
Introduction:

Blue Earth County is located in South Central Minnesota, approximately 70 miles south southwest of the Minneapolis - St. Paul metropolitan area. The County's only natural physical boundary is the Minnesota River which flows along its northern border. The land area of the County is approximately 752 square miles or roughly 481,000 acres. Much of the County's land is used for the production of agricultural crops, especially corn and soybeans, and is the location for many livestock operations. Blue Earth County had an estimated 1997 population of 54,261, with the City of Mankato containing 31,388 of these residents. A more detailed look at demographic trends can be found further back in this document.

Blue Earth County officials initiated this planning process because of growth pressures, changing technologies in the agricultural field, new transportation corridors, and the desire to amend regulatory ordinances. In addition, the County's Land Use Plan was twenty two (22) years old and no longer provided guiding direction for making the needed changes.

The planning process began with the formation of a Technical Resources Committee. This committee was made up of a variety of County Department heads, staff representatives, and City of Mankato planning staff members whose purpose was to provide input for the County's planning staff regarding their concerns about land use or other issues that may not be directly related to land use but may be impacted by land use goals or policies. During this same time period, County staff conducted a field study of existing land use throughout the County. The existing land use maps in the 1975 Land Use Plan were updated to include all changes that occurred during the intervening 22 years. Changes were printed in a different color so that land use trends could be easily understood.

After the initial meeting with the Technical Resources Committee, a series of six (6) regional information meetings were scheduled around the County. The six meetings were held in:

- ◆ the City of Mapleton;
- ◆ the City of St. Clair;
- ◆ the City of Lake Crystal;
- ◆ the City of Amboy;
- ◆ the City of Madison Lake; and
- ◆ the City of Mankato.

Following the regional meetings, the results were shared with the Technical Committee. Summaries of the input from the Technical Committee and the regional information gathering sessions was shared with the Blue Earth County Planning Commission. Goal setting sessions were then conducted with the Planning Commission using the public input and staff generated research as a guide.

Physical Characteristics:

Please refer to the County's soil survey, the Comprehensive Water Plan, a copy of the 1975 Land Use Plan, or the County's Geologic Atlas for more detailed information regarding the County's geology, soils, water resources, or other physical resources. The following narrative was copied, with some editing, from the 1975 Land Use Plan.

Geology:

The physical characteristics of Blue Earth County and its surrounding region are a result of the interaction of a number of geologic and climatic factors. Of these, the fourth and final glacier era, the Wisconsin Glacial Stage and particularly the Mankato Substage, is perhaps the most important. As a result of this glaciation, the County is covered with an unconsolidated surface mantle. Rock formations of the Pre-Cambrian, Cambrian, Ordovician, and Cretaceous Systems are encountered in various parts of the County. This is typical of the area as evidenced by similar formations in adjoining Counties.

Although the underlying bedrock has an influence on the topography and indirectly upon the agricultural economy, the depth of the unconsolidated surface mantle is most significant. In general, the mantle is composed of lake silt, stream alluvium and glacial drift. It varies in thickness from 100 to 150 feet in the Southeast to more than 200 feet in the northwestern corner of the County where several morainic belts parallel the Watonwan River. The mantle reaches a depth of 250 to 300 feet in a narrow belt extending from Mankato to the east. This belt is believed to represent a pre-glacial or interglacial channel of the Minnesota River or one of its tributaries. A ponding of glacial waters at the great bend of the Minnesota River led to the deposition of two to three feet of fine lake silt over the glacial till. The standing body of water was known as glacial Lake Minnesota. The duration of this ponded condition was not sufficiently long for definite shoreline features to be developed though.

Topography:

The topography and physical characteristics of Blue Earth County have extensive variety. The major part of the County is an elevated plain, draining northward through tributaries of the Minnesota River that converge toward the City of Mankato. There they break the continuity of the plain with rather sharp, deep valleys, of which the valleys of the Blue Earth and LeSueur Rivers are typical. Most of the plain lies between 1,000 and 1,100 feet above sea level. Except for the major valleys, the surface is flat to gently rolling and marked by numerous broad, shallow depressions with poorly drained marshes. The larger streams area characterized by a series of terraces. At Mankato and northward, for example, the quarry district is located on such a terrace, while the City of Mankato itself lies on a low alluvial terrace.

When examining a topographic map of Blue Earth County, the presence of two main physiographic zones become obvious:

- ◆ the floodplain which is located primarily along the Minnesota River, where it forms the northern boundary of the County. In addition, extensive floodplains also exist in the Mankato vicinity. Although there are many rivers and streams within the County, their associated valleys are quite narrow with very steep bluffs and consequently very little floodplain; and
- ◆ the upland plain occupies the major portion of the County and is composed of the surface mantle. The plain is dissected by numerous streams and rivers but is comprised of flat to gently rolling topography. This is due to the relative immaturity of the rivers. While there is a relatively good supply of water in the mantle, the very large supplies are found in the strata below the surface layer. These supplies are sufficiently adequate for industry and residential development.

Surface and Subsurface Waters and Drainage:

The County's principal waters are public and are a major government responsibility. These waters are greatly affected by private land use activities. As a result of this private land use pattern, residential and agricultural, pollution from these uses enter public waters. The Land Use Plan combined with County regulatory ordinances strive to eliminate, or at least minimize negative impacts from, pollution causing land uses.

Most of the County lies within the Blue Earth River Watershed, the headwaters of which are in northern Iowa. The Blue Earth River and its tributaries flow in a northerly direction, forming a dendritic drainage pattern converging near the south bend of the Minnesota River contributing an appreciable amount to its volume. The rivers and streams included in the drainage system are listed below:

Blue Earth River	Rice Creek
LeSueur River	Willow Creek
Maple River	Perch Creek
Cobb River	Minneopa Creek
Little Cobb River	Morgan Creek
Watonwan River	Little Cottonwood

These waterways are significant topographic features of the County in that they form valleys with precipitous tree covered slopes thus providing scenic beauty valued by many. The relief of several valleys is more than 100 feet and along the Minnesota River, west of the City of Mankato, the bluffs average 200 feet above the riverbed.

High stream flows usually occur in the Spring which generally retreat within short periods of time. The extreme depth of the valleys prevents massive damage during flash floods caused by rapid runoff. Rapid runoff does contribute a great deal to the flood flows of the Minnesota River, however. Low flows occur during late summer, autumn, and midwinter as the streams in the headwaters of the Minnesota River generally have very low or no flow at all. In the lower part of

the watershed there is a continuous stream flow due to the groundwater recharge from springs which issue from the bluffs along the stream valleys.

The upland plain is utilized for extensive agricultural activities. There are areas in the upland plain that are poorly drained, dotted with swamplands and lakes.

Blue Earth County has within its borders approximately 19,000 acres of lake waters of varying depth, area, and quality. The location of these water bodies are generally concentrated in the eastern and northwestern quadrants of the County. The several lakes in the northeast section of the County are part of the extensive prairie Lake Region of southern Minnesota. Ballantyne, Duck, Madison, and Eagle Lakes are important water areas of northeastern Blue Earth County, while Lily, Crystal, and Loom Lakes are important water areas that are located in the northwest. Rapidan Lake, located in the northcentral part of the County, is a man made reservoir that was formed by the Rapidan Dam on the Blue Earth River. Lura and Minnesota Lakes are large bodies of water extending southward out of the County into Faribault County.

Climate:

The Blue Earth County area has one of the most favorable climates in the world for growing crops. The summers are quite warm and the maximum rainfalls occur in the spring and early summer when the crops require it most. Late summer and autumn are generally dry, contributing to the maturation and easy harvesting of crops.

To speak of average temperatures is somewhat meaningless, but to point out that the temperature can drop to -37° F or hit peaks of 108° F, is possibly one of the most pertinent facts of temperature in the County. The affects from this wide range in temperatures impact primarily construction activities, vegetation, and wildlife. The mean annual temperature is 46° F, with July being the warmest month averaging 72° F, and January being the coldest month averaging 16° F.

Other pertinent climatic conditions of Blue Earth County are as follows:

◆ Average annual rainfall	28 inches
◆ Average snowfall	35 inches
◆ Average relative humidity	70%
◆ Average annual temperature range	118°
◆ Average period between killing frosts	140 days
◆ Average annual wind velocity	9.6 mph

Wind direction and intensity should be considered for proper placement of land uses which produce offensive odors or excessive smoke or dust. This simply means that during the planning stage, thought should be given to the location of uses, such as feedlots and certain industries, in relation to the population and public facilities.

Vegetation:

The bulk of the vegetation in Blue Earth County is related to agricultural production. Most of the County's land area is either cultivated or used for pasture. Much of the pastureland is in areas of the original prairie vegetation, however, this is modified to some extent in some of the low areas and in some of the stream beds where a swampy type grassland occurs.

There is only a small percentage of the land covered by trees. These wooded areas cover approximately 15,000 acres, a significant decline from the nearly 35,000 wooded acres that existed in 1950. Wooded lands are generally found along the rivers and stream, are found throughout the numerous ravine areas, around the lakes, surrounding farmsteads, and within communities. These areas contain fine stands of mature timber which contributes to the scenic beauty of the County, contributes to recreational potential, and provides valuable wildlife habitat.

As a part of the background mapping process for the Land Use Plan done in 1975, significant vegetation maps were created for each Township in the County. The maps illustrate areas in which the more extensive forested regions of the County were found. Please refer to a copy of that plan for this data.

Soils:

Land use planning is directly related to the grade and condition of soils, and soils have a direct bearing on the recommendations to be advanced for a given area. Water table levels, percolation rates, load bearing capacities, permeability, surface drainage, and flooding potential are all factors which must be considered when delineating future land uses and selecting appropriate sites for intensive development.

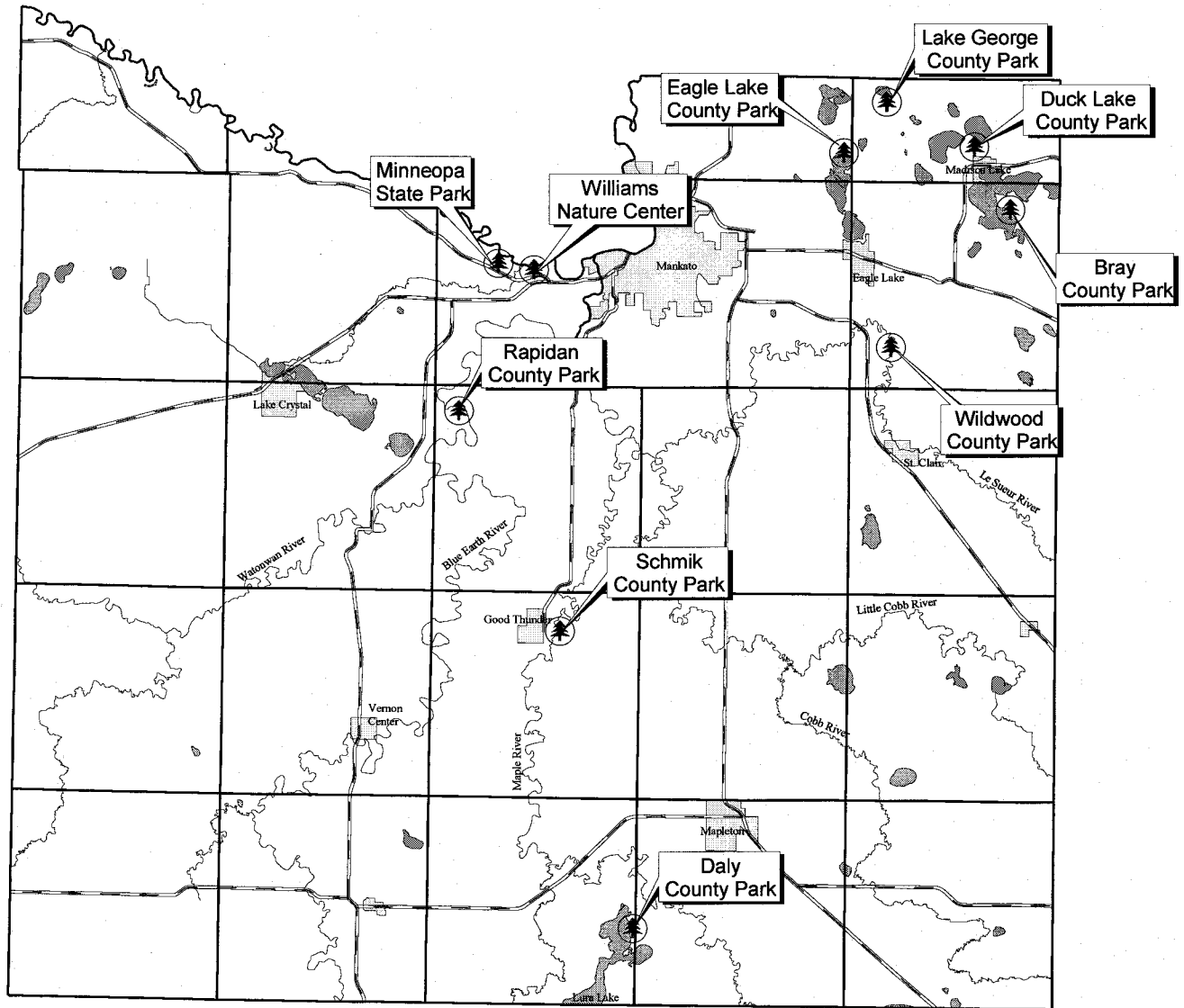
Soils are of vital importance in maintaining the agricultural economy of Blue Earth County. It is necessary to locate areas where soils conditions present problems for a specific type of land use and where soils and these land uses will be compatible. As part of the background mapping process for the 1975 Plan, detailed soils maps by Township were created and inserted into the Plan. Please refer to this plan for a general soils overview or, for a more comprehensive soils analysis, the Soils Survey compiled by the Soil Conservation Service.







Parks and Recreation:

The Blue Earth County Public Works Department has assumed the responsibility for formulating the County's overall park plan. The project's objectives will include making an analysis of existing facilities thereby illustrating areas in which the County's facilities are found to be insufficient. As a result of these efforts, recommendations for County actions will be made and timelines will be assigned. Once the study has been completed and adopted, the resulting park and recreation plan will become a part of this land use plan.

In the meantime, the updated Blue Earth County Comprehensive Water Plan does contain an analysis of water based recreational lands. Four separate objectives and 12 action steps were adopted to strengthen and build upon the existing recreational lands in the County. A copy of the County map showing the location of park facilities is found on the following page.

County and State Parks



-  Park
-  Township
-  State or U.S. Highway
-  Stream
-  Lake
-  Municipality

