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EXECUTIVE SUMMARY

Marion County, Kansas has established and maintained a planning and zoning program for land use regulation. The County has done a good job defining land use issues in context of a Marion County "Community." The county now seeks to influence land use development—in the public interest—by preserving its strengths and implementing new community objectives:

- Balancing property rights with community rights;
- Defining and preserving a "Sense of Place" in Marion County;
- Accommodating development while implementing new planning policies; and
- Applying new development review standards to meet newly defined land use policies.

The county has the opportunity to build on its strengths as it manages land use change. Growth is encouraged near the small cities within the "Areas of Urban Influence." When urban development is approved outside the cities, it will be reviewed based on new planning standards.

The values of Marion County—for example, the preservation of a "sense of place", or the protection of a farmer's right to farm—can be enhanced by the plan. The timing and phasing of growth can be paced through the planning process. The way growth "fits" into the county—the appearance, the preservation of open space and farmland—can be influenced, as well. The Comprehensive Plan calls for the county to regulate growth in the unincorporated areas based on standards organized in a new Land Evaluation and Site Assessment (LESA) system. LESA provides a rational process for assisting local officials in making farmland conversion decisions through the local zoning process:

- Land Evaluation - an evaluation of soil properties and their relative desirability for agricultural use; and
- Site Assessment - an assessment of other factors relating to the site that should be considered before farmland is converted to other uses, such as local capacity to serve urban growth.

The evaluation system assesses each factor for the county to make choices about land development:

- Maintenance of land for agricultural use, or
- Conversion of land to other uses.

Also of importance to development in Marion County is the timing and phasing of growth so that limited financial resources can support the dual demands: maintaining what is here now, balanced with extending services in response to growth. A key recommendation of the plan is to establish a Capital Improvements Program (CIP) that ranks projects in phases by five-year periods.

The county seeks to coordinate with the area cities when regulating extraterritorial land uses near the cities. The county plan is recommending joint ventures with the cities in order to apply building codes in rural areas. The county needs the support of the cities in order to adopt and enforce building codes that would apply to non-agricultural buildings. Strengthening established communities is a major challenge for Marion County. The cities and the County should continue coordinating in order to attract urban development to the "Areas of Urban Influence."

Finally, the plan calls for initiatives that must be taken by many groups and not just the county government. "Policy Steps" are detailed for the entire Marion County community. The development objectives, for example, are challenges for the entire community. Better coordination among public and private groups, including developers and the Army Corps of Engineers, will support local values articulated in the plan.

The plan calls for new rules and new ways of administering them. It can be implemented only through cooperation with other public entities and private sector support.

How to Use This Document

The Marion County Comprehensive Plan creates a process for applying new public policies to development review.

For Review of Zoning Map Amendment Applications:

- Compare the application to the Goals, Objective, and Policy Steps of Chapter 3.
- Evaluate proposals relative to the planning principles of Chapter 4.
- Apply the LESA program criteria of Chapter 5.

For Review of Development Proposals:

- Utilize the Site Plan Review procedures and standards.
- Apply the LESA program criteria of Chapter 5.

For Plan Implementation:

- Amend the county zoning regulations to incorporate site planning standards and procedures into the regulations.
- Adopt subdivision regulations to address cluster zoning, plat requirements and related site planning standards.
- Present the plan to the cities of Marion County to build support for joint ventures, such as a countywide code enforcement administration and related cooperative efforts.

CHAPTER 1 - EXISTING CONDITIONS

COUNTY DESCRIPTION

Marion County was established in the mid-1860s, and was named in honor of General Francis Marion of the Revolutionary War. Government surveyors directed the first settlers to the junction of Muddy Creek, Clear Creek and the Cottonwood River; one saying goes "The Best Place I've Seen". The first settlers arrived in 1860 and made their first camp at the location of the present Central Park. The present County boundaries were defined in 1875. The City of Marion, the County Seat, was founded in 1875 during the time Chicago Rock Island and Santa Fe Railroads were being constructed through the County. Historical trails through Marion County are the Santa Fe Trail, the Kaw Trail, and the Chisholm Trail.

According to the US Census Bureau, an estimated 13,544 people lived in Marion County in 1999. The 1990 census population number was 12,888. Marion County is therefore a slow growing county adding on an average about 65 people a year. The Kansas Water Office projects it to grow by about 1,420 people in the next 40 years.

The County's rural landscape dotted with farm ponds

The 1997 Census of Agriculture by the United States Department of Agriculture reported there was a four-percent decrease in number of acres farmed in Marion County from 588,061 acres in 1992 to 562,926 acres in 1997. The total number of farms also decreased from 1006 farms in 1992 to 968 in 1997. Farms $10-50,000 showed a significant decrease in numbers from 382 in 1992 to 319 in 1997.

LAND USE PATTERNS

Agriculture constitutes the primary land usage in the County. The two major lakes are also major contributors to the countryside and the economy in Marion County. Marion Reservoir is located on US56, 3 miles west and 1 mile north of the City of Marion, whereas, the Marion County Lake is located on US 256, about 1 mile east and 1.5 miles south from the City of Marion.

About 74% of the population in Marion County lives within incorporated areas. The major cities within the County are Hillsboro, Marion and Peabody and they together contain about 48% of the population in the county. The other smaller cities are Burns, Durham, Florence, Goessel, Lehigh, Lincolnville, Lost Springs, Ramona and Tampa.

The County is well served by U.S. and State highways that function as major thoroughfares for movement within the county. U.S. 50/56 and State Routes 150 and 256 are the major East-West connectors while State Highway 15 and U.S. 77 form the major North-South connectors.

Three major railroad companies also serve the county. The Southern Pacific follows the historic Santa Fe Trail and crosses the Cities of Durham, Tampa and Lost Springs. The Union Pacific crosses Lost Springs, Lincolnville, Marion and Peabody. The Atchison, Topeka and Santa Fe crosses the Cities of Florence and Peabody.

New York Times September 3, 2000
Editorial Observer/Verlyn Klinkenborg

ATTRACTING NEW IMMIGRANTS TO THE HEARTLAND

Iowa isn't a crowded place. In 1960, the state population was 2,757,537 and still slowly climbing, as it has been all century, until it reached a peak of just less than three million people in 1980.

Yet things haven't been as static in Iowa as these figures suggest. The way that Iowa isn't crowded has changed. The number of third graders has plummeted, and the population as a whole has gotten older. The percentage of the population over 80 is larger in Iowa than in any other state. Iowa is the only state besides Florida with more people over 75 than under 5.

That is one of the reasons the state—which has nearly always experienced annual net migration losses—wants to encourage immigration. Without immigration, the state's labor force will steadily dwindle. The only reason Iowa's population has not fallen further is because of immigrants who have come from Mexico, Vietnam, Bosnia and elsewhere. The greatest demand for labor comes from industries like meatpacking.

The population problem in Iowa isn't merely that its residents are getting old and its young people are leaving. The problem is tied directly to the character of agriculture in the state. In 1960 there were 174,707 farms in Iowa, down from a peak of around 215,000 in 1930. Last year there were about 96,000 farms, though the amount of farmland in cultivation had barely changed. There are 15 million hogs in Iowa, but they are raised on less than half the number of farms than just a decade ago.

It can be hard to grasp the implication of a shift that large. Think of a farm, for a moment, not as a tract of land or so many acres of corn and soybeans. Think of a farm instead as a constellation of people, each of whom has ties to a local community—to churches and schools, to banks and farm-implement dealers, to coops and Lions Clubs. In 1960, small towns were thriving not on the prosperity of town residents alone but on the prosperity—and the population—of farms in the adjoining countryside.

Now half of those farms are gone, their groves cut down, their houses bulldozed, their constellations of people dispersed. Year by year, the size of farms increases and their work force diminishes. The towns are very quiet, except the ones lucky enough to hear the roar of enormous grain driers at the elevator out by the

railroad tracks. School districts have consolidated, and small-town business is just a ghost of itself. It is not uncommon to come across a sense of disinheritance among Iowans, especially those living in small towns. The bond that tied them to the farmland around them—a bond that was social as well as economic—has to a striking degree been severed. There is no one on the farms, and the towns (in Iowa) have no one to serve except their aging residents.

Farm prices are as low as they have ever been, and farmers now pray for emergency funding from Congress the way they pray for rain. One of the indisputable results of large-scale corporate farming in Iowa has been the depopulation of the countryside. An agricultural job in Iowa is now a meatpacking job, highly dangerous, badly paid and emblematic of an approach to farming that will serve Iowa's new immigrants as badly as it has served its longtime residents.

Residential Land

The farm and non-farm residential structures in Marion County are located on parcels of land primarily adjacent to incorporated municipalities and highway corridors. Many people perceive the countryside as a safer, cleaner, cheaper, and more rewarding place to live, compared to the congestion, crime, and high property taxes of cities and the monotony and rising taxes of the suburbs.

Capacity of the County to Serve Growth

What are the implications for small communities of Marion County if urban development is allowed to spread across the countryside? Rural advocates seek to sustain the vitality of economic activities in communities "beyond the fringe."

The impact of rural residential development must be examined in terms of the cumulative effects over time. Initially, a house here and a house there does not seem to place a large burden on the environment or local services; nor does it appear to cause major conflicts with farm neighbors. But over time, the scatter of houses can add up to sewage disposal and water quality problems, as well as with conflicts between farm operators and rural newcomers.

Rural roads and bridges need millions of dollars in investment. Telecommunication links to remote towns need to be upgraded to compete with urban centers. Electricity must be available at rates that won't price rural businesses out of competition. Many newcomers to the countryside want their own septic and well systems and do not want to pay monthly utility bills.

The major dilemma stems from the fact that, per capita, the cost of physical and human infrastructures is highest in sparsely populated areas and considerably higher than the costs in "outlying growth towns." For rural economic vitality, the mostly rural counties need more state-backed investment. But the State of Kansas Department of Commerce and Housing recently funded only one regional resort lake investment - Clinton Lake in Douglas County - over lakes in more rural areas, such as the Marion Reservoir and Marion Lake.

Capacity of Urban Centers to Serve Growth

The cities of Burns, Durham, Florence, Goessel, Hillsboro, Lehigh, Lincolnville, Lost Springs, Marion Peabody, Ramona and Tampa were approached for input on their service capacity and their ability to serve growth.

Burns
Not expected to serve urban expansion, but are assessing capacity to serve growth on an on-going basis.

Durham
Not expected to serve urban expansion, but are assessing capacity to serve growth on an on-going basis.

Florence
Expected to serve urban growth.

Goessel
Expected to serve urban growth.

Hillsboro

Hillsboro has a designated "Area of Urban Influence" where growth is projected at the urban fringe. The latest comprehensive plan for the city of Hillsboro was adopted in 1992 and was last reviewed in 2000. Their last zoning amendments and review took place in 1999. The city is currently working on a capital improvement plan to guide future development. The city has been mostly proactive in incorporating urban land outside the city boundaries. In the last ten years it has annexed lands to the south, southwest and east of the city limits. In 1999 the city annexed about 75 acres to the north and west. There are however, no immediate plans for annexation. The most probable areas for annexation would be to the east.

All current city services, except power, are owned and maintained by the city. The city gets its water from the Marion Reservoir. The storage capacity of the water system is 1.5 million gallons per day. It is sufficient for current needs and is expected to increase to 2.5 million gallons per day after scheduled capacity improvements. The city's wastewater treatment plant currently has a capacity of 600,000 to 800,000 gallons per day. A partial upgrade is scheduled for the next 3 to 4 years, and a major upgrade is scheduled in the next five years. The plant currently operates at 50% capacity during average flow periods and at 70 % capacity during high flow periods. The upgrades are mostly required to comply with regulations. The city buys power from KP&L at whole prices and sells at retail. The distribution grid however is owned and operated by the city. Solid waste from Hillsboro is directly hauled to the transfer station at Marion and further transported to the Waste Management landfill near Topeka. The city also practices recycling.

The city has experienced moderate to fast growth in recent years. Five new subdivisions have been platted in the last ten years, out of which three continue to see development. The city has both heavy and light industrial parks. The light industrial park covers about one city block and the heavy covers about a quarter section and 3 city blocks. A portion of the industrial park was recently expanded.

Lehigh
Not expected to serve urban expansion, but are assessing capacity to serve growth on an on-going basis.

Lincolnville
Not expected to serve urban expansion, but are assessing capacity to serve growth on an on-going basis.

Lost Springs
Not expected to serve urban expansion, but are assessing capacity to serve growth on an on-going basis.

City of Marion

Marion has a designated "Area of Urban Influence" where growth is projected at the urban fringe. The City has recently completed a comprehensive plan due to be adopted by Spring 2001. The latest zoning ordinance was adopted in August of 1999. The city has experienced moderate to high growth in recent years. Three subdivisions were added to the City in the 2000. The City annexed about 400 acres to the north in October, 2000.

Current city services are mostly owned and maintained by the city. The water plant has a current capacity of about one million gallons per day and the capacity being used is about 81%. The wastewater plant capacity is about 540,000 gallons a day and the capacity being used is about 37%. The city also practices recycling.

The city plans to add sewer lift stations at Batt Industrial Park and if needed, additional sewer lift stations at the Light Industrial/Retail Park in the next five years. The city has both heavy and light industrial parks and they total about 100 acres. The City has a Capital Improvements Plan and intends to spend about 4.4 million dollars in the next five years (2001-2006).

Peabody

Peabody has a designated "Area of Urban Influence" where growth is projected at the urban fringe. The latest comprehensive plan for the City of Peabody was adopted in 1978. The city has experienced moderate growth in recent years. Two years ago, the City annexed about four blocks of business, to the north end of town. Most annexations are voluntary.

Current city services are mostly owned and maintained by the city. The city gets its water from the Marion Reservoir. By March, 2001 the city is scheduled to buying water from Hillsboro and that would increase the capacity to 360,000 gallons per day. The City has a wastewater treatment plant that serves the entire City within the corporate limits. The City also services an industrial park in the planning area. The City hauls its solid waste directly to the Harvey County landfill (until October 1, 2001.) The city also practices recycling.

The city has both heavy and light industrial parks. The light industrial park covers about three city blocks to the north and eight city blocks to the South. The heavy industrial park covers about one city block.

Ramona
Not expected to serve urban expansion, but are assessing capacity to serve growth on an on-going basis.

Tampa
Not expected to serve urban expansion, but are assessing capacity to serve growth on an on-going basis.

Agriculture and Urban Development

The costs to agriculture are high if urban development spreads across the country, unplanned. Local advocates of open space and prime farmland preservation are struggling to "save the last farm land." Ironically, it is the open fields and scenic farms that attract the very growth that then begins to limit the farm's capacity to remain an economically viable part of the working landscape. Ironically, too, lower taxes paid on the open land can perpetuate the belief that it is more affordable to live in the country because taxes are lower and the price of land is lower.

Though at risk from the impacts of unplanned urban development, farming also has a role to play in positive urban policy. Active farming engages large parcels of land in productive natural resource use. Both large-scale and small-scale agricultural commerce provides open space, scenic views, wildlife habitat, and a climate for passive recreation, and, if care is given, clean air and a healthy environment. Farming adds to the local economy through its productive capacity—the wealth from farm products harvested every year and the jobs created to produce them.

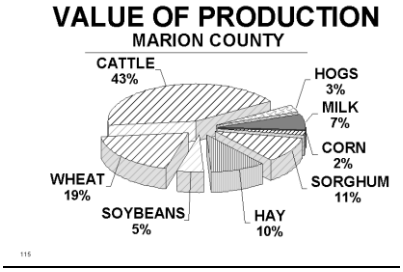
The Marion County plan defines prime farmland primarily based on soil types, as provided in Chapter Five. The economic, social and environmental conflicts surrounding prime farmland use have been studied and debated for decades in the U.S. and around the world, for example:

> Prime agricultural soils represent the highest level of agricultural productivity; they are uniquely suitable for intensive cultivation with no conservation hazards. It is extremely difficult to defend agricultural lands when their cash value can be multiplied tenfold by employment for relatively cheap housing. Yet the farm is the basic factory – the farmer is the country's best landscape gardener and maintenance work force, the custodian of much scenic beauty. Mere market values of farmlands do not reflect the long-term value or the irreplaceable nature of these living soils. An omnibus protection of all farmland is difficult to defend; but protection of the best soils in a metropolitan area would appear not only defensible, but also clearly desirable. (Ian McHarg, *Design With Nature,* 1969)

There are secondary benefits to maintaining a rural "sense of place": attracting tourists, offering hunting and fishing opportunities as well as trails for hiking. But to remain a part of the landscape, agriculture must have the freedom to farm and maintain access to the land it needs to manage properly, as well as access to goods and services, markets and market choices. In Kansas, **88%** land is farmed, which is one of the largest percentages in the United States; while **95%** of Marion County is farmland.

Figure 1.1: Agricultural Statistics Summary

The average size of farms:	
The State of Kansas: **731** acres	Marion County: **563** acres
As of 1999, Marion County currently has **1030** farms.	
Total value of field crops in Marion County in 1999 was **$ 38,858,600**	
Total value of livestock and poultry produced in Marion County in 1999 was **$ 43,740,720**	
Total land in farms in 1999 was **580,000** acres	
Average farm production in Marion County is **$ 80,194** per farm.	



Sources: United States Census Bureau,
Kansas Agriculture Statistics Service (http://www.nass.usda.gov/ks/ffacts/2000/gen.htm#aginfo)

But urban development in agricultural areas has done more than convert farmland to other uses. It has clear costs that impair the productivity and viability of the farms that remain. Today it is a rare farm that has not felt the impact of increasing population in some manner. The shift of population into more rural areas has produced multiple costs to farming that, combined, create what has been termed an "impermanence syndrome," a gradual eroding away of farming, gradual disinvestment in farming, and ultimately of farmers themselves. The costs result in limits to:

- Growth of agriculture as a key player in the economy of the future;
- Productivity and efficiency of the farms and farming; and
- Sustainability and sustainable farming practices.

Solid Waste Management Systems

Solid waste is primarily collected by private haulers with three municipalities operating collection services publicly. All vehicles are manually rear loaded. Solid waste is collected at the curb or in the alley at least once each week. Presently, solid waste from the cities of Marion, Florence, Burns, Hillsboro and from rural residences is directly hauled to the transfer station at Marion and further transported to the Waste Management landfill near Topeka. Solid waste from the towns of Ramona, Goessel, Lehigh, Durham, Lost Springs and Lincolnville also goes to the transfer station. The remainder is transported out of the County.

The County Solid Waste Management Plan was adopted in 1996 and updated on October 16, 2002. The disposal option is to transfer out of county. The Plan reported inconsistencies among the various collection,

recycling, public education, data collection and disposal techniques[1]. Since then the Implementation Committee[2] activities and efforts have focused on the following goals:

- *Yard Waste*: Continue to ban yard waste from landfills and transfer stations. Identify composting and yard waste drop-off areas. In addition, provide for the collection of yard waste for those citizens who cannot transport these materials to the designated areas.
- *Access to Composting Materials*: Encourage merchants to stock compost bins and composting equipment. Convince merchants that these products can sell and that composting is good for business.
- *Recycling and Waste Reduction*: The region has established a solid waste stream diversion of 25 percent. Ban all types of recyclables from the landfills and transfer stations. Assist existing recyclers and develop additional recycling centers, as necessary, in preparation for the inflow of recyclables.
- *Public Education*: Develop a public education program that informs citizens and community leaders why the waste reduction program is important. This program should also educate citizens on how to reduce waste and recycle.

NEOSHO RIVER BASIN

Marion County has portions of four River Basins. The Smoky Hill/Saline Basin lies to the North of Lost Springs. The City of Ramon lies in this river basin. The Southwest Corner of the County lies in the Lower Arkansas Basin. Goessel lies in this basin. The Southernmost portion of the County lies in the Walnut Basin. Burns lies in this Basin. The rest of the land in Marion County (About 90%) lies in the Neosho River Basin.

The Neosho River Basin covers approximately 6,300 square miles and encompasses all or parts of 18 counties in southeastern Kansas. The major streams in the basin are the Neosho River, and its tributary the Cottonwood River and the Spring River in the southeast portion of the basin. The Neosho and spring rivers join the Arkansas River in Oklahoma. There are three major reservoirs in the river system: Council Grove, Marion and John Redmond lakes. (See Figure 1.2)

Significant water management entities in the basin include conservation districts throughout the basin, the See-Kan, Flint Hills and Lake Region Resource Conservation and Development areas and 15 active watershed districts. By virtue of its responsibility for three major reservoirs, the U.S. Army Corps of Engineers is another important water manager in the basin.

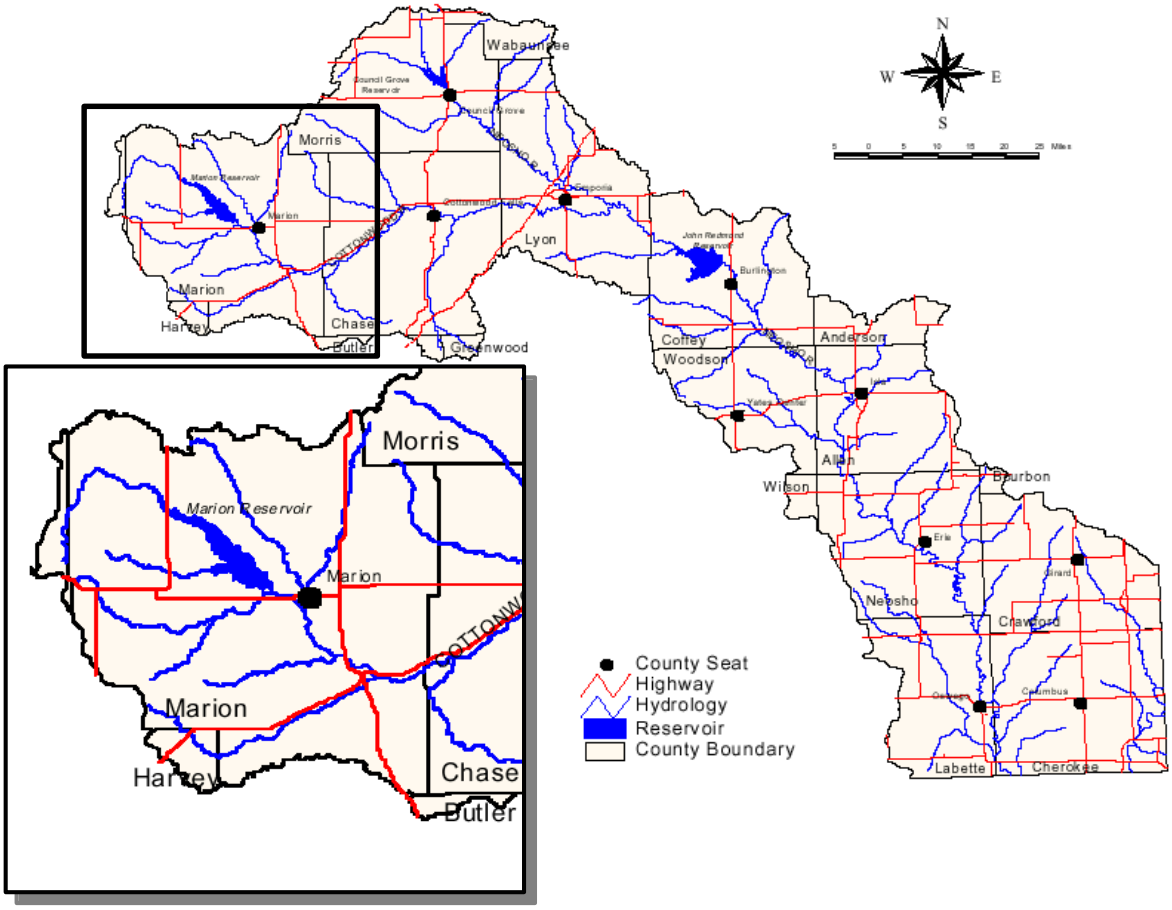
Current priority issues, objectives and goals in the basin include:

Wetland and Riparian Management
By 2010, maintain, enhance or restore priority wetlands and riparian areas.

Public Water Supply
By 2010, ensure that sufficient water storage is available to meet projected year 2040 public water supply needs for areas of Kansas with current or potential access to surface water storage.

[1] For more details refer to the Marion County Solid Waste Management Plan Report (Oct 23, 1996, updated 1999)
[2] For more details on the Implementation Committee activities and efforts refer to the "Report to the Central Kansas Regional Waste Authority, Implementation Committee Activities and Efforts October 1997-July 1999".

Figure 1.2: The Neosho River Basin



Source: Kansas Water Office, May 1999

Water Conservation

By 2010, reduce the number of public water suppliers with excessive "unaccounted for" water by first targeting those with 30 percent or more "unaccounted for" water.

Flood Management

By 2010, reduce the vulnerability to damage from floods within identified priority communities or areas.

Water Quality

By 2010, reduce the average concentration of bacteria, biochemical oxygen demand, dissolved solids, metals, nutrients, pesticides and sediment that adversely affect the water quality of Kansas and streams. Some of the major management entities in the basin provide their expertise in pollution control and water quality maintenance. Their main objectives and programs are as follows:

Kansas Department of Health and Environment: Non-Point Source Pollution Technical Assistance Program

Provide technical assistance for activities that address the impairments. Development projects to demonstrate effectiveness of nonpoint source pollution water quality protection technology for the impairments. Maintain the nonpoint source pollution management plan required under Section 319 of the Clean Water Act and continue to provide leadership in the promotion, coordination and implementation of water quality measures by targeting technical assistance and financial assistance to sponsors of local water quality protection projects and by developing and managing water quality protection demonstration projects.

Kansas Department of Health and Environment: Environmental Protection Grant Program

The main goal is to reduce the average concentration of dissolved solids, metals, nitrates, pesticides and volatile organic chemicals that adversely affect the water quality of Kansas's ground water by 2010. During FY 2002, the Kansas Water Authority will appoint a study committee consisting of a representative from Kansas Department of Health and Environment, Kansas Water Office, Kansas Water Authority and recipients of environmental protection grant program to:

1) identify appropriate cost sharing between state and local resources to support base "local environmental protection programs";
2) determine what fraction of base program activities should be funded via State Water Plan Fund; and
3) Recommend other sources of state aid to support "base program activities" not financed via State Water Plan funds.

Wellhead Protection Program

The area surrounding the well is known as the wellhead protection area. Activities in the wellhead protection area, such as household waste disposal through septic tanks or lagoons, farming, livestock production, fuel storage and manufacturing can release pollutants, which can travel to the aquifer that supplies the public water supply. The wellhead protection plan identifies contamination threats and establishes an action plan to minimize the chances of contamination.

The wellhead protection program strives to meet several goals:

- Prevent contamination of ground water derived public water supplies;
- Encourage the placement of certain activities in areas less likely to contaminate public water supplies; and
- Raise public awareness of ground water resources used for public drinking water supplies.

The plans consist of delineations of the protection areas for water supplies, inventories of potential pollutant sources of the delineated areas, evaluations of the risks to water supplies presented by the identified potential pollutants, and management plans to help ensure that the water supplies are protected from contamination.

The wellhead protection program consists of six elements:

1. Delineation of wellhead protection area(s) (WHPA)

Based on existing hydrogeologic information collected by state and federal agencies, consultants, and private well logs.

2. **Contaminant source inventory**
   Location of activities that might threaten ground water is collected.
3. **Management of the area**
   Defines actions and strategies that should be developed for existing and future activities to protect ground water within the WHPA from contaminant sources.
4. **Contingency planning**
   Water systems should develop options to deal with both short-term and long-term loss of their drinking water sources. Systems should also incorporate the existing emergency response framework into their wellhead protection plan.
5. **New Wells**
   Delineation and Source Inventory for new wells should be completed before the wells are installed. The study should also focus on well construction and evaluation of well yeild, potential contamination and implementation strategies to protect the recharge areas.
6. **Public participation in the various WHP program elements**
   Inform residents and businesses of the WHPA and importance of carefully conducting activities.

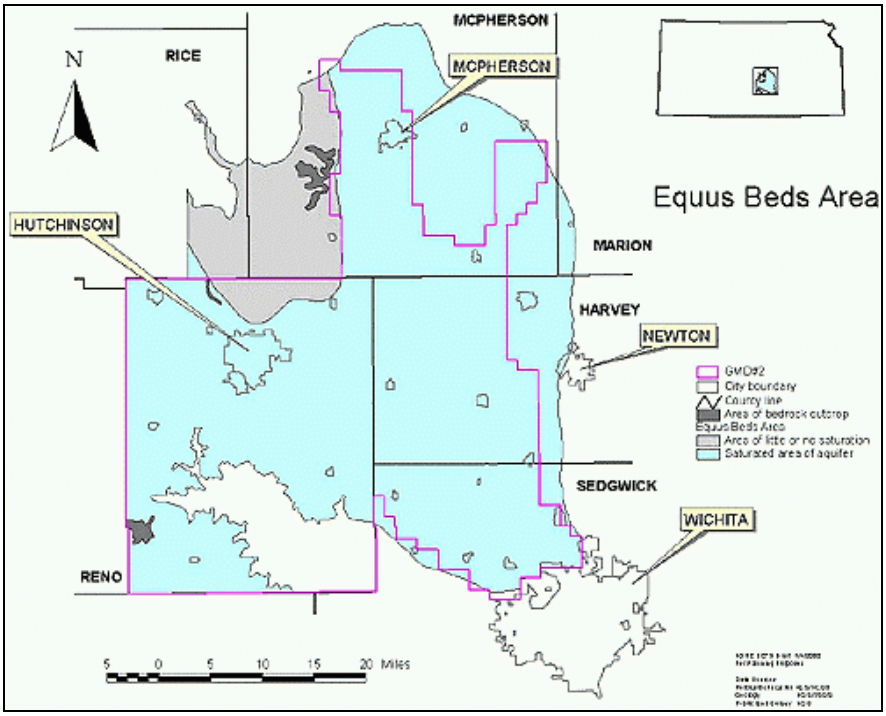
Equus Bed District

The equus bed aquifer is the eastern most extension of the high plains aquifer system. The excellent quality of the water in the equus beds aquifer, its relatively shallow depth, widespread lateral extent and the large saturated thickness, make the equus beds aquifer an extraordinary source of groundwater in South Central Kansas. The equus beds aquifer is an important source of water for municipal, domestic, irrigation and industrial uses. Large water users tend to be clustered in areas with the greatest yield and high quality water.

The equus beds aquifer is recharged by several sources including precipitation, bedrock seepage, and stream and river infiltration. The major recharge source is precipitation which is estimated to occur at approximately 15 to 20% of the annual rainfall. Due to the large lateral extent of the aquifer and the relatively thin soil mantle cover over the aquifer, the potential for surface activities to affect the quality of the underlying water quality is relatively high. Past domestic and industrial operations and disposal practices of various industries have affected the quality of the groundwater in localized areas.

Present regulatory requirements, in conjunction with industrial operational modifications and waste handling practices, have eliminated many of the contamination sources. Protecting the quality of the water in the equus bed in southwest Marion County from both man-made and natural problems is, therefore, an important consideration.

Figure 1.3 The Equus Bed in South Central Kansas



Source: Kansas Department of Health and Environment

Marion County Reservoir

The U.S. Army Corps of Engineers constructed Marion Reservoir between 1964 and 1968. The reservoir encompasses 6,200 acres of water and is surrounded by another 6,000 acres of public lands (U.S. Army Corps of Engineers, 1999). The reservoir has a conservation-pool capacity of 61,210 acre-feet.

The Marion Reservoir

The drainage area of the Marion Lake watershed is about 200 square miles (128,000 acres), of which 90 percent is in Marion County and the remaining 10 percent in McPherson County. The study area consists of the entire contributing drainage area of the Marion Lake watershed, including the North Cottonwood River, Perry Creek, Silver Creek, French Creek, and associated smaller tributary streams.

The largest towns in the watershed include Canton, Lehigh, and Durham. A small percentage of north Hillsboro (population: 3,000) is also in the basin, but the majority of the drainage from the town is south of the watershed. Populations in these towns range from less than 200 people (Lehigh and Durham) to almost 800 people in Canton (Kansas State Library, 1999). Land use in the drainage area include: (source: Natural Resources conservation Service, NRCS):

- 70,000 acres of cropland, 40,000 of those are eroding above a tolerable level.
- 45,000 acres of Rangeland
- 30 confined livestock operations
- many wastewater systems in need of upgrading

At the time of construction, flood control was the primary purpose of most reservoirs in the State of Kansas. However, during the past decades, the use of reservoir water for domestic and municipal drinking-water supply, recreation, and wildlife habitat has become increasingly important. The reservoir is currently supplying water to over 5,500 people in Marion County as well as the cities of Hillsboro and Marion. Plans are underway to develop rural Water District No. 5 and to also provide water to the City of Peabody increasing the total number of people served by the Marion reservoir to approximately 10,000. In addition the reservoir is used annually for 180,000 recreational visits comprised of approximately four million hours. (Source: Kansas Department of Health and Environment, KDHE)

Inherent in these secondary purposes are water-quality issues related to human health, aesthetic appeal, and viability of the reservoir ecosystem. Contamination of these multiple-use resources is, therefore, extremely undesirable. As a result, many State and Federal agencies are working in cooperation with local conservation and watershed management groups to identify and mitigate potential contamination sources.

Flood Control

The reservoir has been very effective in flood control and to this day the reservoir has saved over 40 million dollars in property damage since its completion in 1968.

Pollution Control

The Marion Reservoir watershed encompasses approximately 200 square miles in central Kansas. Land use in the watershed is primarily agricultural[3], which includes cropland and grassland. Livestock production[4] also is important to the economy of the watershed. Oil fields are scattered throughout the Marion Reservoir watershed. Saltwater brine commonly is associated with oil production in central Kansas. Early methods of brine disposal included direct discharge to nearby streams or to infiltration ponds. Although the Kansas Department of Health and Environment (KDHE) has long-established regulations governing the disposal of

[3] About 52 percent of the land is used for crop production. In 1997 (latest data available), there were about 38,000 acres of wheat, 18,000 acres of grain sorghum, 3,400 acres of soybeans, and 2,500 acres of corn harvested in the watershed.

[4] In 1997, there were an estimated 17,500 cattle, 4,000 hogs and pigs, and 16,000 chickens in the watershed. Crop-acreage data and livestock numbers were estimated from county information compiled by the Kansas Department of Agriculture and U.S. Department of Agriculture (1997).

brine through reinjection into disposal wells, it is possible that past practices of shallow-depth disposal methods (now illegal) could contribute saltwater brine to shallow ground water and subsequent surface-water contamination.

The Marion County Conservation District (MCCD) currently (1999) is implementing a conservation plan for the Marion Reservoir watershed. The plan is designed, in part, to mitigate the potential for contamination of Marion Reservoir through implementation of best-management practices and educational activities to reduce contributions of constituents such as nutrients and pesticides to the reservoir.

Results of the Water Resources Investigation study[5] conducted by USGS and the Marion County Conservation District indicates that some water quality concerns exist in the watershed. The median dissolved-solids concentration in the watershed was higher than U.S. Environmental Protection Agency (USEPA) Secondary Maximum Contaminant Level drinking water guidelines, which could have an effect on the variety and abundance of plants and animals within Marion Reservoir. Pesticide usage in many Midwestern agricultural watersheds is typically high during the spring and early summer when crops are seeded. Combined with seasonal precipitation, pesticides commonly are transported with surface water runoff to receiving streams that may discharge to lakes or reservoirs.

The primary areas of concern for the nonpoint pollutant sources include:

- Failing wastewater systems;
- Erosive cropland;
- Improper chemical application (urban and farm);
- Confined livestock operations;
- Streambank and shoreline erosion; and
- Saltwater brine associated with oil production.

[5] Median nutrient concentrations, both nitrogen and phosphorus compounds, were less than USEPA guidelines. The median density of fecal coliform bacteria in the water from all sampling sites was less than the Kansas Department of Health and Environment criterion for noncontact recreation and less than the contact-recreational criterion in water from the Marion Lake outflow site. However, the concentration of total phosphorus in the lake outflow was higher than the USEPA guideline of 0.10 mg/L; that constituent could be an indicator of potential future water-quality problems for Marion Lake.

The median concentrations in water from all the sampling sites were 640 mg/L (milligram per liter) for dissolved solids, 0.01 mg/L dissolved nitrite plus nitrate as nitrogen, 0.08 mg/L total phosphorus, 0.05 ug/L (microgram per liter) for dissolved atrazine determined by immunoassay analysis, and 200 colonies per 100 milliliters of water for fecal coliform bacteria. None of these constituents exceeded water-quality criteria except for dissolved solids. The nonenforceable U.S. Environmental Protection Agency Secondary Maximum Contaminant Level in drinking water is 500 mg/L dissolved solids (U.S. Environmental Protection Agency, 1995). All of these constituents were commonly of nonpoint-source origin and probably are related to agricultural activities in the watershed. Larger concentrations of dissolved nitrite plus nitrate as nitrogen, total phosphorus, and fecal coliform bacteria probably are associated with point-source discharges from nearby municipal wastewater-treatment facilities. (Summary of water-resources investigation report 99-4158 by USGS and Marion County Conservation District)

Experience has shown that the most effective means to encourage voluntary pollution control is to make personal contact with the landowner. A successful one-on-one personal contact will result in determining pollution control practices currently being used, provide the opportunity to recommend improvements in pollution control, either through adoption of management practices or improved recommendations in maintenance of existing pollution controls.

The main goals and objectives of the **Marion Reservoir Water Quality Protection Project** through 2005 are:

- Reduce soil loss on 12,000 acres of eroding cropland from current levels to tolerable levels.
- Install filter strips and/or riparian buffers along 15 miles of streams, including crop fields near the reservoir shoreline.
- Install adequate pollution control systems at 10 livestock facilities and upgrade 15 failing septic systems.
- Reduce nutrient, pesticide and related contaminant levels in Marion reservoir and its tributaries to state maximum acceptable concentrations.
- Ensure that development around Marion Reservoir is done according to sound land use policy.
- Stabilize reservoir shorelines from erosion by wave action.
- Continue water-monitoring efforts.

Recreational Facilities

Approximately one half of the visitors to the reservoir are from Sedgwick County. The bulk of the remainder is from Marion, McPherson, Harvey and Reno Counties. Over the past few years the Reservoir has experienced intense visitor use at Cottonwood Point. The total population for Kansas is estimated at 2.5 million people. More than 40% of the population of Kansas or about 1.05 million people reside within a 60-mile radius of Marion Reservoir. Within the same area there are more than 50,000 registered boaters (Source: U.S Army Corps of Engineers).

Recreational activities have increased to a point that capacities at boat ramps, campsites, and shower facilities have been far exceeded. Evidence of this is indicated by the overflow parking on grass, lack of hot water in showers from constant use and an average 80% campsite occupancy rate. In fact the occupancy rate is 100% on all weekends throughout the recreation season. The number of "turn-aways" on a holiday weekend is often equal to the number of campers in the park. (Source: U.S Army Corps of Engineers).
Approximately 90% of the reservoir usage occur from April to October. Reservoir usage in November through March consists almost exclusively of deer, upland bird and waterfowl hunters as well as fishermen.

This year, the Marion Reservoir Lake Association, a non-profit organization was formed to further recreational use of the Reservoir. The US Army corps of Engineers administers all camping facilities. There are no State Parks. There are four campgrounds at the reservoir. Typical facilities at a campsite include a gravel parking pad, a sun shelter, picnic table, utility table and fire ring and/or grill. Potable water is provided at all parks. All parks have a boat ramp. In 2000, the Marion Reservoir Lake Association, a non-profit organization was formed to further recreational use of the Reservoir.

Currently, there is a Park modernization Proposal before the southwestern division of the US Army corps of Engineers. It is awaiting approval and funding. The plan calls for major improvements to Cottonwood Point like a new amphitheater, an additional swimming beach and 80 new campsites.

At present there are no specifically designated day-use areas. Therefore, day users have no other option than to use a campsite for their activities, A separate day area would help alleviate the problem of day users from attempting to occupy campsites.

Table 1.1: Impact of Proposed Improvements at Cottonwood Point

Project	Pct[1] Boat	Visits in Party Days			Total[2] Spending	Sales Effects[2]		Income Effects[2]		Job Effects[3]	
		Camper	Day User[4]	Total		Direct	Total	Direct	Total	Direct	Total
Marion Reservoir (Present facilities 1996)	6	14.6	59.03	73.09	2.84	1.86	3.09	0.97	1.63	62	83
Marion Reservoir (After Modernization)	6	20.44	82.64	103.8	3.98	2.64	4.33	1.36	2.28	87	116

[1]Percentage of boating participants.
[2]In millions
[3]Numbers of jobs
[4]Including overnight visits

Source: U.S Army Corps of Engineers, Tulsa District/ Southwestern division "Recreation Modernization Proposal FY 2002"

Commercial activities around the reservoir

Commercial activities on public lands administered by the U.S Army Corps of Engineers can only be accomplished through lease agreements by the Tulsa district Real Estate Division. At present there are no concessionaires in their parks. A portion of the Marion Cove Public Use Area was identified in the Reservoir Master Plan as the site for future marina development. There has been one proposal of a marina in the last five years. (Source: U.S Army Corps of Engineers).

A bait and tackle business is the only business, in a five-mile locale, that is directly related to the Reservoir. Some local farmers make additional income by renting boat and RV storage (both covered and uncovered). This practice appears to have expanded greatly in the last 10 years. (Source: U.S Army Corps of Engineers).

Residential development around the reservoir

Residential development around the reservoir is limited to three areas:

1) Eastshore Development on the east side of Pawnee Road between 210th and 220th streets. This is the most active development with up to a dozen new houses constructed in the last ten years.
2) The east side of Nighthawk road between Highway 56 and 210th streets, and
3) The north side of 210th street between Jade and Kansa Roads.

Most other residences close to the reservoir are rural farm residences. Due to the flatness of the terrain, the Reservoir has a wide perimeter of public land to accommodate inundation by flood control operations.

There is no "high ground" to provide a picturesque view of the Reservoir. Consequently there is little or no land which could be developed to provide lakefront residential property.

GENERAL SOIL MAP UNITS

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Soils of Marion County

The soils of Marion County are shown on detailed soils maps published by the United States Department of Agriculture, Soil Conservation Service. The maps consist of soil areas outlined and identified by symbols printed on aerial photo sheets. Tables and other data in the study show the relative suitability or degree of limitation of soils for many specific purposes, such as farming and urban development. Marion County can use the soil maps and defining characteristics in assessing development proposals under the Land Evaluation and Site Assessment (LESA) System.

Soil Survey of Marion County[6], Kansas

Marion County lies in the Flint Hills Upland, which consists, for the most part, of a broad undulating plain. The primary geologic materials of the county consist of sandstone, limestone, and shale. Approximately 50 percent of the arable soils in the county are of the Idana group, which are derived from calcareous shale and limestone and provide good surface drainage. Internal drainage through the clay subsoil ranges from fair to good.

Most of the county is in the Central Loess Plains Land Resource Area. The soils range from nearly level to moderately sloping, are generally deep or moderately deep, and have a silty clay loam surface layer and clayey subsoil[7].

The eastern one-fourth of the county is characterized by the Flint Hills Upland, referred to in geologic studies as the Bluestem Hills Land Resource Area, which has gently sloping to moderately steep topography dissected by deeply entrenched drainageways. The soils range from shallow to deep over limestone bedrock, and many areas of outcropping rock are near ridgetops.

The northwest part of the county is in the Central Kansas Sandstone Hills land Resource Area and is characterized by hilly dissected plains. The soils are shallow to deep and have a loamy surface layer and subsoil underlain by sandstone and sandy shales.

GENERAL SOILS MAP

[6] For more details refer to the "Soil Survey of Marion County, Kansas" published by the United States Department of Agriculture.

[7] see appendix 1 for soil descriptions

The Cottonwood River and its tributaries drain about two-thirds of the county from northwest to southeast. An area along the north part of the county is drained to the north by Turkey Creek, Lyon Creek, and other intermittent streams. Areas along southern parts of the county are drained by Middle Emma Creek, East Emma creek, Sand Creek, and Turkey Creek, which flow south.

Soil Associations and Classifications

The General Soil Map (Page 19) shows the Soil Associations of the County. The Map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where soils are not suitable can be identified. Because of its small scale, the map is not suitable for planning the management of a farm or field or for any other site-specific purposes. The soils in any one association differ from place to place in slope, depth, drainage, and other characteristics that affect management. The Soil Classification then becomes more important to determine the capability of the Soil.

Soil Classifications indicate the ability of the soil to support agricultural uses. Though Class I and II are prime agricultural lands, other classes can also be used for agricultural purposes with adequate conservation practices and choice of plants. The national capability classification shows soils groupings in eight classes:

Class I soils	few limitations that restrict their use.
Class II soils	some limitations that reduce the choice of plants or require moderate conservation practices.
Class III soils	severe limitations that reduce the choice of plants or require special conservation practices, or both.
Class IV soils	very severe limitations that reduce the choice of plants, require very careful management, or both.
Class V soils	little or no erosion hazard but have other limitations impractical to remove that limit their use largely to pasture, range, woodland or wildlife food and cover.
Class VI soils	severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture, range, woodland, or wildlife food and cover.
Class VII soils	very severe limitations that make them unsuited to cultivation and that restrict their use largely to grazing, woodland, or wildlife.
CLASS VIII soils and landform	limitations that preclude their use for commercial plan production and restrict their use to recreation, wildlife, or water supply, or to aesthetic purposes.

Class I and Class II soils with soil yields-per-acre of crops and pasture land of certain types should comprise the primary soils protected for farming in the LESA evaluation. Soil yields as indicated on Table 5, Page 83 of the **Soil Survey of Marion County (US Dept. of Agriculture, Soil Conservation Service)** should be considered as the yields necessary for LESA designation.

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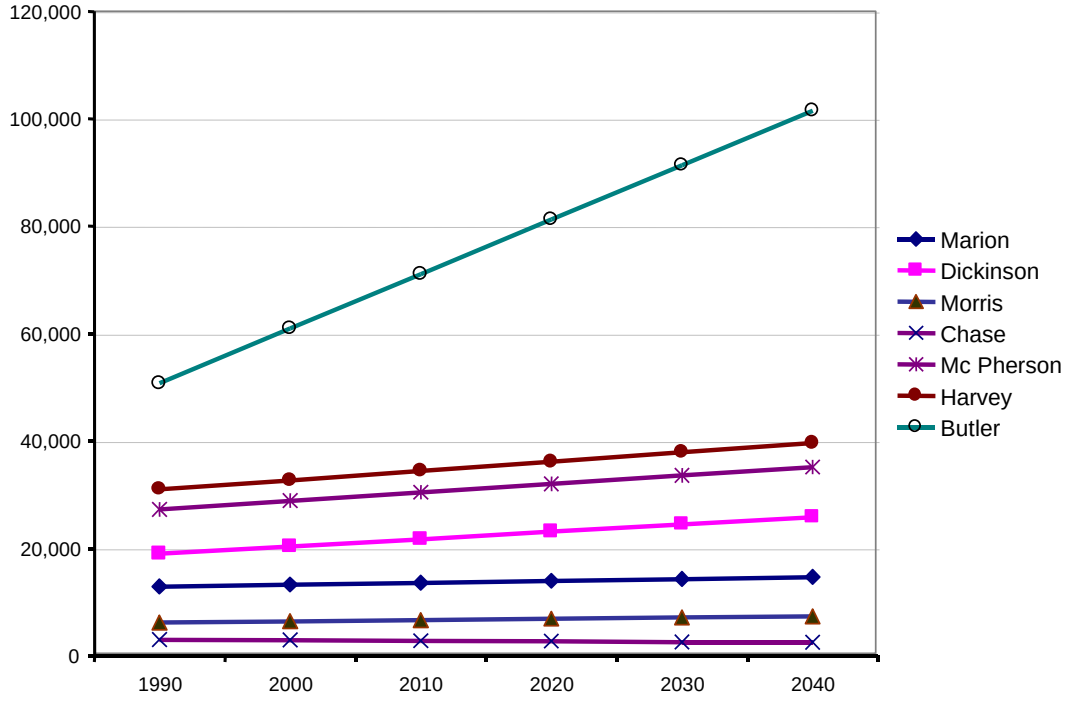
CHAPTER 2 - DEMOGRAPHIC TRENDS

POPULATION TRENDS

According to the US Census Bureau, Marion County population grew from 12,888 in 1990 to 13,361 in 2000 (**Source:** US Census 200). It is projected by the Kansas Water Office, to grow by about 1420 people over the next 40 years. Among its neighboring counties, Butler County currently has the highest growth rate (20.1%) and is projected to have the highest growth in the next 40 years (Ref. Graph 2.1). Marion County currently has a growth rate of 2. 6% (1999-1990). It is expected to remain relatively static around to 2.5% by 2040 (Ref. Table 2.1). The population for all counties bordering Marion County, except Chase County, are expected to increase at a decreasing rate in the future.

Graph 2.1: Population Projections (1990 – 2040)



Source: Kansas Water Office (http://www.kwo.org/kwo/pop-tables/county_tables.htm), BWR Corp.

Table 2.1: Population by County and Growth Rates (Counties by Decade)

	1990	2000		00 / 90	10 / 00	20 / 10	30 / 20	40 / 30
	US Census	KWO estimate	US Census	Growth rate /decade (KWO projections)				
Marion	12,896	13,236	13,361	2.64%	2.68%	2.61%	2.55%	2.48%
Dickinson	18,958	20,355	19,344	7.37%	6.73%	6.31%	5.93%	5.60%
Morris	6,198	6,421	6,104	3.60%	3.54%	3.41%	3.30%	3.20%
Chase	3,021	2,930	3,030	-3.01%	-4.23%	-3.99%	-3.64%	-3.43%
Mc Pherson	27,268	28,862	29,554	5.85%	5.43%	5.15%	4.90%	4.67%
Harvey	31,028	32,655	32,869	5.24%	5.35%	5.08%	4.84%	4.61%
Butler	50,737	60,946	59,482	20.12%	16.63%	14.25%	12.48%	11.09%

Source: US Census 2000, Kansas Water Office (http://www.kwo.org/kwo/pop-tables/county_tables.htm), BWR Corp.

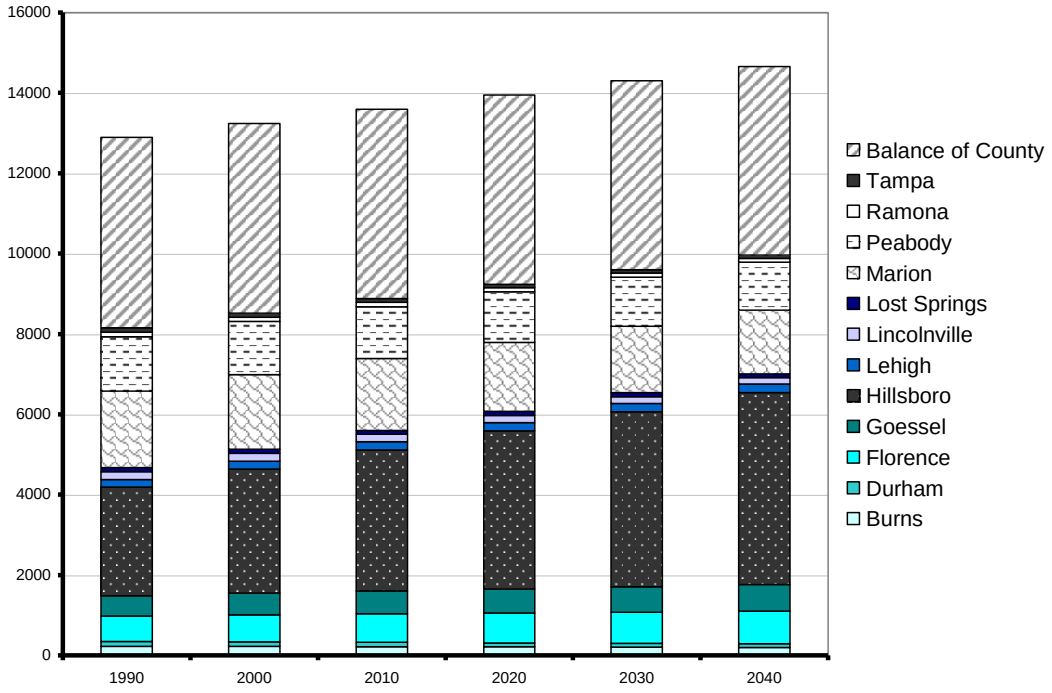
Currently 23% of the total population of Marion County lives in Hillsboro and about 14% lives in the City of Marion. In the next 40 years the former is projected to be home to about 33% of the County's population. Hillsboro is the fastest growing city in Marion County, and is expected to grow by about 1,683 people in the next 40 years. The cities of Marion and Peabody are also expected to see growth at about 1%-1.2% annually. Other cities that are expected to grow are Florence, Goessel and Lehigh though only marginally. Most other cities are expected to see a decline in their population. (Ref. Table 2.2 and Graph 2.2).

Table 2.2: Population in Marion County by Cities (1990 - 2040)

	1990	2000		1990	2000	2010	2020	2030	2040
	US Census	KWO estimate	US Census	% of total based on KWO projections					
Burns	226	224	268	1.75%	1.69%	1.60%	1.51%	1.43%	1.36%
Durham	119	114	114	0.92%	0.86%	0.79%	0.72%	0.66%	0.60%
Florence	636	674	671	4.93%	5.09%	5.22%	5.33%	5.43%	5.54%
Goessel	506	536	565	3.92%	4.05%	4.18%	4.30%	4.42%	4.53%
Hillsboro	2,704	3,092	2,854	20.97%	23.36%	25.85%	28.21%	30.45%	32.58%
Lehigh	180	197	215	1.40%	1.49%	1.49%	1.48%	1.48%	1.48%
Lincolnville	197	195	225	1.53%	1.47%	1.36%	1.25%	1.15%	1.06%
Lost Springs	106	99	71	0.82%	0.75%	0.73%	0.71%	0.69%	0.68%
Marion	1,906	1,861	2,110	14.78%	14.06%	13.19%	12.35%	11.57%	10.81%
Peabody	1,349	1,316	1,384	10.46%	9.94%	9.46%	9.00%	8.56%	8.15%
Ramona	114	109	94	0.88%	0.82%	0.78%	0.73%	0.69%	0.66%
Tampa	113	101	144	0.88%	0.76%	0.70%	0.63%	0.57%	0.52%
Balance of County	4,740	4,718	4,646	36.76%	35.65%	34.66%	33.76%	32.89%	32.04%
TOTAL	**12,896**	**13,236**	**13,361**						

Source: US Census 2000, Kansas Water Office (http://www.kwo.org/kwo/pop-tables/county_tables.htm), BWR Corp.

Graph 2.2: Marion County Population Projection by City (1990-2040)



Source: Kansas Water Office (http://www.kwo.org/kwo/pop-tables/county_tables.htm), BWR Corp.

The County faced an estimated decline of twenty-two people in the decade between 1990 and 2000. It is expected to face a very gradual decline in the rural population in the next forty years (about 7 people in a decade). The urban population is, on the other hand, experiencing a steady increase. Over 350 people were added into the cities in the last decade. This trend is expected to continue. With the loss of family farms and increase of abandoned farmsteads, there is a high probability that there is a shift from rural to urban population.

Table 2.3: Urban and Rural Population Projections for Marion County

	1990	2000	2010	2020	2030	2040
Rural Population	4,740	4,718	4,711	4,708	4,704	4,696
Urban Population	8,156	8,518	8,880	9,238	9,597	9,960
Total in Marion County	12,896	13,236	13,591	13,946	14,301	14,656
Percentage Rural	36.76%	35.65%	34.66%	33.76%	32.89%	32.04%
Percentage Urban	63.24%	64.35%	65.34%	66.24%	67.11%	67.96%

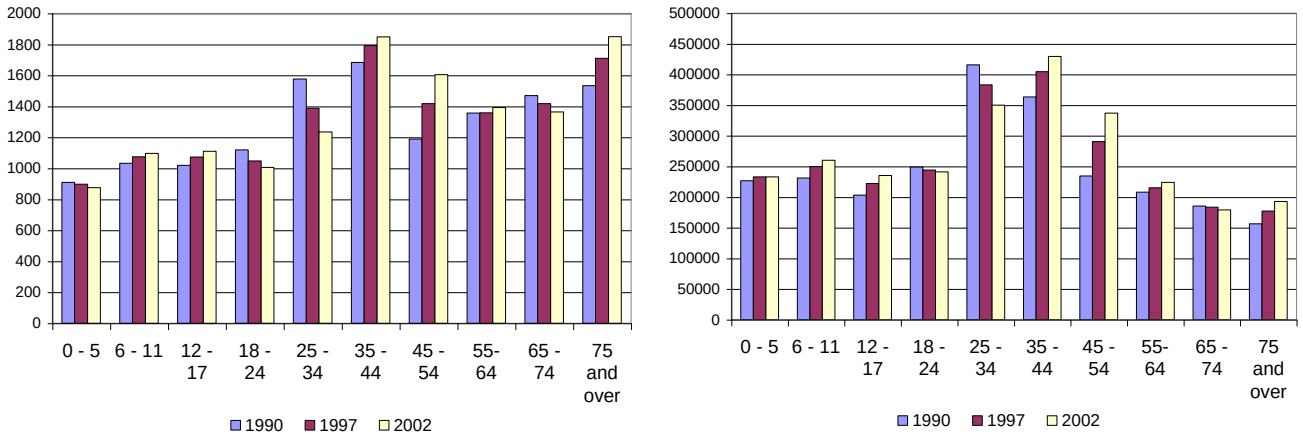
Source: Kansas Water Office (http://www.kwo.org/kwo/pop-tables/county_tables.htm), BWR Corp.

The age distribution in the past and over the next few years shows that Marion County is and will be a rather attractive place for the elderly (Ref. Graph 2.3). In 1990 over 51% of the County's population was 55 years of age or more. By 2002 that percentage would have increased to over 52%. It will most probably lose younger population (ages 18 to 34), which is also a statewide trend in Kansas.

The Male-Female ratio is not expected to see much change in the future. (Ref. Table 2.3). It is currently about 52% female compared to the State average of about 51%. It is expected to be closer to the State average in the future.

Graph 2.3: Population Distribution by Age (90, 97, 02)

Marion County **State of Kansas**



Source: Decisionmark Corp., US. Census, BWR Corp.

Table 2.4: Male-Female ratios for Marion and Neighboring counties (90, 97, 02)

	1990		1997		2002	
	FEMALE	**MALE**	**FEMALE**	**MALE**	**FEMALE**	**MALE**
Marion	52.34%	47.66%	52.12%	47.88%	51.83%	48.17%
Dickinson	51.94%	48.06%	51.71%	48.29%	51.43%	48.57%
Morris	51.23%	48.77%	51.00%	49.00%	50.71%	49.29%
McPherson	51.73%	48.27%	51.50%	48.50%	51.22%	48.78%
Chase	50.45%	49.55%	50.23%	49.77%	49.93%	50.07%
Harvey	51.45%	48.55%	51.23%	48.77%	50.94%	49.06%
Butler	50.91%	49.09%	50.68%	49.32%	50.40%	49.60%

Source: Decisionmark Corp., US. Census, BWR Corp.

Median Household Size appears to be steady around 2.6 persons per household for most counties under review. The State of Kansas has a median household size of 2.7. Butler County with 2.9 persons per household is the highest in the region. Marion County might see a likely decrease in the median to about 2.5 by 2002.

Table 2.5: Median Household Size in Marion and Neighboring Counties. (90, 97, 02)

	1990	**1997**	**2002**
Marion County	2.6	2.6	2.5
Dickinson County	2.6	2.6	2.6
Morris County	2.6	2.6	2.5
McPherson County	2.7	2.6	2.6
Chase County	2.6	2.6	2.5
Harvey County	2.7	2.7	2.6
Butler County	2.9	2.8	2.8

Source: Decisionmark Corp., US. Census, BWR Corp.

Per Capita Income has shown a steady rise in Marion County and is one of the highest among its neighbors. Butler County has shown the highest increase but is not expected to keep the rate through to 2002. Marion County on the other hand is expected to show an increase in Per Capita Income by 3.4% over the next few years (Ref. Table 2.6).

Table 2.6: Per Capita Income in Dollars. (90, 97, 02)

	1990	**1997**	**2002**	**97/90**	**02/97**
Marion County	10306	11448	11838	11.08%	3.41%
Dickinson County	11077	12069	12199	8.96%	1.08%
Morris County	11433	12773	13338	11.72%	4.42%
McPherson County	11953	12996	13381	8.73%	2.96%
Chase County	10341	11262	11817	8.91%	4.93%
Harvey County	12394	13854	14330	11.78%	3.44%
Butler County	12970	14829	14968	14.33%	0.94%

Source: Decisionmark Corp., US. Census, BWR Corp.

Housing Statistics for Marion County show an increase of five percent in number of housing units over the period 1990 to 2002. Butler and McPherson Counties have seen almost 30% increase over the same period.

The State of Kansas registers an 8.6% increase in housing units (Ref. Table 2.7). Occupancy rates average to about 88% and has remained quite steady over the last decade. Owner occupied housing units have been about eight percentage points over the State average and are expected to see a six percent increase in the period 1990 to 2002. For the most part Marion County is following regional and statewide trends.

Table 2.7: Housing Statistics for Marion and Neighboring Counties. (90, 97, 02)

Total Housing Units

	1990	1997	2002	Increase 90-02
Marion County	5659	5877	5942	5.00%
Dickinson County	8415	9103	9501	12.91%
Morris County	3149	3289	3305	4.95%
McPherson County	9136	11511	11791	29.06%
Chase County	1547	1500	1443	-6.72%
Harvey County	12290	12893	13137	6.89%
Butler County	20072	23632	26037	29.72%
KANSAS	**1042307**	**1105412**	**1131846**	8.59%

Occupancy Rates

	1990	1997	2002
Marion County	87.91%	87.99%	87.98%
Dickinson County	89.63%	89.66%	89.66%
Morris County	80.28%	80.42%	80.42%
McPherson County	93.79%	93.83%	93.83%
Chase County	78.47%	78.67%	78.66%
Harvey County	94.23%	94.24%	94.24%
Butler County	92.11%	92.10%	92.10%
KANSAS	**90.48%**	**90.69%**	**90.82%**

Owner Occupied Housing Units (as a Percentage of Total Housing Units)

	1990	1997	2002
Marion County	69.57%	72.42%	75.45%
Dickinson County	65.88%	69.31%	73.06%
Morris County	60.84%	63.82%	66.93%
McPherson County	70.64%	74.05%	77.76%
Chase County	59.34%	62.27%	65.35%
Harvey County	64.48%	68.48%	73.00%
Butler County	69.41%	72.71%	76.35%
KANSAS	**61.47%**	**65.37%**	**69.76%**

Source: Decisionmark Corp., US. Census, BWR Corp.

A glance at the Quality of Life variables and various indices used, shows Marion County has above average (Nationwide) facilities for Culture, Amusement, Medical, Education and Schools. It is also competitive among its neighbors ranking second after McPherson County in the overall quality of life index. This is however a very subjective evaluation and can be at best, only indicative of the strong and weak aspects of the region. (Ref. Table 2.8)

Table 2.8: Quality of Life Variables and Indices.[8]

	Weather	Culture	Amusement	Restaurant	Medical	Education	School	Quality of Life
Marion County	67	198	405	87	290	792	126	89
Dickinson County	65	251	80	82	174	126	213	85
Morris County	66	232	134	81	567	387	165	82
McPherson County	70	95	164	84	174	569	191	91
Chase County	67	520	999	101	40	40	553	83
Harvey County	72	151	146	108	247	253	322	88
Butler County	72	103	183	79	138	329	265	80

Source: Decisionmark Corp., US. Census

[8] The average index for all United States counties is set at 100. An index above 100 indicates better than average conditions. An index below 100 indicates below average conditions. For areas larger than a county, the appropriate counties are aggregated

Weather Index: This is an index of ideal weather conditions based on average temperatures, humidity, and precipitation. The variables were selected as most indicative of ideal weather by a meteorologist of the National Weather Service

Culture Index: This is an index of the number of cultural facilities such as museums, symphonies, arts associations, and legitimate theaters, per 1,000 households in the county in which this geography is located.

Amusement Index: This is an index of the number of motion picture theaters, golf courses, and other common amusement facilities per 1,000 households in the county in which this geography is located.

Restaurant Index: This is an index of the number of restaurants per 1,000 households in the county in which this geography is located.

Medical Index: This is an index of the number of hospitals and other major medical facilities per 1,000 households in the county in which this geography is located.

School Index: This is an index of the number of schools of elementary and secondary education available per 1,000 households in the county in which this geography is located.

Education Index: This is an index of the number of schools of higher education available per 1,000 households in the county in which this geography is located.

Quality of Life Index: This is a subjective index of the total quality of life in the county in which this geography is located, considering crime, facility, and weather indices.

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CHAPTER 3 – GOALS, OBJECTIVES AND POLICY STEPS

ISSUES IDENTIFICATION

Marion County held a "Focus Session" in September 2000 to provide an opportunity for residents and business leaders of the County to identify issues that are critical to the immediate, as well as the long-term, future of the community. The session was open to the public and invited stakeholders. Approximately 45 members of the community participated in ranking the most important issues facing Marion County.

The method for ***Issues Identification*** used at the Focus Session was a structured idea-sharing process that expanded on statements developed at a previous series of planning meetings. "Break-out" groups were formed to further discuss the issues that were identified by the entire group. The breakout groups discussed the following series of issues:

1. **Future Land Use:** issues discussed related to the location, type and quantity of land uses as Marion County grows.

2. **Economic Development**: issues discussed related to business and industrial growth in Marion County and its communities.

3. **Quality of Life**: discussion focused on specific issues that influence the caliber of Marion County as a place to live and work.

Participants then prioritized the identified issues through a group ranking process. The ranked issues are listed below. Information from the "Focus Session" was used as a basis for the follow-up "Policy Charrette" workshop held in October 2000. The policy planning workshop was attended by approximately 85 county residents and was used to develop community policies and "action steps" that address the critical issues facing the Marion County community—both in terms of immediate needs and long-term plans.

ISSUE DEVELOPMENT

Information from the "Focus Session" was used as a basis for the follow-up "Policy Planning Charrette" workshop held in October 2000. Participants collaborated all evening in study groups with detailed "Workbooks" to develop community policies and "action steps" that address the critical issues facing Marion County. Participants also addressed issues graphically by transferring ideas to maps of different areas of the county. The issues were discussed in terms of both the near-term (the immediate five-year period) and long-term plans (up to twenty years in the future).

The following goal statements and planning objectives are based on a summary of the ideas expressed at the planning charrette session. Responses to each objective are identified in a column entitled "Policy Step." The plan allows the county to formulate goal statements and policy objectives, then policy steps to take in an action agenda. For each issue and goals/objectives statement, a policy step identifies the entity or group—public or private—that is the appropriate agent for action to implement the plan objectives.

"FUTURE LAND USE ISSUES AND OUR COMMUNITY"

Future Land Use in Urban and Rural Areas

Plan Objective and Action Steps	**Action Agenda**
Objective: Through City and County partnerships plan for coordinated growth.	
Action Steps: Provide the opportunity for development of urban land uses while ensuring appropriate locations and compatibility with other land uses. • Urban development should be encouraged to locate in and around incorporated communities; • Initiate discussions between the county and developed cities regarding extraterritorial land use regulations; • Developments should be encouraged to connect to public services such as water and sewer; and • Urban developments should be encouraged to be contiguous to existing development to avoid the inefficient "leap-frog" pattern of growth.	County Planning Commission City Commission's City/County Staff

Action Steps:
 	
Respond to market demand for development in rural areas while maintaining the rural character of the location and the agriculture relationship to other land uses.
• Complete an inventory of all existing non-conforming acreage within the entire County.
• Allow for the selling off of five (5) acre parcels in the Agricultural District along paved corridors; however, the overall net density shall not be more than one household per forty (40) acres;
• Adopt development policy to help mitigate the following concerns:
  • The removal of land from an agricultural use; and
  • The lack of affordable housing.
	County Planning Commission
	County Commission
	City/County Staff

Action Steps: Restrict development to areas with few environmental hazards and minimize the loss of natural resources due to urbanization. • New development should be encouraged to locate in areas relatively free of environmental problems relating to soil, slope, and water table; and • Development should be discouraged within the 100 year flood plain.	County Planning Commission County Commission City/County Staff

Action Steps: Continue to identify and mitigate point and non-point source pollutants as defined in the Marion County Non-Point Source Pollution Management Plan including: • Failing wastewater systems; • Erosive cropland; • Improper chemical application (urban and farm); • Confined livestock operations; • Stream bank and shoreline erosion; and • Saltwater brine associated with oil production.	County Planning Commission City/County Staff
Action Steps: Continue to utilize the 1999 *Marion County Strategic Plan: A Strategy for Launching the 21st Century*, as a basis for decision making regarding the following issues. • Infrastructure and Services • Economic Vitality • Quality of Life	County Governing Bodies County Planning Commission

Available Housing

Plan Objective and Action Steps	Action Agenda
Objective: Adopt and enact strategies to encourage residential development.	
Action Steps: Help increase housing available for sale and rent: • Study incentives for development such as gas, water, streets and sewer construction; and • Cost sharing for utility and street installations or waiving of utility connection fees for new home construction.	County Planning Commission Economic Development Council
Action Steps: Promote urban development in coordination with the area cities. • Designate "Areas of Urban Influence" around principal cities in Marion County for urban service extension, platting and development. • Investigate creative and pro-active steps to provide "move-up" housing.	City/County Planing Commissions Economic Development Council
Action Steps: Create and support the development of a Housing Committee as a subcommittee of the Economic Development Council. Possible issues to address include: • Innovative Financing Methods to reduce the cost of development; • Assemblage of vacant/abandoned properties for redevelopment and • Provide Management Assistance.	County Planning Commission Economic Development Council
Action Steps: Encourage area cities to provide for moderate cost housing, including up-scale manufactured home parks and modular home options.	
Action Steps: Consider hiring a part time or full time staff person for the Economic Development Council.	Economic Development Council

Public/Private Partnerships

Plan Objective and Action Steps	Action Agenda
Objective: Pursue and/or facilitate partnerships and communication between residents, industry, the school system, county/local government and the business community.	
Action Steps: Facilitate communication between residents, the business community and the City/County governments by: • Televised community meetings; • Encourage good networking between city, chamber, private enterprise and citizens; and • Hold town meetings and select "information meetings" on a regular basis. Assist the community to work toward more open communication: • Work with the Economic Development Council to take a more proactive role in the education of Marion County residents as well as that of potential business developers. Initiate events or programs to encourage shared knowledge and resources between the business community, religious leaders, residents and county and local government: • Town meetings specific to communication of what's needed and what is going on; and • Create and/or strengthen networks.	City/County Governing Bodies County Commission County Planning Commission County Staff City/County Governing Bodies City/County Staff Economic Development Council

Environmental Planning Policies

Plan Objective and Action Steps	Action Agenda
Objective: Implement the policies of the Marion County Solid Waste Disposal Plan and related environmental initiatives.	
Action Steps: Facilitate the implementation of the county's selected method of solid waste disposal, including: • Minimizing land areas designated for such sites; • Alleviating the impact on existing landscape and fauna of areas; and • Related measures. Address issues and concerns, such as: • Inconsistencies in the present solid waste system[9]; • Lack of cost-effective approaches to collection and recycling; and • Uncertainties about control of solid waste handling in the county. Assess alternative technologies for optimal solid waste management: • Coordinate with the Regional Solid Waste Authority and the Implementation Committee to include household cooperation and education; and • Promote inter-jurisdictional coordination within the county.	City/County Governing Bodies, County Staff and Solid Waste Committee City/County Governing Bodies, County Staff and Solid Waste Committee

[9] The County Solid Waste Management Plan (1996, updated 1999)identified the following deficiencies in the present system:

- Collection: assuring availability of service, Quality of service and adequacy of equipment are inconsistent in certain areas.
- Recycling: Curbside collection not offered everywhere, inconsistency in materials accepted and times of operation, cost of recycling services variable and inconsistent. Commitment to success of recycling programs inconsistent.
- Public Education: type and adequacy of information inconsistent. No continuity in public education program in schools and public forums
- Data Collection: Awareness of what data to collect and its purpose is minimal.
- Disposal: Management of special waste, illegal dumping, no long-term disposal facility located within the region.

"QUALITY OF LIFE ISSUES AND OUR COMMUNITY"

Public Safety

Plan Objective and Action Steps	Action Agenda
Objective: Identify and mitigate traffic and other safety issues affecting the Quality of Life in the County.	
Action Steps: Address and identified safety concerns, either from traffic or crime or other hazards. • Assess public safety needs in the Marion Reservoir public use areas. Identify and address areas of problem traffic: • Highways 56-77 intersection; • Highways 50-77 intersection; • Peabody and Highway 50; and • Remington Road and Old 56 highway.	County Sheriff Fire Department Kansas Department of Transportation

Education

Plan Objective and Action Steps	Action Agenda
Objective: Better inform the County residences on planning issues	
Action Steps: Develop and utilize an educational program to better inform county residences of the process, procedures and policies implemented during rezoning request. • Create a planning brochure for the general public addressing the process, procedures and policies of the County Planning Commission; and • Investigate how to provide more meeting rooms and space for public meetings.	County Planning Commission County Staff

Community Pride

Plan Objective and Action Steps	Action Agenda
Objective: Identify and adopt strategies that encourage a positive image and sense of pride throughout Marion County.	
Action Steps: Identify and promote features or areas that contribute to a sense of identity in rural areas of the county and in the "Gateways" to our urban communities: • Coordinate with all area cities to create uniform monuments and identification signs; • Coordinate with the Army Corps at the reservoir; and • Coordinate with Marion Lake.	City/County Governing Bodies County Staff
Preserve and identify historic sites and assets: • The Santa Fe Trail; Kaw Trail; Chisholm trail • The Goessel-Mennonite Historical Museum; • The Florence-Harvey House; • The Lalouette Farm Museum; • The Hillsboro-Adobe House; • The Tabor College Historic Chapel; • The Marion Historical Museum; • The Hill School Building; • Central Park, Marion; • The Elgin House; • The Printing Museum; • The Presbyterian church; • 1880's Main Street, Peabody; • The Peabody Historical Buildings; • The Carnegie Library; and • The County Court House.	City/County Governing Bodies
Communicate to visitors or potential investors by: • Visitor Information Depot for the scenic vistas and the Santa Fe Trails providing maps and location of beautiful vistas; • Monument signs or features at the colleges, the historic homes and buildings; • Provide information on other points of interest at each site to spawn additional traffic; and • Public buildings need enhanced signage for easier identification. Identify ways a positive image and sense of pride and fellowship in the community can be enhanced.	County Staff

"ECONOMIC DEVELOPMENT OPPORTUNITIES AND OUR COMMUNITY"

Increase Economic Base

Plan Objective and Action Steps	Action Agenda
Objective: Build on our farming base by developing value-added agricultural industries.	
Action Steps: Attract diverse, value-added agricultural industries to Marion County: • Examine industrial base of neighboring counties to find non-competitive avenues; • Publicize the economic advantages such as low cost utilities, good capacities for growth, low land costs, lower cost buildings, access to highways and rail service, strong schools, good medical facilities, exceptional quality of life, and a comprehensive incentive package; • Adopt a pro-growth "Attitude" especially near cities where urban services can be extended; and • Develop a strong presentation/video, etc. that is combined with a select group of ambassadors to be formed by the County Commission. This would form an economic development "SWAT Team" which should include the area Economic Development Directors. The Team should include other representatives from other institutions throughout the community such as the school district, the medical community, industrial business owners, and financial institutions. Implement tools to help attract diverse industries: • Aggressive tax abatement program for real estate and real property/equipment; • Identify the types of industries we want and recruit; • Form a private capital group to build "spec" buildings; and • Form a private group to find businesses to partner and be compatible with existing businesses.	City/County Governing Bodies Economic Development Council County Planning Commission Economic Development Council
Objective: Increase Recreational Activities.	
Action Steps: • Promote local shopping by finding ways to bring the visitors to the local restaurants and shops. • Publicize fairs, sporting events and Art and Craft shows Adopt a pro-growth "Attitude" especially near cities.	County Planning Commission Economic Development Council Cities Chambers of Commerce

Objective: Maximize efficiencies in providing public services.	
Action Steps: Assess the cost-effectiveness of public services and facilities: • Evaluate the need and ability to support two (2) full service hospitals; • Evaluate the need and ability to support two (2) general aviation airports; and • Evaluate the ability to provide Police, Fire and EMS services to the entire county.	Hospital Officials Airport Officials KDOT, City and County Officials and Staff
Objective: Capitalize on the Reservoir to boost tourism and economic development.	
Action Steps: • Work with the Army Corps of Engineers to improve camping facilities at the reservoir, without jeopardizing the watershed.	
Objective: Improve infrastructure while minimizing costs.	
Action Steps: • Continue maintenance of County roads with densely populated areas being hard surfaced. • Study options for reducing the lane miles of rural roads maintained by encouraging cluster development.	County Officials and Staff

CHAPTER 4 - COMPREHENSIVE PLAN POLICIES

LAND USE PLAN

Land Planning Principles

The Marion County planning program has been applying public policy to influence change - in the public interest - as it has responded to change over time. In order for the entire county to attain the objectives of the Comprehensive Plan, it is helpful to restate the dynamics of development. Without such an understanding, local efforts cannot promote community goals as effectively. The comprehensive plan has been developed with the land planning principles presented in this section.

Land Use Effects

Certain basic planning issues are relevant to sound public policy. The impact of a given parcel of land on its neighboring properties must be considered. For example, a residential district that abuts agricultural areas can experience negative externalities. If not carefully site-planned, the residential district and the farm operation are harmed. In effect, the land use incompatibility creates a cost imposed by the commercial owners on the residential owners. The best way to minimize these external costs is to buffer opposing land uses. These planning principles help create compatible transitions between residential and commercial areas.

Areas of the county that are vulnerable to the "externalities" of change and need careful land use planning include existing agricultural uses near residential areas. Non-residential uses, which are not part of an existing urban community, can be made compatible with sensitive screening and other mitigating design features.

Transportation Access

Proper access control includes limitation on curb cuts, widths of driveway and related design issues. The planning principles for Marion County in the Comprehensive Plan are relevant site plan review of non-agricultural development as it occurs on arterial roads and highways. The County must protect not only existing development but also certain "urban systems." Growth along major arterial roads must be carefully planned to allow the major thoroughfare to continue carrying traffic. Development along the arterial roads must be designed to minimize conflicts.

Access within Marion County to the regional highway network is important to the viability of Marion Reservoir and other development areas, including the cities; however, the transportation networks must be planned with the same sensitivity to the rural “sense of place” as other improvements.

Community Design

Focusing on neighborhood design is appropriate at the urban scale and countywide scale. Agricultural areas experiencing growth function as large-scale communities. We must think of traffic impacts within rural communities much like urban communities. Good community design can help new developments relate to adjacent developments to form strong communities. The land use pattern of a community plays a major role in determining its strengths and weaknesses.

The current Marion County pattern of rural landscapes must be preserved--as called for in Chapter Three--in ways similar to community preservation. The scale is larger, but the principles for planning are similar: being good neighbors to one another.

Municipal Services and Natural Features

In addition to public land use policy, the physical features of the land affect future development. The *Natural Features and Cultural Attributes Map* indicates where the cities should target "Areas of Urban Influence." The county should consider this factor in implementing its new LESA system.

The County Lake falls under the City of Marion's "Area of Urban Influence"

The County administers the FEMA floodplain regulations. In addition to the administration of the FEMA regulations affecting floodplains, the county should encourage the cities to plan for development based on drainage basins. To accommodate the projected future land uses; the ability to serve existing and additional growth should be assessed. Once this ability to serve has been assessed, the desire for and appropriateness of a specific use can be weighed against the ability to serve such a use and need for improvements based upon the projected impact of the use. This is especially important when assessing the planned "Urban Service" areas outside the boundaries of the various cities, as discussed in the next section.

Residential Development

The Marion County plan seeks to define the contradictions inherent in unplanned, unmanaged, uncoordinated land use patterns of urban growth into rural areas. In particular, we need to understand how

far the present system of land use planning in most cities falls short of what is needed if urban development is to be managed better.

Well-designed rural subdivisions of 5-acre lots or more, served by paved roads and community sanitary sewers, with drive access restricted from the county roads or state highways, can be accommodated in rural areas. However, in order to maintain the rural quality of life, and to protect agricultural lands the overall net density shall not be more than one household per forty (40) acres. "Well-designed" means subdivisions approved based on policies and site design/platting standards that preserve open space through buffering requirements to shield neighboring agricultural activity and to maintain rural character. Additional Land Evaluation and Site Assessment (LESA) factors must be used to evaluate urban development proposals, such as soil types and "corn yields." The LESA system is discussed in Chapter 5, *Comprehensive Plan Implementation* of the Marion County plan and in the plan's Action Steps.

Urban development at even lower-densities can be accommodated, if the 5-acre and 10-acre lot subdivisions are designed to cluster at overall net densities of one unit per forty acres, or more; or better, clustered at urban densities on shared sanitary sewer systems. The policy rationale is the same: create open space to buffer neighboring agricultural activity and to maintain rural character. Development trends may pass through phases and turning points. Growth pressures in the future may be significantly different from the recent past. For that reason, the biggest policy challenge is to reduce dissention about land use change by adopting policies that cope intelligently with existing settlement patterns and prepare the county for future changes in urban, suburban, and rural land use.

Net Density Ratio

The County aims to protect agricultural land from competition and maintain the rural character, but at the same time allow development to take place. The county currently does not allow land sell-offs of less than 40 acres. Allowing the landowners to sell off five-acre parcels of their land to prospective residential builders, only in cases where the parcels abut paved roads and provided the net density remains 40 acres for every residential building, the County can protect agricultural land and maintain the rural character of the County. So if a landowner currently owns 160 acres of agricultural land he can sell off four parcels of five acres each and keep the rest under agricultural use. **The parcels he sells off must be adjacent to paved roads** to qualify for the net density ratio**.**

Another condition for allowing five-acre sell-offs would be where buyers **possess or restore an existing farmstead**. Again, the net density would remain no more than one unit per 40 acres; but in such cases, the **farmstead parcels sold-off would not have to be adjacent to paved roads**.

MAJOR TRANSPORTATION ISSUES

Roadway Classification System

The existing road and highway network is classified by function. Roads and highways are grouped into classes or systems according to the service they provide. The factors that identify roadway classifications include:

- the level of through-traffic movement; and
- Access to adjacent land or individual properties.

Roadways are not classified by the amount of traffic they carry; however, higher traffic volumes are usually consistent with upper level roadway classifications, as discussed below.

The functional classification for roadways employs a hierarchical structure to identify the operation of all roadways within a transportation system. The hierarchy of road types in ascending order is: local roads, collector roads, arterial roads, and expressways/freeways. Lower level roadways, such as local or collector roads, provide more direct access to property than do higher level roadways, such as arterial roadways or expressways.

Roadway classifications dictate the design standards for the construction of a roadway. The function of a roadway, traffic volume, and adjacent land use determine the type of roadway that should support daily traffic activity. General roadway design standards have been developed by the American Association of State Highway Transportation Officials (AASHTO) as defined in "A Policy of Geometric Design and Highways and Streets." The ability to improve an existing roadway by constructing additional lanes or other improvements to AASHTO standards, however, may be constrained by the existing development in growth areas. The standards summarized below for arterial, collector, and local roadways also reflect locally adopted standards.

Local Roadways

Local roadways provide direct access to private property. The ideal traffic volume for local roadways is less than 1,500 vehicles per day. The recommended width for a local roadway is 28 feet and the recommended minimum right-of-way is 60 feet. Local roadways serving residential areas should be constructed with an enclosed storm water system. On-street parking is usually permitted. However, in order to meet fire codes, which require a 20-foot path for equipment, parking should be limited to one side of the roadway.

Collector Roadways

Collector roadways can be further classified as minor collector roadways (two-lane) and major collector roadways (three-lane). The two-lane collector roadway functions to collect traffic in residential neighborhoods. Because traffic volumes on two-lane collector roadways may range between 1,500 and 5,000 vehicles per day, residential properties abutting the collector road may not be as desirable as those abutting a local road. The road width should accommodate two 16-foot lanes and curb and gutter for a width of 36 feet. To accommodate sidewalks and street lighting, a minimum right-of-way of 60 feet is needed. Depending on local conditions such as traffic volumes, up to an 80' right-of-way may be warranted. Parking and private access to the collector should be discouraged. If needed, parking should be allowed on one side only.

A three-lane collector roadway section is appropriate for collecting traffic in commercial land use areas, such as a business park or shopping center where traffic demand is expected to range between 1,500 and 12,000 vehicles per day. This road section includes two 12-foot through lanes, and can be widened by adding one 12-foot center left turn lane. The recommended road width for a three-lane collector including

curb and gutter is 40 feet. Sidewalks should be provided on both sides. The right-of-way width to allow for the roadway, sidewalks and street lighting should be 80 feet. On-street parking should be prohibited.

Arterial Roadways

Arterial roadways can be further classified into minor arterial roadways (four-lane) and major arterial roadways (five-lane). Minor arterial roadways are appropriate for carrying traffic through primarily residential areas without directly accessing any of the properties. A minor arterial road section includes four 12-foot through lanes and should provide additional left-turn bay at all signalized intersections and any major intersections. A minimum travel width of 52 feet and right-of-way width of 100 feet are recommended. Sidewalks should be provided on both sides. Only public roads should be allowed to access a four-lane arterial road and road spacing should be related to design speed as per a five or six-lane roadway. The ideal range for traffic volume on a four-lane arterial roadway is between 12,000 and 25,000 vehicles per day.

Major arterial roadways serve major activity centers and carry a high proportion of traffic on a limited number of roadway miles. A road section includes two 12-foot through lanes in each direction and between a 12-foot and 16-foot center two-way left-turn lane. A minimum road width of 65 feet and right-of-way of 100 feet are recommended. Traffic volumes on this type of roadway range between 25,000 and 35,000 vehicles per day

Highways

Highways are primary arterial roadways that are partially access controlled. These routes are typically the highest traveled corridors, serve major activity centers and carry the major portion of trips entering or leaving the county and the cities of the county.

Highway Corridors

U.S. Highways 50/56/77 and State Routes 150/256 function as major arterial roadways, providing both regional access and local arterial access. Major land uses such as the Marion Reservoir access roads and the Marion Lake are served by these primary roadways. Development along the federal and state highways must be carefully planned in order for efficient funneling of traffic onto local and collector roads. Further, roads and driveways intersecting the local arterials and major collectors that provide links to the highways, must be designed in a manner that will minimize traffic conflicts and maximize access to new development and major land uses.

Access Control

Just as the design of a roadway helps to move traffic efficiently, controlling access to the roadway system can help do the same. The lack of an adequate access control policy or plan increases the probability of having traffic hazards and increased traffic congestion. Traffic hazards and traffic congestion reduce the capacity of the roadway to accommodate the traffic volumes for which it is designed. Traffic congestion and traffic hazards increase the pressure to widen roadways, which requires additional public funds.

Roadway capacity can be increased or decreased in a number of ways. The method utilized most frequently to increase capacity is to widen a road to provide additional travel lanes. In some instances, however, it is not feasible to add additional travel lanes due to land uses on either side of existing roadways. In these instances, other methods of increasing roadway capacity may be more appropriate. Other methods include constructing intersection improvements, turn bays, medians, restricting road and driveway access or providing traffic signal timing improvements. Conversely, road capacity can be decreased by adding cross roads, driveways, traffic signals, or other traffic control devices. By developing an access control policy, road capacity can be maintained to efficiently accommodate future development.

Specific design characteristics associated with each functional classification depend on factors such as projected traffic volumes and local access control policies. Higher traffic volumes such as those exceeding 20,000 vehicles per day warrant construction of a four or five lane arterial road. Traffic volumes of 10,000 or 15,000 vehicles per day can be accommodated by a four-lane arterial road or by a two-lane arterial road that includes turn bays, good signal and intersection spacing, and private driveway access control. In many cases, a well-built two-lane arterial road can function as well as a four-lane road at approximately half the cost.

Acceptable traffic volumes on a major arterial roadway can range between 25,000 and 35,000 vehicles per day. However, excessive curb cuts and mid-block turning movements can reduce capacity. The center turn lane is appropriate because of frequent entrances into higher traffic generation land uses such as business parks and retail centers. A median can be constructed in locations where left-turns should be prohibited and on-street parking should not be allowed. For design speeds greater than 35 mph, or for peak hour right turn-in traffic volumes exceeding 100 vehicles, it is recommended that a right turn lane be constructed along the arterial roadway approaching the curb cut.

U.S. 56/50/77 and State Highway 15/256/150 provide regional access as well as access to abutting properties. Therefore, it is critical that a sound access control policy be followed as development occurs on property directly abutting the highway. Access control for major collector streets parallel to highways and county roads become critical for efficient movement of local traffic as residential and commercial growth occurs.

As future development occurs, minor roadway improvements may be necessary to prevent traffic congestion from increased traffic movements accessing U.S. 56. Such improvements may consist of turn bays, restricting road and driveway access, or providing traffic control devices on local arterial roads and access roads. The need for these improvements must be carefully balanced against the need to allow for the efficient movement of traffic through the County. Therefore, the carrying capacity of the highways must be protected by limiting the number of cross roads, driveways, traffic signals, or other stop controls.

Intersection Spacing

Adequate distance between intersections is essential for the safe and efficient flow of traffic. Appropriately spaced intersections provide through-motorists an opportunity to respond to traffic entering the street from a side street. Table 4.1 shows the recommended minimum standards for spacing intersections, determined by through-traffic speed.

Table 4.1 - Minimum Intersection Spacing Standards	
Through-Traffic Speed	**Minimum Intersection Spacing**
30 mph	210 feet
35 mph	300 feet
40 mph	420 feet
45+ mph	550 feet

Source: Institute of Transportation Engineers

Driveway Spacing

Like a street, private driveways create an intersection with a public street. Conflicts and potential congestion occur at all intersections - public and private. Methods to reduce conflict include:

- Separating the conflicts by reducing the number of driveways and intersections;
- Limiting certain maneuvers such as left turns; and
- Separating conflicts by providing turn lanes.

No access drives should be located within the operations area of an intersection. Driver conflicts need to be spaced in order to eliminate overlaps between through traffic and right turns.

It is recommended that new driveway locations should comply with the minimum corner clearance criteria indicated in Figure 4.1. Proper spacing of driveways permits adequate storage and stacking of automobiles on the public street. This distance may have to be increased in cases with high volumes to ensure that driveways do not interfere with the operation of turning lanes at intersections.

The number of driveways accessing undivided arterial roadways should be minimized. The following standards in Table 4.2 are based on AASHTO standards and the Institute of Transportation Engineers (ITE) Manual.

Table 4.2 - Suggested Maximum Driveway Guidelines		
Maximum Number of Driveways	**Driveway Spacing**	
	Undivided Arterial Roads Length of Lot Frontage	**Divided Arterial Roads Length of Lot Frontage**
1	0-399 feet	0-529 feet
2	400 - 899 feet	530 - 1199 feet
3	900-1,399 feet	1200 - 1859 feet
4	1,400-1,899 feet [1]	1860 - 2525 feet [2]

Source: Institute of Transportation Engineers (ITE) Manual

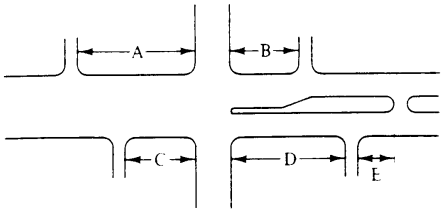
Notes:

[1] For each 500 feet above 1899 feet, one additional driveway is permitted.

[2] For each 665 feet above 2525 feet, one additional driveway is permitted.

MAJOR ROADWAY PLAN MAP

Figure 4.1: Corner Clearance Guidelines



Minimum Corner Clearances*

Item	Functional Classification of Road		
	Arterial	Collector	Local
A	230	175	50
B	230	175	50
C	230	175	50
D	230	175	50
E	75	75	0

Guidelines for signalized intersection control

Source: Based on Institute of Traffic Engineers Handbook

Specific minimum corner clearance guidelines are listed in Figure 4.1. These guidelines can be used to regulate new commercial developments located along arterial or collector streets.

Roadway Surface Material Standards

The major roads of Marion County should conform to one of the following standards:

	TABLE 4.3: ROADWAY MATERIAL OPTIONS
Option	**Material Description**
A	Must meet specifications of the Kansas Department of Transportation (KDOT).
B	Six (6) inches of Portland cement concrete over a six-inch compacted subgrade 95 percent of standard maximum density.
C	Two (2) inches of Type 3 asphaltic concrete, 10 inches of Type 1 asphaltic concrete base course and a six (6) inch compacted subgrade 95 percent of standard maximum density.
D	Two (2) inches of Type 3 asphaltic concrete with six (6) inches of Type 1 asphaltic concrete base course and a six (6) inch compacted subgrade 95 percent of standard maximum density.
E	Three (3) inches of Type 3 asphaltic concrete with a five (5) inch stabilized aggregate base and a six (6) inch compacted subgrade 95 percent of standard maximum density.
F	Aggregate rock—variable—with a five (5) inch stabilized aggregate base and a six (6) inch compacted subgrade 95 percent of standard maximum density.

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MUNICIPAL UTILITIES AND THE CAPACITY TO SERVE GROWTH

In order to determine what type of land uses should be projected for future growth areas, an assessment must be made of the ability of the existing utility infrastructure to serve the additional growth. The desire to allow for a specific land use must be weighed against the ability of the county and the cities to serve. The need for improvements will be based upon the impact of the projected use on existing utility systems.

The *Natural Features and Cultural Attributes Map* illustrates the natural and cultural features of Marion County. The map shows where there is the ability of the Marion County city systems to serve the future growth areas. The following summary of city service capacities must be considered when planning for urban growth in Marion County. The new LESA system factors in the municipal utility capacity of the area cities.

In response to the Municipal Services Summary, the three major cities of Marion County were asked for information concerning key municipal services of their city. The three cities interviewed were Hillsboro, Peabody and Marion. All three cities have reported moderate growth in the population and city services

The cities were asked about their respective water capacities. The Marion Reservoir is the main source of water in the three cities. While Hillsboro and the City of Marion have adequate water supply, Peabody will be buying water from Hillsboro. All three cities provide water and sewer services to their incorporated areas.

All cities reported wastewater treatment facilities. The City of Marion's wastewater treatment facility operates at 37% of its capacity and Hillsboro's operates at 70% during peak flow. Hillsboro is scheduled to make upgrades and improvements to the current wastewater treatment facility in the next 3 or 4 years to better comply with regulations.

The solid waste from the Cities of Marion, Florence, Burns and Hillsboro is directly hauled to the transfer station at Marion and further transported to the Waste Management landfill near Topeka. Solid waste from the towns of Ramona, Goessel, Lehigh, Durham, Lost Springs and Lincolnville also goes to the transfer station. The remainder is transported out of the County. The City of Peabody hauls directly to the Harvey County landfill. Hillsboro also practices recycling.

GROWTH MANAGEMENT LAWS

Growth management laws are designed to control the timing and phasing of urban growth and to determined the types of land use that will be permitted at the local and regional levels. Growth management laws take a comprehensive approach to regulating the pattern and rate of development and set policies to ensure that most new construction is concentrated within designated urban growth areas or boundaries (UGBs). They direct local governments to identify lands with high resource value and protect them from development. Several have Implemented farmland protection techniques, such as agricultural protection zoning, purchase

of agricultural conservation easement programs and transfer of development rights programs since the enactment of GMA.

Purchase of Agricultural Conservation Easement Programs
Purchase of agricultural conservation easement programs pay farmers to protect their land from development. PACE is known by a variety of other terms, the most common being purchase of development rights. PACE programs allow farmers to cash in a fair percentage of the equity in their land, thus creating a financially competitive alternative to selling land for non-agricultural uses.

Right-to-Farm Laws
State right-to-farm laws are intended to protect farmers and ranchers from nuisance lawsuits. Every state in the nation has at least one right-to -farm law. Right-to-farm laws are a state policy assertion that commercial agriculture is an important activity. The statues also help support the economic viability of farming by discouraging neighbors from filing lawsuits against agricultural operations.

Tax Relief
Differential assessment laws direct local governments to assess agricultural land at its value for agriculture, instead of its full fair market value, which is generally higher. Differential assessment is also known as current use assessment, current use valuation, farm use valuation, use assessment and use value assessment.

As the American Farmland Trust (AFT) explains, other farmland protection programs are enacted commonly at the local level. The following programs can be implemented through local initiatives.

AGRICULTURAL PROTECTION ZONING

Zoning is a form of local government land use control. Agricultural protection zoning ordinances designate areas where farming is the primary land use and discourage other land uses in those areas.

Cluster Zoning
Cluster zoning ordinances allow or require houses to be grouped close together on small lots to protect open land. The portion of the parcel that is not developed may be restricted by a conservation easement. Cluster zoning has been used more successfully to preserve open space or to create transitional areas between farms and residential areas than to protect farmland.

Comprehensive Planning
Comprehensive planning allows counties, cities, towns and townships to create a vision for their joint future. Comprehensive plans provide a rationale for zoning and promote the orderly development of public services. A comprehensive plan can form the foundation of a local farmland protection strategy by identifying areas to be protected for agricultural use and areas where growth will be encouraged. It may include policies designed to conserve natural resources and provide affordable housing and adequate public services.

Right-To-Farm Ordinances
Local governments around the nation are enacting their own right-to -farm laws to strengthen and clarify weak language in state laws. A local right-to-farm ordinance can serve as a formal policy statement that agriculture is a valuable part of the country or town economy and culture.

Other Strategies to Protect Farmland and Support Agriculture

Competition for land is only one of the problems facing farmers and ranchers. Financial problems and the burden of complying with regulations are also significant challenges for commercial agricultural operations. Most farmers say the best way to protect farmland is to keep farming profitable. State and local governments have created a variety of marketing programs to support and enhance the economics of agriculture. Several states and a few local governments have developed programs that compensate farmers for protecting natural resources.

FARMLAND PROTECTION AND A "SENSE OF PLACE"

The protection of farmland is a public policy of the Marion County Plan. According to the AFT farmland protection toolbox programs that are generally enacted at the state level are as follows:

AMERICAN FARMLAND TRUST IDEAS

Agricultural District Laws
Agricultural district laws allow farmers to form special areas where commercial agriculture is encouraged and protected. Common benefits of enrollment in a district include automatic eligibility for differential assessment, protection from eminent domain and municipal annexation, enhanced right-to-farm protection, exemption from special local tax assessments and eligibility for state PACE programs.

Conservation Easements
Every state in the nation has a law pertaining to conservation easements. Conservation easements limit land to specific uses and thus protect it from development. These voluntary legal agreements are created between private landowners (grantors) and qualified land trusts, conservation organizations or government agencies (grantees).

Executive Orders
Governors of at least 10 states have issued executive orders that document the importance of agriculture and farmland to their states' economy, environment and culture.

AFT works with landowners, policy-makers and other key influentials in local communities and at the state level to help them develop effective farmland conservation programs. Why save Farmland? The Marion County planning process has identified the objective during public meetings. The AFT presents the arguments follows:

WHY SAVE FARMLAND?

- It's the only farmland we've got; when it's gone, it's gone forever!
- American farms ensure a safe and plentiful food supply.
- Many American families and rural communities are supported by their farmland.
- Saving farmland helps control sprawling development.
- Farms and ranches provide wildlife habitat.
- Urban-edge farms provide fresh, local produce for city residents.
- Farming is a better economic use of the land than scattered development.
- Farms provide a direct link to our agricultural heritage and America's history.
- Farms provide jobs.
- Farmland provides scenic open space.

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NATURAL FEATURES AND CULTURAL ATTRIBUTES MAP

Roads	State Highways, US Highways and Major Roads
County Boundary	Marion County Boundary
City Boundary	Incorporated areas
Historic Structures	Historic Sites and Trails
Electric Transmission Line	115 KV line alignment—generalized location
Areas of Urban Influence	Areas where Urban Development is encouraged. (For cities with adopted Zoning Ordinances)

LAND COVER

Cropland	Land used for agricultural activities
Grassland	Native Prairie lands to be protected
Woodland	Wooded areas
Water	Marion Reservoir and Marion Lake
Residential	Residential uses within incorporated areas
Commercial/Industrial	Commercial/Industrial uses within incorporated areas
Other	Quarries, Landfills and other uses.

CHAPTER 5 - PLAN IMPLEMENTATION

RECOMMENDATIONS

Marion County has an opportunity to build upon and protect its "sense of place" for the future by applying the objectives of the plan, guided by the planning principles of the plan, in the public interest. The plan has articulated a "Vision" for the future, and it is attainable. The great landscape architect/planner, Ian McHarg, wrote in his seminal work, *Design With Nature*, how regions can absorb growth "without despoliation."

> In fact there is not a scarcity of land but abundance. The problem is one of diverting development to (areas that are) capable of absorbing it, and deflecting it from where despoliation would result. Developing as recommended, despoliation can be averted—it requires only a minor increase in average density for the prospective population to be accommodated in the areas indicated. This slight increase in average density is justified on two counts: first, by the preservation of amenity and the open space thereby provided, secondly by the advantage of relative concentration in towns. (McHarg, *Design With Nature*, 1969)

Site Plan Review

Many zoning regulations require that plans for developments, other than single-family and two-family dwellings, be reviewed by the Planning Commission before building permits can be issued. Two stages of review are normally involved, preliminary and final. The preliminary plan is a detailed depiction of the entire project and its relationship to adjoining property.

Upon approval of the preliminary plans, the final plans may be prepared and submitted to the Planning Commission for approval. Simultaneous submittal of preliminary and final plans can be allowed at the discretion of the County.

Marion County should amend its zoning regulations to address this issue. The following review standards are appropriate when considering a site plan application.

> **Intent:** The Marion County Plan recognizes that the very nature of land development creates potential for traffic congestion, overcrowding, adverse visual environmental impacts, and health problems. Also, the County strives to promote growth in the countryside that is compatible with rural environments, while stabilizing the established residential districts. The County seeks to ensure that any location that must accommodate urban uses shall be subject to Site Plan Review by the Marion County Planning Commission, with an appeal option to the County Commission. Site Plan Reviews shall help ensure that the meaning and intent of the Zoning Regulations, and all portions thereof, are fully complied with.

The Site Plan Review regulates the development of structures and sites in a manner, which considers the following concerns:

A. The balancing of landowners' rights to use their land, with the corresponding rights of abutting and neighboring landowners to live without undue disturbances (e.g., noise, smoke, fumes, dust, odor, glare, stormwater runoff, etc.);

B. The convenience and safety of vehicular and pedestrian movement within the site, and in relation to adjacent areas or roads;

C. The adequacy of waste disposal methods and protection from pollution of surface or groundwater;

D. The protection of historic and natural environmental features on the site under review, and in adjacent areas; and

E. The stability of the rural environment--particularly established farmland--by promoting compatible development.

Applicability: The Zoning Administrator shall require that all applications for building permits for developments in the multifamily, commercial and industrial zoning districts be subject to Site Plan Review in accordance with these regulations, and for redevelopment in the following circumstances: if the redevelopment enlarges the size of the original structure by more than 50 percent in the case of a renovation or alteration. Developments shall be encouraged to implement the objectives of the Future Land Use Plan to foster compatibility among land uses in Marion County. Site Plan Reviews shall be performed by the Zoning Administrator and submitted to the Marion County Planning Commission for approval.

The Marion County Planning Commission shall perform their review at the next regularly scheduled meeting of the Planning Commission that meets the established deadlines and shall adjourn and reconvene as is determined necessary. The applicant may appeal a site plan review determination to the Board of County Commissioners for approval in the event that an applicant alleges that there is an error in any order, requirement, decision or determination made by the Planning Commission in the enforcement of Site Plan Review. The request for review by the Marion County Commission shall be accompanied by a complete description of the error(s) alleged.

Authority: Building permits shall not be issued for any use of land or proposed construction on a lot in the zoning districts in which Site Plan Review is applicable, unless Site Plan Review approval has been granted.

Submission Requirements: The Site Plan shall include the following data, details, and supporting plans which are found relevant to the proposal. The number of pages submitted will depend on the proposal's size and complexity. The applicant shall make notations explaining the reasons for any omissions.

Site Plans shall be prepared by a registered professional engineer, architect, or landscape architect at a readable scale. Items required for submission include:

A. Name of the project, address, boundaries, date, north arrow and scale of the plan.

B. Name and address of the owner of record, developer, and seal of the engineer, architect or landscape architect.

C. Name and address of all owners of record of abutting parcels.

D. All existing lot lines, easements, and rights-of-way. Include area in acres or square feet, abutting land uses and structures.

E. The location and use of all existing and proposed structures within the development. Include all dimensions of height and floor area, and show all exterior entrances and all anticipated future additions and alterations. For developments in the indicate design details to make new construction compatible with existing structures.

F. The location of all present and proposed public and private ways, parking areas, driveways, sidewalks, ramps, curbs and fences. Location, type, and screening details for all waste disposal containers shall also be shown.

G. The Zoning Administrator may require location, height, and intensity, of all external and lighting fixtures. The direction of illumination and methods to eliminate glare onto adjoining properties must also be shown.

H. The location, height, size, materials, and design of all proposed signage.

I. The Zoning Administrator may require a landscape plan showing all existing open space, trees, forest cover and water sources, and all proposed changes to these features including size and type of plant material. Water sources will include ponds, lakes, brooks, streams, wetlands, flood plains, and drainage retention areas.

J. The location of all present and proposed utility systems including:

(1) sewerage system;
(2) water supply system;
(3) telephone, cable and electrical systems; and
(4) storm drainage system including existing and proposed drain lines, culverts, catch basins, headwalls, endwalls, hydrants, manholes, and drainage swells.

K. Plans to prevent the pollution of surface or groundwater, erosion of soil both during and after construction, excessive run-off, significantly altering the water table, and flooding of other properties, as applicable.

L. Existing and proposed topography shown at not more than tne-foot contour intervals. All elevations shall refer to the United States Geodetic Survey (USGS) datum. If any portion of the parcel is within the 100-year flood plain, the area shall be shown, with base flood elevations; and the developer shall present plans for meeting Federal Emergency Management Agency (FEMA) requirements.

M. Zoning district boundaries adjacent to the site's perimeter shall be drawn and identified on the plan.

N. Traffic flow patterns within the site, entrances and exits, loading and unloading areas, curb cuts on the site and within 100 feet of the site.

A. The County Engineer may require a detailed traffic study for mixed use and multi-tenant developments, or for developments in heavy traffic areas to include:

(1) The projected number of motor vehicle trips to enter or leave the site, estimated for daily and peak hour traffic levels;

(2) The projected traffic flow pattern including vehicular movements at all major intersections likely to be affected by the proposed use of the site; and

(3) The impact of this traffic upon existing abutting public and private ways in relation to existing road capacity. Existing and proposed daily and peak hour traffic levels, as well as road capacity levels, shall also be given.

O. For new construction or alterations to any existing structure, a table containing the following information must be included:

(1) Area of structure to be used for a particular use, such as retail operation, office, storage, etc.;

(2) Maximum number of employees;

(3) Maximum seating capacity, where applicable;

(4) Number of parking spaces existing and required for the intended use; and

(5) A landscaping plan for implementing the buffering and open space requirements of the plan.

Standard of Review: The recommendations of the Zoning Administrator shall be based on the following standards:

A. The extent to which the proposal conforms to the previous sections of these Zoning Regulations.

B. The extent to which the development would be compatible with the surrounding area and minimize any adverse impact on neighboring farmlands and neighboring properties through appropriate buffers.

C. The extent to which the proposal conforms to the provisions of the County's Zoning Regulations and Comprehensive Plan.

D. The extent to which the proposal conforms to customary engineering standards used in the County.

E. The extent to which the location of streets and driveways are located so as to enhance safety and minimize any adverse traffic impact on the surrounding area.

Development Standards, "View Shed and View Corridor Overlay Districts": The Site Plan shall demonstrate the extent to which the structures, roads, driveways, open space, and other public and private improvements in the "**View Shed and View Corridor** Overlay Districts" have been proposed to achieve the following objectives:

A. Conserve natural resources and attributes available on the site;

B. Preserve the "sense of place" in Marion County—the open land and rural landscape, small communities and related land forms that make up the heritage of the south-central Kansas region—as viewed from the public rights-of-way of the regional thoroughfares; and

C. Ensure that coordination with the site development objectives of the County plan are considered, including dedication of easements and rights-of-way for open space.

REGULATION OF LAND USE CHANGE

The county administers zoning throughout the unincorporated areas. The county does not regulate the platting of land through a subdivision ordinance. The Marion County Planning Commission has nine members, three from each county commissioner's district. One of the three appointees may reside within an incorporated city of the district.

There is no formal review and consent by the cities in their Areas of Urban Influence. On a volunteer basis, the county staff reviews a zoning application—variance, rezoning, etc.—in relation to both county zoning and city zoning requirements. The city and county staffs confer and the joint review is included in the staff reports to the county planning commission.

As of the new Comprehensive Plan, there are established formal "Areas of Urban Influence" around the cities of Marion, Hillsboro and Peabody. These are simply a formalization of the current review and current process. It is recommended that a joint effort continue; also, that every city and town in the county participate in a review and consent process, with or without a formalized "Area of Urban Influence."

Recommendation—Joint Review and Recommendations

The plan establishes the rational basis for coordination with the cities on zoning and subdivision regulation. The drainage basins around and in the cities dictate how sanitary sewers can be extended in cost-effective ways. The county and cities must coordinate regulation of urban fringe growth to promote cost-effective extension of urban services.

Extension of city services to newly annexed areas must be coordinated with public and private investors. The infrastructure must be planned along each drainage basin and subsequently to neighboring basins. Such phasing of improvements will promote efficient expenditure of public investment in utility and street infrastructure. The creation of "Areas of Urban Influence" thus becomes a logical basis for joint city/county cooperation at the urban "fringe" of the principal cities in Marion County.

While the cities may establish extraterritorial zoning and/or subdivision regulations through an inter-local agreement with the county, it is deemed best to maintain county zoning control and coordinate with the cities through advice and recommendation.

Establish Areas of Urban Influence in Cooperation with Marion County.

- Establish "Areas of Urban Influence" where long-term residential development is indicated on the "Natural Features and Cultural Attributes Map."
- Plan for extension of city utilities to the areas.
- Plan for urban development in these areas around the cities where municipal utilities may be extended to serve denser growth.
- Allow development at ag-residential densities in "Areas of Urban Influence" on 5-acre lots; provided the land is "double-platted" to ensure future options for development at higher density. In this case, on-site septic systems would be allowed; however, a double plat must be prepared and submitted with the preliminary plat to show how the land can be re-subdivided and served by municipal sewers at a future date. The double plat requires the Preliminary Plat to show rights-of-way, easements and related dedications for future urban density should the land be annexed in the future. The Final Plat would not have to show these items, just the final-platted 5-acre and larger lots.
- When developments with city-sized lots (1-acre lots and smaller) are proposed, they should be located within the Areas of Urban Influence around the cities, or near existing urban-density developments, such as Eastshore, County Lake, Pilsen and similar developments on shared water and sanitary sewer services. Density may be greater where development has already occurred and is adequately serviced by public infrastructure, existing or approved for extension.

Rural Residential Zoning Should be Amended in the Zoning Ordinance to Provide for Compatible, Large-lot Development in Rural Areas.

- Rural residences should be allowed on 5-acre lots with site assessment in LESA weighted to favor non-tilled, wooded, steep or rough locations along SAS all-weather roads or highways, or existing farmstead sites located on existing gravel roads.
- Require an agricultural disclaimer recorded with the deed transfer that states lands within the Agricultural Zone are located in an area where land is used for commercial agricultural production.
- Conform to standard building codes.
- Develop at no greater density than 40-acre lots in undeveloped areas.

Institute Joint Meetings of the County Planning Commission and the City Planning Commissions

The Marion County Planning Commission should arrange to meet jointly with a local city planning commission when a proposed land use change is in an Areas of Urban Influence. A presentation would be made and the city planning commission would vote a recommendation. Then the county planning commission would vote on a final, official recommendation to the county commission. The city's vote would be considered prior to the county's vote. The city's review and consent would be handled in the same meeting as the county's public hearing.

The jurisdictional authority must be kept clear: the county planning commission acts on unincorporated area applications, and the city on applications inside the corporate limits. But the review and consent coordination is an effective mechanism that stays within state law.

For cities without a planning commission, the county will contact that city for comment prior to the public hearing for proposed land use changes within one mile of the corporate limits.

Adopt Subdivision Regulations—Countywide

- Adopt subdivision regulations for the county.
- Adopt regulations that apply special urban provisions for coordinating with the cities in the Areas of Urban Influence outside the cities; for example, common sewer and water lines for urban fringe development that link with city utilities.

Recommendation—City/County Cooperation in Development Permitting

In order to improve communication:

- Adopt county building codes for non-agricultural construction.
- Consider amending city building codes jurisdiction to extend into the Areas of Urban Influence.
- Review codes to ensure compatibility with the new jurisdiction.

The cooperative planning approach will allow for extension of building codes into unincorporated growth areas. With the plan in place, related issues can be addressed, such as future annexation—in response to urban growth.

Recommendation—City/County Cooperation on Building Code Administration

The County and the cities should consider new ways of administering building codes. For example, a common building code and construction permitting process may be workable for all jurisdictions, administered centrally through the office of the County Planning/Zoning Administrator. The multiple jurisdictions should cooperate in cost-effective administration of codes so that adequate staffing can be instituted, thereby assuring better enforcement.

Recommendation—Public Improvements

Marion County must invest in infrastructure to a) maintain current improvements, b) upgrade substandard improvements and c) invest in future improvements in response to growth demands. The county should make urban development pay its way.

Plan for Public Improvements, Financed by Development

- Adopt a five-year Capital Improvements Program (CIP).
- Require developers to dedicate local streets to the public as part of subdivision approval for urban density cluster developments.
- Require local streets in cluster developments to be improved to public standards so that county maintenance is affordable.

Recommendation—Wind Farming

Given that wind farming—the turning of aerodynamic blades attached to electric generators or turbines—creates an environmentally clean and renewable fuel to meet growing demand for electricity, Marion County should allow such uses as special exceptions in agricultural zoning districts. Such alternative energy production has far fewer pollutants than coal-burning power plants. The county should adopt amendments to the zoning regulations to establish appropriate siting criteria for the special use permit review.

Recommendation—Housing Strategies

To successfully enhance the county's housing stock careful strategies must be adopted based on the findings of the plan. The strategies must be pursued in cooperation with area cities. These strategies are components of a comprehensive multi-year effort Marion County should carry out to improve the overall character of the county's housing stock. Specific strategies recommended are as follows:

1. *Install and Help Finance Infrastructure to Encourage New Development* - Extending new infrastructure for housing must be looked at as investment and part of the cities' economic development efforts. Policies should be considered which offer up front assistance to residential developers including benefit districts and discounting the cost to induce residential subdivisions based on the number of units to be built and the expected new taxes which will be paid by new homeowners. For example, the State of Kansas has enacted a new law in 1999 allowing for tax increment financing to be used to assist in the development of new housing in rural counties. Other

traditional approaches such as special benefit districts should also be encouraged to support the installation of utilities in areas suitable for new residential development.

2. *Establish a Marion County Housing Advisory Council* - Since the condition of housing and new housing development have such a major impact on the character of Marion County, an ongoing forum for discussion and dialogue of key housing issues is needed. The establishment of a countywide housing advisory council made up of a cross section of persons from throughout the county and residing in different types of housing could serve as an important sounding board for issues that would ultimately be considered by the county planning commission, county commission and/or city councils. Issues and topics might range from open space easement issues to code compliance matters.

4. *Seek federal and state land use reform* - There are an increasing number of changes to federal and state land management practices that may create new opportunities for Marion County. Recent initiatives on the state and federal levels have included state and/or federal government flexibility on such matters as extending lease terms, set backs requirements and possible infrastructure assistance. By potentially opening up or even transferring out of public ownership to private use for well planned, private investment, Marion County may gain opportunities to enhance the county's housing environment.

Recommendation—Adopt and Apply Agricultural Buffer Zones

Tom Daniels and Deborah Bowers, authors of Holding Our Ground, Protecting America's Farms and Farmland (1997), describe two types of agricultural buffer ordinances. One type refers to the siting of non-farm dwellings on building lots subdivided off a farm. The second type regulates the quantity of development allowed by non-farm agricultural zoning. A blend of these two approaches is recommended for an agricultural buffer zone in Marion County.

A buffer of land required between nonagricultural buildings or lots and property with an agricultural zoning designation will help minimize potential incompatibilities among land uses. A limited range of uses can be allowed for buffer areas, including open space, recreational uses, or cemeteries. Site review of the landscaping plans of buffered areas should include consideration of potential crop reduction due to shade created from planted vegetation.

Deeds for new homes built within 300 feet of an agricultural use in the agricultural district should contain restriction clauses or disclosure agreements acknowledging adjacent agricultural uses. An example of an agricultural disclaimer is as follows:

> *All lands within the Agricultural Zone are located in an area where land is used for commercial agricultural production. Owners, residents, and other users of this property or neighboring property may be subjected to inconvenience, discomfort, and the possibility of injury to property and health arising from normal and accepted agricultural practices and operations, including but not limited to noise, odors, dust, the operation of machinery of any kind, including aircraft, the storage and disposal of manure, the application of fertilizers, soil amendments, herbicides, and pesticides.*

Disclaimers and disclosure agreements raise the buyer's awareness of the potential neighboring land uses. They may lessen the ability of a non-farm neighbor to win a nuisance suit against a farmer who employs normal farming practices.

Recommendation—County Road Maintenance Standards

END USE OF QUARRIES

The Marion County Planning Commission in consultation with City Planning Commission should discuss and develop policies for post-closure re-use of quarries. If required a study should be conducted to study all inactive quarries in the County, and their possible –re-use.

A Quarry in Marion County

LAND EVALUATION AND SITE ASSESSMENT (LESA) SYSTEM

Purpose and Intent. The Land Evaluation and Site Assessment (LESA) System has been designed to provide a rational process for assisting local officials in making farmland conversion decisions through the local zoning process. The staff of the Marion County Planning Commission, Soil Conservation Service and the Marion County Soil will use the system and Water Conservation District when reporting to local hearing bodies and elected officials concerning petitions to allow the conversion of farmland to non-agricultural uses. The system contains two (2) separate but related reports as follows:

- Land Evaluation - an evaluation of soil properties and their relative desirability for agricultural use; and

- Site Assessment - an assessment of other factors relating to the site that should be considered before farmland is converted to other uses.

EVALUATION SYSTEM. The system has been designed to provide an assessment of each factor that relates either to the land or the site. The percentage of each factor met should be considered when recommending on each land use application:

- Maintenance of land for agricultural use, or
- Conversion of land to other uses.

The following breakdown should be used in evaluating land for rezoning from agriculture to other non-AG related uses. Percentage values consistently above 50 percent indicate that the site is a prime location for agricultural retention. Percentage values consistently less than 50 percent indicate that the site is suitable for non-agricultural related uses.

FACTORS TO BE CONSIDERED. The factors to be considered and the points assigned to each factor are listed below:

Land Evaluation:

The land evaluation section of the system is designed to provide an average site value based on soil compatibility for farming:

- Grouping all soils in Marion County into one of eight soil groups by using a soil capability class, productivity index and a prime or important farmland designation; and

- Calculating a relative value of each soil group by dividing the highest productivity index of the groups found in the County into the productivity index for each soil group.

The average site value is then calculated in accordance with the following example. The numerical values of the example are for illustrative purposes, only:

Soil Group	Relative Value	Number of Acres In Site	Product of Relative Value and Number of Acres
1	100	50	5000
2	96		
3	94	20	1880
4			
5	85	10	850

6	80	10	800
7			
8			
TOTALS		100	8530

Product of Relative Value and Acres = Average Site Value
Acres in Site
8530 = 85.3
100

Site Assessment

Agricultural economic viability of a site cannot be measured in isolation from existing and impending land use needs of Marion County. The Site Assessment process provides a system for identifying important factors other than soils that affect the economic viability of a site for agricultural uses.

This section describes each Site Assessment factor to be considered when a change to another land use is proposed in an area zoned A-, Agriculture, under the provisions of the Marion County Zoning Ordinance. The Site Assessment factors are grouped into the following three major areas of consideration:

- Location and Land Use Considerations;
- Public Policy Considerations; and
- Public Service and Community Facility Considerations.

Based on current land use data, land use regulations, site inspection and other pertinent information, a point value is determined by analyzing each site assessment factor and selecting a number value that best reflects the quality of the property in question. The LESA system should weight the present use of the site and its immediate surroundings—such as an established pattern of urbanization—more than soil types or view shed degradation.

SITE ASSESSMENT FACTORS, VALUES, AND DESCRIPTIONS OF FACTORS.

Location and Land Use Considerations

1) Land Area in an Agricultural Use Within one mile of site.

90% to 100%	15 points	_____
75% to 89%	12 points	_____
50% to 74%	9 points	_____
25% to 49%	6 points	_____
10% to 24%	3 points	_____
0% to 9%	0 points	_____

This factor is a major indicator of the agricultural character of an area. Areas in the County that are dominated by agricultural uses are generally more viable for farm purposes. The definition of agricultural land uses should be interpreted to mean all agricultural and related uses that can be considered to be part of the farm operation. This would include farmland (cropland), pasture lands, or timberlands whether or not in current production and farm residences, barns, and outbuildings.

The one-mile area of consideration for this factor was selected because in Marion County, a one-mile radius is a reasonable and manageable area when analyzing the land use and overall characteristics of the area. Since this factor is a major indicator of the agricultural character of an area, it should be weighted heavily.

2) Land in an Agricultural Use adjacent to the site. (% of total frontage)

90% to 100%	20 points	_____
75% to 89%	16 points	_____
50% to 74%	12 points	_____
25% to 49%	8 points	_____
10% to 24%	4 points	_____
0% to 9%	0 points	_____

In order to limit potential nuisance complaints and other forms of conflict, pre-existing adjacent land uses should be evaluated in all cases. Since this factor is also a major indicator of the agricultural character of an area, it should be given the highest consideration.

3) Size of the site to be converted.

80 and larger	20 points	_____
40 to 79 acres	15 points	_____
10 to 39 acres	10 points	_____
0 to 9 acres	5 points	_____

This factor recognizes that the size of the parcel of land has an impact on the site's viability for agricultural purposes. This factor is less significant, since a well designed, larger parcel may fit better into the countryside than an isolated, small parcel.

Public Policy Considerations

4) Land area zoned for agricultural use within one mile of the site.

90% to 100%	15 points	_____
74% to 89%	12 points	_____
50% to 74%	9 points	_____
25% to 49%	6 points	_____
10% to 24%	3 points	_____
0% to 9%	0 points	_____

This factor is important since zoning regulations derive from the police power. When land is zoned other than A-Agriculture District, the potential exists for non-agricultural uses which may be incompatible with agriculture. The one-mile radius is a reasonable and manageable area in Marion County when analyzing the land use and overall characteristics of the area.

5) Land area zoned for agricultural use adjacent to the site.

90% to 100%	20 points	_____
74% to 89%	16 points	_____
50% to 74%	12 points	_____
25% to 49%	8 points	_____
10% to 24%	4 points	_____
0% to 9%	0 points	_____

This factor is important since zoning regulations derive from the police power. When land is zoned other than A-Agriculture District, the potential exists for non-agricultural uses which may be incompatible with agriculture. Marion County should weight adjacent Ag zoning heavily when analyzing the land use and overall characteristics of the area.

6) Availability of other development sites in the vicinity of the site.

Other properly zoned sites available	20 points	_____
Limited other sites available	12 points	_____
No other sites available	8 points	_____

This factor can be used for site comparison where it may be essential to convert land to a non-agricultural use. Often with a little investigation, sites for development on less productive agricultural land can be identified as alternatives. The site can be compared with any number of other sites.

7) Environmental considerations (flood hazards, wetlands, aquifer recharge area, wild life habitat and unique community values).

Major negative impact	20 points	_____
Substantial negative impact	12 points	_____
Minor negative impact	6 points	_____
No negative impact	0 points	_____

This factor addresses whether the proposed use or zoning change will have impact on neighboring properties from surface runoffs. This factor is also concerned with environmentally sensitive areas such as floodplains and wetlands and takes into account whether reasonable provisions have been made to collect and divert surface runoff in order to reduce the likelihood of damage to adjoining properties. The selection and design of measures will depend on varying local conditions such as soils, topography, physical features

and the extent of impervious surface. Refer to the Marion County Zoning Ordinance for the range of permitted uses in the proposed zoning district.

8) Creation of Open Space:

- Front setbacks and open space standard 20 points _____
- Open Space and front setbacks increased 50% or more 0 points _____
  Major creeks and valleys preserved
  Adjacent prime farmland buffered
  Timber land preserved

In preserving an agricultural environment, the plan seeks to maintain an open space and preserve natural features.

9) Protection of Vistas in Designated View Sheds and View Corridors:

Fewer than one-half checked:* 20 points _____
One-half or more checked:* 0 points _____

The extent to which the site plan and/or plat accommodates/protects the following features:

- Ridges where vistas are broad _____
- Open grasslands _____
- Major creeks and valleys _____
- Rugged bluffs and steep ravines _____
- Timberland _____
- Sloping sites bounded by hills _____
- Fan-shaped sites (having an ampitheatrical effect) _____
- Bowl-shaped sites _____

The Marion County plan strives to maintain a "sense of place" by building on the visual richness of the rural atmosphere. Therefore, protecting the views and vistas from designated scenic byways such as U.S. Highway 77, is a key strategy for fulfilling the public purpose.

Public Service and Community Facility Considerations

10) Access to adequate transportation:

1. Frontage on a county highway, a township road, or a city street building to rural standards
   (1) poor surface condition and a pavement width of less than 22 feet. 20 points _____

   (2) good surface condition and a pavement width of less than 22 feet. 16 points_____

   (3) poor surface condition and pavement width of more than 22 feet. 12 points_____

   (4) good surface condition and pavement width of more than 22 feet 8 points_____

2. Frontage on a city street built to urban standards 0 points_____

Access to transportation is a consideration in the location of all types of uses. The location of industrial, commercial, and residential uses within 1.0 mile of existing municipalities results in a more efficient movement of goods and people. The location of non-agricultural uses along rural roads may necessitate the upgrading and widening of rural roads, which results in a further loss of farmland. High volume/high speed traffic may not be compatible with agricultural uses.

The type of road providing access to a site whether existing or to be provided by a developer, and the availability of transportation modes are major factors in determining suitability of the planned use or proposed rezoning.

11) Availability of a public sanitary sewer system.

Sewer system not available	20 points	_____
Sewer system more than 1500 feet from site	16 points	_____
Sewer system between 750 and 1500 feet from site	12 points	_____
Sewer system over 750 feet from site	8 points	_____
Sewer system less than 750 feet from site	6 points	_____
Sewer system available at site	0 points	_____

The availability to a site of a central sewer system with sufficient capacity encourages growth and reduces the long-term viability of a site for agriculture. This factor should be weighted with requirements to of the developer to extend sewer under certain circumstances. Marion County should adopt a policy that states, "new or renovated private sewage disposal systems shall not be approved where a public sanitary sewer is located within 200 feet of the property and is available for connection."

12) Availability of a public water system.

Public system not available	20 points	_____
System more than 1500 ft. from site.	16 points	_____
System between 750 & 1500 ft. from site.	12 points	_____
System over 750 ft. from site.	8 points	_____
System less than 750 ft. from site.	6 points	_____
System available at site.	0 points	_____

This factor recognizes that the existence of a central water system encourages growth and reduces the long-term viability of a site for agriculture. As a central water system is extended into an agricultural area, the character of the area may change and more non-agricultural development occurs.

13) Public Protection Classification (Fire Insurance Rating)

Classifications 9 and 10	20 points	_____
Classification 8	16 points	_____
Classification 7	12 points	_____

Classification 6	8 points	_____
Classification 5	6 points	_____
Classifications 1 through 4	0 points	_____

Fire protection requires a combination of equipment, manpower, and availability and supply of water. This factor is also related to distance between fire station and proposed development. Fire insurance ratings in Marion County are determined by the Fire Suppression Rating Schedule, published by the Insurance Services Office of Kansas. These ratings are based on the fire fighting capability of the rural fire protection districts serving the unincorporated areas of Marion County and should be listed in the Zoning Office.

14) Proximity of elementary and secondary schools/ Capacity current and planned.

Capacity is insufficient and not planned	20 points	_____
Over 30 minutes from site	16 points	_____
15 to 30 minutes from site	12 points	_____
Less than 15 minutes from site	8 points	_____
Walking distance of site	0 points	_____

Proximity of an elementary school affects the driving time and wear and tear on the county roads. It also relates to safety, when fewer miles are driven each school day.

15) Cost/Benefit of Non-residential Development.

Public costs exceed public benefits.	15 points	_____
Public benefits equal public costs.	8 points	_____
Public benefits exceed public costs.	0 points	_____

The county should conduct a general assessment of public costs and benefits an evaluate the timeliness of a proposed development. If the public costs are too high, or they are not budgeted at the time of proposed development, then the private developer may elect to invest in the improvements.

16) Positive Environmental Effects of Development.

There will be no environmental benefit.	15 points	_____
The project will advance environmental objectives.	0 points	_____

If a project resolves environmental problems—on-site or off-site—then the county should weight this factor. In summation, these 16 factors should be considered in the Marion County LESA system when evaluating development proposals.

17) Density of Neighboring Residential Development Pattern—Units per Section of Land.

Fewer than 4 residential lots already in 640 acres	30 points	_____
4 or 5 lots existing	20 points	_____
6 or 7 lots existing	10 points	_____
More than 8 lots existing	0 points	_____

If a project is proposed in a region of Marion County where a pattern of ag-density is preserved, and there are few residences or none per section of land, then the LESA score of the proposed residential development should be weighted as highly rated for farmland preservation. On the other hand, if the pattern of development on adjacent properties is already established as more urban-density, with more than one unit per 40 acres, then the project score should be weighted more for non-farm uses.

LESA Scoring Summary

Marion County should evaluate these16 factors in implementing the Marion County LESA system. Each eligible project will be evaluated as development a proposal and scored. The scores should be weighted and used as follows:

Land Evaluation:

80 to 100 points	Highly rated for farmland preservation
50 to 80 points	Moderately rated for farmland preservation
49 and below	Not rated for farmland preservation

Site Assessment:

250 – 300 points	Highly rated for farmland preservation
200 – 249 points	Moderately rated for farmland preservation
199 and below	Not rated for farmland preservation

The two ratings can be considered separately, or combined into a total score, in which case the evaluation would yield the following recommendations:

Combined LESA Score:

330 – 400	Highly rated for farmland preservation
250 – 329	Moderately rated for farmland preservation
249 and below	Not rated for farmland preservation

The rating should be reported during Site Plan Review consideration and considered by the Planning Commission when recommending land use change approval or denial.

GLOSSARY

Agricultural Land (Farmland)	Land in farms regularly used for agricultural production. The term includes all land devoted to crop or livestock enterprises, for example, the farmstead lands, drainage ditches, water supply, cropland, pasture land, or timberland (whether or not in current production), and grazing land of every kind in farms.
Agriculture	The devotion of land to the growing of farm or truck garden crops, horticulture, viticulture or pasturage as a principal use, together with accessory animal and poultry husbandry, dairying, apiculture and other common accessory uses including farm dwellings as defined herein and other buildings and structures for agricultural purposes upon such land. Source: Marion County Zoning Ordinance
Capability Subclass *	Subclasses are groups of capability units within classes that have the same kinds of dominant limitations for agricultural use as a result of soil and climate. The subclass provides information about both the degree and kind of limitation. There are two subclasses that are used with the soils in Marion County:
Capability Subclass (cont.)	Subclass (e) erosion: applies to soils where the susceptibility to erosion is the dominant problem or hazard in their use. Erosion susceptibility and past erosion damage are the major soil factors for placing soils in this subclass. * Capability Class I soils have no subclass. Subclass (w) excess water: applies to soils where excess water is the dominant hazard or limitation in their use. Poor soil drainage, wetness, high water table, and overflow are the criteria for determining which soils belong in this subclass.
Capability Class	Capability classes are broad groupings of soil mapping units that have similar potentials and/or limitations and hazards. These classes are useful as a means of introducing the map users to more detailed information on a soils map. The classes show the location, amount and general suitability of the soils for agricultural use. The national capability classification shows soils groupings in eight classes: Class I - soils have few limitations that restrict their use. Class II - soils have some limitations that reduce the choice of plants or require moderate conservation practices. Class III -soils have severe limitations that reduce the choice of plants or require special conservation practices, or both. Class IV - soils have very severe limitations that reduce the choice of

	plants, require very careful management, or both. Class V - soils have little or no erosion hazard but have other limitations impractical to remove that limit their use largely to pasture, range, woodland or wildlife food and cover. Class VI - soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture, range, woodland, or wildlife food and cover. Class VII - soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to grazing, woodland, or wildlife. Class VIII - soils and landform have limitations that preclude their use for commercial plan production and restrict their use to recreation, wildlife, or water supply, or to aesthetic purposes.
Farmland of Statewide Importance	This land is of statewide importance for the production of food, feed, fiber, forage and oilseed crops. Generally, additional farmland and that economically produce high yields or crops when treated and managed according to acceptable farming methods. Some may produce as high a yield as prime farmlands if conditions are favorable.
Prime Farmland	Prime farmland is land that is best suited to food, feed, forage, fiber, and oilseed crops. It may be cropland, pasture, woodland, or other land, but it is not urban and built up land or water areas. It either is used for food or fiber or is available for those uses. The soil qualities, growing season, and moisture supply are those needed for a well-managed soil economically to produce a sustained high yield of crops. Prime farmland produces the highest yields with minimum inputs of energy and economic resources, and farming it results in the least damage to the environment. Prime farmland has an adequate and dependable supply to moisture from precipitation or irrigation. The temperature and growing season are favorable. The level of acidity or alkalinity is acceptable. Prime farmland has few or no rocks and is permeable to water and air. It is not excessively erodible or saturated with water for long periods and is not frequently flooded during the growing season. The slope ranges mainly from 0 - 5 percent.
Productivity Index	Productivity indexes for grain crops express the estimated yields of the major grain crops as percentage of the average yields obtained under basic management. Soil productivity is strongly influenced by the capacity of a soil to supply the nutrient and soil-stored water needs of a growing crop in a given climate. Source: Soil Productivity in Kansas.

APPENDIX A - CLUSTER DEVELOPMENT PRINCIPLES

Two techniques are suggested as a strategy for Marion County's dual objectives of protecting agricultural land of the rural atmosphere enjoyed by non-farming residents. **Agricultural Buffer Zones** are intended to protect the farmer's ability to conduct agricultural practices, while a **Cluster Development Overlay Zone** can help accommodate development in the County that preserves the rural character and non-farm areas.

AGRICULTURAL BUFFER ZONES

Tom Daniels and Deborah Bowers, authors of Holding Our Ground, Protecting America's Farms and Farmland (1997), describe two types of agricultural buffer ordinances. One type refers to the siting of nonfarm dwellings on building lots subdivided off a farm. The second type regulates the quantity of development allowed by non-farm agricultural zoning. A blend of these two approaches is recommended for an agricultural buffer zone in Marion County.

A buffer of land required between nonagricultural buildings or lots and property with an agricultural zoning designation will help minimize potential incompatibilities among land uses. A limited range of uses can be allowed for buffer areas, including open space, recreational uses, or cemeteries. Site review of the landscaping plans of buffered areas should include consideration of potential crop reduction due to shade created from planted vegetation.

Deeds for new homes built within 300 feet of an agricultural use in the agricultural district should contain restriction clauses or disclosure agreements acknowledging adjacent agricultural uses. An example of an agricultural disclaimer is as follows:

> *All lands within the Agricultural Zone are located in an area where land is used for commercial agricultural production. Owners, residents, and other users of this property or neighboring property may be subjected to inconvenience, discomfort, and the possibility of injury to property and health arising from normal and accepted agricultural practices and operations, including but not limited to noise, odors, dust, the operation of machinery of any kind, including aircraft, the storage and disposal of manure, the application of fertilizers, soil amendments, herbicides, and pesticides.*

Disclaimers and disclosure agreements raise the buyer's awareness of the potential neighboring land uses. They may lessen the ability of a nonfarm neighbor to win a nuisance suit against a farmer who employs normal farming practices.

CLUSTER DEVELOPMENT OVERLAY ZONE

Cluster development, also known as Open Space Development or Conservation Design Development, groups homes or lots tightly on the more buildable or accessible portions of a site, leaving more open space and preserving land or natural features such as trees, streams, valleys, and steep slopes. For example, if zoning allows one unit per three acres, a typical 50-acre site would permit 13-15 homes. With clustered development, homes could be built on three times as many half-acre lots, leaving 25 acres of permanently

protected open space. Cluster development is often opposed and misinterpreted as including higher densities and concessions to the developer, but can be a valuable tool to preserve open space or natural features.

Once the overlay zoning designation is applied to the site by the Planning Commission following a public hearing, a sliding scale can be used by the developer to increase the proportion of open space to development density. The sliding scale encourages greater open space set-asides by allowing the gross density to rise if the net area consumed by development is reduced. In other words, if open space rises from 50 percent to 60 percent, with a roadside buffer depth growing from 100 feet to 150 feet, landowners would be allowed a 20 percent increase in the number of house lots. Table A-1 describes a suggested sliding scale.

Table A-1 - Sliding Scale of Development Density on an 100-acre Tract

Option	Open Space Preserved	Number of Lots	Maximum Lot Size	Road Setback	Density in acres per dwelling unit	Acres Preserved	Acres Developed
A	50%	10	5	100	10.0	50	50
B	60%	12	3.3	150	8.3	60	40
C	70%	20	1.5	200	5.0	70	30

Source: Adapted from a Redman-Johnston table cited in Randall Arendt, Rural by Design (1997).

Preservation of 70 percent of the parcel would earn an additional eight lots, subject to a maximum area of 1.5 acres each. The only exemptions from the above standards are for parcels 40 acres or larger, intended for agricultural use and prohibited from further subdivision by convenants recorded with the subdivision plat. This approach should result in overall density reductions to preserve rural character, while permitting small lot sizes to satisfy the vested interests of the County's farming community.

Cluster development also has the advantage of being able to site buildings away from environmentally fragile areas, rather than in a "cookie cutter" pattern associated with a typical rural development of large minimum lot sizes. But an important issue is the density that is allowed with the cluster.

Large minimum lot sizes of from 3 to 40 acres without the Cluster Development Overlay Zone can limit the number of nonfarm dwellings and can provide opportunities for hobby farming. However, a large minimum lot size can also create an awkward pattern that eats up the land on the buffer zone fairly quickly. Although, if public or centralized sewer and water are not available and are not expected to be for many years, a large minimum lot size can more safely accommodate septic and well systems than cluster developments with higher densities.

APPENDIX B - PUBLIC AND PRIVATE FINANCING

Marion County must coordinate with its area cities, not only in planning for the future, but in financing public improvements, as well. The following financing mechanisms apply to both county and city projects, and include roadway financing, housing and redevelopment financing and related improvements.

PUBLIC SOURCES

Neighborhood Revitalization Act (KS 12-177, 114-120)

The Neighborhood Revitalization Act enables municipalities to designate areas within a municipality as a neighborhood revitalization area. The purpose of the act is to encourage reinvestment in urban neighborhoods by providing tax rebates for property owners making considerable improvements to their property. Residential and commercial property owners are eligible for a tax rebate on the increment of the increase in property taxes based on the increased assessed valuation after improvement. Kansas cities, such as Topeka and Atchison, have successfully implemented this program.

Neighborhood Revitalization Areas. A neighborhood revitalization area falls into one or more of three categories:

1) An area with a predominance of buildings or improvements that are dilapidated, deteriorated, obsolete, inadequately ventilated and lighted, lacking provision for sanitation and open spaces with high population densities and overcrowding, to an extent that life or property is endangered.

2) An area with a predominance of deteriorated, dilapidated, unsafe and unhealthy conditions that inhibit growth of the municipality or constitute an economic liability for the public health, safety or welfare.

3) An area with a predominance of buildings that are either historic or architecturally significant and should be preserved or restored for productive use.

Neighborhood Revitalization Plans. Prior to designating an area for revitalization, the municipality must adopt a neighborhood revitalization plan for the designated area. The plan is to include:

1) Legal description of the area;
2) Names and addresses of property owners;
3) Identify zoning classifications and proposed land uses;
4) Proposals for capital improvements, including transportation facilities, water and sewage systems, refuse collection, road and street maintenance, park and recreation facilities, and police and fire protection;
5) Identify what property and what improvement actions are eligible for revitalization;
6) Criteria to determine eligibility; and
7) Procedure for submitting an application for property tax rebate.

Public/Private Road Improvement Financing

The current financing sources available to Marion County provide partial funding of future roadway improvements. However, additional financing tools are necessary to implement the recommended roadway improvements needed to serve urbanizing areas. These tools can be identified by the source of the financing. Primarily, there is public financing, which includes local, state and federal taxes and programs, such as those that are currently in place; and private financing, such as the individual developer.

The entity responsible for the cost of roadway improvements depends on the primary users. Arterial roadways benefit an entire plan area; therefore, the entire plan area should contribute to the construction of these roadway improvements. Similarly, construction or improvements to collector and local streets that serve specific developments should be paid for and constructed by the applicable development.

The cities and the county must employ a financial strategy that collects fees to pay for the construction of all arterial roadways and arterial roadway bridges within the unincorporated area of the county. The construction of all other public roadway improvements should then be the responsibility of the applicable developer.

Multiple developments in an area often create the need for roadway improvements. Therefore, a city may require a fee for the off-site roadway improvements. This is an individual developer's contribution to a fund for off-site improvements; rather than require a single development to construct the improvement(s). This method of financing is referred to as an impact fee. A working definition of an impact fee is:

> *an exaction (or tax, or dedication of money or other goods) to the public for an off-site public improvement necessitated in part by the developer who pays the fee. The amount of payment is based on the impact of each development on the need for the improvement. Each developer pays his fair share.*

However, impact fees can be controversial. The method for establishing the fair amount of the impact fee can vary depending on the method used for determining the impact, or need for the improvement, of the applicable development(s).

Recent court rulings have established three key issues that must be addressed in order for a municipality to impose an impact fee system.

1. The cities must establish a legal mechanism for imposing the fee as a condition of development approval.

2. A rational nexus must exist which demonstrates that there is a relationship between the fee or dedication that is being required of the proposed development and the applicable public improvement. To establish a rational nexus, three factors should exist:
    - the development creates a need for new capital facilities;
    - the developer pays a proportional share; and
    - the fee collected from the developer benefits the developer.

3. If imposition of the impact fee is legitimate, The cities must be able to demonstrate that the amount of the fee is in rough proportionality to the need and the use the development is creating for the applicable improvement.

The following is a summary of certain financing options available to the cities and/or the county for funding major road improvements. The term "major road improvements" is defined for purposes of this study as construction, reconstruction or major maintenance (milling and overlay) of arterial streets, including parkways (divided arterials), and a limited number of existing collector streets. It cannot be overemphasized that the options summarized in this section merely represent a list of possible financing tools. It is likely that the financing strategy ultimately selected will only incorporate several of these options. Some of the options may be mutually exclusive and some of the options may be of limited utility.

The authority of the county to impose some of the options in this section has not been fully investigated. Rather, all potential options are listed for the county's information, and the consultant team will fully realize the authority of the county to impose a particular option if the county desires to fully investigate that option. In order to avoid attaching any significance to the placement of options in the report, the options have been listed in alphabetical order.

- Capital Improvements Sales Tax
- Excise Tax
- General Obligation Bonds
- Government Programs
- Special Assessment Districts
- Right-of-Way Exactions
- Road User or Impact Fees

Capital Improvements (and Special Projects) Sales Tax. Kansas statutes authorize cities and counties to impose a sales tax of one-half percent or one percent on all retail sales in the jurisdiction for the purpose of funding capital improvements, including operation and maintenance. The sales tax must be authorized by the County Commission and approved by a simple majority of the voters in an election. The funds collected from this tax must be deposited in the general fund and may be transferred to a fund--such as a road improvement fund--to be used solely for the purpose designated in the vote that is approved by the citizens of the jurisdiction.

Marion County and the cities could vote a one percent sales tax. One half of the revenue could be shared between the county and the cities based on population. The other half of the revenue could be distributed to the county and cities based on relative ad valorem property taxes levied. Cities can vote up to an additional one percent sales tax.

Excise Tax. An excise tax is a method of raising revenue by levying a tax on a particular activity. An excise tax has been defined as a tax that is measured by the amount of business done, income received, or by the extent to which a privilege may have been enjoyed or exercised by the taxpayer, irrespective of the nature or value of the taxpayer's assets or investments in business. It is different than a property tax, which is a tax on the assessed value of property. An excise tax is not subject to the benefit or nexus requirements of a fee imposed pursuant to a city's police power, such as a road user or impact fee (see below). This

means that there need not be a rational relationship between the tax imposed and the demand for public services created by the activity upon which the tax is imposed; such as a new development and the resultant demand for new road, water, sewer, park or other public facilities that the development creates.

An excise tax's purpose is to raise revenue, not to pay for costs created by the activity upon which the tax is imposed. Unlike a road user fee, the funds collected from an excise tax are not earmarked for a particular purpose, such as road improvements. The funds collected from an excise tax are simply placed in the City's general fund for use for any valid public purpose. While earmarking of funds is unnecessary, from a practical standpoint, the City can state that the purpose of the excise tax is to provide for road improvements. This could be done in a number of different ways, including action through the adoption of an ordinance or less formally through the adoption of a resolution. An excise tax could not be imposed unless approved by a majority of those voting at an election on the question. There is no legal limit on the rate of an excise tax that could be imposed.

It has not been definitively determined, under Kansas law, that an excise tax is available to counties such as Marion County. Research has not uncovered any specific authority for the County to impose an excise tax, but has uncovered limitations in the Kansas Constitution and Statutes that may prohibit an excise tax. At the County's direction, the consultant team could research further the County's ability to impose an excise tax for road financing.

General Obligation Bonds. Subject to certain constitutional and statutory limitations, primary of which is a constitutional limit on the total amount of debt the County can incur based upon a set percentage of its assessed valuation, the city and county have the ability to raise funds for street improvements by the issuance of general obligation bonds. General obligation bonds are long-term obligations of the County backed by the full faith and credit of the County.

Kansas statutes authorize the County Commission to issue bonds for the construction, reconstruction, improvement, maintenance and repair of any and all public roads, highways, bridges and culverts within the County, and includes the acquisition of property through eminent domain powers. The proceeds from such bonds must be kept as a separate fund, such as The Road Bond Construction Fund. These funds may also be used in the construction, reconstruction, improvement, maintenance and repair of any street, avenue, road or alley in any incorporated city, town or village if that construction or improvement forms part of a continuous road, highway, bridge or culvert of the County.

Government Programs. State and federal programs exist that may provide a funding source for street improvement projects. Typically, such programs would be available only for projects meeting the criteria of that particular program and for transportation improvements forming a part of the funding entities' transportation network, i.e., federal funds for U.S. highways. Although some grants may be available, most programs will require a local "match" by the County to pay a specified portion of the project costs in order to leverage the funds from the other governmental entity. It should be noted that funding decisions have already been made for virtually all of these possible funding sources for the immediate future.

Special Assessment Districts. State statutes authorize the creation of a Special Assessment Districts (SA) for cities and counties. Under the SA statutes, particular areas of land may be designated by the County Commission as a neighborhood that will benefit from a particular public improvement. Landowners within each neighborhood must authorize the formation of the SA either by a vote of approval or by execution of a petition to the County Commission. The boundaries of the SA are created at an election and the approval percentages are the same as those for approval of general obligation bonds (see above). State statute requires that a landowner petition to create an SA must be signed by the owners of record of at least two-thirds by area of all real property located within the proposed SA. If approved, the County Commission may authorize the issuance of general obligation bonds to finance construction of an improvement, such as road improvements. To secure the bonds, a portion of the total cost is assessed against each landowner within the SA and the special assessment becomes a tax lien against the property. The method of apportioning assessments among the property owners within the SA is established prior to the creation of the SA. The bonds may be issued without a vote of the public. Bonds issued count against the city's debt limit. A SA allows the city to construct an applicable improvement sooner than other financing methods such as road user or impact fees.

Right-of-Way Exaction's. Exaction's are those aspects of development regulations that require a person seeking development approval to give something to the city or county or to a common maintenance entity as a condition of such approval. Traditionally, counties have required developers to dedicate right-of-way for streets within the development and for streets abutting the development as a condition of a specific development's approval; an exercise of the police power. Typically, these right-of-way exaction's have been imposed at the time of zoning or subdivision approval, with the understanding that the dedication would take place at no cost to the entity requiring the dedication. In 1994, the United States Supreme Court decided the case of *Dolan v. City of Tigard*, in which it held that any requirements for the dedication of land imposed as a condition of development approval must be roughly proportional to that development's contribution to the need for new public facilities. Further, the Supreme Court held that the local government imposing the exaction must make an individualized determination regarding the proportionality between the exaction and the impacts caused on public facilities.

After *Dolan*, it can no longer be assumed that street right-of-way dedications may always be exacted at no charge. An individualized determination must be made, in each instance, to insure that the dedication requested is roughly proportionate to the demand for right-of-way created by the proposed development. At a minimum, there must be some methodology used to quantify the development's impact and the amount of the dedication required to offset that impact. However, the courts have made it clear that mathematical precision of the relationship between the impact and the dedication is not required.

Road User or Impact Fees. A road user or impact fee is a monetary exaction on new development imposed as a part of the development approval process. There is some disagreement among the courts as to the application of the *Dolan* "rough proportionality" analysis to monetary exaction's such as these fees, but the more well-reasoned judicial opinions have held that impact fees are subject to the *Dolan* analysis described above (Right-of-Way Exaction's).

The authority of counties in Kansas to impose an impact fee is uncertain. Research has uncovered no specific authorization for county impact fees, and the Kansas legislature has not enacted impact fee enabling legislation.

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APPENDIX C - ENVIRONMENTAL OVERVIEW

Federal laws govern environmental management by federal agencies. Certain laws such as the Floodplain Management Act, are administered at the local level; others at the state level. This Appendix lists environmental laws that should be considered during the administration of the Marion County plan, by example only.

Floodplain Management

Marion County floodplains are protected under Executive Order 11988 – Floodplain Management, May 24, 1977. The purpose of the Order is to require federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. In accomplishing this objective, each agency is required to "take action to reduce the risk of flood loss, to minimize the impacts of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplain in carrying out its responsibilities."

As the State of Kansas participates in the National Flood Insurance Program (NFIP), any state-owned development located within a special flood hazard area as identified by the Federal Emergency Management Agency (FEMA) must obtain a flood development permit for the project. If the development is located within a regulatory floodway, a "no-rise" certificate/statement as to the effects of possible flooding is required before the development can be permitted.

The County ordinance should ensure that impacts to the base floodplain will be minimized throughout the design procedures to insure that any increase of floodwater elevation shall be less than one foot and that no rise will occur in the regulatory floodway, in accordance with Federal Emergency Management Agency (FEMA) standards.

Wetlands

Wetlands are defined as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (33 CFR 328.3. Wetlands are considered to be "waters of the U.S." and are regulated by the US Army Corps of Engineers of Engineers (USACE) under Section 404 of the Clean Water Act. For County projects that are federally funded, Executive Order 11990 requires all federal agencies to minimize impacts to wetlands when conducting specific activities.

A Section 404 permit is required for construction activities that place fill material within wetlands and ponds that the USACE chooses to regulate as waters of the U.S., and/or below ordinary high water lines of regulated rivers and streams. Should the County project require the discharge of dredged or fill material in any waters of the U.S., including wetlands, a permit may be required. A jurisdictional wetland determination must be conducted and submitted to the USACE for the project following design and prior to the initiation of any construction on the project that is within the USACE regulatory jurisdiction.

All County projects must consider the potential impacts to these isolated wetland systems, due to dredging operation, fill placement, or any alteration of the channel structure, and minimized the impacts to the extent possible.

Erosion Control

The National Pollutant Discharge Elimination System (NPDES) requirements of the Clean Water Act (CWA) prohibit construction activities that cause erosion that may pollute adjacent rivers and streams. The County must consider whether the construction activities of a project will disturb soil and cause the off-site movement of soil particles. The Kansas Natural Resources Conservation Commission may be contacted for obtaining guidance for establishing County regulations and permit procedures, methods of erosion control, temporary erosion controls, and best management practices.

The State may offer recommendations, similar to the following, in order to minimize impacts to the aquatic environment.

- State Channel Modification Guidelines should be followed for any channel modification or stream relocation.
- Disturbed areas should be graded and seeded as soon as possible to minimize erosion. The State may have seeding and planting recommendations.
- Avoid disturbing stream banks and riparian areas.
- Stream flows should not be interrupted and all temporary in-channel fills that could impound water should be provided with a culvert.
- Working in channels between certain dated should be avoided to the extent possible.
- Take all necessary precautions to prevent petroleum products from entering streams.

Hazardous Waste Sites

The County shall endeavor to limit development at sites that have been encumbered by hazardous waste, and may elect to research the following databases available from the U.S. Environmental Protection Agency, Region VII (USEPA) and the Kansas Natural Resources Conservation Commission. The list includes locations of sites that have potential hazardous and solid waste concerns, and existing businesses and past businesses suspected of using or storing oil or hazardous substances.

• NPL	National Priorities List
• Delisted NPL	NPL Deletions
• RCRIS-TSD	Resource Conservation and Recovery Information System
• SHWS	State Hazardous Waste
• CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
• CORRACTS	Corrective Action Report
• SWF/ LF	Permitted Solid Waste Facilities
• RAATS	RCRA Administrative Action Tracking System
• RCRIS-LQG	RCRA Information System

• PADS	PCB Activity Database System
• NPL Lien	NPL Liens
• TSCA	Toxic Substances Control Act
• MLTS	Material Licensing Tracking System
• WasteMgt	Waste Management
• TX MM	Multi Media Enforcement Cases
• CLI	MSW Closed and Abandoned Landfills
• AIRS	Aerometric Information Retrieval System Facility Subsystem
• ROD	Record of Decision
• CONSENT	Superfund (CERCLA) Consent Decrees
• Coal Gas	Former Manufactured Gas (Coal Gas) Sites
• MINES	Mines Master Index Files
• CERCLIS – NFRAPCERCLIS	No Further Remedial Action Planned
• TNRCC LUST	State Leaking Underground Storage Tank Incident Reports
• TNRCC UST	State Underground Storage Tank database
• TNRCC AST	State list of registered aboveground storage tanks
• RCRIS	USEPA list of hazardous waste treatment, storage or disposal sites
• HMIRS	USEPA Hazardous Material Incident Reporting System
• ERNS	USEPA Emergency Response Notification System for oil and hazardous substances
• FINDS	Facility Index System for USEPA information systems
• TRIS	USEPA SARA Title III Toxic Chemical Release Inventory System
• TNRCC SPILLS	State Spills database
• TX VCP	Voluntary Cleanup Program Sites
• TX IHW	Industrial and Hazardous Waste database
• CERCLIS	Federal Comprehensive Environmental Response, Compensation, and Liability Information System
• USEP	Emergency Response Notification System (ERNS)

Public Lands

Public lands may be reserved for public recreational usage under a Section 4(f) or Section 6(f) designation. Section 4(f) is part of the Department of Transportation (DOT) Act of 1966 that was designed to preserve the natural beauty of the countryside. Property eligible for Section 4(f) must be publicly owned, except for historic sites, which could be either public or privately owned. Section 4(f) eligible sites cannot be impacted by federally funded actions unless there is no feasible and prudent alternative.

Section 6(f) is part of the Land and Water Conservation Fund (LWCF) Act, which was designed to provide restrictions for public recreation facilities funded with LWCF money. The LWCF Act provides funds for the acquisition and development of public outdoor recreation facilities that could include community, county, and state parks, trails, fairgrounds, conservation areas, boat ramps, shooting ranges, etc. Facilities that are LWCF-assisted must be maintained for outdoor recreation in perpetuity and therefore require mitigation that includes replacement land of at least equal value and recreation utility park, recreation, wildlife or waterfowl.

The definition of publicly owned lands may include properties within the county that were purchased under the following:

- National Wildlife Refuge System
- National Park System
- Bureau of Land Management
- Wild and Scenic Rivers
- U.S. Fish and Wildlife Service
- Forest Service
- Federal-Aid In Fish Restoration
- Federal-Aid In Wildlife Restoration Act
- Recreational Demonstration Projects
- Federal Property and Administrative Service (Surplus Property) Acts
- Land and Water Conservation Fund (Lwcf) - Section 6(F)

Farmland

The County has adopted local policies that affect farmland. Federal programs must be undertaken in accordance with the following.

Farmland is protected under the federal Farmland Protection Policy Act (FPPA) as set forth in 1978 under 7 U.S.C. 4201 et seq., and the U.S. EPA Policy to Protect Environmentally Significant Agricultural Lands. The purpose of these regulations is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural use, and to assure that federal programs are administered in a manner that, to the extent practicable, will be compatible with state, local and private programs and policies to protect farmland. Additionally, the U.S. EPA's policy is to protect the Nation's significant/ important agricultural lands from conversions that are irreversible and result in the loss of an essential food or environmental resource. The U.S. Department of Agriculture (USDA) and the Natural Resource Conservation Service (NRCS) administers the FPPA.

Wildlife

The County may wish to coordinate with the Kansas Biological Survey and continue to identify wildlife areas and establish protection ordinances in accordance with the following.

The federal Fish and Wildlife Coordination Act (FWCA) was set forth in 1964 under 16 U.S.C. 661 et seq. The purpose is to protect fish and wildlife when federal actions result in the control or modification of a natural stream or body of water. The statute requires federal agencies to consider the effect that water-related projects would have on fish and wildlife resources; take action to prevent loss or damage to these resources; and to provide for the development and improvement of these resources. The Department of Interior through the Fish and Wildlife Service (FWS) and the Department of Commerce through the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) administer the FWCA.

Wild & Scenic Rivers

Wild and scenic rivers are protected under the Wild and Scenic Rivers Act (WSRA), codified under 16 U.S.C. 1271, et seq. The intent of the WSRA is to preserve the free-flowing state of rivers that are listed in the National Wild and Scenic Rivers System (System) or under study for inclusion in the System because of their outstanding scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. Rivers in the System are classified as wild river areas, scenic river areas, or recreational river areas. The WSRA establishes requirements applicable to water resource projects and protects both the river, and river segments, and the land immediately surrounding them. WSRA specifically prohibits federal agencies from providing assistance for the construction of any water resource projects that would adversely affect wild and scenic rivers. The U.S. Department of the Interior through the National Park Service (NPS), Bureau of Land Management (BLM), and Fish and Wildlife Service (FWS) and the Department of Agriculture through the Forest Service (FS), manage wild and scenic rivers within their jurisdiction and conduct the necessary studies to include additional river components into the System. Under Section 2(a) of the WSRA, states may also propose rivers to the System and manage them.

Threatened & Endangered Species

The purpose of the federal Endangered Species Act as set forth under 16 U.S.C. 1531 et seq. is to ensure that federal agencies and departments review actions they take or support to determine whether they may effect endangered and threatened species or their habitats. If such a review indicates the potential for effects, the federal agency must consult with the Fish and Wildlife Service (FWS) of the U.S. Department of the Interior and the National Marine Fisheries Service (NMFS) of the U.S. Department of Commerce. The State of Kansas has also identified species that are imperiled in the state, and their habitat locations.

Stream Buffer Requirements

Headwater streams are often severely degraded by urbanization. As a consequence, many communities have adopted stream buffer requirements as part of an overall watershed protection strategy. Stream buffers are an integral element of any local stream protection program. By adopting some of these rather simple performance criteria, communities can make their stream buffers more than just a line on a map. Better

design and planning also ensure that communities realize the full environmental and social benefits of stream buffers. Recommendation in this section are from the APA, PAS Memo of August 2000.

The ability of a particular buffer to actually realize its many benefits depends to a large extent on how well the buffer is planned or designed. In general, a minimum base width of at least 100 feet is recommended to provide adequate stream protection. In most regions of the country, this requirement translates to a buffer that is perhaps three to five mature trees wide on each side of the channel

Three-zone Buffer System

Effective stream buffers divide the total buffer width into three zones:

- Streamside;
- Middle core; and
- Outer zone.

Each zone performs a different function and has a different width, vegetative target and management scheme.

The **streamside zone** protects the physical and ecological integrity of the stream ecosystem. The vegetative target is mature riparian forest that can provide shade, leaf litter, woody debris, and erosion protection to the stream. The minim width is 25 feet from each stream bank-- about the distance of one or two mature trees from their streambank. Land use is highly restricted, limited to stormwater channels, footpaths, and a few utility or roadway crossings.

The **middle core zone** extends from the outward boundary of the streamside zone and varies in width depending on stream order, the extent of the 100-year floodplain, any adjacent steep slopes, and protected wetland areas. Its functions are to protect key stream components and provide further distance between upland development and the stream. The vegetative target for this zone is also mature forest, but some clearing may be allowed for stormwater management, access and recreational uses. A wider range of activities and uses are allowed within this zone, such as bike paths and stormwater best management practices (BMPs). The minimum width of the middle core is about 50 feet, but it is often expanded based on stream order, slope, or the presence of critical habitats (see Buffer Expansion and Contraction).

The **outer zone** is the buffer's buffer, an additional 25-foot setback from the outward edge of the middle core zone to the nearest permanent structure. In many instances, this zone is within a residential backyard. The vegetative target for the outer zone is usually turf or lawn, although the property owner is within a residential backyard. The vegetative target for the outer zone is usually turf or lawn, although the property owner is encouraged to plant trees and shrubs. Few uses are restricted in this zone. Gardening, compost piles, yard wastes, and other common residential activities are promoted within the zone. The only major restrictions are no septic systems and no new permanent structures.

Buffer Crossings

Two major goals of a stream buffer network are:

- To maintain an unbroken corridor of riparian forest; and
- The upstream and downstream passage of fish in the stream channel.

Some provision must be made for linear forms of development that must cross the stream or the buffer, such as roads, bridges, fairways, underground utilities, enclosed storm drains or outfall channels. Some performance criteria could include:

- Crossing width: define a minimum width for maintenance access.

- Crossing angle: direct right angles are preferred, because they require less buffer clearing than oblique crossing angles.

- Crossing frequency: allow only one road crossing within each subdivision, and permit no more than one fairway crossing for every 1,000 feet of buffer.

- Crossing elevation: have all direct outfall channels (the places where effluent is discharged into receiving waters) discharge at the invert elevation, or the lowest point of the stream channel.

Stormwater Runoff

Using buffers for stormwater treatment. The outer and middle zone of the stream buffer may be used as a grass/forest filter strip under limited circumstances. For example, the buffer cannot treat more than 75 feet of overland flow from impervious areas and 150 feet from pervious areas, such as backyards or rooftops. The designer should compute the maximum runoff velocity for both the six-month and two-year storms from each overland flow path, based on the slope, soil and vegetative cover. If the calculations indicate that velocities will be erosive under either condition (greater than three feet per second (fps) for a six-month storm, five fps for a two-year storm), the allowable length of contributing flow should be reduced.

When the buffer receives flow directly from an impervious area, the designer should include curb cuts or spacers so that runoff can spread evenly over the filter strip.

The stream buffer can be accepted as a stormwater filtering system if basic maintenance can be assured, such as routine mowing of the grass filter and annual removal of accumulated sediments at the edge of the impervious areas and the grass filter. The existence of an enforceable maintenance agreement that allows for public maintenance inspection is also helpful.

Location of stormwater ponds and wetlands within buffer. A particularly difficult management issue involves locating stormwater ponds and wetland in relation to the buffer.

Several arguments can be made for locating ponds and wetlands within the buffer or on the steam itself. Constructing ponds on or near the stream allows the greatest possible drainage area to be treated at one topographic point. Also, ponds and wetlands require the dry weather flow of a stream to maintain water levels and prevent nuisance conditions. Lastly, ponds and wetlands add a greater diversity of habitat types and structure and can add to the total buffer width in some cases.

Given the effectiveness of stormwater ponds and wetlands in removing pollutants, one should not completely prohibit their use within the buffer.

Plan Review and Construction

The limits and uses of stream buffer systems should be well defined during each stage of the development process, from initial plan review through construction. The following steps are helpful during the planning stage:

- Require that the buffer be delineated on preliminary and final concept plans;
- Verify the stream delineation in the field;
- Check that buffer expansions are computed and mapped properly;
- Check suitability of use of buffer for stormwater treatment;
- Ensure other best management practices (BMPs) are properly integrated in the buffer; and
- Examine any buffer crossings for problems.

Buffer Flexibility

The courts have generally found that buffer ordinances avoid the taking issue, by proving that buffer strips provide compelling public safety, welfare, and environmental benefits to the community to justify restriction of land use. In order to limit the hardship on developments the following planning methods can be utilized to mitigate any negative impacts associated with the creation of stream buffer strips.

Buffer averaging. Here a community provides some flexibility in the buffer width, permitting the buffer to become narrower at some points along the stream as long as the average width meets the minimum requirement.

Density compensation. This scheme grants a developer credit for additional density elsewhere on the site to compensate for developable land lost to the buffer. Developable land is defined as the buffer area remaining after the 100-year floodplain, wetland and steep slope areas have been subtracted. Credits are granted when more than five percent of developable land is consumed, using the approach shown in Table 1. The density credit is accommodated by allowing greater flexibility in setbacks, frontage distances, or minimum lot sizes. Cluster development also allows the developer to recover lots that are taken out of production due to buffers and other requirements.

Conservation easements. Landowners should be afforded the option of protecting lands within the buffer with a perpetual conservation easement.

Variances. The buffer ordinance should have provisions that enable an existing property owner to be granted a variance, if the owner can demonstrate severe economic hardship or unique circumstances make it impossible to meet some or all buffer requirement.

Table C-1. Example of the Use of Density Credits

(To compensate developers for excessive land consumption by buffers.)

Percentage of Site Lost to Buffers	Density Credit*
1 to 10%	1.0
11 to 20%	1.1
21 to 30%	1.2
31 to 40%	1.3
41 to 50%	1.4
51 to 60%**	1.5
61 to 70%**	1.6
71 to 80%**	1.7
81 to 90%**	1.8
91 to 99%**	1.9

Adapted form Burns, 1992.

*Additional dwelling units allowed over base density (1.0)

**Credit may be transferred to a different parcel