacent to sensitive natural areas, environmental corridors, conservation areas, and parks is designed to minimize conflicts between uses.

D. Elevated Areas:

Any development on the county's elevated ridges, knobs and mounds must be treated with great sensitivity. These areas have shallow soils which are often not suited for septic systems, and which erode easily when disturbed. Vegetative areas along ridges provide habitat for plants and animals, and these ridges include most of the remaining natural areas in the county. Ridges were popular prehistoric burial sites and may have archaeological value. Because of these characteristics, elevated areas should be a high priority for conservation efforts in the county.

In addition to the physical constraints of development in elevated areas, there is increasing opposition to development which is visually obtrusive. Recently, a number of structures have been built, typically large homes, which tower over the surrounding elevations and can be seen for miles. Certainly, people building homes in this beautiful area will want to take advantage of the breath-taking views. However, in the interests of not spoiling the view for all others, the Comprehensive Plan includes policies to avoid this kind of development.

In general, the County's policy is: development on ridges, knobs, and mounds should be as unobtrusive as possible. In practice this means that as building permits are issued or as applications for rezoning are considered, site plans will be reviewed to ensure that the development is consistent with this policy. Rooflines should not protrude above the surrounding elevations. Structures should be screened from view by natural vegetation. Roadways and access drives should follow the contours of the land to reduce their visibility from the surrounding area. Glaring or excessive lighting should be avoided.

The Land Use Plan (Appendix I Maps, Map 7.2 Land Use Plan) illustrates elevated areas -- knobs, hills, mounds, and ridges – which are commonly known to be scenic elevations in the county. These illustrations are only intended to suggest typical areas. Applications for zoning or building permits will be reviewed on a case by case basis to evaluate the visual impacts of the proposed development for consistency with the overall principle of preserving scenic areas.

Section 8.7 Roadways and Scenic Routes

During both the Vision project and the Comprehensive Plan process of the 1999 Comprehensive Plan, citizens have stressed the high value they place on the scenic beauty of the area. In order to ensure that this beauty is preserved, the County will implement policies which treat aesthetics along roadways with sensitivity. In addition, the County will undertake a systematic classification of its local roads to evaluate and rank them for a number of factors including: current safety and improvement needs, future upgrade needs (lane widths, turning lanes, signalization, etc.), scenic value, signage considerations (safety, informational and aesthetic).

In general the County's policies for its scenic roadways will include limiting billboards when possible, promoting standardized informational signage, preserving trees and desirable vegetation along roadways, and providing ample setbacks to allow space for sight-lines and future improvements to the roadway system. The County will also require new development along roadways to be screened from view with appropriate landscaping.

During the mapping work sessions of the 1999 Comprehensive Planning process, it was generally agreed that designated scenic routes for their entire length through the county should include, but not be limited to the following roadways:

- U.S. Highway 20
- Stagecoach Trail
- Derinda Road
- State Route 84
- Blackjack Road
- State Route 78
- Elizabeth - Scales Mound Road

In general, it is anticipated that sections of roadway included in the Contiguous Growth Area (CGA) of a community would be classified in conjunction with joint planning between the County and the respective municipality. They could be classified as "scenic" or not, depending on the County's mutual agreement with the municipality on the anticipated growth patterns and preferred uses. In any consideration of signage, especially within contiguous growth areas, it will be important to balance the need to preserve the beauty of the county, with the equally important economic need. Both tourist and commercial travelers need information to enable them to find attractions, services and businesses throughout the county. While studying the treatment of roadways, the County determined that other considerations should be included before aesthetic standards are set for all roadways in the county. These include: safety needs; the designation of transportation corridors; and upgrade or improvement needs, particularly at intersections and in areas where growth is anticipated. In order to integrate the scenic considerations with the development and safety needs the County has determined that it will undertake a complete review of roadway needs and standards. It is recommended that the County coordinate this review and study of roadways with others including: the County Highway Engineer, township road commissioners, municipalities and communities, the LRA, IDOT and other appropriate groups.

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CHAPTER 9
Goals and Objectives

Section 9.1 Introduction

The Goals and Objectives stated in this section were created in response to land use issues summarized in the Problem Statement (see Chapter 8 Land Use Recommendations, Section 8.1 Land Use Problem Statement). The Land Use Recommendations support and expand on the concepts set forth in the Goals and Objectives. Goals are broad, general statements of desire or intent. Objectives are more specific statements. Several objectives are listed under each of the eight goals, to indicate the actions or responses that should be undertaken to achieve the broad goals of the Plan. The Goals and Objectives recommend directing development to centers where infrastructure and services already exist, or can easily be provided. Specifically, development is directed to communities and the areas contiguous to communities where growth is desired ("Contiguous Growth Areas"). This approach preserves productive farmland, the open areas of the county, and the associated natural, historical and aesthetic amenities. This approach provides efficient, managed growth; maximum benefit of financial resources devoted to infrastructure and services; and continued vitality of the county's communities.

The Goals and Objectives described in the following pages are designed to guide the actions of the citizens and leadership of Jo Daviess County. The separate Goals do not stand alone, but must be viewed and understood as a unit and are considered equal. Together they provide the basis for a balanced, holistic approach to sound development and the highest and best use of land in Jo Daviess County. All of the Objectives listed for each goal are deemed important. However, some Objectives have been identified as being of the "Highest Priority" to allow for focused initial efforts to implement the Plan. It is understood that unforeseen opportunities, available staff time and funding will play a tremendous role in the sequence and timing of all Objectives.

Section 9.2 Goal I: People/Human Resources

The county is fortunate to have a population comprised of individuals with diverse experience and specialized skills. The experience and skills of residents will be respected and called upon to further the goals of the community as a whole. The rural nature and limited population of the county require that in making decisions special attention be given to promoting and preserving the following resources and characteristics of the area:

-Job amenities and economic factors to retain and attract youth
-Volunteer spirit
-Unity and cohesiveness of the population
-Friendly people
-The senior citizen resource
-History and heritage
-The use of outside resources and expertise when beneficial

A. Highest Priority Objectives:

1. Encourage retention and creation of jobs attractive to families and youth.
2. Plan for services which will meet the needs of an increasing senior population.

B. High Priority Objectives:

1. Encourage volunteer involvement consistent with county and community plans.
2. Encourage activities which bring local people together and promote community spirit.
3. Promote activities and projects which enhance awareness of heritage and preservation of historical assets.

Section 9.3 Goal II: Cities and Villages

Viable, vital and vibrant towns will be supported and encouraged. Development proposals should be examined to ensure promotion of vital and vibrant cities and towns through the following:

-Encouragement of commercial development in and adjacent to towns
-Encouragement of residential growth with public and private services nearby

A. Highest Priority Objectives:

1. Encourage and, when possible, assist in the development of current community comprehensive plans.
2. Encourage and, when possible, assist in the development of infrastructure improvements designed to meet community development goals.
3. Direct development to existing development centers where infrastructure and services are readily available or easily provided.

B. High Priority Objectives:

1. Respect the desires of development centers in the consideration of all development proposals for property within the mile-and-a-half or Contiguous Growth Areas surrounding those centers.
2. Explore cooperative efforts to provide services efficiently (e.g. County building inspector contracting services to communities).
3. Encourage development of affordable housing and senior housing within communities (see Housing Study strategies).

Section 9.4 Goal III: Economy and Development

The economic base will be an important consideration in reviewing proposals for development and change. The following factors should be considered when evaluating growth and development proposals with a view to enhancing the economic base:

-Job amenities and economic factors to retain and attract youth
-A new east/west thoroughfare highway is needed in Jo Daviess County
-Transportation/roads should be maintained and improved as needed
-Varied job and income opportunities should be encouraged, with an emphasis on primary job retention and creation
-Education and job training should be supported and improved
-Communication technology should be expanded
-Existing tourism destinations should be supported and encouraged
-Appropriate tourism destinations should be expanded (e.g. natural areas,
eco-sites, low impact attractions)
-Support residential development in appropriate areas
-Seek jobs for youth

A. Highest Priority Objectives:

1. Support retention and creation of jobs providing wages sufficient to support families.
2. Support U.S. Route 20 4-lane development in a manner that will encourage development in communities and their contiguous growth areas rather than in rural areas.
3. Maintain county-wide development effort that coordinates and builds on local community efforts.
4. Improve transportation (pedestrian linkages, roadways, public transportation, river transportation).
5. Improve communication technology.
6. Build on tourism success, focusing on the natural, historical and cultural assets of the county.
7. Improve and support education, job training and retraining efforts.

8. Involve Township Road Commissioners on all development proposals within their jurisdiction.
9. Encourage appropriate signage.

Section 9.5 Goal IV: Scenic Beauty Protection

Jo Daviess County is endowed with great scenic beauty. Scenic vistas and scenic assets shall be protected and preserved. All development decisions should be made to protect and encourage the following:

-Scenic vistas from highways and roads
-The pastoral/agricultural look of the county
-Undeveloped ridgetops, knobs, and mounds
-The prohibition of commercial development along highways and at rural interchanges
-River vistas and blufflands
-Natural areas and features
-Development near/adjacent to towns
-Non-proliferation of billboards
-Development of incentives for cluster type projects

A. Highest Priority Objectives:

1. Identify and map scenic routes in the county as an informational tool.
2. Develop a plan for conserving scenic areas through zoning, easements, acquisition, or purchase of development rights.
3. Prohibit commercial development along highways and at rural interchanges except by county/community agreement within contiguous growth areas.

B. High Priority Objectives:

1. Identify areas appropriate for public access (e.g. scenic overlooks, parks) and develop accordingly.
2. Limit billboards in scenic areas.
3. Establish consistent informational signage.
4. Develop a county open space and recreation plan.
5. Consider county application to IDNR for Greenway Planning Grant (*Note: This has been accomplished*).
6. Work with IDNR, local communities and surrounding counties (in Illinois, Wisconsin and Iowa) to encourage local and multi-jurisdictional trails and recreational projects.

Section 9.6 Goal V: Agriculture

The farming/agricultural character of the county should be maintained. Agricultural uses should be protected as an integral part of the county's economy, landscape and natural resource base. Development proposals will be judged with the aim of protecting and preserving the agricultural economy and the farming/agricultural character of the county. This would include encouragement and preservation of the following:

-Productive farms and farmland
-Farm related businesses and value-added enterprises
-Markets local/regional/national
-Residential and commercial development in and near the towns of the county, to protect farmland
-Allowance of varied on-farm and rural business uses, based on impact

A. Highest Priority Objectives:

1. Designate an Agriculture Preservation Area that encompasses large contiguous areas of prime and important farmland, for use as an informational tool, locating areas where non-agricultural development is to be limited.
2. Require development to provide buffer strips between the development and agricultural uses.

B. High Priority Objectives:

1. Encourage and facilitate access to new markets for agricultural products (e.g. organizing special marketing cooperatives for hay, dairy products, organic crops, genetically altered crops and seed, as well as small "niche" markets for specialty crops and products).
2. Encourage local farm support businesses providing equipment, fertilizer, feed, seed, parts, repair shops and technical support.
3. Explore potential of agri-tourism.
4. Improve public awareness about the realities of rural living in Jo Daviess County.
5. Improve quality of secondary roads.
6. Involve Township Road Commissioners on all development proposals within their jurisdiction.

Section 9.7 Goal VI: Rural Character/Quality of Life

The rural character and the excellent quality of life existing in the county shall be enhanced and protected. Because these ambiance issues are so important to the essence of Jo Daviess County, development proposals should be examined with the goal of protecting and encouraging the following:

-The rural setting
-The slow pace of life
-A safe environment
-Towns, schools and community churches
-Minimal congestion
-The pastoral look
-Small town heritage
-Unobtrusive development
-Non-proliferation of billboards
-Varied public and private services
-A desirable family setting
-Promotion of the county as a retirement area
-Rural dark skies

A. Highest Priority Objectives:

1. Support law enforcement to maintain a safe and crime free environment
2. Support farm operations to maintain rural character.
3. Develop lighting standards.

Section 9.8 Goal VII: Natural and Historic Resources

The rare natural and historic resources of the county distinguish the area from other parts of the state and the country, contribute to the character and value of the county, contribute to the economy, and will therefore be protected. Development proposals should be examined with the intent to protect and encourage the following:

-Groundwater purity
-Soil, water, woodlands, and air resources
-Wildlife habitat

-Rivers and bluffs
-Outdoor recreation amenities
-Historical and archeological sites
-Environmentally sensitive areas and resources
-Parks and public lands and areas

A. Highest Priority Objectives:

1. Identify and generally map significant natural resources in the county (water resources, intact ecosystems, rare habitats, geologic formations, mineral resources) using the state's Critical Trends Assessment Program reports.
2. Identify and generally map historic sites and structures of significance in the county (archeological sites, mills, mining operations, barns, homes, bridges).
3. Develop land use groundwater protection policies following completion of Illinois Geological Survey's county aquifer sensitivity mapping.

B. High Priority Objectives:

1. Develop a plan and mechanism (such as a conservation district) for preserving significant natural areas.
2. Preserve access to mineral resources.
3. Support measures to maintain air quality.
4. Continue efforts toward proper solid waste management.
5. Adopt an historic preservation ordinance, set up a preservation commission for voluntary recognition of local landmarks.
6. Locate and classify existing mine and extraction sites. Promote reclamation of mining and extraction sites for future use of property.
7. Continue efforts of stormwater control and streambank stabilization (working with NRCS).
8. Maintain and improve the quality of wildlife habitat.
9. Improve surface water quality; pursue actions which reduce both point and non-point source pollution.

Section 9.9 Goal VIII: Cooperative Planning

Openness and cooperation with all county individuals and entities is essential in planning for the future of the county. Regional cooperation will be required to achieve many planning goals. In keeping with the rural character/small town environment, planning should be based on the following:

-Dependence on a widespread, shared community vision
-Cooperation with public and private agencies and interest groups
-Ordinances should be drafted to protect and control elements affecting the essence of the county, but should not abuse individual rights
-Special consideration of municipal needs and desires in contiguous growth areas around the towns

A. Highest Priority Objectives:

1. Link Savanna Army Depot planning to county comprehensive planning.
2. Define areas contiguous to communities where community growth is desired and adopt mutually agreeable standards for growth in these contiguous growth areas.
3. Work with unincorporated communities to define appropriate planning and development strategies.

B. High Priority Objectives:

1. Contact those entities/individuals who have specialized interests and knowledge when planning efforts relating to their area of expertise are being undertaken.
2. Design all development plans to minimize the use of energy resources.
3. Work with state and regional planning agencies (e.g. Blackhawk Hills Regional Council, Southwest Wisconsin Regional Planning Commission, Dubuque Metro Area Transportation Study).
4. Improve communication between the County, townships and communities through development of joint meeting sessions, regular correspondence, press releases and internet information.

Section 9.10 Growth and Development

It is recognized that the greatest threats to the character of the county are likely to arise from pressure for rural development, both commercial and residential. Some general policies to protect the county from those threats are set forth below. More detailed standards will be developed and promulgated as described in Chapter 8 Land Use Recommendations and Chapter 10 Implementation. In addition to the Zoning and Subdivision Ordinances, the following standards will be applied to new development in the county:

A. Highway commercial type development will only be allowed adjacent to or in close proximity to an established Village or City. No rural highway or interchange commercial development will occur. Future commercial development should annex to the municipality involved. Where there is no land contiguity and immediate annexation is not possible, an annexation agreement between the municipality and the developer would be appropriate to allow the municipality a large measure of control for growth within its contiguous growth area. The County should enter into agreements with the municipalities to determine the mutually acceptable "contiguous growth" areas and the standards and procedures to be followed in these areas. Similar standards should be established for residential development near towns.

B. Residential development will be encouraged in close proximity to municipalities or planned residential communities. If residential development is proposed in a rural area it will only be approved if it strictly conforms to the listed goals in the areas of farmland protection, view protection, natural resource protection, unobtrusiveness, hilltop protection and all related and applicable portions of this plan. Development near and adjacent to cities and villages (towns) will be encouraged subject to community desires and planning. Standards and incentives for acceptable residential development are described in Chapter 8 Land Use Recommendations, Section 8.5 Residential Uses.

C. Farmland protection and avoidance of agriculture/residential conflicts will be major factors in evaluating rural development proposals. The Land Evaluation and Site Assessment (L.E.S.A.) system will be used in evaluating requests.

D. Hilltop development will be strictly controlled to protect the unique look of the county. Development proposals will be evaluated based on higher elevation protection of skylines, views, tree protection and the visibility of the proposed homesite.

E. Unobtrusive development which maintains the rural character, preserves the scenic view, and protects the natural resources of the county will be required in all plans for new development. Factors that may be demanded are invisibility of structures from roadways, screening with existing or planted trees, clustering, skyline and scenic vista protection and maintenance of the pastoral and agricultural look of the county.

F. Developer responsibilities include the duty to become familiar with the goals listed herein and understanding that each development proposal will be strictly judged based upon its conformance with, and compliance with, this Plan and the furtherance of the Goals and policies described herein. Additionally, the regulations found in the County's Zoning and Subdivision Ordinances will be applied in accordance with the Comprehensive Plan. Furthermore, development will be approved only where there is or will be

provision of efficient, high quality public improvements and community services. As experience is gained in evaluating proposals for development based upon the previous goal statements, more comprehensive and definite standards will be developed. This may be by ordinance change or by the Planning Commission rule with the approval of the County Board. All standards will be intended to fairly and uniformly apply the goals herein before set forth, to have growth with sustainability; growth with lifestyle and ambiance protection; growth with environmental and aesthetic view protection; growth with historical, cultural and natural resource protection; growth without substantial change in the character and appearance of Jo Daviess County. All of these things must be protected for the public good, to continue a way of life well into the future.

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CHAPTER 10
Implementation

Section 10.1 Introduction

The Comprehensive Plan is intended to be used as the guide for future development decisions. Its real value, however, will be measured in the results it produces. To accomplish the goals, objectives, and policies of the plan, specific implementation measures must be taken to ensure that Jo Daviess County's actions meet the desires of the comprehensive plan.

The Comprehensive Plan, as set forth on the preceding pages, has little or no value unless it is implemented. Therefore, the success of the plan will be dependent to a large extent, on proper administrative action to carry out its proposals and recommendations -- especially enforcement of the various regulating ordinances. It will be effective and useful only if active steps are taken to carry out its proposals and recommendations so they can be used by the citizens of Jo Daviess County in making everyday decisions. Every community is developed as the result of countless individual decisions such as: To buy or sell land; to subdivide land; to build homes, business, industries, schools and other community facilities; and to construct streets and install utilities. Each day, decisions are made that will affect the future of the County. They are made by landowners, lawyers, realtors, public officials and all private citizens. Whether these individual actions will add up to a well-developed, attractive and economically sound community will depend, to a large measure, on how well they are related to the County's objectives and plans. Successful implementation of the plan can only be accomplished through adequate legislative and administrative tools, public support and enthusiastic leadership.

While, by State law, a regional planning commission is charged with the responsibility of preparing the comprehensive plan, it is by law only an advisory body and does not have the legislative power necessary to implement it. The County Board shall, therefore, receive all planning recommendations and take the necessary steps to effectuate them and give them legal status.

Section 10.2 Comprehensive Plan Adoption Procedures

The Jo Daviess County Regional Planning Commission should recommend the adoption or amendment of the comprehensive plan by adopting a resolution by a majority vote of the entire commission. The vote shall be recorded in the official minutes of the Planning Commission. The resolution shall refer to maps and other descriptive materials that relate to one or more elements of a comprehensive plan. The recommended Comprehensive Plan shall be forwarded to the County Board for formal official adoption by the County. Adoption should be in the form of a resolution passed by a majority vote of the County Board. Upon adoption by the County Board, the adopted Comprehensive Plan shall be filed with the Jo Daviess County Clerk/Recorder.

One copy of the adopted Comprehensive Plan, or of an amendment to such a plan, should be place in every public library in the County. The Jo Daviess County Building & Zoning Department shall be the official repository for the comprehensive plan and all accompanying maps and data.

Section 10.3 Comprehensive Plan Implementation

Upon formal and official adoption of the Comprehensive Plan by the County Board, the County should undertake a review of its regulatory tools (zoning ordinance, subdivision regulations, etc.) for compatibility and consistency with the various goals, objectives and policies of the adopted comprehensive plan, and identify any sections of the documents that may need updating to accomplish this.

Section 10.4 Integration, Amendment, and Update of Comprehensive Plan Elements

The goals, objectives, and policies contained within the preceding nine (9) elements (chapters) of this Comprehensive Plan, along with the accompanying inventory and analysis, have been thoroughly reviewed and approved by the Jo Daviess County Regional Planning Commission and County Board. Throughout the drafting and

review process, great care was taken to include all issues and concerns from Board and Commission members, as well as from the community at large. Special attention was then given to making sure that the policies required to address the individual issues or concerns did not conflict, either with each other within the chapter, or between the different chapters. The future revision of any Comprehensive Plan goal, objective, or policy should receive the same level of deliberation and analysis as the original Plan; special attention should be given so that the new adopted language does not create conflicts within or between chapters.

Section 10.5 Monitoring/Formal Review of the Plan and Continuation of the Planning Process

To assure that this Comprehensive Plan will continue to provide useful guidance regarding development within the County, the Jo Daviess County Regional Planning Commission must periodically review and amend the Plan to ensure that it remains relevant and reflects current County conditions and attitudes. In order to achieve this, the Regional Planning Commission should once each year place the performance of the Comprehensive Plan on the agenda for discussion and recommendation to the County Board. Discussion should include a review of the number and type of amendments approved throughout the previous year, as well as those that were denied. This information serves to gauge the adequacy of existing policies; multiple changes indicate policy areas in need of re-assessment. Other topics would include changes to either the development market or resident attitudes toward different aspects of County life. As a result of this discussion, the Regional Planning Commission would recommend either no change to the Plan, or one or more specific changes that should be addressed.

Appendix I Maps

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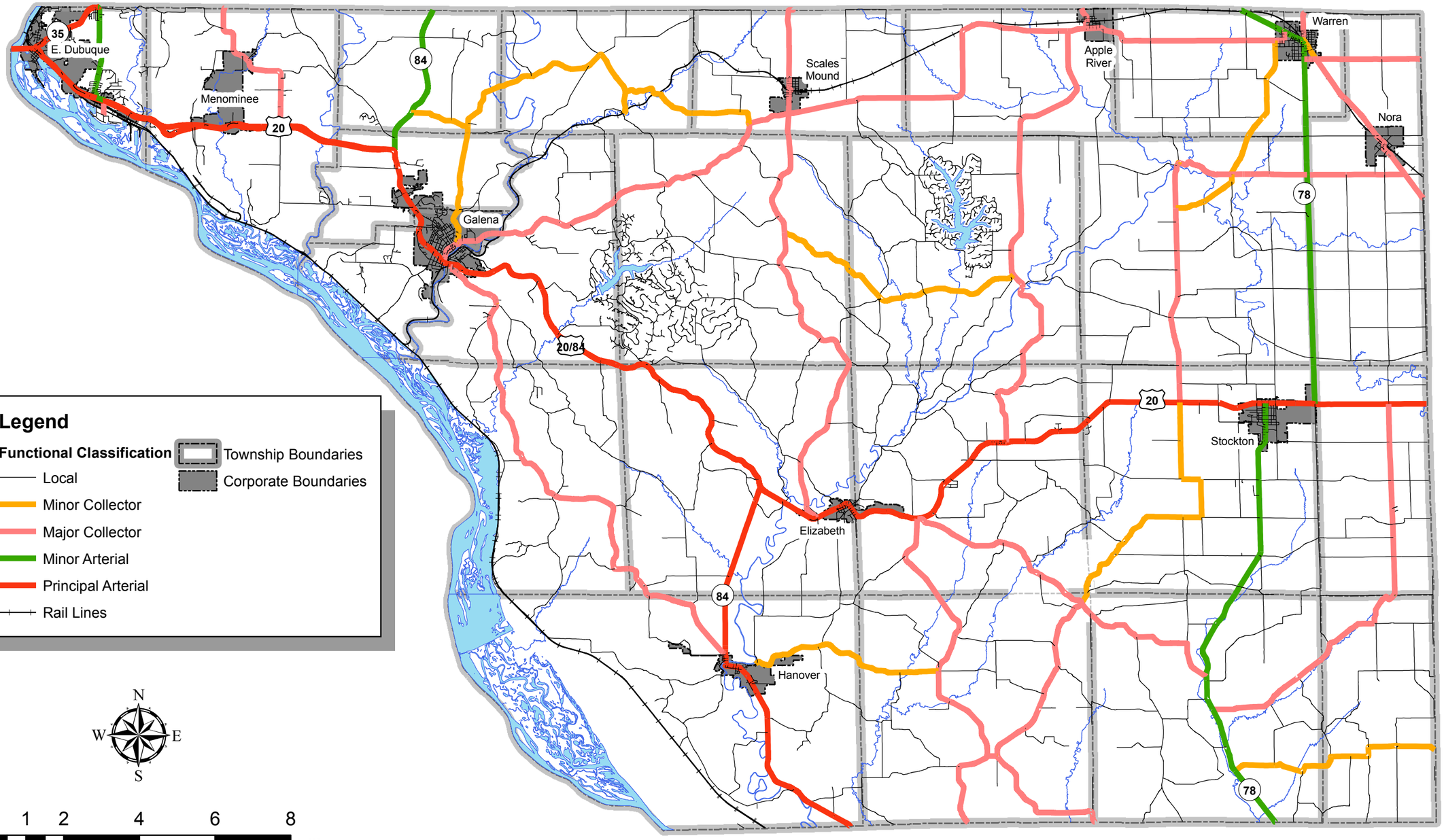
Map 3.1: Functional Transportation Classification, Jo Daviess County, IL



Legend

Functional Classification

- Local
- Minor Collector
- Major Collector
- Minor Arterial
- Principal Arterial
- Rail Lines

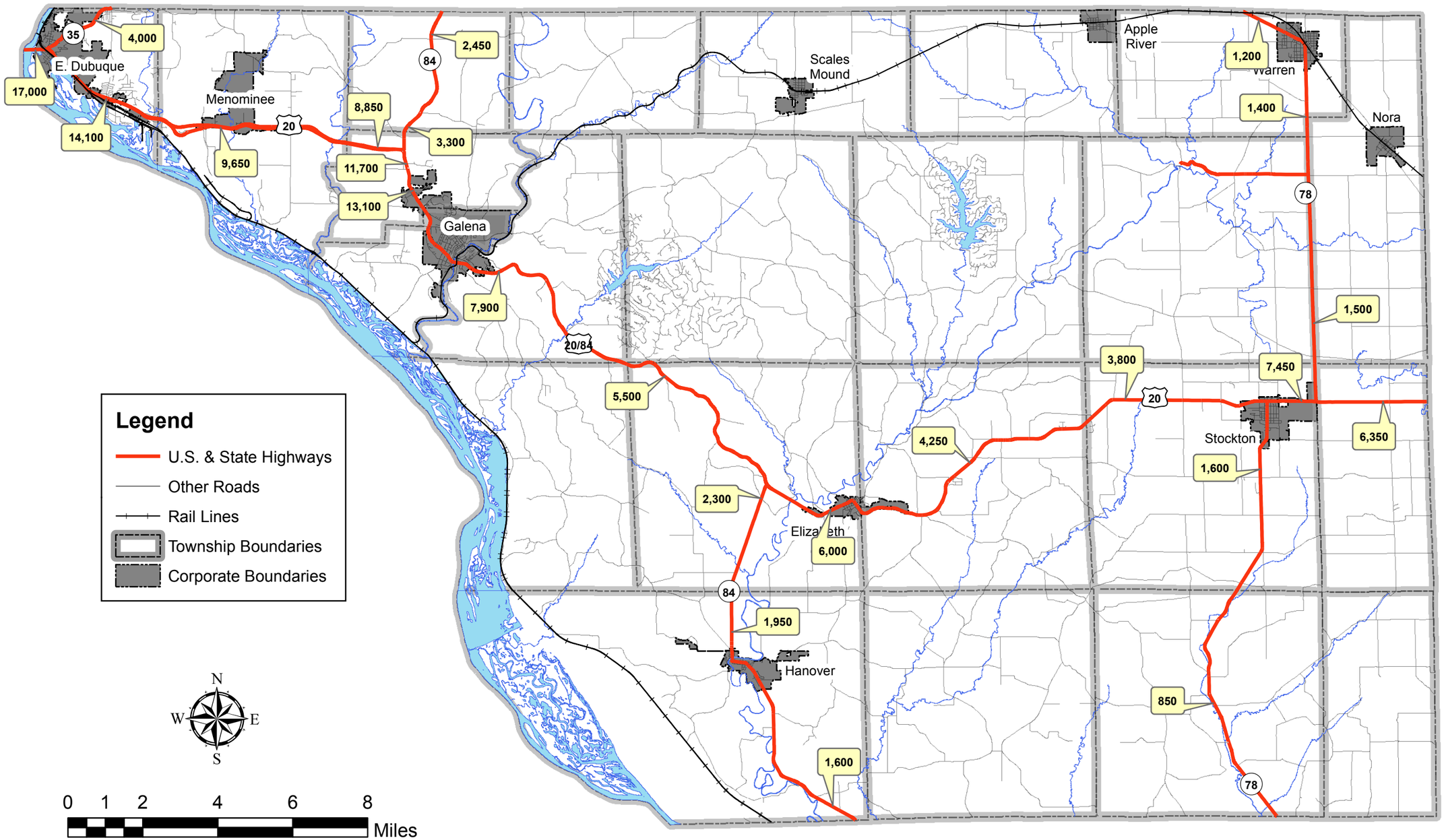
- Township Boundaries
- Corporate Boundaries

N
W E
S

0 1 2 4 6 8
Miles

Base Map Data: Jo Daviess County GIS
Functional Classification: Illinois Department of Transportation
Cartography: Michael Reibel, June 2012

Map 3.2: Average Daily Traffic on U.S. and State Routes, Jo Daviess County, IL



Legend

- U.S. & State Highways
- Other Roads
- Rail Lines
- Township Boundaries
- Corporate Boundaries

N
W E
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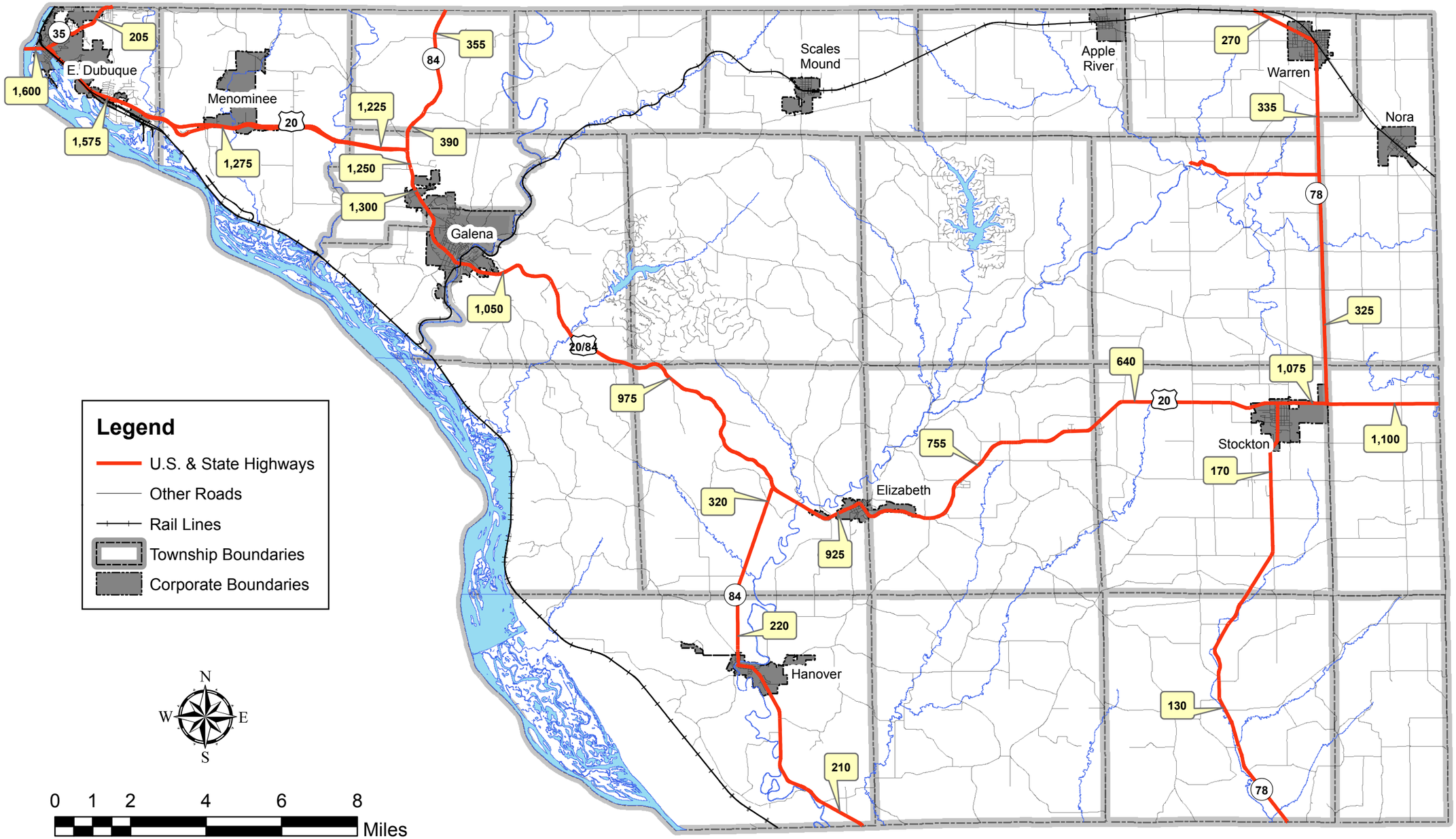
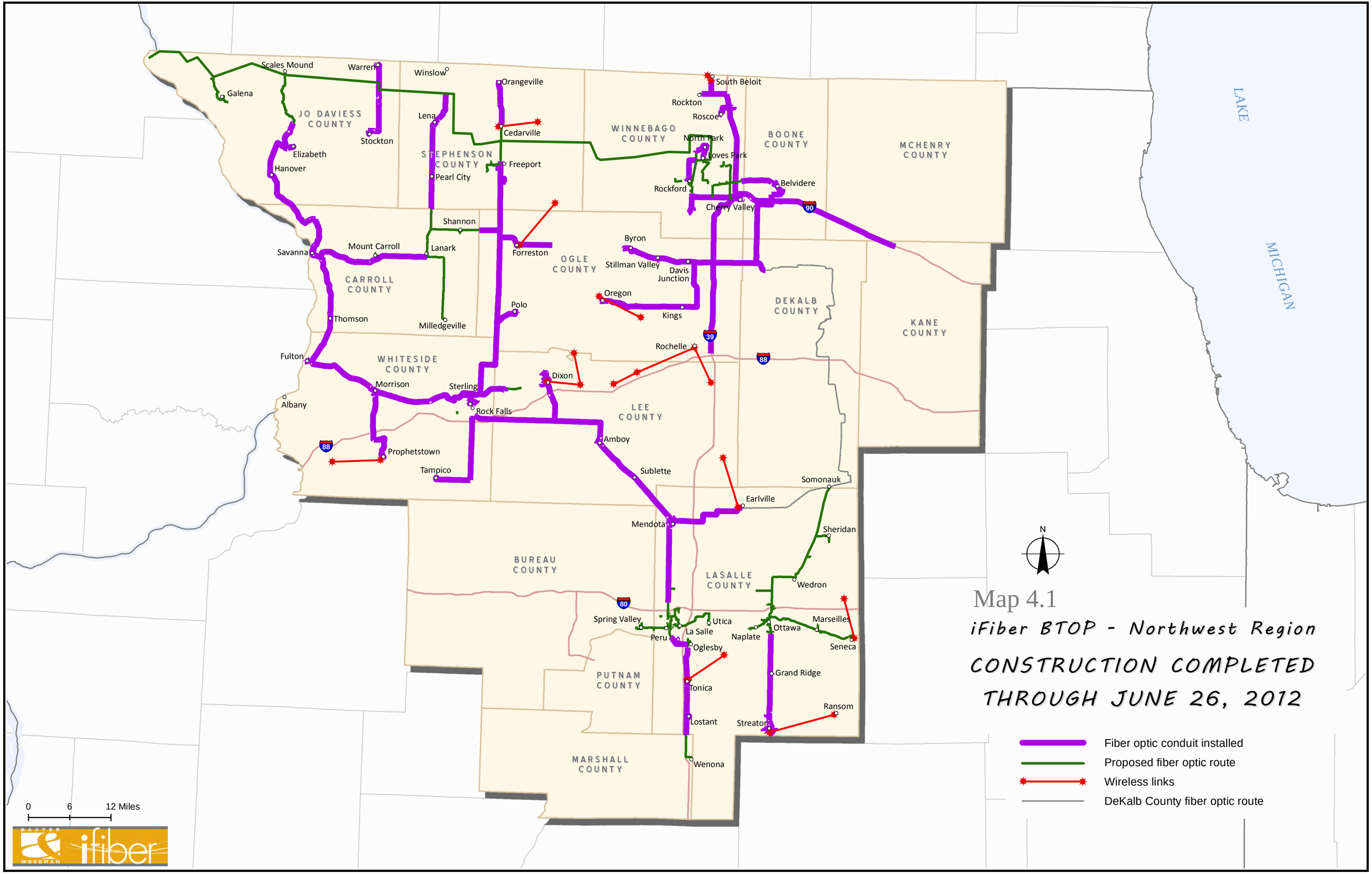
0 1 2 4 6 8
Miles

Base Map Data: Jo Daviess County GIS
ADT Data: Illinois Department of Transportation
Cartography: Michael Reibel, June 2012

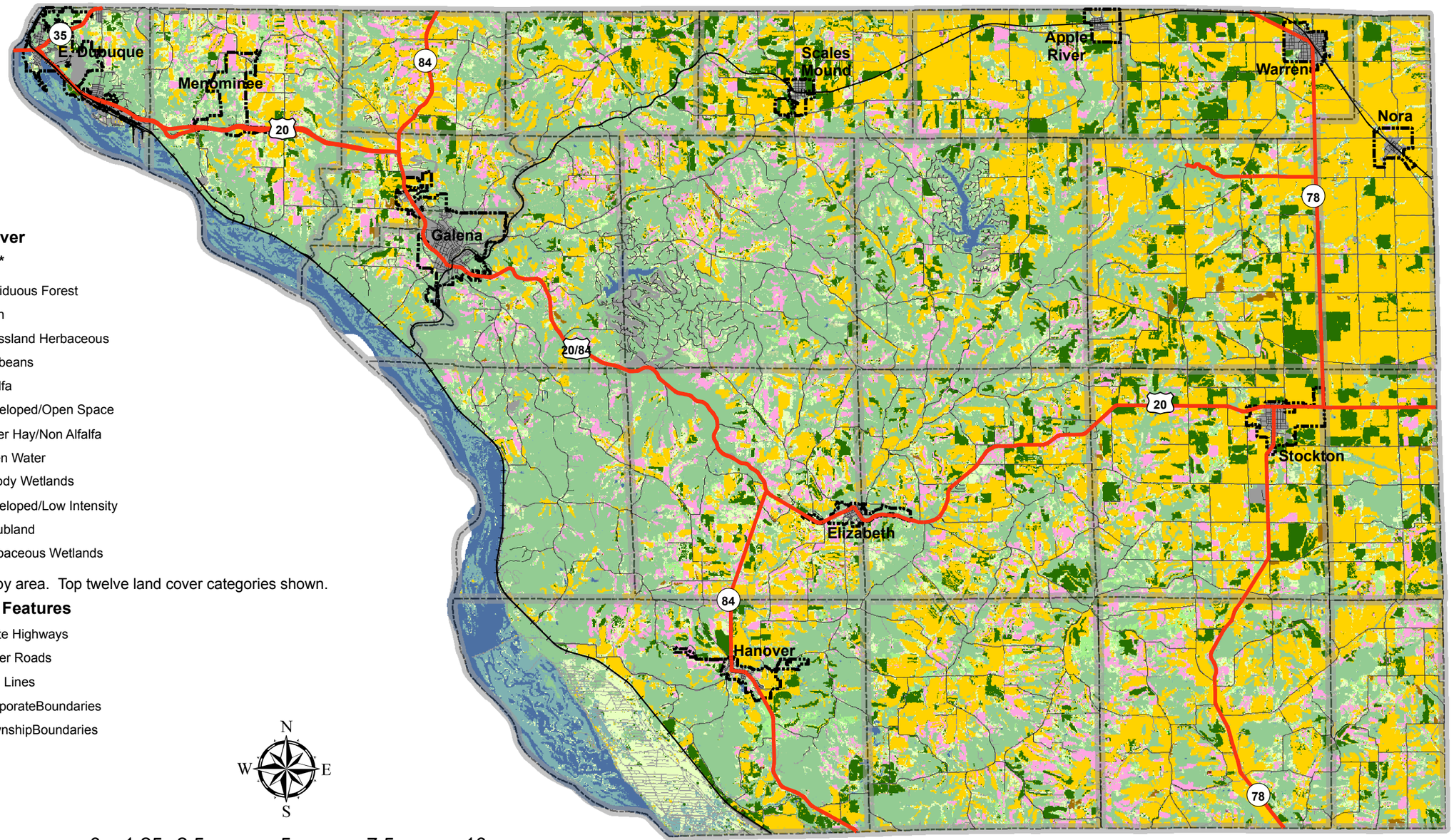
Map 3.3: Average Daily Truck Traffic on U.S. and State Routes, Jo Daviess County, IL



Base Map Data: Jo Daviess County GIS
ADTT Data: Illinois Department of Transportation
Cartography: Michael Reibel, June 2012


Scales Mound
Warren
Winslow
Orangeville
South Beloit
Galena
Rockton
Roscoe
JO DAVIESS COUNTY
Lena
Cedarville
WINNEBAGO COUNTY
BOONE COUNTY
MCHENRY COUNTY
Stockton
North Park
Elizabeth
STEPHENSON COUNTY
Loves Park
Freeport
Hanover
Pearl City
Rockford
Belvidere
Cherry Valley
90
Shannon
Byron
Savanna
Mount Carroll
Lanark
Forreston
OGLE COUNTY
Stillman Valley
Davis Junction
CARROLL COUNTY
Oregon
DEKALB COUNTY
Polo
Thomson
Kings
Milledgeville
KANE COUNTY
39
Rochelle
Fulton
88
WHITESIDE COUNTY
Dixon
Morrison
Sterling
Albany
Rock Falls
LEE COUNTY
Amboy
88
Prophetstown
Tampico
Sublette
Somonauk
Earlville
Mendota
Sheridan
BUREAU COUNTY
LASALLE COUNTY
Wedron
80
Spring Valley
Utica
Marseilles
Ottawa
La Salle
Naplate
Peru
Seneca
Oglesby
Grand Ridge
PUTNAM COUNTY
Tonica
Ransom
Lostant
Streator
MARSHALL COUNTY
Wenona
LAKE MICHIGAN
N
0
6
12 Miles
Map 4.1
iFiber BTOP - Northwest Region
CONSTRUCTION COMPLETED THROUGH JUNE 26, 2012
Fiber optic conduit installed
Proposed fiber optic route
Wireless links
DeKalb County fiber optic route
BAXTER WOODMAN
ifiber

Map 5.1: Land Cover, Jo Daviess County, IL



Legend

Land Cover

Category*

- Deciduous Forest
- Corn
- Grassland Herbaceous
- Soybeans
- Alfalfa
- Developed/Open Space
- Other Hay/Non Alfalfa
- Open Water
- Woody Wetlands
- Developed/Low Intensity
- Shrubland
- Herbaceous Wetlands

*Ranked by area. Top twelve land cover categories shown.

Cultural Features

- State Highways
- Other Roads
- Rail Lines
- CorporateBoundaries
- TownshipBoundaries

N
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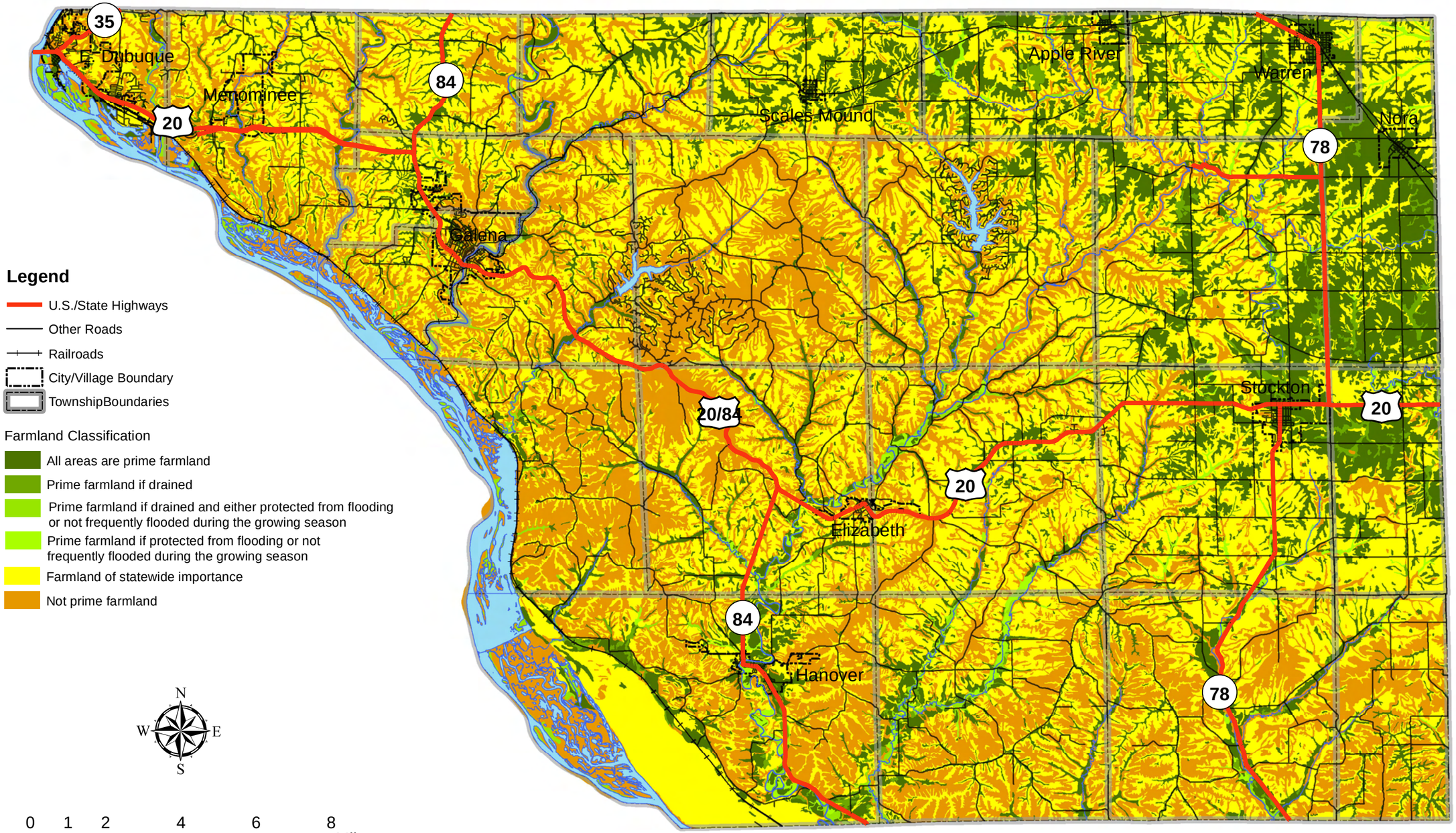
0 1.25 2.5 5 7.5 10
Miles

Base Map Data: Jo Daviess County GIS
Land Cover Data: National Agricultural Statistics Service, 2011 Cropland Data Layer
Cartography: Michael Reibel, June 2012

Map 5.2: Farmland Classification of Soils, Jo Daviess County, Illinois



Legend

- U.S./State Highways
- Other Roads
- Railroads
- City/Village Boundary
- TownshipBoundaries

Farmland Classification

- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Farmland of statewide importance
- Not prime farmland

N
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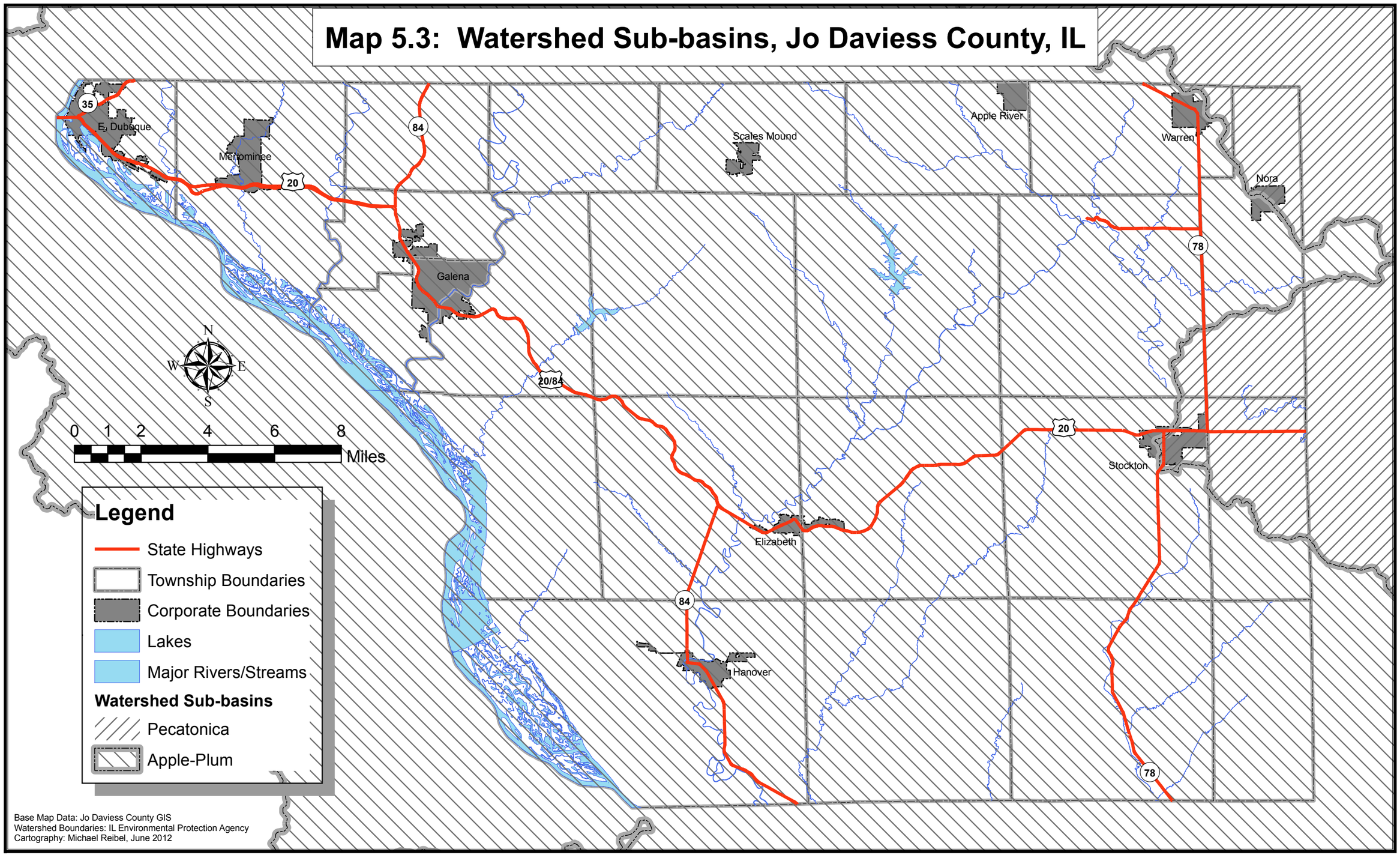
0 1 2 4 6 8 Miles

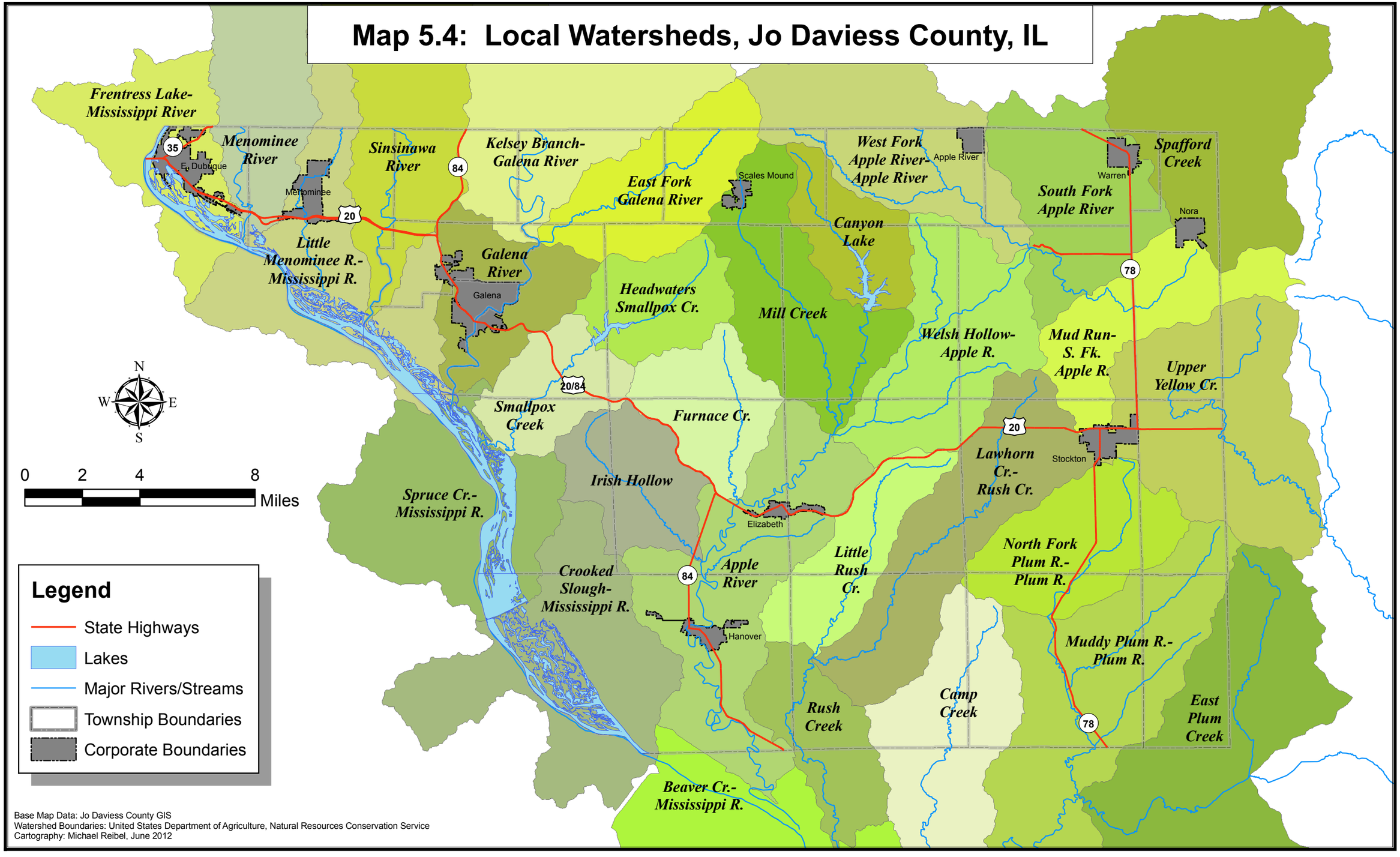
Base Map Data: Jo Daviess County GIS
Soils Data: U.S. Department of Agriculture, Natural Resources Conservation Service
Cartography: Michael Reibel, June 2012

Map 5.3: Watershed Sub-basins, Jo Daviess County, IL



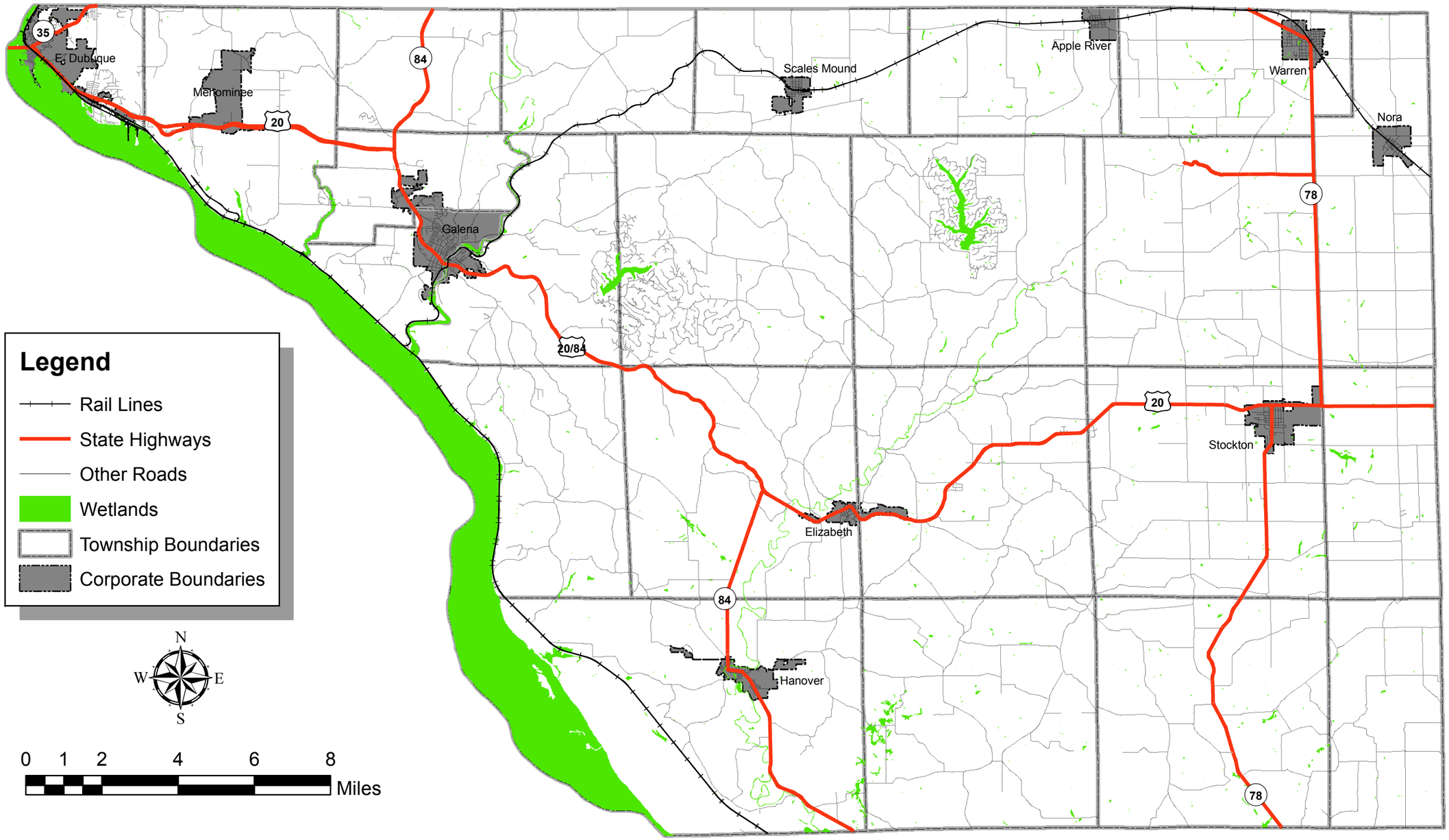
Base Map Data: Jo Daviess County GIS
Watershed Boundaries: IL Environmental Protection Agency
Cartography: Michael Reibel, June 2012

Map 5.4: Local Watersheds, Jo Daviess County, IL



Base Map Data: Jo Daviess County GIS
Watershed Boundaries: United States Department of Agriculture, Natural Resources Conservation Service
Cartography: Michael Reibel, June 2012

Map 5.5: Wetlands, Jo Daviess County, IL



Legend

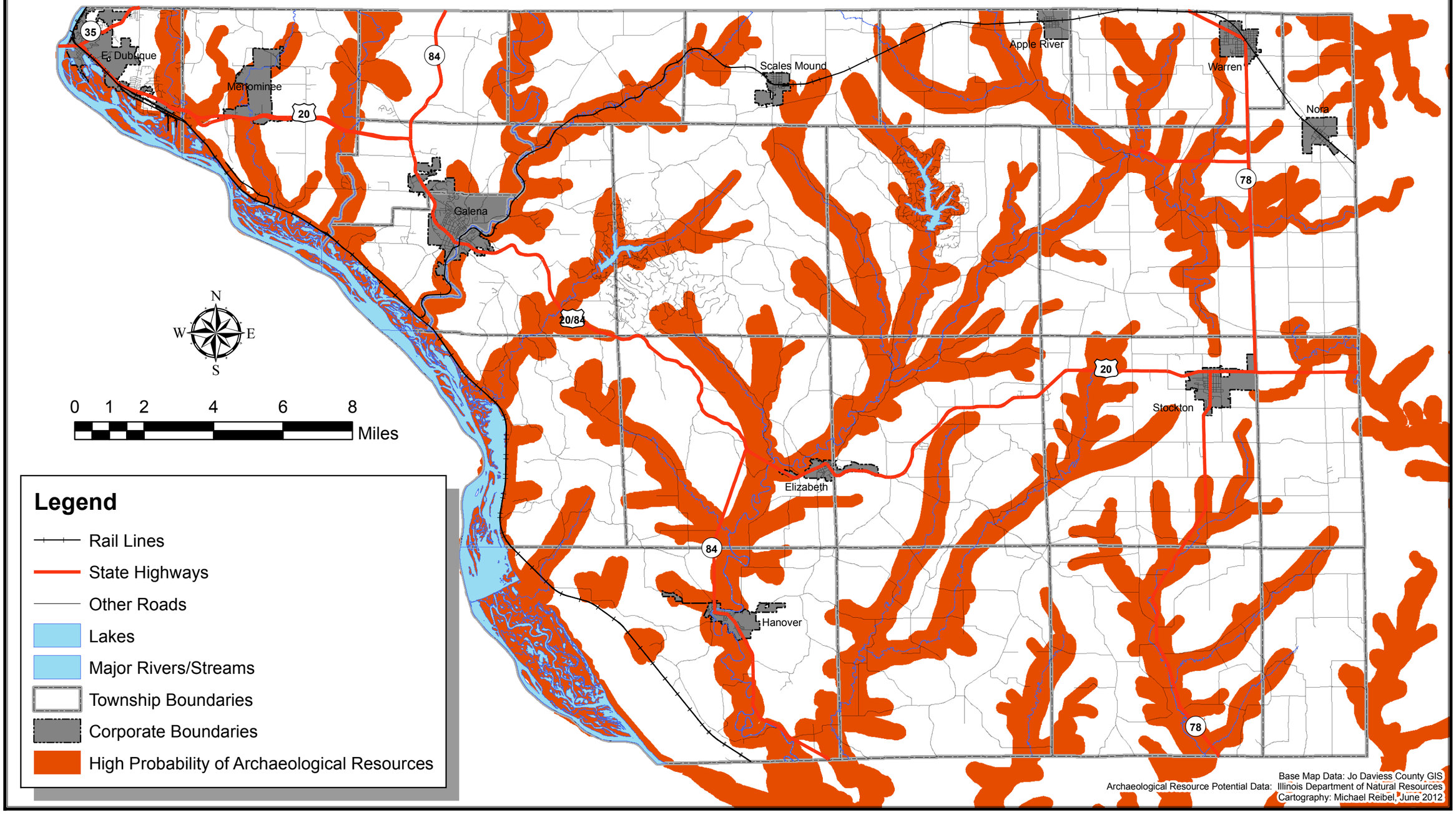
- Rail Lines
- State Highways
- Other Roads
- Wetlands
- Township Boundaries
- Corporate Boundaries

N
W E
S

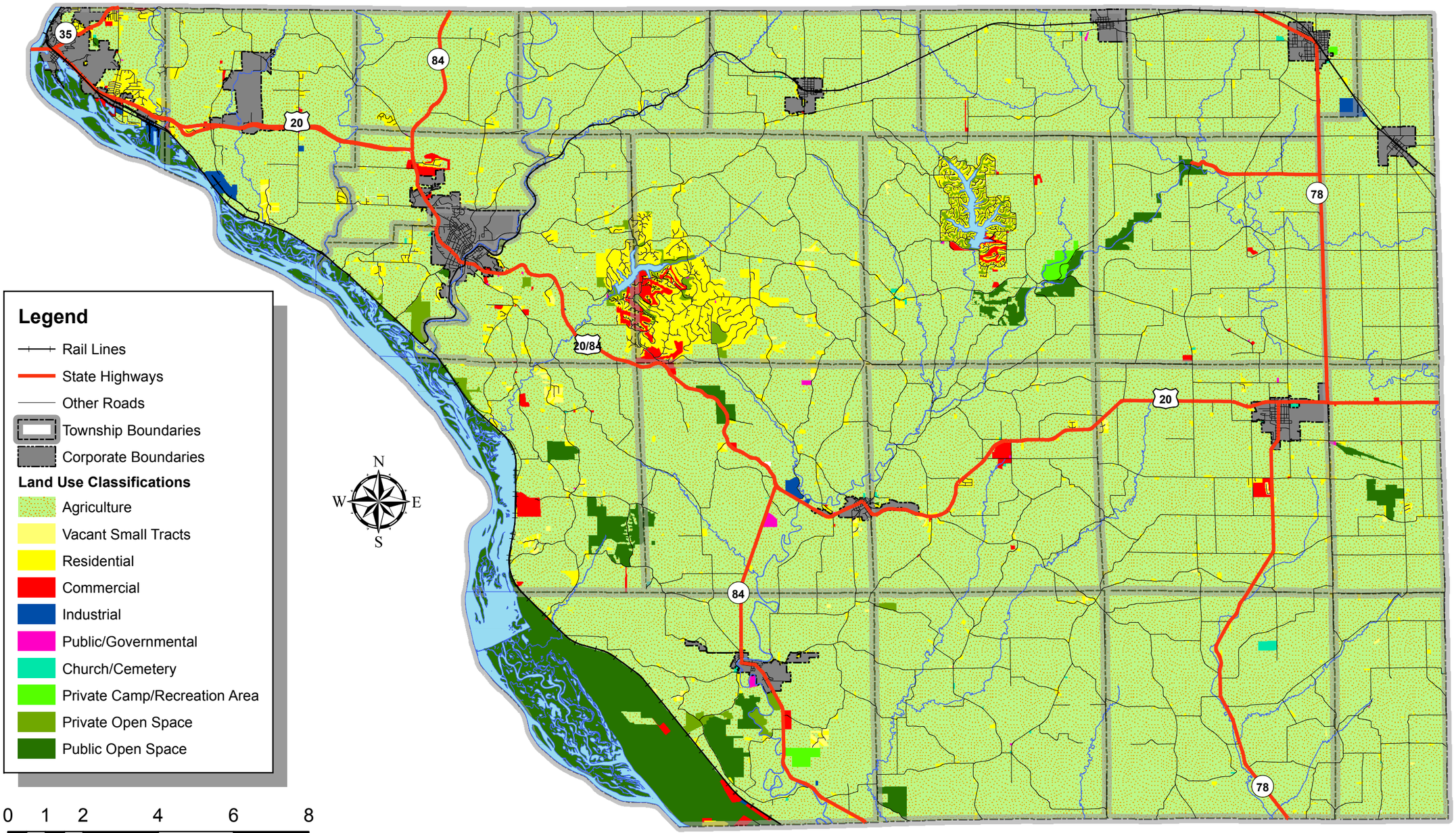
0 1 2 4 6 8 Miles

Base Map Data: Jo Daviess County GIS
Wetlands Data: U.S. Fish & Wildlife Service, National Wetlands Inventory
Cartography: Michael Reibel, June 2012

Map 5.6: Archaeological Resource Potential, Jo Daviess County, IL



Map 7.1: Existing Land Use, Jo Daviess County, IL



Legend

- Rail Lines
- State Highways
- Other Roads
- Township Boundaries
- Corporate Boundaries

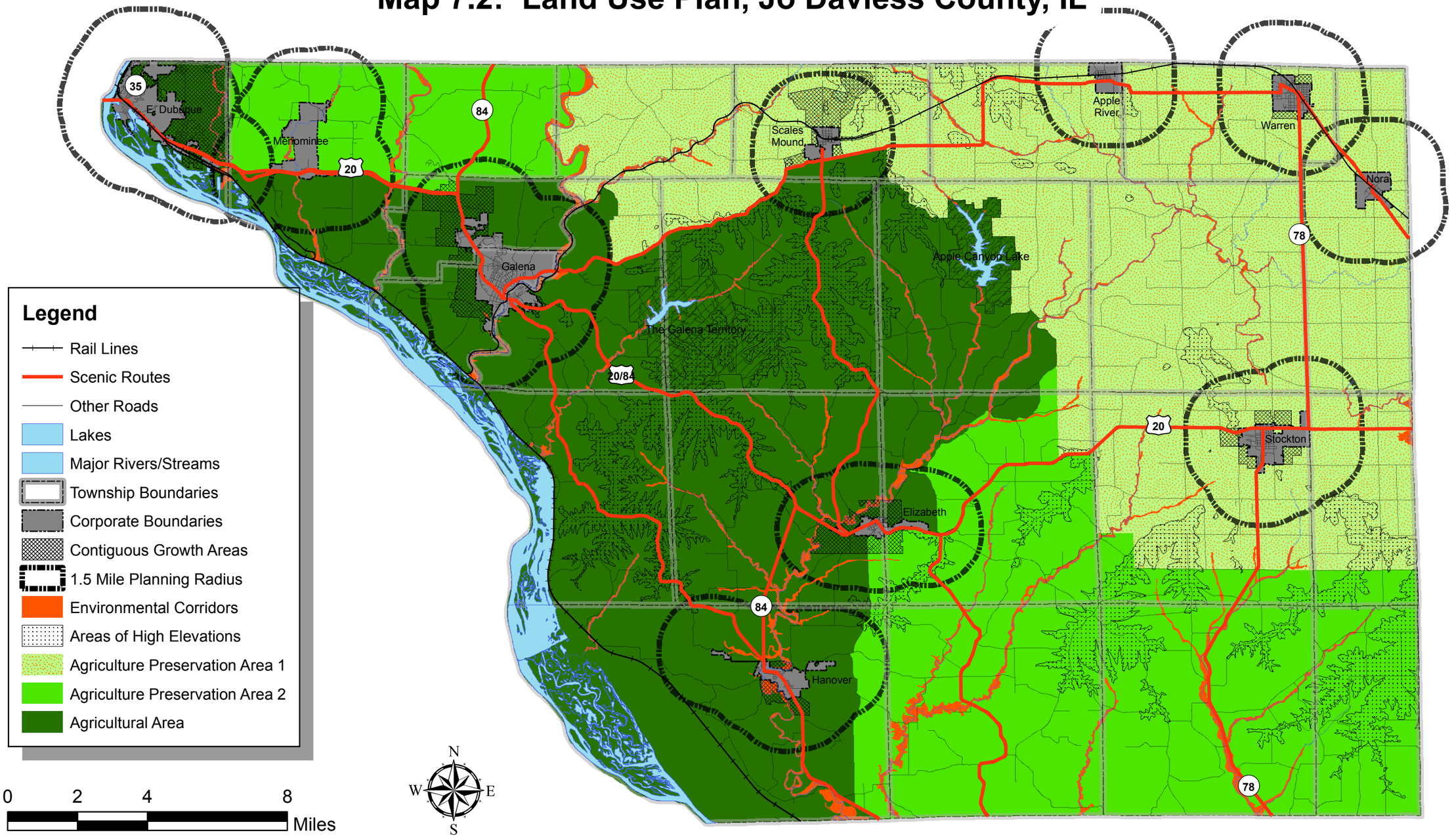
Land Use Classifications

- Agriculture
- Vacant Small Tracts
- Residential
- Commercial
- Industrial
- Public/Governmental
- Church/Cemetery
- Private Camp/Recreation Area
- Private Open Space
- Public Open Space

0 1 2 4 6 8 Miles

Base Map Data: Jo Daviess County GIS
Land Use Mapping and Cartography: Michael Reibel, June 2012

Map 7.2: Land Use Plan, Jo Daviess County, IL



Base Map Data: Jo Daviess County GIS
Cartography: Michael Reibel, June 2012

Appendix II Geological Maps

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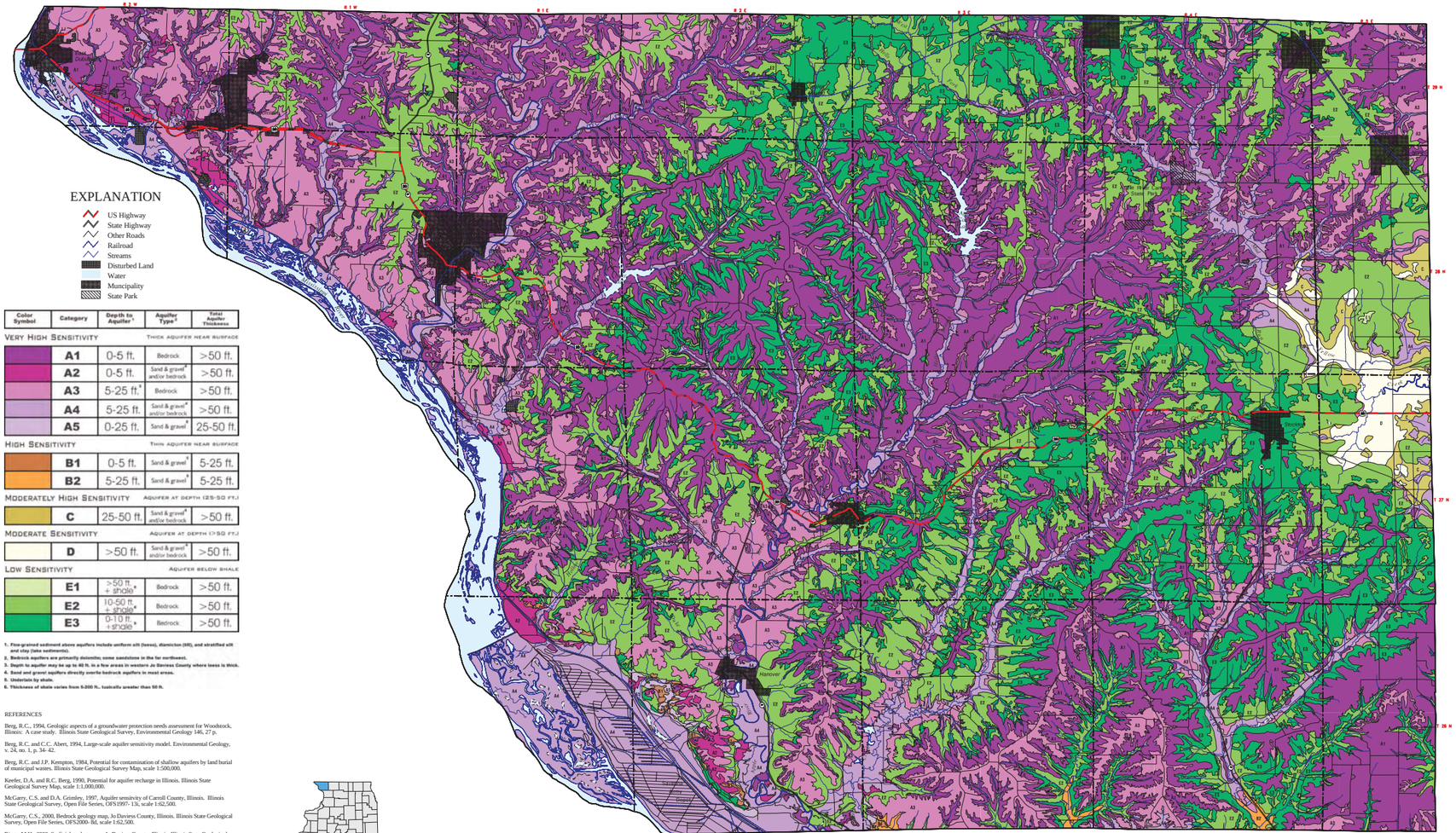
Department of Natural Resources
ILLINOIS STATE GEOLOGICAL SURVEY
Open File Series: OFS 2000- 8i
William W. Shilts, Chief
2000

AQUIFER SENSITIVITY MAP, JO DAVIESS COUNTY, ILLINOIS

Christopher S. McGarry and Matthew H. Riggs



EXPLANATION

- US Highway
- State Highway
- Other Roads
- Railroad
- Streams
- Disturbed Land
- Water
- Muncipality
- State Park

Color Symbol	Category	Depth to Aquifer[1]	Aquifer Type[2]	Total Aquifer Thickness
VERY HIGH SENSITIVITY			THICK AQUIFER NEAR SURFACE	
	A1	0-5 ft.	Bedrock	>50 ft.
	A2	0-5 ft.	Sand & gravel[3] and/or bedrock	>50 ft.
	A3	5-25 ft.[4]	Bedrock	>50 ft.
	A4	5-25 ft.	Sand & gravel[3] and/or bedrock	>50 ft.
	A5	0-25 ft.	Sand & gravel[3]	25-50 ft.
HIGH SENSITIVITY			THIN AQUIFER NEAR SURFACE	
	B1	0-5 ft.	Sand & gravel[3]	5-25 ft.
	B2	5-25 ft.	Sand & gravel[3]	5-25 ft.
MODERATELY HIGH SENSITIVITY			AQUIFER AT DEPTH (25-50 FT.)	
	C	25-50 ft.	Sand & gravel[3] and/or bedrock	>50 ft.
MODERATE SENSITIVITY			AQUIFER AT DEPTH (>50 FT.)	
	D	>50 ft.	Sand & gravel[3] and/or bedrock	>50 ft.
LOW SENSITIVITY			AQUIFER BELOW SHALE	
	E1	>50 ft. + shale[5]	Bedrock	>50 ft.
	E2	10-50 ft. + shale[5]	Bedrock	>50 ft.
	E3	0-10 ft. +shale[5]	Bedrock	>50 ft.

1. Fine-grained sediment above aquifers include uniform silt (loess), diamicton (till), and stratified silt and clay (lake sediments).
2. Bedrock aquifers are primarily dolomite; some sandstone in the far northwest.
3. Depth to aquifer may be up to 40 ft. in a few areas in western Jo Daviess County where loess is thick.
4. Sand and gravel aquifers directly overlie bedrock aquifers in most areas.
5. Underlain by shale.
6. Thickness of shale varies from 5-200 ft., typically greater than 50 ft.

INTRODUCTION

This map classifies areas within Jo Daviess County according to the potential for aquifers to become contaminated from surface disposal of municipal waste. For this study, an aquifer is defined as a geologic material that readily supplies useful volumes of water rapidly to small diameter wells or to streams. Coarse- grained unlithified materials and very porous or fractured bedrock are considered aquifer materials. Fine- grained unlithified materials and low permeability bedrock are not considered aquifers.

AQUIFER MATERIALS (high permeability)	NON- AQUIFER MATERIALS (low permeability)
well sorted fine sand	lake silt and clay
sand and gravel	loess (wind- blown silt)
fractured dolomite and limestone	clay river deposits
sandstone	clay- rich bedrock soils
	glacial till
	shale

PRINCIPLES OF AQUIFER SENSITIVITY

Aquifer sensitivity is defined (USEPA 1993) as the relative ease with which a contaminant of any kind applied on or near the land surface can migrate to an aquifer. It is a function of the characteristics of geologic materials, and is not dependent on land use or contaminant characteristics. Studies have shown that the properties of geologic materials overlying an aquifer directly influence the potential for aquifer contamination (Berg and Kempton 1984; Keefer and Berg 1990; Berg and Abert 1994). The thickness and character of these deposits are important factors when determining aquifer sensitivity in the manner described by Soller and Berg (1992). Several of the assumptions used to produce this aquifer sensitivity map are similar to those used by Berg and Abert (1994), as well as McGarry and Grimley (1997) in adjoining Carroll County. They include:

1. Aquifer materials have a high sensitivity to contamination and non- aquifer materials have low sensitivity.

2. In areas where bedrock aquifer materials are at the bedrock surface, thinner unconsolidated materials increase the potential for contamination of bedrock aquifers because contaminant travel time to bedrock is shorter through thin unconsolidated materials than through thick unconsolidated materials. (e.g., sensitivity classification A1 > A3 > C > D)

3. Where the aquifer is fractured dolomite or sandstone and the surficial bedrock unit is shale, thinner unlithified materials overlying the shale decreases the potential for contamination of unknown sand and gravel aquifers. This is due to the decreased likelihood that a large sand and gravel aquifer exists with decreasing thickness of unlithified materials overlying the shale. (Soller and Berg 1992). (e.g., sensitivity classification E3 < E2 < E1)

4. Coarse- grained unlithified aquifer materials (e.g., sand and gravel) may act as groundwater conduits to underlying fractured dolomite or sandstone. Although water wells may not be screened in these units, contaminants may rapidly pass through these materials and enter the underlying bedrock. Fine- grained unconsolidated non- aquifer materials (e.g., silt and clay) are less likely to rapidly transmit contaminants to the underlying bedrock. However, fractures in fine- grained drift (e.g., till) can increase contaminant travel time to the bedrock aquifers by several orders of magnitude. The degree of fracturing of subsurface materials must be evaluated in site- specific investigations prior to landfill siting or for permitting other activities that could adversely impact groundwater quality. (e.g., sensitivity classification A2, A4 > C, D)

5. Thicker sand and gravel deposits have a greater groundwater resource potential and can supply a larger population than thin sand and gravel deposits. Therefore, areas with thick aquifer materials have a higher sensitivity category than areas with thin aquifer materials. (e.g., sensitivity classification A2 > A5 or A5 > B1)

Many other data can be used to determine aquifer sensitivity, but were not used for the sake of model simplicity. These data include field measurements for hydraulic conductivity of bedrock and unconsolidated deposits, determination of groundwater flow direction, piezometric surface mapping, surface slope, textural variations of geologic materials, organic carbon content of soils, soil permeability, land use activity, recharge rates, thickness of shale, and orientation and connectivity of the fracture networks within the bedrock. The incorporation of such data would improve the usefulness of the model for site specific studies.

METHODOLOGY

Information used to map aquifer sensitivity in Jo Daviess County came from the following maps: bedrock geology (McGarry 2000), surficial geology (Riggs 2000), and thickness of Quaternary deposits (Riggs and McGarry 2000). Mapped units were ranked according to the sensitivity of aquifer materials to be contaminated by leakage from a municipal waste site. Criteria used to determine the relative aquifer sensitivity rank were the depth to the uppermost aquifer material, and the thickness and type of aquifer materials. Depth to sand and gravel aquifers and thickness of aquifer materials were determined from maps of Quaternary deposits. In areas where the uppermost aquifer is located in bedrock, the map of thickness of Quaternary deposits was used to determine depth of the aquifer. The type of aquifer was determined from the maps of the surficial geology and the bedrock geology (see inset maps).

Examples of specific map areas within aquifer sensitivity rating classes are:
A1: In side slopes in the central portion of the county (e.g., between Hell's Branch and Apple River): fractured dolomite is very near the land surface.
A2: In the Mississippi River valley (e.g., near the Savanna Army Depot): coarse- grained sand and gravel outwash (Henry Fm.) is very near the land surface.
A3: Across broad areas in the uplands of the county (e.g., near East Dubuque and Menominee): loess covers fractured dolomite.
A4: South of Hanover: loess overlies sand and gravel outwash and fractured dolomite.
A5: In the Apple River valley, south of Hanover: thin alluvium and loess overlie thick glacial outwash and shale.
B1: Areas west of Hanover: thin eolian sand (Parkland sand facies of the Henry Formation) overlies shale.
B2: Along the base of the Camp Creek valley: thin buried sand is overlain by fine- grained alluvium and underlain by shale. This sensitivity class is similar to A4, but the surface sediments are underlain by shale.
C: Areas east of Stockton: loess and Ogle Member till (25 to 50 ft. thick) overlie sand and gravel and/or fractured dolomite.
D: Areas east of Stockton: loess and thicker Ogle Member till (greater than 50 ft. thick) overlie sand and gravel and/or fractured dolomite.
E1: Areas east of Stockton: loess and thicker Ogle Member till (greater than 50 ft. thick) overlie shale.
E2: Broad areas along US Highway 20 west of Galena: loess (10 to 50 ft. thick) overlies shale.
E3: Areas surrounding Scales Mound: shale is very near the land surface.

AQUIFER SENSITIVITY TO CONTAMINATION FROM MUNICIPAL SOLID WASTE SITES

Map Units A, B, and C: High potential for aquifer contamination from waste disposal facilities. Regions designated as A, B, and C, which all contain sand and gravel and/or bedrock aquifer materials within 50 feet of land surface, are extremely sensitive to potential contamination from waste disposal facilities. Waste buried in a pit or trench up to 50 feet deep may be placed in direct contact with sand and gravel deposits or bedrock aquifers. Therefore, there is little or no natural protection of an aquifer by overlying fine- grained materials. Trench depths of 50 feet are now fairly common (and some up to 100 feet have been proposed) because operators desire to maximize landfill capacities because of the difficulties in obtaining permits for new facilities. In Map Unit B, thin sand and gravel is underlain by fine- grained deposits. Therefore it may be possible to remove the sand and gravel to the top of the fine- grained deposit, however caution must be taken to prevent waste and effluent from coming in contact with sand and gravel exposed at the sides of the trench.

Map Unit D: Moderate potential for aquifer contamination from waste disposal facilities. This unit includes areas of sand and gravel and/or bedrock aquifers that are overlain by more than 50 feet of fine- grained deposits. Although the aquifer sensitivity is relatively low because fine- grained materials separate the aquifer from land surface, aquifer materials can be as shallow as 50 feet below the land surface. Areas mapped as D should not be used for hazardous waste disposal. Municipal waste disposal may be acceptable if site- specific investigations indicate that the aquifer is closer to a 100- foot depth (Berg 1994). At least 50 feet of undisturbed fine- grained sediment should separate the bottom of the landfill trench from the top of the aquifer material.

Map Unit E: Low potential for aquifer contamination from waste disposal facilities. This unit occurs where bedrock aquifers are overlain by shale, which is overlain by fine- grained sediments. The potential for contamination of aquifers from waste disposal facilities is low because of the lack of aquifer materials at or near the land surface. Such areas have a low potential to suffer groundwater contamination from municipal or, perhaps, hazardous wastes. Waste disposal facilities must always be designed, constructed, and carefully monitored to minimize their potential for groundwater contamination.

Significant parts of Map Units D and E areas may have poor surface drainage or have a seasonally high water table. Although thick, fine- grained deposits reduce the potential for aquifers to become contaminated, a higher potential for surface water contamination exists because of overland flow of water to a lake, river or stream, especially in areas of high relief. In addition, landfill design, engineering, and operation may be problematic in poorly- drained areas. The soil survey of Jo Daviess County (Tegeler 1996) provides delineation of poorly- drained soils and should be consulted when siting a municipal waste disposal facility. In addition, detailed site- specific investigations must be conducted to verify the absence of aquifer materials in these map areas.

SUMMARY

Much of Jo Daviess County, Illinois has a very high aquifer sensitivity because fractured dolomite bedrock aquifers lie beneath thin glacial drift or loess. Areas where dolomite bedrock is exposed are most sensitive. In addition, a high potential for contamination exists where thick coarse- grained unconsolidated sediments occur. In contrast, areas underlain by shale bedrock have a low sensitivity to aquifer contamination. A more moderate sensitivity to aquifer contamination exists in areas where fine- grained unconsolidated deposits overlie dolomite bedrock (such as till- covered landscapes in the east- central portion of the county) or where thin coarse- grained unconsolidated deposits overlie shale.

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REFERENCES

Berg, R.C., 1994, Geologic aspects of a groundwater protection needs assessment for Woodstock, Illinois: A case study. Illinois State Geological Survey, Environmental Geology 146, 27 p.

Berg, R.C. and C.C. Abert, 1994, Large-scale aquifer sensitivity model. Environmental Geology, v. 24, no. 1, p. 34- 42.

Berg, R.C. and J.P. Kempton, 1984, Potential for contamination of shallow aquifers by land burial of municipal wastes. Illinois State Geological Survey Map, scale 1:500,000.

Keefer, D.A. and R.C. Berg, 1990, Potential for aquifer recharge in Illinois. Illinois State Geological Survey Map, scale 1:1,000,000.

McGarry, C.S. and D.A. Grimley, 1997, Aquifer sensitivity of Carroll County, Illinois. Illinois State Geological Survey, Open File Series, OFS 1997- 13i, scale 1:62,500.

McGarry, C.S., 2000, Bedrock geology map, Jo Daviess County, Illinois. Illinois State Geological Survey, Open File Series, OFS2000- 8d, scale 1:62,500.

Riggs, M.H., 2000, Surficial geology map, Jo Daviess County, Illinois. Illinois State Geological Survey, Open File Series, OFS2000- 8b, scale 1:62,500.

Riggs, M.H. and C.S. McGarry, 2000, Map showing thickness of Quaternary deposits, Jo Daviess County, Illinois. Illinois State Geological Survey, Open File Series, OFS2000- 8c, scale 1:62,500.

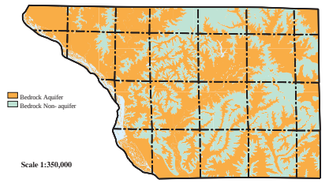
Soller, D.R. and R.C. Berg, 1992, A model for the assessment of aquifer contamination potential based on a regional geologic framework. Environmental Geology and Water Sciences, v. 19, p. 205- 213.

Tegeler, R.A., 1996, Soil Survey of Jo Daviess County, Illinois. United States Department of Agriculture.

USEPA, 1993, Groundwater resource assessment: Office of Water 4602, EPA 813- R- 93- 003, 232 p.

MAP COMPONENTS

Bedrock Aquifers at the Bedrock Surface of Jo Daviess County, Illinois

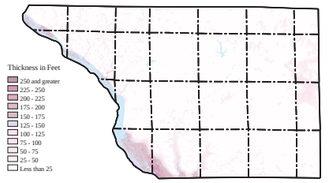


Scale 1:350,000

from McGarry (2000)

This map was used to determine the presence of bedrock aquifers within a given area. Dolomite and sandstone are considered aquifers; shale is considered a non- aquifer.

Thickness of Quaternary Deposits of Jo Daviess County, Illinois

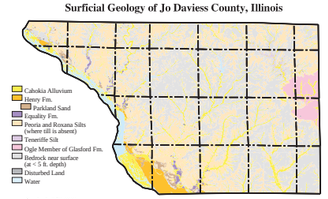


Scale 1:350,000

from Riggs and McGarry (2000)

This map was used to determine the depth to aquifers (either bedrock or drift) and thickness of unconsolidated materials (both aquifer and non- aquifer).

Surficial Geology of Jo Daviess County, Illinois



Scale 1:350,000

from Riggs (2000)

This map was used to determine the presence of drift aquifers and thickness of unconsolidated materials (both aquifer and non- aquifer).

This map was prepared by the Illinois State Geological Survey, in cooperation with the Illinois Department of Commerce and Community Affairs and the Jo Daviess County Board. It is part of a suite of maps created to assist local government in addressing geologic questions concerning capable sites for landfill development. Maps produced for this study are intended for regional land use planning purposes. More detailed mapping is needed for site- specific considerations. This map has been reviewed for scientific accuracy and edited to meet the quality standards of maps in the ISGS Map Series.

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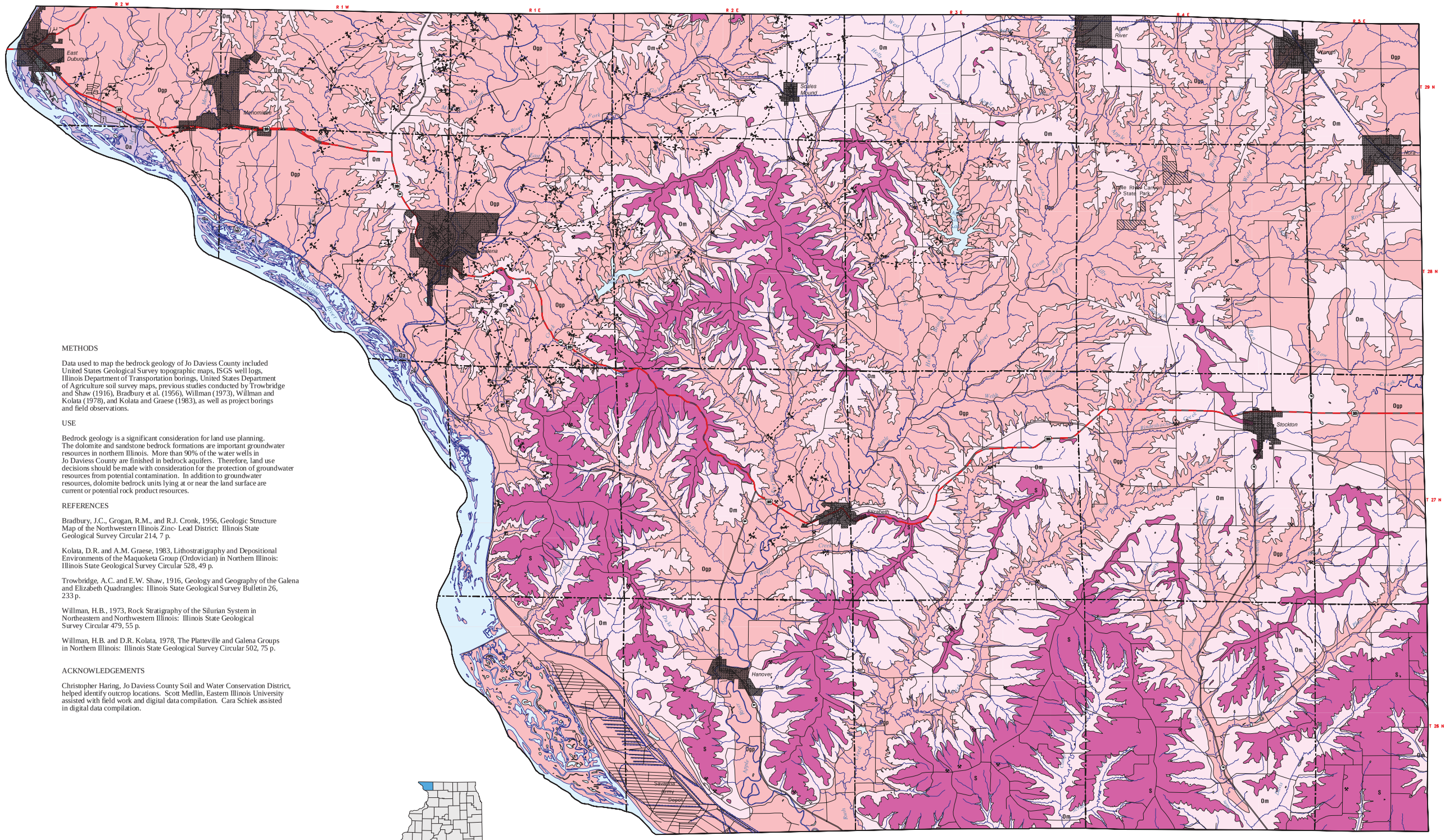
BEDROCK GEOLOGY MAP, JO DAVIESS COUNTY, ILLINOIS

Christopher S. McGarry



METHODS

Data used to map the bedrock geology of Jo Daviess County included United States Geological Survey topographic maps, ISGS well logs, Illinois Department of Transportation borings, United States Department of Agriculture soil survey maps, previous studies conducted by Trowbridge and Shaw (1916), Bradbury et al. (1956), Willman (1973), Willman and Kolata (1978), and Kolata and Graese (1983), as well as project borings and field observations.

USE

Bedrock geology is a significant consideration for land use planning. The dolomite and sandstone bedrock formations are important groundwater resources in northern Illinois. More than 90% of the water wells in Jo Daviess County are finished in bedrock aquifers. Therefore, land use decisions should be made with consideration for the protection of groundwater resources from potential contamination. In addition to groundwater resources, dolomite bedrock units lying at or near the land surface are current or potential rock product resources.

REFERENCES

Bradbury, J.C., Grogan, R.M., and R.J. Cronk, 1956, Geologic Structure Map of the Northwestern Illinois Zinc- Lead District: Illinois State Geological Survey Circular 214, 7 p.

Kolata, D.R. and A.M. Graese, 1983, Lithostratigraphy and Depositional Environments of the Maquoketa Group (Ordovician) in Northern Illinois: Illinois State Geological Survey Circular 528, 49 p.

Trowbridge, A.C. and E.W. Shaw, 1916, Geology and Geography of the Galena and Elizabeth Quadrangles: Illinois State Geological Survey Bulletin 26, 233 p.

Willman, H.B., 1973, Rock Stratigraphy of the Silurian System in Northeastern and Northwestern Illinois: Illinois State Geological Survey Circular 479, 55 p.

Willman, H.B. and D.R. Kolata, 1978, The Platteville and Galena Groups in Northern Illinois: Illinois State Geological Survey Circular 502, 75 p.

ACKNOWLEDGEMENTS

Christopher Haring, Jo Daviess County Soil and Water Conservation District, helped identify outcrop locations. Scott Medlin, Eastern Illinois University assisted with field work and digital data compilation. Cara Schiek assisted in digital data compilation.

SILURIAN SYSTEM

S undifferentiated (0 - 150 feet thick)
Dolomite; brownish- gray; some beds contain white chert; very argillaceous at base. This cliff- forming rock crops out in the uplands of much of Jo Daviess County (e.g. Horseshoe Mound, east of Galena and Ward's Grove, southeast of Stockton). These rocks are exposed along the Mississippi River valley, west of Hanover, and in numerous roadcuts on ridge tops along US Highway 20.

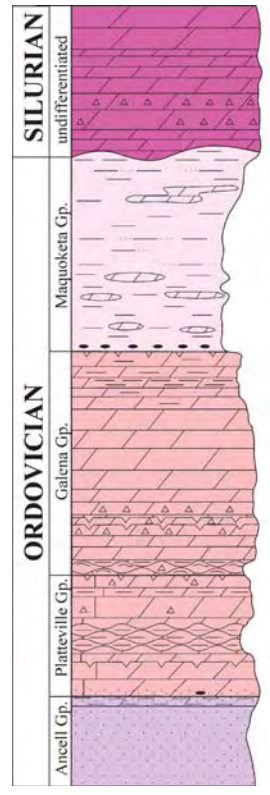
ORDOVICIAN SYSTEM

Om Maquoketa Group (0 - 180 feet thick)
Shale; dolomitic; silty; greenish- gray; argillaceous dolomite lenses in the lower half. Although the unit crops out on gentle slopes throughout the county, exposures of this slope- forming rock are scarce due to vegetation. These rocks are well exposed in a railroad cut west of Scales Mound and a roadcut along US Highway 20 east of Elizabeth.

Ogp Galena and Platteville Groups (0 - 300 feet thick)
Dolomite and limestone; yellowish- brown and gray; some cherty beds; some argillaceous beds; clay (K- bentonite) beds. The Platteville Group is finer grained and thinner bedded than the Galena Group. The Platteville Group consists of limestone in the western half of the county. These cliff forming- rocks are exposed in ravines along the Apple River at Apple River Canyon State Park and in many roadcuts throughout the county (e.g. along US Highway 20 west of Galena). These rocks contain lead and zinc ore (galena and sphalerite) that has been extensively mined in the region in the past. Only larger mine shafts are shown on this map; many smaller mine diggings exist.

Os Ancell Group (100 - 200 feet thick)
Sandstone; frosted, fine- to medium- sized quartz grains; well sorted; pur
The upper 25 feet is composed of interbedded dolomite, fine- to medium- grained sandstone and shale. These rocks are not exposed at the land surface in the county, but underlie the sediments in the Mississippi River valley.

Surface Water
Syncline
Mine Shaft (all are abandoned)
Quarry
Muncipality
State Park
US Highway
State Highway
Other Roads
Railroad
Streams



Modified from Willman (1973), Willman and Kolata (1978), and Kolata and Graese (1983).

Scale 1:62,500
1 inch equals approximately 1 mile
Lambert Conformal Conic Projection

This map was prepared by the Illinois State Geological Survey, in cooperation with the Illinois Department of Commerce and Community Affairs and the Jo Daviess County Board. It is part of a suite of maps created to assist local government in addressing geologic questions concerning capable sites for landfill development. Maps produced for this study are intended for regional land use planning purposes. More detailed mapping is needed for site- specific considerations. This map has been reviewed for scientific accuracy and edited to meet the quality standards of maps in the ISGS Map Series.

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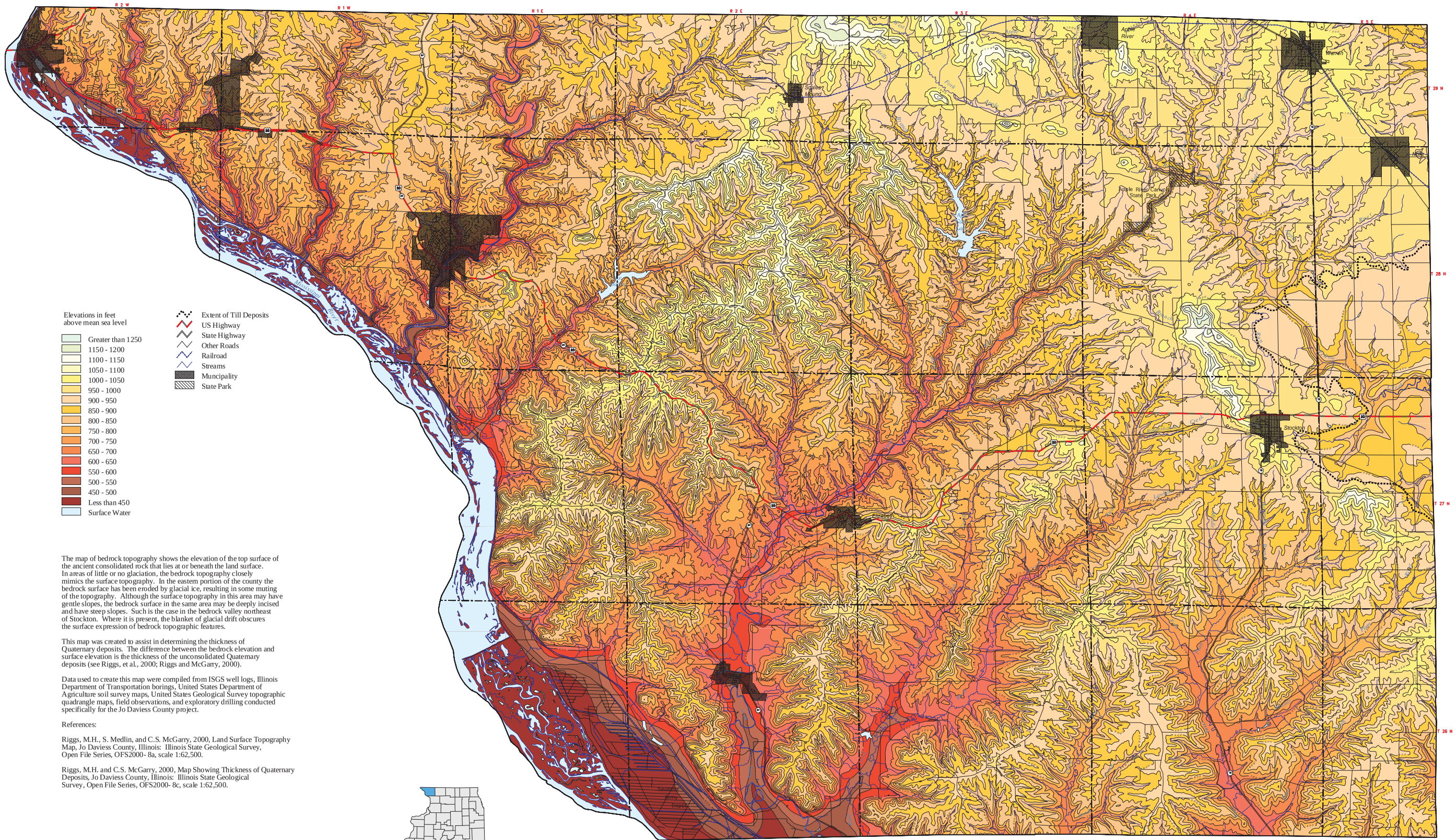
BEDROCK SURFACE TOPOGRAPHY MAP, JO DAVIESS COUNTY, ILLINOIS

Christopher S. McGarry and Matthew H. Riggs



The map of bedrock topography shows the elevation of the top surface of the ancient consolidated rock that lies at or beneath the land surface. In areas of little or no glaciation, the bedrock topography closely mimics the surface topography. In the eastern portion of the county the bedrock surface has been eroded by glacial ice, resulting in some muting of the topography. Although the surface topography in this area may have gentle slopes, the bedrock surface in the same area may be deeply incised and have steep slopes. Such is the case in the bedrock valley northeast of Stockton. Where it is present, the blanket of glacial drift obscures the surface expression of bedrock topographic features.

This map was created to assist in determining the thickness of Quaternary deposits. The difference between the bedrock elevation and surface elevation is the thickness of the unconsolidated Quaternary deposits (see Riggs, et al., 2000; Riggs and McGarry, 2000).

Data used to create this map were compiled from ISGS well logs, Illinois Department of Transportation borings, United States Department of Agriculture soil survey maps, United States Geological Survey topographic quadrangle maps, field observations, and exploratory drilling conducted specifically for the Jo Daviess County project.

References:

Riggs, M.H., S. Medlin, and C.S. McGarry, 2000, Land Surface Topography Map, Jo Daviess County, Illinois: Illinois State Geological Survey, Open File Series, OFS2000- 8a, scale 1:62,500.

Riggs, M.H. and C.S. McGarry, 2000, Map Showing Thickness of Quaternary Deposits, Jo Daviess County, Illinois: Illinois State Geological Survey, Open File Series, OFS2000- 8c, scale 1:62,500.

Scale 1:62,500

1 Inch equals approximately 1 mile

Miles

Kilometers

Lambert Conformal Conic Projection

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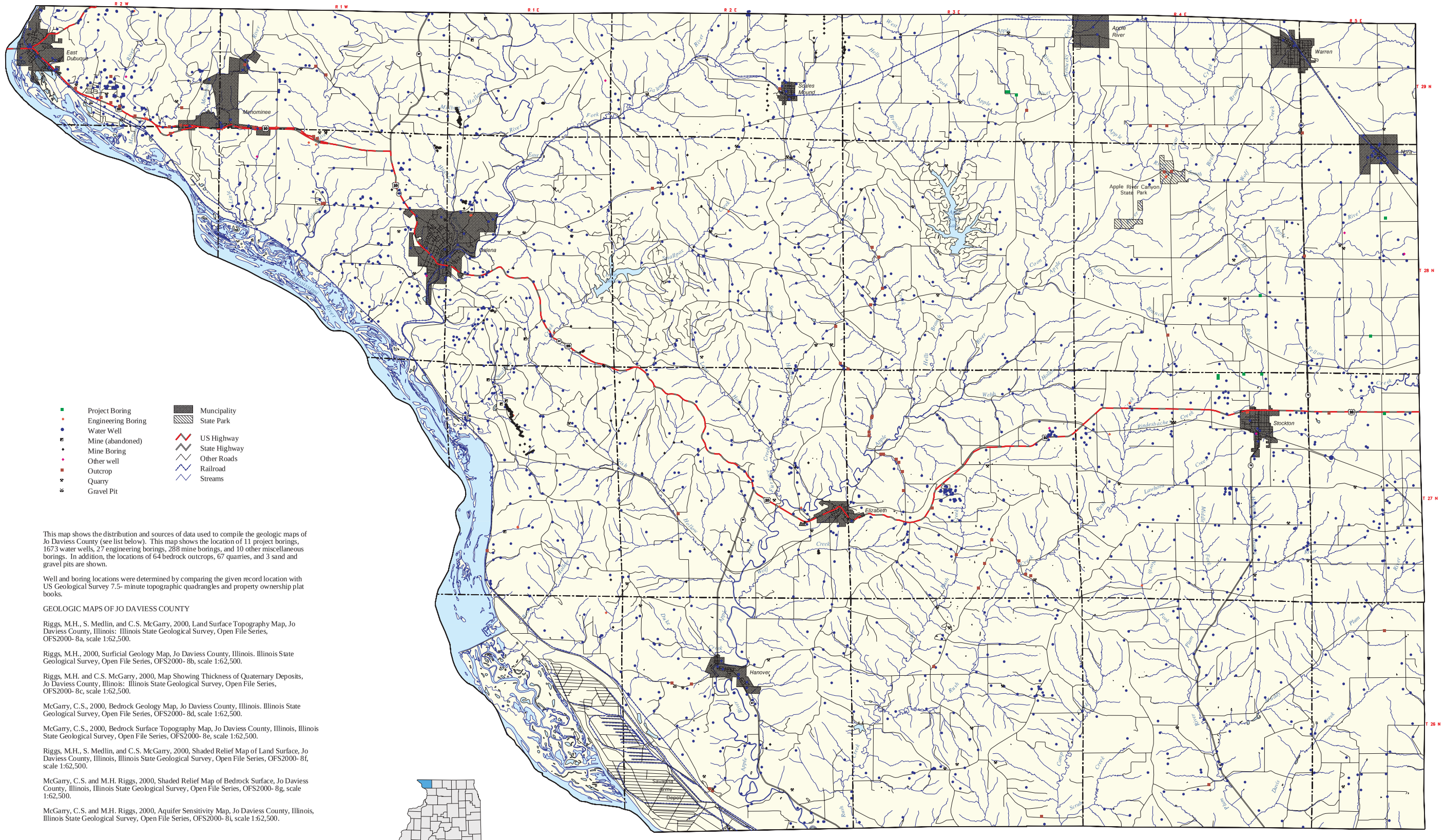
MAP SHOWING LOCATION OF DATA POINTS, JO DAVIESS COUNTY, ILLINOIS

Matthew H. Riggs and Christopher S. McGarry



This map shows the distribution and sources of data used to compile the geologic maps of Jo Daviess County (see list below). This map shows the location of 11 project borings, 1673 water wells, 27 engineering borings, 288 mine borings, and 10 other miscellaneous borings. In addition, the locations of 64 bedrock outcrops, 67 quarries, and 3 sand and gravel pits are shown.

Well and boring locations were determined by comparing the given record location with US Geological Survey 7.5- minute topographic quadrangles and property ownership plat books.

GEOLOGIC MAPS OF JO DAVIESS COUNTY

Riggs, M.H., S. Medlin, and C.S. McGarry, 2000, Land Surface Topography Map, Jo Daviess County, Illinois: Illinois State Geological Survey, Open File Series, OFS2000- 8a, scale 1:62,500.

Riggs, M.H., 2000, Surficial Geology Map, Jo Daviess County, Illinois. Illinois State Geological Survey, Open File Series, OFS2000- 8b, scale 1:62,500.

Riggs, M.H. and C.S. McGarry, 2000, Map Showing Thickness of Quaternary Deposits, Jo Daviess County, Illinois: Illinois State Geological Survey, Open File Series, OFS2000- 8c, scale 1:62,500.

McGarry, C.S., 2000, Bedrock Geology Map, Jo Daviess County, Illinois. Illinois State Geological Survey, Open File Series, OFS2000- 8d, scale 1:62,500.

McGarry, C.S., 2000, Bedrock Surface Topography Map, Jo Daviess County, Illinois, Illinois State Geological Survey, Open File Series, OFS2000- 8e, scale 1:62,500.

Riggs, M.H., S. Medlin, and C.S. McGarry, 2000, Shaded Relief Map of Land Surface, Jo Daviess County, Illinois, Illinois State Geological Survey, Open File Series, OFS2000- 8f, scale 1:62,500.

McGarry, C.S. and M.H. Riggs, 2000, Shaded Relief Map of Bedrock Surface, Jo Daviess County, Illinois, Illinois State Geological Survey, Open File Series, OFS2000- 8g, scale 1:62,500.

McGarry, C.S. and M.H. Riggs, 2000, Aquifer Sensitivity Map, Jo Daviess County, Illinois, Illinois State Geological Survey, Open File Series, OFS2000- 8i, scale 1:62,500.

Scale 1:62,500
1 Inch equals approximately 1 mile

Lambert Conformal Conic Projection

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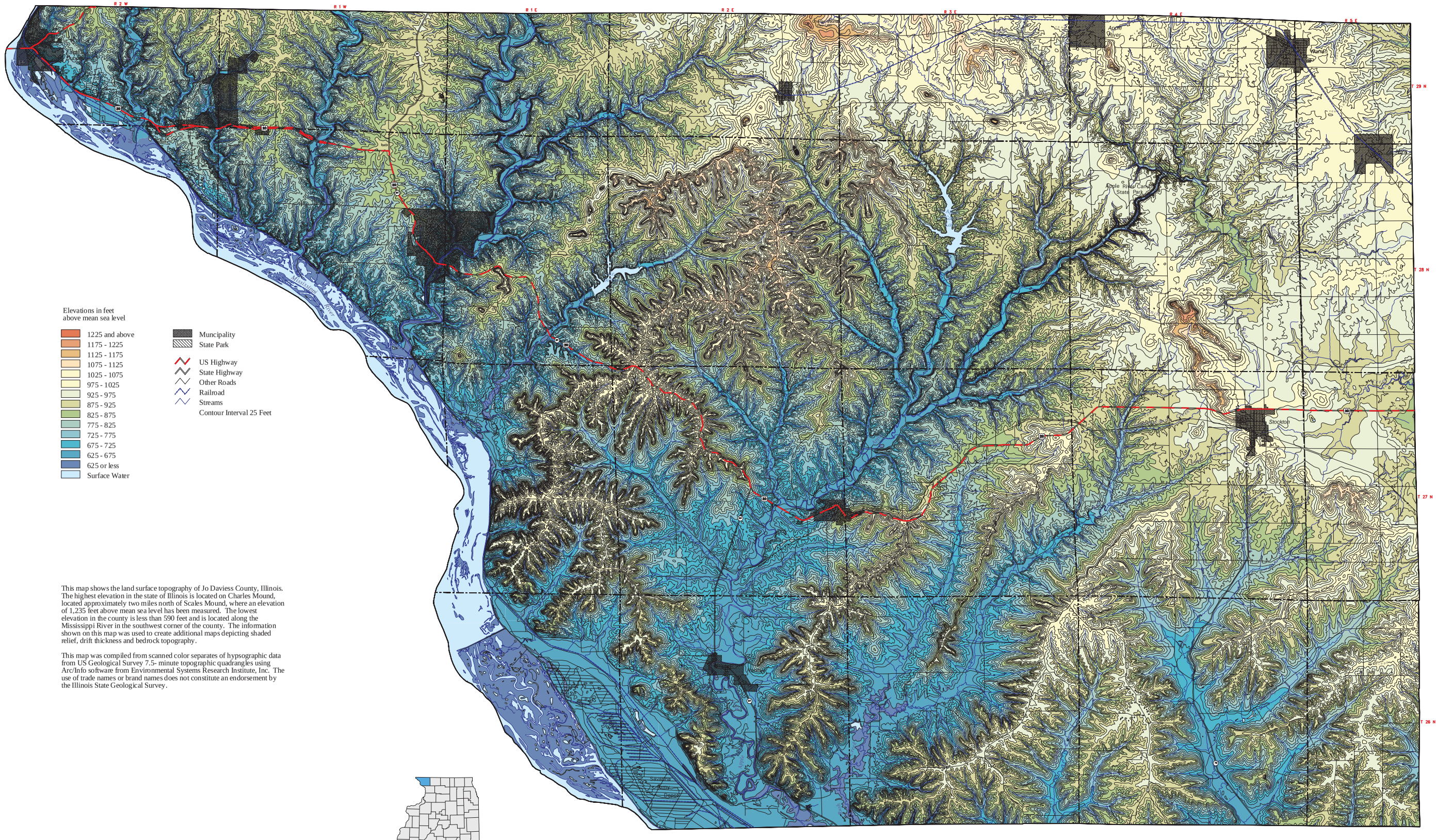
LAND SURFACE TOPOGRAPHY MAP, JO DAVIESS COUNTY, ILLINOIS

Matthew H. Riggs, Scott Medlin and Christopher S. McGarry



This map shows the land surface topography of Jo Daviess County, Illinois. The highest elevation in the state of Illinois is located on Charles Mound, located approximately two miles north of Scales Mound, where an elevation of 1,235 feet above mean sea level has been measured. The lowest elevation in the county is less than 590 feet and is located along the Mississippi River in the southwest corner of the county. The information shown on this map was used to create additional maps depicting shaded relief, drift thickness and bedrock topography.

This map was compiled from scanned color separates of hypsographic data from US Geological Survey 7.5- minute topographic quadrangles using Arc/Info software from Environmental Systems Research Institute, Inc. The use of trade names or brand names does not constitute an endorsement by the Illinois State Geological Survey.

Scale 1:62,500
1 Inch equals approximately 1 mile
4 Miles
4 Kilometers
Lambert Conformal Conic Projection

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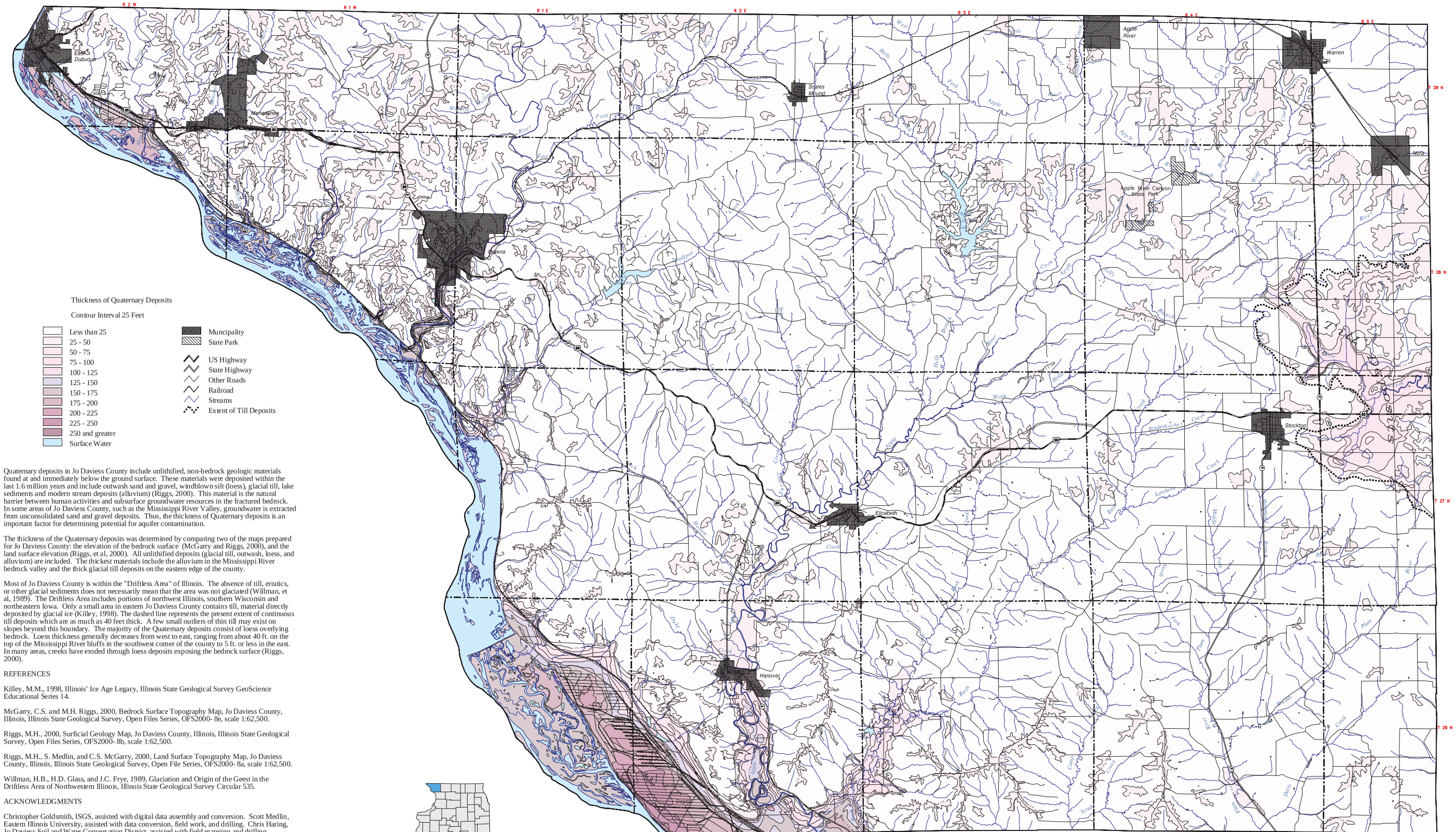
William W. Shilts, Chief
2000

MAP SHOWING THICKNESS OF QUATERNARY DEPOSITS, JO DAVIESS COUNTY, ILLINOIS

Matthew H. Riggs and Christopher S. McGarry



Quaternary deposits in Jo Daviess County include unlithified, non-bedrock geologic materials found at and immediately below the ground surface. These materials were deposited within the last 1.6 million years and include outwash sand and gravel, windblown silt (loess), glacial till, lake sediments and modern stream deposits (alluvium) (Riggs, 2000). This material is the natural barrier between human activities and subsurface groundwater resources in the fractured bedrock. In some areas of Jo Daviess County, such as the Mississippi River Valley, groundwater is extracted from unconsolidated sand and gravel deposits. Thus, the thickness of Quaternary deposits is an important factor for determining potential for aquifer contamination.

The thickness of the Quaternary deposits was determined by comparing two of the maps prepared for Jo Daviess County: the elevation of the bedrock surface (McGarry and Riggs, 2000), and the land surface elevation (Riggs, et al, 2000). All unlithified deposits (glacial till, outwash, loess, and alluvium) are included. The thickest materials include the alluvium in the Mississippi River bedrock valley and the thick glacial till deposits on the eastern edge of the county.

Most of Jo Daviess County is within the "Driftless Area" of Illinois. The absence of till, erratics, or other glacial sediments does not necessarily mean that the area was not glaciated (Willman, et al, 1989). The Driftless Area includes portions of northwest Illinois, southern Wisconsin and northeastern Iowa. Only a small area in eastern Jo Daviess County contains till, material directly deposited by glacial ice (Killey, 1998). The dashed line represents the present extent of continuous till deposits which are as much as 40 feet thick. A few small outliers of thin till may exist on slopes beyond this boundary. The majority of the Quaternary deposits consist of loess overlying bedrock. Loess thickness generally decreases from west to east, ranging from about 40 ft. on the top of the Mississippi River bluffs in the southwest corner of the county to 5 ft. or less in the east. In many areas, creeks have eroded through loess deposits exposing the bedrock surface (Riggs, 2000).

REFERENCES

Killey, M.M., 1998, Illinois' Ice Age Legacy, Illinois State Geological Survey GeoScience Educational Series 14.

McGarry, C.S. and M.H. Riggs, 2000, Bedrock Surface Topography Map, Jo Daviess County, Illinois, Illinois State Geological Survey, Open Files Series, OFS2000- 8e, scale 1:62,500.

Riggs, M.H., 2000, Surficial Geology Map, Jo Daviess County, Illinois, Illinois State Geological Survey, Open Files Series, OFS2000- 8b, scale 1:62,500.

Riggs, M.H., S. Medlin, and C.S. McGarry, 2000, Land Surface Topography Map, Jo Daviess County, Illinois, Illinois State Geological Survey, Open File Series, OFS2000- 8a, scale 1:62,500.

Willman, H.B., H.D. Glass, and J.C. Frye, 1989, Glaciation and Origin of the Geest in the Driftless Area of Northwestern Illinois, Illinois State Geological Survey Circular 535.

ACKNOWLEDGMENTS

Christopher Goldsmith, ISGS, assisted with digital data assembly and conversion. Scott Medlin, Eastern Illinois University, assisted with data conversion, field work, and drilling. Chris Haring, Jo Daviess Soil and Water Conversation District, assisted with field mapping and drilling.

Scale 1:62,500
1inch equals approximately 1 mile
Miles
Kilometers
Lambert Conformal Conic Projection

This map was prepared by the Illinois State Geological Survey, in cooperation with the Illinois Department of Commerce and Community Affairs and the Jo Daviess County Board. It is part of a suite of maps created to assist local government in addressing geologic questions concerning capable sites for landfill development. Maps produced for this study are intended for regional land use planning purposes. More detailed mapping is needed for site- specific considerations. This map has been reviewed for scientific accuracy and edited to meet the quality standards of maps in the ISGS Map Series.

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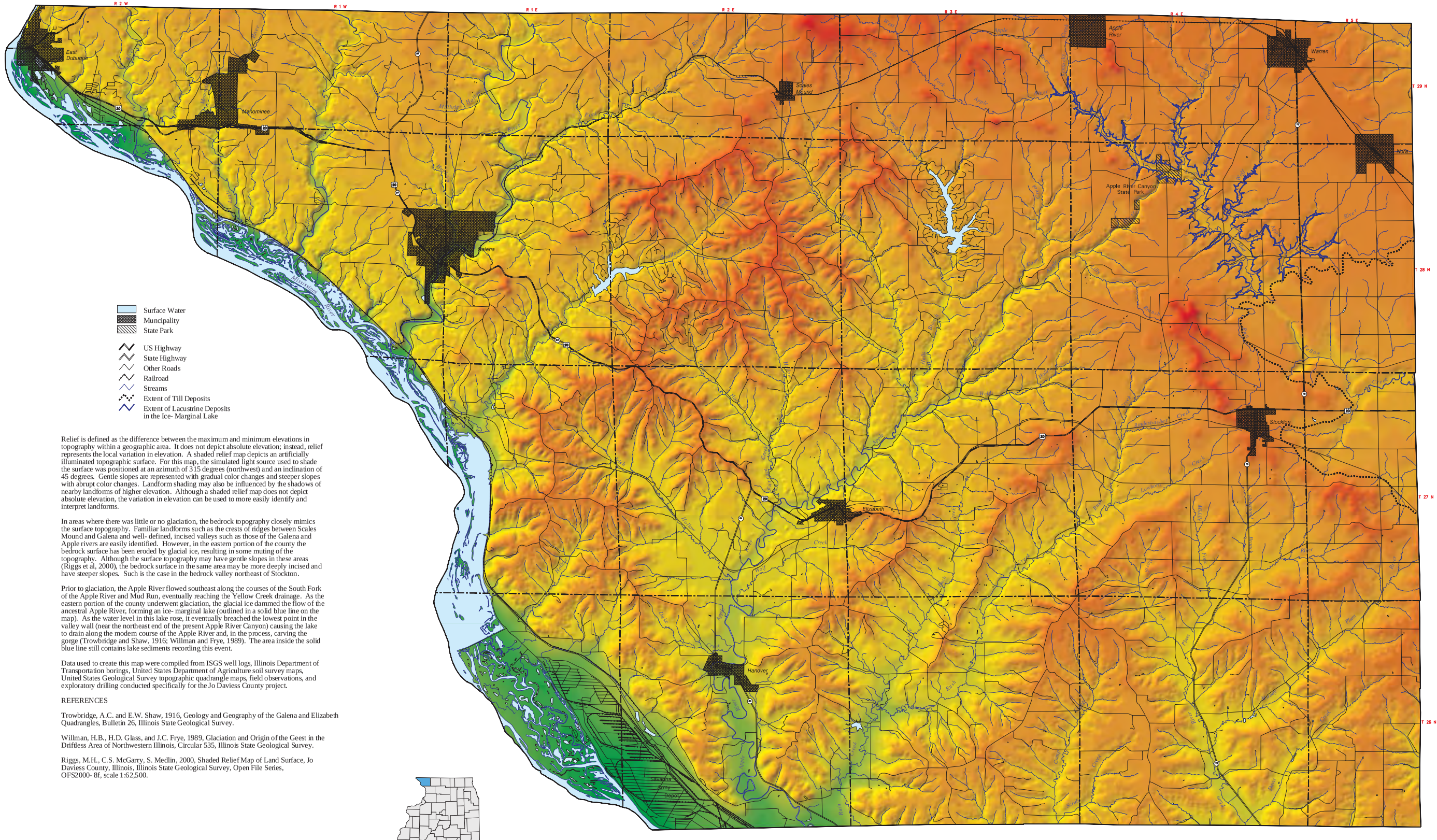
Department of Natural Resources
ILLINOIS STATE GEOLOGICAL SURVEY
Open File Series: OFS 2000- 8g
William W. Shilts, Chief
2000

SHADED RELIEF MAP OF BEDROCK SURFACE, JO DAVIESS COUNTY, ILLINOIS

Christopher S. McGarry and Matthew H. Riggs



Relief is defined as the difference between the maximum and minimum elevations in topography within a geographic area. It does not depict absolute elevation; instead, relief represents the local variation in elevation. A shaded relief map depicts an artificially illuminated topographic surface. For this map, the simulated light source used to shade the surface was positioned at an azimuth of 315 degrees (northwest) and an inclination of 45 degrees. Gentle slopes are represented with gradual color changes and steeper slopes with abrupt color changes. Landform shading may also be influenced by the shadows of nearby landforms of higher elevation. Although a shaded relief map does not depict absolute elevation, the variation in elevation can be used to more easily identify and interpret landforms.

In areas where there was little or no glaciation, the bedrock topography closely mimics the surface topography. Familiar landforms such as the crests of ridges between Scales Mound and Galena and well- defined, incised valleys such as those of the Galena and Apple rivers are easily identified. However, in the eastern portion of the county the bedrock surface has been eroded by glacial ice, resulting in some muting of the topography. Although the surface topography may have gentle slopes in these areas (Riggs et al, 2000), the bedrock surface in the same area may be more deeply incised and have steeper slopes. Such is the case in the bedrock valley northeast of Stockton.

Prior to glaciation, the Apple River flowed southeast along the courses of the South Fork of the Apple River and Mud Run, eventually reaching the Yellow Creek drainage. As the eastern portion of the county underwent glaciation, the glacial ice dammed the flow of the ancestral Apple River, forming an ice- marginal lake (outlined in a solid blue line on the map). As the water level in this lake rose, it eventually breached the lowest point in the valley wall (near the northeast end of the present Apple River Canyon) causing the lake to drain along the modern course of the Apple River and, in the process, carving the gorge (Trowbridge and Shaw, 1916; Willman and Frye, 1989). The area inside the solid blue line still contains lake sediments recording this event.

Data used to create this map were compiled from ISGS well logs, Illinois Department of Transportation borings, United States Department of Agriculture soil survey maps, United States Geological Survey topographic quadrangle maps, field observations, and exploratory drilling conducted specifically for the Jo Daviess County project.

REFERENCES

Trowbridge, A.C. and E.W. Shaw, 1916, Geology and Geography of the Galena and Elizabeth Quadrangles, Bulletin 26, Illinois State Geological Survey.

Willman, H.B., H.D. Glass, and J.C. Frye, 1989, Glaciation and Origin of the Geest in the Driftless Area of Northwestern Illinois, Circular 535, Illinois State Geological Survey.

Riggs, M.H., C.S. McGarry, S. Medlin, 2000, Shaded Relief Map of Land Surface, Jo Daviess County, Illinois, Illinois State Geological Survey, Open File Series, OFS2000- 8f, scale 1:62,500.

Scale 1:62,500
1 inch equals approximately 1 mile
Lambert Conformal Conic Projection

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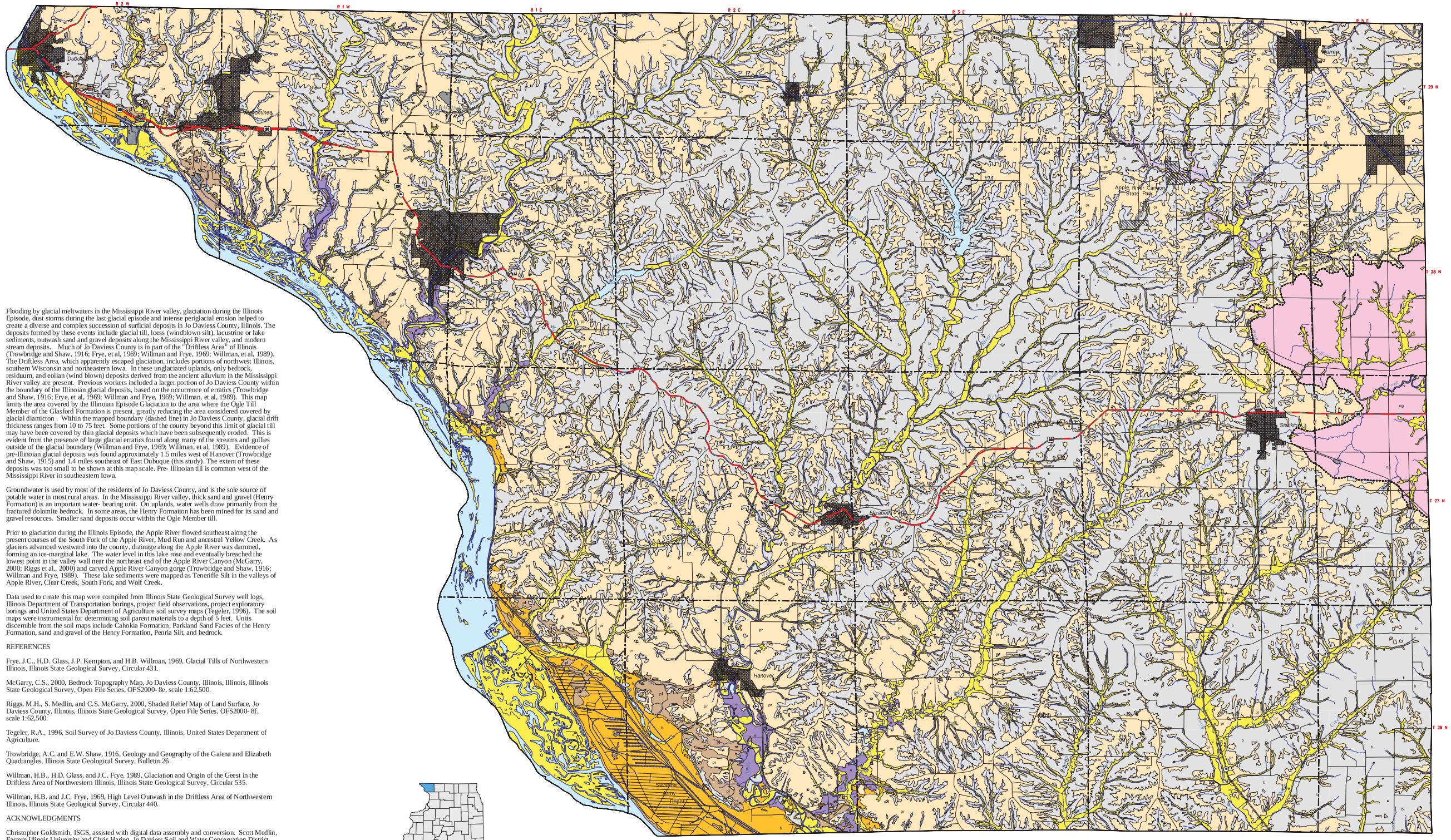
Department of Natural Resources
ILLINOIS STATE GEOLOGICAL SURVEY
Open File Series: OFS 2000- 8b
William W. Shilts, Chief
2000

SURFICIAL GEOLOGY MAP, JO DAVIESS COUNTY, ILLINOIS

Matthew H. Riggs



Flooding by glacial meltwaters in the Mississippi River valley, glaciation during the Illinois Episode, dust storms during the last glacial episode and intense periglacial erosion helped to create a diverse and complex succession of surficial deposits in Jo Daviess County, Illinois. The deposits formed by these events include glacial till, loess (windblown silt), lacustrine or lake sediments, outwash sand and gravel deposits along the Mississippi River valley, and modern stream deposits. Much of Jo Daviess County is in part of the "Driftless Area" of Illinois (Trowbridge and Shaw, 1916; Frye, et al, 1969; Willman and Frye, 1969; Willman, et al, 1989). The Driftless Area, which apparently escaped glaciation, includes portions of northwest Illinois, southern Wisconsin and northeastern Iowa. In these unglaciated uplands, only bedrock, residuum, and eolian (wind blown) deposits derived from the ancient alluvium in the Mississippi River valley are present. Previous workers included a larger portion of Jo Daviess County within the boundary of the Illinoian glacial deposits, based on the occurrence of erratics (Trowbridge and Shaw, 1916; Frye, et al, 1969; Willman and Frye, 1969; Willman, et al, 1989). This map limits the area covered by the Illinoian Episode Glaciation to the area where the Ogle Till Member of the Glasford Formation is present, greatly reducing the area considered covered by glacial diamicton . Within the mapped boundary (dashed line) in Jo Daviess County, glacial drift thickness ranges from 10 to 75 feet. Some portions of the county beyond this limit of glacial till may have been covered by thin glacial deposits which have been subsequently eroded. This is evident from the presence of large glacial erratics found along many of the streams and gullies outside of the glacial boundary (Willman and Frye, 1969; Willman, et al, 1989). Evidence of pre-Illinoian glacial deposits was found approximately 1.5 miles west of Hanover (Trowbridge and Shaw, 1915) and 1.4 miles southeast of East Dubuque (this study). The extent of these deposits was too small to be shown at this map scale. Pre- Illinoian till is common west of the Mississippi River in southeastern Iowa.

Groundwater is used by most of the residents of Jo Daviess County, and is the sole source of potable water in most rural areas. In the Mississippi River valley, thick sand and gravel (Henry Formation) is an important water- bearing unit. On uplands, water wells draw primarily from the fractured dolomite bedrock. In some areas, the Henry Formation has been mined for its sand and gravel resources. Smaller sand deposits occur within the Ogle Member till.

Prior to glaciation during the Illinois Episode, the Apple River flowed southeast along the present courses of the South Fork of the Apple River, Mud Run and ancestral Yellow Creek. As glaciers advanced westward into the county, drainage along the Apple River was dammed, forming an ice-marginal lake. The water level in this lake rose and eventually breached the lowest point in the valley wall near the northeast end of the Apple River Canyon (McGarry, 2000; Riggs et al., 2000) and carved Apple River Canyon gorge (Trowbridge and Shaw, 1916; Willman and Frye, 1989). These lake sediments were mapped as Teneriffe Silt in the valleys of Apple River, Clear Creek, South Fork, and Wolf Creek.

Data used to create this map were compiled from Illinois State Geological Survey well logs, Illinois Department of Transportation borings, project field observations, project exploratory borings and United States Department of Agriculture soil survey maps (Tegeler, 1996). The soil maps were instrumental for determining soil parent materials to a depth of 5 feet. Units discernible from the soil maps include Cahokia Formation, Parkland Sand Facies of the Henry Formation, sand and gravel of the Henry Formation, Peoria Silt, and bedrock.

REFERENCES

Frye, J.C., H.D. Glass, J.P. Kempton, and H.B. Willman, 1969, Glacial Tills of Northwestern Illinois, Illinois State Geological Survey, Circular 431.

McGarry, C.S., 2000, Bedrock Topography Map, Jo Daviess County, Illinois, Illinois, Illinois State Geological Survey, Open File Series, OFS2000- 8e, scale 1:62,500.

Riggs, M.H., S. Medlin, and C.S. McGarry, 2000, Shaded Relief Map of Land Surface, Jo Daviess County, Illinois, Illinois State Geological Survey, Open File Series, OFS2000- 8f, scale 1:62,500.

Tegeler, R.A., 1996, Soil Survey of Jo Daviess County, Illinois, United States Department of Agriculture.

Trowbridge, A.C. and E.W. Shaw, 1916, Geology and Geography of the Galena and Elizabeth Quadrangles, Illinois State Geological Survey, Bulletin 26.

Willman, H.B., H.D. Glass, and J.C. Frye, 1989, Glaciation and Origin of the Geest in the Driftless Area of Northwestern Illinois, Illinois State Geological Survey, Circular 535.

Willman, H.B. and J.C. Frye, 1969, High Level Outwash in the Driftless Area of Northwestern Illinois, Illinois State Geological Survey, Circular 440.

ACKNOWLEDGMENTS

Christopher Goldsmith, ISGS, assisted with digital data assembly and conversion. Scott Medlin, Eastern Illinois University and Chris Haring, Jo Daviess Soil and Water Conservation District, assisted with field work and drilling.

SURFICIAL SEDIMENTS

HUDSON EPISODE
(postglacial; younger than 12,000 years old)

c — Cahokia Formation
Silt, clay, and sand; stratified; occurs in modern creek valleys and river channels and is 5 - 25 feet thick. Includes significant amounts of redeposited loess. Overlies thick sand and gravel (Henry Formation) in the floodplain and backwater channels of the broad Mississippi River valley.

WISCONSIN EPISODE
(approximately 55,000 - 12,000 years old)

h — Henry Formation
Sand and gravel, stratified, up to 200 feet thick in the Mississippi River valley. Can include up to 30 feet of surficial dune sand.

pl — Parkland Sand Facies
Sand, well sorted, stratified, approximately 5 - 30 feet thick; occurs as sheet sand or dune sand. Mapped on uplands and in some regions of the Mississippi River valley overlying the Henry Formation.

e — Equality Formation
Silt and clay, laminated; occurs as slackwater lake deposits along the Menominee River, Little Menominee River, Sinsinawa River, Galena River, Rush Creek, and Apple River in western Jo Daviess County.

pr — Peoria and Roxana Silts
Silt (loess). Mapped only where > 5 feet thick and where glacial till is absent. Leached of carbonates from typically 4 - 12 feet below the land surface. Loess covers most of the county, and gradually decreases in thickness from 35 feet in western areas, to 15 - 20 feet in central areas, to 5 to 10 feet in northeastern areas on uneroded uplands. Peoria Silt composes most of the unit, with the underlying Roxana Silt < 5 feet thick. Loveland Silt (Illinois Episode loess and colluvium), containing the Sangamon Geosol, may be present beneath Wisconsin Episode loess in unglaciated areas.

SANGAMON EPISODE
(approximately 130,000 - 55,000 years old)
Nondeposition, erosion or weathering of underlying units (formation of Sangamon Geosol).

ILLINOIS EPISODE
(approximately 200,000 - 130,000 years old)

t — Teneriffe Silt
Silt and clay, massive or laminated; along Apple River and South Fork Mud Run in eastern Jo Daviess County north of the Illinois Episode glacial margin. These lacustrine sediments were deposited in slackwater lakes in valleys dammed by glacial ice or outwash.

og — Ogle Member of Glasford Formation [5 - 50 feet thick]
Diamicton, yellow- brown to grey; varies in texture from sandy loam, loam, silt loam, and silty clay; includes lenses of interbedded sand and gravel; the Sangamon Geosol occurs in the upper 5 - 7 feet. This unit is overlain by 5 - 10 feet of Wisconsin Episode loess and is typically underlain by 0 - 15 feet of residuum or sorted Quaternary drift above bedrock.

ORDOVICIAN AND SILURIAN BEDROCK

b — Bedrock (at surface or below < 5 feet of loess, colluvium, diamicton or residium)
Dolomite and shale of the Galena and Platteville Groups (dolomite), Maquoketa Group (Ordovician shale), and undivided Silurian dolomites. The residuum on dolomite is a red clay, 0 - 4 feet thick, formed by chemical alteration of bedrock; it is sometimes underlain by 1 foot of dolomite sand.

Disturbed Land
Water
Muncipality
State Park

US Highway
State Highway
Other Roads
Railroad
Streams
Extent of Till Deposits

Scale 1:62,500
1 inch equals approximately 1 mile
0 1 2 3 4 5 Miles
0 1 2 3 4 5 Kilometers

Lambert Conformal Conic Projection

N

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