

**SECTION 3
LAND USE PROFILE & PLAN**

INTRODUCTION

The amount and types of land uses influence current and future conditions in rural areas. The variety of land uses is the result of many influences, both human and natural. Existing land uses in Kearney County are the result of factors influenced by individuals, roads, highways, economic activities, public and private agencies, commercial and industrial enterprises and the physical landscape. An examination of land use requires an understanding of the physical setting in which the use activities have developed and are continuing to develop. In order to understand the land use situation in the County, it is necessary to understand the existing land use patterns and the potential limiting factors which could influence future development.

The land use chapter of the Kearney County Comprehensive Plan details existing and future land use conditions and development of land throughout the County and the Villages of Norman and Heartwell.

GOALS AND POLICIES

Goal 1 - Provide opportunities for development in an orderly, efficient and environmentally sound manner.

Policies:

- 1.1 Ensure that all areas for future development in rural Kearney County, as well as the Villages of Norman and Heartwell, are equipped with adequate, modern utility systems.
- 1.2 Avoid developments that could result in the contamination of soils and ground water resources.
- 1.3 Limit future developments to locations that are relatively free of environmental constraints relating to soils, slope, flood plain, drainage, ground water, endangered species or other natural resources.
- 1.4 Establish a regulation process to allow for livestock/confinement facilities in appropriate areas, via a special use permit process.

goals and policies continued.....

Goal 2 - Establish and maintain land use development patterns and densities in rural Kearney County, as well as the Villages of Norman and Heartwell, that conform to uniform planning standards.

Policies:

- 2.1 Maintain and follow a general land use plan for the

County and the Villages of Norman and Heartwell, which is based upon present conditions and the sound

forecast of future needs.

- 2.2 Maintain a County land use plan that limits development of livestock/confinement facilities and operations from areas with sensitive soils conditions. Regions along the Platte River, as well as the Sand Creek area to the north and southeast of the Village of Norman contain the highest concentration of sensitive soils conditions and flood prone areas.
- 2.3 Preserve and protect the irrigated and dryland crop production areas for continued agricultural uses. Groundwater protection and preservation of agricultural land uses should be emphasized.
- 2.4 Insure that adequate open and recreational space is maintained in the County and each community. Emphasize recreational opportunities associated with the Platte River corridor, as well as the existing state park/recreation and wildlife areas.
- 2.5 Develop zoning and other policies/regulations that will provide incentives for maintenance of agricultural lands for traditional agricultural uses.

Goal 3 - Encourage compatible adjacent land uses throughout the County and the Villages of Norman and Heartwell, through regulations suited to the unique characteristics and location of each use.

Policies:

- 3.1 Establish a annual review and modification process of zoning districts and regulations to encourage both development and redevelopment activities.
- 3.2 Facilitate the orderly development of residential uses that are environmentally sound, with regard to topography and soils capacity.
- 3.3 Support the planned development of non-farm residential structures in rural areas within the planning jurisdictions of incorporated communities.
- 3.4 Encourage industrial and commercial development within and/or adjacent to the communities of Kearney County or in areas allowing for compatible land uses and adequate access to transportation systems and utilities.

Goal 4 - Work cooperatively with federal, state and adjoining county governments to develop compatible flood control measures.

Policies:

- 4.1 Develop and enforce state and local regulations protecting the environment from contamination or pollutants.
- 4.2 Require all developments to be consistent with requirements set forth for flood prone areas.
- 4.3 Review and identify measures which limit or reduce flood hazards, control water run-off and enhance the quality of surface and ground water.

Goal 5 - Provide opportunities and incentives for development that will encourage economic stability and strengthen the overall tax base in the County.

Policies:

- 5.1 Encourage the development of local businesses, when appropriate, at strategic locations along County highway corridors and adjacent to hard surfaced roads. **(5/4/04)**

- 5.2 Identify land uses to promote and complement the existing state recreation and state wildlife management areas.

LOCATION

Kearney County is located in south-central Nebraska, adjacent the Platte River and Interstate 80 Corridors at the northern boundary of the County. Minden, Nebraska is the County Seat of Kearney, County, which is located in the center of the County. Primary road networks in Kearney County include U.S. Highway 6/34, and State Highways 10, 44 and 74. The County has a total land area of approximately 327,680 acres, or 512 square miles. Major waterways include the Platte and Little Blue River which generally flow west to east. These rivers and their tributaries have sculptured the terrain of Kearney County, creating the Platte River valley at the north and gently undulating Loess Plains in the southern two-thirds of this south-central Nebraska county.

There are seven communities in Kearney County; the City of Minden, the villages of Axtell, Heartwell, Norman and Wilcox and the unincorporated communities of Keene and Lowell.

CLIMATE

The climate of Kearney County is continental and characterized by widely ranging seasonal temperatures and rapidly changing weather patterns. The temperature ranges from an average daily minimum of 12.1° F in January and maximum of 89.6° F in July. The average annual precipitation is 24.3 inches. The majority of rainfall occurs between the months of April and September. Average seasonal snowfall is 24.6 inches.

THE NATURAL ENVIRONMENT

Two topographic regions are included in Kearney County. Over two-thirds of the County is comprised of the “plains” topographic region primarily in the south portions. The northern portion of the County is comprised of the “valley” topographic region of Nebraska adjacent and south of the Platte River. Soils are used for irrigated and dry cropland, pasture and rangeland.

Soils

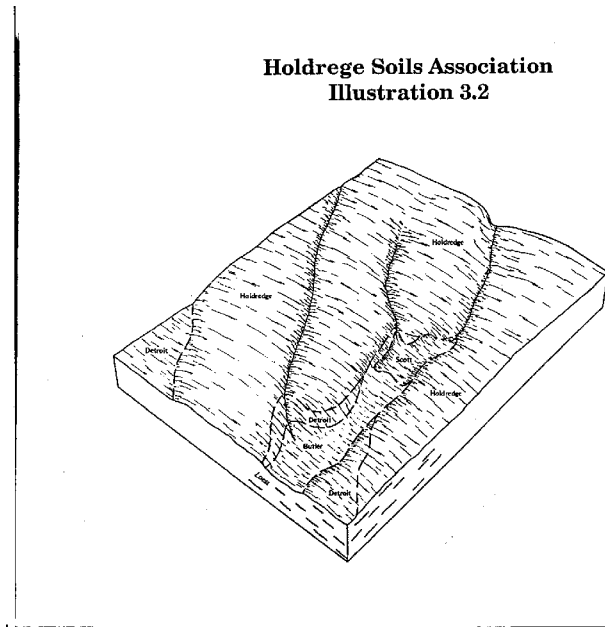
The Soil Conservation Services has identified six soils associations in the Soil Survey of Kearney County. These include: Holdrege, Kenesaw-Coly, Valentine, Alda-Wann-Boel, Simeon and the Coly-Uly-Holdrege Soil Associations.

Illustration 3.1 identifies the location of soils associations in Kearney County. The map identifies soil types that are conducive for certain types of development. The following narrative describes the general characteristics of the six soil types. For a detailed analysis, refer to the Soil Survey of Kearney County, Nebraska.

**ILLUSTRATION 3.1
GENERAL SOIL**

Holdrege Association

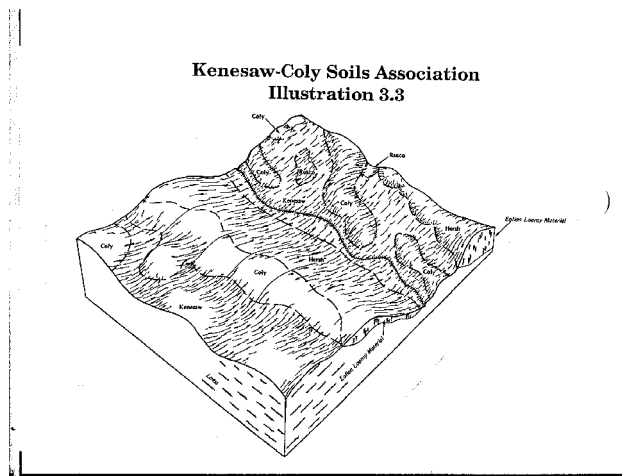
The **Holdrege Association** is located in high concentrations in the southwest and south-central portions of Kearney County. This Association is characterized as *“deep, nearly level to gently sloping, well drained, silty soils formed in loess; on uplands.”* The Holdrege Association comprises about 72 percent of the County. Irrigated croplands are the predominate agricultural uses in this association. Ample supplies of ground water and canals support irrigation, except for the extreme southeast portion of the County where wells produce less water.



Limitations of the Holdrege Association soils are moderate to high shrink swell potential which impact the foundation of structures and moderate seepage limitations impacting septic tank absorption fields and sewage lagoons. These limitations can be reduced by strengthening the structural condition of underground footings and foundation walls.

Kenesaw-Coly Association

The **Kenesaw-Coly Association** is located in the loess uplands above the Platte River Valley and along the eastern portion of the County. The Association is described as *"deep, nearly level to moderately steep, well drained and somewhat excessively drained, silty soils formed in loess; on uplands."* This Association occupies approximately 23 percent of the total County area. Kenesaw soils comprise 51 percent of the Association, while Coly soils occupy 40 percent and minor soils the remaining 9 percent. Approximately half of the cultivated areas of the Kenesaw-Coly Association are irrigated. Rolling hills comprised of Coly soils limit irrigation. Water for irrigation is obtained from both wells and canals. Water and wind erosion are hazards on gently sloping to moderately steep slopes.

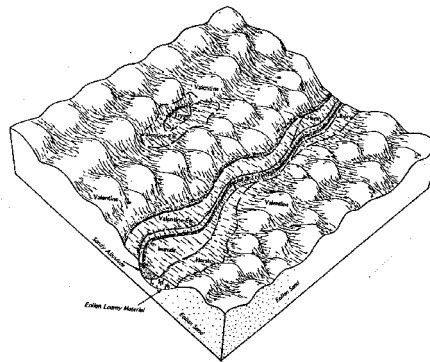


Kenesaw soils have moderate to severe limitations due to sloping topography which may require the reinforcing of footings and foundations, as well as construction techniques for sewage lagoons and septic tank absorption fields.

Valentine Association

The **Valentine Association** is generally located on gently sloping uplands above the Platte River bottom lands and along the Sand Creek, to the north and southeast of the Village of Norman. Valentine soils comprise just 14 percent of Kearney County. If cultivated, moderately steep slopes of these soils are highly susceptible to erosion. Grass and rangeland comprise more than 70 percent of this Association. The soils in much of this Association are poorly suited to irrigated crops because of low fertility, low available water capacity, and a severe soil-blowing hazard. The soils are characterized as "*deep, nearly level to rolling, excessively drained, sandy soils formed in eolian sand; on uplands.*" Irrigation in approximately 30 percent of this Association has overcome poor dryland crop production.

Valentine Soils Association
Illustration 3.4



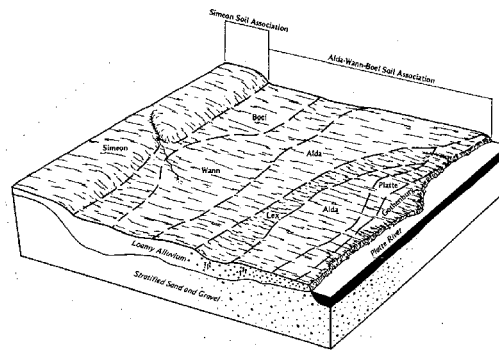
Moderate limitations impact this Association for construction of buildings due to slope. Severe limitations for sewer lagoons and septic tank absorption fields exist due to rapid permeability and poor filtering quality of these soils may result in ground water contamination.

Alda-Wann-Boel Association

The **Alda-Wann-Boel Association** is comprised of the river and creek bottoms, low terraces and foot slopes of the Platte River. Soils of this Association are described as *“nearly level, somewhat poorly drained, loamy alluvial soils that are moderately deep or deep over sand and gravel; on bottom lands.”* Approximately 12 percent of the Kearney County land area is comprised of this Association. All soils of this Association are on the bottom lands of the Platte River. Soils of this Association are highly productive, easily tilled and most of their acreage is cultivated.

Alda-Wann-Boel and Simeon Soils Associations Illustration 3.5

Alda-Wann-Boel and Simeon Soils Associations
Illustration 3.5



Major constraints of this Association is that a large portion of its area is within flood prone areas of the Platte River. Depths to the underground water table range between one to three feet. Areas impacted by these conditions are not suitable for development. Severe conditions related to seepage, wetness and flooding make sewage lagoons and septic tank absorption fields hazardous to ground water quality. Dwellings or buildings would be impacted by high ground water levels and the need for fill material to raise ground floor levels above flood elevations.

Simeon Association

The **Simeon Association** is located in the limited areas on stream terraces just above the bottom lands of the Platte River. Soils of this Association are characterized as “*deep, nearly level and very gently sloping, excessively drained, loamy soils formed in sandy and loamy alluvium; on stream terraces.*” More than half of this Association has been developed for irrigation, but Simeon soils are poorly suited to irrigated crops. Rapid permeability of these soils create severe limitations for septic tank absorption fields and sewage lagoons. Good bearing capacity however, supports the construction of buildings.

Coly-Uly-Holdrege Association

The **Coly-Uly-Holdrege Association** is located adjacent creek and streams in central and southeastern Kearney County. This Association consists of soils along upland drainageways and is described as “*deep, nearly level to moderately steep, well drained and somewhat excessively drained, silty soils formed in loess; on uplands.*” Coly-Uly-Holdrege soils comprise only 3 percent of the total County area. Coly soils make up 30 percent of the Association, while 25 percent include Uly soils, 23 percent include Holdrege and 22 percent minor soils. The nearly level to strongly sloping soils are used for both rangeland and cultivated crops. Cultivated areas are mainly dryland crops, while a few areas are irrigated. Yields are low on Coly soils.

Steep slopes and the shrink-swell potential of these soils types impact development with moderate to severe limitations for construction of buildings and septic tank absorption fields and sewage lagoons.

WATERSHEDS

The topography and terrain of Kearney County is varied. Erosion by the Platte and Little Blue Rivers and associated tributaries have modified the topography. The topography of Kearney County is generally comprised of “plains” in the southern portion of the County. The valley of the Platte River is broad, and the terraces consist of flats that have silty soils. Drainage in the County is to three main river basins: the Platte River, Republican River and the Little Blue River. The western, northern and central portions of the County drain to the Platte River. A small portion of southwest Kearney County drains south to the Republican River via Thompson Creek. Southeastern and east-central areas of the County drain to the Little Blue River.

GROUNDWATER

Surface drainage and streams account for a small percentage of the Kearney County water resources. The majority of the water is in an underground aquifer. Groundwater is of good quality, although rated “hard” or very hard. The underground water supply for the County is part of an aquifer which flows across the majority of the state. Groundwater levels have remained stable in Kearney County. The depth of water ranges from 3 to 300 feet with some rural wells depths approaching 200 feet. The surface water in drainage ways and depressions seeps into the aquifer to recharge it, thus the surface and ground water are part of one interactive system which can not be separated.

The communities of Axtell, Minden and Wilcox are the participating towns in the Wellhead Protection program. Those public entities whose well fields extend past the village or city extra-jurisdictional boundary and into the Kearney County planning jurisdiction shall be consulted before any development occurs which might adversely affect their water supply. The well field should be protected from possible industrial and commercial contaminants, but must be monitored and protected from agricultural contaminants. Coordination with the NDEQ and involvement in the WHP Program is beneficial for the protection of the Kearney county Water Supply. A zoning permit applied for in this area will be required to be accompanied by a statement from the public entity.

**RURAL EXISTING
LAND USE ANALYSIS**

Kearney County contains approximately 327,680 acres of land area. **Existing land uses** in Kearney County are identified in **Illustration 3.6**. Current land uses types, such as residential, commercial, industrial, park and recreation and public/quasi-public, are illustrated.

Rural Land Use

Rural residential land use is located throughout the County. The County is densely populated. There are an estimated 791 houses in rural Kearney County, including the unincorporated communities of Keene and Lowell, as well as rural subdivision areas. Housing is limited to single family or mobile homes in rural Kearney County. Soil conditions and a lack of rural roads have resulted in Platte River Valley terraces area, a 3-mile wide band of land just two miles south of the area. Likewise, portions of east-central Kearney County area similarly less developed, as well as in "pockets" throughout the County.

size of farms

Agriculture has historically been the primary focus of the Kearney County economy and its communities. Statistics released by the Nebraska Department of Labor and the Nebraska Census of Agriculture, however, indicate that the Kearney County economy is becoming more diversified. The number of non-farm employment positions between 1987 and 1997 remained stable. Decreases in the number of total farms in Kearney County during the same period, 1987 to 1997, of 116 farms suggest a slight shift in the Kearney County economy. Farms have also increased in size; ie., an additional 17 farms of 1,000 acres or more were identified between 1987 and 1997, which equates to a 19.5 percent increase. **Farm size** is further detailed in **Table 3.1**. Throughout the 10 year period of 1987 to 1997, the only farm size categories to increase were 50 to 179 acres and the 1,000 acres or more.

**TABLE 3.1
FARMS BY SIZE
KEARNEY COUNTY, NEBRASKA
1987-1997**

<u>Size</u>	<u>1987</u>	<u>1992</u>	<u>1997</u>	<u>% Change 1987 -1992</u>	<u>% Change 1987-1997</u>
1-9 acres	33	30	18	-9.1%	-45.5%
10-49 acres	36	19	33	-47.2%	-8.3%
50-179 acres	81	77	87	-4.9%	+7.4%
180-499 acres	202	125	96	-38.1%	-52.5%
500-999 acres	169	157	154	-7.1%	-8.9%
<u>1,000+ acres</u>	<u>87</u>	<u>94</u>	<u>104</u>	<u>+8.0%</u>	<u>+19.5%</u>
Total	608	502	492	-17.4%	-19.1%

Source: Nebraska Census of Agriculture, 1997
Hanna:Keelan Associates, P.C., 2000

**EXISTING LAND USE MAP
ILLUSTRATION 3.6**

map page

crop production

Farms in Kearney County are decreasing in number at a rate that is generally larger than the number of farms that are consolidating into ever larger farms. Statistics from the Nebraska Census of Agriculture show that the total acres of **cropland** decreased by 6.2 percent or by 17,899 acres between 1987 and 1997, see **Table 3.2**. Total cropland accounted for 86.8 percent of the total 327,680 acres in Kearney County in 1987, compared to 81.4 percent in 1997. Irrigated cropland amounted to 151,985 acres in 1987 (46.4 percent of the total Kearney County area) and increased to 188,959 acres, or 57.7 percent of the County, as of 1997. Non-irrigated cropland during the 10-year period decreased by 54,873 acres, while irrigated cropland increased by 36,974 acres.

**TABLE 3.2
STATUS OF CROP PRODUCTION
KEARNEY COUNTY, NEBRASKA
1987-1997**

	<u>Number of Acres</u>					
	<u>1987</u>		<u>1992</u>		<u>1997</u>	
	<u>Acres</u>	<u>% of Total</u>	<u>Acres</u>	<u>% of Total</u>	<u>Acres</u>	<u>% of Total</u>
Non-Irrigated land	132,485	40.4%	87,758	26.8%	77,612	23.7%
Irrigated Land	151,985	46.4%	175,815	53.7%	188,959	57.7%
Total Cropland*	284,470	86.8%	263,573	80.4%	266,571	81.4%
Total County Acres	327,680	100.0%	327,680	100.0%	327,680	100.0%

* CRP Acres are not included.

Source: Nebraska Census of Agriculture, 1997
Hanna:Keelan Associates, P.C., 2000

types of crops

Agricultural production in Kearney County has maintained a shift from acres farmed for wheat, oats and sorghum to acres used for corn and soybean production. Total acres planted in corn for grain or seed increased from 139,761 acres in 1987 to 194,528 acres in 1997, a 20.5 percent increase. Acres utilized for soybean production increased by 30.9 percent from 1987 to 1997, or by an increase of 6,634 acres. Sorghum, oats and wheat, as indicated in **Table 3.3**, each decreased significantly during the 10-year period.

**TABLE 3.3
TYPES OF CROPS
KEARNEY COUNTY, NEBRASKA
1987-1997**

	<u>Number of Acres</u>				
	<u>1987</u>	<u>1992</u>	<u>1997</u>	<u>% Change 1987-1992</u>	<u>% Change 1992-1997</u>
Corn for Grain or Seed	139,761	161,427	194,528	+15.5%	+20.5%
Corn for Silage or Green Chop	1,519	1,279	1,900	-15.8%	+48.6%
Sorghum for Grain or Seed	12,042	12,080	5,545	+0.03%	-54.1%
Wheat for Grain	21,475	20,482	11,788	-4.6%	-42.5%
Oats for Grain	221	NA	48	NA	NA
Soybeans for Beans	15,726	17,086	22,360	+8.6%	+30.9%
Hay-Alf, Other Wild, Silage	6,953	7,268	7,809	0.045	+7.4%

Source: Nebraska Census of Agriculture, 1997
Hanna:Keelan Associates, P.C., 2000

livestock production.....

Livestock production between 1987 and 1997 increased, only in cattle and calves. The total number of sheep and lambs decreased by 56.8 percent between 1987 and 1997. Milk cows decreased in number by 100.0 percent, while hogs and pigs decreased by 44.7 percent between 1987 and 1997.

**TABLE 3.4
LIVESTOCK PRODUCTION
KEARNEY COUNTY, NEBRASKA
1987-1997**

	<u>1987</u>	<u>1992</u>	<u>1997</u>	<u>% Change 1987-1992</u>	<u>% Change 1987-1997</u>
Cattle and Calves	63,018	60,009	89,855	-4.7%	+42.6%
Beef Cows	9,463	NA	9,384	NA	-0.08%
Milk Cows	108	NA	0	NA	-100.0%
Hogs and Pigs	34,689	28,039	19,188	-19.2%	-44.7%
Sheep and Lambs	1,560	694	674	-55.5%	-56.8%

Source: Nebraska Census of Agriculture, 1997
Hanna:Keelan Associates, P.C., 2000

other land uses

Commercial and industrial land uses, throughout Kearney County, are generally located within the planning jurisdictions of communities, or adjacent Highways 10, 44 and 6/34, in limited locations.

Public/quasi-public land uses such as churches and cemeteries are located throughout the County. Recreation/wildlife areas include the Fort Kearney State Historical Park and Recreational Areas, as well as numerous wildlife management areas.

As identified in **Illustration 3.6**, the most dominate land use in Kearney County is open space or agriculture. Cropland in Kearney County is located throughout the County and is predominately irrigated.

As identified in **Illustration 3.6**, public/quasi-public land use is limited to various churches, cemeteries and public utilities.

As is evident from the existing land use map, **Illustration 3.6**, topographical constraints and lack of roads have limited development in only a few areas in the northern and southeastern portions of Kearney County. Future development in Kearney County is expected to be concentrated in close proximity to each of the communities and in selected areas, as rural subdivisions. Coordination between local and County officials is imperative to insure adjacent land uses are compatible, especially within the planning jurisdiction of communities.

Villages of Heartwell and Norman

The Villages of Heartwell and Norman have consolidated their municipal planning and zoning efforts with the Kearney County Planning Commission. The land uses in these towns consists primarily of small scale industrial uses and single family dwellings, with very limited commercial uses. Existing land uses in these two communities are depicted in **Illustrations 3.7 and 3.8**.

**RURAL FUTURE
LAND USE
ANALYSIS**

The population of rural Kearney County is expected to increase slightly by 2010. Likewise, all incorporated communities within the County are expected to increase in population during the 10-year planning period, 2000 to 2010. The Kearney County Planning Commission should encourage future development to occur in close proximity to existing communities to preserve agricultural lands. Such planning practices will also allow for the efficient use of existing infrastructure features, including streets, electrical, water and sewer systems.

A generalized future land use map for Kearney County is presented in **Illustration 3.9**. Agricultural production, which currently accounts for an estimated 86 percent of the County land use, will continue to be located in the rural areas of Kearney County. The Platte River corridor is identified as an area in “transition”, where other land uses, besides agriculture, such as residential or highway commercial, could be planned and zoned accordingly, if given prior approval by consent of Kearney County officials.

**ILLUSTRATION 3.7
Village of Heartwell
EXISTING land use map**

**ILLUSTRATION 3.8
Village of Norman
existing LAND USE**

illustration 3.9

**Kearney county
FUTURE LAND USE PLAN**

Future rural residential subdivisions are planned to be located in the planning jurisdictions of communities, selected rural areas and may be proposed adjacent hard surfaced rural roads. These areas would be for small acreages.

**Kearney County
Future Land Use Plan**

Future industrial usage is encouraged to locate in close proximity to major transportation routes within the planning jurisdiction of each community or in specific rural areas such as along railroad or highway corridors. The types of industries which should be encouraged in these areas should include “light manufacturing” types, such as high tech or agriculture related industries. These types of industries are typically clean and efficient in operation and provide varied classifications of employment opportunities.

The expansion or development of new animal confinement facilities should be carefully reviewed to insure conformance with the land use goals and expectations of the County.

Future commercial land uses in Kearney County will be primarily of one type, highway commercial. Highway commercial land use should be located within the planning jurisdiction of each of the communities, and in limited instances at the junctions of major highways in rural Kearney County. Vacant land exists within these designated areas for appropriate highway commercial development. Development should be limited to commercial types capable of meeting the needs of local highway motorists. This would include such types as gasoline convenience shops, truck and freight terminals and farm implement sales and service.

Villages of Heartwell and Norman

The **agriculture conservation** areas, identified in **Illustration 3.9** designate sensitive environmental areas associated with stream ways, rivers and soils not suitable for development. General agriculture should be the only land use allowed in these areas.

The future land use in the unincorporated communities of Keene and Lowell and rural subdivision areas, will essentially remain the same during the planning period, providing, primarily, residential land uses.

The future land use types for the Villages of Heartwell and Norman should remain primarily residential, with provisions for local commercial and light industrial, as needed.

ILLUSTRATION 3.10
FUTURE LAND USE PLAN
VILLAGE OF HEARTWELL

**ILLUSTRATION 3.5
GENERALIZED FUTURE LAND USE PLAN**

VILLAGE OF NORMAN