




ENVIRONMENTAL CHARACTERISTICS

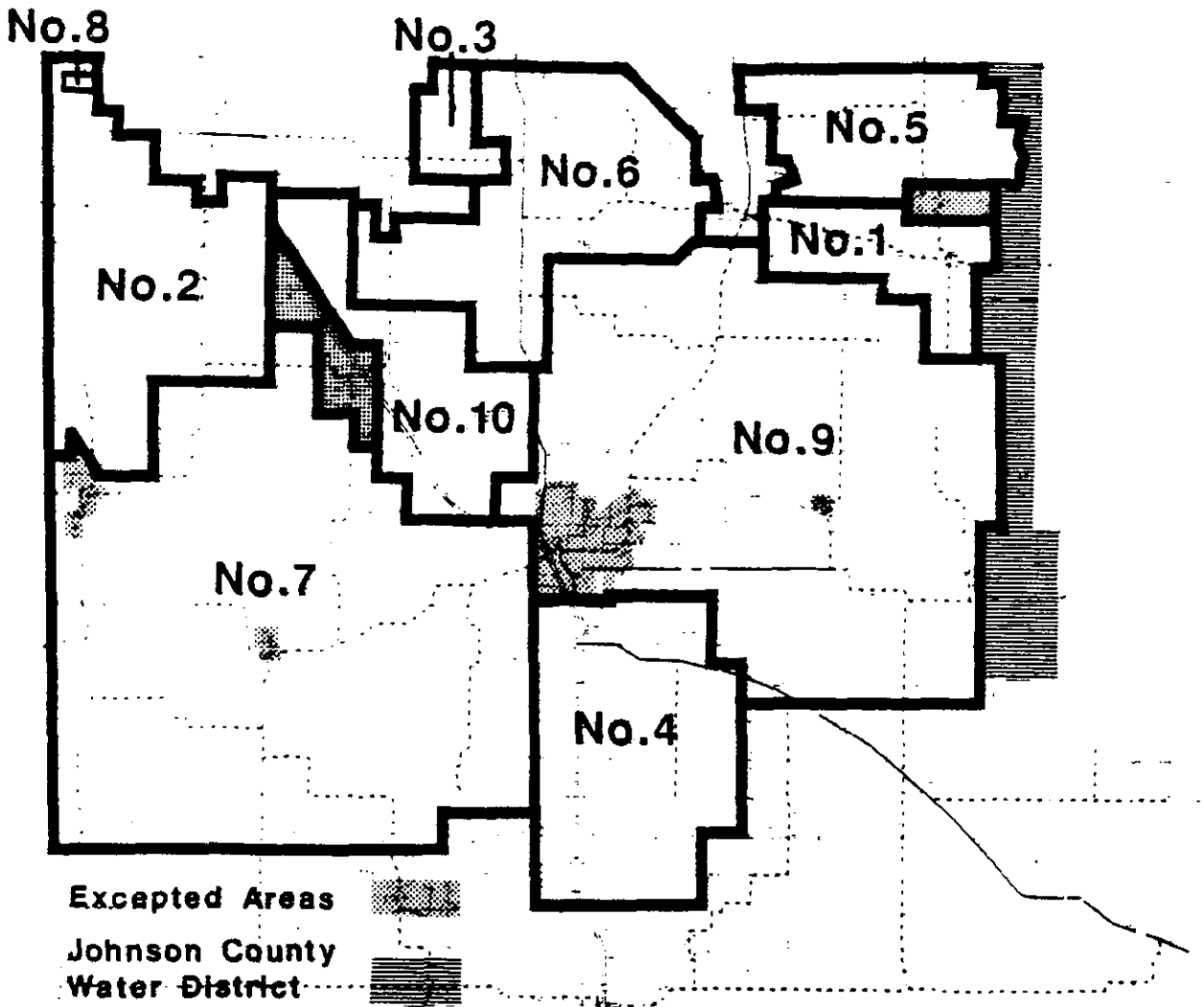
LEGEND

-  100-Year Flood Plain
-  Major Ridge Lines
-  Secondary Ridge Lines

*CHAPTER THREE
ENVIRONMENTAL CHARACTERISTICS
AND EXISTING LAND USE*

Figure 2-1

Water Districts
Cass County, Missouri
1990



Fire Protection

Fire protection is an important factor to be considered in planning for the future of a county-wide area. In addition to the obvious necessity of ensuring adequate protection and disaster assistance to all residents of the County, the adequacy of fire protection equipment and personnel has a substantial effect upon insurance costs. The cost of fire insurance is determined by the fire rating zones established by the National Board of Fire Underwriters. Insurance rates are determined through the evaluation of many criteria including water supplies (availability and pressure in the vicinity of the structure), type and age of equipment, available personnel, training, building conditions and, more importantly, in rural areas, the distance from the station to the furthest point in the district.

The district fire facilities are summarized in Table 2-1 and the boundaries illustrated in Figure 2-2.

County Sheriff

The provision of law enforcement protection is an aspect of community services which requires county-wide coordination and cooperation. Intergovernmental agreements and the joint use of facilities by the County and various cities and towns are ways of adequately providing protection to all individuals throughout the *Cass County* area.

The *Cass County Sheriff's Department* operates out of one facility which is located in Harrisonville. This facility houses the County Jail as well. The department operates 17 vehicles, one of which is a jail van; all are radio-equipped. The department has 37 employees, 14 of which are sworn officers, including the County Sheriff. The 13 Deputies which the department currently employs is the maximum allowed by law at the present time (1 Deputy per 5,000 people); however, it is likely that the 1990 census figures will indicate the need for additional manpower to adequately serve the entire County area. The department operates within the unincorporated areas of the County except when circumstances necessitate entry into the County's incorporated areas. The *Cass County Sheriff's Department* has a formal mutual aid agreement with the City of Belton in the event that either of the parties should need to supplement its forces within its own jurisdiction.

Hospitals

Cass County is served by two hospitals. Cass Medical Center is located in Harrisonville and has a capacity of 50 beds. In 1989, 3,000 square feet of outpatient clinic was renovated and an additional area for ancillary services was constructed. Belton-Research Hospital has a capacity of 75 beds and currently has no plans for expansion in the near future.

CASS COUNTY, MISSOURI

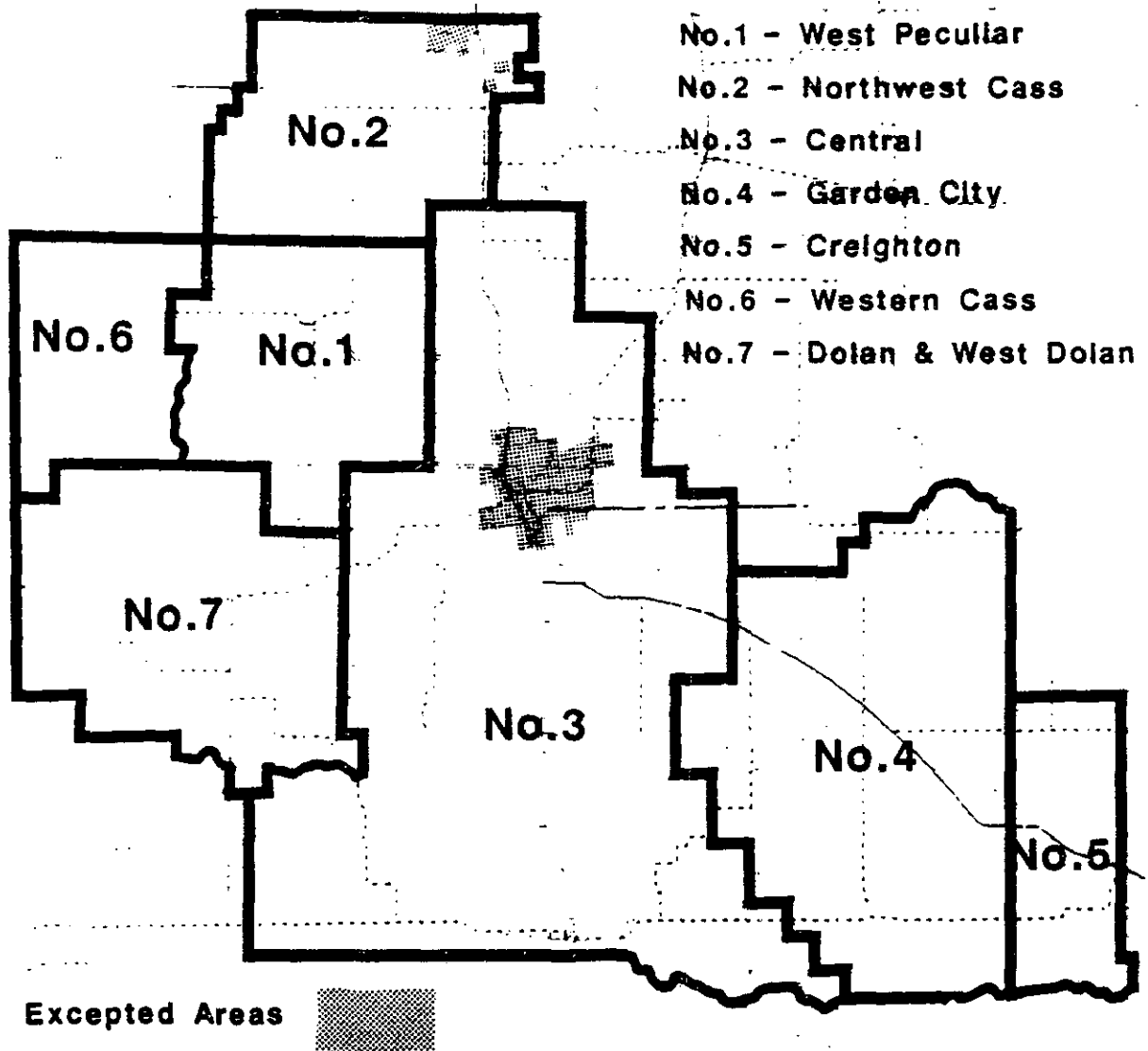
COMPREHENSIVE PLAN

TABLE 2-1
Fire District Facilities
Cass County, Missouri
1990

District	Paid Firefighters	Volunteer Firefighters	# of Trucks	Other Vehicles	Average Truck Tank Capacity	Average Pump Capacity
West Peculiar	3	25	6	1 medical vehicle	1,170 gal. 2,500 gal. maximum	582 gal/min. 1,250 gal/min. maximum
Northwest Cass	19	14	4	5	1,225 gal. 2,500 gal. maximum	1,060 gal/min. 1,250 gal/min. maximum
Central	0	42	8	0	1,900 gal. 4,500 gal. maximum	600 gal/min. 1,000 gal/min. maximum
Garden City	0	34	7	0	1,120 gal. 3,700 gal. maximum	550 gal/min. 1,000 gal/min. maximum
Creighton	-	-	3	0	980 gal. 2,000 gal. maximum	200 gal/min. 350 gal/min. maximum
Western Cass	0	22	6	2	1,480 gal. 4,300 gal. maximum	620 gal/min. 1,250 gal/min. maximum
Dolan & West Dolan	-	-	6	2	1,030 gal. 3,300 gal. maximum	300 gal/min. 1,000 gal/min. maximum

Figure 2-2

Fire Protection Districts
Cass County, Missouri
1990



CHAPTER THREE ENVIRONMENTAL CHARACTERISTICS AND EXISTING LAND USE

ENVIRONMENTAL CHARACTERISTICS

In order to make intelligent decisions regarding the location, intensity, and type of future development in *Cass County*, it is necessary to explore the possible limitations placed on urban growth by the environment. Although most developmental limitations can be overcome, the enormous additional cost in terms of both public and private investment makes this a very cost-inefficient alternative. Instead, it is preferable to encourage growth in those areas which can best accommodate urban development and discourage growth in those areas with the most severe limitations. By avoiding problem areas, the safety and convenience of the public can be increased and the public and private costs associated with development can be minimized.

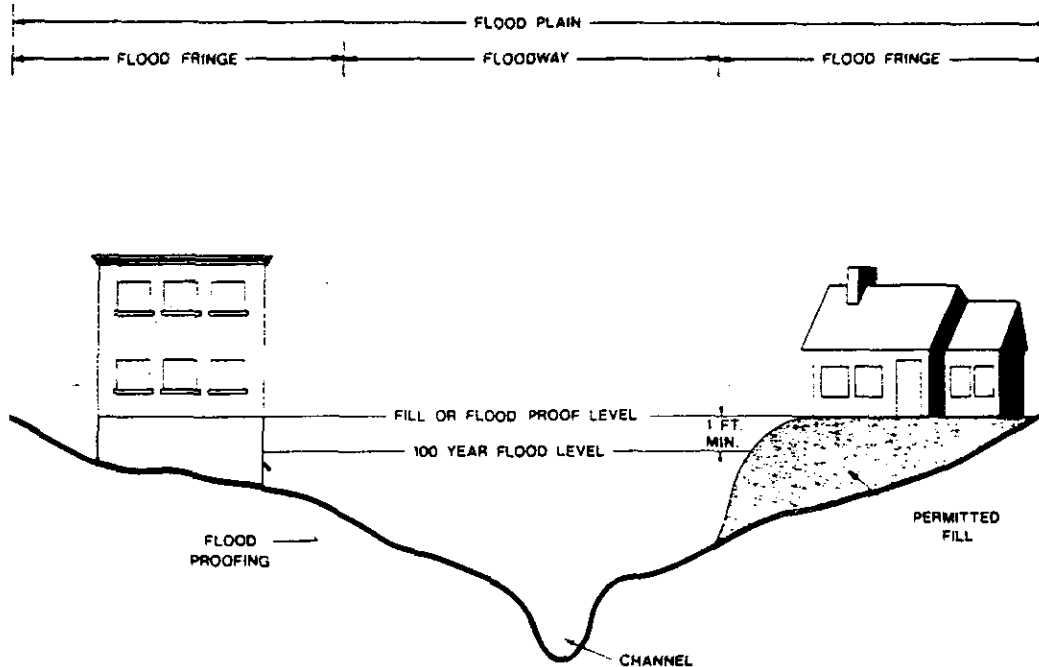
This section will elaborate on the physical and environmental characteristics most relevant to development in *Cass County*.

Flooding

One of the most obvious and potentially most destructive environmental limitations to development is flooding and, consequently, is an extremely important issue in the planning process. The 100-year flood plain as defined by the Federal Emergency Management Administration (FEMA) is generally accepted as the determining area of flooding for the purposes of planning and development. Areas within the 100-year flood plain have a 1-in-100 chance of flooding in any given year. The extent of the land area which lies within the 100-year flood plains of the South Grand River and its numerous tributaries will limit the extent and location of future development within *Cass County*. The flood plain is the land that would be inundated with flood water after a 100-year flood and consists of two sections: the floodway and the flood fringe. The floodway includes the center of the channel of a creek, stream or river and that area which carries the majority of the flood waters. Under no conditions is construction permitted in the floodway. The flood fringe extends from the floodway to the outer edge of the flood plain. While it is preferable that urban development not occur in the flood plain altogether, development can occur in the flood fringe. Construction in the flood fringe must be at least one foot above the 100-year flood level and development within the flood fringe cannot increase the floodway 100-year flood elevation by a cumulative total increase of one foot or more. It is generally recommended that if any development is permitted in the flood fringe, it be confined to low density, non-residential uses. The relationship between the flood plain, floodway, and the flood fringe is illustrated in Figure 3-1.

Figure 3-1

Flood Plain Profile



Drainage Patterns

Drainage patterns within the County have implications for development and must be illustrated and discussed within the planning process. The availability of utilities, access to a sanitary sewerage system, in particular, significantly affects patterns of growth. To be cost-effective, a sanitary sewerage system should be gravity flow and drainage basins, therefore, become a key consideration in planning for the future of the area. The major drainage basins in *Cass County* have been designated on the *Environmental Characteristics Map*.

Two major drainage basins or watersheds in *Cass County* are formed by the ridgeline which runs continuously from the northwest to the southeast corners of the County passing through the east portion of Harrisonville. The area to the south of this ridge, approximately two-thirds of the County, drains into the South Grand River via its tributaries. The largest of these is the East Branch, a watershed which includes

Peculiar and parts of Harrisonville. The South Grand River flows toward the southeast and forms the County's southern boundary from just east of Archie to the Henry County line. The river eventually empties into the Harry S. Truman Reservoir just west of Clinton, Missouri. The area to the north of the County's major ridgeline drains into Big Creek, Crawford Creek and Camp Branch, all of which eventually empty into the South Grand River further to the south and east, outside of the County's boundaries.

EXISTING LAND USE

This section examines the pattern of existing land uses in *Cass County*. The inventory of existing land uses describes both the amount of land in each land use category and the distribution of uses across the County. Before the future land use pattern of *Cass County* can be determined, it is necessary to have a full understanding of the existing land use pattern. The location and character of existing uses will have an obvious impact on the location and character of future uses.

Land Use Survey

A field survey of the existing land uses in *Cass County* was conducted by Bucher, Willis & Ratliff in December of 1989. The land use inventory is a current identification of the uses of land throughout the study area. Land use classifications are as follows:

1. Residential
 - a. Single-Family Dwellings
 - b. Two-Family Dwellings
 - c. Multi-Family Dwellings
 - d. Mobile Homes
 - e. Mobile Home Farms
 - f. Farmsteads
2. Commercial
3. Public and Semi-Public
4. Industrial
5. Parks and Recreation
6. Highways and Streets
7. Railroads
8. Agricultural or Vacant

These categories can be defined in the following manner:

1. Residential: That land which is occupied by one or more dwelling units, including accessory buildings, the primary use being for sheltering individuals, families, or groups of persons. Examples: single-family residences, duplexes, apartments, mobile homes, mobile home farms, farmsteads and nursing homes. Farmsteads are considered as houses occupied by residents who are engaged principally in the farming of surrounding properties. Suburban acreages are not considered as farmsteads.
2. Commercial: That land occupied by buildings or merchandise, the primary purpose of the land being a location for the wholesale or retail sale of goods and services. Examples: grocery stores, clothing, car sales and service, farm equipment sales.
3. Public and Semi-Public: Land or buildings occupied by agencies of the government or by religious, educational or civic groups, excluding lands used for recreational purposes. Examples: schools, churches, cemeteries, city buildings, fire stations.
4. Industrial: That land occupied by buildings, materials or equipment, the primary use being for storage, transportation, or manufacturing of a product. Examples: manufacturing, construction yards, heavy equipment or material storage, warehousing.
5. Parks and Recreation: Land used for both active and passive recreational activities.
6. Highways and Streets: Rights-of-way for highways, streets and alleys opened for use as public thoroughfares.
7. Railroads: Land for railroad rights-of-way, train storage, switching, and freight and passenger depots.
8. Agricultural or Vacant: Land on which none of the above uses are performed.

The results of the survey are presented in both graphic form as a map and tabular form as acreage calculations. The land use inventory is not a plan, but rather a portion of the necessary data which comprises a plan. To keep the plan current, this inventory should also be kept current. This can be accomplished by periodic² land

²It is recommended that new building permits be recorded annually.

use surveys, or by updating the map and adjusting the inventory calculations as new building permits are issued, or as tax records are changed. By keeping the land use data current, the County can always assess where it is in relation to its development objectives and goals as outlined in following chapters of the Comprehensive Plan.

Land Use Survey Results

Table 3-1 displays a summary of existing land uses within *Cass County*. Overall, 21,512 acres of the County's total land area has been developed in some way. This represents 5% of the County's total land area of 429,555 acres or 671 square miles. This figure does not include the approximately 32,115 acres or 50 square miles of incorporated area within the County. The largest of the 18 separate incorporated areas is the City of Raymore with 8,722 acres followed by Belton with 8,706 acres, Harrisonville, 5,207 acres and Pleasant Hill, 2,507 acres (Table 3-2).

The results of the land use survey show that, in terms of acreage, the County's predominant land use is agricultural. Despite the fact that *Cass County* includes large areas of suburban concentrations, 95% of the total land area is either agricultural or vacant. The next most extensive use of the land is that amount, 2% of the total land area, reserved for the County's system of roads and highways. Two large areas, 4,370 acres of Missouri Conservation and Wildlife Areas in southern *Cass County* comprise 1% of the total land area. The rest of the land uses combined represent less than 3% of the total land area.

Residential

The County's predominant residential use is the farmstead. This use occupies 4,004 acres or 18 percent of the County's total developed land area. The percentage of farmsteads far exceeds those of any of the other residential uses; however, a substantial suburban pattern of growth extending southward from the Belton-Raymore area and around Harrisonville may threaten agricultural operations. While residential farms are widely scattered throughout the County, concentrations of this use occur in the northwest corner around Belton and Raymore and the area surrounding Harrisonville.

Mobile homes and mobile home farms are both numerous and widely scattered throughout the County representing 3 percent of the developed land area. A significant concentration of mobile homes was located several miles south of Belton.

The only multi-family housing was located in the area south of Belton.

TABLE 3-1
Existing Land Use
Land Use Survey
Cass County, Missouri
1989

Land Use Category	Land Area** (Acres)	Percent of Developed Land	Percent of Total Land Area	Acres per 100 Persons*
Residential				
Single-Family	983	4.5	.23	1.6
Two-Family	5	.02	.001	.008
Multi-Family	108	.5	.03	.18
Mobile Home	455	2.1	.10	.74
Farmstead	3,999	18.3	.93	6.5
Mobile Home Farm	219	1.0	.05	.36
Commercial	350	1.6	.08	.57
Industrial	734	3.4	.17	1.2
Public and Semi-Public	620	2.8	.14	1.0
Parks and Recreation	4,370	20.3	1.0	7.1
Roads/Highways	9,322	43.3	2.2	15.2
Railroad	<u>656</u>	<u>3.0</u>	<u>.15</u>	<u>1.1</u>
Total Developed Land (Acres)	21,821	100.0	5.1	35.6
Vacant and Agricultural	<u>407,734</u>	<u>---</u>	<u>94.9</u>	<u>664.0</u>
Total Land Area (Acres)	429,555	—	100.0	699.6

Source: Bucher, Willis & Ratliff, 1989 Field Survey

Note: * Cass County Population, 61,400, 1988 Census Bureau Estimate

** In calculating the number of acres for each land use, it was assumed that each unit of single-family, two-family, mobile home, farmstead, and mobile home farm use occupies one acre of land. Commercial and public uses were calculated in the same manner except in the case of large continuous areas of either of these uses in which case the area was measured from the land use survey map. All industrial uses were measured. Roads and highways were calculated using the following average right-of-way widths: County Roads, 50'; State and U.S. Highways, 100'; U.S. 71 Highway, 300'; Railroads, 50'.

TABLE 3-2
Incorporated Land Areas
Cass County, Missouri

Incorporated Area	Land Area (Acres)	Percent of County Total Land Area
Archie	667	.16
Baldwin Park	85	.02
Belton	8,706	2.0
Cleveland	934	.22
Creighton	183	.04
Drexel (Partial)	535	.12
East Lynne	214	.05
Freeman	273	.06
Garden City	918	.21
Gunn City	68	.02
Harrisonville	5,207	1.2
Kansas City (Partial)	694	.16
Lake Annette	216	.05
Lake Winnebago	1,377	.32
Lee's Summit (Partial)	668	.16
Peculiar	848	.20
Pleasant Hill	2,507	.58
Raymore	8,722	2.0
Strasburg	170	.04
West Line	<u>74</u>	<u>.02</u>
Total Incorporated Area	33,066	7.5

Commercial

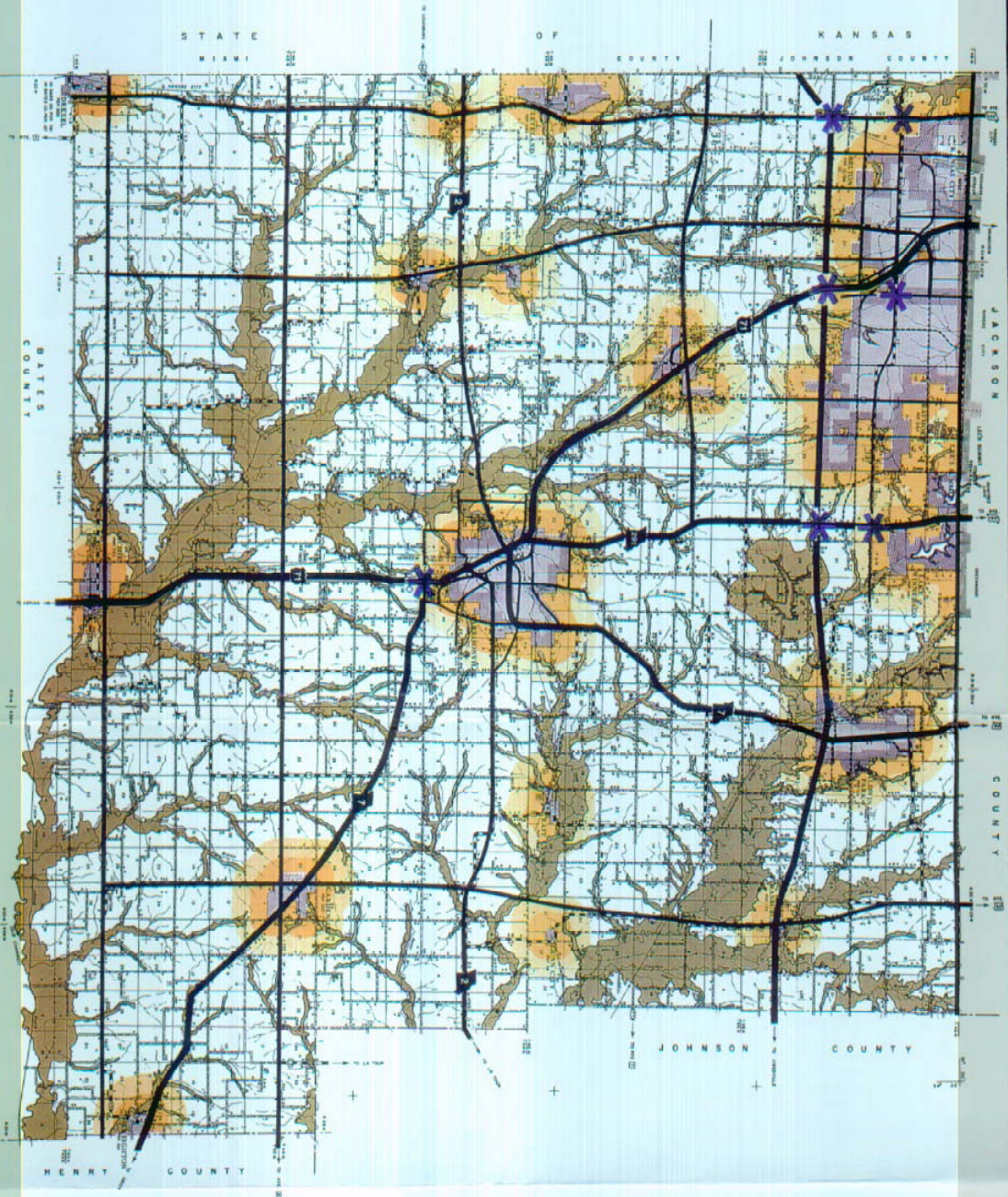
Commercial uses are, predictably, concentrated in the Belton-Raymore area and around the major highway corridors, specifically U.S. 71 Highway, Highway 291, Highway 7 and Highway 2. The largest concentration of commercial uses occurs south of Harrisonville in the area surrounding the intersection of Highway 2 and U.S. Highway 71. A significant number of commercial operations scattered throughout the County and outside of the highway corridors are located in association with either single-family residences or farmsteads.

Industrial

The amount of industrial land is small. Slightly more than 3% of the developed land area was classified as industrial. This industrial land is a combination of manufacturing uses as well as oil and gas storage and quarry operations.










Park and Recreation Land

The Missouri Department of Conservation maintains two large areas of land in southern *Cass County*. Settle's Ford Wildlife Area, part of which is located in Bates County, occupies approximately 3,489 acres in *Cass County* and Amargia Highlands Wildlife Management Area occupies 881 acres northwest of Archie, Missouri.



FUTURE LAND USE

LEGEND

-  Urban Area Reserve
-  Primary Residential Development Area
-  Secondary Residential Development Area
-  Future Commercial Node
-  Open Space / Resource Protection Area
-  Major Arterials
-  Minor Arterials
-  Urban Area Major Arterials
-  Urban Area Minor Arterials

