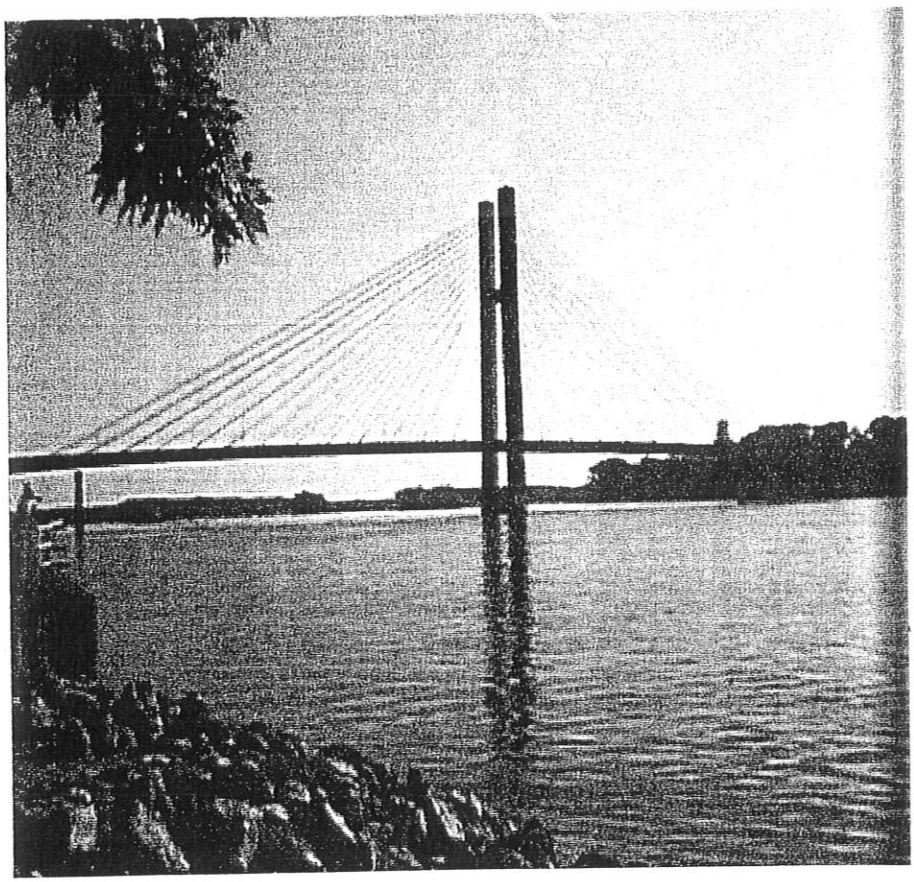
Des Moines County Comprehensive Plan



Adopted May 2004

Changes from 1997 Plan shaded

APPROVED
MAY 11 2004
BOARD OF SUPERVISORS

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DES MOINES COUNTY IOWA BOARD OF SUPERVISIORS

Resolution to Amend the Des Moines County Comprehensive Plan

WHEREAS, the County Board of Supervisors adopted a comprehensive plan in July 1997 and;

WHEREAS, the County recognizes the need for periodic updates to be made to said Plan; and

WHEREAS, the Des Moines County Zoning Commission, following formal public hearing and due process, recently recommended that certain amendments be made to the Des Moines County Comprehensive Plan text and land use maps; and

WHEREAS, the Des Moines County Board of Supervisors has reviewed all proposed amendments to the Comprehensive Plan; and

WHEREAS, the County Board of Supervisors wishes to enact the amendments to the comprehensive plan as referenced above.

NOW, THEREFORE, BE IT RESOLVED: That the Des Moines County Board of Supervisors does hereby amend the Des Moines County Comprehensive Plan as written and illustrated in the document and exhibits hereby attached.

Approved and adopted this 11th day of May, 2004.

DES MOINES COUNTY BOARD OF SUPERVISORS

David A. Miller, Chair

Timothy E. Hoschek

Edgar A. Blow, Member

APPROVED

MAY 11 2004

BOARD OF SUPERVISORS

ATTEST:

Carol S. Copeland, County Auditor

Des Moines County Iowa Zoning Commission

RESOLUTION AMENDING & UPDATING THE DES MOINES COUNTY COMPREHENSIVE PLAN

WHEREAS, the Des Moines County Zoning Commission is charged, through both County regulation and State Statute, with the duty of reviewing and recommending changes to the comprehensive plan; and

WHEREAS, the Des Moines County Comprehensive Plan was adopted in July, 1997 and had not been reviewed or updated as an entire single document since that time; and

WHERAS, the Des Moines County Zoning Commission has, over a period of time, reviewed all aspects of the current comprehensive plan and has suggested that certain changes be made to the text and land use maps; and

WHEREAS, the Des Moines County Zoning Commission duly publicized and conducted a public hearing on May 5, 2004 regarding the amendment and updating of the Des Moines County Comprehensive Plan including the current and future land use maps. A staff report to the Zoning Commission was presented. Public comments were invited; and

WHEREAS, after the conclusion of said public hearing, the Des Moines County Zoning Commission voted (6 to 0 with no abstention) to recommend amending and updating the Des Moines County Comprehensive Plan to the County Board of Supervisors.

NOW, THEREFORE, BE IT RESOLVED: That the Des Moines County Zoning Commission does hereby certify that the above action was taken regarding this recommendation.

APPROVED AND ADOPTED this 5th day of May 2004.

DES MOINES COUNTY
ZONING COMMISSION

Tom Schwenker,
Zoning Commission, Chair

ATTEST:

Ed Basch

Ed Basch, Land Use Administrator

Des Moines County Comprehensive Plan

Adopted May 2004

Changes from 1997 Plan shaded

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FORWARD

AGENCY DESCRIPTION

The Southeast Iowa Regional Planning Commission (SEIRPC) is a regional voluntary association of local governments and schools promoting inter-organizational cooperation. The SEIRPC is a regional resource to members, developing planning strategies, conducting studies, supplying data and information, providing grantsmanship and technical assistance, and hosting workshops. Working collectively, member cities/counties, schools and utilities can share professional assistance and resources they could not otherwise afford, to meet the challenges of the future.

SEIRPC serves Des Moines, Henry, Lee and Louisa counties, twenty-five municipalities, and four school districts. The SEIRPC is one of the sixteen regional planning councils in Iowa for local governments to cooperate in finding effective solutions to common problems.

COMPONENTS OF THE PLAN

The Plan is divided into three components. The first is the Introduction, which consists of opening remarks, limits of powers and the present situation.

The second component, the Background Report, discusses the current status of important areas within the county, including an evaluation of the past, present, and future trends of the county.

The third component, the Development Plan, states the goals of the county and the objectives of those particular goals combined with policies to insure future developments reflect those goals and objectives.

INTRODUCTION

FUNCTION OF A COMPREHENSIVE PLAN

The purpose of a comprehensive plan is to provide background information and help guide the decision-making process toward the growth and maintenance of a jurisdiction. The Plan examines the current status of Des Moines County's public services and public works, housing, economic development, and land use. The conditions provide a basis for policy recommendations and future plans.

Des Moines County leaders will use the Plan as a standard measure to determine if goals are being achieved. They will adapt the Plan as the needs of the county change. Just as the county is dynamic, the Plan is an ever-changing document that needs to be reviewed and updated periodically by the Board of Supervisors. Public leaders should use the Plan to direct the county's goals and objectives for the short- and long-term future.

The comprehensive plan is not a program, rather it provides a basis for achieving organized growth and development and maintaining essential services based on the area's demographics. Detailed cost estimates and timelines, capital improvement plans, and zoning ordinances are the tools used to guide the achievement of a comprehensive plan. As such, the comprehensive plan, exclusive of the two-mile zoning and subdivision ordinances is simply that, a guideline to assist in future development.

PRESENT SITUATION

This is a seven-year update of the 1997 Des Moines County Comprehensive Plan. The Des Moines County Board of Supervisors, in response to the City of Burlington executing the right of extraterritorial zoning, hired the Southeast Iowa Regional Planning Commission in 1995 to write a comprehensive plan for the county. The Board of Supervisors approved the plan in 1997. The plan can be used as the basis for countywide zoning if the county chooses to enact it.

The Des Moines County Board of Supervisors determined it was in the best interest of the county to regulate land use especially the zone extending two-miles from the city limits of Burlington. The Two-Mile County Zoning Ordinance would prevent the city of Burlington from exercising its authority, opposed to the city itself regulating such land use.

PLAN IMPLEMENTATION

The county appointed a Land Use Planning Commission comprised of residents throughout the county to assist in the creation of the 1997 Comprehensive Plan. The 2004 Comprehensive Plan update will be reviewed by the seven member Planning Commission, which was appointed following adoption of the Two-Mile Zoning Ordinance. This commission will act as a guide advising the planners of the Southeast Iowa Regional Planning Commission in a direction consistent with county residents. Upon the conclusion of the Plan review, the county will provide opportunity for public input to review the document. Upon conclusion of public hearings, the document shall be adopted by the Board of Supervisors.

LIMITS OF POWER

The comprehensive plan is the foundation for county zoning. Chapter 335.5 states, "(zoning) regulations shall be made in accordance with a comprehensive plan and designed to preserve the availability of agricultural land…" Such regulations shall be made with reasonable consideration, among other things as to the character of the area of the district and the peculiar suitability of such area for particular uses, and with a view to conserving the value of buildings and encouraging the most appropriate use of the land throughout such county.

BACKGROUND REPORT

HISTORICAL/CULTURAL

Des Moines County is located in Southeast Iowa and has an area of 261,760 acres or about 409 square miles. About 60 percent of the county is cropland; 10 percent urban land; 8 percent pasture; and 22 percent woodland, wasteland, or idle land, according to a soil survey conducted by the U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS) formerly the Soil Conservation Service (SCS).

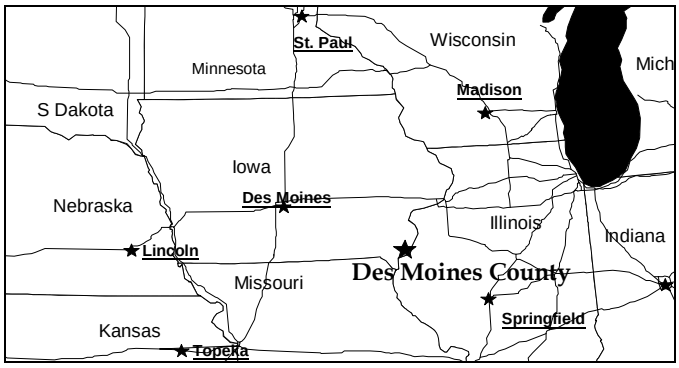
The county is bordered on the east by the Mississippi River and on the south by the Skunk River. According to the NRCS survey, the county is on a loess-covered glacial till plain with soils formed under prairie and forest vegetation. The area is underlain with limestone formed by the deposition of sediment from marine environments that covered the land mass of North America. (Iowa's Great River Road, 1977) Map 1 shows the location of Des Moines County within the State.

Early reports indicate the greater portion of the county originally consisted of prairie land, surrounded by streams and timberland. Historical documents state the soil consisted of a rich loam from ten to twenty inches or more in depth, and would support the production of corn, wheat, barley, potatoes, turnips, blue grass, timothy, and other cereals grown in this latitude. They also report the soils have not adapted to accommodate the growth of hardwoods such as oak and hickory, however softwoods grow to a large size. Today we know the soils will support the growth of hardwoods. The soils continue to support heavy agricultural activity consisting primarily of corn and beans (The History of Des Moines County, 1915:29).

One of the first noteworthy Americans to land on what is now Iowa soil was Zebulon Pike, who was sent on an expedition up the Mississippi to locate sites for future military encampments (Chapter 2.4 "National Register Sites in Burlington"). In 1805 Pike recorded:

> "We landed on a flint hill on the west side of the river, about four miles south of the Henderson at a bend in the river. The view from the hill across the river is very beautiful, showing broad prairies as far as the eye can reach, occasionally interrupted by groups of trees. We remained here about nine hours and saw traces of Indians," (Federal Writer's Project of the Works Progress Administration (FWP of the WPA 1939:18)).

Map 1: Location of Des Moines County



Des Moines County was first settled in 1833 and was originally part of the Michigan Territory. Early inhabitants of the territory were the Sac and Fox Tribes. At the time of its settlement, the county boundary included the territory just south of Rock Island to the mouth of the Des Moines River, thence west along the Missouri line for fifty miles. Flint Hills, as Burlington was then called, was designated as the county seat (Des Moines County Historical Society records of unknown origin post 1970:48).

In the fall of 1836, "Demoine County" became part of the Wisconsin Territory, at which time it was subdivided into the following counties: Lee, Van Buren, Henry, Louisa, Musquitine (Muscatine), and Cook. County comprised the land lying between Dubuque County and Musquitine and the Indian Territory boundary line. It was attached to Musquitine County for judicial purposes (Des Moines County Historical Society records of unknown origin post-1970:48).

Des Moines County was entitled to ten members of the House of Representatives in October 1836 at Belmont, Wisconsin where Burlington was selected temporary capital of the Territory. The government survey of public land marked off townships six miles square in sections of 640 acres in half and quarter sections.

Some of the early towns and settlements in Des Moines County were Northfield, Linton (now Garland), Latty, Spring Grove, Dodgeville, Huron, Roscoe, Jimtown, Kossuth, Sperry, Pleasant Grove, Middletown, Prairie Grove, Augusta, Slater, and Burgus.

Until 1861, Des Moines County was under what was known as the county board system. The members, who correspond to the current Board of Supervisors, were known as Commissioners and their meetings were held at Old Zion. In 1861, the County Board was abolished and a law passed providing for a Board of Supervisors consisting of one member from each township in the county. In 1870, the Board was reduced from 13 to three members (Burlington Hawk Eye New Home Historical Edition, 1830-1925).

During the mid 1830's and early 1840's, the area was developing its economy and social structure. The following are benchmark statistics, which indicate the types of industries and level of services that originally developed in the county.

By 1836 the area had six doctors and five lawyers. There were sixteen stores and five saloons, and the residences of all those engaged in commerce and farming. (FWP of the WPA 1935, Box 26). Some of the early residents eventually became prominent in Iowa politics and industry. James W. Grimes was to become the third governor of Iowa, and Charles Mason, became the first Chief Justice of the Supreme Court of Iowa (Iowa's Great River Road, 1977:83).

In 1839 the first paper was published, the Burlington Patriot (now known as the Hawk Eye) and it remains Iowa's oldest paper.

Between 1832-40 the Catholic, Methodist, and Presbyterian churches were established in the county as well as the First Baptist Church at Danville.

In 1841 Burlington had seven schools, one of them an academy. By 1905 there were 66 school districts in Des Moines County, compared to four today (Des Moines County Historical Society records of unknown origin post-1970:49).

During the 1840's, steamboats traveled the Mississippi transporting goods and people into and out of the county. Goods such as pork, potatoes, wheat, corn, oats, and lard were shipped on single-decked, steam-powered river packets plying the river (Iowa's Great River Road, 1977:86). A network of stagecoach lines also carried passengers throughout the county. In 1854, the county had its first railroad service, and by 1868 a railroad bridge spanned the Mississippi River at Burlington. By 1871, seven railroad lines provided transportation for farm products (Survey of Des Moines County, SCS:3).

In 1855 the National Railroad had been constructed westward from Chicago making it possible to take the railroad from Chicago to the eastern shore of the Mississippi, which accounts for the peak immigration between 1850 and 1860 (FWP of the WPA 1939:51).

The California gold rush contributed greatly to the multitudes that passed through the Midwest. Many of them forgot their quest for gold while traversing the riches of the black soil of Iowa. From 1856 to 1860 the population of Burlington doubled (FWP of the WPA 1935, Box 26).

The economy was based on the coalescing forces of agriculture, industry, and transportation, which remain the foundations of the economy. The agricultural factor was influenced by the general increase in population caused by immigration, the free

and fertile lands of Iowa, and new technology such as the mechanical reaper and the sod-busting plow. Industry was stimulated by increased demands for manufactured products. Transportation, via the river and new road systems, enhanced both agriculture and industry (Iowa's Great River Road, 1977:87).

The period between 1855 and 1865 was the biggest growth period for industry. By 1890 industries included a large granite and brick factory, seven brickyards, a large grain elevator, six coal yards, two carriage factories, a linseed oil mill, a pickle works, two candy factories, a boot and shoe factory, a trunk factory, a spring bed factory, two wagon factories, nail, coffin, and wheel factories as well as steel works, a cannery, and a stove factory (FWP of the WPA 1939:21).

In 1905 Des Moines County consisted of 12 townships, Augusta, Benton, Burlington, Danville, Flint River, Franklin, Huron, Jackson, Pleasant Grove, Union, Washington, and Yellow Spring. Five years later, Burlington Township was divided into Concordia, Burlington, and Tama. In 1921, Burlington Township was discontinued. In 1970, the Board of Supervisors by resolution reduced this number to 12 by dividing Augusta Township between Union and Danville Townships. That part of Augusta Township, which was in Ft. Madison School District, was placed in Union Township. The part of Augusta Township, which was in Danville School District, was put in Danville Township (Des Moines County Historical Society records of unknown origin post-1970:49).

In 1909 the area had 46 churches, 12 public and three parochial schools, and 11 hotels listed among its many civic assets (Iowa's Great River Road 1977:98). The first county home was built in Union Township where the Iowa Army Ammunition Plant is now located. The new county home was built in 1940 in Flint River Township (Des Moines County Historical Society records of unknown origin post 1970:49).

In 1934 at the height of the depression, the stainless steel streamline "Zephyr" was inaugurated along the Burlington Railroad. Four new public schools, the Memorial Auditorium, and the courthouse neared completion. The Iowa Ordinance Plant opened in post-depression 1941. The new C.B. and Q. Union Station was constructed in 1943, and 1947 saw 18 major construction projects underway (Iowa's Great River Road, 1977:98).

Today, the county has five incorporated communities, which include Burlington, Danville, Mediapolis, Middletown, and West Burlington. Each of the incorporated areas is experiencing growth in their housing, industrial, and commercial sectors. Major improvements of U.S. Highways 34 and 61, along which these communities lie, can be partially credited for the recent economic recovery.
West Burlington has benefited from rapid expansion of its commercial sector especially along the west edge of the community where the mall and Community

College exist. Housing development in both Burlington and West Burlington has also increased significantly, with the city governments in both offering special incentive packages for developers and homeowners investing in the community.

Danville, Mediapolis, and Middletown are also experiencing growth in their residential sectors. Danville has constructed elderly housing and created a market for rehabilitating older single-family units in the community. Mediapolis has developed a strong public-private partnership within the community to create a successful marketing program aimed at attracting families to construct new homes. Middletown annexed a large tract of land from the IAAP to be used for residential redevelopment and a possible industrial park.

Such developments are relevant to the Comprehensive Plan, as it is necessary for the county to consider the growth patterns of incorporated areas in planning for land use and resource development within its jurisdiction.

POPULATION

Population data provides valuable information for understanding, managing, and planning a region's activities, as well as predicting the region's future growth and needs. Population for Des Moines County is examined as far back as 1850, and as current as 2000, in order to illustrate population trends. The data was compiled from the U.S. Census of Population and Housing.

The U.S. Census Bureau reported a population of 42,351 for Des Moines County in 2000. That figure represents a .6 percent decrease in population from 1990. This population decline began in the 1970's and has continued through 2000. This decline in population in Des Moines County is not reflective of a statewide trend as indicated in Table 1, which shows a 5 percent population increase for Iowa in 2000. According to the ISU Extension Service fifty-nine (59) of the 99 counties in Iowa increased in population between 1990 and 2000. Table 1 gives a summary of population growth rates for Des Moines County and the state of Iowa.

During the developing years Des Moines County's growth rate was significant, including a 50.99 percent increase in 1860 and 38.98 percent increase in 1870. This outstanding growth rate can be attributed to the westward expansion of settlers seeking fame and fortune in the unsettled west. Development of the National Railroad in 1855 and the construction of a rail bridge spanning the Mississippi in 1868 played an important part in the development of Des Moines County as well. Growth rate of Des Moines County slowly diminished around the turn of the century.

Table 1: Population of Des Moines County and Iowa, 1850–2000

Year	Des Moines County	% Change	State of Iowa	% Change
1850	12,988	-	192,214	-
1860	19,611	50.99%	674,913	251.13%
1870	27,256	38.98%	1,194,020	76.91%
1880	33,099	21.44%	1,624,615	36.06%
1890	35,324	6.72%	1,912,297	17.71%
1900	35,989	1.88%	2,231,853	16.71%
1910	36,145	0.43%	2,224,771	-0.32%
1920	35,520	-1.73%	2,404,021	8.06%
1930	38,162	7.44%	2,470,939	2.78%
1940	36,804	-3.56%	2,538,268	2.72%
1950	42,056	14.27%	2,621,073	3.26%
1960	44,605	6.06%	2,757,537	5.21%
1970	46,982	5.33%	2,825,368	2.46%
1980	46,203	-1.66%	2,913,808	3.13%

1990	42,614	-7.77%	2,776,755	-4.70%
2000	42,351	-0.6%	2,926,324	5.1%

Source: U.S. Census Bureau

Between 1900 and 1910 the growth rate of Des Moines County remained fairly consistent, increasing less than 1 percent. Until the 1950's the growth rate mirrored the nation's economy, increasing during the 1920's only to fall during the depression years of the 1930's. The greatest rate of growth in recent years was a 14.27 percent growth rate between 1940 and 1950. This may be attributed to the influx of industry into the area and the end of WW II. The 1950's and 1960's growth rate were consistent with a 6.06 percent and 5.33 percent growth rate respectively. Population of Des Moines County peaked in 1970 with 46,982, partly in response to the baby boom of the 1950's. Since that period of time the population has declined steadily.

Change in population is based on three factors, increase of net natural population, net migration in or out of the area, and changes in political boundaries. Net migration and net natural increases in population have been the main determining factors in Des Moines County. Table 2 shows population changes due to natural increases since 1940.

Table 2: Des Moines County Natural Population Change, 1940-1999

Year	Births	Deaths	Natural Change
1930 - 1939	5267	4691	576
1940 - 1949	8308	4614	3694
1950 - 1959	9683	4627	5056
1960 - 1969	9047	4995	4052
1970 - 1979	6750	4820	1930
1980 - 1989	6356	4688	1668
1990 - 1999	5469	4433	1036

Source: U.S. Census Bureau and ISU Extension Service

The net natural change in population is the difference between the number of births and deaths. Population will continue to grow if the births exceed the deaths and conversely, population will decline if deaths exceed births. In Des Moines County the number of deaths remained stable between the 1930's and the 1960's, fluctuating by as little as 13 deaths between the 1940's and 1950's. While deaths in Des Moines County increased in the 1960's, this trend has since decreased; births however have not been quite as stable. Birth numbers began rising between the 1930's and 1950's and peaked at 9,683 births in 1959. Since 1970, the number of births that have occurred in Des Moines County has declined. The declining number of both births and deaths suggests there is some out-migration of population.

Table 3 represents the net natural change in population the region experienced between the 1940's and 1990's. Net natural change in population for the region was

at its highest during the 1950's. It is apparent that during the 1970's southeast Iowa's net natural increase in population decreased significantly. That trend continued into the 1980's.

Table 3: Regional Natural Change in Population, 1940–1999

County	1940 - 1949	1950 - 1959	1960 - 1969	1970 - 1979	1980 - 1989	1990-1999
Des Moines	3,694	5,056	4,052	1,930	1,668	1,036
Henry	1,298	1,601	634	578	595	470
Lee	3,653	4,964	2,707	1,326	1,432	388
Louisa	823	892	530	512	500	499

Source: ISU Extension Service

Population change is also affected by the movement of people into (immigration or in-migration) and out of (emigration or out-migration) the county. Table 4 summarizes the migration trends for the four-county region since 1950.

Table 4: Regional Migration, 1950–1999

County	1950 - 1959	1960 - 1969	1970 - 1979	1980 - 1989	1990 - 1999
Des Moines	-2,507	-1,675	-2,709	-5,257	-1,299
Henry	-2,122	-707	198	-259	640
Lee	-3,859	-3,918	-1,216	-5,851	-1,023
Louisa	-1,703	-138	861	963	92

Source: U.S. Census, ISU Extension Service

Among the counties in the region, Henry and Louisa Counties experienced in-migration. Des Moines County experienced the largest decline of 1,299 individuals followed by Lee County who experienced a loss of just over 1,000. This loss of population could be attributed to the decline in durable goods manufacturing experienced during the 1980's.

Table 5 represents the population and growth rate of individual townships within Des Moines County. The townships of Washington, Concordia, Huron, Flint River, Tama, and Union experienced a combined decrease in population of approximately 10.2 percent. This population decrease may be attributed to several factors including the increase of out-migration, net population loss, or an increase in acres of land to farmstead.

The recent trend of renting farmland has created an influx of population into the incorporated areas, a statewide trend. Townships that include incorporated areas are Flint River, Danville, Union, Yellow Spring, Concordia, and Tama.

Flint River Township includes West Burlington and part of Burlington. Concordia and Tama Townships each contain a portion of the Burlington incorporated area. Union Township contains a small portion of Burlington and West Burlington with 80 percent of the land occupied by the Iowa Army Ammunition Plant. Danville Township includes the cities of Danville and Middletown, and Yellow Spring Township contains the incorporated city of Mediapolis. The remaining townships consist mainly of rural agriculture land.

Table 5: Des Moines County Township Population, 1990–2000

Washington	Yellow Springs	Huron	
339 331 -2.4%	2,146 2,260 5.3%	428 369 -13.8%	
Pleasant Grove	**Franklin**	**Benton**	**Jackson**
424 427 .1%	700 733 4.7%	708 781 10.3%	151 187 23.8%
Danville	**Flint River**	**Burlington**	**Tama**
2,134 2,224 4.2%	5,820 5,516 -5.2%	26,416 26,817 1.5%	1,373 1,133 -17.5%
	Union	**Concordia**	
	1,148 821 -28.5%	827 752 -9.1%	

Source: 2000 U.S. Census

Trends can be observed by comparing population pyramids from consecutive time periods. Table 6 represents population between 1980 and 2000. The corresponding population pyramids are displayed in Figure 1.

A method for analyzing population data is the use of population pyramids. These pyramids are a series of bars that represent five-year age groups, or cohorts, of male and females. The size of the bar corresponds to the percentages that each cohort is of the total population. The bars are displayed from the youngest at the bottom, to the oldest at the top, males on the left and females on the right. This allows the observer to quickly examine the relative size of each cohort.

A pyramid that is considered normal is one that shows regular decreases in percentages from the youngest to the oldest. It also shows an even balance between males and females with the exception of the older population (65+ years old).

Table 6: Population Percentages for Individual Cohorts of Des Moines County

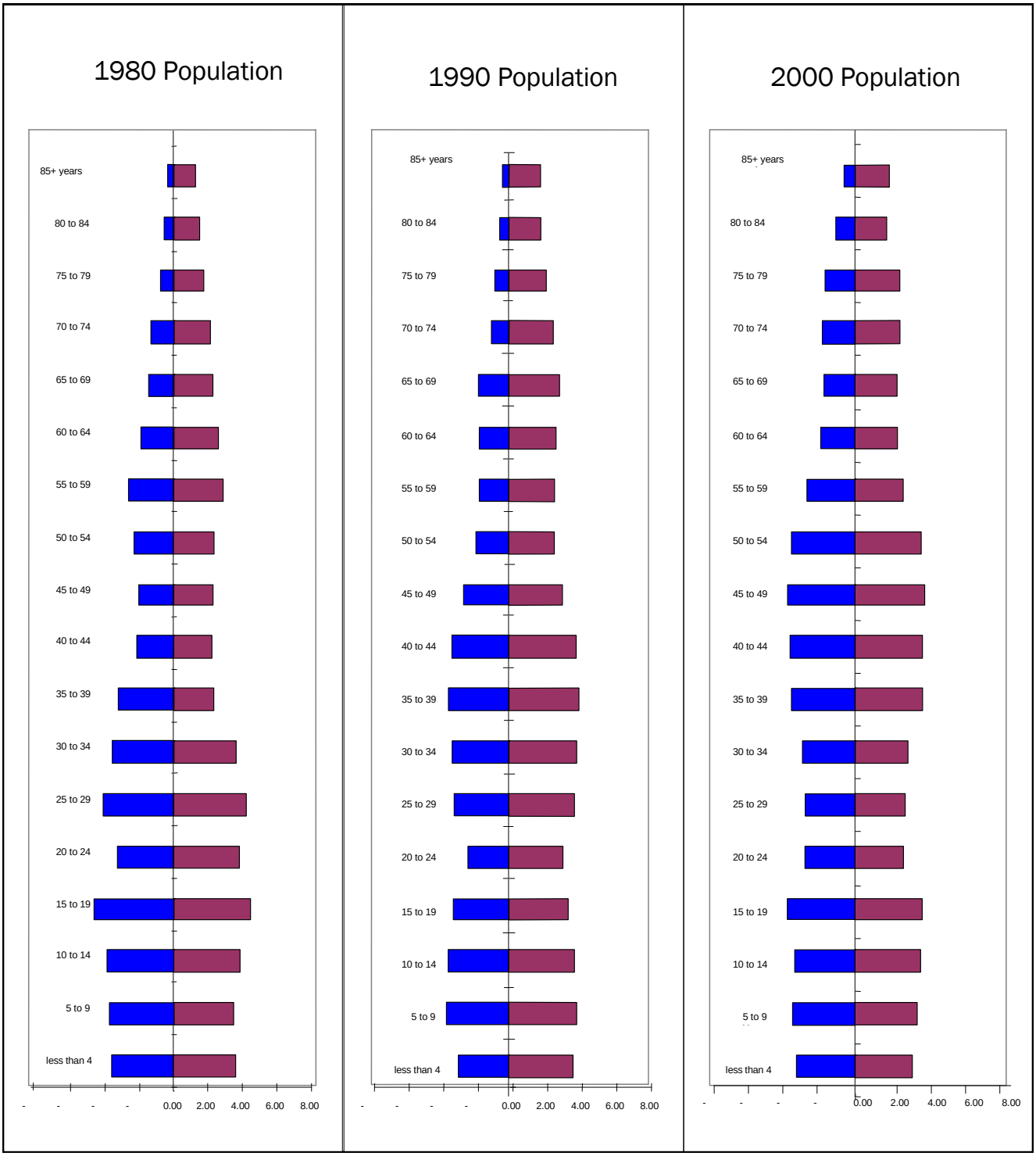
Des Moines	1980		1990		2000	
All Ages	Males	Females	Males	Females	Males	Females
Less than 4 yrs	-3.85%	3.70%	-3.17%	3.40%	-3.26%	3.02%
5 to 9 Yrs	-3.93%	3.48%	-3.96%	3.74%	-3.53%	3.28%
10 to 14 yrs	-3.95%	3.92%	-3.82%	3.59%	-3.40%	3.41%
15 to 19 yrs	-4.40%	4.44%	-3.56%	3.11%	-3.76%	3.62%
20 to 24 yrs	-3.80%	3.92%	-2.84%	2.91%	-2.87%	2.70%
25 to 29 yrs	-4.04%	4.11%	-3.42%	3.70%	-2.88%	2.81%
30 to 34 yrs	-3.73%	3.82%	-3.64%	3.75%	-2.97%	2.92%
35 to 39 yrs	-3.13%	2.91%	-3.85%	3.90%	-3.57%	3.67%
40 to 44 yrs	-2.25%	2.45%	-3.64%	3.63%	-3.64%	3.69%
45 to 49 yrs	-2.22%	2.51%	-2.96%	2.93%	-3.74%	3.78%
50 to 54 yrs	-2.46%	2.71%	-2.35%	2.42%	-3.52%	3.54%
55 to 59 yrs	-2.76%	2.97%	-2.15%	2.44%	-2.65%	2.77%
60 to 64 yrs	-2.07%	2.46%	-2.21%	2.66%	-2.04%	2.28%
65 to 69 yrs	-1.74%	2.25%	-2.22%	2.71%	-1.73%	2.16%
70 to 74 yrs	-1.55%	2.06%	-1.60%	2.19%	-1.66%	2.30%
75 to 79 yrs	-0.88%	1.81%	-1.19%	1.93%	-1.55%	2.30%
80 to 84 yrs	-0.61%	1.51%	-0.69%	1.61%	-0.93%	1.60%
85 + yrs	-0.49%	1.14%	-0.49%	1.62%	-0.60%	1.85%
Totals	-47.84%	52.16%	-47.77%	52.23%	-48.30%	51.70%

Source: U.S. Census Bureau
* Note that (-) represents male population

During the 1950's Des Moines County experienced 9,683 births (refer to Table 2). The large number of births in this period represents the baby-boom generation. Observing the population pyramids (Figure 1), one can visualize the growth of the group over time. It is the growth rate during that period which is responsible for the large percentage of 15 to 19 year olds and 40 year olds, which currently dominate the county. Observing how the baby-boom generation moves through the pyramids it becomes apparent that Des Moines County has an aging population that future planning should address.

Analysis of the 2000 Population Pyramid reveals a small percentage of those less than 4 years old, which is represented by the narrowing of the pyramid base. This is in response to the reduced birth rate during the last decade. The small percentage of 20 to 24-year-olds may be attributed to the large number of people leaving the area for college or military service. The following population pyramids in Figure 1, and the trends that each represent, are important for projecting the future population.

Figure 1: Population Pyramids



* Note that (-) represent the male population

HOUSING

Housing impacts development and growth substantially in regard to the availability, quality, and quantity of existing stock. When a county's economy is experiencing strong growth, the need for available housing is crucial to achieving long-term economic stability. Many times the labor pool may shift from region to region throughout the United States following employment opportunities. This influx of additional labor participants can only be retained with adequate housing availability. If the housing stock is very substandard, or is at full capacity, the movement toward rural areas or bedroom communities is accelerated. In recent years, this lack of housing has led to urban flight and the explosion of growth areas around communities. Des Moines County has been impacted by these recent trends and several key indices have targeted these developments in the housing market.

Des Moines County population in 2000 was 42,351, a decrease of 263 persons (.6 percent). The city of Burlington's population increased by 401 persons from 1990 to 2000. Table 7 depicts the population and housing characteristics comparing 1990 to 2000.

Table 7: Population and Housing Units for the Incorporated Areas

City	1990 Population	Units	2000 Population	Units
Burlington	26,416	11,777	26,817	12,018
Danville	926	344	928	375
Mediapolis	1,637	658	1,652	686
Middletown	386	162	553	232
West Burlington	3,083	1,443	3,133	1,486

Source: U.S. Census of Population and Housing

All communities reported a housing unit gain. Based on percentage, Middletown had the largest housing unit increase at 43.2 percent (70 units). Danville had a percentage increase of 9.0 percent (31 units). Mediapolis and West Burlington had a percentage increase of 4.3 percent (28 units) and 3.0 percent (43 units), respectively. Overall, Des Moines County had an increase of 413 units from 1990 to 2000 with the greatest impact occurring at Middletown.

Township data assists in the evaluation of the county's unincorporated and incorporated housing statistics. These figures represent eight out of twelve townships, which had an increase in housing units between 1990 and 2000. The

largest increase in percentage came in Benton Township (13 percent). Danville Township had the largest increase with 77 new units between 1990 and 2000. Table 8 summarizes the population and housing changes in the townships for 1980-2000.

Table 8: Population and Housing of Subdivisions by Township 1980-2000

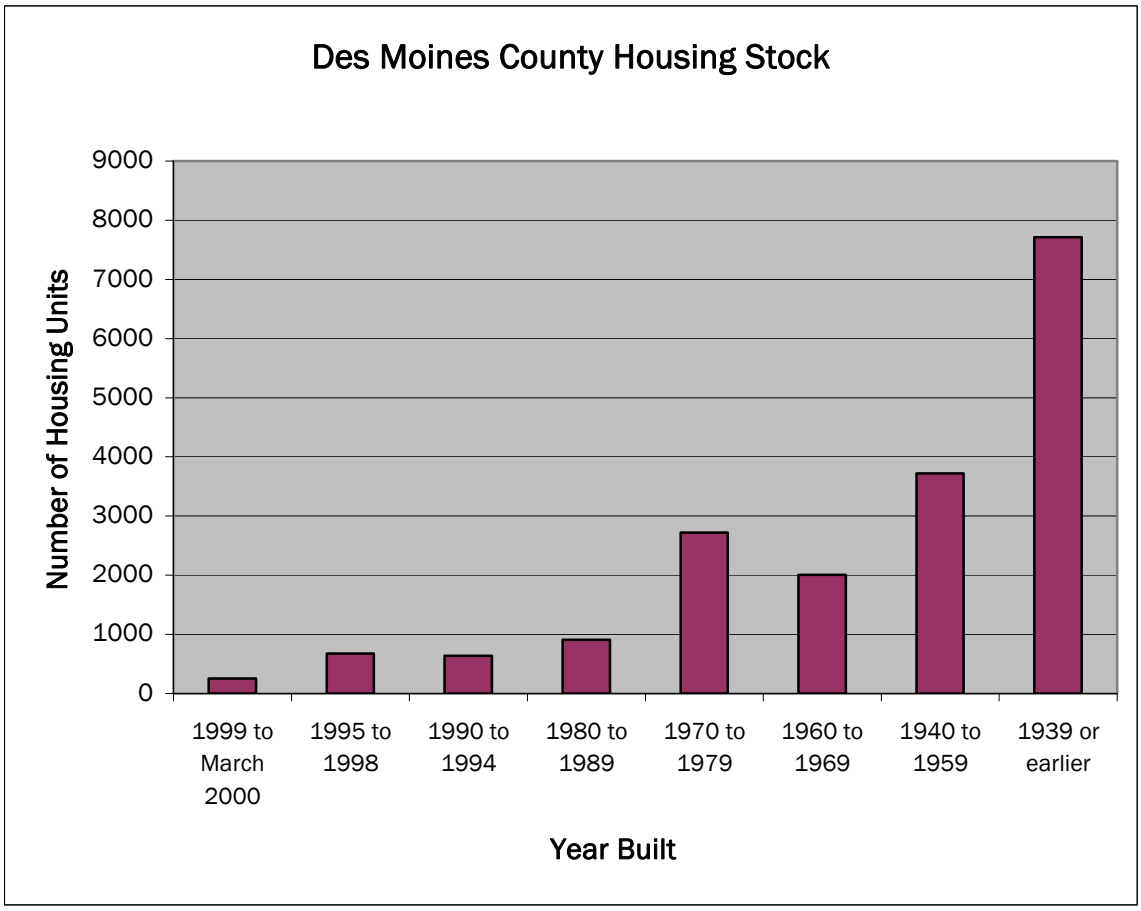
Subdivision	1980		1990		2000	
	Population	Units	Population	Units	Population	Units
Benton Township	752	258	708	278	781	314
Burlington	28,817	11,809	26,416	11,457	26,817	12,018
Concordia Township	976	339	827	330	752	318
Danville Township	2,412	860	2,134	834	2,224	911
Flint River Township	6,152	2,440	5,820	2,422	5,516	2,453
Franklin Township	699	260	700	261	733	278
Huron Township	418	184	428	179	369	148
Jackson Township	181	69	151	79	187	84
Pleasant Grove Township	442	159	424	164	427	181
Tama Township	1,437	665	1,373	679	1,133	524
Union Township	1,250	510	1,148	551	821	330
Washington Township	416	165	339	151	331	156
Yellow Spring Township	2,251	849	2,146	863	2,260	928
Totals	46,203	18,567	42,614	18,248	42,351	18,643

Source: U.S. Census of Population and Housing

Townships with increases in the number of housing units include: Benton, Danville, Flint River, Franklin, Jackson, Pleasant Grove, Washington, and Yellow Spring. Losses occurred in Concordia, Huron, Tama, and Union Township. Housing unit increases are occurring in the unincorporated areas of the county in townships such as Benton, Franklin, Jackson, and Pleasant Grove, which do not have any incorporated communities.

The age of the housing stock is another important factor to evaluate when determining the quality of the housing stock. Figures from the U.S. Census of Population and Housing indicate nearly 95 percent of the housing stock was constructed before 1990, 41.4 percent was constructed before 1938. In the last 30 years the majority of construction occurred between 1970 and 1979 (14.6 percent, 2,722 units). Figure 2 breaks down the number of housing units built by year.

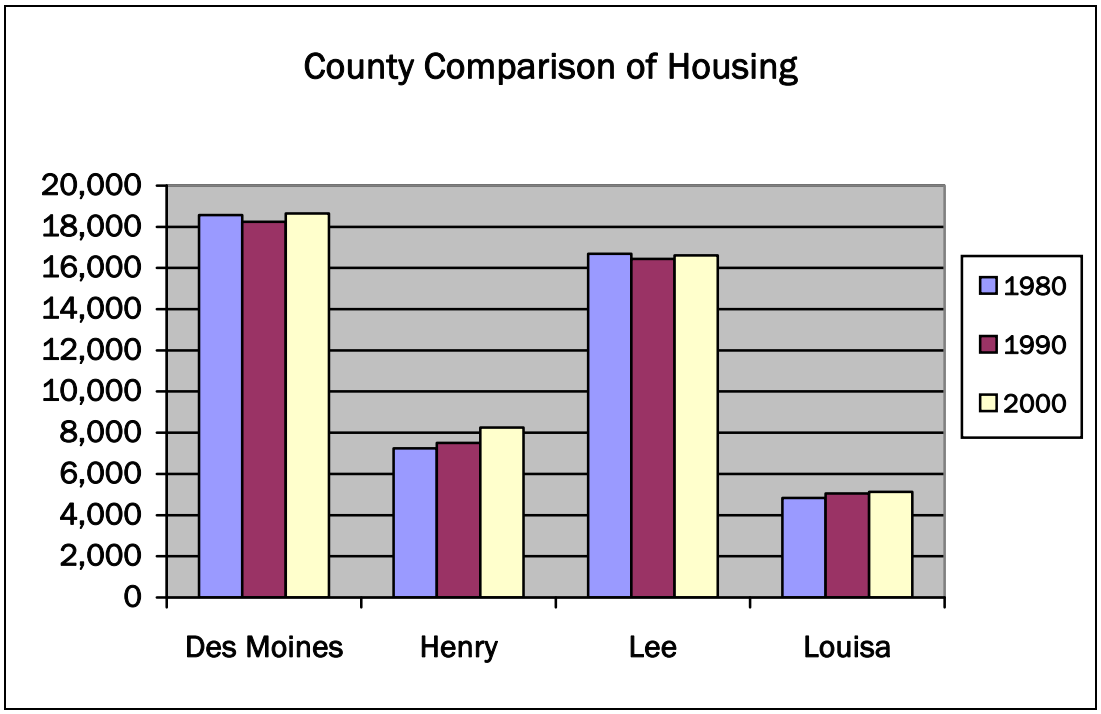
Figure 2: Des Moines County Housing Stock



Comparison of regional county housing units show that over a 20-year period Henry County had the largest percentage increase in housing units with 13.8 percent in addition to the overall greatest increase in the number of units at 1,005. Louisa County follows with 6.3 percent. Des Moines County compiled a .41 percent increase with 76 new units. Finally, Lee County had lost 72 units over the 20-year period.

Looking at the 1980's when interest rates topped out near 20 percent demonstrates the immediate impact these rates had on new construction and the housing market. Coupled with the high unemployment rates, near 15 percent during the early 1980's, the purchasing power of consumers was frozen. Current analysis of housing units shows that all four counties had a housing increase from 1990 to 2000. Henry County had the largest gain with 9.84 percent (739 units). Des Moines County ranks second with a housing unit increase of 2.16 percent (395 units). Louisa County had a gain in housing units of 1.76 percent (89 units). Finally Lee County had an increase of 1.03 percent (169 units). Figure 3 shows the comparison of the four-county area from 1980 to 2000.

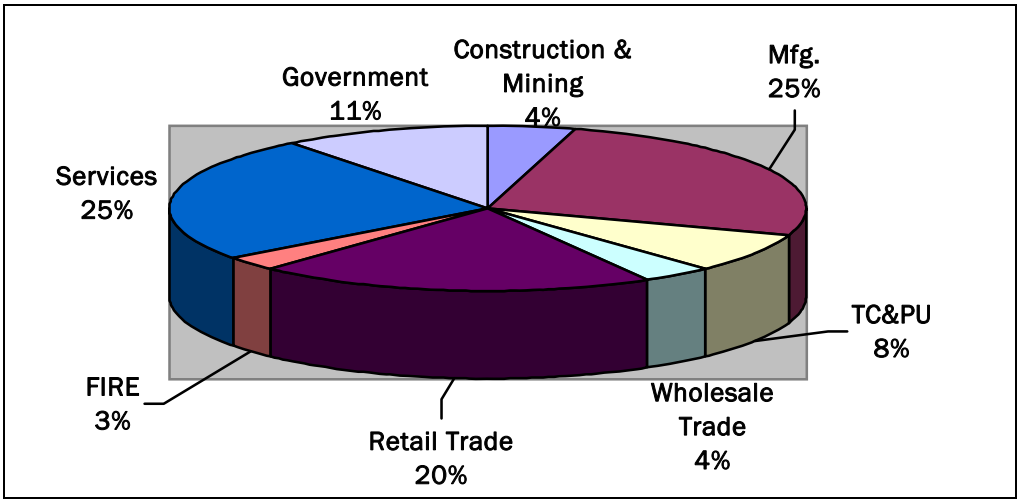
Figure 3: Comparison of Des Moines County Housing Stock



ECONOMIC DEVELOPMENT

Des Moines County has historically depended on the manufacturing sector and agricultural economies for employment. 2001 Labor Force Summary reported Des Moines County's largest employment base, manufacturing, accounted for 25.8 percent of the labor force. Combining construction, mining and manufacturing under the Goods Producing category, the percentage jumps to 30.2 percent. Figure 4 breaks down the employment categories for Des Moines County in 2001.

Figure 4: 2001 Labor Force Statistics

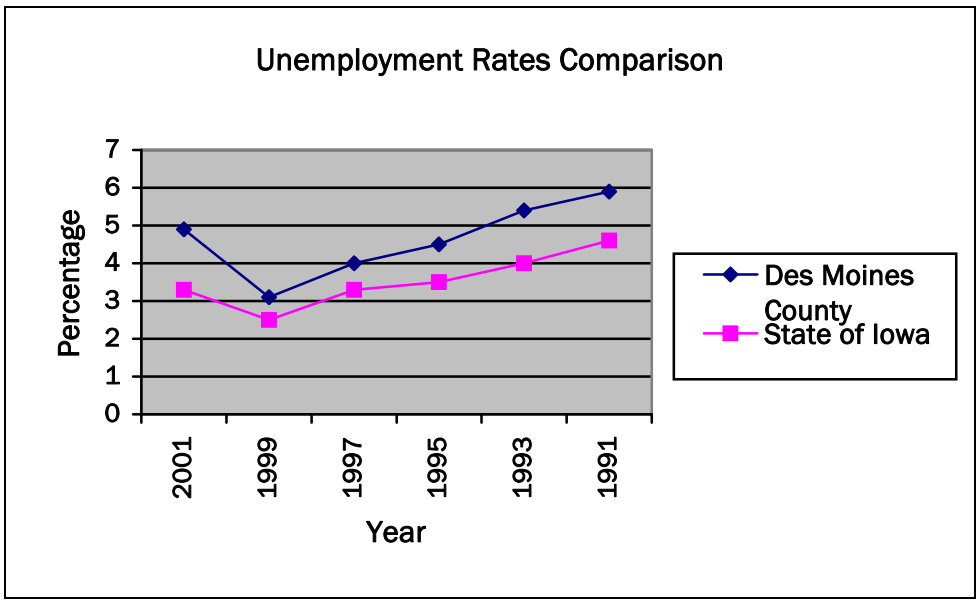


Source: 2001 Labor Force Summary - Department of Employment Services
* Note TC&PU are combined for Transportation, Communications, and Public Utilities

The labor pool for Des Moines County increased 3 percent (3,628) between 1990 and 2001 according to the Labor Force Summary. Although the labor pool decreased significantly between 1978 (19,620) and 1983 (19,060), this brief decline can be attributed to the manufacturing and farm crisis during that time period.

The labor pool is never at full capacity due to seasonal unemployment and those individuals who do not want to participate in the labor force. Unemployment rates are a key index when analyzing a county's economy. Des Moines County serves as a regional employment center from the surrounding counties in Iowa and Illinois. Figure 5 compares Des Moines County unemployment rates with the state of Iowa's.

Figure 5: Unemployment Rates Comparison



Source: 2001 Labor Force Summary; Department of Employment Services

Des Moines County had a higher unemployment rate than the state average during the last 10 years. Several factors are key contributors to this deficiency. Dependence on the manufacturing sector is very high in comparison to the state average of 18 percent, (State of Iowa Labor Force Summary 2001). Table 9 lists the largest employers in this sector.

Table 9: Des Moines County's Largest Employers

- Great River Medical Center
- Case Corporation
- General Electric Co.
- American Ordnance LLC
- Federal-Mogul Ignition Co.
- Vista Bakery
- Wal-Mart Stores Inc.
- Hy-Vee Stores Inc.
- Raider Precast Concrete Inc.
- Winegard Company
- Temp Associates
- American Freightways Inc.
- United States Gypsum Co.
- CSI Employment Inc.
- Hope Haven Developmental Center
- Manpower Inc. of Cedar rapids
- Lamont Ltd.
- Aldi Inc.
- Menard Inc.

Source: Iowa Department of Employment Services, Employment Statistics Bureau 2000

The fluctuations of the national economy directly impact Des Moines County due to the types of durable goods produced and their customer base. The large majority of these companies are product specific for large corporations that ship their products worldwide. Thus, any major policy change or downturn in their economy directly impacts these companies and their employees.

Table 10 compares the state of Iowa employment numbers with those of Des Moines County. Manufacturing is documented as 25 percent for the county and 17 percent for the state. This supports the fact that any fluctuations in the economy directly impact the manufacturing sector and ripple down to the employment climate.

Table 10: 2001 Labor Force Comparison

Employment	State of Iowa Persons Employed	State of Iowa Percentage	Des Moines County Persons Employed	Des Moines County Percentage
Mining/Construction	65,400	4%	1,070	4%
Manufacturing	251,600	17%	6,200	25%
Transportation, Communication, and Public Utilities	71,600	5%	1,890	8%
Wholesale Trade	81,900	6%	880	4%
Retail Trade	269,500	18%	4,870	20%
F.I.R.E.*	88,300	6%	700	3%
Services	394,800	27%	5,900	25%
Government	245,600	17%	2,560	11%

Source: 2001 Labor Force Summary - Department of Employment Services
* Note F.I.R.E. = Finance, Insurance, and Real Estate

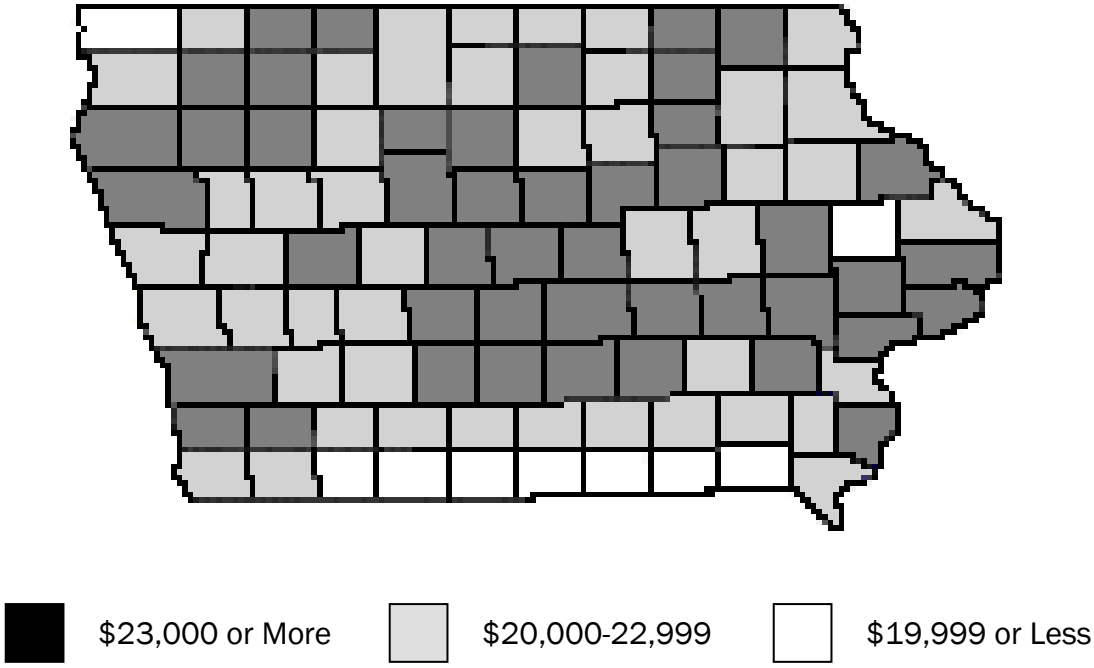
PER CAPITA INCOME

Per capita income is a measure of average income per person. Rising prices of goods and services between 1988 and 1998 directly impacted what individuals could purchase with their income. In order to determine if income was keeping pace with inflation, per capita income figures were adjusted to 1998 dollars based upon the consumer price index of each year.

Evaluation of these indices show that Des Moines County has the highest adjusted per capita income in the four-county region ($24,637). Des Moines County incurred adjusted per capita income decreases two times during the period between 1990 and 1998.

Figure 6 compares Des Moines County's per capita income to other Iowa counties.

Figure 6: Per Capita Income Comparison of Iowa, 1999



Source: Iowa's Counties: Selected Population Trends, Vital Statistics, and Socioeconomic Data, 2001

RETAIL SALES

Des Moines County achieved a 2000 retail sales figure of $449,413,000, an increase of $75,628,000 from 1995. A comparison of the number of businesses and the computed taxes for 1998-2000 is displayed in Table 11.

Table 11: Des Moines County Retail Sales Comparison for 1998-2000

Year	Number of Businesses	Computed Tax
1998	5,082	$20,652,296
1999	5,037	22,016,168
2000	4,993	22,485,263

Source: State of Iowa Retail Sales and Use Tax Report

Table 12 breaks down retail sales in Des Moines County by category for the years 1990, 1995, and 2000. The largest increase from 1990 to 2000 was in the Building

Materials category, which increased by 608 percent. The General Merchandise category increased by 119 percent during the same period.

Table 12: Detailed Breakdown of Retail Sales for 1990, 1995, and 2000

Des Moines Co. Class	1990 Total Sales	1995 Total Sales	2000 Total Sales
Building Materials	$ 7,854,000	$ 34,344,000	$ 55,644,000
General Merchandise	$ 51,856,000	$ 76,705,000	$113,686,000
Food	$ 54,726,000	$ 56,948,000	$ 49,593,000
Apparel	$ 11,602,000	$ 10,029,000	$ 8,902,000
Home Furnishings	$ 11,967,000	$ 18,187,000	$ 19,709,000
Eat/Drink	$ 30,005,000	$ 35,615,000	$ 43,462,000
Specialty	$ 26,158,000	$ 34,068,000	$ 35,716,000
Services	$ 25,182,000	$ 38,336,000	$ 44,344,000
Wholesale	$ 34,335,000	$ 41,633,000	$ 41,852,000
Total Retail Sales *	$296,299,000	$373,785,000	$449,413,000

* All categories are included in the Total Retail Sales category, including the Utilities, Miscellaneous, and Motor Vehicles merchandise groups.
Source: State of Iowa Retail Sales and Use Tax Report

Comparing the surrounding counties (Henry, Lee, and Louisa) supports the concept of Des Moines County, specifically Burlington and West Burlington, being the regional retail trade center (refer to Table 13).

Table 13: Regional Comparison of Retail Sales and Number of Businesses

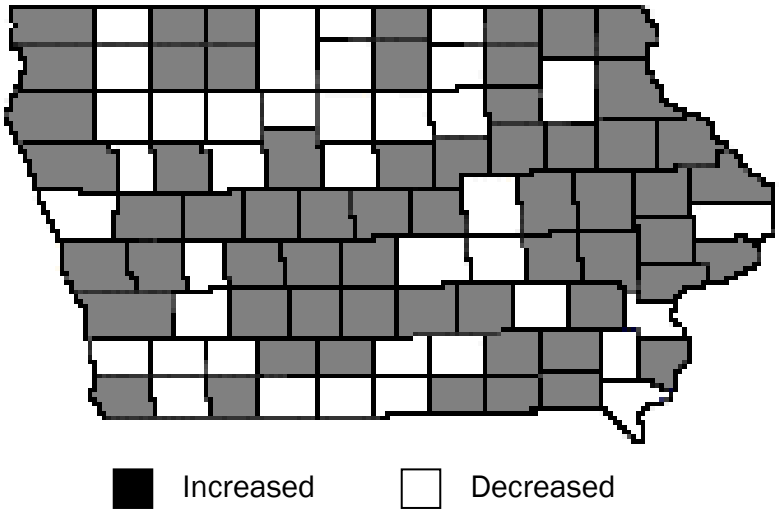
County	# Of Businesses	2000 Retail Sales
Des Moines	4,993	$449,413,000
Henry	2,691	$123,869,000
Lee	4,525	$279,268,000
Louisa	1,247	$25,273,000
State of Iowa	376,912	$27,586,079,000

Source: State of Iowa Retail Sales and Use Tax Report

Figures 7 and 8 break down the statewide comparison of retail sales surpluses and leakages. Des Moines County and adjacent Lee County both have gains in retail sales

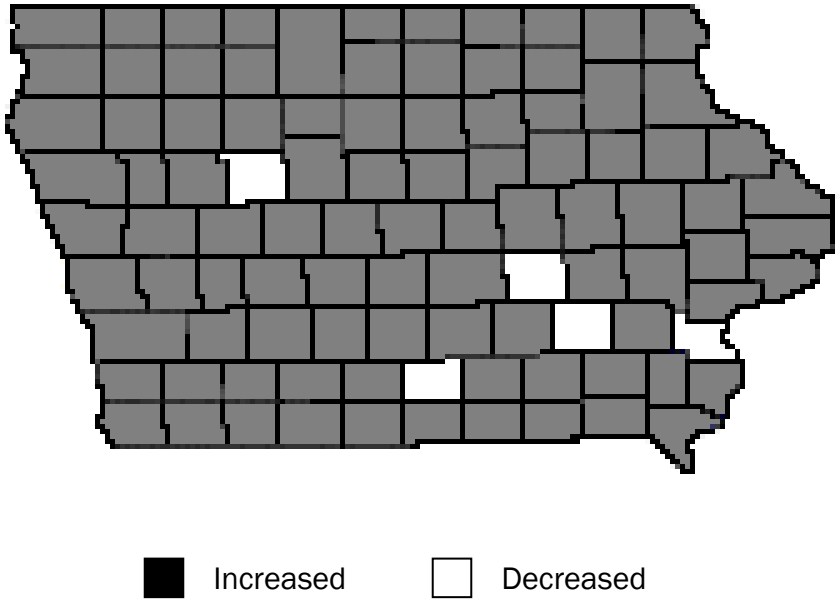
in comparison to population. Inflation has also been inserted into the formula to determine the change in sales with adjusted and non-adjusted inflation indices. Please note that these calculations are based on population estimates, therefore caution must be used in interpreting these numbers.

Figure 7: Change in Retail Sales (Adjusted for Inflation), 1990-2000



Source: Iowa's Counties: Selected Population Trends, Vital Statistics, and Socioeconomic Data, 2001

Figure 8: Change in Retail Sales (Unadjusted for Inflation), 1990-2000



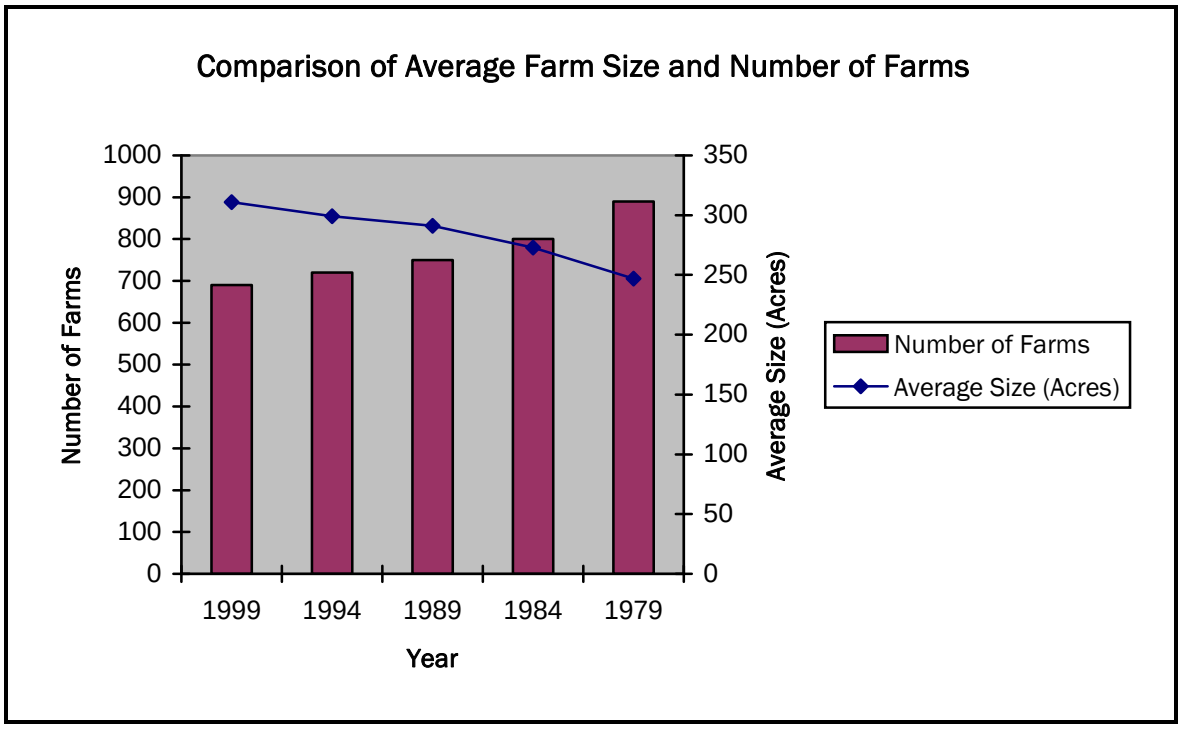
Source: Iowa's Counties: Selected Population Trends, Vital Statistics, and Socioeconomic Data, 2001

AGRICULTURE ECONOMY

The agriculture economy of Des Moines County has been the driving force for many small communities. Danville, Mediapolis, and several unincorporated areas of the county have significant dependence on the agricultural sector. The following statistics are calculated from the definitions provided by the U.S. Department of Census, which states that a farm is any property that generates $1,000 or more in income during a given year. This trend impacts the average acreage per farm and can be evaluated by comparing a 20-year history. Over the past twenty years, Des Moines County has seen the number of farms decrease dramatically from a high of 890 in 1979 to 690 in 1999.

In 1979, an average farm consisted of 247 acres. This number soars to 311 acres in 1999, a 26 percent increase. Figure 9 depicts the number of farms and average farm size, showing a correlation of farm acreage increasing while the number of farms decrease.

Figure 9: Comparison of Average Farm Size and Numbers of Farms

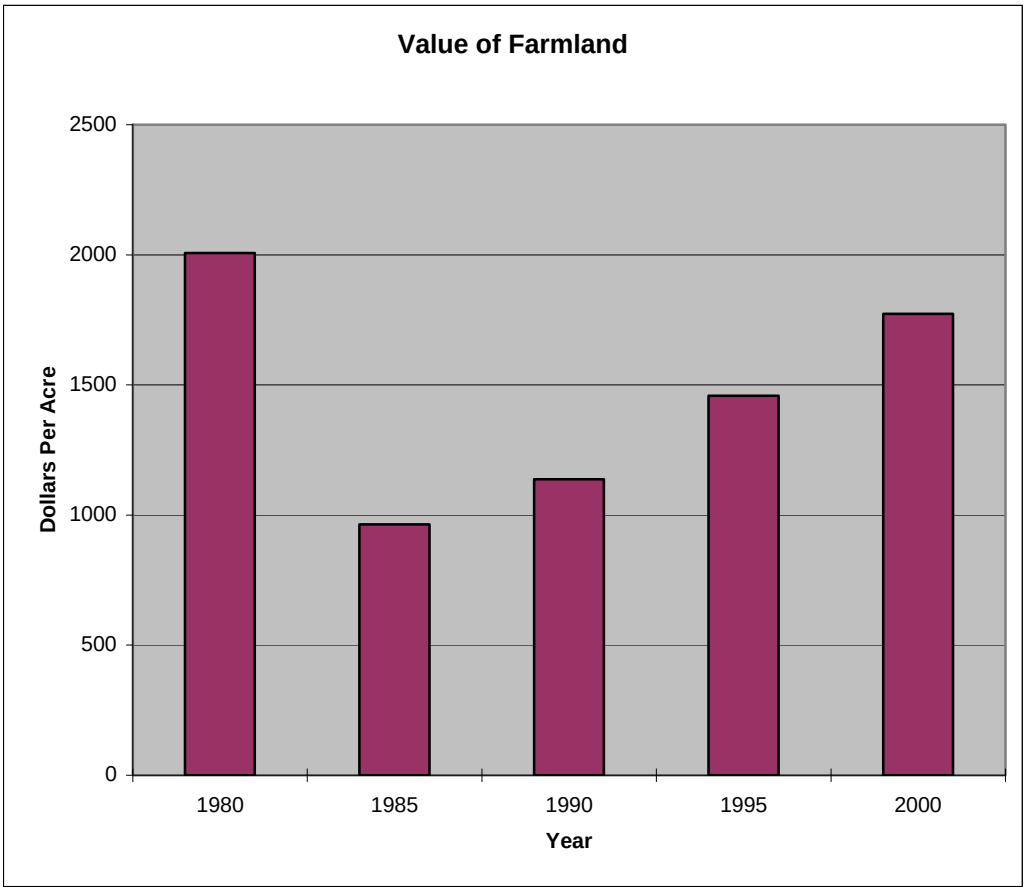


Source: Iowa's Counties: Selected Population Trends, Vital Statistics, and Socioeconomic Data, 2001

The value of farmland is also a critical factor on the economy. When land prices are high, the repercussions can be felt throughout the local economy. A good example of this condition can be shown during the late 1970's and early 1980's when Des Moines County value per acre hit $2,000. Farmland values declined dramatically in the middle 1980's however land prices have been steadily growing for the past

fifteen years with an estimate of $1,773 per acre in 2000. Figure 10 shows Des Moines County land values for the past twenty years.

Figure 10: Value of Des Moines County Farmland



Source: Iowa's Counties: Selected Population Trends, Vital Statistics, and Socioeconomic Data, 2001

The reduction in the number of farms and the increase in the number of acres has been a trend throughout the State of Iowa as larger farms are absorbing the small operators. Several factors contribute to this trend and include the substantial increase in machinery and equipment, low value for commodities, and severe weather related problems. Figure 11 provides 1997 farm statistics for the four-county region.

Farm operators have also initiated a trend, which began in the 1980's by working at jobs off the farm, and no longer claim farming as their principal occupation. The 1997 USDA Census of Agriculture reported that 348 of Des Moines County's farm operators claimed that farming was their principal occupation while 302 operators stated that other jobs were their primary occupation.

Figure 11: Southeast Iowa Regional Farm Economy

Summary of Farm Statistics	Year	Des Moines	Henry	Lee	Louisa
Number of Farms	2002	670	850	880	610
Number of Acres	2002	211,300	255,800	288,000	225,200
Average Farm Acres	2002	315	301	327	369
Market Value of All Machinery and Equipment	1997	$70,353	$75,892	$71,284	$86,449
Market Value of Agricultural Products Sold (Avg. Per Farm)	1997	$ 107,337	$92,319	$89,847	$137,093
Total Farm Production Expenses (Avg. Per Farm)	1997	$75,534	$66,891	$65,280	$90,935
Net Cash Return From Agricultural Sales (Avg. Per Farm)	1997	$ 28,272	$20,744	$22,526	$39,025
Market Value of Agricultural Products Sold ($1,000)	1997	$ 69,769	$77,086	$77,358	$81,296
Total Farm Production Expense ($1,000)	1997	$49,248	$55,921	$56,337	$53,833
Net Cash Return from Agricultural Sales ($1,000)	1997	$18,434	$20,744	$19,440	$23,103

Source: 1997 Data - USDA Census of Agriculture (next update is 2003)
2002 Data - USDA/Iowa Farm Bureau - Iowa Agricultural Statistics

Figure 12 indicates the regional per acre value of farmland from 1950-2000.

Figure 12: Regional Per Acre Value of Farmland, 1950-2000

County	1950	1960	1970	1980	1990	2000
Des Moines	$197	$257	$445	$2007	$1,137	$1,773
Henry	$205	$254	$410	$1,830	$1,098	$1,716
Lee	$177	$223	$391	$1,740	$936	$1,567
Louisa	$218	$270	$445	$2,108	$1,320	$1,979

Source: Iowa's Counties: Selected Population Trends, Vital Statistics, and Socioeconomic Data, 2001

Figure 13 indicates the percentage change in regional per acre value of farmland from 1950-2000.

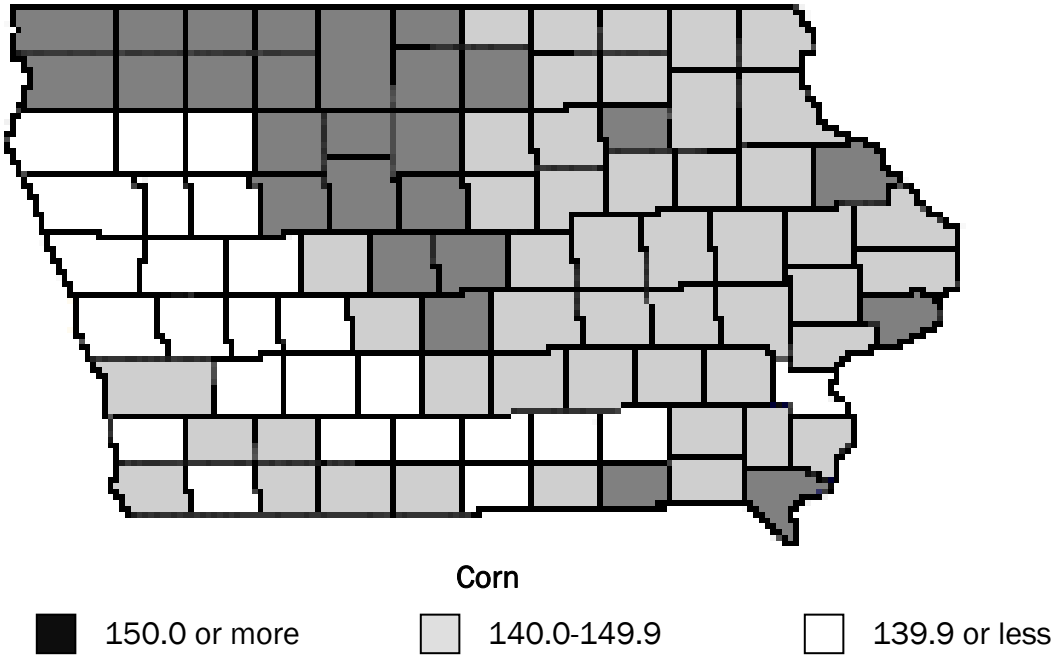
Figure 13: Percentage Change in Regional Per Acre Value of Farmland, 1950-2000

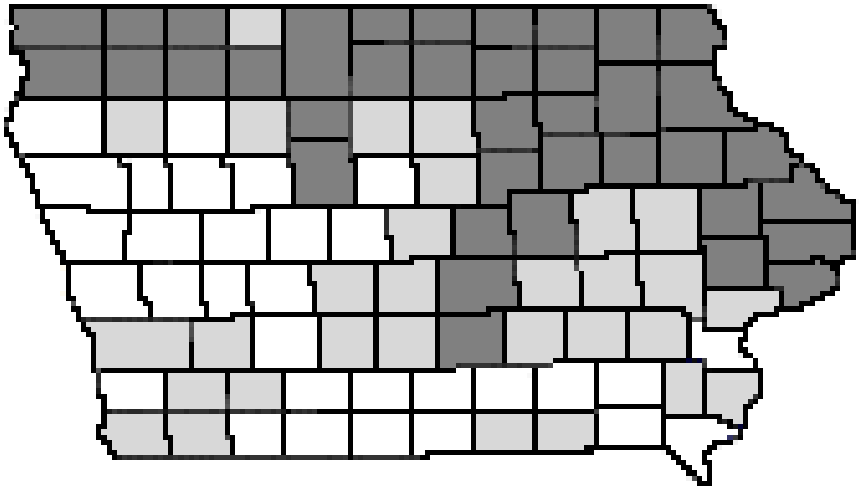
County	1950-1960	1960-1970	1970-1980	1980-1990	1990-2000
Des Moines	30.5%	73.2%	351.0%	-43.4%	55.9%
Henry	23.9%	61.4%	346.3%	-40.0%	56.3%
Lee	26.0%	75.3%	345.0%	-46.2%	67.4%
Louisa	23.8%	64.8%	373.7%	-37.4%	49.9%

Source: Iowa's Counties: Selected Population Trends, Vital Statistics, and Socioeconomic Data, 2001

Figure 14 provides the estimated number of bushels of corn and soybeans harvested in 2000.

Figure 14: Estimated Number of Bushels of Harvested Crops, 2000





Soybeans

45 or more | 40.0-44.9 | 39.9 or less

Source: Iowa's Counties: Selected Population Trends, Vital Statistics, and Socioeconomic Data, 2001

NON-TRADITIONAL AGRICULTURE

Des Moines County has also had an emphasis on non-traditional agriculture with a large diversity of commodities. Tree farming, aquaculture, and produce are specific examples, and several others exist throughout Des Moines County. The 1997 Census of Agriculture lists that seven farms consisting of 148 acres are in production of vegetables, sweet corn, and melons.

INFRASTRUCTURE AND UTILITIES

The following section outlines infrastructure and utility services in Des Moines County. The Des Moines County Health Department, Iowa Department of Natural Resources (DNR), Alliant Energy, Rathbun Regional Water System (RRWS), Southeast Iowa Rural Electric Cooperative (REC), the Iowa Utilities Board, and members of the Land Use Planning Commission provided input into the creation of this section.

This section addresses primarily traditional, horizontal infrastructure, including water, wastewater, and utilities. Transportation, another segment of horizontal infrastructure, is addressed later in the Background Report.

WATER AND WASTEWATER SERVICE

Water supplies in the county can be divided into two basic categories; public systems and private on-site well systems.

Public systems are defined as those serving 25 or more individuals, or 15 or more service connections. The county has 18 permitted public systems documented and regulated by the DNR. A list of the systems permitted by DNR is provided below.

Public Water Systems

Plantation Village Mobile Home Park	Green Acres Mobile Home Park
Timberline Associates Ltd. Partnership	Iowa Army Ammunition Plant
Burlington Municipal Waterworks	Strawberry Point Subdivision
Spring Lake Campground	Flint Hills Golf Course
Danville Water Supply	Harmony Bible Church
Mediapolis Water Supply	Middletown Water Supply
Sperry Water Supply	Seven Ponds Park
West Burlington Municipal Water Supply	Yarmouth Elementary School

The Burlington Waterworks supplies water to Danville, the Army Ammunition Plant, Middletown, West Burlington, and the Rathbun Regional system, which is discussed later.

Burlington Waterworks is served by the Mississippi River, which is considered a surface water source. All other public systems are served by groundwater sources.

The Environmental Protection Agency (EPA) and Iowa DNR encourage counties to become involved in the Wellhead Protection Program. The program is designed primarily for regulation of public systems served by a groundwater source, however, it can also apply to a private groundwater supply. Wellhead Protection Program guidelines dictate what land uses may occur within proximity of a well site. For example, in a system which relies on a groundwater supply, no agricultural pesticides or herbicides can be applied within 200 feet of the well site under the program.

Systems which rely on surface water sources, such as the Mississippi River, are regulated based on watershed areas.

No plans exist to expand the public water supply in the unincorporated areas for industrial or service purposes. Further, no major industrial expansion plans exist since the lines are not sufficient size, in most cases, to provide proper amounts of water for industrial fire protection purposes or for processing water. The projected sewer service areas are not contiguous with water service areas.

Expansion of industrial development is feasible only in areas where infrastructure service is already developed. Provision of water and sewer to industrial sites will, as a matter of cost, control the industrial site dispersion in the county. The need for treated, processed water by some industries throughout most of the county, will further force those industries into incorporated areas where water treatment facilities exist and can be expanded cost-effectively. The exception to this might occur if a manufacturing concern with significant financial impact was interested in locating in the unincorporated area. Infrastructure demands in this scenario could warrant an investment in developing the infrastructure through county revenue bonds or tax increment financing to assist in financing such development should it be deemed necessary as an alternative to available developed sites.

All incorporated areas have water and sewerage facilities of ample capacity to serve current needs. Most of the smaller communities anticipate requirements for water and/or sanitary sewer service investment as a result of new residential development, worn out facilities, and federal environmental quality control requirements. During this period, water and sewer infrastructure investment will relate primarily to repair, upgrading, and expansion of existing distribution and collection systems.

Rural residential water service is provided by individual on-site wells or by the Rathbun Regional Water System. Rathbun originated near Centerville in south central Iowa, and began expanding into Des Moines County in the early 1980's. To date, Rathbun provides water distribution services to three-quarters of the unincorporated

areas (approximately 1300 households) in Des Moines County. Average usage per household is 3600 gallons per month. Rathbun will provide service within the next five years on a voluntary basis to all of Des Moines County, with the exception of the designated growth areas around Burlington.

The system is comprised of a series of 18-inch mains with 16, 12, and 10-inch feeder lines, although the majority of the resident service lines are 3-inch. (A map may be obtained from Rathbun Rural Water illustrating the location of these water lines).

Rathbun is classified as a public water supplier, however is not listed on Des Moines County's inventory due to its origin in Appanoose County. It serves a distribution function only in Des Moines County, with water quality requirements being the responsibility of the Burlington Waterworks, who currently supply the water for Des Moines County rural residents, via the Rathbun distribution system.

Development of the system was funded primarily through user fees, grant and loan funds from the Community Development Block Grant Program, and Rural Development.

Prior to each phase of development, Rathbun offers residents an opportunity to be linked into the distribution system. Addition of a residence at a later time results in a relatively large fee on the part of the homeowner.

One particular concern relevant to Rathbun has involved an ordinance passed by the City of Burlington, which places a moratorium on service provided by Rathbun to the residents in designated growth areas. The prevention of access to Rathbun for interested residents has raised concern and fueled discussion about the ability of incorporated areas to exercise such authority within their two-mile extraterritorial limit. The city does not have plans to provide service; therefore residents are required to remain served by individual systems.

On-Site Wells

The final method of water provision is private on-site wells. The majority of county residents in the unincorporated jurisdiction are served by such systems.

Des Moines County provides individual on-site permitting through the county Health Department. All well drilling activity requires state certification, and a driller who does not apply for the proper permit can be fined.

The DNR is an advocate of local control for the issuance of well permits because greater knowledge of drilling activity and tracking of existing wells can be

documented and regulated at the county level with greater speed and frequency. Some Iowa counties, who believe the process to be too costly, have established multi-county sharing programs for well permitting and have shared manpower, training, and equipment to manage such programs. In such cases, the well-permitting program is funded mainly with user-permit fees.

Des Moines County also offers a well remediation program for private wells. The program provides up to $600 in financial assistance if a well driller believes an individual well can be modified to provide safe water.

Well-Testing/Plugging

The DNR also sponsors a well testing and plugging program. Des Moines County participates in this program, which has been in effect for 10 years. While any well can be tested or plugged, the program requires testing for those systems pumping 25,000 gallons in a 24-hour period.

While the county does not track mapping of tested and closed wells, written records of each well are usually available from the driller or landowner. This system provides the best means for identifying and logging existing and abandoned wells in the county.

Wastewater

Wastewater systems can be divided into several categories including larger systems requiring a National Pollution Discharge Elimination Permit System (NPDS) (those serving a population of 15 or more individuals and industrial systems), agricultural systems, and individual systems.

Building permits for the larger systems have been required since the mid-1980's and DNR issues standards for on-site construction.

On-site Sewers and Septic Systems

Regulation of on-site waste treatment systems is the responsibility of the Des Moines County Board of Health and the Des Moines County Health Department.
The Des Moines County Board of Health has adopted Chapter 900-69.1 of the Iowa Code, which governs the specifications of on-site treatment systems. The department staff determines the suitability of proposed plans and may specify that a licensed engineer design a system. Department staff inspects the completed system.

Information on soil types existing in Des Moines County may be found in the "Soil Survey of Des Moines County, Iowa" issued by the United States Department of Agriculture in 1983.

ENERGY RESOURCES

In 1976, the Iowa General Assembly enacted legislation that had a dramatic impact on Iowa's electric utilities and their ratepayers. The "assigned area of service law" set boundaries identifying which electric utility would provide service without discrimination. It has saved the state's ratepayers millions of dollars in capital and planning expenditure, and has resulted in other valuable benefits.

Through the law, the agricultural, residential, commercial, and industrial customers all know which electric utility will serve them. Electric utilities continue to serve the same area that was closest to their lines in 1976, so the Iowa Utilities Board doesn't have the difficult task of deciding numerous boundary disputes each year and the legal system isn't overburdened with appeals.

The county is served primarily by two energy companies that provide distribution service to distinct geographical areas. The major energy distribution companies for the region are discussed below and shown in Table 14.

Table 14: Major Energy Distribution Companies

	Electric	Gas
Des Moines County Unincorporated	Alliant Energy/Rural Electric Cooperatives	Alliant Energy
Burlington	Alliant Energy	Alliant Energy
Danville	Danville Mutual	Alliant Energy
Mediapolis	Alliant Energy	Alliant Energy
Middletown	Alliant Energy	Alliant Energy
West Burlington	Alliant Energy	Alliant Energy

Natural Gas

Natural gas for the county is obtained from the ANR Pipeline Company and distributed by Alliant Energy. A majority of individuals within unincorporated areas purchase bottled natural gas. The ANR pipeline is a major transmission pipeline providing natural gas in liquid form for distribution by Alliant Energy providing metered service (vs. wholesale, which is not allowed).

At present, Alliant Energy has sufficient excess capacity to serve its current and future residential and industrial customer base requiring fixed amounts of natural gas.

Alliant Energy provides as much natural gas within the county as it does electricity, which is unusual. The situation exists because during the 1940's the Eastern Iowa Rural Electric Cooperative (REC) served all but the incorporated area of Burlington with electricity. As deregulation occurred, Alliant Energy's service territory expanded.

Electricity

While the distribution of electrical service remains with local companies, the generation and transmission of electricity to the county results from a complex series of scattered substations providing high voltage transmission service through interlocking lines.

Alliant Energy has a power station in the county serving most of the incorporated areas while the unincorporated areas derive their power from generating stations out of state.

Two major electrical companies serve Des Moines County: Alliant Energy and the REC. With the interconnection of heavy power transmission lines, there is sufficient electrical capacity to serve existing potential customers. Alliant Energy wholesales electricity to rural electric companies and municipal electric companies including Danville Mutual.

Alliant Energy is expanding their distribution system south of Burlington with the construction of a back-up system that will serve, among other sites, the Flint Hills Industrial Park. The system will be looped to provide transmission of electricity from the north or south (or two-way feed) of Burlington. The new line feeds from the main power plant on Highway 61 in Burlington (101 Roosevelt), south to the fertilizer plant at Green Bay junction, and includes a new connection at the intersection of Highway 61 south and Summer Street (Spring Grove intersection).

It should be noted that Alliant Energy purchased Iowa Electric, which had previously merged with Iowa Southern Utilities. Such mergers allow companies to purchase greater volumes of electricity through transmission lines at more economical prices.

As stated earlier, the majority of Alliant Energy's customer base is in Burlington. The company is confident of its capacity to provide service to an expanding residential and industrial customer base.

REC, headquartered in Wilton with a branch office in Mt. Pleasant, has invested over $6.5 million since 1980 to build and upgrade electric plant facilities. A major component of the investment has been increased capacity of the distribution lines out of substations and construction of tie-lines between substations enabling REC to isolate outages and feed affected areas from other substations.

Northeast Missouri Electric Power Cooperative (Northeast) is a regional generation and transmission company formed by the REC and eight other local distribution cooperatives in Iowa and Missouri. The Northeast system provides transmission and substation services in 12 southeast Iowa counties and 15 northeast Missouri counties.

REC is also expanding its service capacity south of Burlington, and is confident of its ability to provide service to meet any residential and/or industrial expansion.

PUBLIC SERVICES

FIRE PROTECTION

The County is served by five Fire Departments and two Emergency Medical Services (EMS). West Burlington, Danville, and Yarmouth provide fire service with secondary emergency medical service, while Burlington and Mediapolis provide primary emergency medical service as well as fire protection. Maps 2 and 3 illustrate service areas for all Des Moines County facilities.

Burlington Fire Department

The Burlington Fire Department operates three fire stations. The Central Fire Station is located at 418 Valley Street. This facility serves as fire administration, prevention, and command headquarters. Services include fire rescue, confined spaces, hazardous materials handling, and emergency medical services. A second station is located at 802 Summer Street. This station provides an extension of all services. The third fire station is located at the Burlington Regional Airport and functions primarily for the purpose of specialized airport fire protection.

Burlington established a new station at the regional airport. This station services the airport and the southern portion of Burlington as well.

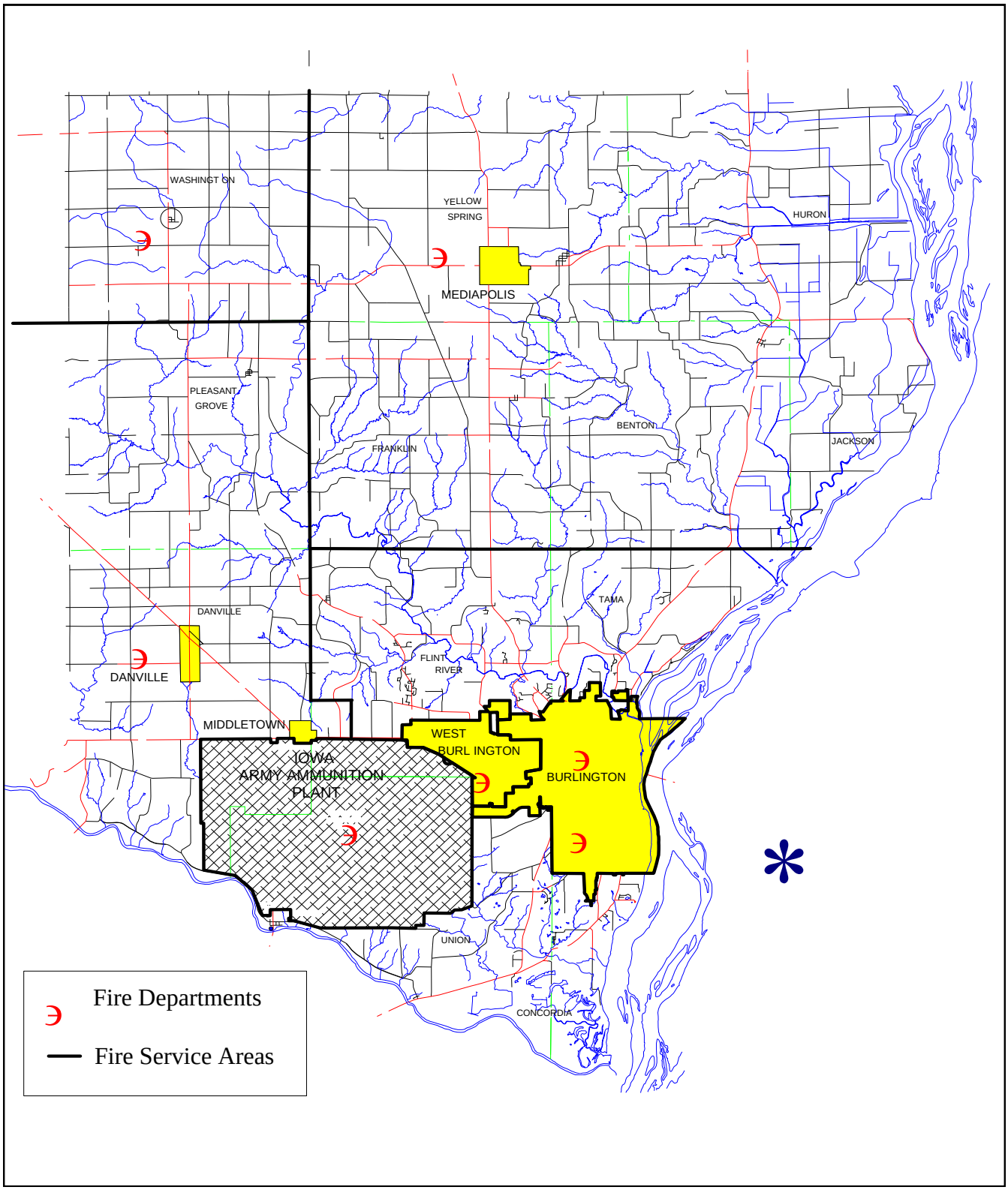
Forty-nine career firefighters and one part-time person staff the Burlington stations. The organizational structure consists of a fire chief, deputy chief of administration and operations, deputy chief of training/hazardous materials, firefighter/EMS responders, and a secretary.

Analysis of past records indicates there has been a shift in service responses. In the past, fire was the primary response service. Service responses are now medical in nature with fire responses becoming less frequent.

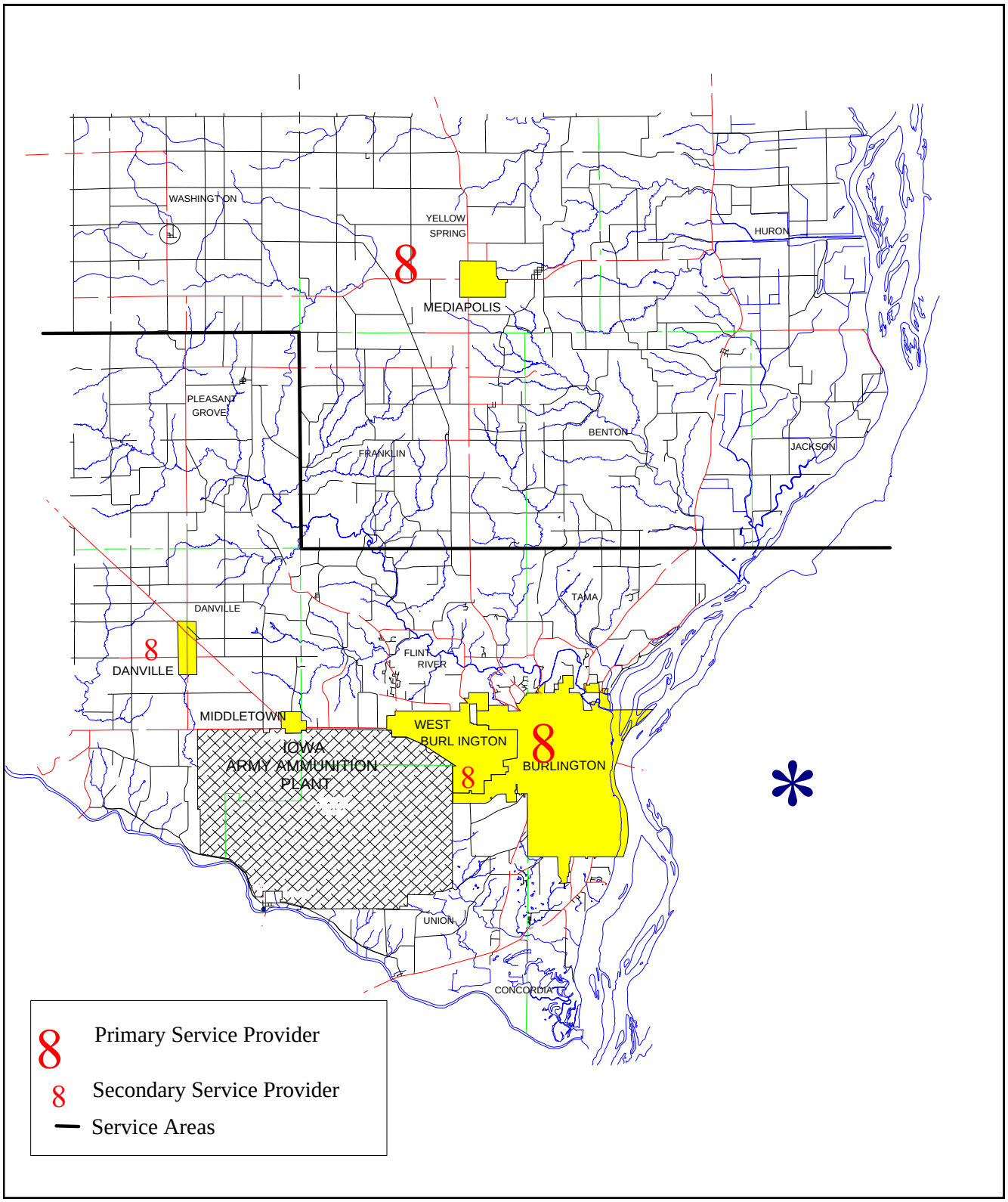
Burlington Fire Department Services include:

- Fire Protection
- Fire Prevention
- Fire Rescue
- Confined Space Team Services
- Hazardous Materials Team Services
- Emergency Medical Services

Map 2: Des Moines County Fire Service Areas



Map 3: Emergency Service Areas



The Burlington Fire Department's Hazardous Materials Teams Services are currently at a technical service level. Occupational Safety and Health Administration (OSHA) dictate the levels of service. Currently there are three levels: awareness, operational, and technical. The awareness level of service includes the ability to recognize the hazardous materials and be aware of possible hazards. The operational level includes the ability to act defensively to contain the material, and the technical level of service ensures that individuals understand how to act aggressively to stop contamination from continuing.

The technical level requires expensive training and equipment. Burlington is the only department in the county with a technical level of service, although future plans are to extend Burlington's Hazardous Materials Team's jurisdiction to include the entire county. In 1995, the Hazardous Materials Team responded to 75 emergency response calls. Burlington's Confined Spaces Team was established in 1995 and reported 10 emergency response calls within its first year.

Burlington's Fire Department provides Emergency Medical Services to the southern portion of Des Moines County (see Map 2). The EMS responds to Enhanced 911 (E911) calls. Emergency response numbers in 1996 were 1,995 with 368 responses within the county and 276 out of the county. The average response per day in 1996 was 5.5.

West Burlington Fire Department

The West Burlington Fire Department consists of 31 volunteer firefighters with a minimum of CPR and first aid training. Facilities include a 5-bay, double deep fire station equipped with two (2) pumper trucks, two (2) pumper/tanker trucks, one (1) rescue truck, one (1) medical truck, and one (1) brush truck. West Burlington's primary coverage is seen in Map 3. West Burlington covers the four southern most townships of Des Moines County, Tama, Concordia, Union, and Flint River. The townships and the city of West Burlington share the cost of both the rescue truck and the medical vehicle due to the large geographic area and budget limitations. The two (2) pumper/tankers, brush truck, and half of the rescue and medical vehicles were purchased by the townships and are stored and maintained by the West Burlington Fire Department on a cost sharing program.

The West Burlington Fire Department has a trained Confined Spaces Team and offers a limited water rescue service. They also offer operational level service in response to hazardous materials operations and assist the city of Burlington. The Emergency Medical Service for West Burlington is contracted with Burlington. (See Map 3 for Burlington's service area.)

Generally, if the service needed is not life threatening, West Burlington is the primary service provider. However, if the service situation is life threatening, Burlington's Department is called as the primary response team. Burlington's Department also transports all individuals requiring treatment at a medical facility. West Burlington's Department does not provide transportation between medical facilities.

In 1995, the West Burlington Fire Department responded to 280 calls. In 1996, the responses through March had increased over the normal number of runs through July. This indicates a substantial increase in the services that West Burlington is providing. If trends persist in this manner the facility may need to expand.

Danville Fire Department

Danville Fire Department serves the cities of Danville and Middletown, as well as Danville and Pleasant Grove Townships. The Danville Volunteer Fire Department operates with 30 active members, providing service to approximately 2,500 people. Equipment includes two engine pumpers, a tanker, a brush truck, a squad truck, and a medical rescue unit. Two paramedics operate the rescue unit, however it does not transport individuals; Danville contracts with the city of Burlington for transportation services. Individual requests to be transported to Henry County facilities can be arranged through other transport services.

The Danville Fire Department is capable of handling hazardous materials at the awareness level and also provides a Confined Spaces Team on a limited basis.

Mediapolis Fire Department

The Mediapolis Fire Department operates on a volunteer basis with 23 firefighters. The Department services the incorporated city of Mediapolis and the townships of Franklin, Benton, Huron, Jackson, and Yellow Spring.

The Fire Department also houses the community ambulance that serves all the townships for EMS, as well as Washington Township (refer to Map 2). The community ambulance service is composed of 19 volunteers, all trained with a minimum standard of lifesaving and CPR rescue skills.

The Mediapolis Fire Department works extensively with townships for service and equipment sharing. Currently the city possesses a 1991 pumper and the fire chief's vehicle. The townships of Franklin and Benton together maintain a 1972 pumper and a 1981 Mack tanker. The surrounding townships and the city share a reserve truck and a brush truck. The Department is trained for confined spaces rescue and for the operational level of service when handling hazardous materials.

Yarmouth Fire Department

The Yarmouth Fire Department serves as the primary provider for Washington Township. Mediapolis is the secondary service provider for fire and the primary service provider for EMS. There are 12 volunteers including the fire chief with equipment including two pumper trucks and one brush truck.

POLICE PROTECTION

Burlington Police Department

The Burlington Police Department is comprised of 43 sworn officers and a support staff of sixteen employees. The department operates 28 patrol cars (including parking enforcement vehicles), provides countywide communication for police, sheriff, fire, ambulance and rescue operations, maintains a computer records system, interfaces with the National Crime Information Center, and directs Burlington's Animal Control Department.

The Department operates Iowa's first "911" emergency telephone system, sponsors an active neighborhood watch program and law enforcement explorer post, maintains a 24-hour on-call chaplain service and volunteer police reserve unit, and provides civil defense siren/cable TV alerts and an indoor severe weather warning system for businesses and other agencies that purchase receivers. The department no longer monitors burglar and fire alarms. This service has been turned over to a private company that monitors the alarms and calls confirmed emergencies into the department.

Table 15: Current Statistics on Burlington's Crime Rate

Crime	1996	1997	1998	1999	2000	2001
Homicide	0	0	1	1	1	0
Sexual Assaults	44	28	33	48	41	57
Robbery	31	32	45	27	17	22
Assault	936	800	675	632	558	500
Burglary	549	432	337	278	262	279
Thefts	1822	1329	1031	988	1074	1089
Auto Thefts	97	90	68	61	53	52
Arson	14	6	9	3	6	10
Vandalism	1401	997	734	755	498	411

Source: Burlington Police Department Annual Report, 1996 - 2001

Table 15 shows the current crime rate statistics for the city of Burlington. The city, where 63 percent of Des Moines County population resides, experienced steady or slightly decreasing crime rates. The murder rate over the last five years has fluctuated between either one or no murders. Crimes such as assault, auto theft and vandalism have decreased. Other crime rates have fluctuated slightly.

West Burlington Police Department

The West Burlington Police Department has a total staff of eleven, including the chief of police, nine sworn patrol officers, and one full time staff member. In accordance with the Code of Iowa, each officer has completed the Iowa Law Enforcement Academy Program for law enforcement officers.

In an effort to provide the highest level of protection at the lowest possible cost, the West Burlington Police Department also makes use of eight police reserve officers. These volunteer officers work 12 hours a month, providing assistance and support to the regular officers. All officers are certified by the State of Iowa.

The West Burlington Police Department is located in City Hall and all dispatching is done through the Burlington Police Department. The department maintains six squad cars. There are several cooperative agreements between the West Burlington Police Department and other law enforcement agencies, such as the Des Moines County Sheriff, the Burlington Police Department, the Southeast Iowa Narcotics Task Force, and the Iowa State Highway Patrol.

SHERIFF'S OFFICE

The mission statement of the Sheriff's Office is "To provide proficient and professional law enforcement services to ALL citizens of Des Moines County." The law enforcement arm of the Sheriff's Office consists of the sheriff, chief deputy and 19 civil service deputies, as well as a fully trained special deputy unit of 19 members. The administrative division includes 5 civilian members. The Sheriff's Office is located in downtown Burlington.

The Des Moines County Correctional Center was constructed in 1995 and features a 'District Supervision' philosophy. The jail, which is located in the Flint Ridge Business Park, employs an administrator, assistant administrator, and 12 correctional officers.

Mediapolis and Middletown contract with the Sheriff's Office for their law enforcement requirements. The Sheriff's Office serves as the chief law enforcement office for Des Moines County. The Sheriff's Office handles administrative tasks, patrol, investigations, civil process, corrections, crime prevention, and river rescue

services. In addition, the Sheriff's Office coordinates over 60 programs that target youth, adults, business owners, preschoolers, and rural residents and has a nationally recognized McGruff program. The Sheriff's Office has one deputy assigned to the Southeast Iowa Narcotic's Task Force, which is one of many cooperative agreements being utilized with area law enforcement.

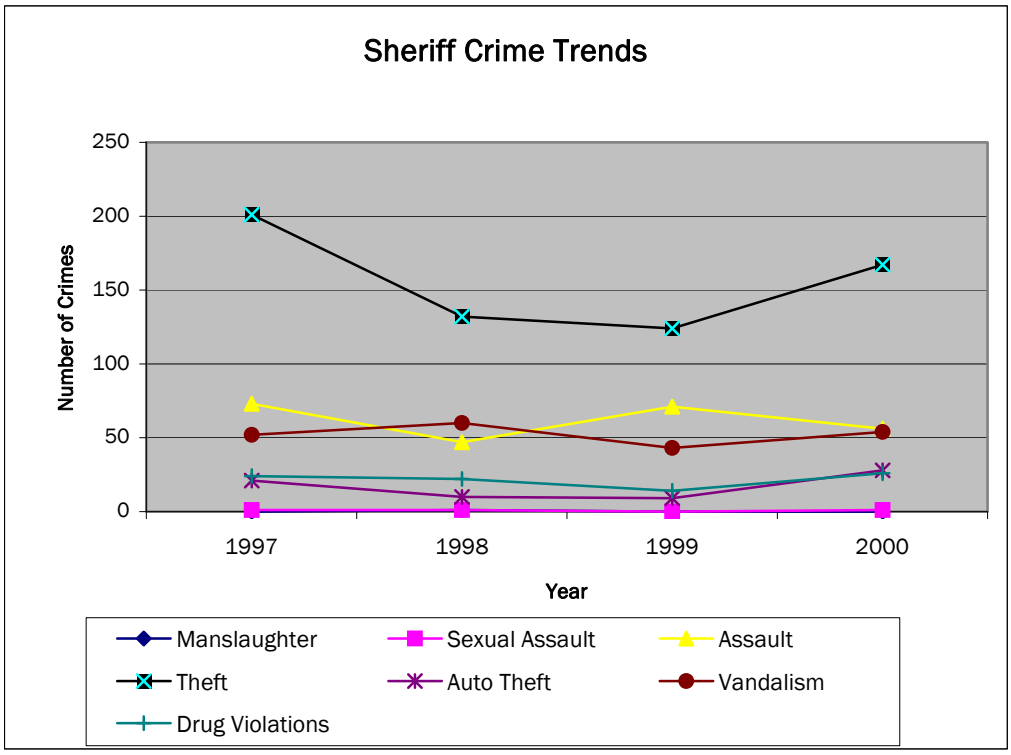
Table 16: Current Statistics on County's Crime Rate

Crime	1997	1998	1999	2000
Manslaughter	0	1	0	0
Sexual Assault	1	1	0	1
Assault	73	47	71	56
Theft	201	132	124	167
Auto Theft	21	10	9	28
Vandalism	52	60	43	54
Drug Violations	24	22	14	26

Source: Des Moines County Sheriff's Office

The current statistics on Des Moines County's crime rate can be seen in Table 16 and the trends that have been produced in Figure 15. The statistics indicate that the county has had a decline in assaults in 2000. The incidence of manslaughter and sexual assaults stayed fairly constant during the four-year period. Thefts plummeted from a high of 201 in 1997 to a low of 124 in 1999, but began to increase in 2000. Auto theft, vandalism, and drug violations decreased during the late 1990s but the incidence of all three crimes increased in 2000.

Figure 15: County Sheriff's Crime Trends



DES MOINES COUNTY ATTORNEY

The Des Moines County Attorney is the legal advisor and chief law enforcement officer in Des Moines County. The County Attorney is an elected full-time position. The Des Moines County Attorney's Office has six full time assistant county attorney's, three full-time and one part-time support staff employees, as well as one full time and one part time victim/witness coordinator.

The Des Moines County Attorney prosecutes all violations of state criminal laws, county ordinances, and Burlington municipal ordinances under contract with the city of Burlington.

The County Attorney presents all mental health and substance abuse commitment proceedings, all juvenile delinquency, children in need of assistance, truancy violations, and other duties as prescribed by the Code of Iowa.

The Des Moines County Attorney also provides legal advice, represents and defends the Board of Supervisors and county and townships officers concerning county matters.

The Des Moines County Attorney's Office mission statement is to "Respond to the needs and concerns of its citizens by always striving to find the truth, to seek justice and to provide quality criminal prosecution programs and victim witness services with available resources".

The County Attorney's Office has numerous programs working together with other area law enforcement agencies and the public including the Southeast Iowa Narcotics Task Force, Bad Check Restitution/Prosecution Program (COP), Truancy Task Force, Child Trauma Team, Courtrooms to Classrooms, a speaker's bureau, and the Gang Strike Force.

SOLID WASTE MANAGEMENT

Operation of landfill and recycling programs is conducted by the Des Moines County Regional Solid Waste Commission, which is a consortium of all governmental entities in Des Moines County, most of Henry County, and part of Louisa County, under a 28E agreement developed in 1990. The landfill is a 320-acre site located two miles northwest of West Burlington in the west half of Section 22 and the east one fourth of Section 21, Township 70N, Range 3W, in Des Moines County. Approximately 6,000 tons of refuse and demolition is landfilled at this facility each month. The landfill operation is DNR approved and permitted under Subtitle D regulations established by the EPA. Life expectancy of the landfill is between 50-75 years at the current rate of fill with new cell development proceeding on an as-needed basis.

The Regional Solid Waste Commission also operates the Area Recyclers Program for the collection and marketing of recycled materials including paper products, glass, metals, number 1 and 2 plastics, and cardboard materials. Incorporated areas have curbside pickup of recyclables and the unincorporated areas of the county have collection sites. The recycling operation is financed through a waste management fee collected from each of the participating governmental entities in the Commission.

In 2000, the DNR imposed a 50 percent reduction mandate across the state for the amount of material landfilled at each solid waste facility based on 1987 data. Currently, the Solid Waste Commission has achieved a 41.77 percent reduction in material going to the working face at the landfill. The Commission has submitted a comprehensive plan to the state, which explores other alternatives to handling the waste stream including composting activities.

Pickup and hauling of solid waste from commercial and industrial sources to the landfill is accomplished through the services of private haulers. This part of the waste stream makes up about 70 percent of the total material landfilled each year. Many private haulers have established recycling programs with their customers, which

adds to the waste abatement program. The remaining 30 percent of the waste is from residential customers and is picked up and hauled to the landfill by contracted private haulers in the rural and some residential areas and by public works departments in Burlington and Mediapolis.

The Solid Waste Commission operation tipping fees and waste management fees are very competitive with similar facilities elsewhere in the state and the Commission has established firm financials policies for continued successful operations.

PUBIC LIBRARIES

The Burlington Public Library is a tax-supported service of the city of Burlington and Des Moines County. Any resident of Burlington or Des Moines County may obtain a library card by providing identification. The Burlington Public Library provides service not only to the residents of Burlington and Des Moines County, but West Burlington, Danville, and Middletown by contractual agreement. Mediapolis is served under the Open Access Program. The Burlington Library currently has approximately 102,779 printed book collection that includes adult, large print, young adult, and children's books. The non-print collection of approximately 5,693 materials includes records, compact discs, audiocassettes, videocassettes, computer software, and DVD's.

The library maintains an audiovisual equipment center complete with cameras, cassette players, CD players, engravers, overheads and opaque projectors, screens, slide projectors, and VCR's.

The library has a complete reference section with volumes of printed material as well as several volumes on CD, microfiche, and microfilm. The library currently subscribes to 502 magazines and newspapers.

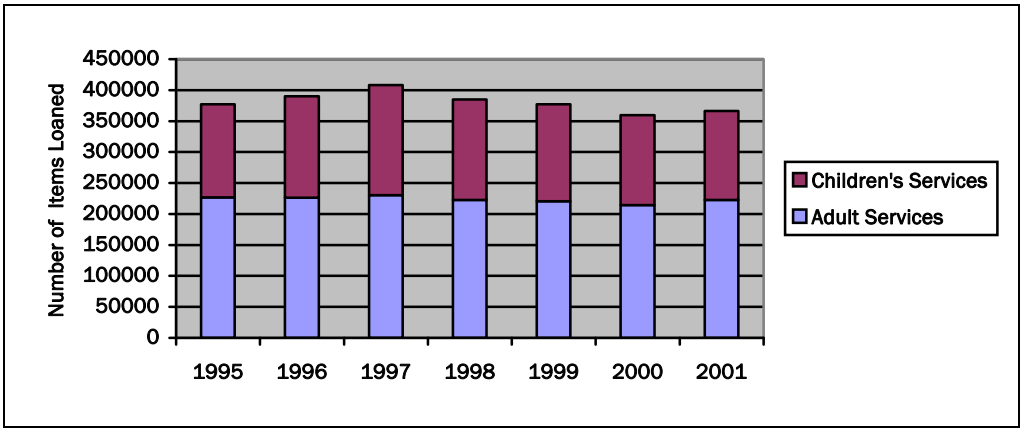
The library has 11 computers available for public use dedicated to the card catalog. Five terminals are dedicated to various indexes including magazines, genealogy, and CD ROM resources. Three terminals are available for word processing and three others provide in-house children's programs. Two terminals are dedicated to patrons through modem access and four lines can be accessed through the Internet.

The historic library, constructed from 1896 to 1898, was remodeled from 1969 to 1971, and provides 14,000 useable square feet out of 20,600 gross square feet on five levels. Although the public library is well located, it is severely limited to growth. In a 1994 study completed by David R. Smith, a library consultant, several problems were identified with the current facility. The study suggests that the opportunity for an adequately sized and functional addition to serve current and future library user's needs is not feasible.

The facility's various levels and divisions complicate public services, collection, library storage, and staff operations. Efficient traffic flow and good sight lines are prevented by the buildings interior design. There is general congestion in the building, including service desks, public seating, and shelving arrangements. Staff work areas are particularly deficient in size and adequacy. These comments combined with several other developments in the study suggest that there is a need for a new regional library.

Figure 16 illustrates the total number items loaned, which includes fiction, non-fiction, periodicals and pamphlets, and non-print materials for the adult and children's collection. The majority of library users are individuals over the age of eighteen, although there are a substantial number of children users as well. The recent level of those individuals under the age of eighteen has grown to nearly 30 percent. These figures suggest there will continue to be increased growth in the usage of the library. Many of the library users are students of Southeastern Community College. Local public agencies also use the library for research purposes.

Figure 16: Circulation at Burlington Public Library



SCHOOLS DISTRICTS

School District Trends

In 1989-90 an open enrollment policy was enacted by the state legislature to provide for natural migration of students attending smaller schools to transfer to larger schools equipped with additional facilities and larger course selections. However the policy resulted in the transfer of students from the urban districts to smaller districts. This has curtailed overcrowding in the suburban districts to the extent that the classes have been downsized and limits imposed.

The majority of the open enrolled students leaving the Burlington School District are going to West Burlington and Danville School Districts. In 1997 the State Department

of Education reported the Burlington District experienced the third largest loss of students (behind Waterloo and Des Moines) than any other in the state. West Burlington, however, recorded the second largest gain statewide (behind College Community) than any other district.

Mediapolis School District enrollment has not increased over the years, although there has been a shift in the student population in the other school districts.

All districts in the county are assessing capital and personnel needs resulting from open enrollment. The Burlington School District is considering building consolidation measures, while other districts have plans to rehabilitate and construct to facilitate the expansion.

Burlington School District

The Burlington School District is the fourteenth largest district in Iowa, with a 2000-2001 enrollment of approximately 4,873 students. This is a decrease of 845 students from the 1990–1991 enrollment of approximately 5,718 students. The school system is governed by a seven-member, locally elected board of directors. Members serve three-year terms and are elected at-large for overlapping terms, in an annual, non-partisan election. The administrative staff consists of the superintendent, all school principals and department supervisors. The instructional staff includes 376 teachers, counselors, media specialists, and nurses, with approximately 47 percent of them holding advanced educational degrees.

The elementary program provides a foundation of basic subjects including math, science, language arts, social studies, art, health, music, physical education, and computer literacy courses. A variety of enrichment experiences are offered including the Extended Learning Program, the Visual And Performing Arts (VAPA) Program, field trips, media and learning centers, science activities, and career exploratory experiences. At the high school, business education, college preparatory, home economics, career, and industrial education are available for students at all levels, including those with specials needs.

Special features include:

- Thirteen media centers and libraries, plus a two-story library with more than 24,000 volumes.
- Two television studios for closed circuit and cable TV broadcasting.
- A science department with access to both a reflecting and refracting telescope.

- Competition sized, L-shaped swimming pool, five gymnasiums, an outdoor stadium, and access to two golf courses, eleven tennis courts, two lighted tracks, and lighted baseball and softball fields.
- An industrial arts complex with shops for wood, electricity, welding, auto mechanics, drafting, journalism, graphic arts, and sand metals.
- On-line direct Internet access.

The Burlington School District operates a preschool for handicapped children, eight elementary schools, three middle schools, one high school, and an alternative high school. The alternative high school is for students who have difficulty in a traditional school setting.

Parochial Schools

Parochial schools in the county include Notre Dame Elementary and Notre Dame Junior/Senior High. In 1997-98 the Catholic system was consolidated to one campus. The former St. Paul's Elementary building was sold and the former St. John's Middle School building was demolished.

Between 1990 and 1995, the parochial school system planned and raised funds for the construction of a consolidated campus at the location of the current Notre Dame campus. The campus design includes a full-size gymnasium, library, media center, two classrooms for each grade, daycare, plus all the parish religious offices. The project included improvements to the existing Notre Dame High School building.

The $3.5 million project was funded completely by contributions. The new facilities and improvements were completed in the spring of 1997. Expectations were for enrollment to increase after completion of the project, however enrollment has remained constant.

The schools are state certified and the curriculum is consistent with the public schools, however Catholic religion classes are offered in addition. The schools are private and do not receive any state funding. The general budget is over $1.2 million, 85 percent of which is salaries. The system has a staff of 72 and an enrollment of over 400. Approximately 40 percent of those students attend Notre Dame.

The school supports soccer, basketball, softball, volleyball and baseball. Notre Dame combines football, tennis, golf, and track teams with West Burlington Independent sports programs.

West Burlington Independent School District

The West Burlington Independent School District enrolls about 500 students in three facilities; an elementary, middle, and a high school. In addition to the basic skills courses, West Burlington provides a talented and gifted program, vocational classes, vocational education in conjunction with Southeastern Community College, special education, fine arts, and a complete athletic program. All 37 teachers employed by the district are certified and one-third have graduate degrees. The schools are governed by a five-member school board, which is elected at-large in an annual, non-partisan election.

Mediapolis Schools

The Mediapolis Community School District enrolls over 1,000 students. The basic curriculum includes reading, English, mathematics, computer education, social studies, science, and physical education. Music and art are an integral part of the curriculum. Course offerings and materials are flexible to meet different instructional levels. College preparatory classes, vocational-technical courses, and a variety of electives are available to high school students. Exploratory classes are offered at the middle school level. Classroom experiences are enhanced by opportunities for students to participate in a variety of organizations and extra-curricular activities, such as sports, band, etc.

The Mediapolis Community School's staff includes a superintendent, three principals, a curriculum coordinator, 58 teachers, a counselor, and a librarian. The district is governed by a seven-member Board of Education. Each board member is elected from a specific geographical area and serves a three-year term.

In 1996 the district remodeled its oldest facility incorporating energy efficiency features, providing a new vocational agriculture area and an elevator. A facility constructed in 1996 houses K-5 and 6-8 grades. Although the district has experienced small increases in enrollment due to open enrollment, those gains contributed little to the need for the remodeling project.

Danville School District

The Danville School District has experienced an in-migration of students on all levels due to the open enrollment policy. The kindergarten classes have been affected the most, and as a result the district has adopted a policy limiting the kindergarten class sizes.

The district expanded its current facilities although the city defeated a referendum to bond for the funds. The expansion is part of the district's regular capital improvement plan and is not the result of open enrollment gain.

The Danville School District has one building that houses all levels of education (elementary, junior high, and high school). The elementary school has its own library while the junior high and high schools share a library. The district works closely with the city recreation department to maintain football, baseball, and soccer programs.

Continuing Education

The following continuing educational opportunities exist for the technological advancement of businesses and the professional advancement of individuals:

Area 16

In addition to the various school district services, the following are offered through the Great River Area Education Agency. Individual needs are met through district personnel, educational, and vocational services: learning disabilities, independent study, enrichment program, chapter one reading K-8, and homeroom concept K-8.

Weekend Programs

There are several opportunities to obtain educational degrees through weekend programs offered by both Mount Mercy and Southeastern Community College.

Mount Mercy College

Mount Mercy College, located in Cedar Rapids, Iowa, offers a weekend program where regular courses are offered in a revised format. Through this program, a student can earn a BA degree in four and one half years.

Southeastern Community College

Southeastern Community College (SCC), with campuses in West Burlington and Keokuk, works closely with area businesses and industries to provide seminars for improving management skills. The programs include:

- Seminars in Statistical Process Control
- Orientation seminars for new supervisors
- Seminars for secretaries and clerical workers in working with management

- Seminars in starting a small business
- Seminars on Iowa's " Right-to-Know" Law

Southeastern Community College serves as a setting for extension courses offered by Western Illinois in Macomb, St. Ambrose College in Davenport, and Iowa Wesleyan College in Mt. Pleasant, and has exchange programs with other schools including:

Board of Governor's Degree from Western Illinois University

This is a non-major degree requiring 120 semester hours. Through the cooperation of Southeastern Community College and Western Illinois University (WIU) at Macomb, Illinois, students may apply 80 semester hours of freshman and sophomore level course work toward the 120-semester-hour requirement. At least 20 semester hours beyond SCC Associates Degree can be earned and applied to the degree. Only 15 semester hours must be earned from WIU, and are offered at the SCC North Campus to meet such requirements.

MBA Degree from St. Ambrose College

The North Campus of SCC is cooperating with St. Ambrose College of Davenport, Iowa to offer the St. Ambrose Masters of Business Administration (MBA) degree at SCC. Fourteen courses are required, with students taking two courses a semester for three and one half years.

Dual Enrollment Privileges

Dual enrollment privileges for students of Iowa Wesleyan College (IWC) at Mt. Pleasant and SCC are available in order to better serve the students of each institution. IWC and SCC have established a cooperative agreement allowing full-time students at both colleges to take one course per term at the other institution at a standard tuition fee.

Student Exchange Program

A student exchange program exists between SCC and Carl Sandburg Community College, Galesburg, Illinois, and John Wood Community College, Quincy, Illinois. Through a reciprocal agreement, students may attend classes at SCC at the Illinois in-district tuition rate and SCC students may attend selected classes at the two Illinois institutions at the resident rate.

The University of Iowa

The University of Iowa, at Iowa City, offers undergraduate degrees in liberal arts and sciences, as well as over 100 graduate degrees.

Also located at the University of Iowa are the colleges of Medicine, Dentistry, Nursing, and Pharmacy. The medical and dental programs are graduate programs with the Colleges of Nursing and Pharmacy offering both undergraduate and graduate degrees.

The University of Iowa offers special "weekend" classes to accommodate employees of regional companies during non-work hours.

The Southeast Iowa/Western Illinois area offers many opportunities for continuing education at several colleges and universities within 90 minutes of Burlington.

- Culver Stockton - Canton, Missouri
- Iowa Wesleyan College - Mt. Pleasant, Iowa
- Knox College - Galesburg, Illinois
- Western Illinois University - Macomb, Illinois
- Monmouth College - Monmouth, Illinois
- University of Iowa - Iowa City, Iowa

On-the-Job-Training

SCC staff work with area industries to design technical training programs to prepare new employees for specific tasks they will perform in the establishment. The training program is submitted to the business for approval prior to its initiation. Training may include not only the technical competencies, but also an orientation to each employee's role in assuring the success of the new or expanding enterprise.

COUNTY RECREATION

In 1955, the Iowa State Legislature approved the County Conservation Law, Chapter 350 of the Code of Iowa. This law allowed Iowa counties to create a board, completely run and financed by a Conservation Board System. The organization is comprised of five board members appointed by the County Board of Supervisors to serve in five-year, staggered terms. The board's responsibility is primarily that of policy maker on conservation and recreation programs in the county. Board members are responsible to the residents of their county to provide the best conservation/outdoor recreation program possible with the sources and finances available.

The primary funding for the Des Moines County Conservation Board is tax revenue. As a part of this process, a county conservation board must annually adopt a budget to be submitted to the County Board of Supervisors for their review, and later for review by the public at budget hearings.

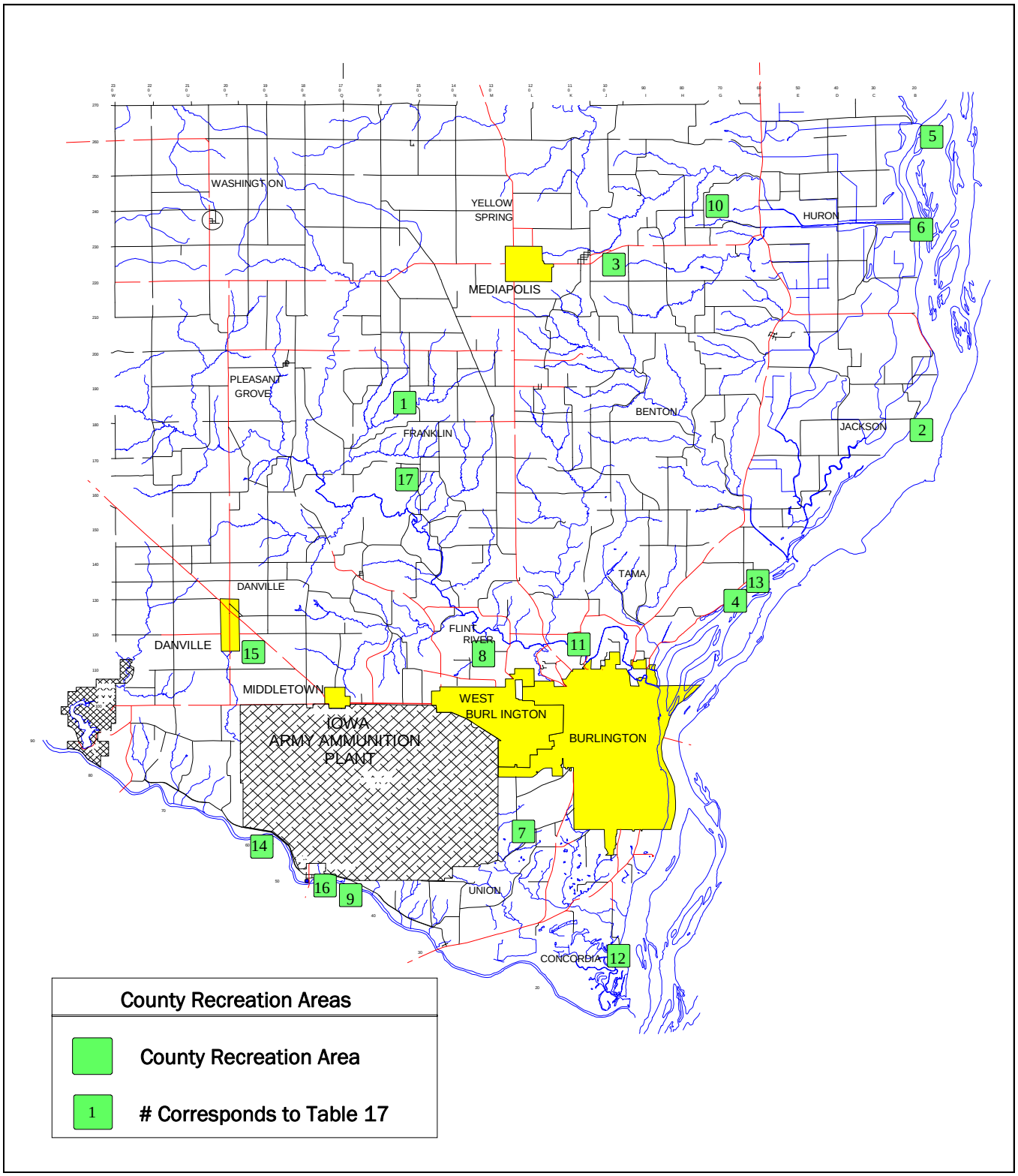
The Conservation Board is authorized to acquire, develop, and maintain areas devoted to conservation and public recreation. The conservation boards also serve as a primary natural resource management agency in their respective counties, help educate local residents about environmental issues, operate nature centers, help educate local residents about environmental issues, manage county wildlife conservation efforts, and administer roadside vegetation management programs. County conservation boards have been created in all 99 Iowa counties. The system is a unique blend of lay input, professional staffing, and cooperation between county and state agencies. This system is recognized as one of the most successful county conservation programs in the United States.

The following is a list of recreation/wildlife areas that the county has to offer. A map of the area and facilities is provided in Table 17 and Map 4. For more detailed information see the Des Moines County Conservation Board Comprehensive Plan.

Table 17: Table of County Recreation Areas

	Name of Area	Acreage	Camping	Electricity	water D - drinking	S - shower	Toilet F-flush	P-pit	Pickicking	Trails H-hiking	E-equestrian	B-bike	S-snowmobile	XS-ski	Swimming Beach	Fishing S-stream	L-lake/pond(acres)	Boating C-canoe	M-motor(*elec.)	A-archery B-baseball	S-shooting range	W-winter sports	N-nature center	H-historical site	W-wildlife exhibit	Handicap facility	Hunting W-wetland	U-upland	F-forest
1	Big Hollow Creek Rec. Area	721	*		D			P	*	H	E			XS			L			A	S	W				*		U	F
2	Casey Barrow Landing	2							*							S		C	M								W		
3	Chautauqua Park	10		*	D			P	*															H					
4	Edgewater Beach Access	1							*							S		C									W		
5	4th. Pumping Plant Rec. Park	17	*	*	D			P	*																				
6	Hawkeye Dolbee Access	10							*	H								C	M								W		
7	Hunt woods	58							*	H				XS								W							
8	K.J. Ghan Wildlife Refuge	56																											
9	Lower Skunk River Access	86	*	*					*	H						S		C									W		F
10	Luckenbill Woods 1853	76																						H					
11	Starr's Cave Park & Preserve	200							*	H				XS								W	N			*			
12	Sullivan Slough Miss. Riv. Access	21							*							S		C	M								W		
13	Tama Beach Access	3							*							S		C	M								W		
14	Upper Skunk River Access	16	*						*	H						S		C	M								W		
15	Water's Roadside Park	2							*																				
16	Welter Recreation Park	16	*						*	H						S		C											
17	Zion School Museum	1							*															H					

Map 4: Location of County Recreation Areas



HEALTH CARE

Great River Medical Center

The Great River Medical Center is a 313-bed, regional hospital, which serves a multi-county area in southeast Iowa, western Illinois, and northeast Missouri. As a secondary level hospital, it offers a full range of family services, from a neonatal intensive care nursery to a hospice program for the terminally ill.

Care Facilities (Nursing Homes)

The Great River Medical Center has two skilled nursing facilities, one at the Medical Center and the other at Klein's Continuation Care and Nursing Home Center. Both offer round-the-clock care by registered nurses, and a full range of rehabilitative therapies including speech, occupational, respiratory and physical therapy. The Klein Unit of the Great River Medical Center, Elm View Care Center, and Rosebush Gardens also offer skilled nursing and private intermediate care. Friedenheim Community and Bickford Cottage provide independent living facilities for senior citizens.

In addition to the private care facilities located in Burlington, the county operates Gateway Residential Care Facility located north of West Burlington. This facility is a 53-bed care facility with one registered nurse and two residential assistants staffed 24 hours a day. Clients include mentally ill, mentally retarded, indigent, and developmentally disabled individuals. Currently the facility is home to 35 people. It is licensed to serve up to 50 clients. The County is the process of developing a new care facility in Burlington.

Danville and Mediapolis also have residential care facilities.

Home Services

Three organizations, Southeast Iowa Homemaker-Home Health Aide Service, Inc., Mobile Health Care, Ltd. and Home Health Care, offer a wide variety of home health care services ranging from medical to protective and respite needs.

Table 18 gives a statistical listing of those with disabilities that are not institutionalized but may require assistance. From the population pyramids discussed in the Population section of the Plan, and the statistical information presented in this section, there is a strong demand for health care facilities and home based services in Des Moines County. With the aging baby boom population, there will be need for these facilities in the future. Des Moines County currently maintains the eighth oldest population in the state of Iowa and it appears to be increasing. The increasing out

migration of young people has resulted in a corresponding increase of the older population. Increases in health care, home service and senior transportation should be expected.

Table 18: Disability of Civilian Non-institutionalized Persons

Disability Of Civilian Non-institutionalized Persons	West Burlington	Burlington	Des Moines County	Iowa
Persons 16 to 64 years	1,979	16,156	25,733	1,691,073
With Mobility Limitation	28	403	567	26,473
With Self-Care Limitations	58	526	809	38,611
With a work Disability	151	1,459	2,206	128,258
In the Work Force	50	630	993	61,466
Prevented From Working	73	678	978	54,152
Persons 65 ears and Over	502	4,326	6,447	391,572
With Mobility Limitation	57	651	871	49,965
With Self-Care Limitations	48	381	534	40,180

MENTAL HEALTH

Touchstone & Rescare Behavioral Counseling

Touchstone Behavioral Counseling Clinic and Rescare Inc. Mental Health Center offers a variety of services for residents of Des Moines County including counseling, community service, psychiatric evaluation, consulting, and management of the At-Risk program. Primarily the services rendered are to the residents of Des Moines County, although there are some patients from outside Des Moines County. Fees for services are determined by the individual's ability to pay for the treatment. Thirty to thirty-five percent of the patients are Title 19 recipients, and 10-15 percent are private sessions, which are not subject to financial assistance.

A majority of the services provided by both clinics Clinic are counseling. Marriage, family, children, addiction, abuse, and chronic mentally ill are examples of counseling offered. The clinic provides special correctional counseling service to sex offenders and psychiatric evaluation for individuals needing such evaluation. The clinic provides daily counseling and maintains a hot-line with trained personnel available 24 hours a day.

Clinics are staffed with psychiatrists for evaluation and medication monitoring and one registered nurse. Touchstone Clinic offers community services to the chronically mentally ill on an outpatient basis only. This service provides for those who need help in their home to maintain their independent status within the

community. This service allows chronically mentally ill individuals to live outside an institution. The cases are managed by a caseworker and services are provided on a referral basis.

An At-Risk program is provided through the school district and serviced by Touchstone's professional staff. The service provides counseling to those children who seem to be at risk of dropping out of school or have problems beyond the realm of the school program. This service is provided to the elementary, middle, and high school students of Des Moines County.

Alcohol and Drug Dependency Services

Alcohol and Drug Dependency Services (ADDS) is a facility licensed by the Iowa Department of Public Health to provide residential and outpatient treatment to individuals experiencing such dependency. ADDS provides pre-treatment, screening, intake, assessment, and treatment recommendations.

ADDS has a residential treatment facility located in Burlington with outpatient offices in Wapello, Mt. Pleasant, Ft. Madison, and Keokuk. The facility provides treatment for individuals of all ages and has a special program available without fees for adolescents. Other fees accessed by this agency may be eligible for reimbursement by most insurance carriers. Alcohol and drug dependency services are not denied to those without the ability to pay. Anyone may receive treatment.

Des Moines County and local communities are experiencing an increase in the number of individuals addicted to drugs and alcohol. ADDS is planning to extend their services to provide for problem gamblers as well.

TRANSPORTATION

Transportation facilities are a part of the infrastructure needed to support and maintain the existing economic development efforts including the importing and exporting of goods, commuter traffic, and recreation. To accurately plan for the future transportation needs of Des Moines County, an inventory of existing facilities has been prepared and analyzed.

Input has been provided through a sub-committee of the Des Moines County Planning Commission, support from the Regional Airport Authority, the Iowa Department of Transportation, the Des Moines County Engineer's office, and the Burlington Area Chamber of Commerce. Analysis of the information provided will guide the future development of the transportation infrastructure within the county through policies of the Des Moines County Planning Commission.

SERVICE CENTERS

Transportation service centers can be defined as locations where goods and services essential to an area population can be purchased. Such services include medical, retail, long-term care, and employment. In Des Moines County, incorporated areas of Burlington, Danville, Mediapolis, Middletown, and West Burlington are the hubs, which provide the largest concentration of service facilities.

Transportation facilities connecting the residents of Des Moines County to these areas are very important, but just as these areas are important to the residents of Des Moines County, the connection of Des Moines County to other regional service centers is important to business and industry. For this reason, the transportation inventories will examine the transportation facilities for rail, barge, air, freight, recreation, and vehicular transportation.

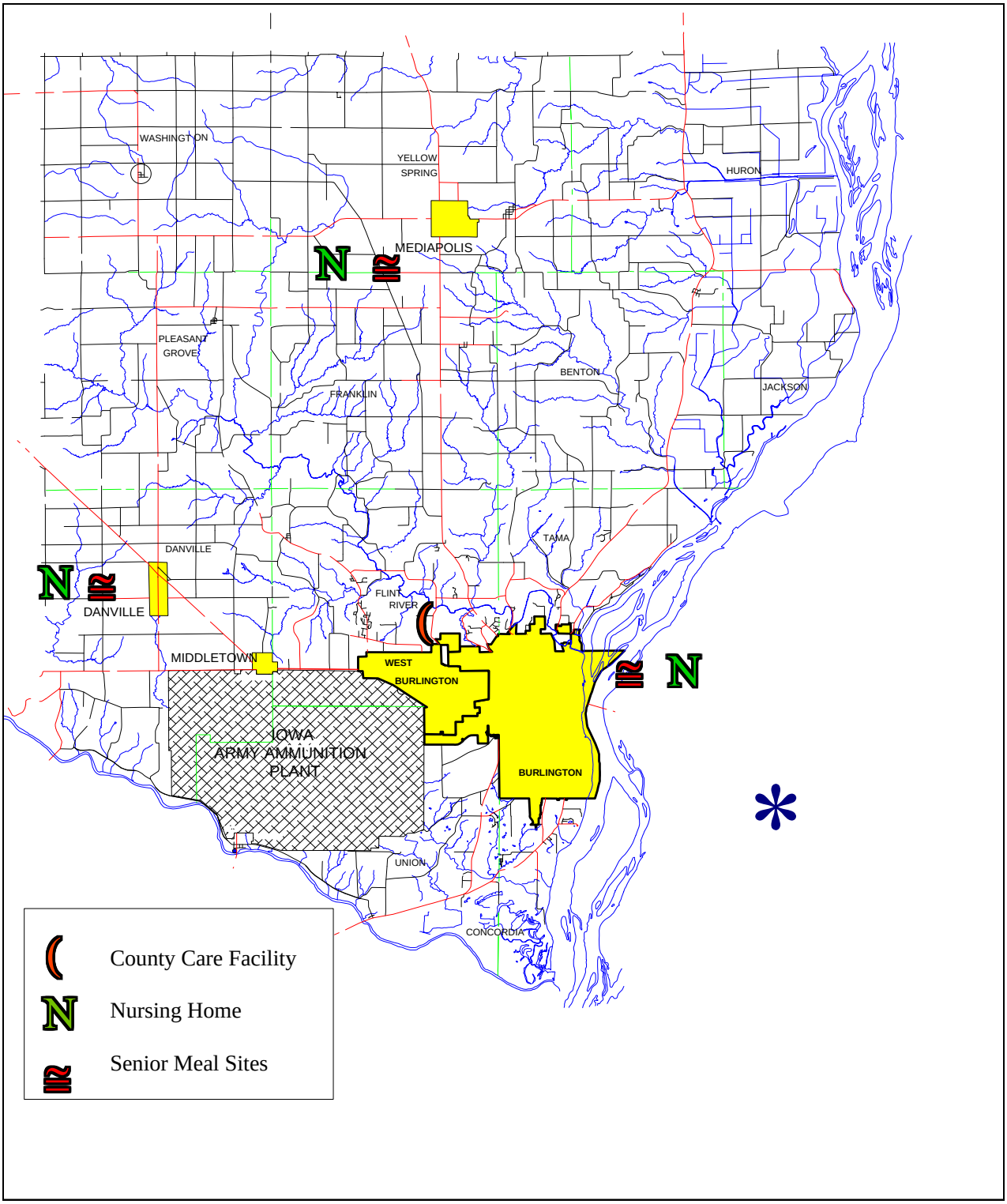
In developing a transportation plan, studying the relationship between service centers and their users is important to consider. The following is a brief discussion of specific centers and their users.

Long Term Care Service Centers

Long-term facilities such as county homes, nursing homes and senior citizen meal sites rely heavily on the public transportation system. In addition, persons wishing to visit these care facilities may also be in need of public transportation service. Some of these facilities provide their own transportation, but as costs increase, public transportation will play an increasingly important role as care facilities attempt to

coordinate the transportation needs of their residents. Long term care service centers are illustrated in Figure 17.

Figure 17: Long Term Care Facilities



Medical Service Centers

Because many smaller communities often lack basic medical facilities and service, there is an increasing demand for transportation to larger communities that offer these services.

Employee Service Centers

Many of the employees who work in Des Moines County travel to work from locations outside the County. In addition, several of the larger employers, notably in the Burlington area, have large numbers of individuals who drive to work from the rural areas or other incorporated areas within the County. Thus, urban areas throughout the county have developed into employment centers (refer to Figure 18).

Commuting Patterns

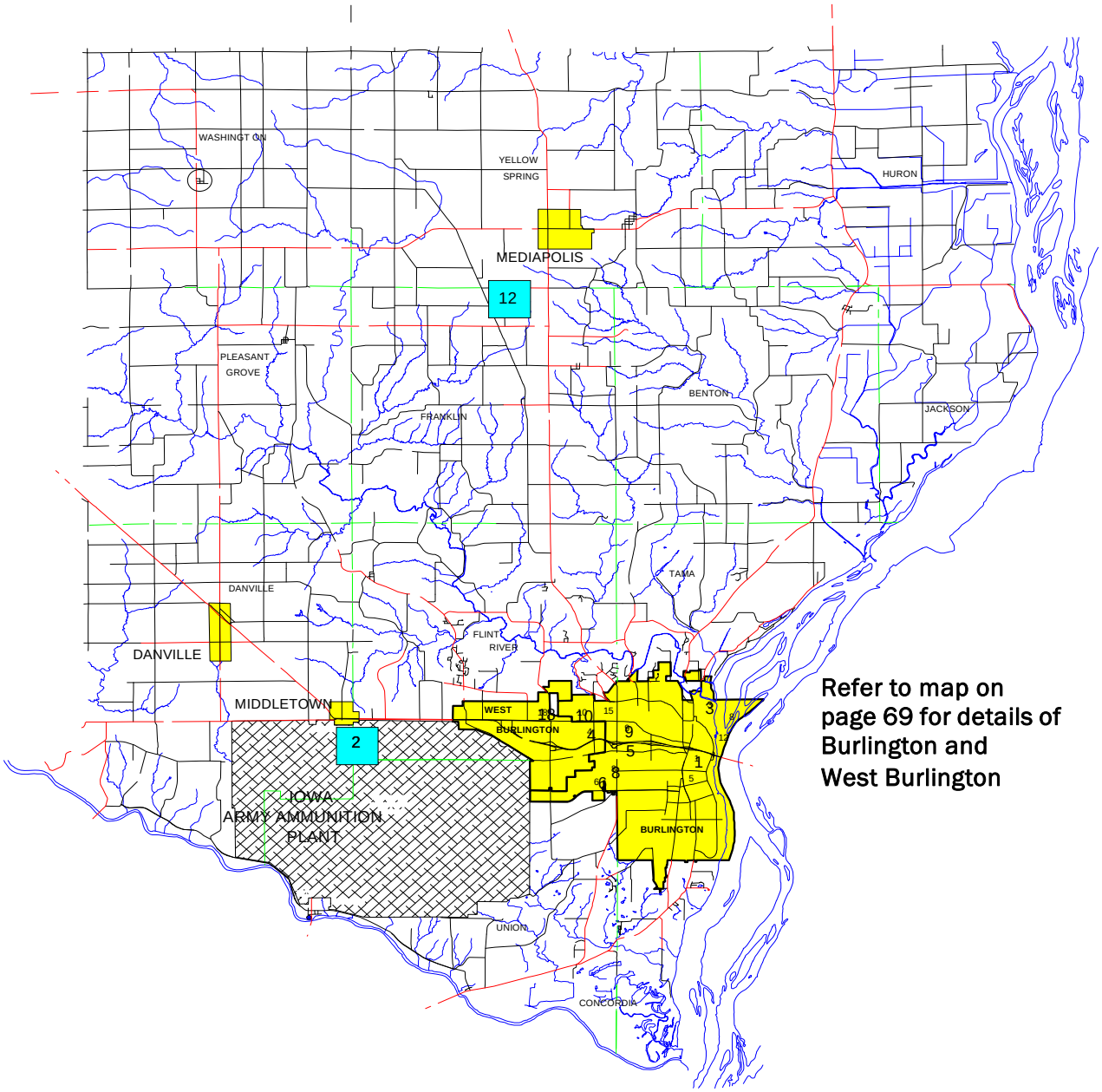
The incorporated areas of Burlington and West Burlington provide the majority of employment opportunities with the exception of two rural employment centers, the IAAP and the U.S. Gypsum Plant. A substantial number of Des Moines County residents and other individuals from the area commute from locations outside the employment centers (28 percent of Des Moines County residents and 44.4 percent of the region's population live in the unincorporated areas.)

Figure 19 illustrates the commuting patterns of Des Moines County. Employees commute to these centers from rural areas or other centers for two reasons: 1) many employees live in rural areas and commute to urban centers to seek non-farm employment, and 2) employees who live in urban areas commute to other areas to satisfy skill or wage requirements

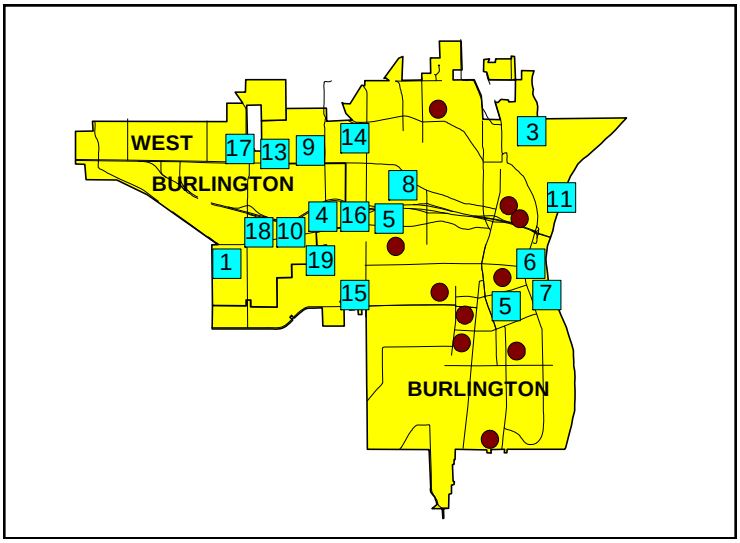
Retail Service Centers

Large retail stores, grocery stores, banks, pharmacies, and medical facilities are frequent destinations and generate regular transportation needs.

Figure 18: Employment Service Centers

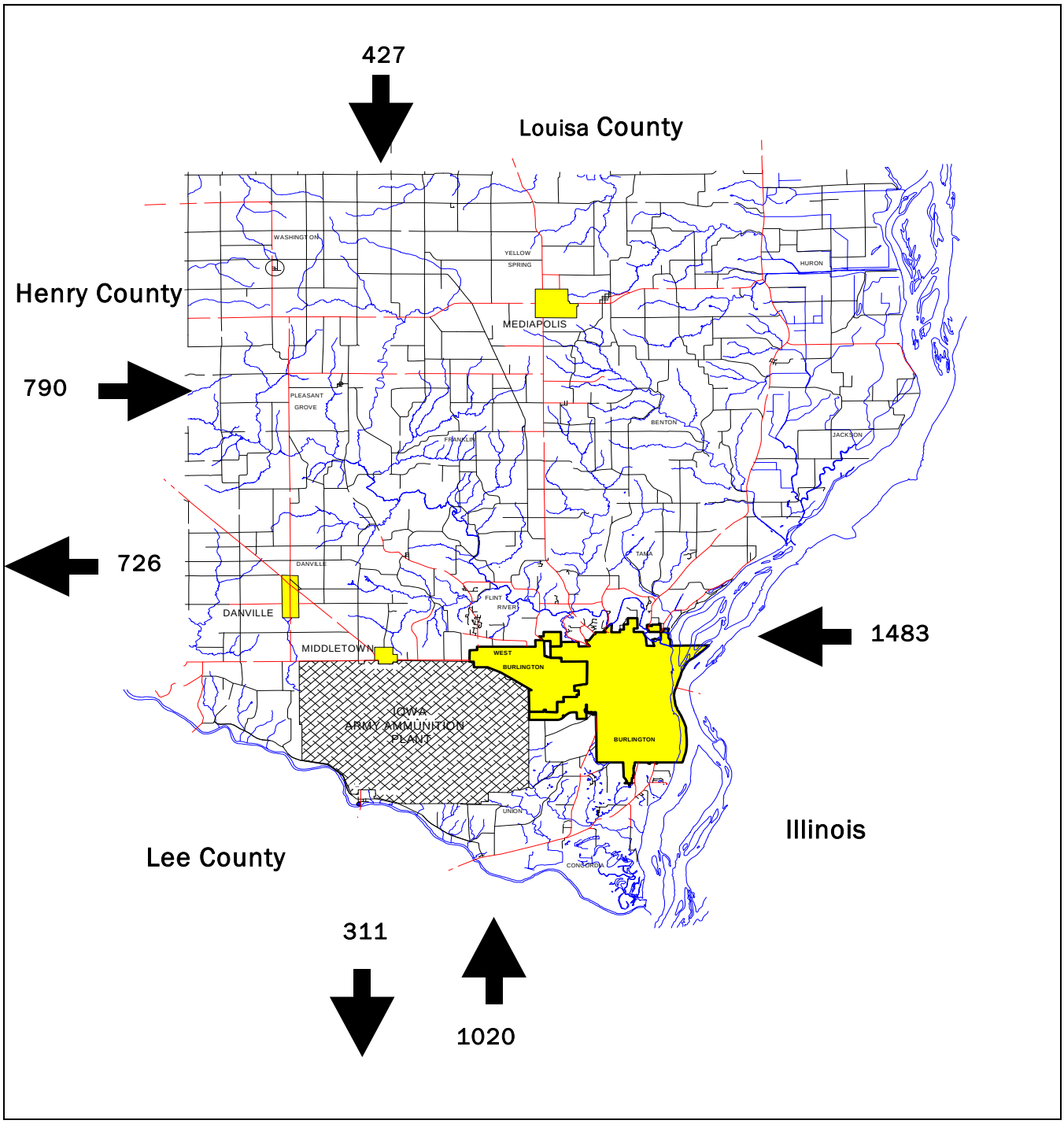


Refer to map on page 69 for details of Burlington and West Burlington



1 Great River Medical Center
2 Iowa Army Ammunition Plant
3 Case/New Holland Company
4 General Electric
5 Hy-Vee Food Stores
6 CSI Employments
7 Lamont Limited
8 Winegard Company
9 Vista Bakery
10 Wal-Mart
11 Burlington Basket Factory
12 United States Gypsum
13 Burlington Northern Santa Fe
14 Hope Haven Development Center
15 Murray Turbo Machinery Division
16 Shopko
17 Raider Precast Concrete
18 Menards Inc
19 Lowes
● Burlington Schools

Figure 19: Commuter Patterns



HIGHWAYS

In a study conducted to determine the importance of various industry locational factors, it was discovered that a major determining factor was access to an interstate or interstate-quality road. If the relocation site was 10 miles away from such a road, an area can expect to lose 36 percent of possible industries looking at the area. If the relocation site was five miles away from such a road, an area can expect to lose 5 percent of possible industries. With this in mind, quality roads have been a high priority of Des Moines County, as well as the entire southeast Iowa region.

The current road system in Des Moines County suffers from congestion. Improvements to this system would enhance accessibility and potential for economic development.

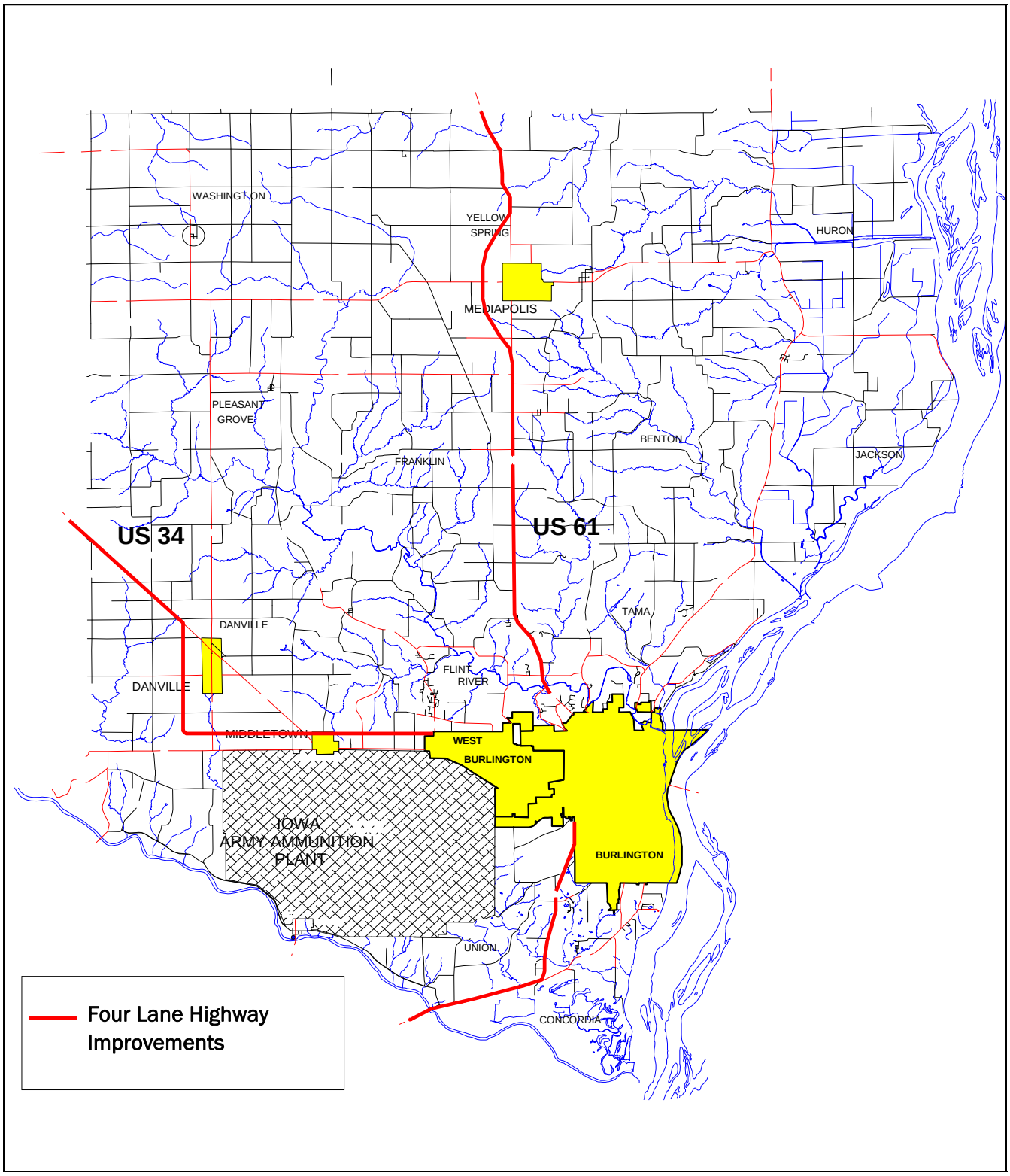
Existing highway service to the area is via U.S. Highways 34 and 61, plus a network of state and county roads. Both U.S. Highway routes have improvements or upgrading underway or scheduled. Figure 20 shows a 20-year improvement plan for southeast Iowa with U.S. 34 and U.S. 61 upgraded from a two-lane to a four-lane highway.

Based on traffic volume, the DOT determined it was necessary to establish a four-lane transportation route that connected the county with an interstate highway. Highway 34 is currently being widened from two to four lanes from Burlington to Mt. Pleasant and will eventually be a part of the Burlington-Des Moines Corridor. The four-lane corridor from Burlington to Mt. Pleasant will connect Burlington to the Avenue of the Saints at Mt. Pleasant. The Avenue of the Saints will link St. Louis, Missouri to the Twin Cities.

Highway 34, located east of the Mississippi River, is an important highway to all of southeast Iowa. A substantial section of the highway between Carmon Road, 2.5 miles east of Burlington to US Rte 67 in Monmouth, Illinois, is in the Illinois five-year plan for expansion to four lanes. The entire approximate 24 mile stretch is at a Phase I to Phase II status. The county will be accessible by four lanes of traffic to the east once the U.S. Highway 34 corridor is complete between Burlington, Iowa, and Monmouth, Illinois.

In addition to the improvements of U.S. 34 and 61, many of the county's secondary roads are scheduled for improvement. The five-year Capital Improvement Plan for Des Moines County roads and bridges is included in Appendix 1.

Figure 20: Highway Improvements



AIR SERVICE

The Burlington Regional Airport was constructed over seventy years ago. In 1930 it was estimated the airport served 700 passengers. In 2002, the Burlington Regional Airport served approximately 8,700 passengers. Passenger growth is anticipated to approach 49,000 by 2015.

An airport master plan was prepared in 1983. The master planning process involved identifying all existing facilities and their conditions. The Plan was updated in 1994 and included an inventory of based aircraft, scheduled commuter air service, and determination of a trend line for future growth at the airport. Several trends were explored and a forecast selected that would most accurately predict aviation growth at the Burlington Regional Airport (refer to Figure 21).

Facility requirements necessary to meet the selected forecast were developed and a preferred method of growth was selected. Drawings were developed that showed all of the necessary improvements to meet the forecasted growth over the twenty-year period. A detailed financial plan was analyzed to determine if and when the improvements could take place.

The 1994 Master Plan represented a means for the communities of Burlington and West Burlington to expand the Burlington Regional Airport to meet the needs of the next two decades. The Plan recommended approximately $14.4 million in improvements with a local contribution of thirty-four (34) cents on the dollar, using monies set aside by aviation users for development and maintenance of our nation's airports. Recommended improvements include a new terminal building and rehabilitation of both runways and their taxiway systems. Although these improvements are recommended in the Plan, they will not be carried out until the level of aviation traffic at the Burlington Regional Airport so dictates.

The 1994 Master Plan was updated in 2000, with the major amendment being the inclusion of the construction of a new main taxiway.

In July of 1996 the cities of West Burlington and Burlington created the Southeast Iowa Regional Airport Authority. This new entity is charged with the responsibility of operating and directing improvements at the Burlington Regional Airport.

Figure 21: Existing Airport Facilities

RAILROADS

Amtrak's railroad depot in Burlington is meeting Des Moines County's passenger rail service needs. There has been concern in the past that the central Iowa Amtrak route serving the Quad Cities and Des Moines may compete with the southern Iowa route, forcing Amtrak to abandon its southern Iowa route. Figure 22 shows the Amtrak routes in southern Iowa.

In 1996 the Burlington Northern and Santa Fe Railroads merged and under the new corporation continue to fulfill the county's freight service needs. Figure 23 illustrates rail traffic densities, grain loading facilities, and Barge Terminals in Des Moines County.

Recent railway improvements in the county, funded through the Federal Rail Safety Fund, include signal improvements in Burlington.

Figure 22: Amtrak Routes In Southern Iowa

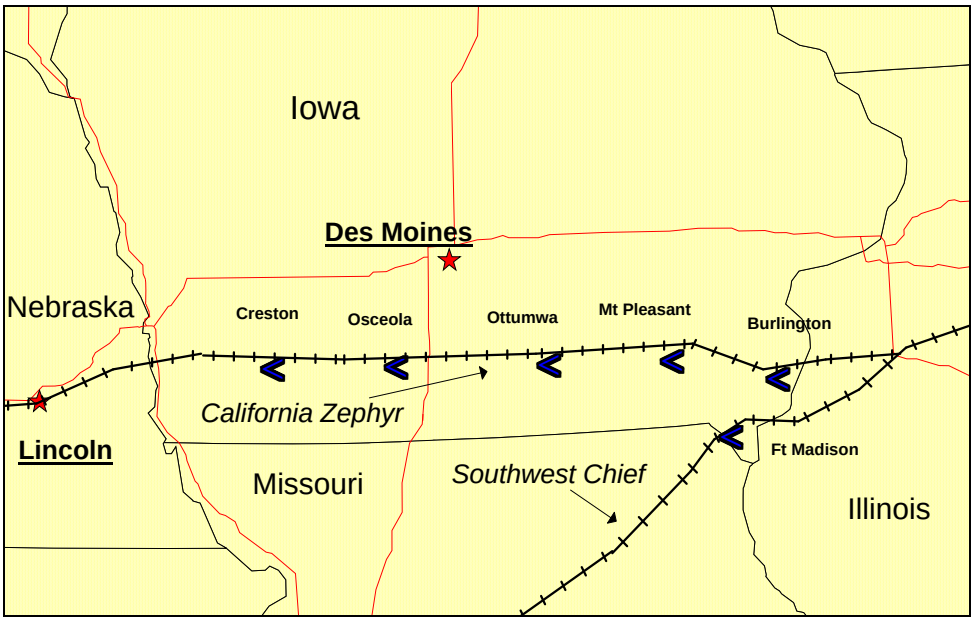
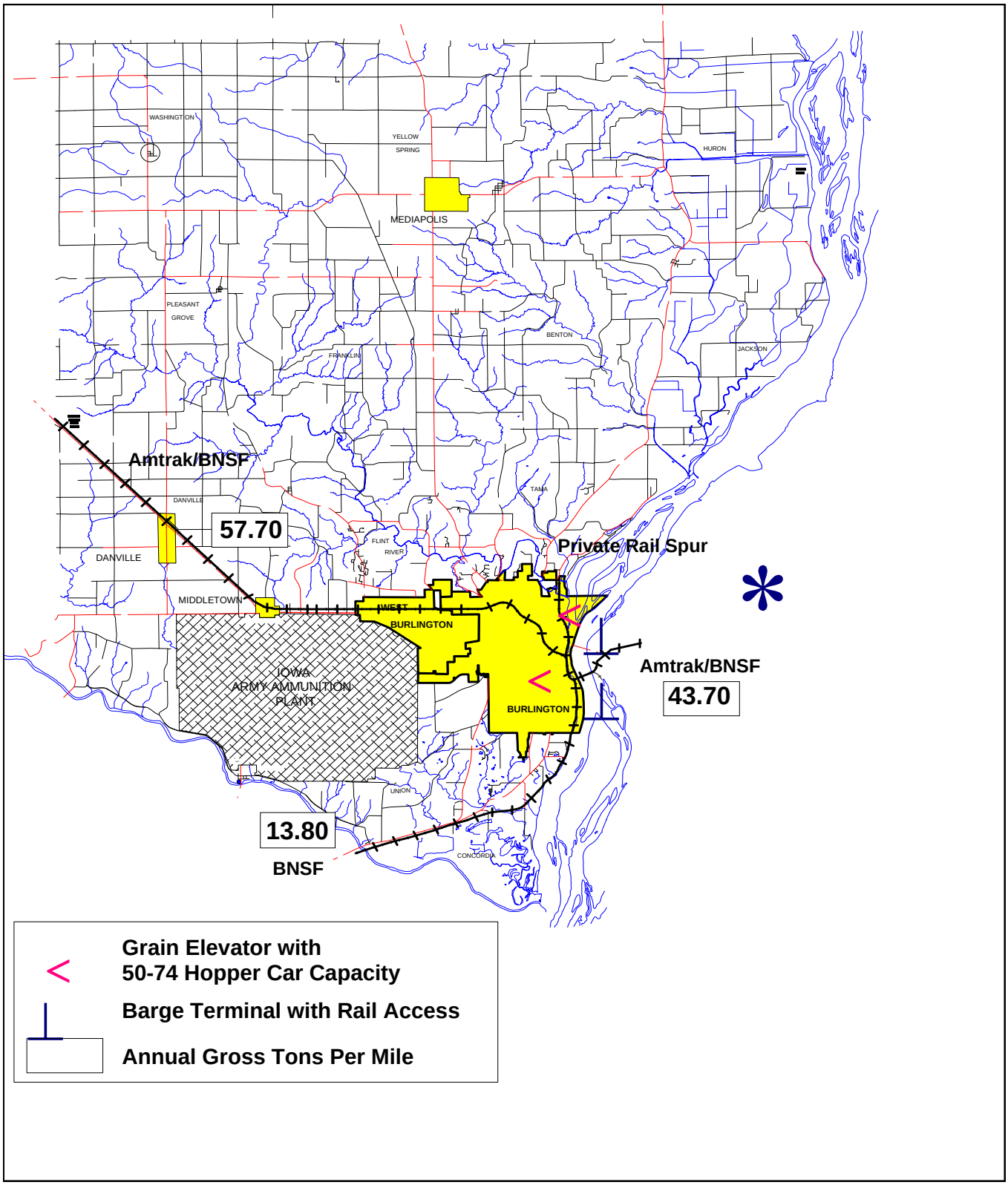


Figure 23: Railroad Densities In Des Moines County



RIVER TRANSPORTATION

Des Moines County borders the Mississippi River and has access to a full range of barge services. Commodities shipped by river include coal, petroleum products, chemicals, metals and ores, non-metallic minerals, corn, soybeans, wheat, other farm products, and miscellaneous goods.

The lock and dam system helps stabilize fluctuating river levels, maintaining proper channel depths to insure navigation.

Each year vacationers are drawn to the river to fish, swim, boat, hunt and picnic. Many public use areas are available ranging from parking lots for boat launching ramps to picnic areas and camping facilities.

The number of small pleasure craft on the river grows each summer causing increasing conflict with barge movements. Every effort should be made to preserve the diverse activities on the river including small boat harbors, recreation areas, industrial transport, and farm interests.

The Mississippi River functions as one of North America's greatest environmental resources. Its channels, backwater areas, wetlands, and adjacent valley lands provide excellent habitat for a variety of fish and wildlife. Efforts to protect and preserve the natural resources of the river system should continue. Commercial, industrial, and recreational interests must not only work to co-exist with one another, but must also consider the protection of the river's natural resources.

MISSISSIPPI RIVER LOCKS AND DAMS

In the next twenty years, an increased flow of river traffic is expected. Commerce projections indicate average lock utilization will increase at all locks with demand reaching or exceeding capacity at several locations. There will be a need for development of port and terminal facilities, development and maintenance of the navigation system, and rehabilitation of locks and dams in the region. The work may include concrete repairs or reconstruction, lock gate and valve machinery improvements or replacement, upgrading of electrical equipment, scour protection and gate repairs for dams, and extensions of upper guide walls.

Construction of a new lock and dam requires eight years, therefore it is imperative the needed improvements be identified early in the planning process. The Corps of Engineers will continue to conduct planning and design of the Mississippi River navigation system to meet the future needs of navigation by enlarging, modernizing, or replacing locks whose capacity will be exceeded.

Commercial navigation on the Mississippi River constitutes a vital segment of the County's intermodal transportation system. In fact, intermodal transportation is most easily and dramatically demonstrated by the interplay of river transportation with both the rail and highway modes. Therefore, the development of Mississippi River barge loading and unloading facilities as a part of the future intermodal transportation system is strongly promoted by the county.

Lock & Dam number 18 serves Des Moines County.

TRANSIT SERVICES

Several types of public transportation are available in Des Moines County. These include a regional transit system, a small urban transit system, and private urban taxi operations. There are also several social service organizations that provide transportation services in-house.

Designated Regional Transit System

The Regional Transit Authority (RTA) serves Henry, Lee, Louisa, and Des Moines Counties. RTA offers modified fixed routes and 24-hour advance registration demand-responsive service. Charter service is available in accordance with charter guidelines outlined by the Urban and Mass Transit Association (UMTA) and the Iowa Department of Transportation.

Modified fixed-route service is usually scheduled to meet the needs of the elderly and disabled. Service is to be available to the general public on an equal basis. Wheelchair lift-equipped buses are available on all routes.

Services provided by the Regional Transit Authority include:

Area Agency on the Aging (AAA) - Transportation is provided in Des Moines, Henry, Lee, and Louisa Counties three days per week from 9 a.m.-3 p.m. The RTA no longer serves the Burlington area. The Burlington Urban Service provides AAA service in Burlington.

Dialysis Shuttle - This service provides transportation for dialysis patients traveling to a treatment center in Mt. Pleasant. Service is offered five days a week.

Medical Shuttle - Transportation is provided to all hospitals and clinics in Iowa City from each of the four counties. The shuttle is offered Monday, Tuesday, and Thursday starting in Keokuk at 6:15 a.m. and arriving back in Keokuk at 5:10 p.m. Cost for round trip service is between $9-18 round trip.

Head Start - Head Start is a federally funded program administered locally by the Southeast Iowa Community Action Organization, or Community Action Program (CAP). Head Start seeks to provide disadvantaged pre-school children experiences that will enhance their subsequent education. RTA provides equipment to Head Start on a lease basis when required. RTA also provides maintenance assistance, technical knowledge, and the use of substitute drivers.

Hope Haven - Hope Haven is a private non-profit organization that provides residential training and employment services to handicapped persons. RTA provides clients transportation to the facility daily from Henry and Lee County. Burlington Urban Service serves Burlington clients.

Urban Transit System

Burlington is the only city in the county served by an urban transit system. Burlington Urban Service (BUS) serves a population of approximately 27,000. BUS provides demand-responsive service where needs, ridership, and transportation destinations demand. This service eliminates or significantly reduces service where experience suggests less need for fixed-route service.

Transit provided by other than the designated public transit system include:

> There are currently three private taxi companies providing service in Des Moines County. Speedy Cab Company, Best Rate Taxi, and Reliable Cab provide 24-hour taxi service to Burlington residents.
>
> Head Start owns many of its own vehicles and provides transportation for its clients to medical facilities, employers, and special activities.
>
> Prairie Oaks Care Facility also provides transportation for its clients to medical facilities and special functions. This service is provided only to residents of the facility.

Intercity Transit Services

Presently only one intercity carrier operates routes in the region. Burlington Trailways offers daily direct service to Burlington, Fort Madison, Keokuk, Mt. Pleasant, Wapello, Iowa City, Cedar Rapids, and St. Louis, Missouri. Charter service within southeast Iowa, western Illinois and northern Missouri is offered, as well.

ENHANCEMENTS

In the future, the area will rely much more on tourism, especially on eco-tourism. The county offers a wide variety of activities for the people of all ages that cannot be found in growing metropolitan areas. People will come to the area to get away from city life and enjoy the “rural lifestyle." Bed and breakfast businesses have evolved and continue to grow as an industry. People also come to enjoy the unique recreational opportunities the Mississippi River offers. Many of them will also visit historical sites in the region.

Recreation Trails

Officials from the four-county area recently merged efforts to prepare a trails development plan for the southeast Iowa four-county region. Existing and proposed Des Moines County recreational trails are illustrated in Figure 24.

This plan illustrates two types of bicycle paths: shared roadways and rural bicycle paths. Shared roadways are roadways that can accommodate both bicycle and motor vehicle traffic. Rural bicycle paths are areas designed for the shared use of bicycles and pedestrians and are completely separate from motor vehicle traffic.

Des Moines County Nature Trails Association

The Des Moines County Nature Trail Association was formed in 2002 for the purpose of promoting and developing recreational trails in Des Moines County. Its Mission Statement is: "To enhance the quality of life in Southeast Iowa by promoting total wellness through safe and scenic recreational trails". To date ¾ mile of former Chicago, Rock Island and Pacific Railway Company right-of-way has been acquired through use of a REAP grant. In 2002 it was surfaced with crushed limestone through the cooperation of local businesses and the Des Moines County Secondary Roads Department with funds donated by local bicycle groups. Route selection, right-of-way acquisition and development will be an oncoming effort of the Association.

County Trails

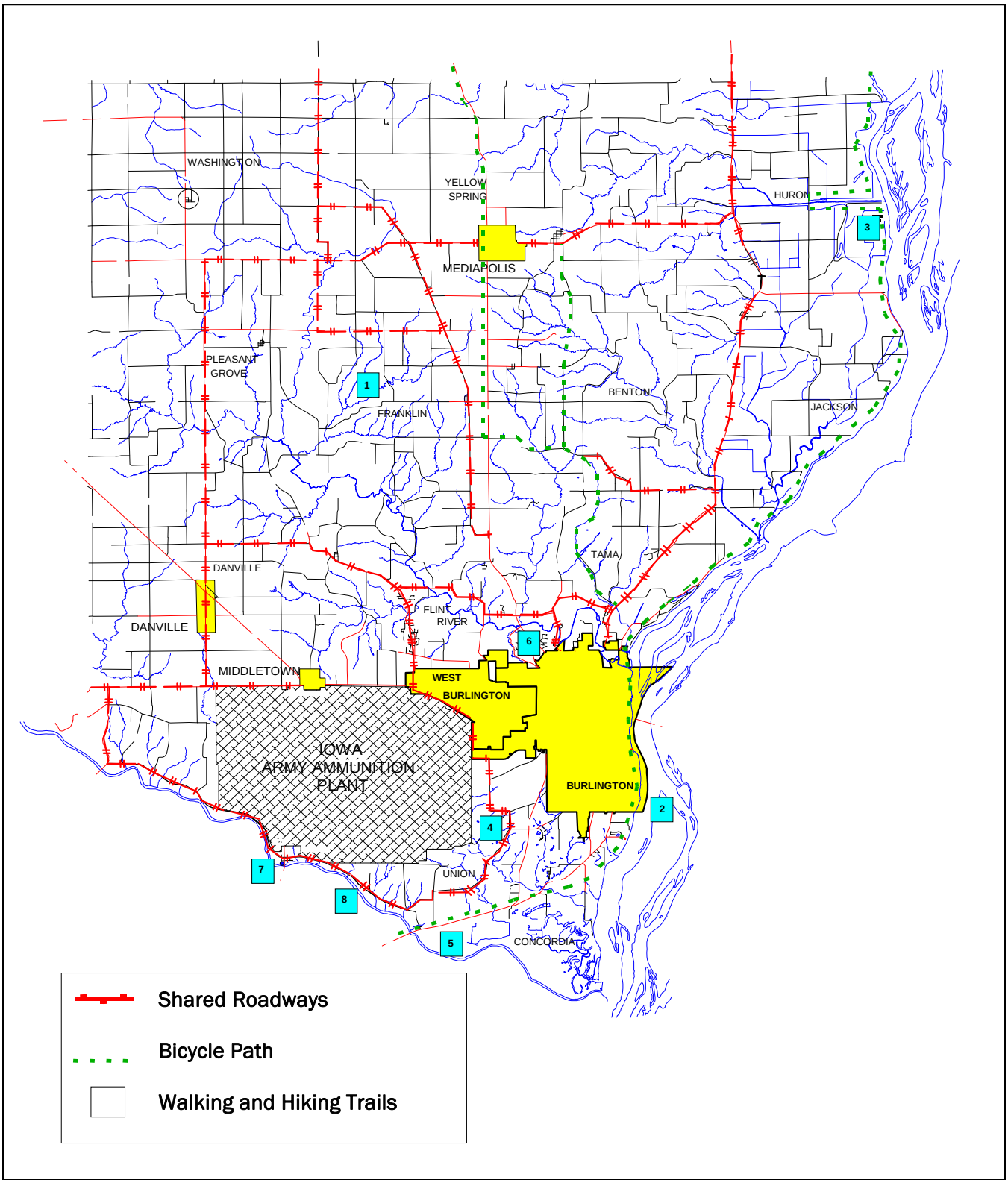
There are eight existing trails in Des Moines County**:

1. Big Hollow Recreation Area
2. Blackhawk Trail *
3. Hawkeye Dolbee Access
4. Hunt Woods
5. Lower Skunk River Access
6. Starr's Cave Park & Preserve
7. Upper Skunk River Access
8. Welter Recreation Park

* The county includes the Blackhawk Trail, which is managed by the Burlington Parks Department.

** See Figure 24 for location of the above listed existing trails. The shared roadways and bicycle paths are planned for the future.

Figure 24: Existing and Proposed Des Moines County Recreational Trails



NATURAL ENVIRONMENT

The natural environment of Des Moines County is comprised of multiple elements or factors that combine to form the environmental setting. The importance and status of the man-made elements of the county roads, water, sewer, businesses, and homes are commonly viewed, or mistaken, as being independent of the natural environment. Such misconceptions have led to the residential and commercial development of floodplains and prime agricultural land, exposure of critical air and water resources, and loss of irreplaceable natural elements, such as native prairies, forests, prominent vistas, and other scenic resources.

The following paragraphs will identify the physical elements that make up the environmental setting of Des Moines County. From the identification and analysis of the individual elements, areas can be identified as sensitive or in need of protection. Des Moines County, like all government bodies, must learn from past mistakes and implement simple rules and regulations to insure the protection of elements that have been destroyed in the past.

The health and stability of the county, both the natural and man-made environments, can be measured by the diversity within the system and the ability of the county to develop responsively to the natural systems.

The greatest obstacle to preparing a comprehensive plan, and more importantly, directing and designing development responsive to the natural environment, is the lack of detailed information or data to direct such growth. The following is information about natural characteristics of Des Moines County, which should be recognized, and further developed and monitored in an attempt to ensure a quality of life for current and future generations.

THE PHYSICAL ELEMENTS

The physical elements included in this Plan will be brought together to influence the future development of the county. The combination of soils, floodplains, steep slopes, vegetative cover, hydrology, agricultural suitability, and critical resource areas will be taken into consideration in the formation of policies.

Geology

Three geological processes determine the shape of Iowa's land surface. Layers of bedrock formed by igneous, metamorphic, and sedimentary process underlie the entire state. Glaciers deposited a thick layer of overburden over most of the State. The bedrock and glacial deposits have been shaped by erosion to give us the landscape we now see.

The basement rock underlying all of Iowa is Precambrian in age and consists of a series of metamorphic and igneous rocks that represent more than 2 billion years of geological history. The only place where rocks of Precambrian age (Sioux Quartzite) outcrop is in the northwestern corner of the state.

The remainder of the state consists of sedimentary bedrock, which was deposited on top of the metamorphic and igneous rocks largely during the Paleozoic Era (600-180 million years ago). The only Mesozoic Era rocks present in Iowa are thought to occur around gypsum deposits in the Ft. Dodge area. Sedimentary rocks outcrop in various locations throughout Iowa, in river valleys, along road cuts, and in some sites where local erosion surfaces expose the bedrock.

In Des Moines County, several quarries and river valleys have large exposures of formations for which Burlington is famous. The crinoids fossil from the Burlington Formation, (sea creatures related to the sea lilies and starfish of today) were abundant during the Mississippian Period of the Paleozoic Era.

The next major event to shape the surface of Iowa was the Pleistocene Glaciation, which deposited great thickness of till, clays, and loess throughout the State for nearly 2 million years. Although glaciers retreated from central Iowa nearly 15,000 years ago, the last glaciation cover in Des Moines County was around 500,000 years ago. Glaciers shaped not only the surface deposits in Iowa, but also produced erosional surfaces in the bedrock, since buried by the glacial deposits. In addition, glacial activity helped to establish many of the present drainage patterns of today's rivers and streams.

The present landscape is continually undergoing changes as a result of the natural climatic and geological cycles.

The landscape of Iowa can be divided into eight land form regions based on appearance and history (Prior, 1991). They are the Missouri River Alluvial Plain, Loess Hills, Northwest Iowa Plains, Des Moines Lobe, Iowan Surface, Paleozoic Plateau, Mississippi Alluvial Plain, and Southern Iowa Drift Plain.

In Des Moines County, the Mississippi Alluvial Plain and the Southern Iowa Drift Plain are the key landforms (refer to Figure 25).

The Mississippi Alluvial Plain was created when the Mississippi River developed a broad, flat floodplain south of Muscatine. An extension of the floodplain reaches north along the Cedar and Iowa Rivers. The region has extensive sandy areas, oxbow wetlands, and other riparian features created by rivers and lakes. Much of the land has been cleared for farming, although a few tracts of woodland, wetland, and prairie remain. Many species reach the northern edge of their range in this area.

Southern Iowa Drift Plain is Iowa's largest landform region, and its topography is varied. The region was last glaciated at least 500,000 years ago. Since then, erosion has shaped the landscape through surface drainage by river streams. The terrain is steeply rolling, and few wetlands are present. Loess cover thins from west to east. In the west, uplands are narrow and rolling, while river valleys are broad and flat. The situation reverses to the east. Just south of the Paleozoic Plateau, upland areas

Figure 25: Southern Iowa Drift

show the influence of bedrock just below the surface. River valleys are deep, with steep sides and rock outcrops are common. Many soils have been leached and are not as productive as those of the Des Moines Lobe. A large portion of Iowa's forest cover is present and few prairies remain.

Climate

Des Moines County is cold in winter and is quite hot with occasional cool spells in summer. During the winter, precipitation frequently occurs as snowstorms, and during the warm months it is chiefly rain, often heavy, when warm moist air moves in from the south. Total annual rainfall is normally adequate for corn, soybeans, and small grain.

The total annual precipitation is about 36 inches. Of this, 23 inches, or about 65 percent, usually falls between April and September, which includes the growing season for most crops. In 2 years out of 10, the rainfall in April through September is less than 18 inches. Thunderstorms occur on about 51 days each year, with most occurring in summer.

Average seasonal snowfall is about 25 inches. The greatest snow depth at any one time during the period of record was 14 inches. On an average of 34 days, at least 1 inch of snow is on the ground. The number of such days varies greatly from year to year.

The average relative humidity in mid-afternoon is about 60 percent. Humidity is higher at night, and the average humidity at dawn is about 80 percent. The sun shines 75 percent of the time in summer and 50 percent in winter. The prevailing wind is from the south. Average wind speed is highest, 12 miles per hour, in spring.

In winter the average temperature is 27 degrees Fahrenheit (F), and the average daily minimum temperature is 17 degrees F. The lowest temperature on record, which occurred at Burlington, Iowa on February 13, 1905, is -27 degrees F. In summer the average temperature is 74 degrees F, and the average daily maximum temperature is 83 degrees F. The highest recorded temperature, which occurred at Burlington on July 14, 1936, is 111 degrees F.

During the month, growing degree-days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

Tornadoes and severe thunderstorms occur occasionally. They are usually of local extent and of short duration, and the resulting damage is sparse and in narrow belts. Hail falls at times during the warmer part of the year in scattered small areas.

Soils

In 1983 a Soil Survey of Des Moines County was conducted by the U.S. Department of Agriculture, Natural Resource Conservation Service. The survey intent was to learn what soils are in the study area, and how they can be used. The study addresses steepness, length, and shape of slopes, the size of streams and the general pattern of drainage, the kinds of native plants or crops, the soil profiles, and the kinds of rock. The survey is used to adjust land uses to the limitations and potentials of natural resources and the environment. The survey's greatest asset lies in its ability to prevent failures related to soil types in land uses.

Derived from the Survey was the Soils Identification Map (refer to Figure 26). The General Soils 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. Because of its small scale, the map is not suitable for planning the management of a farm, field, or for selecting a site for a road, building, or other structure. For this kind of information, the Detailed Soils Map will need to be analyzed.

The General Soils Map shows seven soil associations that occur in the study area. They are the Wabash-Titus-Dolbee, Nodaway-Lawson-Klum, Nira-Otley-Mahaska, Maska-Taintor, Clinton-Lindley, Givin-Hedrick-Ladoga, and Weller-Pershing-Grundy. The soils in any one association differ from place to place in slope, depth, drainage, and other characteristics that affect management.

Soil 1 Wabash-Titus-Dolbee Association: Nearly level, very poorly drained and poorly drained, silty and clayey soil on bottomland. Most of this association is used for cultivated crops, mainly corn and soybeans for cash. The soils are moderately suited or well suited to all of the cultivated crops commonly grown in the county. The main concerns of management are wetness and flooding. Much of this association is subject to rare flooding even though it is protected by levees along the Mississippi River.

Soil 2 Nodaway-Lawson-Klum Association: Nearly level, moderately well drained and somewhat poorly drained, loamy and silty soils on bottomland. Most of this association is used for row crops, hay and pasture, or is left idle. Areas adjacent to the Mississippi and Skunk Rivers, however, support native trees or scrub vegetation. Much of this association is subject to flooding, but

some of the soils are partially protected by a low levee. The soils on beaches are above the normal flood level.

Soil 3 Nira-Otley-Mahaska Association: Nearly level to moderately sloping, moderately well drained and somewhat poorly drained, loamy and silty on uplands. Most of this association is used for cultivated crops. The more sloping areas are used for pasture. The soils of this association are well suited or moderately suited to all of the cultivated crops commonly grown in the county. The chief enterprises are growing corn and soybeans for cash and feeding beef cattle. The main management needs are measures that control erosion and maintain tilth and fertility.

Soil 4 Mahaska-Taintor Association: Nearly level, somewhat poorly drained and poorly drained, silty soils on uplands. Almost all of these associations are used for cultivated crops, mainly corn and soybeans for cash. Little is used for pasture. Much of the urban expansion in the county is taking place in this association. The soils are well suited to all of the cultivated crops commonly grown in the county. The main management needs are measures that control the wetness and maintain tilth and fertility.

Soil 5 Clinton-Lindley Association: Gently sloping to very steep moderately well drained, loamy and silty soils on uplands and high streambeds. Most of the less sloping areas in these associations are used for cultivated crops. The more sloping areas are used for permanent pasture or support timber. The less sloping soils of this association are well suited or moderately suited to all of the cultivated crops commonly grown in the county. The chief enterprises are growing corn and soybeans for cash and feeding beef, cattle and hogs. The number of farms is decreasing and many abandoned farmsteads are evident. The main management needs are measures that control erosion and maintain or improve fertility and tilth.

Soil 6 Givin-Hedrick-Ladoga Association: Nearly level to moderately sloping, somewhat poorly drained and moderately well drained, silty soils on uplands. Most of this association is used for cultivated crops. The more sloping areas are used as permanent pasture. The soils in this association are well suited or moderately suited to all of the cultivated crops commonly grown in the county. The chief enterprises are growing corn and soybeans for cash and feeding beef cattle. The main management needs are measures that control erosion and maintain tilth and fertility.

Soil 7 Weller-Pershing-Grundy Association: Gently sloping and moderately sloping, moderately well drained and somewhat poorly drained, silty soils on uplands. Most of this association is used for cultivated crops. The more

sloping areas are used as permanent pasture. The main enterprises are growing corn and soybeans for cash and feeding beef cattle and swine. The main management needs are measures that control wetness and erosion and maintain tilth and fertility.

Figure 26: Soils Identification Map

(See following page)

Use and Management of the Soils

Soils are a key factor for planning Des Moines County's further development. Land use may be adjusted to accommodate limitations and potentials of the areas natural resources and environment. Information provided by the soils survey can be used to plan the use and management of soils for crops and pasture, woodland, building sites, sanitary facilities, highways, recreation facilities, and wildlife habitat. The primary goal is to use soil information to avoid soil-related failures in land use. The following sections discuss some of the major land uses within the county.

Crops and Pastures

About 238,241 acres in Des Moines County is used for row crops and small grain farming, according to the Agricultural statistics of the Farm Service Association (FSA). Of this total, about 103,956 acres is used for Corn, 56,087 are for soybeans, 1,198 acres for close grown crops (mainly oats and wheat), and 77,000 acres for hay and pasture. Food production could increase by extending the latest crop production technology to all of the cropland in the county. The paragraphs that follow describe the main management concerns for crops and pastures.

Soil erosion is the major problem on about one-half of the cropland and pasture in Des Moines County. If the slope is more than 3 percent, erosion is a hazard. Loss of the surface layer through erosion is damaging for many reasons. Productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging to soils that are shallow over bedrock because it restricts the root zone. Soil erosion dumps sediment into streams as the soil erodes. Control of erosion improves the quality of water for municipal use, for recreation, and for fish and wildlife. It also provides a protective plant cover, reduces the runoff rate, and increases the infiltration rate.

According to the Des Moines County Soil and Water Conservation District's Long Range Plan, of the approximately 161,241 acres of cropland 14 percent of the acres are highly erodible and 62 percent are eroding excessively. The acres of excessively eroding cropland are eroding at a rate of approximately 15 tons of soils per acre, that is a soil loss of 1,350,000 tons per year.

There are several options to control erosion, one of which is the conservation tillage system. This leaves crop residue on the surface of the field to increase the infiltration rate, reduce the runoff rate, and help control erosion. It is effective on all tillable soils in the county.

No-tillage system is another option. No-tillage on corn and soybeans, which is becoming more popular, is the most effective means of controlling erosion on continuous cropland.

Terraces also prevent soil erosion. Contour terraces reduce the length of slopes and the hazards of runoff and erosion. They are most practical on gently and moderately sloping soils that have regular slopes.

Strip cropping and contour farming along areas of smooth and uniforms slopes control erosion as well. Blowing soil is a major contributor to soil erosion and can be combated with buffer striping. Natural windbreaks, burning, pasture plants, and winter seed can contribute to the reduction of soil erosion as well.

Although only a few conservation practices have been mentioned, there are over 40 different types. For a complete listing and explanation of those, contact the Natural Resources Conservation Service for Des Moines County.

Currently cropland is being protected. Approximately 2,000 acres per year is being protected with cultural and permanent structural practices. Approximately 600 acres are treated structurally and the reminder are treated with no-till.

Soil drainage is a management concern if cultivated crops are grown on the more poorly drained soils. Poorly drained soils make up approximately 20 percent of the county and require a tile drainage system. The drainage of poorly drained soils has plagued the county and cities within the county for years. Adoption of no-till farming improves soil tilth and water infiltration to reduce ponding on poorly drained soils. Burlington and West Burlington are having problems with drainage in the Flint Ridge Industrial Park and in subdivisions on the south side of the incorporated areas.

Field Crops & Specialty Crops

Field crops suited to the soils and climate of the county include many that are not commonly grown. Corn and soybeans are the most commonly grown crops. Grain sorghum, sunflowers, potatoes, sugar beets, sweet corn, popcorn, pumpkins, canning beans, and navy beans can be grown if economic conditions are favorable. Oats is the most common close-growing crop. Rye, barley, buckwheat, wheat, and flax could be grown. Grass seed varieties that could be produced include bromegrass, redtop, bluegrass, switchgrass, big bluestem, and Indian grass. There are some specialty crops grown within the county as well, although they are limited in extent. Most of the well-drained soils are suitable for orchards and nursery plants. Soils in low lying areas, where frost is frequent, are poorly suited for early vegetables, small fruits, and orchards.

Wind Breaks and Environmental Plantings

Windbreaks protect livestock, buildings, and yards from wind and snow. They also protect fruit trees and gardens, and they furnish habitat for wildlife. Several trees and shrubs provide the most protection. Field windbreaks are narrow plantings made at right angles across the field. The interval depends on the erodibility of the soil. Field windbreaks protect cropland and crops and provide food and cover for wildlife. Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well-prepared site and maintained in good condition.

Wildlife Habitat

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife, in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat, and in determining the intensity of management needed for each element of the habitat.

Prime Farmland

Prime farmland, as defined by the U.S. Department of Agriculture, is the land that is best suited to food, feed, forage, fiber, and oilseed crops. It may be cropland, pasture, woodlands, or other land, but it is not urban and built-up land or water areas. The land is either used for food, fiber, or is available for those uses. The soil qualities, growing season, and moisture, supply those elements needed for a well-managed soil, which is economically maintained to produce a sustained, high yield of crops. Prime farmland produces the highest yields with minimal inputs of energy and economic resources. Farming it results in the least damage to the environment.

Prime farmland usually has an adequate and dependable supply of moisture from precipitation or irrigation. 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. Some soils that have a seasonal high water table qualify for prime farmland only in areas where this

limitation has been overcome by a drainage system. On-site evaluation is needed to determine whether or not a specific area of these soils is adequately drained. The slope ranges mainly from 0-6 percent.

About 147,328 acres throughout Des Moines County, or nearly 56.3 percent of the total acreage, meets the requirements for prime farmland. The crops grown on this land account for an estimated two-thirds of the local farm income each year.

A recent trend in land use has been the loss of prime farmland to industrial and urban uses, a considerable amount of which has been highway right-of-way. The loss of prime farmland puts pressure on marginal lands, which generally are more erodible, are droughty, cannot be easily cultivated, and generally are less productive.

Vegetative Cover

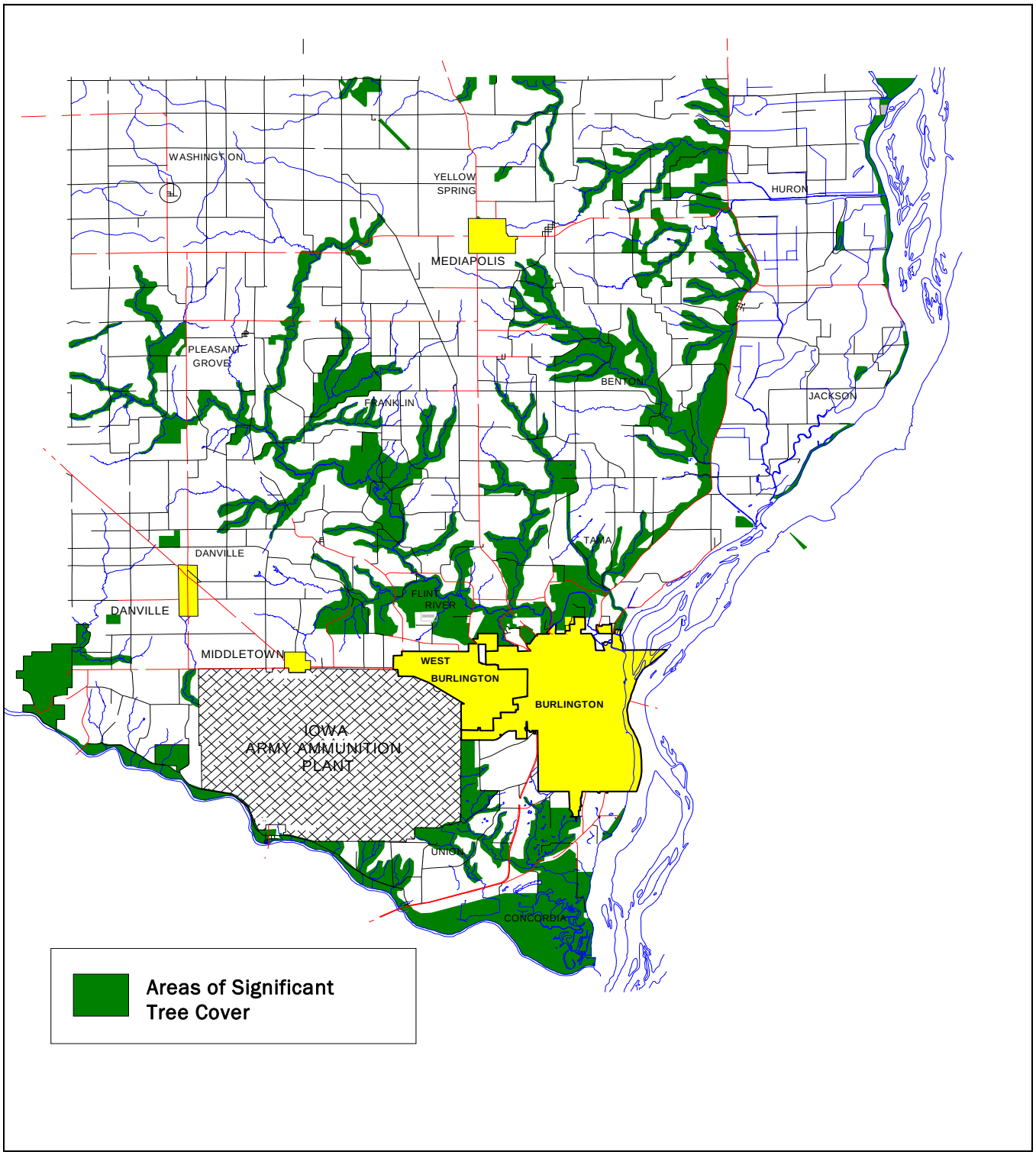
Vegetative cover creates patterns on the landscape, which are usually broadly experienced while traveling the county. Because of the dominance of cropland in the county, these patterns contain subtle combinations of line, texture, and color and will change from season to season. These patterns will also change over time, either through the slow process of natural succession, or through rapid transformations caused by man's intervention or natural disasters. Vegetation provides a variety of benefits, including food and fiber production, aesthetic and recreational enjoyment, wildlife habitat, erosion control, water retention, and pollution control.

There are various vegetative cover types in the county. Agriculturally related vegetative cover (cultivated land, pasture, farmstead plantings) dominates the study area. Although the presence of various drainage ways provides some visual and vegetative contrast. Pasturelands occur primarily along the drainage ways on areas of moderate to severe slope and are often associated with woodland areas of scattered large trees. Pastureland is also occasionally found in association with farmsteads.

Woodland areas occur exclusively in association with the major drainage ways (Skunk River, Spring Creek, Flint Creek, Knotty Creek, Yellow Spring Creek and the Hawkeye Creek) and are generally confined to the floodplain terraces and steep side slopes. Figure 27 illustrates areas of significant tree cover.

Known prairies and wetland remnants are areas identified and catalogued by the Des Moines County Conservation Board.

Figure 27: Areas of Significant Tree Cover



Significant cover types include woodlands and areas of scattered large trees, as these provide visual relief in a county dominated by cropland. These areas also provide opportunities for a variety of recreational activities, control soil erosion in steeply sloped areas and areas subject to flooding, and provide food, cover, and travel corridors for wildlife. These areas are unique to the county and are particularly vulnerable to clearing for cultivation, grazing, or urban development. Implications of this information for policy development could include the designation of potential greenbelt areas and a program for wildlife habitat creation and maintenance. Any future transportation routes through these significant areas should be designed to minimize visual and environmental impacts.

Critical Natural Resources

Endangered Species

Iowa has changed greatly since becoming a state in 1846. The prairies that helped develop the highly productive soils have been reduced by more than 99 percent. About 95 percent of the state's prairie pothole wetlands have been drained and nearly 75 percent of the original forests and savannas are gone. These changes and other factors such as the channelization of rivers and streams, chemical pollution, soil erosion, and overgrazing have contributed to the loss or degradation of suitable habitat for numerous plant and animal species.

The Endangered Species Act, passed in 1973 by the U.S. Congress, provides for the protection of plants and animals that are endangered or threatened with extinction (refer to Figure 28). The Endangered Species Protection Program of the U.S. Environmental Protection Agency in Iowa is a cooperative federal and state agency project. This program has been designed to protect these species from pesticide contamination and at the same time reduce undue restrictions for landowners.

Figure 28: Endangered or Threatened Animals of Des Moines County

FEDERALLY LISTED PLANT AND ANIMAL SPECIES IN IOWA		
Common Name	Scientific Name	Status
Animals		
Peregrine Falcon	Falco peregrinus	Endangered
Bald Eagle	Haliaeetus leucocephalus	Endangered
Interior Least Tern	Stern antillarum	Endangered
Piping Plover	Charadrius melodus	Threatened
Indiana Bat	Myotis sodalis	Endangered
Pallid Sturgeon	Scaphirhynchus albus	Endangered
Iowa Pleistocene Land Snail	Discus macclintocki	Endangered
Higgin's Eye Pearly Mussel	Lampsilis higginsi	Endangered
Plants		
Western Prairie Fringed Orchid	Platanthera praeclara	Threatened
Eastern Prairie Fringed Orchid	Platanthera leucophaea	Threatened
Mead's Milkweed	Asclepias meadii	Threatened
Prairie Bush Clover	Lespedeza leptostachya	Threatened
Northern Wild Monkshood	Aconitum noveboracense	Threatened

Natural Communities

The natural communities of Iowa are often divided into three groups: woodland, wetland, and prairie. Most sites do not fit neatly into one group. Woodland grades into prairie and wetland, prairie grades into wetland. A site may represent one of the major communities or it may be intermediate.

About 2,000 species of plants and 600 species of vertebrate animals live in these communities. Since 1800, at least 60 plants and 33 animals have disappeared. At least 400 plants and 15 animals have been introduced. No single community supports all these species. The diversity of plants and animals found here is due to the diversity of natural communities.

Several factors regulate the distribution of natural communities:

1. Iowa is at a biological crossroads. Many eastern species reach the western edge of their range here, while a number of prairie species are not found east of Iowa. The same holds true for some northern and southern species.

2. The geology of Iowa affects community distribution as discussed in the preceding section.

3. Climate influences the distribution of species primarily through differences in available moisture. Total precipitation ranges from 25 inches per year in northwest Iowa to 35 inches in southeast Iowa. Lower humidity in the northwest means that even less water is available to plants and animals.

   Climatic changes since the last glaciation have been significant. Several communities have come and gone in the state. For example, at the close of the last ice age, forests of spruce and fir covered much of the state. Climatic warming has since caused this community to disappear from all but a few small sites. This and other relic communities host a number of rare species.

   Climatic changes over a shorter term have also been significant. There is some evidence that the climate has become cooler and wetter over the past 100 years. This may have given woody vegetation an advantage over prairie on some sites.

4. By far the most significant influence on the current distribution of communities has been the impact of human settlement, both past and present. Early hunters may have been partially responsible for extinction of several large mammals. Personal accounts and other evidence describe the frequent use of prairie fires by the Sioux and other tribes to manage game populations. Fire maintained prairie and kept woody vegetation under control.

   These impacts pale in comparison to the impact of agricultural development since 1830. Constant improvement in agricultural technology, pressure to increase production, and suppression of fire has decimated most of our natural communities. Estimates of the acreage of natural communities prior to 1830 are hard to find, but we have destroyed over 99 percent of the prairie, most of the savanna, over 95 percent of the wetlands, and much of the forest. Over-grazing, woodcutting, and other uses have degraded much of the remaining acreage.

   Continuing destruction emphasizes the need to protect the remaining pieces of Iowa's natural history. Destruction can be forestalled by dedication of some remaining sites as state preserves. The preserves system cannot, however, protect every site of significant value. The state, other government bodies, or private organizations, protect many sites. However private citizens protect the majority of sites. A number of Iowans recognize the value of natural areas and are maintaining them for the benefit of their children and other Iowans.

Dedication as a state preserve does not guarantee survival of a community. Two particular threats loom for many preserves:

a. Some woodlands and all of the prairie preserves in the state are dependent on fire. Elimination of fire quickly allows invasion by woody species and eventual elimination of many native species. Use of controlled fire to replace naturally occurring fire ensures survival of native species. In addition, maintenance tools such as cutting and herbicide may also be needed, especially in the early stages of recovery.

b. Another significant threat to preserves is invasion by alien species. As an example, we have introduced plants such as dandelions and bluegrass in manicured areas and animals such as carp and starlings (house sparrows). They are now found all around the state and have a significant negative effect on native species. Other species such as leafy spurge, purple loosestrife, and the zebra mussel are new arrivals here and may have disastrous effects if they are not controlled.

Management of preserves and other sites with native species and communities is increasingly important. Survival of these sites depends on the art of management planning and execution.

Plant and animal species may depend on a single community or they may be found in several communities. Foxtail grass, beggar-ticks, and dogwood are found in a number of community types, as are the great-horned owl, raccoon, and white-tailed deer. Distribution of these species is not limited by the distribution of natural communities. Other species are closely tied to a particular community type. The following discussion covers those communities and their resident species.

Woodlands

Woodland types may be divided into three general forest types: the oak-hickory forests, the northern hardwoods, and the bottom-ground timbers.

The oak-hickory forests dominate the uplands throughout the region. Major species are white and red oak and the hickories. Northern-hardwood forests are generally found on north- and east-facing slopes where the sites are cooler and moister. These areas are dominated by sugar maple, basswood and red oak. The bottomland forests are located along the floodplains of the Mississippi River and it's tributaries. Common species are silver maple, cottonwood, elm, green ash, and hackberry. These areas are subject to periodic flooding.

The oak-hickory and northern hardwood forest types are changing to more shade-tolerant species like ironwood, basswood, ash, and sugar and black maple. This is a result of natural succession due to differences in shade-tolerance. The Bottomland-ground timbers are not experiencing this succession because these shade-tolerant species cannot tolerate the flooding in these bottom areas.

Woodland animals include a wide variety of mammals, reptiles, birds and amphibians. Most prominent are the white tailed deer, raccoon, cottontail rabbit, red fox, and coyote. A large number of birds, both migratory and permanent residents, live and nest in the woodlands. These include neo-tropical migrants like the warblers. A major concern for wildlife implications is the fragmentation of woodlands into smaller units.

Within the county there are several programs that pertain to forested areas and fruit tree reserves. For more information contact the Des Moines County Conservation Board.

Prairie

Prairie is found on sites too dry to support woodlands. Again, the moisture gradient is commonly divided into dry, mesic, and wet. Grasses are the dominant plants on all types, making up as much as 90 percent of the weight of prairie vegetation. Forbs are a minor but often spectacular part of the community.

Dry prairies are found on the loess hills, moraines, steep hillsides across the state, and on some sandy areas. Dominants vary but usually include little bluestem, muhley, and sideoats grama. Yucca, skeleton weed, and pasque flower are common forbs. Mesic prairie was by far the most abundant community in Iowa. Remnants are dominated by big bluestem, Indian grass, and prairie dropseed. Compass plant, rattlesnake master, and purple and white prairie clover are important forbs. Wet prairie is dominated by sloughgrass, bluejoint, and various sedges. Wild iris, poison hemlock, and swamp milkweed are conspicuous forbs.

The destruction of Iowa's prairies has resulted in the extermination and elimination of many plant and animal species. A large number of the surviving prairie animals have adapted to planted pasture and hay fields. The blue racer, harrier, and jackrabbit are among those able to survive on planted grassland or native prairie. Buffalo, elk, marbled godwit, and long-billed curlew no longer breed here because large tracts of prairie are no longer present. Numerous insects are dependent on single species of prairie plants. If the plant disappears from a site, the animal will too.

Wetlands

The general types of wetlands are palustrine, lacustrine, and riverine. Palustrine wetlands are shallow and are usually completely covered with vegetation. Lacustrine wetlands are deeper and usually have some open water. Riverine wetlands are associated with rivers. They may be deep or shallow and frequently are located in abandoned channels or oxbows. Some are wooded and could be called wet forests.

Palustrine wetlands often dry up in drought years. Vegetation is dominated by cattail, sedges, or bulrush when water is high and by smartweed or ragweed when water is low. Most examples of this type have been drained or have suffered siltation from surrounding cropland.

Lacustrine wetlands often have a ring of palustrine vegetation around areas of open water. Water lily, pondweed, coontail, and duckweed may grow in the open water portion. Drainage, siltation, and water quality problems affect many lacustrine wetlands.

Riverine wetlands have vegetation typical of the other types with the addition of trees in many cases. Drainage, siltation, and woodlands clearing have affected many riverine wetlands, but others have survived, especially along the Mississippi, Iowa, Cedar, and Wapsipinicon Rivers.

Additional information about wetlands determinations can be obtained from the Natural Resource Conservations Service, Environmental Protection Agency, or the Corps of Engineers.

Waterfowl are probably the best known group of wetland animals. About 40 species of ducks, geese, and swans use Iowa wetlands during the year. Many birds, from loons to sparrows, use wetlands while on migration. Almost 20 species breed in Iowa wetlands. Mammals such as muskrat and mink depend on wetlands. All salamanders, frogs, toads, and turtles need wetlands at some time in their life. In some parts of the state, wetland destruction has almost wiped these groups out. In a few areas, abundance of public land, difficulty of drainage, or commitment by private landowners has allowed these animals to maintain secure populations.

Other Community Types

We have several other natural communities in Iowa. Savanna was probably one of the dominant types in the past. On soils too dry to support woodland, but moist enough to support some trees, white oak and bur oak formed a more or less open woodland provided fire occurred often enough to prevent closure of the canopy. The understory was a mix of prairie and woodland species and a few species such as

kittentails and lupine, which are unique to savannas. Some old savannas may be recognized where large, old oaks with spreading branches are growing among relatively younger woodland, but most are gone. Savanna was cleared for agriculture or grew up to woodland with the suppression of fire. Animals such as the slender glass lizard, blue jay, and striped skunk were among those typical of savanna wildlife.

Open water communities have seen severe change since agriculture development. Streams have been channelized and receive large silt loads from surrounding crop ground. Native plant communities are largely gone, and fish such as the blacknose and redfin shiner are now rare. Larger rivers and lakes have generally faired better. Fish and mussel populations have persisted in some areas.

Fens are a type of wetland formed where groundwater comes to the surface. Conditions do not support much decay of plant material, so a saturated mat of dead and partially decomposed vegetation (peat) may build up into a mound. Sites are usually small, less than one acre, although several may occur close together. In Iowa, several plant species are found only on fens.

Hydrology

Hydrology is the science of dealing with the properties, distribution, and circulation of water on the surface of the land, in the soil and underlying rocks, and in the atmosphere. The hydrologic or water cycle is never-ending, even though it is varied. Water moves in the atmosphere as vapor. Vapor particles form around small nuclei, dust particles, and often form clouds. Depending on the atmospheric conditions the air can become saturated with water vapor, which condenses to form precipitation. The average precipitation in southeast Iowa is 36 inches per year.

Once water in the form of precipitation reaches the land, four processes can be observed:

- Evaporation/Transpiration
- Surface Runoff
- Soil Percolation
- Aquifer Infiltration

Although estimates vary, approximately 90-95 percent of the precipitation that falls to earth either runs off the land surface or is released into the atmosphere through evaporation and plant transpiration. Moving water on the surface drains into larger bodies of water, which in most cases drains into the oceans of the world. Lakes and ponds have fluctuating water levels and are continuously undergoing varying stages of eutrophication. Many lakes have drainage outlets to moving bodies of water and are an integral part of the dynamic hydrological cycle.

A very small portion of the precipitation actually enters the ground soil through percolation. An even smaller portion of atmospheric precipitation reaches the subsurface aquifers either through direct contact by precipitation with exposed rock surfaces or in the form of percolation through the soil to the bedrock. The water in aquifers, referred to as groundwater, is an integral part of the hydrologic system because of the utilization of groundwater as the source of water for nearly 75 percent of the residents of Iowa. Groundwater moves, usually very slowly, through the interstitial spaces in the aquifer and as a result may take many years to complete the total water cycle.

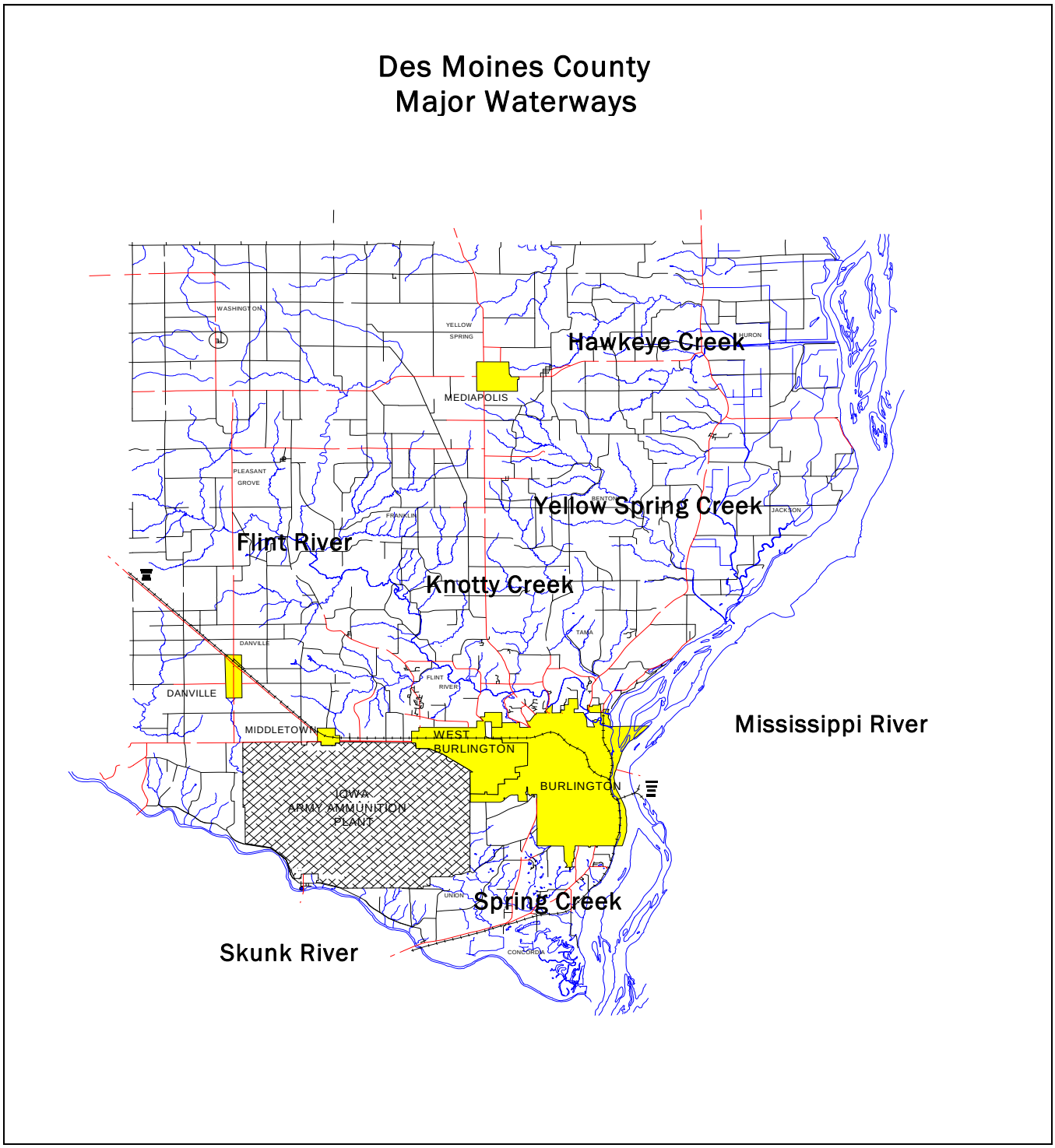
Surface Water

Surface water features are a major element of landscapes and should be managed for the protection of watersheds, to preserve the quality of the water supply, and to prevent damaging floods to life and property. In addition, tree cover along rivers and streams provides active and passive recreational opportunities.

Distribution

The major drainage ways of Des Moines County are illustrated in Figure 29. The Mississippi River on the east boundary of the county is the major waterway in Des Moines County. Spring Creek, Flint River, Knotty Creek, Yellow Spring Creek, and Hawkeye Creek are other waterways, along with lesser streams and tributaries that eventually drain into the Mississippi River. The Skunk River borders the southern boundary of the county.

Figure 29: Major Drainage Ways of Des Moines County



These waterways serve as drainage systems for the upland regions in Des Moines County. The largest drainage system (or watershed) in the county is associated with Flint River (sometimes referred to locally as Flint Creek), which drains two thirds of the entire area. All of these waterways have valleys and divides (uplands) of varying dimensions as a result of the geological processes working on the landscape. The Flint River valley contains bottomlands of sufficient size for agriculture with bluffs of moderate size. Rock outcrops are common along the riverbanks. The Mississippi River runs along the entire eastern margin of the county and contains large floodplains and a levee system, which permits extensive farming of the area. The old bluff of the river just west of the floodplain marks the upland region, which is dissected by the smaller waterways previously described.

Tributaries to these drainage ways help complete the watersheds. Some of these waterways include manmade drainage ditches that were constructed in the 1900's to drain prominent wetlands that once existed. These ditches can be found primarily in the northern bottomlands and the uplands of the county.

Many problems have arisen in the past years from these waterways including land use and severe flooding. Des Moines County has four distinct taxing bodies organized to protect and manage the land adjacent to the River: Levee District 16, and Drainage Districts 4, 7 and 8. Des Moines County's Levee District and three Drainage Districts form an organization known as Two Rivers Levee and Drainage Association.

Levee District 16 encompasses the levee itself and a right-of-way on either side of the levee. The Levee District runs nearly 47 miles in length adjacent to Drainage Districts 4, 7, and 8 and protects approximately 44,000 acres. Adjacent communities include Mediapolis, Sperry, and Burlington in Des Moines County and Oakville and Wapello in Louisa County.

The area includes nearly 500 homes and a population of nearly 2,500 citizens. Nearly 30 businesses and over 100 employees are located within the economic area protected by the association. The agriculture community adjacent to the districts also relies heavily on the protection provided.

The drainage districts were organized in the early 1900's. Drainage District 4 has an area of approximately 17,500 acres in the bottomlands at the base of the bluffs. Another area of approximately 2,200 acres in the uplands is part of the watershed and contributes runoff into Drainage District 4, for a total of 19,700 acres. Drainage District 4 lies between Mississippi River Miles 424 and 434 and is adjacent to Pool Number 18. Only 10 percent of the district is located in Des Moines County. The remaining 90 percent of the district is located in Louisa County.

Drainage District 7 has a watershed area of 30,700 acres. It lies between Mississippi River Miles 410 and 424. The outlet is located at Mile 410. The district lies adjacent to Pools 18 and 19 and is located entirely within the county.

Drainage District 8 has a watershed area of 4,680 acres and lies between Mississippi River Miles 406 and 411. The district lies adjacent to Pool 19 and is located entirely within the county.

Water Sources for Des Moines County

Aquifers

Water supply for use in residential, commercial, and industrial areas is available from public water supplies and private wells. The incorporated areas derive water largely from the Mississippi River, while rural residents utilize Rathbun Rural Water and private wells. Private wells and a few public wells take water from the surface aquifers.

All parts of Des Moines County and southeast Iowa are underlain by four aquifers. The unconsolidated deposits near the land surface comprise the surficial aquifer. Underlying the surficial aquifers are several layers of consolidated sedimentary rock collectively called bedrock. Some of these layers are aquifers and others, which yield little or no water, are called aquicludes. The layers that do yield water to wells have been grouped together into three major bedrock aquifers: The Mississippian Aquifer, The Devonian Aquifer, and the Cambrian-Ordovician Aquifer. Each aquifer is separated by intervening aquicludes (refer to Fig 30).

Beneath the combined surficial and sedimentary sequences lie igneous and metamorphic crystalline rocks often called the “basement complex”. These rocks are not thought to contain much water in southeastern Iowa.

The alluvial aquifer is confined to stream valleys. Its width ranges from several miles, as in the Mississippi Valley, to a few feet in places where streams like the Skunk and Des Moines Rivers have cut narrow gorges. The alluvial aquifer is composed primarily of sand and gravel deposits. These aquifers will provide recharge to nearby streams and are an excellent source of water in the valleys.

Figure 30: Section Cut of an Aquifer

Surficial Aquifers

Typical well depths are 10-20 feet for surficial aquifers (usually sandpoint wells). Bedrock aquifers may range from 100 feet to over 1,000 feet, with the average around 300 feet depending on the bedrock aquifer used to supply water.

The surficial aquifers lie between the land surface and the bedrock surface. They cover nearly all of the southern Iowa area with the exception of places where the bedrock is exposed at the land surface. They are composed of unconsolidated material deposited by glaciers and streams. Sand and gravel beds in the surficial deposits are aquifers and the clay and glacial till beds are aquiclude. The surficial aquifers are subdivided into three aquifers: alluvial, buried-channel aquifer, and drift aquifer.

Buried-channel aquifers consist of stream alluvium that filled valleys before or between the glacial periods. Although buried beneath glacial deposits in many places, the ancient stream channels often coincide with the present stream valleys. Some buried channels contain as much as 50 feet of sand and gravel while others contain none. The buried-channel aquifers will yield moderate supplies of water at some localities.

Glacial drift covers vast expanses of southeastern Iowa. Nearly all of the area, with the exception of the stream valleys, is underlain by glacial till (pebbly and sandy clay), and silt deposits. They are the source of small supplies of water and sometimes yield enough water for a farmstead, although rarely enough for a small community.

Bed Rock Aquifers

The Bedrock Hydrogeologic Map (refer to Figure 31) shows the aquifers and aquicludes that make up the bedrock surface in southeastern Iowa. Aquifer layers and approximate depths are displayed in Figure 32. This profile represents line B in Figure 31.

The Mississippian Aquifer is the shallowest bedrock aquifer in southeastern Iowa. This aquifer is composed mainly of carbonate rocks (limestone and dolomite), which are the major water yielding material.

The Devonian Aquifer is found below the Mississippian Aquifer and is separated from the Mississippian Aquifer by a thick predominantly shale interval. The rocks of the Devonian Aquifer are mostly carbonates. Evaporite minerals, gypsum, and anhydrite, are minor rock types. But in areas where these minerals are present, they are major factors influencing the chemical quality of the water from the aquifer.

The Cambrian-Ordovician Aquifer is separated from the overlying Devonian Aquifer by a thick shale and dolomite interval. The aquifer is predominantly dolomite, with two sandstone units occur within the sequence. The lower one, the Jordan Sandstone, is the principal water-bearing unit in the aquifer; which accounts for the high yields afforded by this aquifer.

Figure 31: Bedrock Hydrologic Map

Figure 32: Aquifer Layers and Approximate Depths

Sources of Groundwater Contamination

Groundwater contamination is caused by a wide variety of human activities. Types and concentrations of contaminants vary widely ranging from the nitrates associated with fertilizers, fecal coliform (associated with E. coli bacteria) indicating waste from animals, chlorides from winter road applications, to industrial solvents. These are just a few of the kinds of contaminates and their sources that can, and have, generated problems with wells and groundwater supplies. Pollution sources are categorized as point source and non-point source contaminates. Point source contaminates can be traced to a single contributing factor such as a buried gasoline storage tanks. Non-point source contaminates are usually associated with a broadcast application derived from an indeterminate source such as a pesticide application. The disposal and dispersal methods of different contaminants results in the introduction of these wastes into both the surface and groundwater systems in a variety of ways. Although new techniques have been developed to prevent, expunge, or mitigate groundwater pollution, significant damage has been to groundwater, especially at shallow depths in many areas. Future land use considerations need to incorporate protection and monitoring of this valuable resource to reduce further degradation of the groundwater.

Figure 33 identifies pollution sensitive soil areas in the county. These hydrologically-sensitive soils are highly permeable with an infiltration rate of 2 to 6 inches per hour. These soils also have a high water table of 6 feet or less below the ground. These two factors, rapid permeability and high water table, create a situation where pollutants can quickly infiltrate groundwater.

Agricultural Chemical Use

The economy of Des Moines County is highly dependent upon agriculture. Productive crop yields are the result of good farm management practices, as well as the surface application of mineral fertilizers, pesticides, herbicides, and natural animal wastes to help replenish the nutrient level of the soil.

The threat of contamination from these applications is the conversion of nitrogen into nitrates. Problems associated with large concentrations of nitrates range from adverse health affects on the older and younger members of the population and can lead to accelerated entrophication or fish kills. Another area of concern is for petroleum-based chemical compounds and synthetically derived substances, which may not break down into less harmful compounds.

Contamination occurs when the method, timing, or rate of application of these various substances exceeds the needs of the crops. Contamination also occurs

where infiltration into the soil is too high or the area of application has been defined as “hydrologically sensitive”.

Figure 33: Pollution Sensitive Soils

This type of contamination can be minimized or avoided by carefully adjusting the form, method, rate, and timing of surface applications of fertilizers and pesticides so as not to exceed soil and plant capacities. Runoff water usually carries the bulk of contamination. Efforts should be taken to contain or prevent runoff so that processes of attenuation can mitigate the effects of the contaminants. Filter strips or riparian zones may be established along streams and drainage ways to help trap contaminants before they can discharge directly into a surface water source.

Animal Confinement and Feedlots

This potential hazard is defined by high concentrations of animals that include feedlots for cattle, confined hog feeding operations, and poultry farms. Hazards that can be attributed to such operations manifest themselves in the form of nitrate contamination, bacterial pathogens, hormones, antibiotic, and other chemical feed additives that may be introduced in groundwater. Runoff activity is also a concern for these areas as high concentrations of dissolved solids. Pathogen and nitrates could be carried directly into surface water impoundments and streams.

Contamination from these sources is best managed by siting feedlots in areas with impermeable soils or constructed migration barriers and attenuation capacity to deal with the introduction of contaminants. Control of animal densities is also suggested in order to pair facility size with environmental capacity.

Collection and treatment of animal waste is seen as a means to help control contamination. Proper siting and construction of treatment facilities will assure that the system can operate properly and will effectively mitigate contamination. Paved feedlots with curbs and collection systems help eliminate the threat of runoff and serve to curtail infiltration.

Agricultural Support Activities

Hazardous activities may include the handling and storage of fuels, chemical, agricultural products, and animal wastes. The greatest concern exists for farms and small communities where contamination may take place because of the proximity of contamination sources to nearby wells. This is especially true for smaller communities in Des Moines County where businesses serving agricultural needs are concentrated. These businesses may include grain elevators, feed suppliers, and chemical dealers.

Possible contaminants, which may be introduced from these activities, are: nitrates, pesticides, bacteria, and petroleum-based products. These types of contaminants can be introduced by any number of activities such as improper siting and storage of

fertilizers, pesticides, fuel and animal wastes, or when transfers of these hazardous materials results in accidental spills. Improper disposal of animal carcasses and containers used to store chemicals also create potential hazards for a water supply. This is just a short list of activities that are carried out each day by residents of Des Moines County. Good management helps prevent a large share of potential disasters.

Measures that can be employed to help alleviate the threat posed by agriculture-related activities amount to good common sense and sound management practices. Suggested activities include the covering of storage facilities and the use of paved and curbed transfer areas to prevent infiltration of spills and storm water runoff. Proper citing of manure storage facilities needs to be considered so that on-site water supplies are not compromised. Training of farmers in fertilizer and pesticide application and proper container disposal can prevent accidental spills.

On-site Waste Disposal

On-site wastewater disposal systems often pose widespread potential for pollution of groundwater resources. These systems can be identified as dry wells, cesspools, and septic leach fields especially in rural residential areas. These systems function by making use of the soils that surround them to help attenuate and assimilate pollutants.

A previous concern for these systems was the possibility that they might clog or fail and create a situation called ponding. Little attention was given to groundwater other than making sure there was sufficient distance between wastewater systems and wells to prevent bacterial contamination. In fact soils that were designated as highly permeable were seen as favorable for the siting of such on-site facilities. The goal was to assimilate waste below ground, not to protect groundwater.

It should be noted that thoughts of placing on-site systems in highly permeable soils have changed. Regulations are now in place and enforced by the Des Moines County Board of Health that prescribe the type and placement of treatment facilities according to the existing environmental conditions.

Contaminants from waste disposal systems that pose a threat include nitrates and microbial pathogens such as bacteria, viruses, and parasites. Synthetic organic chemicals used in septic systems or from the disposal of household chemicals may also be present. Contamination can occur in areas where the processes of attenuation are compromised due to soil conditions or high water tables. Septic systems that fail due to a lack of maintenance can also cause severe levels of contamination.

The best method for prevention of contamination from such sources is proper siting, design, construction, and control of on-site wastewater systems. Alternative systems of disposal might be considered in areas with limited geologic and soil conditions. These systems include composting toilets, incinerator toilets, and packaged aerobic treatment systems.

Municipal Sewage Systems

The Federal Clean Water Act (passed in 1972) advanced major legislation for the cleanup of effluent waste discharged into the nation's streams and waterways. A portion of the legislation set mandated standards for communities to achieve regarding sewage treatment and also helped communities with funding expensive wastewater treatment facilities. These provisions helped to improve the nation's surface water supplies.

When contamination does occur from these systems, it takes the form of nitrates, microbial contaminants, and dissolved solids that leak from older or poorly-constructed sewer lines. This leakage is especially significant in areas with high or seasonally high water tables. Disposal of sewer sludge can also pose a threat when it is distributed at a level that exceeds the needs of crops or soil assimilation capacity. When industrial or commercial users discharge into the system, the contaminants can take the form of heavy metals, minerals, or organic chemicals.

In addition, communities with systems located in hydrologically sensitive areas need to make sure that proper maintenance of the system is carried out in order to prevent leaks that may be prevalent in older systems. Industrial and commercial users of the system can also be monitored by the community and possibly required to pre-treat waste before they enter the system in order to remove heavy metals and other chemicals from their effluent.

Solid Waste Disposal

This source of contamination has become a major concern for all communities throughout the United States. Landfills are filling up and suitable replacement sites are hard to find, which increases costs. Experts are finding that even well designed, well-operated landfills will eventually leak, posing the threat of landfill leachate containing microbial pathogens, concentrations of dissolved solids, and various concentrations of organic chemicals.

These threats are present for sites still in operation, as well as those that have been abandoned. The greatest concern has been placed on older facilities that were built without liners in highly-permeable soils. Abandoned sand and gravel pits are also of

concern since they were often utilized as solid waste sites, which now pose hazards of contamination due to their close relationship with groundwater.

Landfills leak, so the best strategy is to find alternatives to their use. This may include recycling, composting, waste-to-energy conversion, or incineration. However, this will not eliminate all solid waste. The remainder must go into a landfill that has been properly sited and constructed so as to remove potential threats to groundwater. Potential solid waste sites should be located away from hydrologically-sensitive areas. The facility should be lined and a leachate collection system with an adequate treatment facility should be incorporated in the site. When abandoned, landfills should be capped with impermeable materials and graded to minimized rates of infiltration. Finally, groundwater-monitoring stations should be established to warn of future contamination hazards.

Hazardous Material Use

Many businesses and industries use hazardous materials in their daily activities. These materials are used throughout the production process and pose management issues apart from their final destination of disposal as waste. Oil pipelines, car wash operations, railroad corridors, and commercial dry cleaning facilities are examples of special hazards that exist every day. These hazards produce potential contaminants that range from synthetic organic chemicals, solvents, heavy metals, and minerals. The greatest threat occurs in areas defined as hydrologically-sensitive, where direct contamination, or contamination posed by runoff, can take place.

Siting of potential hazards away from hydrologically-sensitive areas is the best answer for dealing with this source of contamination. Introduction of good management practices is also seen as a method to help prevent accidental contamination. These practices may entail the covering of storage areas and stock piles, providing curbs and sumps to prevent runoff, and housekeeping practices to account for the movement of chemicals throughout an industrial setting. Local police and fire departments should be notified as to the types of activities an industry is involved in so that spills can be handled effectively.

Underground Storage Tanks

Underground storage tanks were originally prescribed for hazardous materials that posed a risk of fire or explosion. Underground storage tanks, because of leakage possibilities, now pose new risks. Because they are underground, these storage tanks are closer to the water table and below the biologically-active soil layer where the process of attenuation takes place. Furthermore, leakage from these tanks may go unnoticed for long periods of time because they cannot be seen from the surface.

Potential contaminants from these sources are hydrocarbons, particularly gasoline, solvents, and other organic chemicals. Contamination is likely to occur in facilities that have old, single-walled tanks that are highly susceptible to corrosion. Fittings and pipes that feed into these tanks may also contribute to leakage problems if the soil around them is highly unstable, thus placing stress on these points caused by the shifting of soil. Once again, greatest concern is placed on tanks sited in areas with highly permeable soils and high groundwater.

Proper design and installation of underground storage tanks is the best way to mediate the effect of groundwater contamination. Double-wall or fiberglass tanks, surrounded by concrete vaults are suggested as adequate confinements for contaminants of potential hazards. Special fittings at fill spouts with adequate concrete aprons can help alleviate contamination that might result from a spill. Finally, a monitoring system, consisting of observation wells, adjacent to the system, will track the quality of groundwater that flows under the storage tank.

Aquifer Penetration

Aquifer penetrations can result from surface excavations, although contamination may occur through percolation, to the saturated zone of surficial or bedrock aquifers. In some cases the excavations may not actually reach the saturated zone, but will significantly reduce the material overlaying the saturated zone and negate any action of attenuation that may take place. Examples of potential aquifer penetrations are naturally occurring sinkholes, surface mines, sand and gravel pits, landfills, and quarries. These excavations, if managed properly, may not create hazards. Usually it is adjacent or subsequent activity that poses greater hazards.

Surface penetrations are highly susceptible to contaminants carried into a site by surface runoff. This runoff may include agriculture-related chemicals, organic and mineral contaminants from industrial sites and urban areas, and microbial contamination from urban areas.

While a facility is still in use, berming and runoff diversion, along with security fencing to prevent illegal dumping, can be employed to protect groundwater. Reclamation of surface excavations is recommended as the best remedy in preventing future groundwater contamination. Succeeding land use must then be evaluated for groundwater contamination potential since the reclaimed land may not have the previous level of attenuation.

Roadway Deicing

The use and storage of deicing salt is seen as a common source of surficial aquifer contamination in areas that rely on these substances to create safe winter driving conditions. Potential contaminants that show up in water supplies as a result of deicing practices are sodium and chloride ions, and other dissolved salts carried by road melt into streams or to the roadside where they leach into the surrounding soil. In areas where salt is stockpiled in open air confinements, uncontrolled runoff can produce intensive salt contamination and infiltration.

Several methods for reduction of this contamination threat are available to highway departments. These methods include frequent plowing, minimal amounts of deicing salts, use of alternative materials such as sand mixed with salt and calcium chloride, or the use of calcium hypochlorite, which poses little threat to groundwater quality.

Salt stockpiles are recommended to have storage facilities with impermeable bases with curbs and berms to help curtail the effect of runoff. They should also be covered to reduce run-off caused by rain and snow.

Well Construction/Well Abandonment

Well construction and abandonment and construction of monitoring wells and bore holes pose special concerns for water quality since well drilling activities penetrate directly into the aquifer. Through these penetrations, bacteria, dissolved solids, and other pollutants such as runoff carrying agriculture related chemicals, can move directly into the aquifer. This occurs when a well is not properly cased at the top or abandoned wells are not effectively sealed.

Proper well siting and construction can prevent contamination from surface pollutants. Good practices include: siting wells up gradient from potential pollution sources, using non-corrosive well casings, properly sealing wells at the surface and effectively grouting wells to prevent movement of water between aquifers. Wells that have been abandoned need to be identified, capped, and sealed.

Other sources of Groundwater Contamination

Conditions of urban runoff and infiltration, the use of turf fertilizers, and disposal of household chemicals and cleaners, can pose widespread, persistent sources of contamination for a community. Contaminates from these sources are usually carried by runoff into shallow depressions or retention basins and then infiltrate the ground. Although processes of attenuation are present in these basins, their capacity will be reduced over time.

Regular street sweeping is suggested as one means to help alleviate this problem. Periodic removal of plant growth from drainage basins is also suggested to prevent decaying foliage from reintroducing contaminants back into the soil. Limiting impervious surfaces and pavement in hydrologically-sensitive areas can also contribute to a lower level of contamination by increasing the area of attenuation for contaminants.

For the homeowner, care should be stressed when using lawn fertilizers and application should be undertaken with same care that farmers might use for agriculture-related chemicals. Disposal sites for unwanted household chemicals can be set up so the chemicals can be properly treated as a potential hazardous waste and not go directly into a landfill.

Water Quality

The quality of the water that is to be used for any particular purpose is important, just as important as the quality of water that source will yield, or the cost of obtaining the water from that source. Some sources of water are not utilized because the chemical or physical properties of the water make it undesirable for most uses.

All natural water contains some dissolved minerals and solid matter. Water flowing over the land and in stream beds or even groundwater moving through aquifers can carry material in four ways:

1. Small suspended particles that do not settle out on standing
2. Suspended particles that will settle out on standing
3. Dissolved mineral matter or ions (water is one of the best solvents)
4. Insoluble substances, molecules of matter, that can float depending on their density in or on the water

All of the natural substances that enter the water including domestic, industrial and agricultural chemicals and wastes that are discharged into the water, whether directly into the streams, on the land surface, or into areas where bedrock is exposed, can be responsible for the quality of the water. Other important factors that contribute to the quality of water both for human uses and wildlife include temperature, pH, dissolved gases, and the presence of heavy metals such as lead or arsenic.

The manner in which water is used determines which constituents and properties are desirable or deleterious. Water which might be quite suitable for irrigational purposes could be unsatisfactory for a public water supply.

Any substance in large amounts is generally objectionable. Some substances are objectionable because they are harmful to humans and animals. The U.S. Public Health Service has established acceptable limits for objectionable substances. Other substances can be aesthetically offensive and odor causing. Some nuisance constituents can be alleviated by water treatment or users can simply become accustomed to having them in their water.

Figure 34 list mineral constituents and properties of water and explains each briefly. The maximum recommended concentrations shown are limits established by the U.S. Public Health Service as standards for interstate carriers and are suggested for drinking water supplies in general.

Floodplains

Surface streams collect water and function as runoff channels as described in the Hydrology section. Often, water runoff is so large it cannot be confined to the stream channel and flooding occurs in overflow areas along a stream or river. This overflow area is referred to as the floodplain. Every surface stream has a floodplain. The extent of a floodplain is determined by a number of factors. Age of the land and its topography is an important factor. Artificial structures; bridges, culverts, buildings, dams, and levees, also contribute to the delineation of a floodplain. Artificial encumbrances force the overflow water to occupy land areas it would not normally use.

Surface streams have a natural meandering movement and are constantly wearing away shore banks and creating new channels. An inspection of aerial photographs often illustrates the location of numerous old stream channels within a floodplain area. It can be said that, literally, stream channels move from one side of a floodplain to the other side. This meandering can be seen in aerial photography of Flint Creek.

Figure 34: Mineral Constituents and Properties of Water

Distribution

Figure 35 illustrates the designated flood hazard areas of the surface streams in the county. The flood hazard areas, as shown are approximations of those as determined by the Federal Emergency Management Agency (FEMA) in 1980. It is to be noted that on the official FEMA maps, the floodplain is divided into two parts, the floodway, and the floodway fringe.

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachments in order that the 100-year flood may be carried without substantial increase in flood heights.

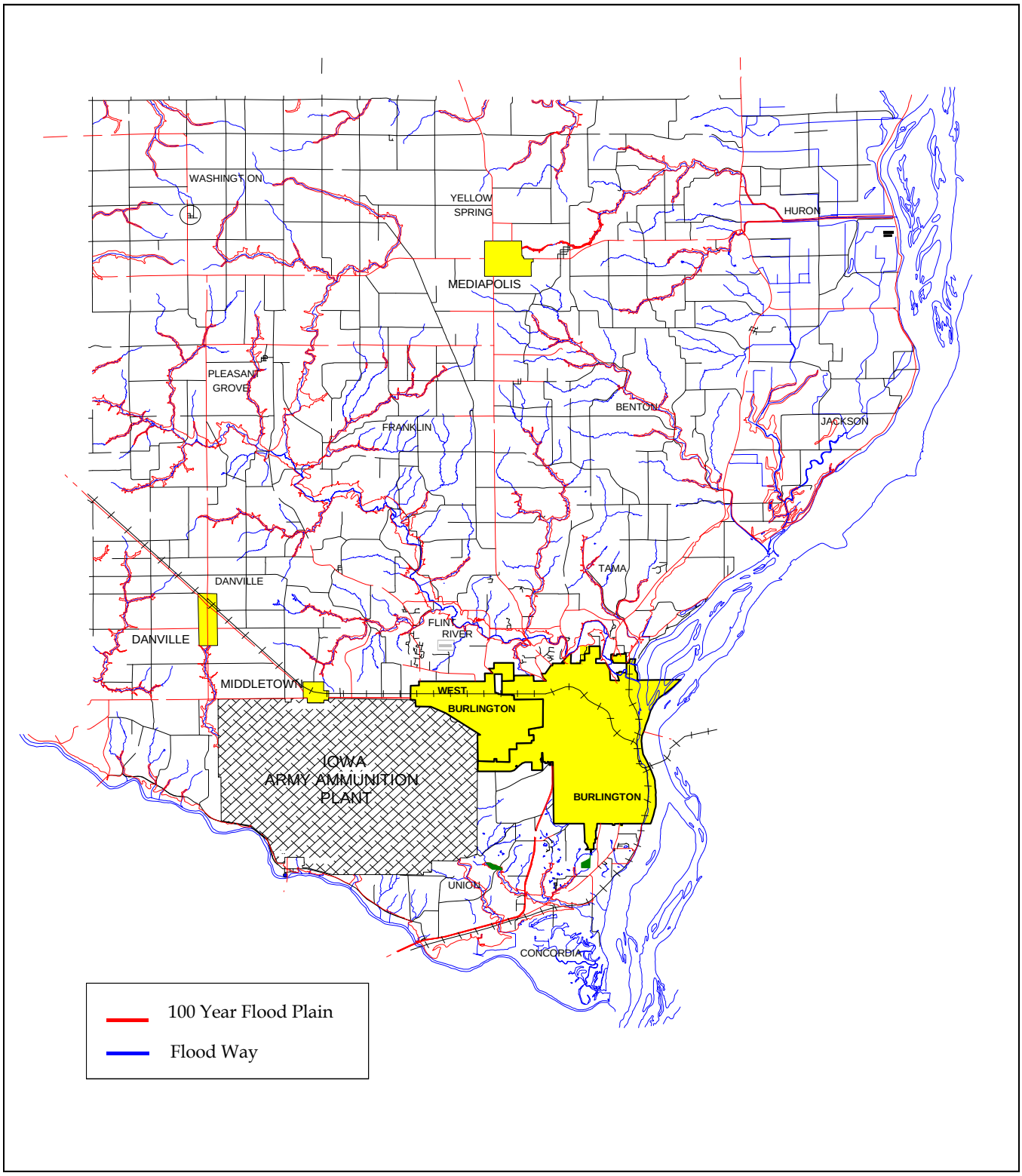
The floodway fringe is that area of the 100-year floodplain, excluding the floodway, which could be developed without cumulatively raising the 100-year flood level more than one foot.

Simply put, the floodway is that area needed for the actual conveyance of water. The floodway fringe is that area needed for the storage of surplus water until it can enter the floodway for conveyance.

The importance of floodplains and their management was formally recognized by the Federal Government with the enactment of the National Flood Insurance Program (NFIP) (created by Congress in 1968) and the Flood Disaster Protection Act of 1973. Floodplain management and flood insurance are the principal components of NFIP. Floodplain management consists of policies, regulations, and procedures used by a community to minimize flood hazards. Flood insurance provides recovery from flood losses to real and personal property.

Des Moines County participates in the NFIP and administers a floodplain management program on FEMA-designated streams in the unincorporated areas of the county.

Figure 35: Designated Flood Hazard Areas



Policy Implications

Floodplain management is an area where Des Moines County has a very definitive policy. The Des Moines County Floodplain Ordinance states:

> It is the purpose of this ordinance to protect and preserve the rights, privileges and property of Des Moines County and its residents and to preserve and improve the peace, safety, health, welfare, and comfort and convenience of its residents by minimizing those flood losses described in Section I B.2. with provisions designed to:
>
> 1. Reserve sufficient floodplain area for the conveyance of flood flows so that flood heights and velocities will not be increased substantially.
>
> 2. Restrict or prohibit uses which are dangerous to health, safety, or property in times of flood or which cause excessive increases in flood heights or velocities.
>
> 3. Require that uses vulnerable to floods, including public utilities that serve such uses, be protected against flood damage at the time of initial construction.
>
> 4. Protect individuals from buying lands that are unsuited for intended purposes because of flood hazard.
>
> 5. Assure that eligibility is maintained for property owners in the county to purchase flood insurance through the National Flood Insurance Program.

Public policy should continue to be directed toward limited and regulated development of the floodplains. All development must comply with the Des Moines County Floodplain Ordinance and FEMA guidelines.

DEVELOPMENT PLAN

STATEMENT OF INTENT

The Des Moines County Comprehensive Plan serves as a basis for managing growth and development in the unincorporated area of Des Moines County. The Plan provides guidelines for developers and the general public in understanding and predicting future land use planning within the county. It provides a legally defensible and socially responsible mechanism for managing such factors as the type, rate, amount, location and/or quality of future development within the county.

Certain findings and assumptions have been made from which this plan has been developed. First, growth trends and projections indicate that the county will continue to face a limited amount of pressure for new development. For the incorporated areas, that development will be primarily residential.

Second, it is recognized that a certain amount of growth has previously occurred in areas that would be identified today as unsuitable for development because of environment location or other factors. While existing development cannot be altered, expansion of certain developed areas can be discouraged as inappropriate.

Third, the county has assumed that federal, state, and local policies for the preservation of high quality agricultural land will remain.

Finally, the plan is based on the premise that protection of the area's natural environmental systems is of critical importance. The location and sensitivity of certain natural resources should dictate the location of growth areas and the policy basis for managing growth.

The Plan consists of a Background Report and a Development Plan. The Background Report is an informational and historic account of the county. The Development Plan consists of written goal statements. The goal statements are supplemented by objectives, policy measures, and map designations that establish guidelines and locations for areas of growth, growth stabilization, agricultural land preservation, and environmental resource protection. The policy basis for the plan may be found in Chapter 352, Land Preservation and Use, of the Code of Iowa.

The Des Moines County Comprehensive Plan utilizes a combination of an existing land use plan and a future land use plan. The existing land use plan identifies the current land uses within the county. The future land use plan analyzes the information from the Background Report and the existing land uses to pattern future development within the county.

EXISTING LAND USE

There are five incorporated areas within Des Moines County: Burlington, West Burlington, Danville, Mediapolis, and Middletown. Within the corporate limits of these municipalities lie a majority of all industrial, commercial, and residential land uses. However, there has been a recent expansion of residential growth into the county. Subdivision development within the county has exploded over the past few years. Appendix B (Current Land Use Map), displays current land use within Des Moines County.

Current land use in Des Moines County is primarily agriculture, a majority of which is grain production. Although developments of large-scale animal feedlots have begun to develop across the state, Des Moines County has experienced only minor feedlot development.

Excluding the land occupied by the Iowa Army Ammunition Plant, which is owned by the federal government, industrial development is primarily distributed within, or about, the corporate limits of municipalities. Industrial development is generally a land use that is thought of as obtrusive. For that reason, developments of this nature exist in areas where interaction with others is at a minimum and appropriate services are available. However, these areas do not always remain isolated. Over the years expanded residential growth has surrounded many of these industrial areas. Several of these areas are now a combination of inappropriate mixed land uses.

Des Moines County has a variety of natural features. Steep bluffs divide the county into highlands and lowlands. The Mississippi River and its many tributaries create wooded valleys and floodplains. A combination of all of these creates different soil types. There are sinkholes, wetlands, and natural prairie remnants in existence as well. Existing developments of all types has had a negative impact on natural drainage, erosion control, tree cover, and water contamination. Areas of significant importance have been identified in previous sections of the Background Report.

FUTURE LAND USE

The information from the existing land use plan, the background report, and the following goals and policies, provide a sound guide for future development. Appendix C (Future Land Use Map) presents the recommended future land use plan of Des Moines County.

The single most significant commodity to Des Moines County is the prime agricultural land. The county currently has three agricultural preservation districts. In a county where the economy is based on agriculture, preservation of those lands that produce the highest yields should be pursued.

The expansion of the major highway corridors is of major significance to the future of Des Moines County. Both U.S. Highways 34 and 61 will be upgraded from two- to four-lanes. This expansion will involve bypassing both Danville and Mediapolis. Historically, cities by-passed by a major four-lane highway develop industrially and commercially near the by-pass. The other identified area of industrial development is along Highway 34, between Middletown and West Burlington. Presumably these areas will contain much of the future industrial development. These areas have developed industrially in the past, and further development is expected to continue due to the proximity to the highway and rail lines. As development occurs, annexation will likely follow, thus providing the industry with suitable infrastructure.

In addition to new construction there is an existing inventory of abandoned industrial property for redevelopment. These properties are already served by infrastructure and for that reason should be considered first.

Sporadic residential subdivision development within the county has increased dramatically over the past decade. Residential development is thought to exist more complementary toward areas that currently are residential. For that reason, those areas that have been developed have been identified as areas for expansion. Those areas are north and south of Burlington, in and around West Burlington, west of Danville, and east of Mediapolis, and to the north and west of Middletown. The county's small communities and major subdivisions have been identified as well.

LIFE OF THE PLAN

The Des Moines County Board of Supervisors adopted the Des Moines County Comprehensive Plan in July 1997 and updated the Plan in 2004. The planning period for which the background studies and projections were developed, and upon which the plan is based, is the year 2019.

REVIEW PERIOD

The Des Moines County Planning and Zoning Commission and Board of Supervisors shall review the Plan on a periodic basis and shall consider amendments to the Plan when deemed appropriate.

AMENDMENT PROCEDURE

The Comprehensive Plan must be flexible in order to address changing development pressures, which affect land use. Because of this, it may be necessary to amend the policies or land use map to reflect proposed changes.

Any amendment to the Plan should generally be guided by the following considerations:

1. Compatibility with the overall policy basis of the Plan.

2. Compatibility with surrounding land uses.

3. Applicant's justification to support such amendments to the Plan.

The Board of Supervisors may amend the Plan after review and recommendation by the Planning and Zoning Commission. The owner(s) of the property involved, the general public, the Planning and Zoning Commission, or the Board of Supervisors may initiate an amendment to the Plan.

STATEMENT OF GOALS

Land use and development goals, objectives, and policy measures may attempt to manage such factors as the type, rate, amount, location and/or quality of future development. The basis for the policies created for this plan is found in Chapter 352, Land Preservation and Use, Code of Iowa. Using this as a basis for policy development gives strong legislative support to the county's planning efforts.

Goals

1. Ensure orderly and efficient growth of residential, commercial, industrial, and public and semi-public land uses while maintaining the general welfare of the county.

2. Protect and conserve the natural, human, and economic resources that are the basis of the agricultural economy and rural lifestyle of the county.

3. Protect and preserve natural resources including areas of steep slopes, significant tree cover, wetlands, and natural prairies.

4. Ensure an opportunity for a safe decent and affordable home and suitable living environment for all families, present and possible future, living in Des Moines County.

5. Encourage diversification of the economy to improve the overall economic well being of the county.

6. Encourage cooperation and communication among the county, other units of local government, and the general public to improve human development, economic development, and ecological preservation.

7. Plan and develop a comprehensive transportation plan.

Goal 1 Ensure orderly and efficient growth of residential, commercial, industrial, public and semi-public land uses, while maintaining the general welfare of the county.

A. Objectives for Future Growth

1. Encourage future growth within the existing cities where adequate space and public services can be provided.

2. Discourage development from locating on prime agricultural land.

3. Encourage the county and local governments to develop mutual agreements on preferred patterns of development, thereby enabling jurisdiction to operate with complementary growth policies.

4. Areas experiencing water and septic problems should not be allowed to continue development until the problems are solved. Sanitary sewer or development of benefited districts and common water systems may have to be extended to these areas before additional development occurs.

B. Policies for future growth

1. Des Moines County recognizes and accepts that normal agricultural and environmental conditions come with rural living.

2. While Des Moines County encourages development to locate within cities, the following are guidelines for where new development should occur in rural areas:

a. On marginal or poor agricultural land that is not environmentally sensitive.

b. With access to adequately constructed roads.

c. Where public and/or private facilities and services are present or planned, including water, sanitary sewer systems, electricity, transportation systems, schools, and parks.

d. In areas near existing employment centers and commercial areas, so as not to encourage urban sprawl and unplanned scattered development.

e. Where it is least disruptive of existing agricultural activities.

f. In areas of stable environmental resources.

g. Where it is sufficiently buffered from other less intensive land uses.

h. Where it can be shown that there is a recognized need for such development.

i. Where it can be developed in an efficient and compact manner.

3. The use of alternative energy resources should be encouraged in existing and new developments.

4. Des Moines County encourages the diversification of the economy.

5. Natural areas containing environmentally sensitive land, such as natural forests, steep slopes, floodplains, slide prone areas, stream banks, and wildlife habitat, should be identified and protected from any significant urban development.

C. Policies for residential growth

1. Opportunities should be provided for a variety of housing types to serve the residential needs of present and future residents.
2. Residential development should ideally locate in platted subdivisions.

3. Concentrated residential development experiencing septic problems should be encouraged to create a rural sanitary sewer district. The boundaries of such districts should be based, wherever possible, on existing watershed areas. Non-farm residents will be encouraged to join a sanitary sewer district as soon as possible after its creation. Future development in the districts will be required to join as development occurs.

4. Concentrated residential development experiencing water quality problems should be encouraged to connect to the Rathbun Rural Water System.

5. Multiple family residential developments (apartments and townhouses) will be directed towards existing cities that have land zoned for such uses and can adequately provide the necessary public utilities and services.

D. Policies for commercial growth

1. Commercial development should be directed toward existing cities having areas zoned for such development.

2. New rural commercial development should be located near major road intersections provided the business does not impede traffic flow.

3. Des Moines County encourages clusters of small commercial uses served by controlled access and frontage roads, rather than strip development, which is an inefficient use of land and can create traffic hazards.

E. Policies for industrial growth

1. Industrial development should be directed toward existing cities having areas zoned for such development.

2. In addition to the conditions for development as noted above, proposed industries may be required to meet the following conditions before approval:

    a. Is it proposed in an area where industries are currently located?

    b. Will the roads, rails, and airport provide nearby access?
    c. Is the proposal removed from residential development?

3. Extractive mineral areas, whether developed or undeveloped, should be protected from incompatible urban development.

4. Agriculture service related businesses and industries may be permitted in the rural area if sufficient need for such development is demonstrated.

5. Local public officials should encourage light industries to locate in properly planned compact and fully serviced industrial parks.

F. Policies for public and semi-public facility growth

1. In addition to the conditions for development as noted above, proposed public facilities may be required to meet the following conditions:

    a. Will the new facility attract more development on productive agricultural land or will any new development be contained to a specific site?

    b. Will the completed proposal encourage the diversification of the county's economy?

    c. Will the completed proposal be compatible with existing land use rural way of life?

2. All infrastructure improvements will conform to the land use policies of Des Moines County and shall minimize the disruption of existing agricultural activities and developed residential areas by following section lines and road right-of-ways.

Goal 2 Protect and conserve the natural, human, and economic resources that are the basis of the agricultural economy and rural lifestyle of the county.

A. Objectives

1. Recognize agricultural land as the principal natural resource of the county and preserve those productive agricultural soils historically exhibiting high crop yields and considered most suitable for agricultural production.

2. Discourage development on productive agricultural land that might hinder the ability of the agricultural community to maintain and expand its level of agricultural activity.

3. Encourage the updating of the soil survey for Des Moines County.

4. Base land use decisions concerning agricultural land on the modern soil survey, as well as the compatibility of surrounding land uses.

5. Encourage soil conservation practices.

6. Discourage land speculation in areas of productive agricultural soils excluding land identified in Appendix C for development.

7. Encourage the use of filter strips between agricultural land and drainage ways to discourage non-point water contamination and soil erosion.

B. Policies

1. Proposed development on agricultural land should be evaluated based on prime agricultural land criteria as stated in the Des Moines County Subdivision Ordinance.

2. Preservation should be encouraged by creating an Agricultural Preservation Zoning District as established under Chapters 17B and 358A (27) of the Code of Iowa.

Goal 3 Protect and preserve natural resources including areas of steep slopes, significant tree cover, wetlands, and natural prairies.

A. Objectives

1. Prevent the degradation of environmentally sensitive natural resources including floodplains, heavily forested areas, steep slopes, wetlands, and other areas.

2. Encourage the placement of environmentally sensitive areas in connecting green belts (open spaces) for use as wildlife refuges and passive recreational areas.

3. Reduce flood damage by promoting basin-wide programs stressing non-structural measures, such as floodplain regulations, floodproofing, flood forecasting, and watershed treatment, in conjunction with appropriate and environmentally acceptable structural measures, where necessary, to protect the lives and property of residents.

4. Encourage those soil conservation practices that will improve the quality of water and land.

B. Policies

1. The environmental character of Des Moines County is a significant asset and a major reason why many people choose to live in rural areas. The preservation of this character will be emphasized when considering any future proposals for development.

2. Subdivisions as defined in this section that include environmentally sensitive areas are encouraged to set aside such areas for protection purposes.

3. Greenbelts and riparian zones will be encouraged along the Mississippi River, Skunk River, Flint Creek, and their major tributaries.

4. Local programs in response to flooding and floodplain development problems should be continued with a deliberate well reasoned approach that gives attention to preserving future choices.

5. Future development in known flood hazard areas should satisfy two objectives:

    a. Ensure that the development in that area will be protected from flood damage one foot above the 100-year flood elevation.

    b. Ensure development activities will not add substantially (raise the base flood elevation more than one foot) to the flood problems.

6. Local floodplain management programs should meet regulatory requirements of the Federal Emergency Management Agency and applicable state regulation.

7. The preservation of scenic and historic areas is encouraged.

8. Site plan review of soil types, erosion possibilities, and storm water run-off shall be required for development within the county and filed with the appropriate county governmental agency.

Goal 4 **Ensure an opportunity for a safe, decent, and affordable home, and suitable living environment for all present and future families living in Des Moines County.**

A. Objectives

1. To establish safe housing for the people of Des Moines County.

2. To provide aesthetically pleasing and environmentally sound development practices that provide for living spaces that are representative of rural living without having detrimental effects on the environment.

B. Policies

1. The county should encourage the provision of quality housing in a variety of types and prices.

2. The county should encourage and promote the provision of affordable senior and/or elderly housing needs and related health care facilities.

3. Greenways and buffers should be encouraged in residential areas, not only for separation of conflicting land uses, but for aesthetic and recreational value as well.

4. Physical buffers, such as wooded areas, screen wall, stream valleys, highways and major arterial roadways, and significant topographical variations, etc., should be utilized to eliminate or minimize adverse effects (noise, visual) on incompatible land uses.

Goal 5 **Encourage diversification of the economy to improve the overall economic well-being of the county.**

A. Objectives

1. Encourage the balance of preserving the rural character while continuing to attract industry and retail trade.

Goal 6 **Encourage cooperation and communication among the county, other units of local government, and the general public to improve human development, economic development, and ecological preservation.**

A. Objectives

1. To provide county residents with a representative government that is responsive to the needs of the people.

2. To correlate planned development with all government entities to ensure that the growth of the county is not conflicting with adjacent county or municipal governments.

3. Work together with municipalities to coordinate future growth limits.

4. Work together with private and public infrastructure entities to foster better working relationships that provide the best possible service.

Goal 7 Plan and develop a comprehensive transportation system.

A. Objectives

1. To promote plans to create a statewide recreational trail that flows through Des Moines County.

2. To create alternative forms of travel that are less detrimental to the environment.

3. To spur economic development by using the trail system as a tourist attraction.

4. To provide safe forms of recreation to the citizens of the county.

B. Polices

1. The county shall encourage the development of off-street bicycle paths and protect them from encroachment corridors, which hold potential for future public bikeway/pedestrian use.

2. The county may develop a bikeway/pedestrian system that links urban centers to rural development within the county.

3. The county shall work closely with municipalities to create a plan that is compatible for each governmental entity.

IMPLEMENTATION

Des Moines County Board of Supervisors realizes that all future land use decisions must center on these land use policies. The policies will act as a guide to relate individual land use decisions to a set of comprehensive policies. These policies will accompany the Des Moines County Zoning Ordinance.

The land use policies will be used as the primary resource in developing and updating land management tools, such as zoning and subdivision controls. The policies will be used to help guide zoning and subdivision controls, and to help guide zoning decisions made by the Planning and Zoning Commission, the Board of Adjustment, and the Board of Supervisors.

Appendix A

Iowa Department of Transportation

County: Des Moines

Fiscal Year: 2005

Version: Original

SECONDARY ROAD CONSTRUCTION PROGRAM

COUNTY CERTIFICATION

The detailed construction program for the secondary road system was adopted by the Board of Supervisors on _____ (Date).

ATTESTED

Carol S. Copeland — County Auditor — Date: 4/06/04

Brian J. Cook — County Engineer — Date: 4-6-04

Chairperson, Board of Supervisors — Date: 4/06/04

IOWA DOT PROGRAM APPROVALS

Recommend Approval: _____ OLS Reviewer — Date: _____

Approval: _____ Director of Local Systems — Date: _____

APPROVED

APR 06 2004

BOARD OF SUPERVISORS

FIVE YEAR SECONDARY ROADS CONSTRUCTION PROGRAM

For

Des Moines County

[Projected costs in $1000s]

Program Year: 2005

Project Number / Local ID / Project Name	Location / Description of Work / Location/Section-Town-Range	AADT / Length / FHWA #	System / Status	$ Day Labor / Type Work / SPC/FA Types	Fund	Accomp Year FY: 2005	Priority Years 1st FY: 2006	2nd FY: 2007	3rd FY: 2008	4th FY: 2009	$ Total / Notes:
FM-C029(32)--55-29 PG-7&9 220th Avenue TPMS ID: 5987	220th Avenue Bridge Replacement Route: X-27 From: 0 To: 0/S17-T71-R4 MAY 104 K LETTING	90 0.00 143880, 143900	FM Previous	$ 0 332-Box Culverts	LCL						$350
					FMO	350					See Notes
					SPC						
				LOCAL/FM	FA						
FM-C029(36)--55-29 na 205th Avenue Box Culvert TPMS ID: 9849	205th Avenue Box Culvert Route: P-55 From: To: /S4-T72-R4	110 0.00	FM New	$ 0 332-Box Culverts	LCL						$200
					FMO	200					See Notes
					SPC						
				LOCAL/FM	FA						
FM-C029(29)--55-29 140th Street 140th Street (Goatman Road) TPMS ID: 2166	140th Street (Goatman Road) Grading Route: 140th Street From: Beaverdale Road To: US 34/S08-T70-R04	270 4.10	Local Previous	$ 0 352-Excavation	LCL						$700
					FMO	700					See Notes
					SPC						
				LOCAL/FM	FA						
FM-C029(34)--55-29 205th Avenue TPMS ID: 2152	205th Avenue Grading Route: 205th Avenue From: 260th Street To: County Line/S05-T72-R04	110 1.00	Local Previous	$ 0 352-Excavation	LCL						$300
					FMO	300					
					SPC						
				LOCAL/FM	FA						
L-002--73-29 002 152nd Avenue TPMS ID: 7782	152nd Avenue Grade for Pave Route: 152nd Avenue From: H-40 To: south 1.1 mile/S8-T71-R3	80 1.10	Local Previous	$ 0 352-Excavation	LCL	125					$125
					FMO						See Notes
					SPC						
				LOCAL/FM	FA						
RCX-C029(31)--9B-29 Ethanol Road TPMS ID: 7758	Ethanol Road Pave Route: 0 From: Beaverdale Road To: 155th Avenue to Hwy 34/S29-T70-R3	0 1.50	Local Previous	$ 0 352-Excavation	LCL	519					$919
					FMO						See Notes
				RISE	SPC	400					
				LOCAL/FM	FA						

FIVE YEAR SECONDARY ROADS CONSTRUCTION PROGRAM

For

Des Moines County

[Projected costs in $1000s]

Program Year: 2005

Project Number Local ID Project Name	Location Description of Work Location/Section-Town-Range	AADT Length FHWA #	System Status	$ Day Labor Type Work SPC/FA Types	Fund	Accomp Year FY: 2005	Priority Years 1st FY: 2006	2nd FY: 2007	3rd FY: 2008	4th FY: 2009	$ Total Notes:
L-ROW--73-29 ROW ROW TPMS ID: 10614	various right of way Route: From: To: /S-T-R	0 0.00	Local Previous	$ 0 311-Right of way	LCL	10					$10
					FMO						
					SPC						
				LOCAL/FM	FA						
FM-C029(J20)--55-29 J20 Geode Bridge TPMS ID: 10388	Geode Road Bridge Widening Route: J20 From: To: /S1-T69-R5	700 0.00 699580	FA and FM New	$ 0 320-Bridges	LCL						$100
					FMO	100					
					SPC						
				LOCAL/FM	FA						
L-A5--73-29 A5 Augusta Bridge TPMS ID: 6020	Augusta Bridge Bridge Rehab Route: 394 From: 0 To: 0/S24-T69-R4	1100 0.00 23610	FA and FM Previous	$ 0 320-Bridges	LCL	38					$38 See Notes
					FMO						
					SPC						
				LOCAL/FM	FA						
FM-C029(PG27)--55-29 PG27 Danville Bridge Approach TPMS ID: 10543	Danville Bridge Bridge Approach Repair Route: X31 From: To: /S22-T71-R4	500 0.00 143945	FM New	$ 0 320-Bridges	LCL						$60
					FMO	60					
					SPC						
				LOCAL/FM	FA						
FM-C029(U4)--55-29 U4 Hunt Road Bridge Replacement TPMS ID: 7793	Hunt Road Bridge Replacement Route: Hunt Road From: - To: -/S23-T69-R3	120 0.00 142930	Local Previous	$ 0 320-Bridges	LCL						$200
					FMO	200					
					SPC						
				LOCAL/FM	FA						
L---73-29 Olympic Road Bridge TPMS ID: 10503	Olympic Road Bridge Replacement Route: P-62 From: To: /S18-T71-R3	60 0.00	Local New	$ 0 331-Pipe Culverts	LCL	200					$200
					FMO						
					SPC						
				LOCAL/FM	FA						

FIVE YEAR SECONDARY ROADS CONSTRUCTION PROGRAM

For

Des Moines County

[Projected costs in $1000s]

Program Year: 2005

Project Number Local ID Project Name	Location Description of Work Location/Section-Town-Range	AADT Length FHWA #	System Status	$ Day Labor Type Work SPC/FA Types	Fund	Accomp Year FY: 2005	Priority Years 1st FY: 2006	2nd FY: 2007	3rd FY: 2008	4th FY: 2009	$ Total Notes:
FM-C029(37)--55-29 C29-0018 Flint Bottom Road TPMS ID: 2177	Flint Bottom Road ACC Overlay Route: Flint Bottom Road From: North Gear Avenue To: Highway 61/S23-T70-R03	2200 0.70	Local Previous	$ 0 366-HMA Paving	LCL						$250 See Notes
					FMO	250					
					SPC						
				LOCAL/FM	FA						
FM-C029()--55-29 Patching TPMS ID: 10495	various pavement patching Route: various From: various To: /S-T-R	500 1.00	FM New	$ 0 367-PCC Paving	LCL						$65
					FMO	65					
					SPC						
				LOCAL/FM	FA						
FM-C029(30)--55-29 C29-0010 Flint Bottom Road TPMS ID: 2113	Flint Bottom Road Grading for Shoulders Route: Flint Bottom Rd From: North Gear Avenue To: Hwy 61/S23-T70-R03	2200 0.50	FM Previous	$ 0 383-Shoulders	LCL						$137
					FMO	137					
					SPC						
				LOCAL/FM	FA						
L-RR--73-29 RR 145th Street RR Xing TPMS ID: 10497	145th Street Railroad Crossing Upgrade Route: 145th Street From: To: /S-T-R	70 0.00	Local New	$ 0 392-Signals	LCL	14					$14
					FMO						
					SPC						
				LOCAL/FM	FA						
L-ROW--73-29 ROW Right of Way TPMS ID: 10608	various right of way Route: various From: To: /S-T-R	0 0.00	Local Previous	$ 0 311-Right of way	LCL		20				$20
					FMO						
					SPC						
				LOCAL/FM	FA						
BROS-C029(H11)--8J-29 H11 Lake Road Bridge TPMS ID: 10544	Lake Road Bridge Replacement Route: P-112 From: To: /S21-T72-R1	60 0.00 144060	Local New	$ 0 320-Bridges	LCL		24				$120
					FMO						
					SPC						
				HBRRP	FA		96				

FIVE YEAR SECONDARY ROADS CONSTRUCTION PROGRAM

For

Des Moines County

[Projected costs in $1000s]

Program Year: 2005

Project Number Local ID Project Name	Location Description of Work Location/Section-Town-Range	AADT Length FHWA #	System Status	$ Day Labor Type Work SPC/FA Types	Fund	Accomp Year FY: 2005	Priority Years 1st FY: 2006	2nd FY: 2007	3rd FY: 2008	4th FY: 2009	$ Total Notes:
BROS-C029(H19)--8J-29 H19 Allen Green Refuge Bridge TPMS ID: 6127	220th Street Bridge Replacement Route: 220th Street From: 0 To: 0/S33-T72-R1	40 0.00 144070	Local Previous	$ 0 320-Bridges	LCL		24				$120
					FMO						
					SPC						
				HBRRP	FA		96				
L---73-29 Des Moines - Henry Avenue TPMS ID: 10545	Des Moines - Henry Avenue Bridge Replacement Route: P-19 From: To: /S30-T72-R4	25 0.00	Local New	$ 0 320-Bridges	LCL		50				$50 See Notes
					FMO						
					SPC						
				LOCAL/FM	FA						
L-D13--73-29 D13 220th Avenue TPMS ID: 2191	220th Avenue Culvert Replacement Route: 220th Avenue From: To: /S29-T70-R04	45 0.00 143355	Local Previous	$ 0 332-Box Culverts	LCL		300				$300
					FMO						
					SPC						
				LOCAL/FM	FA						
FM-TSF-C029()--5B-29 ACC Overlays TPMS ID: 10547	DMC Hwy 79, Danville Rd, Roosevelt St. ACC Overlay Route: 79, X31, From: Various To: Various/S26-T70-R4	2010 10.00	FA and FM New	$ 0 366-HMA Paving	LCL		350				$1400
					FMO		350				
					SPC						
				LOCAL/FM	FA		700				
L-210THST--73-29 210th Street Gypsum Plant Road TPMS ID: 6131	210th Street/Gypsum Plant Road HMA Overlay Route: 210th Street From: US Hwy 61 To: Iowa City Road/S11-T71-R3	1000 1.00	Local Previous	$ 0 366-HMA Paving	LCL		200				$200
					FMO						
					SPC						
				LOCAL/FM	FA						
L-0028--73-29 C29-0028 TPMS ID: 2189	205th Avenue PCC Paving Route: X-27 From: 260th Street To: County Line/S04-T72-R04	110 1.00	Local Previous	$ 0 367-PCC Paving	LCL						$450 See Notes
					FMO		450				
					SPC						
				LOCAL/FM	FA						

FIVE YEAR SECONDARY ROADS CONSTRUCTION PROGRAM

For

Des Moines County

[Projected costs in $1000s]

Program Year: 2005

Project Number Local ID Project Name	Location Description of Work Location/Section-Town-Range	AADT Length FHWA #	System Status	$ Day Labor Type Work SPC/FA Types	Fund	Accomp Year FY: 2005	Priority Years 1st FY: 2006	2nd FY: 2007	3rd FY: 2008	4th FY: 2009	$ Total Notes:
L-ROW--73-29 ROW ROW TPMS ID: 10610	various right of way Route: From: To: /S-T-R	0 0.00	Local Previous	$ 0 311-Right of way	LCL			20			$20
					FMO						
					SPC						
				LOCAL/FM	FA						
BROS-C029(B6)--8J-29 B6 Irish Ridge Bridge TPMS ID: 10549	Irish Ridge Road Bridge Replacement Route: X60 From: To: /S17-T71-R2	90 0.00 143530	FM New	$ 0 320-Bridges	LCL			22			$110
					FMO						
					SPC						
				HBRRP	FA			88			
BROS-C029(YS10)--8J-29 YS10 160th Ave. Bridge TPMS ID: 10551	160th Avenue Bridge Replacement Route: P-168 From: To: /S29-T72-R3	70 0.00 144290	Local New	$ 0 320-Bridges	LCL			22			$110
					FMO						
					SPC						
				HBRRP	FA			88			
L-D3--73-29 D3 D3 TPMS ID: 2161	Lynx Road Culvert Replacement Route: Lynx Road From: To: /S01-T70-R04	15 0.00 143260	Local Previous	$ 0 332-Box Culverts	LCL			150			$150
					FMO						
					SPC						
				LOCAL/FM	FA						
STP-S-C029(C29)--5E-29 C29 140th Street (Goatman Road) TPMS ID: 7763	140th Street (Goatman Road) PCC Paving Route: 140th Street From: Danville To: US Hwy 34/S20-T70-R4	110 1.10	FA and FM Previous	$ 0 367-PCC Paving	LCL			900			$900
					FMO						
					SPC						
				STP	FA			475			
L-003--73-29 003 152nd Avenue TPMS ID: 7784	152nd Avenue PCC Paving Route: 152nd Avenue From: H-40 To: south 1.1 miles/S8-T71-R3	80 1.10	Local Previous	$ 0 367-PCC Paving	LCL						$475 See Notes
					FMO						
					SPC						
				LOCAL/FM	FA						

FIVE YEAR SECONDARY ROADS CONSTRUCTION PROGRAM

For

Des Moines County

[Projected costs in $1000s]

Program Year: 2005

Project Number Local ID Project Name	Location Description of Work Location/Section-Town-Range	AADT Length FHWA #	System Status	$ Day Labor Type Work SPC/FA Types	Fund	Accomp Year FY: 2005	Priority Years 1st FY: 2006	2nd FY: 2007	3rd FY: 2008	4th FY: 2009	$ Total Notes:
L-ROW--73-29 ROW ROW TPMS ID: 10615	various right of way Route: From: To: /S-T-R	0 0.00	Local Not Indicated	$ 0 311-Right of way	LCL				20		$20
					FMO						
					SPC						
				LOCAL/FM	FA						
BRS-C029(YS16)--60-29 YS16 Mediapolis Road TPMS ID: 10554	Mediapolis Road Bridge Replacement Route: H38 From: To: /S29-T72-R3	1110 0.00 144340	FA and FM New	$ 0 320-Bridges	LCL				32		$192
					FMO						
					SPC				160		
				HBRRP	FA						
BRS-C029(PG19)--60-29 PG19 Dodgeville Road TPMS ID: 10556	165th Street Bridge Replacement Route: P-84 From: To: /S25-T71-R4	100 0.00 143980	FM New	$ 0 320-Bridges	LCL				32		$192
					FMO						
					SPC				160		
				HBRRP	FA						
BROS-C029(YS2)--8J-29 YS2 160th Avenue TPMS ID: 7797	160th Avenue Bridge Replacement Route: 160th Avenue From: - To: -/S6-T72-R3	90 0.00 144260	Local New	$ 0 320-Bridges	LCL				120		$120
					FMO						
					SPC						
				HBRRP	FA						
L-F17--73-29 F17 150th Street TPMS ID: 10558	150th Street Bridge Replacement Route: P-166 From: To: /S36-T71-R3	30 0.00 143790	Local New	$ 0 320-Bridges	LCL				120		$120
					FMO						
					SPC						
				LOCAL/FM	FA						
FM-C029(P84)--55-29 P84 Dodgeville Road TPMS ID: 10559	Dodgeville Road ACC Overlay Route: P-84 From: US Hwy 61 To: end of pavement/S15-T71-R3	350 0.30	FM New	$ 0 366-HMA Paving	LCL				100		$100
					FMO						See Notes
					SPC						
				LOCAL/FM	FA						

FIVE YEAR SECONDARY ROADS CONSTRUCTION PROGRAM

For

Des Moines County

[Projected costs in $1000s]

Program Year: 2005

Project Number / Local ID / Project Name	Location / Description of Work / Location/Section-Town-Range	AADT / Length / FHWA #	System / Status	$ Day Labor / Type Work / SPC/FA Types	Fund	Accomp Year FY: 2005	Priority Years 1st FY: 2006	2nd FY: 2007	3rd FY: 2008	4th FY: 2009	$ Total / Notes:
FM-C029(P9)--55-29 P9 Sperry Road TPMS ID: 10560	Sperry Road ACC Overlay Route: P9 From: US Hwy 61 To: end of pavement/S13-T71-R3	700 1.00	FM New	$ 0 366-HMA Paving	LCL				130		$130 See Notes
					FMO						
					SPC						
				LOCAL/FM	FA						
L-0022--73-29 P249 7 Ponds Road TPMS ID: 2157	198th Street (7 Ponds Road) ACC Overlay Route: 198th Street From: Hwy 61 To: Park/S11-T71-R03	340 1.80	Local New	$ 0 366-HMA Paving	LCL				110		$110
					FMO						
					SPC						
				LOCAL/FM	FA						
L-P133--73-29 P133 Plank Road TPMS ID: 10562	Plank Road ACC Overlay Route: P133 From: Burlington CL To: US Hwy 61/S24-T70-R3	500 1.00	Local New	$ 0 366-HMA Paving	LCL				120		$120 See Notes
					FMO						
					SPC						
				LOCAL/FM	FA						
L-P16--73-29 P16 Washington Road TPMS ID: 10561	Washington Road ACC Overlay Route: P16 From: W. Burlington CL To: County Shop Entrance/S27-T70-R3	1230 1.50	Local New	$ 0 366-HMA Paving	LCL				120		$120 See Notes
					FMO						
					SPC						
				LOCAL/FM	FA						
L-ROW--73-29 ROW ROW TPMS ID: 10616	various right of way Route: From: To: /S-T-R	0 0.00	Local Previous	$ 0 311-Right of way	LCL					20	$20
					FMO						
					SPC						
				LOCAL/FM	FA						
FM-C029(H13)--55-29 H13 40th Avenue Bridge TPMS ID: 10565	40th Avenue Bridge Replacement Route: P21 From: To: /S20-T72-R1	60 0.00 144050	FM New	$ 0 320-Bridges	LCL					60	$300
					FMO					240	
					SPC						
				LOCAL/FM	FA						

FIVE YEAR SECONDARY ROADS CONSTRUCTION PROGRAM

For

Des Moines County

[Projected costs in $1000s]

Program Year: 2005

Project Number Local ID Project Name	Location Description of Work Location/Section-Town-Range	AADT Length FHWA #	System Status	$ Day Labor Type Work SPC/FA Types	Fund	Accomp Year FY: 2005	Priority Years 1st FY: 2006	2nd FY: 2007	3rd FY: 2008	4th FY: 2009	$ Total Notes:
L-H12--73-29 H12 240th Street TPMS ID: 10563	240th Street Bridge Replacement Route: P202 From: To: /S20-T72-R1	20 0.00 144040	Local New	$ 0 320-Bridges	LCL					120	$120
					FMO						
					SPC						
				LOCAL/FM	FA						
L-H8--73-29 H8 Hawkeye Road TPMS ID: 10557	Hawkeye Road Bridge Replacement Route: P-200 From: To: /S14-T72-R2	15 0.00 144120	Local New	$ 0 320-Bridges	LCL					200	$200
					FMO						
					SPC						
				LOCAL/FM	FA						
FM-C029(P6)--55-29 P6 Danville Road TPMS ID: 10567	Danville Road Cold in Place Recycling Route: X31 From: NCL Danville To: Mediapolis Road (H38)/S10-T71-R4	500 9.00	FM New	$ 0 366-HMA Paving	LCL					720	$720
					FMO						
					SPC						
				LOCAL/FM	FA						
FM-C029(P64)--55-29 P64 South Prairie Grove Road TPMS ID: 10568	South Prairie Grove Road ACC Paving Route: P64 From: US Hwy 34 To: north 1.5 mile/S30-T70-R4	330 1.50	FM New	$ 0 366-HMA Paving	LCL					150	$150
					FMO						
					SPC						
				LOCAL/FM	FA						
TPMS ID:				$	LCL						$
					FMO						
					SPC						
					FA						
TPMS ID:				$	LCL						$
					FMO						
					SPC						
					FA						

FIVE YEAR SECONDARY ROADS CONSTRUCTION PROGRAM SUMMARY

For

Des Moines County

In thousands of dollars					
Year	LCL	FMO	SPC	FA	Total
2005	906	2,362	400	0	3,668
2006	968	800	0	892	2,660
2007	689	900	0	176	1,765
2008	610	294	0	320	1,224
2009	400	1,110	0	0	1,510
Totals:	3,573	5,466	400	1,388	10,827

Program Year:

2005

PAVING POINT COMPUTATIONS

Des Moines County

Local or FM Route	Project Number	Description/Location	Grade For Pave or Pave	Proposed Program Year	County/District Computations	Funct. Class	Current AADT	Closest Paved Parallel Route	Percent Trucks	Bonus Points	Total Points
Local	FM-C029(29)--55-29	140th Street (Goatman Road) 140th Street (Goatman Road) Route: 140th Street From: Beaverdale Road To: US 34	GFP	2005	County Computation	20	27	10	9	0	66
					OLS Review						
Local	FM-C029(34)--55-29	205th Avenue 205th Avenue Route: 205th Avenue From: 260th Street To: County Line	GFP	2005	County Computation	15	11	10	15	0	51
					OLS Review						
Local	L-002--73-29	152nd Avenue 152nd Avenue Route: 152nd Avenue From: H-40 To: south 1.1 mile	GFP	2005	County Computation	10	8	10	9	0	37
					OLS Review						
Local	L-0028--73-29	205th Avenue Route: X-27 From: 260th Street To: County Line	Pave	2006	County Computation	15	11	10	15	0	51
					OLS Review						
Local	L-003--73-29	152nd Avenue 152nd Avenue Route: 152nd Avenue From: H-40 To: south 1.1 miles	Pave	2007	County Computation	10	8	10	9	0	37
					OLS Review						
Local	RCX-C029(31)--9B-29	Ethanol Road Ethanol Road Route: 0 From: Beaverdale Road To: 155th Avenue to Hwy 34	GFP	2005	County Computation	10	15	0	15	21	61
					OLS Review						
FA and FM	STP-S-C029(C29)--5E-29	140th Street (Goatman Road) 140th Street (Goatman Road) Route: 140th Street From: Danville To: US Hwy 34	Pave	2007	County Computation	20	27	10	9	0	66
					OLS Review						

Notes: 1. Bonus points must be accompanied by letter of documentation.
2. Do not list bridge, culvert and 3R projects.

FIVE YEAR SECONDARY ROADS CONSTRUCTION PROGRAM NOTES

For

Des Moines County

Project Number Local ID	Project Name Description of Work Section-Town-Range / Location1	Notes
L-A5--73-29 A5	Augusta Bridge Augusta Bridge Route: 394 From: 0 To: 0	Shared with Lee County
L---73-29	Des Moines - Henry Avenue Des Moines - Henry Avenue Route: P-19 From: To:	Cost share with Henry County
FM-C029(32)--55-29 PG-7&9	220th Avenue 220th Avenue Route: X-27 From: 0 To: 0	Let/obligated FY04, construction completed FY05
FM-C029(36)--55-29 na	205th Avenue Box Culvert 205th Avenue Route: P-55 From: To:	Let/obligated FY04, construction completed FY05
FM-C029(29)--55-29 140th Street	140th Street (Goatman Road) 140th Street (Goatman Road) Route: 140th Street From: Beaverdale Road To: US 34	west end to be paved
L-002--73-29 002	152nd Avenue 152nd Avenue Route: 152nd Avenue From: H-40 To: south 1.1 mile	Contingent upon Big Hollow Dam Constuction
RCX-C029(31)--9B-29	Ethanol Road Ethanol Road Route: 0 From: Beaverdale Road To: 155th Avenue to Hwy 34	EDA Funding also
FM-C029(P84)--55-29 P84	Dodgeville Road Dodgeville Road Route: P-84 From: US Hwy 61 To: end of pavement	tied with other ACC projects
FM-C029(P9)--55-29 P9	Sperry Road Sperry Road Route: P9 From: US Hwy 61 To: end of pavement	tied with other ACC projects

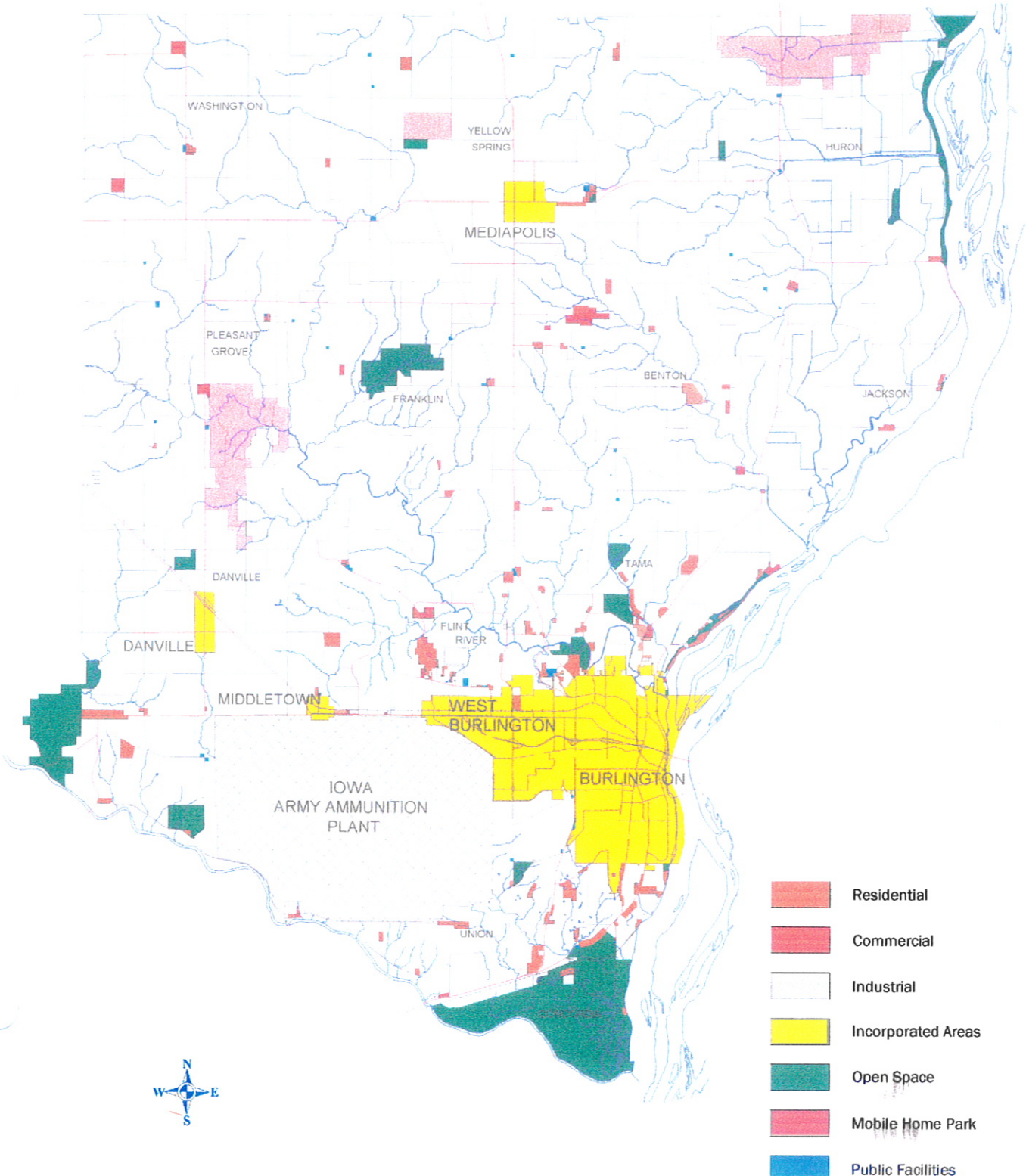
FIVE YEAR SECONDARY ROADS CONSTRUCTION PROGRAM NOTES

For

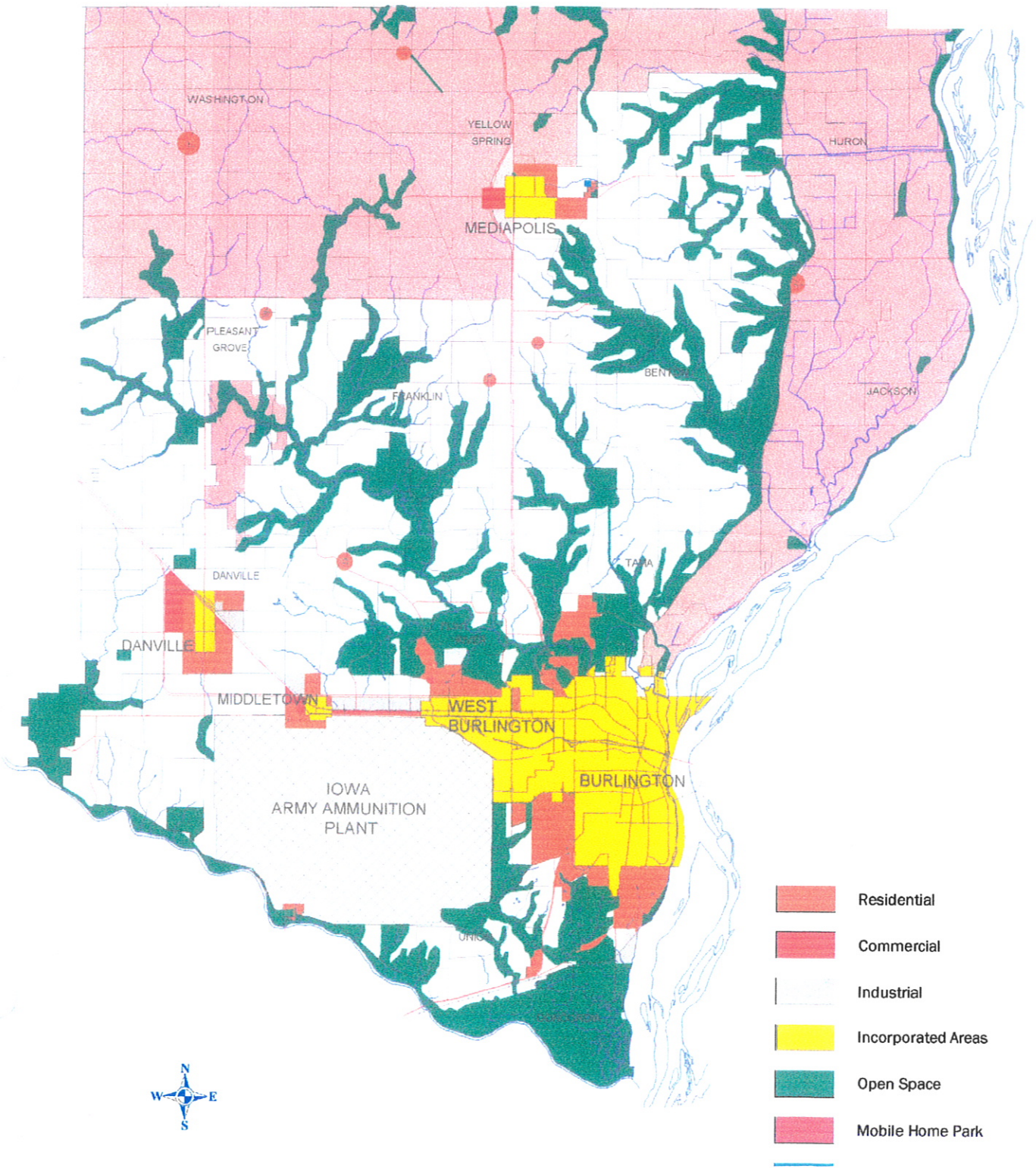
Des Moines County

Project Number Local ID	Project Name Description of Work Section-Town-Range / Location1	Notes
FM-C029(37)--55-29 C29-0018	Flint Bottom Road Flint Bottom Road Route: Flint Bottom Road From: North Gear Avenue To: Highway 61	Let/obligated FY04, construction completed FY05
L-P133--73-29 P133	Plank Road Plank Road Route: P133 From: Burlington CL To: US Hwy 61	tied with other ACC projects
L-P16--73-29 P16	Washington Road Washington Road Route: P16 From: W. Burlington CL To: County Shop Entrance	tied with other ACC projects
L-0028--73-29 C29-0028	205th Avenue Route: X-27 From: 260th Street To: County Line	Connection via Louisa County to IA 78
L-003--73-29 003	152nd Avenue 152nd Avenue Route: 152nd Avenue From: H-40 To: south 1.1 miles	Contingent upon Big Hollow Dam Construction

Appendix-B
Existing Land Use
Des Moines County



Appendix-C
Future Land Use
Des Moines County



Appendix D Des Moines County Survey Summary

To complete the survey circle or check your response. Please do not write your name or address on the survey. Thank you for your time it is appreciated.

	Very High	High	Average	Low	Very Low
1. Taking all things into consideration, how would you rate your overall quality of life in Des Moines County?	6	53	48	4	1
How do you rate Des Moines County as a place to live?	10	51	43	7	1
How do you rate Des Moines County as a place to raise children?	14	52	41	2	1

Demographics

2. Please indicate your gender. 1. Male 77 2. Female 33

3. Do you own property in Des Moines County? Yes 111 No 1

4. What is your household income?
   1. Less than $9,999 2
   2. $10,000 to 14,999 4
   3. $15,000 to 24,999 6
   4. $25,000 to 34,999 15
   5. $35,000 to 49,999 25
   6. $50,000 to 74,999 27
   7. $75,000 to 99,999 10
   8. $100,000 or more 12

5. What is your age? Average

6. Indicate the number of people living in your household, including yourself. 1-19 2-56 3-16 4-13 5-8 6-0 7-1 8-0

7. How many children under the age of 18 years live in your home? 1-13 2-9 3-2 4-0 5-0 6-0 7-0 8-0

8. How long have you been a resident of Des Moines County?
   1-5 Years-1 6-10 Years-2 11-15 Years-6 16-20 Years-3 21-25 Years-9 26-30 Years-9
   31-35 Years-7 36+ Years-78

9. What is your **Primary** occupation? Check here if retired _____
   1. Agriculture 21 2. Finance 3 3. Government 3 4. Retail sales 4
   5. Management 5 6. Manufacturing 17 7. Education 4 8. Medical/health 4
   9. Clerical 3 10. Utilities 1 11. Construction 2
   12 Transportation (e.g. trucking) 0 Other (please specify) Retired 37

10. What is the highest level of education you have completed?
    1. Elementary(below 9th grade) 6 2. High School, no diploma 4 3. High School, diploma 37
    4. Some College, no degree 21 5. Junior College or Vocational/Trade, associate degree 16
    6. Four Year College/University, bachelor degree 15 7. Graduate School, master or professional degree 10

11. Where do you work?
    1. In Des Moines County or within 2 miles of Des Moines County 72
    2. Within 2-10 miles of Des Moines County 5
    3. Within 11-25 miles of Des Moines County 4
    4. Greater than 25 miles of Des Moines County 2

County Facilities & Services

12. On a scale from 1 to 5, with 1 being very satisfied and 5 being very dissatisfied, please circle your level of satisfaction concerning community services in Des Moines County. If you do not know an answer, leave it blank. Feel free to make additional comments at the end of this section.

	Very Satisfied		Average		Very Dissatisfied
1. Condition of County Roads	12	25	47	17	11
2. Quality and Accessibility of Parks/Recreational Areas	15	36	45	10	2
3. County Sheriff Department service	21	41	35	10	2
4. Ambulance Service	36	37	27	6	1
5. Quality of Recreational Programs	10	19	55	10	4
6. County Health Department	8	26	51	8	4
7. County Courthouse	13	28	43	15	5
8. County Assisted Independent/Dependent Living Duplexes	4	11	36	9	1

Comments: Refer to page 153 for comments.

13. How would you prioritize the following items? Please indicate your top priority with 1 and your least important item with 10. (The lower the number the higher the priority.)

322	Resurfacing Existing Roads	682	Technology (internet, etc.)
785	Public Transportation	619	Safety
685	Bike Pedestrian Paths/Trails	603	Daycare
309	Park Enhancements (existing)	723	Medical Services
373	Recreational Facilities (additional)	575	Mental Health Services

Comments: Refer to page 154 for comments.

14. On the following services, where would you like to see more, same or less money spent in the next 5 years? (Circle the number of preference in each category.)

	Less	Same	More
1. Fire Protection	2	87	20
2. Public Safety (Law Enforcement)	7	67	33
3. Emergency Services (Rescue and Ambulance)	2	72	34
4. Planning and Development	28	49	24
5. Inspections/Code Enforcement	38	56	10
6. Recreational Programs	26	59	19
7. Parks/Recreational Areas	22	58	24
8. Programs for the Elderly	17	56	33
9. Arts/Cultural Programs and Events	27	62	18
10. General Countywide Clean Up	6	55	46
11. Public Transportation Services	19	67	21
12. Economic Development (Countywide)	19	43	45
13. Medical Care Services	7	69	29
14. Mental Health Services	10	71	25
15. Landfill and Recycling	9	60	25
16. Other:	1	0	4

Economic Development

15. Should additional resources (time/effort/money) be spent to *attract more businesses and retain existing?*

	Less	Same	More
1. Time	2	33	73
2. Effort	2	27	78
3. Money	13	39	56

16. Should additional resources (time/effort/money) be spent for *land conservation*?

	Less	Same	More
1. Time	11	51	43
2. Effort	9	47	48
3. Money	15	50	38

17. Should additional resources (time/effort/money) be spent for *transportation (i.e. regional airport)*?

	Less	Same	More
1. Time	27	62	18
2. Effort	26	58	21
3. Money	34	59	11

18. Should additional resources (time/effort/money) be spent for *tourism?*

	Less	Same	More
1. Time	30	62	16
2. Effort	29	61	16
3. Money	37	60	10

19. Do you want Des Moines County to become a growing county or remain the same?
    1. Remain the same 31
    2. Growing County 72

20. Please list two reasons why you like living in Des Moines County.

    1. Refer to pages 154-157 for comments.

    2. _____

21. Please list two things you would like to change about Des Moines County.

    1. Refer to pages 157-161 for comments.

    2. _____

22. Please make any additional comments: Refer to pages 161-164 for comments.

_____

_____

_____

_____

_____

_____

_____

Question 12 Comments:

- Courthouse hard to get parking – continued money spent on things with county roads (i.e. raceways road) then tore up and put back to previous.
- Need more paved or blacktop roads.
- Our county courthouse is very capable of handling all county business in this computer age. Remodeling is acceptable.
- Courthouse should be open until 6 p.m. M-F or one evening per week until 8:00 p.m.
- Roads – too much crown on the road, ripples, windrows left out in the road. Someone is going to have a wreck.
- Railroad crossings are needing attention, very poor I feel the county should pressure the RR into repairing these crossings (Washington Road, Beaverdale Road).
- They are very expensive.
- Operators of road graders need to be trained in how to grade a road. It is almost impossible to dodge 10-inch clumps of dirt and gravel left in the middle of the road. This is not just an occasional thing. It is every time.
- Too many steps in courthouse.
- The Sheriff's Department lacks greatly in the thought process in that in the middle of the night you don't go pounding on doors and windows and shining lights therein… but make a phone call first. I've had first hand experience with their lack of consideration and was going to call the cops thinking someone was trying to break in, so I didn't go to the door.
- We do not need to build a new courthouse. It should be moved to an existing building–all on one floor and with ample parking. Example–Wards, Eagles, Festival Foods, old Wal-Mart etc.
- I live in rural area (for nearly 35 years). I would like to slow or eliminate rural residentials. They generate pollution, additional cars, additional water needs, and all of these raise my cost of living.
- Staff at Health Department is always very unfriendly and unhelpful. This is when I've taken my children for vaccinations. Flu vaccinations have been positive experience.
- Irish Ridge Road gets a lot of traffic and should receive a little more attention than it does.

Question 13 Comments:

- For 32 years living on Irish Ridge Road we were told it was to be paved–it finally got paved so the golfers wouldn't have to endure the dust and mess. What about the residents who actually live out here–when are you going to get off your duffs and get it done.
- All 4–10 should be paid for by user fees not taxpayer dollars.
- Satisfied with all.
- No not support airport authority.
- No place for recreational vehicles to ride such as motorcycles or 4 wheelers besides public highways or private property.
- There definitely needs to be outdoor things for people to do. Our population is overweight and health and fitness should be stressed. This would reduce insurance costs as a whole for health and medical.
- Get those bikers off of 99–too hilly.
- Southeast Iowa medical cost run traditionally higher than remainder of the state, therefore insurance providers are getting bilked or refuse to pay higher fees or cost.
- Some of these aren't even in my top 100. Such as bike paths and trails.
- We need to spend more money on the county roads.
- County roads really 'suck' dusty, manholes not pot holes, only the chosen few get sap.

Question 20. Please list two reasons why you like living in Des Moines County.

- Good schools
- Low crime
- Enjoy history and architecture available in area.
- Relaxed, Midwestern lifestyle.
- Available outdoor recreation.
- The people are friendly.
- In general it is a clean county. I like to way they keep the roads and the ditches clean.
- My home has always been here.
- I own land here.
- Country is nice.
- Quiet
- Because it is a growing county.
- The rural areas are safe and quiet to live in.
- Provide most services people need.
- It is not zoned.
- Basic services are available.
- Good place to live and work.
- Good schools
- Friendly people

- We like living in a rural setting.
- I grew up here.
- Clean air
- Lower taxes
- It's where my roots are.
- Feel fairly safe from harm.
- Good public safety–good library–good hospital.
- Good schools–growing community college.
- Quiet
- Relatively low crime per capita.
- Can't afford to move.
- Have friends here.
- People
- Small towns
- Plenty to do–good schools.
- Quality of people.
- Good place to raise children.
- My work is here.
- I like what the area has to offer.
- Small rural area.
- Good schools
- Quiet
- Rural
- Family
- Work
- The roads are reasonably maintained in the rural area.
- The people are friendly.
- People in general are nice.
- A nice town, close to the river, and in a few minutes you're in the country.
- I like living in a rural area.
- Safe and peaceful.
- Provided jobs for both husband and myself.
- It is very peaceful and quiet where I live.
- We are close to our family.
- Clean
- Friendly
- Safety
- Quality of school district–Danville.
- Close to family.
- Des Moines County road bladders do an excellent job!
- Raised here, family
- We like the quiet and peace.
- No close neighbors
- We own a farm here.
- Smaller community–good schools
- Schools–(West Burlington)
- Safe place to raise family.

- All I have known.
- Small
- Very few zoning laws.
- A county that takes care of its residents.
- Friendly people
- It has been my dome for most of my life and I just love it here!
- Not crowded in the area where I live.
- Clean air
- Healthy environment
- Farm community
- Came in 1942 to work at IAAP stayed to raise my family–my children are here.
- Less pollution
- People are friendly.
- Rural atmosphere
- Family close
- That's where my home is.
- My friends are here.
- I like living in the country.
- Safety
- Family is near–country living.
- Where my house is.
- Been here 42 years.
- Close to family.
- It is better than Louisa County.
- I have a job.
- I live in the country and have privacy.
- I like the schools.
- Feel safe here.
- Has been my lifetime home.
- Safe living
- Friendly neighborhoods, good people.
- Safe community
- Clean
- Not much crime.
- No big city or traffic.
- Quiet
- Peaceful
- It has a rural flavor.
- Its draw is quality of life.
- Rural setting, rural life, the college.
- Proximity to hospital, groceries, fuel, basic needs are adequate in Des Moines County and for me two miles away.
- Not crowded
- Clean area
- Various activities to attend.
- Work at CNH, which is about gone to scabs.
- The people

- I live in rural Des Moines County because I have no neighbors for acres (I love my privacy).
- The people, traffic, hubbub, and noise can stay in Burlington, Mediapolis, etc. taverns, Wal-Mart's, congestion, 3:00 rush hour etc
- Close to Burlington for shopping.
- Close to river elevator for better price for grain.
- Close to river for hunting and fishing purposes.
- Quiet, friendly
- Opportunity to make a living and work with decent people.
- Fishing and hunting
- 'Small town' way of life.
- Most of my family lives in the area.
- We like country living.
- We enjoy freedom to live without somebody on our tart all the time.
- Natural Resources–Forests, Rivers, Wetlands
- History and cultural resources
- Relatively a safe, clean county.
- It is a quiet place with friendly people.
- Shopping is easy accessible.
- All my family lives in area.
- Shopping and medical
- Quiet lifestyle
- Community
- I grew up here.
- I like the area.
- I have friends and family in the county.
- Dust, hog lot smell, wasted money
- High taxes

Question 21. Please list two things you would like to change about Des Moines County.

- Gravel/dirt road maintenance
- Increase number of county supervisors
- Make courthouse more customer friendly and efficient.
- Inability to reach consensus on community issues–library, riverfront.
- Get rid of riverboat gambling–it doesn't pump money into the community–it sucks it out.
- Better paying jobs.
- The management should listen to the people not just go ahead and do the things they want.
- I am not happy with the way convenient stores are allowed to sell beer.
- We should prosecute drug user more severely.
- I would like to see Irish Ridge Road paved till it meets Stoney Hollow.
- Like to see all the junk cleaned up or made to be cleaned up.
- Lower taxes

- More paved roads.
- More recreation–lakes and ponds.
- Would like to see lower taxes.
- Refrain from airport involvement (including funds).
- The way the elected leaders want to spend tax dollars on downtown Burlington. Get rid of the gambling boat.
- I would like to see rock roads changed to hard surfaces.
- Lee concern about tourism.
- Lower property taxes
- Better roads
- Better qualified supervisors
- Land use plan
- Tim Diewold
- Ben Hoschek
- Have more jobs available to keep our children here.
- Try to attract more new industry.
- Replace supervisors with a county manager.
- Lower real estate or property taxes.
- The roadside man who insisted every living thing in ditches be cut away–thus losing our dust barriers. He even has proclaimed he would like to see every thing at least 150 feet from road removed. Let's remove him. He ignores "Don't mow or spray" signs–(let's ignore him: How?) He says these signs are meaningless. So why did previous people feel they were good and had them installed to try to protect roadside beautification!
- Clean up junkyards.
- Clean up hog confinements.
- More AG friendly
- Less taxes
- More small businesses
- Unions driving industry out of county.
- Spend less money on county level.
- Don't develop Big Hollow! Leave it the way it is. Just use money to develop what you already have there. It will just turn into another Geode or 7 ponds.
- Taxes too high.
- Control the dust on gravel roads!
- Clean up Lake Geode
- Better paying jobs
- Spending county monies on the city of Burlington.
- More high paying jobs. We are losing too many of our young people. If this continues we will not be able to support our services.
- More involvement in neighborhood watch programs.
- More jobs for Des Moines County.
- The amount of abandoned stores and buildings.
- Wish Burlington leaders could work together and attract more new businesses or companies that would employ more of our residents.
- This area is extremely lacking in unique, upscale shops and restaurants.
- Hard surfacing of county roads.

- County road
- City streets
- I would like to see people be more cooperative.
- I would like to see more pride in our surroundings. Clean up cities and countryside. Des Moines County has a very blue-collar attitude. People are living and spending for today and not planning for the future.
- Take a lot of sports out of schools.
- Lower property tax.
- County roads need resurfacing.
- Re-surface gravel roads where appropriate.
- More teamwork–less political.
- The loss of young people moving.
- Property taxes for farms are too high.
- Blacktop more rural roads.
- Treat all rural roads to control dust.
- Need less regulations and restrictions.
- Quit trying to spend more money on moving the courthouse offices.
- Bring more jobs in–instead of losing them.
- Better paying jobs and try to keep the higher paying jobs here–case (GE) you are losing a lot of high paying GE jobs and no one has done anything to try and stop it.
- I think Burlington need to pull their head out of their *** and bring better paying jobs to town and more shopping stores like Meiser's, Home Depot, Old Navy etc. When I moved here from Naperville, Illinois, Burlington and Naperville were the same size–now Burlington is smaller and has lost jobs and businesses and Naperville is growing by leaps and bounds–over 134,000 people. What happened? Live here over 23 years and I'm here because of my job. If I lose that we're gone!
- Find a way to lower property taxes.
- Surface existing roads where people have built homes.
- A more considerate, outgoing law enforcement.
- Too many deputies hiding out in the sheriff's office.
- Add more manufacturing
- More housing developments
- Do something about junky trashy properties with old cars, etc.
- Less sales tax
- More small business incentives–not just big business or farming welfare.
- Establish some form of county zoning.
- New businesses
- More job opportunities
- See some representation on all boards and committees other than residents of Burlington.
- Lower taxes
- More jobs that pay well
- Cut back on all the extra county personnel.
- Taxes
- More outside activities

- Better upkeep of rural roads
- Lower property taxes
- More rural representation of Board of Supervisors.
- Clean up junkyards.
- Lower taxes
- Too few supervisors/county government form.
- Get the boat out of Burlington to reduce bankruptcy cases.
- Taxes
- Kick out the old and bring new fresh ideas.
- Have the amusement park again.
- Put more fireplaces at the park for cooking.
- Better marketing of local and community events.
- Continue to cut the brush in the right-of-way and spray for weeds and brush.
- Lower taxes
- Occasional pick up of toxic materials and appliances.
- More jobs
- Growth
- Lower taxes
- Cut back on development
- Fewer bureaucrats and county employees.
- Lower taxes
- Supervisors outside of Burlington–no current representation in Danville or Mediapolis.
- Pay less taxes
- Less concern with pulling in visitors.
- More concern about creating jobs.
- As stated before, stop the rural, mushroom growth, grow the city of Burlington, north stop the taking of farmland for malls.
- Improve education; grow the college (SCC) to four-year program.
- Zoning
- Too many tax on landowners.
- Property taxes
- Please place oil in front of all rural homes.
- Better roads
- Less taxes
- Attract less burger places and better jobs.
- Police enforcing OWI and not real crimes.
- Step up the patrolling of county roads by Des Moines County law.
- Removal of old, abandoned, dilapidated houses and buildings by owners. They're eyesores and could attract meth labs and the like.
- Better access to Mississippi and recreational parks.
- Better county road service and maintenance.
- Lower taxes
- Better snow removal
- Need more public hunting and fishing, lake at Big Hollow would be good.
- Better maintained roads
- More industrial jobs

- Less crime
- It's inability to attract good paying factory jobs.
- A decrease in the manufacturing and distribution of illicit drugs.
- Improve main county roads.
- Five supervisors instead of three.
- Land Use policy – Need zoning
- The school systems – more discipline in them.
- Discipline carried out so some kids don't have to take of situations themselves.
- Property taxes
- Sales tax
- Hard surface more county roads.
- Taxes lowered
- Conditions of gravel roads–needs to be resurfaced.
- County roads could be ALL seal coated.
- County employees should have to pay medical insurance!

Question 22. Please make any additional comments.

- I would like to see the county increase in population, quality jobs, culture and other quality of life areas. If and as the county grows, it loses the values that make Des Moines County what it is, it will be a hollow growth.
- Why would anyone in the state of Oregon want to come to Burlington to see a replica of the state capitol? Whoopee!! The Postal Service is raising the price of stamps. So how do you justify tearing down the post office? Who's paying for a new one? The Boat goes to Ft. Madison in the summer. Who's going to be in this hotel you want to build in place of the existing Post Office. What's pulling them into Burlington? A replica of the state capitol. Anytime you have anything downtown Burlington, you have to have a beer tent. Is that the only way you can get people there? And you wonder why the kids of Burlington have a drinking problem. You're really showing them to have a good time.
- The City of Burlington should be much more aggressive in there planning to get things done to attract new business.
- More time needs to be put into some of your projects. We do have to pay taxes yet some of the things that have been done and expense to see then tore back up within several years could have paved all the county roads–I would like to see all county roads paved.
- Would like to retain only three members on Board of Supervisors. Limit the city of Burlington from expanding its boundaries into county zone. Would like to see our way of life maintained and preserved, not caught up in big money growth in expansion and population.
- The airport should be paid with a rider charge-$5 per ticket x 20,000 annual passenger = $100,000. Hotel-motel tax should be used to promote Burlington. No advertising is in Midwest living and AA–Home and Away magazines. Too much of hotel/motel tax is used on salaries/staff. Big Hollow Recreation should have daily, weekly, monthly, or annual charges to pay for

development/upkeep. Any or all bike paths/trails should have user fees attached, as does RecPlex. There is too much tax dollars being paid on government employees wages, benefits in bad farm economy and factory layoffs and closing times everyone should tighten the belt and do with less during hard times. County Supervisors should hire budget manager and pay for him/her with cut in their part time salaries to $15,000 per year max and no health insurance.

- The roads are so dusty; we can't sit in the yard or open our windows. Sooner or later there will be a tragedy. We rural people pay a large amount of taxes. Stop digging out the ditches and do something about the roads.
- Laws to protect homeowners from unkempt construction sites and hog lots, junk dealers, etc., that live in subdivision outside city limits.
- The quality and direction of the board of supervisors leaves much to be desired.
- It's a large enough place that you don't know everyone, but small enough that you can trust many people.
- Moved here 35 years ago–all 3 children and family stayed here.
- Plan to retire soon will probably be moving to another state–taxes keep going up and won't be able to afford to live in our (paid for home) not farmers.
- Work faster on Big Hollow recreational project.
- Spread the zoning laws no further. Do not encroach upon the rural areas.
- I believe our county should not give any support to the proposed alcohol plant. Of the plant is built in Illinois it will provide more high paying jobs for construction workers in our area. They have requested funds to build the plant from the state of Illinois, which would result in the contractor paying prevailing wage. This is sad but true.
- This county is our original home, but for 8 years, we lived in a larger, more affluent community in Kentucky, returning to this area in 1997. We very much like our quiet, country subdivision north of Burlington. But otherwise, this area leaves much to be desired. There is no economic growth. In fact, the best jobs are leaving. The area faces a difficult and challenging situation as the population shifts to mostly seniors/elderly and those working in minimum/low wage jobs. The state needs to dramatically change to a pro-business/economic development focus or people like us will continue the flight to communities that offer a better quality of life. We fully expect that in 5 to 10 years, we will leave Iowa. Very high tax rates on property and income, combined with few public services and weak economic vitality, forms a significantly lower quality of life than can be found elsewhere.
- We have lived in our present home for 19 years–road is always on 5 year plan for resurfacing–not done yet.
- Hesitate to retire here.
- Common sense less extravagant.
- Too much money spent on planning and re-planning not enough original study before hiring the expensive (contractors) etc. to do and redo plans. Seal coat or pave all county roads.
- Would like to see people next door keep up their part of fences to keep livestock in. We keep up our part but they don't.

- Forget noise ordinance–we don't know new regulations–if a handful of people who moved from Burlington to avoid the taxes keep wanting more and more regulation in the rural areas maybe they should move back to town.
- Iowa has a stagnant economy and if we reduce the out go on the farm aid programs we would let the farmers sink or swim–so many farmers are on the take and don't even begin to put in the hours we do as small business owners who have been hit hard by the economy that started a down turn in Clinton's Administration.
- Is this town dying?
- I would like to see more gravel put on road 130 east of 61.
- Bring in more industry that pays a living wage.
- Be nice to have a little tree sap after the gravel.
- It would be nice if you could publish the criteria that determine the upkeep of the rural gravel roads. A portion of each tax payers taxes are supposed to go to maintaining roads. Why is it that if you have money, you road is better maintained than the less influential people. Why do some heavily traveled roads get dust control while others less traveled see dust control every few weeks! The farm to market road I live on has not had dust control for at least 4 years. It is dangerous to drive when you can't see because of the dust!
- Burlington is known as a 'click' community. Poor! In growth and development. High rate of bankruptcy and low wage. Why? Why can't we grow?
- I am a Des Moines County resident, and I do not want the county to cave in to Burlington to help support their regional airport.
- Burlington tries to control Des Moines County.
- County employees are paid too much.
- Taxes are increasing too fast.
- We've got some really poor supervisors at courthouse.
- Even though I have marked less money required above, I do believe if all work together, money need not be exorbitant on attracting.
- A bike path is needed in Burlington or county area.
- Economic development must not be needed, because people seem to have <u>all</u> or <u>more</u> luxuries than they can use. $200,000 plus homes and 2–$35,000-$50,000 cars plus a $15,000 boat so they need 3 garages.
- Thanks for asking for our input–Good Luck!
- I want rural Des Moines Co. to stay rural: no annexing anymore rural to gain a stronger tax base.
- No more dumping on private property.
- Stricter enforcement and penalties for dumping and littering along roadsides.
- More roadside preservation (like Pheasants Forever)
- No more roadside spray/brush killer. No chemicals!!!
- We need to take advantage of opportunities when they arise. The non-use of the BMC facility to house county offices is very unwise decision. We do not need to spend more money purchasing equipment to maintain temporary roads. We do not need to spend big bucks on the upper floor of the courthouse.
- The enforcement department is on top of things and check out calls quickly and they have been very courteous to people.

- We as families (speaking on behalf of all our friends in this county) believe the taxes are wiping us out financially. Especially school and college taxes. Why should we pay more and more each year for education but receive less. This county is too liberal in it's spending.
- We feel Des Moines County needs to move forward with the County nuisance laws, to get people to clean up properties that are not only an eyesore to those that live around them, but also directly affect property values, quality of life, and the beauty of rural areas in Des Moines County. We have live in Pleasant Grove for 8 years and have seen a beautiful small community go to a very low class of life because of one member that has brought old discarded buildings, trailer houses, vehicles, and overall junk, and just dumped them on his property with no consideration of what he is doing to his neighbors, the ground water, safety and welfare of the community, destroying the beauty of the surrounding area. At present just driving the streets to get into our little community of approximately 12 homes, you are forces to drive by Mr. *****'s property from any direction into town. From the street view, you can count approximately 35-40 abandoned cars, some with batteries setting on top of them, 12–15 buildings, most brought in and unsafely parked or setting on the ground, 10–15 unused trailer houses, many with broken windows. There is miscellaneous junk such as car motors laying on the ground, unused discarded bath tubs, carious old appliances, all sorts of metal, broken glass, old trailers, lawn mowers, wood wooden railroad ties that have been soaked in creosol, all laying around on the ground affecting the ground water. All of this is unsafe to the people in the area and endangering the 9 children that reside in the community. Some of the vehicles and junk material is over the designated roadway and on County property. At times you have a hard time driving by the area as Mr. ***** feels free to full vehicles on the street for whatever reason, blocking the road. In addition, Mr. ***** has been adding to his junkyard utilizing property across from his home, that to our knowledge belongs to Mr. ***** who lives in Burlington, doubling the problem. As tax paying residents of rural Des Moines County we are asking that some action be taken. We would appreciate a follow up regarding this problem, and a response as to what is being done to stop this activity and clean up the area.
- The supervisors need to spend what the state of Iowa mandates and no more. They spent over $250,000 last year on extra stuff that didn't need to be spent. That way they could spend that money elsewhere. The county and city need to work together to get business into the area. It seems that everyone is looking short term at these situations and not looking ahead 5 to 10 years. The people that are making the decisions are not thinking of the dollars the employees of more jobs would bring to the community, but they only think of what tax dollars can we get from the businesses. It is time to do something. It may already be too late.