CHAPTER 5: UTILITIES

Public Sanitary Sewer

The presence or absence of public sanitary sewer service is a major factor in site selection for new development. Generally, within the County, public sanitary sewer service is available to the larger municipalities. Table 5-1 provides information regarding the status of public sanitary sewer service availability within the municipalities of Piatt County as of May 2008.

Table 5-1: Availability of Public Sanitary Sewer

Municipality	Public Sewer Available?	Are plans underway to provide public sewer?	Treatment Capacity (g/day)	Excess Capacity (g/day)
Atwood	Yes	NA	344,000	200,000
Bement	Yes	NA	unk	unk
Cerro Gordo	Yes	NA	100,000	0
Cisco	No	No	NA	NA
Deland	No	No	NA	NA
Hammond	Yes	NA	unk	unk
Mansfield	No	No	NA	NA
Monticello	Yes	NA	1,000,000	450,000

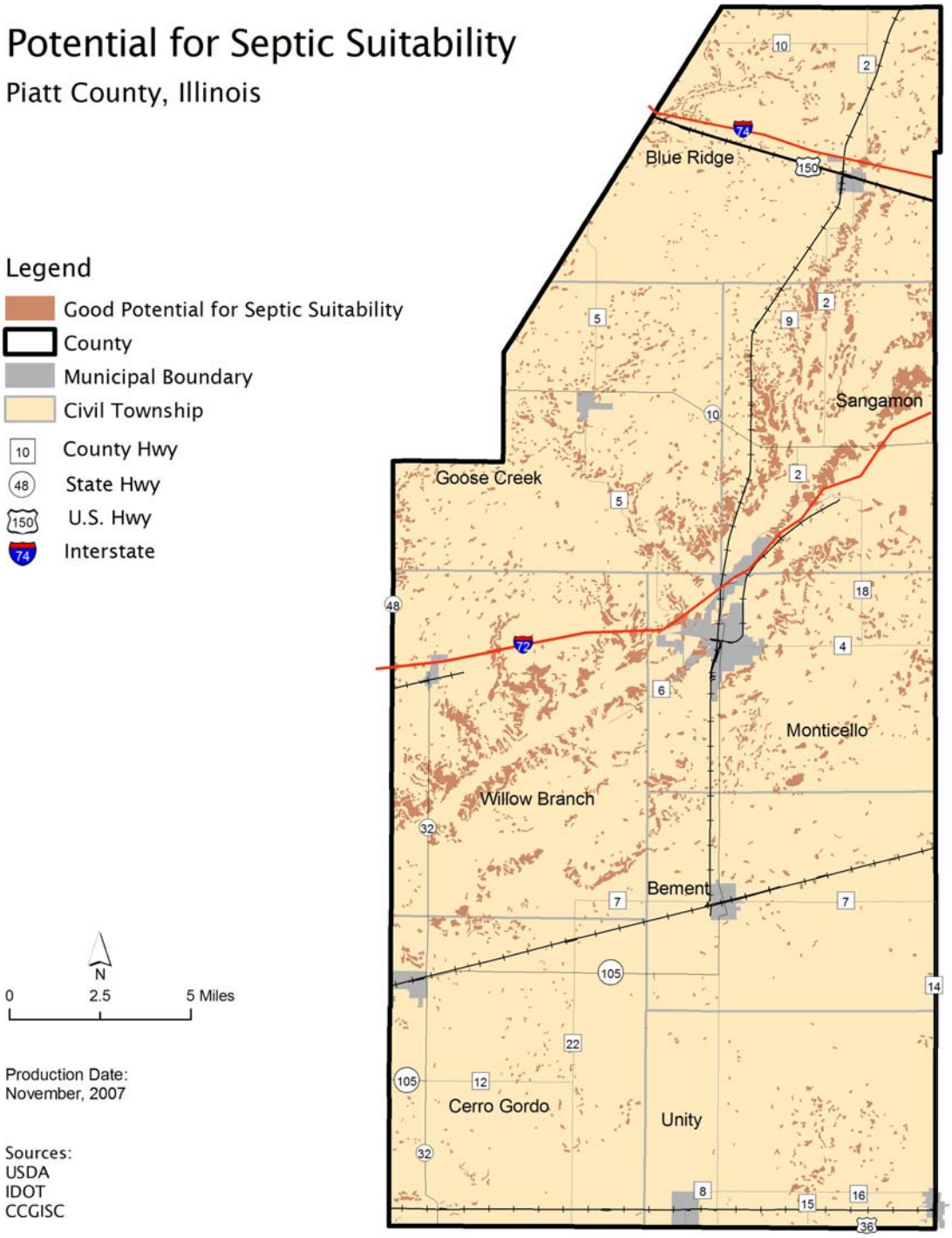
Onsite Wastewater Disposal Systems

At the present time, several villages and rural settlements of the County rely on private, on-site wastewater disposal systems as the method of wastewater treatment and disposal. The villages and settlements in this category include: Village of Cisco, Village of Deland, Village of Mansfield, and the settlements Galesville, La Place, Lodge, White Heath, Pierson Station, and Milmine.

Septic Onsite Wastewater Disposal Systems
All onsite wastewater disposal systems require initial approval by the Piatt County Health Department in order to safeguard the public health and safety. At present in Illinois, once private residential wastewater systems are installed, there are no requirements in place that set effluent limits for some pollutants, or that require that effluent be tested periodically to ensure that onsite wastewater disposal systems are functioning as they should.

Map 5-1 shows areas that have good soil attributes for septic systems.

Map 5-1: Areas of 'Good' Potential for Septic Tank Absorption Fields



County Regulations of Onsite Wastewater Disposal Systems

The County Zoning Ordinance requires that lots less than 43,560 square feet (one acre) in area must be served by a public water supply and either a public sewer or a sewage disposal system (other than a septic tank seepage field system) approved by the plat committee for a subdivision or by the County Board for an individual lot.

Before any subdivision is approved, the subdivider must present proof that an approved sewage disposal system will be available and if a septic tank-seepage field system is to be used, that soil conditions throughout the entire area to be subdivided permit satisfactory percolation for the seepage field to comply with the applicable regulations of the State of Illinois.

Public Water Service

Another primary determinant of site suitability for development is the availability of a water supply. Generally, the service areas for water systems that serve urbanized areas are usually defined by elevation. Most public water systems are gravity driven, with the service area limited to the highest elevation to which the existing gravity system can deliver adequate water pressure to fight fires. Public water systems will sometimes be supplemented with extra pumps or lift stations to serve a development that would otherwise be outside a service area. The costs associated with maintenance of pumps and lift stations is significant and most operators prefer to plan for a system that is gravity-driven.

Public Water Supply Service Availability
Within Piatt County, each of the eight principal municipalities is served by at least one municipal well. Smaller communities and other rural areas are served by private wells.

Table 5-2: Availability of Public Water

Municipality	Public Water Available?	Treatment Capacity (g/day)	Excess Capacity (g/day)
Atwood	Yes	360,000	225,000
Bement	Yes	100,000	50,000
Cerro Gordo	Yes	100,000	0
Cisco	Yes	unk	unk
Deland	Yes	50,000	15,000
Hammond	Yes	unk	unk
Mansfield	Yes	40,000	0
Monticello	Yes	1,176,000	350,000
White Heath	Yes	unk	unk

Private Onsite Wells

In outlying rural areas of the County, residences and other developments that are not served by a public water system rely on private wells for water supply. Generally, private onsite wells are dug to access subsurface areas of water bearing sand and gravel deposits (or aquifers) that are sufficiently sized to provide a dependable water supply. If a well is dug into sand and gravel deposits of greater thickness, the likelihood of a dependable water supply increases.

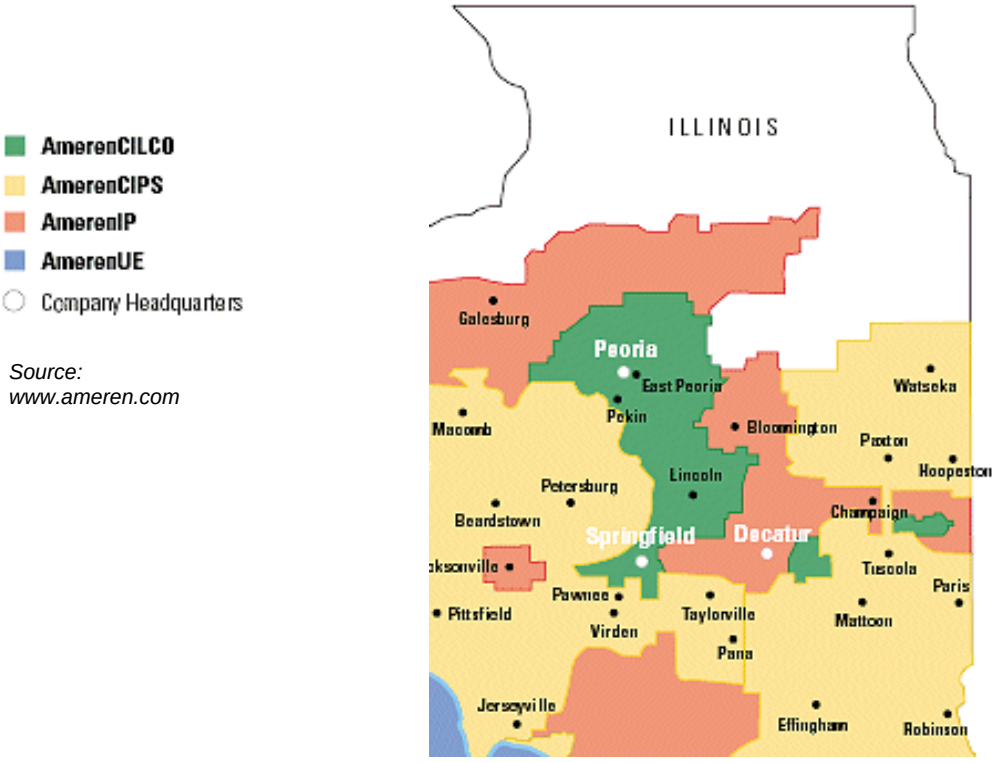
Energy Resources

Ameren Corporation, with its operating companies AmerenIP and AmerenCILCO, serves the majority of the County's electricity and natural gas needs. The corporations' Goose Creek Energy Facility is located in Piatt County. The facility is a 510 MW natural gas-fired, peaking facility and the only large-scale power generation facility in the County.

Electric and Natural Gas Distribution

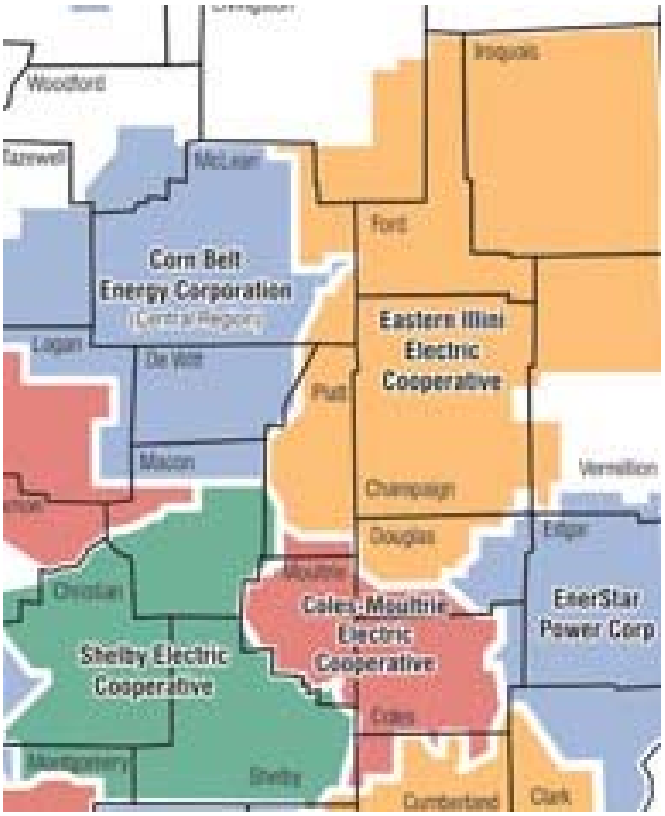
Electric restructuring allows customers to choose who supplies the generation portion of the electric service, based on their own needs and preferences (e.g., including how or where the electricity is produced, economic or environmental support, the lowest price or total cost or the best combination of the prices, services and incentives). Ameren supplies bundled generation, transmission and distribution services to residential customers in Piatt County. Figure 5-1 shows service areas for Ameren in east central Illinois.

Figure 5-1: Ameren Service Area



Rural Electric Cooperatives also provide services within Piatt County. Figure 5-2 provides the names and locations of these cooperatives.

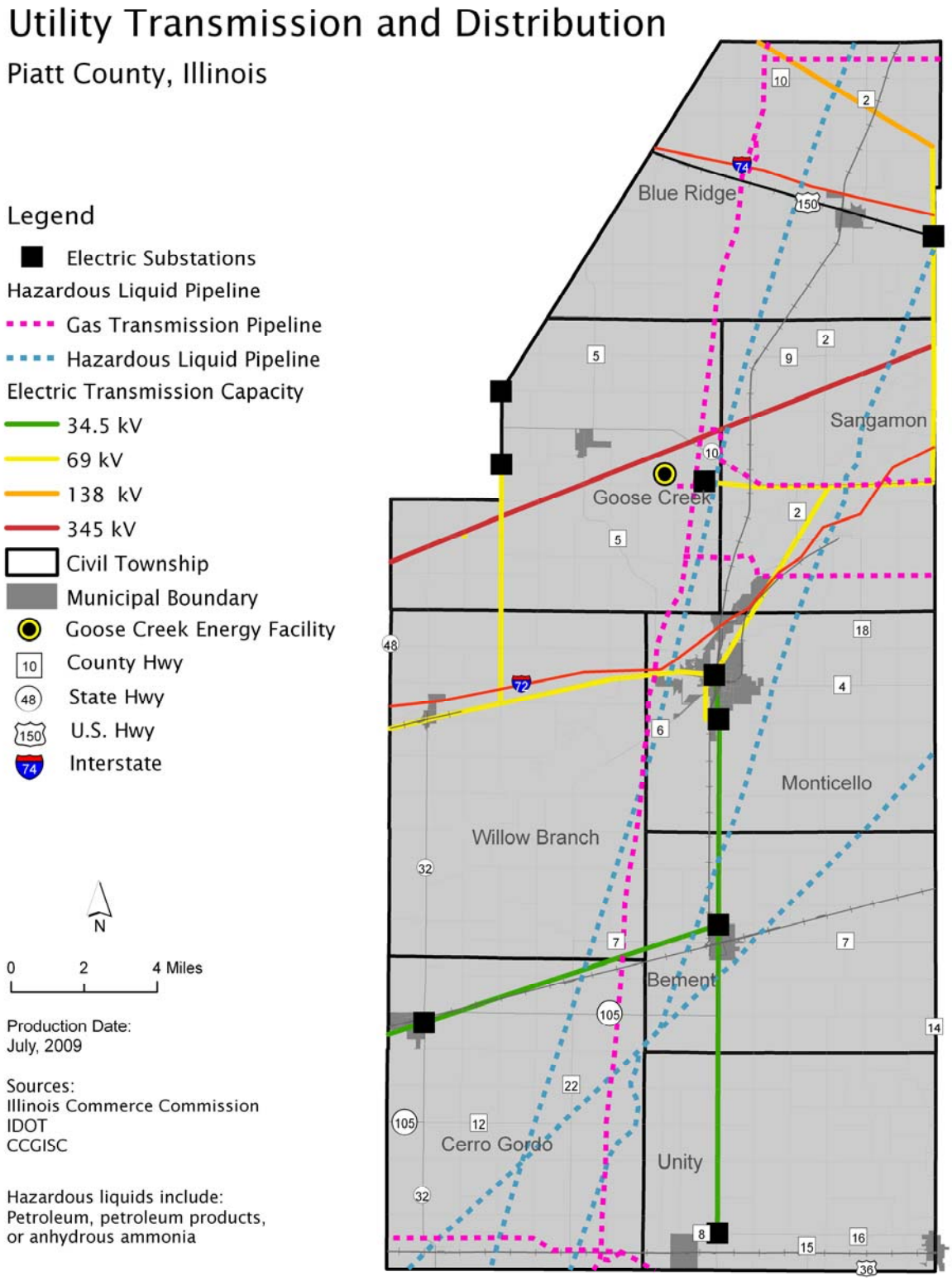
Figure 5-2: Rural Electric Cooperatives



Map 5-3 shows locations of high voltage transmission lines, electric substations, electric generation facilities, and gas transmission pipelines. Location information provided is approximate due to the limited scope of information available from the Illinois Commerce Commission (ICC).

AmerenIP purchases electricity in the market from national power grid suppliers, predominantly produced through coal-fired, gas-fired, hydroelectric and nuclear power plants owned and operated by the parent company Ameren.

Map 5-3: Utility Transmission and Distribution Lines



Renewable Energy Resources

Biogas and Biomass

Biogas (i.e. methane/waste from livestock, sludge from municipal waste water, segregated organic wastes) is a potential source of energy that converts waste materials into energy production materials through anaerobic digestion. Biomass (plant material) can be used to produce energy most commonly in the form of biofuel (i.e. ethanol) but can also be used as combustible material to produce heat energy (*Renewable Energy Resource Program Report*, Illinois Department of Commerce and Economic Opportunity, Bureau of Energy and Recycling, 2006). This type of energy production is constrained due to cost but is becoming a valuable alternative to other higher polluting sources of energy. Scale and environmental impacts are still important factors when considering biogas or biomass energy sources. Corn grown in Piatt County is currently being used to produce ethanol, however no statistics have been found that quantify production amounts.

Solar Energy

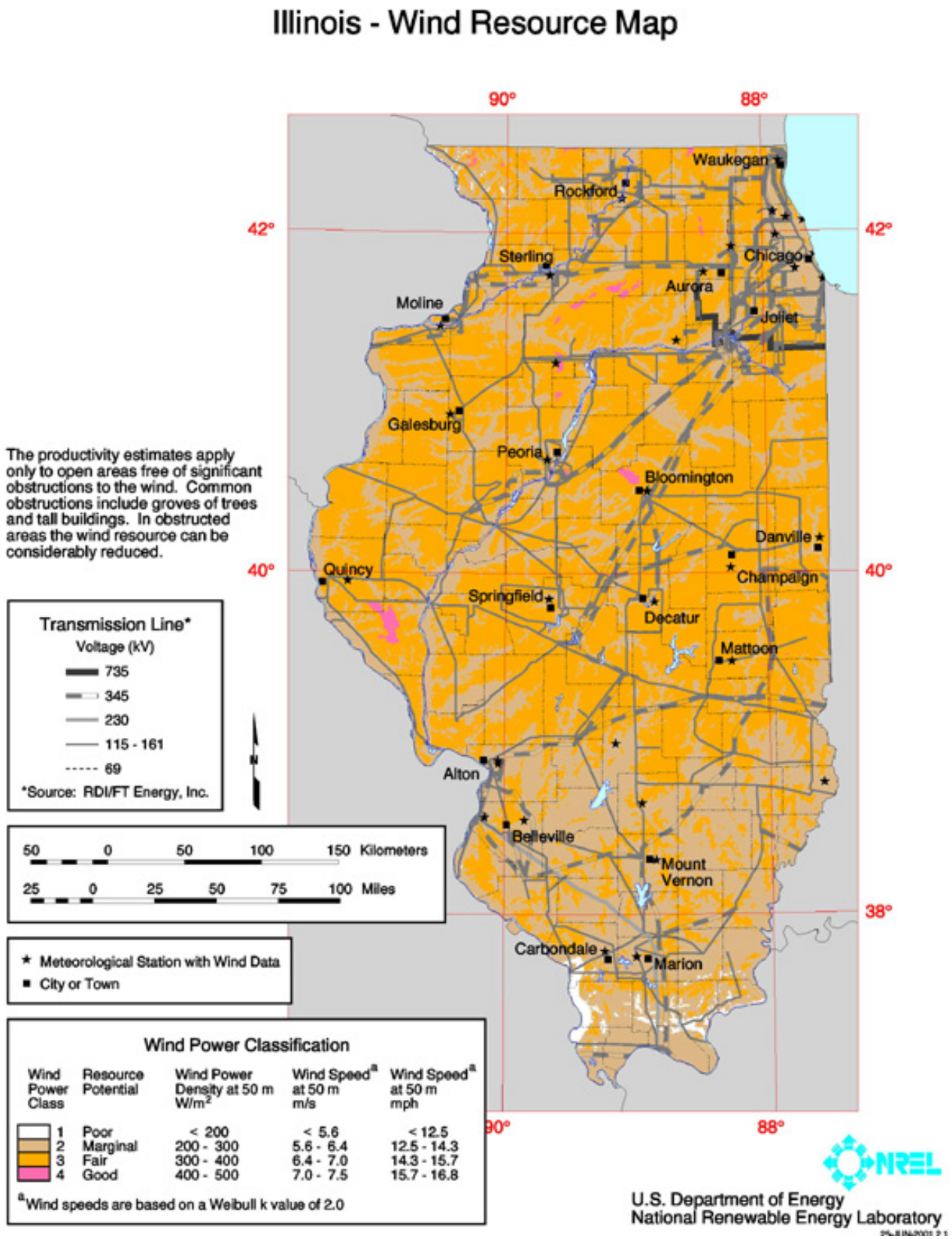
The University of Illinois at Urbana-Champaign generated a study showing that while Illinois has a desirable amount of solar radiation for energy production (134-180 kilowatt hours per square meter of array per year), the cost of photovoltaic production, technology for battery capacity, as well as currently subsidized energy costs, makes this form of energy production cost prohibitive in east-central Illinois. Consumer cost reflects this as solar energy costs approximately 50 cents per kilowatt hour where standard technologies cost around 11 cents per kilowatt hour, but are rising. Large scale solar energy facilities could help offset more expensive power production such as peak power facilities and distributed power generation facilities (*Evaluation of the Potential for Photovoltaic Power Generation in Illinois* by Angus Rockett, Illinois State Water Survey, 2006). Smaller scale solar systems depend on demand from users, payback rates, economic incentives and opportunities for net metering. Solar resources can also be used to reduce energy consumption through passive design techniques. Solar resources can be used to produce hot water, heat rooms, and provide lighting without converting it to electricity.

Wind Energy

Wind power is an increasingly viable alternative for energy production, with developing technology and increased interest in renewable energy. Many areas in Illinois have already undertaken wind farm projects with more being proposed annually. Much of Piatt County is rated as having fair potential for wind energy and all counties have a major transmission line through which energy can be sold and supplied to distribution companies. Costs are competitive in today's wholesale market, making the demand for wind turbines increase exponentially. Waiting lists are long for wind turbine production and small scale operations are often ignored for larger, more profitable endeavors. Smaller scale wind turbines are available for potential residential or small commercial use, but height restrictions and wind speeds can limit the viability of this resource. Piatt County adopted a wind farm ordinance in 2009.

The United States Department of Energy (USDOE) published maps that estimate the potential wind power resource throughout the State of Illinois. Map 5-4 is the USDOE Illinois Wind Resource Map. The USDOE wind power resource maps reflect data about estimated wind speeds at 50 meters above ground and distance to transmission lines. Five prime wind zones were established in Illinois; a small area stretches through the northeast corner of Piatt County while others are located near Bloomington and Mattoon. The majority of Piatt County was rated as Fair, having an average wind speed of 14.3 - 15.7 mph.

Map 5-4: Wind Resource Potential



Plans for Infrastructure

This section establishes goals, objectives and strategies for the future conditions of Piatt County's infrastructure. Recommendations in this chapter are intended to provide tools for community improvement and for strengthening Piatt County's economic base. Provision of infrastructure can be complicated in terms of responsibility for providing it, prioritizing construction and improvement, and ensuring that it adequately serves the existing and potential population.

Issues

Piatt County residents indicated a variety of issues related to infrastructure during the public input opportunities afforded by the planning process.

- Residents perceive poor drainage on rural secondary roads.
- Funding is lacking for infrastructure improvements.
- Residents perceive an eroding tax base in conjunction with increased demand for services.

Best Management Practices

There are several factors that should be considered in light of current known best planning practices for infrastructure. The following can be considered when implementing the plan.

- Economic development programs
  State and regional economic development programs can help fund infrastructure projects. These initiatives come in the form of both loans and grants. Planning and project prioritization services are also available at the regional and state levels.
- Aquifer protection
  Although central Illinois has considerable aquifer resources, they cannot be assumed to be infinite. As new development occurs in Piatt County, especially for industries that might need a significant amount of groundwater resources, the aquifers need to be considered for both present and future populations.
- Environmental awareness
  There are a variety of tools that Piatt County can use to ensure that its quality environment will continue well into the future. Some tools are also effective in mitigating existing issues; for example, use of permeable surface materials can improve drainage and mitigate erosion while also being friendlier to the environment.

Goals and Objectives

Goal 1: In support of the land use and development goals, new urban and rural development should be supported with adequate water and wastewater facilities.

Objective 1.1: For municipalities that provide water or wastewater facilities; require that new developments connect to those facilities.

Objective 1.2: Review current County guidelines for on-site waste disposal systems in unincorporated areas of the County for effectiveness in ground water aquifer protection.

Objective 1.3: Consider possible use of alternative rural waste water disposal systems such as land treatment technologies.

Objective 1.4: Ensure that there is sufficient infrastructure available for the needs of new and expanding industries.

Goal 2: Support managing County solid waste in accordance with the following action hierarchy: prevent, reduce, reuse, recycle, waste to energy, incinerate, and landfill.

Objective 2.1: Update the county's solid waste management plan as needed.

Objective 2.2: Continue to seek grants to further the County's recycling, conservation, and education efforts.

Objective 2.3: Identify and establish County programs which provide education and identify agencies, services and vendors which support the action hierarchy for solid waste handling and disposal.

Goal 3: Ensure a supply of high-quality water, including conservation measures, to support the county's population, economy and natural systems.

Objective 3.1: Utilize design solutions that reduce the amount of impervious surfaces.

Objective 3.2: Support programs that raise public awareness about countywide water supply and storm water issues.

Objective 3.3: Develop standards which encourage increased use of native landscaping through demonstration projects.

Objective 3.4: Work with institutions and organizations to better communicate the importance of water and other natural resources to the public.

Objective 3.5: Encourage cooperation between communities and water suppliers to ensure adequacy of intake, treatment, and distribution of the public water supply.

Goal 4: Encourage efforts between public agencies (state and local) and technology providers.

Goal 5: Piatt County will have a drainage system that withstands a 10 year storm.

Objective 5.1: Create and implement a countywide Storm Water Management and Erosion Control ordinance.

Objective 5.2: Require that the management of storm water discharge meets standards that will ensure there will not be adverse impacts on agriculture, or on the quality of potable public surface water supplies.

Objective 5.3: Create a countywide Hazard Mitigation Plan in order to be eligible for state hazard mitigation funding.

Goal 6: Piatt County will seek to be fiscally responsible by optimizing use of existing infrastructure before replacing or expanding its infrastructure system.

Objective 6.1: Create and update an inventory, maintenance and capital improvement plan for all infrastructure systems in Piatt County.

Objective 6.2: New developments needing additional infrastructure will work with the County to determine an equitable distribution of related costs.

Future Conditions

With the Future Land Use Map and knowledge of needed infrastructure projects, Piatt County can prioritize these projects at the county level and seek funding for them based on population affected, potential for economic investment, and other factors.

Water

In general, Piatt County residents are supplied with public water via municipal wells. Some municipalities are in need of more storage capacity, updated facilities, and/or new lines. In order to attract more of an economic base to the County, municipalities and areas designated on the Future Land Use Map as suitable for industry and commerce will need to update their water storage capacities and related infrastructure. Given the current information collected during the planning process, this is especially true for the villages of Cerro Gordo, Cisco, Deland, and Mansfield.

Drainage

Piatt County's significant problems with drainage during heavy storms need to be mitigated for safety as well as reducing maintenance costs for affected roads and land. In twenty years, the county at minimum should have a plan that identifies problem drainage areas, cost estimates, and needs prioritization. Funding should be actively and continuously sought to mitigate these issues.

Sanitary Sewers

Public sanitary sewer systems exist in Atwood, Bement, Cerro Gordo, Hammond and Monticello. There are no current plans to provide service in Cisco, Deland, and Mansfield. Like water systems, Piatt County's future economy depends on having adequate sewer infrastructure.

The alternative to sanitary sewers is onsite wastewater disposal systems, or septic systems. Cisco, Deland and Mansfield depend on these for their sanitary needs. These systems can pose significant health and environmental issues if they stop functioning properly. These municipalities and unincorporated areas of the County should set the goal of having public sanitary sewer systems as soon as possible to mitigate these concerns.

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