

Appendices:

A – Background Information reprinted from

“Woodbury County -- Comprehensive Development Plan – 2003”

Prepared by JEO Consulting Group, Inc.

B – Summary of Public Comments received at Town Hall Meetings

B-1 – Sloan Town Hall Meeting, March 15, 2005

B-2 – Correctionville Town Hall Meeting, March 17, 2005

B-3 – Sergeant Bluff Town Hall Meeting, March 19, 2005

B-4 – Merville Town Hall Meeting, March 22, 2005

B-5 – Written comments received in March, 2005

B-6 – Written comments received in June & July, 2005

APPENDIX A

BACKGROUND INFORMATION

REPRINTED FROM

COMPREHENSIVE DEVELOPMENT PLAN
PLANNING TOWARDS 2023

PREPARED FOR

WOODBURY COUNTY

BY

JEO CONSULTING GROUP, INC.

GENERAL BACKGROUND

LOCATION

Woodbury County is located in Northwestern Iowa. Much of the County is located in the Loess Hills region of the State. Woodbury County is bounded on the north by Plymouth and Cherokee Counties, on the east by Ida County, on the south by Monona County and on the west by Thurston and Dakota Counties in Nebraska, and Union County in South Dakota. The Missouri River flows along the western border of Woodbury County, forming the boundary between Iowa and Nebraska.

Several highways traverse Woodbury County. Interstate 29 runs along the Missouri River on the western border of the County. U.S. Highways 75 and 20 enter Iowa in Sioux City in extreme northwestern Woodbury County. U.S. Highway 75 travels northeast into Plymouth County, and U.S. Highway 20 travels east into Ida County. State Highway 31 enters Woodbury County in the northeast corner and travels south along the Little Sioux River. State Highway 141 runs along the southern border of the County. State Highway 982 begins in Sioux City and travels in a southeast direction. These three State Highways converge in Smithland, in southeastern Woodbury County. State Highways 982 and 31 terminate in Smithland, while Highway 141 continues in a southeast direction into Monona County. Two other state highways cross Woodbury County. State Highway 140 begins in Moville and travels northeasterly along the West Fork of Little Sioux River into Cherokee County. State Highway 175 cuts across the southeast corner of the County, following the Maple River and traveling through Danbury.

CLIMATE AND TOPOGRAPHY

The climate of Woodbury County is typical for much of Iowa. The average annual maximum temperature is 59.2 degrees (F), and the average annual minimum temperature is 37.7 degrees (F). The typical temperature range goes from an average low of 7.7 degrees (F) in January to an average high of 86.5 degrees (F) in July. Temperature extremes often reach near 0 degrees (F) and 100 degrees (F). Average annual precipitation for Woodbury County is 25.86 inches of rain, with over half of the amount falling between the months of May and August. The average annual snowfall in Woodbury County is 32.7 inches, with the month of March receiving the highest average of 7.5 inches.

Woodbury County covers approximately 873 square miles, or 558,720 acres. Woodbury County is located in the Loess Hills region of western Iowa. This area is characterized by hill formations that resemble snowdrifts. The hills were actually formed in a similar fashion; blowing wind created piles of loess material left over after the glaciers retreated. Another unique feature of the loess hills region is the formation of kindchen. Kindchen is a German word that means "small people." Loess kindchen are calcium carbonate formations created when limestone particles are carried through the soil by water, then attach themselves to the roots of plants. Due to the irregular shape of roots, these formations sometimes resemble human forms. The Loess Hills are also known for their catsteps. These are "steps" in the

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hillsides formed by sloughing, a sort of mini earthslide caused by the lack of clay particles in the soil.

Woodbury County is home to many rivers and streams. The largest rivers in the County are the Missouri, Little Sioux, the East and West Forks of the Little Sioux, and the Maple River. Six different watersheds drain storm water and melted snow in Woodbury County. This water is either drained into stream and lakes, wetland areas, or into groundwater reserves.

HISTORY OF WOODBURY COUNTY

Woodbury County is named for Levi Woodbury (1798 – 1851). Levi Woodbury was a United States Congressman from the State of New Hampshire. He also served as Secretary to the U.S. Navy from 1831 – 1834, and Secretary of the Treasury from 1845 – 1851. He was an Associate Justice of the United States Supreme Court from 1845 until his death in 1851. He was also the Democratic nomination for President in 1848.

In 1851, the Iowa State Legislature established a new County encompassing some existing settlements. The County was named Wahkaw. In 1853, the Legislature passed an act that organized the County, and re-named it Woodbury, after Levi Woodbury. The communities of Sergeant's Bluff and Floyd's Bluff fought for the county seat, and Floyd's Bluff eventually became the county seat in 1853. In 1854 a new town was platted, Sioux City. By 1855, Sioux City had a Post Office and a General Land Office. The voters of the County approved moving the county seat to Sioux City in 1856. At that time, Sioux City had two hotels, one sawmill, one bank, and a population of 150 people. Sioux City eventually became an important transportation hub due to its location along the Missouri River, and the installation of six rail lines in the town.

COUNTY ASSESSMENT: CONDITIONS AND TREND ANALYSIS

DEMOGRAPHIC PROFILE

Population statistics aid decision-makers by developing a broad picture of Woodbury County. It is important for Woodbury County to understand where it has been and where it appears to be going. Population is the driving force behind housing, local employment, economic, and the fiscal stability of the County. Historic population conditions assist in developing demographic projections, which in turn assist in determining future housing, retail, medical, employment and educational needs within the County. Projections provide an estimate for the County and from which to base future land-use and development decisions. However, population projections are only estimates and unforeseen factors may effect projections significantly.

POPULATION TRENDS AND ANALYSIS

An analysis of population trends includes looking at historical data from various different perspectives. Each perspective offers another basis for understanding how or why population changes occurred. Each basis, then, can be combined with others to develop a broad, overall picture of what factors were most important in the changes seen in Woodbury County's population.

TABLE 1: POPULATION TRENDS, WOODBURY COUNTY & COMMUNITIES, 1970 THROUGH 2000

Community	1970	1980	% Change 1970 to 1980	1990	% Change 1980 to 1990	2000	% Change 1990 to 2000	% Change 1970 to 2000
Anthon	711	687	-3.4%	638	-7.1%	649	1.7%	-8.7%
Bronson	193	289	49.7%	209	-27.7%	269	28.7%	39.4%
Correctionville	870	935	7.5%	897	-4.1%	851	-5.1%	-2.2%
Cushing	204	270	32.4%	220	-18.5%	246	11.8%	20.6%
Danbury	527	492	-6.6%	430	-12.6%	384	-10.7%	-27.1%
Homick	250	239	-4.4%	222	-7.1%	253	14.0%	1.2%
Lawton	406	487	20.0%	482	-1.0%	697	44.6%	71.7%
Moville	1,198	1,237	3.3%	1,306	5.6%	1,592	21.9%	32.9%
Oto	203	172	-15.3%	118	-31.4%	145	22.9%	-28.6%
Pierson	421	408	-3.1%	341	-16.4%	371	8.8%	-11.9%
Salix	387	429	10.9%	367	-14.5%	370	0.8%	-4.4%
Sergeant Bluff	1,164	2,416	107.6%	2,772	14.7%	3,321	19.8%	185.3%
Sioux City	85,925	82,003	-4.6%	80,505	-1.8%	85,040	5.6%	-1.0%
Sloan	799	978	22.4%	938	-4.1%	1,032	10.0%	29.2%
Smithland	293	282	-3.8%	235	-16.7%	221	-6.0%	-24.6%
Incorporated Areas	93,551	91,324	-2.4%	89,680	-1.8%	95,441	6.4%	2.0%
Unincorporated Areas	9,501	9,560	0.6%	8,596	-10.1%	8,436	-1.9%	-11.2%
Woodbury County	103,052	100,884	-2.1%	98,276	-2.6%	103,877	5.7%	0.8%

Source: U.S. Census Bureau, Census of Population and Housing, 1970 - 2000

Table 1 indicates the population for the incorporated communities in Woodbury County, the unincorporated areas, and Woodbury County as a whole, between 1970 and 2000. This information provides the residents of Woodbury County with a better understanding of their past and present population trends. This information also becomes the basis for projecting future populations. Woodbury County's population in 1990 was 98,276 persons, which was a decrease of 2,608 persons, or -2.6%, from 1980. The County's population in 2000 was estimated to be 103,877, an increase of 825 persons, or +5.7%, over 1990.

Table 1 indicates Woodbury County had a net increase of 825 persons, or +0.8%, between 1970 and 2000. This was driven primarily by a numerous decrease in municipal populations from 1970 to 1990, which were offset by population growth in a number of cities between 1990 and 2000. This means that increases in many of the cities offset most, but not all, of the countywide losses that were experienced during the early part of the period. In addition, while the population of the unincorporated area increased slightly during the 1970's, it experienced substantial declines over the next 20 years, with the population decreasing 10.1% during the 1980's and 30.2% during the 1990's respectively.

Woodbury County's population decreased by a greater percentage between 1980 and 1990 than it did between 1970 and 1980. This indicates the County is potentially faced with continued population loss but the trend appears to have reversed by the 2000 census, indicating an increase of 0.8% during the 30-year period. Seven of the fifteen incorporated cities in Woodbury County were estimated to have increased in population between 1970 and 2000. Only one of the seven incorporated cities, Hornick, is estimated to have increased at a rate lower than 15.0%. The remaining six communities were estimated to have grown by an average of 51.2% between 1970 and 2000. Sergeant Bluff is shown to have the greatest rate of growth at 185.3%. These large growth rates indicate Woodbury County should be growing as a whole, however, as previously mentioned Woodbury County had only gained 825 persons, or +5.7% during this time.

Between 1990 and 2000, estimates for Woodbury County showed the population continued to increase in all areas of the County except for the communities of Anthon, Correctionville, and Smithland. These communities were estimated to have decreased by 5.1%, 10.7%, and 6.0% respectively. The communities of Lawton and Bronson exhibited the largest percentage increases growing by an estimated 44.6% and 28.7% respectively. The largest increase in total numbers occurred in Sioux City, which grew by 4,535 persons, or 5.6%.

TABLE 2: POPULATION TRENDS, SIOUX CITY MSA* AND UNION COUNTY, S.D., 1970 THROUGH 2000

County	1970	1980	% Change 1970 to 1980	1990	% Change 1980 to 1990	2000	% Change 1990 to 2000	% Change 1970 to 2000
Woodbury County	103,052	100,884	-2.1%	98,376	-2.5%	103,877	5.6%	0.8%
Dakota County, Nebraska	13,137	16,573	26.2%	16,742	1.0%	20,253	21.0%	54.2%
Total MSA*	116,189	117,457	1.1%	115,118	-2.0%	124,130	7.8%	6.8%
Woodbury County / MSA	88.7%	85.9%	-3.2%	85.5%	-0.5%	83.7%	-2.1%	-5.6%
Union County, South Dakota	9,643	10,938	13.4%	10,189	-6.8%	12,584	23.5%	30.5%

Source: U.S. Census Bureau, Census of Population and Housing, 1970 - 1990, 1999 estimate

* Metropolitan Statistical Areas were not used until 1983. This chart is for comparison purposes only.

Table 2 indicates the population for the Sioux City Metropolitan Statistical Area (MSA), to which Woodbury County belongs. This MSA includes Woodbury County, Iowa, and Dakota County, Nebraska. However, MSAs were not defined until 1983, so the inclusion of population information before that date is presented for illustration only. Since Woodbury County is part of a larger economic region, it is important for the County to have an understanding of the role they play within that area. The information shown in Table 2 allows Woodbury County to compare its growth to the growth of the overall MSA.

Woodbury County is the larger of the two counties in the MSA. Woodbury County's growth rate between 1970 and 2000 was estimated to be 0.8%, compared to the MSA's growth rate of 6.8%. In 1970, Woodbury County accounted for 88.7% of the total MSA population. By 1990, Woodbury County's portion had decreased to 85.5%. By 2000, the Woodbury County's portion appeared to have decreased even further to 83.7%. The population growth rate in Woodbury County was much lower than the rate seen in Dakota County, Nebraska. With Woodbury County showing a slight increase and Dakota County adding 3,511 people to its own population; the MSA's population between 1970 and 2000 increased by 9,012 persons.

The population of the MSA increased during each decade between 1970 and 2000, due almost entirely to the growth of Dakota County, Nebraska. Woodbury County's population grew only between 1990 and 2000. Therefore, while Woodbury County continues to have the largest share of the population in the MSA, it has contributed only a small amount of the population growth within the MSA.

Table 2 also shows a comparison of Woodbury County and the Sioux City MSA to Union County, South Dakota. While Union County is not a member of the MSA, it continues to have an impact upon the MSA and Woodbury County due to its close proximity. Table 2 indicates Union County is smaller than either county in the Sioux City MSA. Union County had a much higher growth rate between 1970 and 2000 than Woodbury County, but smaller than Dakota County. Union County grew by 2,345 persons, or 30.5%, between 1970 and 2000.

MIGRATION ANALYSIS

Migration Analysis is important for a County to understand since it offers an explanation of what affected the population changes. By analyzing migration patterns, the County is able to understand how this specific factor of population has been influencing the rate of population change. Migration rates are determined by using the number that represents the total change in population, and subtracting any changes that were attributed to births and deaths (natural change) in the population. Therefore, migration is the portion of the population that has either moved into or out of the County.

Migration Analysis shows the total change and natural change in population, and the total migration for Woodbury County, by decade. Natural change describes the portion of the population change that occurred as a result of births or deaths.

Natural change is determined by subtracting deaths from births, therefore, a negative number indicates more deaths than births, and a positive number indicates more births than deaths. Once the natural change is subtracted from the total change, the County then has the number of people that have migrated in or out, which is the "Net Migration". A negative number in the "Net Migration" column indicates how many more persons moved out of the County than in (out-migration), and a positive number indicates how many more persons moved into the County than out (in-migration).

TABLE 3: MIGRATION ANALYSIS, WOODBURY COUNTY, 1980 THROUGH 1999

Time Period	Woodbury County			Dakota County, NE		
	Total Change (persons)	Natural Change (persons)	Net Migration (persons)	Total Change (persons)	Natural Change (persons)	Net Migration (persons)
1980-1990	-2,608	6,774	-9,382	2,398	3,923	-1,525
1990-1999	3,155	6,488	-3,333	169	6,488	783
Total	547	13,262	-12,715	2,567	10,411	-742
Union County, S.D. 1990 - 1999	-2,283	326	-2,609			

Source(s): U.S. Census Bureau, Census of Population and Housing, 1980-2000

Table 3 shows the factors affecting Woodbury County's population changes from 1980 through 1999. Between 1980 and 1990, Woodbury County's total population decreased by 2,608 persons. This decrease was comprised of a total out-migration of 9,382 persons, and a natural change of 6,774 persons. This trend changed between 1990 and 1999. The natural change indicates there were 6,488 more births than deaths. The total change was positive but less than the natural change, thus resulting in a total out-migration of 3,333. Overall for the period 1980 to 1999, Woodbury County had a total out-migration of 12,715 persons, a total natural change of 13,262 births, and a total population increase of 547 persons.

Besides deaths, population loss occurs when persons move away from the county, or out-migrate. Table 3 shows the total population change in Woodbury County between 1980 and 1999 was an increase of 547 persons. However, this Table also shows there were 13,262 more births than deaths in the County during this same time. The net result was the loss of 12,715 persons due to out-migration. This was out-migration because there were many more births in the County than there was population increase. Since the population did not increase by the same amount of births that exceeded deaths, the inference is that there was other population loss occurring besides loss due to deaths. Out-migration had a large impact on population change in Woodbury County between 1980 and 1999.

Table 3 also shows migration rates for Union County, South Dakota, between 1990 and 1999. During this time period, Union County's population decreased by 2,283 persons. They did, however, have 326 more births than deaths. The result is there was a net loss of 2,609 persons due to out-migration during this time. While there certainly may have been persons that moved between Woodbury and Union counties, it appears as though it is more likely that persons leaving either county actually re-located somewhere else.

AGE STRUCTURE ANALYSIS

Age structure is an important component of population analysis. By analyzing age structure, the County can determine which age groups (cohorts) have affected population shifts and changes, and which cohorts will have the largest impact upon population projections. Each age cohort effects the population in a number of different ways. For example, the existence of larger younger cohorts (20-44 years) means that there is a greater ability to sustain future population growth due to child bearing potential, than does larger older cohorts. On the other hand, if the large, young cohorts maintain their relative size, but do not increase the population as expected, they will, as a group, tend to strain the resources of an area as they age. Understanding what is happening within the age groups of the County's population is necessary to effectively plan for the future. Realizing how many persons are in each age cohort, and at what rate the age cohorts are changing in size, will provide for informed decision-making in order to maximize the future use of resources.

TABLE 4: AGE CHARACTERISTICS, WOODBURY COUNTY, 1980 THROUGH 2000

Age	1980		1990		1980 - 1990		1980 - 1990	
	Total Population	% of Total	Total Population	% of Total	Net Change	% Change	Cohort Change	% Change
0-4	8,426	8.4%	7,465	7.6%	-961	-11.4%	7,465	-
5-9	7,725	7.7%	7,999	8.1%	274	3.5%	7,999	-
10-14	7,684	7.6%	7,883	8.0%	199	2.6%	-543	-6.4%
15-19	9,205	9.1%	7,220	7.3%	-1,985	-21.6%	-505	-6.5%
20-24	8,984	8.9%	6,531	6.6%	-2,453	-27.3%	-1,153	-15.0%
25-29	8,586	8.5%	7,485	7.6%	-1,101	-12.8%	-1,720	-18.7%
30-34	7,052	7.0%	7,798	7.9%	746	10.6%	-1,186	-13.2%
35-44	9,741	9.7%	14,004	14.2%	4,263	43.8%	-1,634	-10.4%
45-54	10,053	10.0%	8,767	8.9%	-1,286	-12.8%	-974	-10.0%
55-64	10,014	9.9%	8,681	8.8%	-1,333	-13.3%	-1,372	-13.6%
65-74	7,314	7.2%	7,918	8.1%	604	8.3%	-2,096	-20.9%
75 & older	6,100	6.0%	6,525	6.6%	425	7.0%	-6,889	-51.4%
Total	100,884	100.0%	98,276	100.0%	-2,608	-2.6%	-2,608	-2.6%
Age	1990		2000		1990 - 2000		1990 - 2000	
	Total Population	% of Total	Total Population	% of Total	Net Change	% Change	Cohort Change	% Change
0-4	7,465	7.4%	7,720	7.9%	255	3.4%	7,720	-
5-9	7,999	7.9%	7,976	8.1%	-23	-0.3%	7,976	-
10-14	7,883	7.8%	7,168	7.3%	-715	-9.1%	-297	-4.0%
15-19	7,220	7.2%	7,879	8.0%	659	9.1%	-120	-1.5%
20-24	6,531	6.5%	7,375	7.5%	844	12.9%	-508	-6.4%
25-29	7,485	7.4%	7,003	7.1%	-482	-6.4%	-217	-3.0%
30-34	7,798	7.7%	6,724	6.8%	-1,074	-13.8%	193	3.0%
35-44	14,004	13.9%	15,657	15.9%	1,653	11.8%	374	2.4%
45-54	8,767	8.7%	13,623	13.9%	4,856	55.4%	-381	-2.7%
55-64	8,681	8.6%	8,038	8.2%	-643	-7.4%	-729	-8.3%
65-74	7,918	7.8%	6,952	7.1%	-966	-12.2%	-1,729	-19.9%
75 & older	6,525	6.5%	6,935	7.1%	410	6.3%	-7,508	-52.0%
Total	98,276	97.4%	103,050	104.9%	4,774	4.9%	4,774	4.9%

Source: U.S. Census Bureau, Census of Population and Housing, STF-1A, 1980-2000

Table 4 shows age cohort structure for Woodbury County in 1980, 1990, and 2000. The table shows two different methods for analyzing age cohort changes; Net Change and Cohort Change. Net Change is determined by subtracting an early cohort population from a later population in the same cohort. This method compares one cohort to another cohort that is the same age, over time. Cohort Change tracks one cohort from one census year to the next census year. This method compares one cohort to itself, over time.

1980 TO 1990 ANALYSIS

Woodbury County experienced changes in all of its age cohorts between 1970 and 1980. Cohort changes, as shown under the heading "Cohort Change," are shown below.

1980 Cohort	Number	1990 Cohort	Number	Change
NA	NA	0-4	7,465	+ 7,465
NA	NA	5-9	7,999	+ 7,999
Total Gain				+ 15,464

1980 Cohort Change	Number	1990 Cohort	Number	
0-4	8,426	10-14	7,883	- 543
5-9	7,725	15-19	7,220	- 505
10-14	7,684	20-24	6,531	- 1,153
15-19	9,205	25-29	7,485	- 1,720
20-24	8,984	30-34	7,798	- 1,186
25-29	8,586	35-44	14,004	- 1,634
35-44	9,794	45-54	8,767	- 974
45-54	10,053	55-64	8,681	- 1,333
55-64	10,014	65-74	7,918	- 2,096
65-74	7,314	75+	6,525	- 889
75+	6,100			
Total Loss				- 18,033
Total Change				- 2,569

The only two cohorts indicating an increase in 1980 were the 0 to 4 and 5 to 9 cohorts. These cohorts combined for a total increase of 15,464 persons. However, the 0 to 4 and 5 to 9 cohorts always indicate an increase, since the persons in these groups were not born when the previous census was completed. There were no other cohorts from 1980 and 1990 that experienced a gain during that decade. The cohort shifts that represented a loss are shown below.

The cohorts with the largest loss in 1990 were the 1980 cohorts of 65 + and 55 to 64. These cohorts lost 6,899 persons and 2,098 persons respectively. This large of a shift in these cohorts is common in the Midwest. The most typical reason for shifts in these cohorts is death. Large losses also occurred in the 1980 15 to 19 cohort. By 1990, this cohort had lost 1,720 persons. The shift in this cohort is also common in the Midwest.

The reason for this shift is that as the 1980 cohorts age, they become college-age, therefore, they tend to leave for education opportunities in areas such as Ames and Iowa City. Overall, decreases in these cohorts accounted for a loss of 18,033 persons, which is more than the other two cohorts increased, therefore, the population as a whole decreased by 2,569 persons.

1990 TO 2000 ANALYSIS

This period had very similar population changes to the 1990 to 2000 period. However, during this period four cohorts experienced an increase. Those cohorts are shown below.

1990 Cohort	Number	2000 Cohort	Number	
Change				
NA	NA	0-4	7,465	+ 7,465
NA	NA	5-9	7,999	+ 7,999
20-24	6531	30-34	6724	+ 193
25-29	15,638	35-44	15,657	- 374
30-34	7798	35-44	15,657	+ 374
Total Gain				+ 15,838

1990 Cohort	Number	2000 Cohort	Number	
Change				
0-4	7465	10-14	7,168	- 297
5-9	7999	15-19	7,879	- 120
10-14	7883	20-24	7375	- 508
15-19	7220	25-29	7,003	- 217
35-44	14004	45-54	13623	- 974
45-54	8767	55-64	8,038	- 729
55-64	8681	65-74	6952	- 1,729
65-74	7918	75 +	6,935	- 7,058
75+	6525			
Total Loss				- 11,632
Total Change				- 4,206

Again, the five cohorts that showed an increase in 1990 were the 0 to 4, 5 to 9, 20 to 24, 25 to 29, and 30 to 34 cohorts. These cohorts accounted for a gain of 15,838 persons. The cohort shifts that represented a loss are also shown above.

TABLE 5: SELECTED CHARACTERISTICS, WOODBURY COUNTY, 1970 THROUGH 2000

Characteristic	1970	1980	Change 1970-1980	1990	Change 1980-1990	2000	Change 1990-2000	Change 1970-2000
Total Population	103,052	100,884	-2,168	98,276	-2,608	103,877	5,601	825
Total Age 19 and Under	39,612	33,040	-6,572	30,567	-2,473	31,679	1,112	-7,933
% of Total	38.4%	32.8%	-16.6%	31.1%	-7.5%	30.5%	3.6%	-20.0%
Total Age 20 to 44	29,298	34,363	5,065	35,818	1,455	36,749	931	7,451
% of Total	28.4%	34.1%	17.3%	36.4%	4.2%	35.4%	2.6%	25.4%
Total Age 65 and Over	12,899	13,414	515	14,443	1,029	13,878	-565	979
% of Total	12.5%	13.3%	4.0%	14.7%	1.4%	13.4%	-1.3%	0.8%
Total Female	53,959	52,984	-975	50,991	-1,993	52,962	1,971	-997
Total Male	49,093	47,900	-1,193	47,285	-615	50,915	3,630	1,822
Median Age	28.8	29.9	1.1	32.9	3.0	34.2	1.3	5.4

Source: U.S. Census Bureau, Census of Population and Housing, STF-1A, 1970-2000

Table 5 shows selected characteristics of the Woodbury County population in 1970 and 2000. The total population of Woodbury County increased by 820 persons between 1970 and 2000. This was driven primarily by the loss of school-age children in the 0 to 19 cohort. The 1970 population of this cohort was 39,612 persons, but in 2000 the population of this cohort was 31,679 persons. This indicates the cohort lost a total of 7,933 persons between 1970 and 2000. The child-bearing age group, or the 20 to 44 cohort, increased from 29,298 persons in 1970 to 35,818 persons in 1990, or a total increase of 7,451 persons. Senior citizens, or those over age 65, numbered 12,899 persons in 1970 and 13,878 persons in 2000, for a total increase of 979.

The number of males and females has declined during the early decades of the period, but increased in the latter part of period shown in Table 5. Between 1970 and 1990, Woodbury County lost 2,968 females and 1,808 males. During this time, the percentage of females has continued to be approximately 52% of the total population. Between 1990 and 2000, the number of males increased by 3,630 persons while females gained an additional 1,971 people. The average age of the population in the County has slowly increased since 1970, and in 2000 it was 34.2 years of age. This represents an increase of 5.4 years from the average age in 1970.

POPULATION PROJECTIONS

Population Projections are estimates based upon past and present circumstances. Population projections allow Woodbury County to estimate what the population will be in future years by looking at past trends. By scrutinizing population changes in this manner, the County will be able to develop a baseline of change from which they can create different future scenarios. A number of factors (demographics, economics, social, etc.) may affect projections either positively or negatively. At the present time, these projections are the best crystal ball Woodbury County has for predicting future population changes. There are many methods to project the future population trends; the five methods used below are intended to give Woodbury County a broad overview of the possible population changes that could occur in the future.

TREND LINE ANALYSIS

Trend Line Analysis is a process of projecting future populations based upon changes during a specified period of time. In the analysis of Woodbury County, three different trend lines were reviewed: 1960 to 2000, 1980 to 2000 and 1990 to 2000. A review of these trend lines indicates Woodbury County will increase in population through 2020. The following projections summarize the decennial population projections for Woodbury County through 2020.

Woodbury County Trend Analysis

Year	Trend: 1960 to 2000	Trend: 1980 to 2000	Trend: 1990 to 2000
2010	103,686	104,185	102,090
2020	102,731	105,731	105,373
2030	101,785	107,299	108,762

COHORT SURVIVAL ANALYSIS

Cohort Survival Analysis reviews the population by different age groups and gender. The population age groups are then projected forward by decade using survival rates for the different age cohorts. This projection model accounts for average birth rates by gender and adds the new births into the future population. The Cohort Survival Model projection indicates Woodbury County's population will increase each decade through 2030. The following projection for Woodbury County is based on applying survival rates to age cohorts, but does not consider the effects of either in-migration or out-migration.

Woodbury County Cohort Survival Analysis

Year	Cohort Survival Model
2010	105,272
2020	114,697
2030	123,493

"MODIFIED" COHORT SURVIVAL ANALYSIS

A "Modified" Cohort Survival Model has been developed and adjusted to account for the County's average annual out-migration between 1990 and 2000. This projection shows a variation of the previous forecast for the years 2010, 2020, and 2030. This model indicates the population of Woodbury County will continue to increase through the year 2030. The following projection is a result of applying average out-migration rates for the County between 1990 and 2000 to the Cohort Survival Model.

Year	Cohort Survival (Modified)
2000	105,565
2010	113,681
2020	122,846

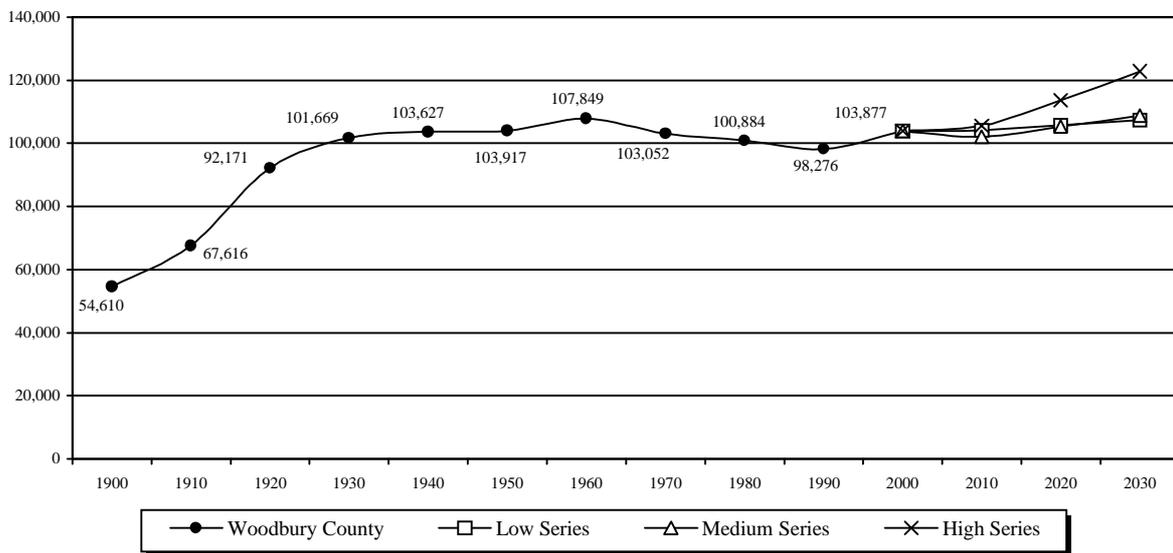
SUMMARY OF POPULATION PROJECTIONS

Using the modeling techniques discussed in the previous paragraphs, a summary of the five population projections for Woodbury County through the year 2030 is shown

in Figure 1. Three population projection scenarios were selected and include (1) a Low Series; (2) a Medium Series; and, (3) a High Series. All of the projections forecast an increase in County population through the year 2030. The following population projections indicate the different scenarios that may be encountered by Woodbury County through the year 2030.

Year	Low Series	Medium Series	High
Series	1980 – 2000	1990 - 2000	Modified Cohort
2000	104,185	102,090	105,565
2010	105,731	105,373	113,681
2020	107,299	108,762	122,846

FIGURE 1: POPULATION TRENDS AND PROJECTIONS, WOODBURY COUNTY, 1900 THROUGH 2030



Source: U.S. Census Bureau, Census of Population and Housing, 1900-2000; JEO Consulting Group

Figure 1 reviews the population history of Woodbury County between 1900 and 2000, and identifies three population projection scenarios into the years 2010, 2020, and 2030. Figure 1 indicates the peak population for Woodbury County occurred in 1960 with 107,849 people. Beginning in 1900, Woodbury County experienced 30 years of rapid growth in its population. Between 1930 and 1999, Woodbury County experienced a more or less flat population growth rate. In fact, the 2000 population is only 40 people less than its 1940 population.

Future projections indicate the growth rate in Woodbury County will be slight to moderate, with an approximate change in the range of a gain of approximately 3,400 to a gain of about 19,000. A number of external and internal demographic, economic and social factors may affect these population forecasts. Woodbury County should monitor population trends, size and composition periodically in order to understand in what direction their community is changing.

The projections presented thus far are based upon data from past trends and present conditions in Woodbury County as a whole. These projections give the County an idea of what future population numbers may be, but they do not provide a suggestion of where these people may live. One way to create a picture of how future populations may be distributed is to project the future population of each community and compare those projections to the projections for Woodbury County as a whole. Tables 6-A and 6-B present projections of future population for each incorporated city in Woodbury County.

TABLE 6-A: POPULATION PROJECTIONS, WOODBURY COUNTY AND COMMUNITIES, 2000-2030

Community	Population			Avg. Annual Growth Factor (1980 - 2000)	Avg. Decennial Growth Factor (1980 - 2000)	Population Projections		
	1980	1990	2000			2010	2020	2030
Anthon	687	638	649	-0.0029	-0.0291	647	628	610
Bronson	289	209	269	-0.0036	-0.0364	268	258	249
Correctionville	935	897	851	-0.0047	-0.0473	847	807	769
Cushing	270	220	246	-0.0047	-0.0468	245	233	222
Danbury	492	430	384	-0.0116	-0.1155	380	336	297
Hornick	239	222	253	0.0031	0.0308	254	262	270
Lawton	487	482	697	0.0227	0.2270	713	875	1,073
Moville	1,237	1,306	1,592	0.0151	0.1510	1,616	1,860	2,141
Oto	172	118	145	-0.0083	-0.0826	144	132	121
Pierson	408	341	371	-0.0048	-0.0477	369	352	335
Salix	429	367	370	-0.0072	-0.0724	367	341	316
Sergeant Bluff	2,416	2,772	3,321	0.0197	0.1972	3,386	4,054	4,853
Sioux City	82,003	80,505	85,040	0.0019	0.0195	85,206	86,867	88,560
Sloan	978	938	1,032	0.0029	0.0291	1,035	1,065	1,096
Smithland	282	235	221	-0.0114	-0.1138	218	194	172
Incorporated Areas	91,324	89,680	95,441			95,695	98,263	101,084

Source: Population projections, JEO Consulting Group, 2000

TABLE 6-B: POPULATION PROJECTIONS, WOODBURY COUNTY AND COMMUNITIES, 2000 - 2030

Community	Population		Avg. Annual Growth Factor	Avg. Decennial Growth Factor	Population Projections		
	1990	2000			2010	2020	2030
Anthon	638	649	0.00192	0.01916	650	663	675
Bronson	209	269	0.03190	0.31898	278	366	483
Correctionville	897	851	-0.00570	-0.05698	846	798	752
Cushing	220	246	0.01313	0.13131	249	282	319
Danbury	430	384	-0.01189	-0.11886	379	334	295
Hornick	222	253	0.01552	0.15516	257	297	343
Lawton	482	697	0.04956	0.49562	732	1,094	1,636
Moville	1,306	1,592	0.02433	0.24332	1,631	2,028	2,521
Oto	118	145	0.02542	0.25424	149	186	234
Pierson	341	371	0.00978	0.09775	375	411	451
Salix	367	370	0.00091	0.00908	370	374	377
Sergeant Bluff	2,772	3,321	0.02201	0.22006	3,394	4,141	5,052
Sioux City	80,505	85,040	0.00626	0.06259	85,572	90,928	96,620
Sloan	938	1,032	0.01113	0.11135	1,043	1,160	1,289
Smithland	235	221	-0.00662	-0.06619	220	205	191
Incorporated Areas	89,680	95,441			96,145	103,267	111,239

Source: Population projections, JEO Consulting Group, 2000

Tables 6-A and 6-B show two trend line projections for the incorporated areas of Woodbury County. The projections were determined by increasing the 2000 population by the average annual growth factor to the year 2010, then increasing the population by the average decennial growth factor for the years 2020 and 2030. Table 6-A uses average annual and decennial growth factors based upon 1980 to 2000 population changes. Table 6-B uses average growth factors based upon 1990 to 2000 population changes. These trend lines were chosen since they represent the high and low series projections used for Woodbury County as a whole. These trend lines will provide the County with a range of possible results.

These Tables are helpful because they show some communities may be expected to increase in population while others may be expected to decrease in population, based upon recent trends. They also show as the incorporated communities change during the projection period of 2000 through 2020, the unincorporated areas will change as well. However, the change shown in the unincorporated areas is based upon trends within the incorporated communities. Earlier in this Plan, projections were shown for Woodbury County as a whole that did not include a breakdown of incorporated versus unincorporated population change. The relation of incorporated versus unincorporated change is important to the County as it shows where growth may happen in the future.

So far, there are two conceptual population projection methods being used. The first projected countywide population. This method provides a picture of what the total future population of Woodbury County could be. The second projected population based upon individual incorporated cities. This method provides a picture of how the population of each city may change in the future. However, population within cities is only one factor in countywide population. The other is population of the unincorporated areas.

Table 6-C presents a combination of Tables 6-A and 6-B. This combination provides a picture of how the population of the unincorporated areas of the County may change in the future. The picture was generated by subtracting the incorporated populations shown in Tables 6-A and 6-B from the countywide projections shown in Figure 1. The result is a projection of future unincorporated area population. This combination was made with both low and high series trend lines, so Woodbury County now has a projected range of future population change for the county as a whole, for each incorporated city, and for the unincorporated areas.

TABLE 6-C: COMBINATION OF POPULATION PROJECTIONS, WOODBURY COUNTY, 2000 - 2030

Population Base	2000	Low Series Projection			Percent Change 2000-2030
		2010	2020	2030	
Countywide	103,877	104,185	105,731	107,299	3.3%
Incorporated Areas	95,441	95,695	98,263	101,084	5.9%
Difference (Unincorporated Areas)	8,436	8,490	7,468	6,215	-26.3%

Population Base	2000	High Series Projection			Percent Change 2000-2030
		2010	2020	2030	
Countywide	103,877	105,565	113,681	122,846	18.3%
Incorporated Areas	95,441	96,145	103,267	111,239	16.6%
Difference (Unincorporated Areas)	8,436	9,420	10,414	11,607	37.6%

Source: Population projections, JEO Consulting Group, 2000

Table 6-C shows the low series projection of population change in the unincorporated areas of Woodbury County is a loss of 2,221 persons, or -26.3%, through 2030. However, the high series projection shows an increase of 3,171 persons, or 37.6%, through 2030. The estimated population of all unincorporated areas of Woodbury County in 1999 was 8,793 persons. Table 6-C shows a potential range of future population size being from 6,215 persons to 11,607 persons. The information in Tables 6-A through 6-C should give Woodbury County an indication of the possible numerical change in population, as well as the possible distribution of that change within the County.

SUMMARY OF DEMOGRAPHIC PROFILE

Woodbury County as a whole has generally been increasing in population since 1900. Since 1970, the County population has been decreasing in size at a relatively slow rate. There were eight communities in Woodbury County that increased in population between 1970 and 1980, but only two that increased between 1980 and 1990. Between 1990 and 2000 all but three communities increased in population. Between 1980 and 1990, every cohort that was tracked during the decade decreased in size, while all but two cohorts decreased in size between 1990 and 2000. Despite the population loss, there was some in-migration between 1970 and 2000. The number of persons between 20 and 44, and over 65 increased between 1970 and 2000. However, the number of persons younger than 19 decreased. This indicates the average age of Woodbury County citizens increased between 1970 and 2000. The average age in 1970 was 28.8, and in 2000 it was 34.2.

Population projections for Woodbury County indicate there will likely be an increase in population through the year 2030. Projections indicate the population may gain as few as approximately 3400 persons, or gain as much as 19,000 persons. Incorporated areas will surely see a majority of the change, however, unincorporated areas may realize some as well. Planning for change can help these areas accommodate future change more easily and efficiently.

HOUSING PROFILE

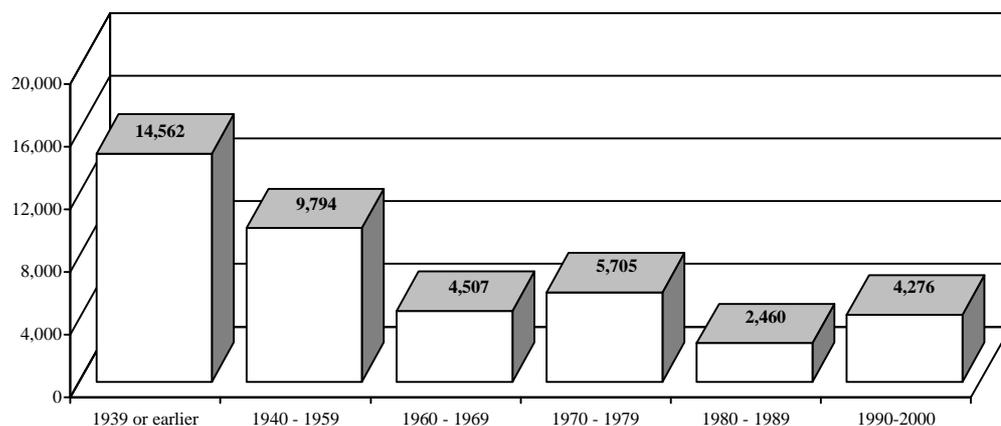
The Housing Profile identifies existing housing characteristics and projected housing needs for residents of Woodbury County. The primary goal of the housing profile is to allow the County to determine what needs to be done in order to provide safe, decent, sanitary and affordable housing for every family and individual residing within Woodbury County. The housing profile is an analysis that aids in determining the composition of owner-occupied and renter-occupied units, as well as the existence of vacant units. It is important to evaluate information on the value of owner-occupied housing units, and monthly rents for renter-occupied housing units, to determine if housing costs have been a financial burden to Woodbury County residents in the past.

The projection of future housing needs requires several factors must be considered. These factors include population change, household income, employment rates, land use patterns, and residents' attitudes. The following tables and figures provide the information necessary in determining future housing needs and develop policies designed to accomplish the housing goals for Woodbury County.

Age of Existing Housing Stock

An analysis of the age of Woodbury County's housing stock can reveal a great deal about population and economic conditions of the past. The age of the housing stock may also indicate the need for rehabilitation efforts, or new construction within the County. Examining the housing stock is important in order to understand the overall quality of housing and the quality of life in Woodbury County.

FIGURE 2: AGE OF EXISTING HOUSING STOCK, WOODBURY COUNTY, 2000

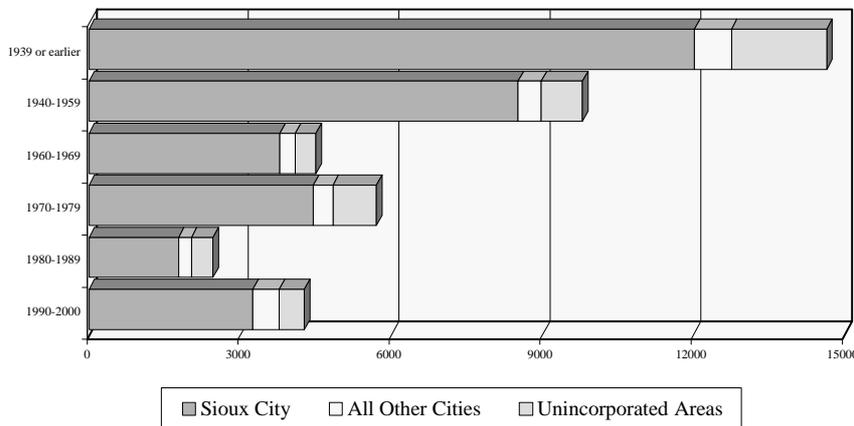


Source: U.S. Census Bureau, Census of Population and Housing, SF-3, 2000

Figure 2 indicates 14,562, or 35.2% of Woodbury County's 41,304 total housing units, were constructed prior to 1940. The largest number of units built in one decade was 5,705 housing units, or 13.8% of the total, constructed between 1970 and 1979. This indicates a strong economy during this time. The number of new housing units built between 1980 and 1989 was 2,460, or 5.9% of the total. This represents the lowest number of housing units built in one decade.

Woodbury County has a large percentage of housing units built prior to 1960. Prior to 1960, there were 24,356 units built overall, or 58.9% of the total. This may be an indication of a need for housing rehabilitation programs to improve the quality and energy efficiency of these older homes. Additionally, demolition of units that are beyond rehabilitation may be necessary. Construction of new housing might be another program the County could support, as housing is an integral component of the County's ability to pursue economic development activities.

FIGURE 3: AGE OF EXISTING HOUSING STOCK BY AREA, WOODBURY COUNTY, 2000



Source: U.S. Census Bureau, Census of Population and Housing, SF-3, 2000

Figure 3 shows the composition of the numbers presented in Figure 2. Figure 3 breaks down the total number of housing units in Woodbury County by location. The location areas are Sioux City, all other cities, and unincorporated areas. The numbers for each area are as follows:

Year	Sioux City	All Other Cities	Unincorporated Areas
1939 or earlier	12,018	741	1,893
1940 – 1959	8,517	460	817
1960 – 1969	3,792	301	414
1970 – 1979	4,454	390	861
1980 – 1989	1,779	254	427
1990 – 2000	3,252	525	499
Total Housing	33,812	2,281	7,192

Sioux City accounts for 33,812 housing units in Woodbury County. A comparison of the areas within the County reveals Sioux City contains 81.8% of the housing units, other cities contain 5.5%, and unincorporated areas contain 12.7%. Between 1990 and 2000, there were 4,276 housing units built in Woodbury County. During this same time, there were 3,252 housing units, or 76.0% of the total, built in Sioux City.

Housing Trends

An analysis of housing trends can reveal a great deal about the different sectors of the population in the County. Housing trends may also indicate the potential demand for additional owner- or renter-occupied housing. Examining housing trends is important in understanding the overall diversity of the population and the quality of life within Woodbury County.

TABLE 7: COMMUNITY HOUSING TRENDS, WOODBURY COUNTY, 1980 THROUGH 2000

Selected Characteristics	1980	1990	2000	Total Change 1980-1990	% Change 1980-1990	Total Change 1990-2000	% Change 1990-2000
Population	100,884	98,276	103,877	-2,608	-2.6%	5,601	5.7%
Persons in Household	98,113	95,388	101,115	-2,725	-2.8%	5,727	6.0%
Persons in Group Quarters	2,771	2,888	2,762	117	4.2%	-126	-4.4%
Persons per Household	2.60	2.59	2.58	-0.01	-0.4%	-0.01	-0.4%
Total Housing Units	39,022	39,071	41,394	49	0.1%	2,323	5.9%
Occupied Housing Units	36,632	36,899	39,151	267	0.7%	2,252	6.1%
Owner-occupied units	25,993	25,280	26,841	-713	-2.7%	1,561	6.2%
Renter-occupied units	10,639	11,619	12,310	980	9.2%	691	5.9%
Vacant Housing Units	2,390	2,172	2,243	-218	-9.1%	71	3.3%
Owner-Occupied vacancy rate	1.4%	1.6%	1.5%	0.2%	14.3%	0	-6.3%
Renter-Occupied vacancy rate	7.2%	6.8%	7.7%	-0.4%	-5.6%	0	13.2%
Single-family Units	30,813	29,038	30,671	-1,775	-5.8%	1,633	5.6%
Duplex/Multiple-family units	6,578	7,785	8,628	1,207	18.3%	843	10.8%
Mobile Homes, trailer, other	1,613	2,248	2,095	635	39.4%	-153	-6.8%
Median Contract Rent							
Woodbury County	\$170	\$255	\$494	\$85	50.0%	\$239	93.7%
Iowa	\$175	\$261	\$470	\$86	49.1%	\$209	80.1%
Median Value of Owner-Occupied Units							
Woodbury County	\$35,600	\$41,000	\$76,400	\$5,400	15.2%	\$35,400	86.3%
Iowa	\$40,600	\$45,900	\$82,500	\$5,300	13.1%	\$36,600	79.7%

Source: U.S. Census Bureau, Census of Population and Housing, SF-1, 1980-2000

Table 7 indicates the number of persons living in households decreased between 1980 and 1990 by 2,725 persons, or -2.58%, however, the number of persons in group quarters increased by 117 persons, or 4.2%. In addition, the number of persons per household remained essentially the same, dropping from 2.60 to 2.59. Nationally, there has been a trend towards declining household sizes, apparent through 1990. The average household size in Woodbury County appears to have stabilized.

Table 7 also indicates the number of occupied housing units increased from 36,632 in 1980 to 36,899 in 1990, or 0.7%, while vacant housing units decreased, from 2,390 in 1980 to 2,172 in 1990, or -9.1%. The increase in the number of housing units is due to new home construction, and potentially the rehabilitation and use of vacant housing in the County. Renters appear to occupy a larger number of the previously vacant housing units. This is indicated by the decrease in the renter-vacancy rate between 1980 and 1990 from 7.2% to 6.8%. However, a number of vacant units in 1980 were likely demolished during the 1980s.

Single-family housing units decreased slightly from 30,813 in 1980 to 29,038 in 1990, or 9.2%. Duplex and multi-family housing increased from 6,578 units to 7,785 units, or 6.6%. Mobile homes and trailers increased from 1,613 to 2,248, or 39.4%. In addition, the number of persons per household decreased slightly during the same period.

Between 1990 and 2000 the number of single and multiple family dwelling units increased by 5.6% and 10.8%, respectively. During the same period, mobile homes decreased by 6.8 percent. Overall, the total number of housing units increased by 5.9%, adding 2,323 new dwelling units. Occupied dwelling units, both in terms of renter and owner occupied units, increased by approximately 6% between 1990 and 2000. Vacant units increased as well during the same period, but at a smaller rate.

The median contract rent in Woodbury County increased from \$170 per month in 1980 to \$255 per month in 1990, or 50.0%. The State's median monthly contract rent increased by 49.1%. This indicates contract rents in Woodbury County increased at a rate nearly identical to the State. Therefore, contract rent in Woodbury County has continued to be approximately 97.5% of the State rate. Comparing changes in monthly rents between 1980 and 1990 with the Consumer Price Index (CPI) enables the local housing market to be compared to national economic conditions. Inflation between 1980 and 1990 increased at a rate of 60.7%, indicating Woodbury County rents increased at a lower rate than inflation. Thus, Woodbury County tenants were paying slightly lower monthly rents in 1990, in terms of real dollars, than they were in 1980, on average. From 1990 to 2000, the CPI increased at a rate of 31.6%, while median contract rent increased by 93.7% during the same period for the County and 80.1% for the State of Iowa.

The Median value of owner-occupied housing units in Woodbury County increased from \$35,600 in 1980 to \$41,000 in 1990 and represents an increase of 15.2%. The State's median value of owner-occupied housing units increased 13.1%. Housing values in Woodbury County increased at a rate slightly higher than the State and much lower than the CPI. This indicates housing values statewide and countywide failed to keep pace with inflation and were valued less in 1990, in terms of real dollars, than in 1980, on average. However, this was not the case from 1990 to 2000, when the median value increased by 86.3% for the County and 79.7% for the State. This means that during the entire time period shown in Table 7, housing values stayed above the rate of inflation.

In terms of real dollars, tenants in Woodbury County were paying more in contract rent, and the value of the housing had increased. This is somewhat different than the Statewide trend, where housing values were similar to the rate of inflation, but rents were well above it. While this trend may help to create a positive market for rental owner's, it can also act as an incentive to real estate owners needing to update and rehabilitate their housing units.

TABLE 8: TENURE OF HOUSEHOLDS BY OCCUPANT TYPE, WOODBURY COUNTY, 1990 THROUGH 2000

Householder Characteristic	1990				2000				% Change	
	Owner	% Owner	Renter	% Renter	Owner	% Owner	Renter	% Renter	Owner	Renter
<i>Tenure by Number of Persons in Housing Unit (Occupied Housing Units)</i>										
1 person	5,056	18.8%	4,518	38.9%	5,351	19.9%	5,072	41.3%	5.8%	12.3%
2 persons	8,962	33.4%	2,972	25.6%	9,776	36.4%	3,056	24.9%	9.1%	2.8%
3 persons	4,053	15.1%	1,734	14.9%	4,226	15.7%	1,833	14.9%	4.3%	5.7%
4 persons	4,191	15.6%	1,325	11.4%	4,119	15.3%	1,235	10.0%	-1.7%	-6.8%
5 persons	2,058	7.7%	649	5.6%	2,164	8.1%	656	5.3%	5.2%	1.1%
6 persons or more	960	3.6%	421	3.6%	1,223	4.6%	440	3.6%	27.4%	4.5%
TOTAL	25,280	94.1%	11,619	100.0%	26,859	100.0%	12,292	100.0%	6.2%	5.8%
<i>Tenure by Age of Householder (Occupied Housing Units)</i>										
15 to 24 years	357	1.4%	1,831	15.8%	598	2.2%	1,921	15.6%		
25 to 34 years	3,868	15.3%	3,821	32.9%	3,512	13.1%	3,178	25.9%		
35 to 44 years	5,551	22.0%	2,135	18.4%	5,937	22.1%	2,431	19.8%		
45 to 54 years	3,893	15.4%	995	8.6%	6,047	22.5%	1,827	14.9%		
55 to 64 years	4,159	16.5%	850	7.3%	3,902	14.5%	926	7.5%		
65 to 74 years	4,258	16.8%	884	7.6%	3,558	13.2%	729	5.9%		
75 years and over	3,194	12.6%	1,103	9.5%	3,305	12.3%	1,280	10.4%		
TOTAL	25,280	100.0%	11,619	100.0%	26,859	100.0%	12,292	100.0%		

Source: U.S. Census Bureau, Census of Population and Housing, SF-1, 1990-2000

Table 8 shows tenure (owner-occupied and renter-occupied) of households by number and age of persons in each housing unit. The largest section of owner-occupied housing in Woodbury County in 1990, based upon number of tenants, was two person households, with 8,962 units, or 35.5% of the total owner-occupied units. By comparison, the single person household was the largest renter-occupied category, with 4,518 units, or 38.9% of the total renter-occupied units. Woodbury County was comprised of 21,508 1- or 2-person households, or 58.3% of all households. Households having 6- or more persons comprised only 3.8% of the owner-occupied segment, and 3.6% of the renter-occupied segment. Countywide, households of 6- or more persons accounted for only 2,340 units, or 6.3% of the total.

The data for 2000 indicate that the largest owner occupied households were 2 person households, which accounted for 36.4% of all owner occupied households, an increase of 9.1% from 1990. The next two largest categories were the one and three person households, which comprised 19.9% and 15.7% of owner occupied households. With regard to renter occupied households, the data suggest that the

fewer number of people, the more that size of household is found in Woodbury County.

According to the 1990 data in Table 8, the majority of the owner-occupied households were over the age of 45, and the majority of renter-occupied households were under the age of 45. Tenure by age indicates 61.3% of owner-occupied households were comprised of persons aged 45 years and older, while 67.1% of renter-occupied households were comprised of persons aged 44 years and younger. The largest category for owner-occupied households was the 35 to 44 age group, with 22.0% of the owner-occupied total. The largest category of renter-occupied households was the 25 to 34 age group, with 32.9% of the renter-occupied total. Additionally, 24.4% of all renter-occupied households were comprised of those 55 years and older. These people are generally in group quarters such as nursing homes and assisted living facilities, although some certainly live on their own.

When looking at tenure by age for 2000, the largest group for owner occupied units was the 45 to 54 age group, which accounted for 22.5% of owner occupied households. Those in the 35 to 44 age group comprised 22.1 of the owner and 19.8% of the renter occupied households, and were the second largest group for both categories. In addition, those individuals age 55 and older comprised 23.8% of all renter and 40.0% of all owner occupied household in 2000. These percentages are slightly lower than described previously for the same age group in 1990.

TABLE 9: COMPOSITION OF HOUSEHOLDS BY FAMILY TYPE, WOODBURY COUNTY, 1990-2000

Household Type	1990		2000		1990 - 2000	
	Number	% of Total	Number	% of Total	Net Change	% Change
One Person						
Male	3,540	9.6%	4,053	10.3%	513	14.5%
Female	6,034	16.4%	6,357	16.2%	323	5.4%
Two or More Persons						
Family:						
Married with Children	10,211	27.7%	9,941	25.3%	-270	-2.6%
Married no Children	10,564	28.6%	11,052	28.2%	488	4.6%
Other Family:						
Male, no wife present	1,101	3.0%	1,660	4.2%	559	50.8%
Female, no husband present	3,858	10.5%	4,093	10.4%	235	6.1%
Non-Family	1,591	4.3%	2,100	5.3%	509	32.0%
Total	36,899	100.0%	39,256	100.0%	2,357	6.4%

Source: U.S. Census Bureau, Census of Population and Housing, SF-3, 1990-2000

Table 9 indicates the fastest growing household segment, by family type, was the male, no wife present segment. The other-family category includes households with children that live with only one parent, which increased by 56.9% during the period. Table 9 shows that while the numeric increase was moderate, the percent change was much larger than any other category. There was an increase of 2,357 households overall between 1990 and 2000, an increase of 6.4%.

The only decreases reported in Table 9 occurred in the one of two family categories. Married family households with children decreased by 270 households, or 2.6%, while married family households without children increased by 488 households, or 4.6%. Overall, the County experienced substantial increases in one person, single parent, and non-family households during the period.

TABLE 10: SELECTED HOUSING CONDITIONS, WOODBURY COUNTY, 1990 THROUGH 2000

Housing Profile	Woodbury County		State of Iowa	
	Total	% of Total	Total	% of Total
<i>Characteristics</i>				
1990 Housing Units	39,071		1,131,299	
1990 Occupied Housing Units	36,899	94.4%	1,053,033	93.1%
2000 Housing Units	41,394		1,143,669	
2000 Occupied Housing Units	39,151	94.6%	1,031,485	90.2%
Change in Number of Units 1990 to 2000				
Total Change in Housing Units	2,323.0	5.95%	12,370.0	1.1%
Annual Change in Housing Units	232.3	0.59%	1,237.0	0.1%
Total Change in Occupied Units	2,252.0	6.10%	-21,548.0	-2.0%
Annual Change in Occupied Units	225.2	0.61%	-2,154.8	-0.2%
<i>Substandard Units</i>				
1990 Units Lacking Complete Plumbing Facilities	275	0.70%	26,410	2.3%
1990 Units with More Than One Person per Room	901	2.31%	25,400	2.2%
2000 Units Lacking Complete Plumbing Facilities	133	0.32%	9,771	0.9%
2000 Units with More Than One Person per Room	1,715	4.14%	13,274	1.2%
1990 Total	1,176	3.0%	51,810	4.6%
2000 Total	1,848	4.5%	23,045	2.0%

Source: U.S. Census Bureau, Census of Population and Housing, SF-3, 1990-2000

Table 10 indicates changes in housing conditions and an inventory of substandard housing for Woodbury County. The percentage of occupied housing in Woodbury County decreased from 94.4% in 1990, to 93.1% in 2000. Between 1990 and 2000, the overall number of housing units in Woodbury County increased by 2,323 housing units, or an average of 232.3 units per year. Additionally, there were 2,252 new occupied housing units. This indicates the decline of vacant housing in the County was partly due to these units becoming inhabited. Table 7 confirms there was a decrease of 147 vacant homes during this time.

According to the U.S. Department of Housing and Urban Development (HUD) guidelines, housing units lacking complete plumbing or those that are considered overcrowded qualify as substandard housing units. HUD defines a complete plumbing facility as hot and cold piped water, a bathtub or shower, and a flush toilet, and overcrowding as more than one person per room. When these criteria are applied to Woodbury County, there were 1,176 housing units, or 3.0% of the total units, considered substandard in 1990. This number increased to 1,848 substandard housing units in 2000, which is 4.5% of the total units. It should be noted, however, that this figure was reached by adding together the number of housing that met one criterion or the other.

What these data fail to consider are housing units that have met both criterion and potentially counted twice. Even so, the County should not assume these data are an overestimation of the number of substandard housing. Housing units containing major defects requiring rehabilitation or upgrading to meet building, electrical or plumbing codes should also be included in an analysis of substandard housing. A comprehensive survey of the entire housing stock should be completed every five years to determine and identify the housing units that would benefit from remodeling or rehabilitation work. This process will help ensure that a community maintains a high quality of life for its residents through protecting the quality and quantity of its housing stock.

Future Housing

Analyzing future housing demand based upon population projections can assist the County in determining the potential for housing shortages or needs. Good planning can assist the County in reaching the desired population level. When a county is faced with large amounts of vacant housing, rehabilitation programs may need to be developed. When a county is faced with an overall shortage, new home construction assistance programs may need to be implemented. Whatever housing situation the County may be faced with, knowing where the County stands and where they want to go are the first steps in creating the desired future. This analysis becomes a component in allocating future land use.

TABLE 11: HOUSING PROJECTIONS, WOODBURY COUNTY, 2000 THROUGH 2030

Housing Statistic	2000	Low Series Projection			Medium Series Projection			High Series Projection			% of Total Housing
	Total	2010	2020	2030	2010	2020	2030	2010	2020	2030	
Population	103,877	104,185	105,731	107,299	102,090	105,373	108,762	105,565	113,681	122,846	
Persons Living in Households	101,115	101,415	102,920	104,446	99,376	102,571	105,870	102,758	110,658	119,580	97.3%
Persons per Household	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	
Occupied Housing Units	39,151	39,308	39,891	40,483	38,518	39,756	41,035	39,829	42,891	46,349	94.6%
Owner Occupied	26,841	26,949	27,349	27,754	26,407	27,256	28,133	27,306	29,405	31,776	64.8%
Persons per Owner Occupied	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	
Renter Occupied	12,310	12,359	12,543	12,729	12,111	12,500	12,902	12,523	13,486	14,573	29.7%
Persons per Renter Occupied	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	2.32	
Vacant Housing	2,243	2,252	2,285	2,164	2,207	2,278	2,351	2,282	2,457	2,655	5.4%
Housing Units	41,394	41,560	42,177	42,802	40,724	42,034	43,386	42,111	45,348	49,004	
Single family	30,671	30,794	31,251	31,714	30,175	31,145	32,147	31,202	33,601	36,310	74.1%
Multi-Family	8,628	8,663	8,791	8,922	8,488	8,761	8,784	8,777	9,452	10,214	20.8%
Mobile Home, Trailer, Other	2,095	2,103	2,135	2,240	2,061	2,127	2,196	2,131	2,295	2,480	5.1%
Potential Change from 2000		Low Series Projection			Medium Series Projection			High Series Projection			
		2010	2020	2030	2010	2020	2030	2010	2020	2030	
Population		308	1,854	3,422	-1,787	1,496	4,885	1,688	9,804	18,969	
Persons Living in Households		300	1,805	3,331	-1,739	1,456	4,755	1,643	9,543	18,465	
Occupied Housing Units		157	740	1,332	-633	605	1,884	678	3,740	7,198	
Owner Occupied		108	508	913	-434	415	1,292	465	2,564	4,935	
Renter Occupied		49	233	419	-199	190	592	213	1,176	2,263	
Vacant Housing		9	42	-79	-36	35	108	39	214	412	
Housing Units		166	783	1,408	-670	640	1,992	717	3,954	7,610	
Single family		123	580	1,043	-496	474	1,476	531	2,930	5,639	
Multi-Family		35	163	294	-140	133	156	149	824	1,586	
Mobile Home, Trailer, Other		8	40	145	-34	32	101	36	200	385	

Source: JEO Consulting Group, Inc, 2000

Table 11 shows projected housing needs based upon the three population projections presented in Figure 1. There were several assumptions used in the development of Table 11. These assumptions are:

The overall number of persons per household will remain the same at 2.58.

The number of persons per owner- and renter-occupied housing will remain the same at 2.70 and 2.32 respectively.

The percentage of housing dedicated to owner- and renter-occupation will remain the same at 64.8% and 29.7% respectively.

The percentage of vacant housing will remain constant at 5.4%.

The percentage of housing dedicated to single- and multi-family use will remain constant at 74.1% and 20.8% respectively.

The percentage of mobile homes and trailers will remain constant at 5.1%.

These assumptions were used to project future housing needs based upon past trends and present conditions. In essence, Table 11 can be considered a projection of the status quo; what will happen in any given population projection if every factor stays constant. Due to the percentages used, the figures do not add up to the totals. There can be no way of knowing what the status quo would actually produce, or even how likely it is that the status quo could be maintained over the planning period. However, the information in this Table is presented for the purpose of alerting the County to the possible affects on housing caused by the various population projections.

Looking only at the Total Change from 2000 section of Table 11, and only at the columns representing the year 2030, the possible potential change warrants some consideration. The possible potential change can vary greatly depending upon which population projection is analyzed. The number of new housing units needed in the next twenty years, based on each projection, could be:

Characteristic	Low Series	Medium Series	High Series
Total Housing	+ 1,408	+ 1,992	+ 7,610
Single Family	+ 1,043	+ 1,476	+ 5,639
Multi-Family	+ 294	+ 156	+ 1,586
Mobile Home, Trailer, Other	+ 145	+ 101	+ 385
Owner-Occupied	+ 913	+ 1,292	+ 4,935
Renter-Occupied	+ 419	+ 592	+ 2,263
Vacant Housing	- 79	+ 108	+ 412

TABLE 12: HOUSING PROJECTIONS BY OCCUPANCY TYPE, WOODBURY COUNTY, 2000 THROUGH 2030

Housing Statistic	2000 Total	2030 Low	Change from 2000	2030 Medium	Change from 2000	2030 High	Change from 2000
Housing Units	41,394	40,620	-774	43,489	2,095	44,082	2,688
Owner-Occupied	26,841	26,282	-559	28,139	1,298	28,522	1,681
Single Family	19,943	19,528	-415	20,907	964	21,192	1,249
Multi-Family	5,341	5,230	-111	5,600	258	5,676	335
Mobile Home, Trailer, Other	1,557	1,524	-32	1,632	75	1,654	97
Renter-Occupied	12,310	12,080	-230	12,933	623	13,109	799
Single Family	9,146	8,975	-171	9,609	463	9,740	594
Multi-Family	2,450	2,404	-46	2,574	124	2,609	159
Mobile Home, Trailer, Other	714	701	-13	750	36	760	46
Vacant	2,243	2,164	-79	2,418	175	2,451	208
Single Family	1,667	1,608	-59	1,797	130	1,821	155
Multi-Family	446	431	-16	481	35	488	41
Mobile Home, Trailer, Other	124	126	2	140	16	142	18

Source: JEO Consulting Group, Inc., 2000

The data in Table 11 was manipulated and is presented in Table 12 to suggest the potential need for housing by ownership and by occupancy. Again, the data does not add up to the totals. Table 12 shows how many housing units could potentially be needed by the year 2030, based upon ownership status and by occupancy. Table 12 indicates how many of the total number of new owner-occupied, renter-occupied, and vacant housing units will potentially be single family, multi-family, or mobile home, and trailer. There was one major assumption used in Table 12. This assumption was that the percentage of total housing units that were classified as single family, multi-family, and mobile home, trailer, and other, were consistent when applied to owner-occupied, renter-occupied, and vacant units.

By the year 2030, population projections indicate that there could be as many as 2,688 new homes in Woodbury County. The projected new homes would be broken into 1,681 owner-occupied units, 799 renter-occupied units, and 208 vacant units. As with Table 11, the information in Table 12 is presented solely to illustrate the potential affect on housing needs.

Summary of Housing Profile

The ability to provide affordable, safe housing is an integral aspect of economic development. The housing stock in Woodbury County is generally in good condition, and should be a positive factor in future economic development. Generally speaking, the number of housing units, by occupancy, is relatively close to national averages. The United States Census Bureau recently published national housing statistics in a report titled "Housing Survey 2000." Based upon that assumption, Woodbury County 2000 data compares to United States 2000 census data as follows:

	United States (2000 Census Data)	% of total	Woodbury County (2000 Census Data)	% of total
Total Housing	115,904,641	N/A	41,394	N/A
Owner-Occupied	69,815,753	60.2%	26,841	64.8%
Renter-Occupied	35,664,348	30.8%	12,310	29.7%
Vacant	10,424,540	9.0%	2,243	5.5%

When comparing Woodbury County to the United States, the data shows Woodbury County has 3.5% more housing occupied by owners than the country as a whole. Woodbury County also has 1.1% less of its housing occupied by renters. This means that Woodbury County has 3.5% less vacant housing than the country.

The standard vacancy rate used in the housing industry is 5.0%. At a 5.0% vacancy rate, a community is generally supplying enough extra housing to allow new and current residents to have a choice in the neighborhood and price range of home. However, there are not too many units to allow for deterioration during long periods of non-use. Woodbury County's vacancy rate of 5.6% appears to be in-line with industry standards. There are not necessarily standard rates for owners and renters, or even for single-, and multi- family housing due to the various social and economic factors that drive supply in these categories; these factors change from community to community.

ECONOMIC AND EMPLOYMENT PROFILE

Economic data are collected in order to understand area markets, changes in economic activity and employment needs and opportunities within Woodbury County. In this section, employment by industry, household income statistics, transfer payments, and basic/non-basic analyses are reviewed for Woodbury County, the Metropolitan Statistical Area (when possible), and Iowa.

Income Statistics

Income statistics for households are important for determining the earning power of households in a County. The data presented show household income levels for Woodbury County in comparison to the State. These data were reviewed to determine whether households experienced income increases at a rate comparable to the State of Iowa and the Consumer Price Index (CPI). Note the income statistics may exhibit different numbers than housing statistics; for example, Table 9 indicates 39,256 households in Woodbury County in 1990, while Table 13 indicates 39,253. Discrepancies of this nature are normal, and are due to data generated by different census survey instruments.

TABLE 13: HOUSEHOLD INCOME, WOODBURY COUNTY, 1990 THROUGH 2000

Household Income Ranges	1990		2000			2000	
	Woodbury County	% of Total	Woodbury County	% of Total	Total Change	State of Iowa	% of Total
Less than \$10,000	6,516	17.6%	3,192	8.1%	-3,324	93,783	8.2%
\$10,000 to \$14,999	4,037	10.9%	2,749	7.0%	-1,288	77,333	6.7%
\$15,000 to \$24,999	7,799	21.1%	5,818	14.8%	-1,981	165,122	14.4%
\$25,000 to \$34,999	6,529	17.7%	5,985	15.2%	-544	168,713	14.7%
\$35,000 to \$49,999	6,521	17.6%	7,342	18.7%	821	218,204	19.0%
\$50,000 and over	5,577	15.1%	14,167	36.1%	8,590	427,242	37.1%
Total	36,979	100.0%	39,253	100.0%	2,274	1,150,397	100.0%
Median Household Income		\$25,186		\$38,509	\$13,323	\$39,469	
Number of Households		39,253		39,256	3	1,149,276	

Source: U.S. Census Bureau, Census of Population and Housing, SF-3, 1990-2000

Table 13 indicates the number of households in each income range for 1990 and 2000 within Woodbury County. In 1990, the household income range most commonly reported was between \$15,000 and \$24,999, which accounted for 21.1% of all households. However, those households that earned less than \$15,000 per year accounted for 38.5% of the total households. In 1990, household income ranges of \$50,000 and over accounted for only 15.1% of all households. Finally, the median household income for Woodbury County was \$25,186 in 1990.

Between 1990 and 2000, household incomes showed an increase within the County. All of the increases occurred in the income ranges above \$35,000 per year. In 2000, these income ranges accounted for a total of 54.8% of all households, compared to 32.7% in 1990. This represents an increase of more than 1.5 times the number of similar households in 1990. This change is important, as it reflects the economic growth of the 1990's. In 1990, those households earning less than \$15,000 accounted for 38.5% of all households, but by 2000 they represented only 15.1%. This indicates a decrease of 4,612 households in this category. By 2000, the median household income increased to \$38,509, or a 52.8% increase from the 1990 level of \$25,186. Finally, the CPI for this period was 31.6%, indicating incomes in Woodbury County kept pace with inflation. Thus, Woodbury County households were earning more, in real dollars, in 2000 than in 1990.

TABLE 14: HOUSEHOLD INCOME BY AGE (55 YEARS & OVER) WOODBURY COUNTY, 2000

Income Categories	55 to 64 years	65 to 74 years	75 years and over	Households age 55 and over	% Households age 55 and over	Total Households	% of Total Households age 55 & over
Less than \$10,000	375	448	779	1,602	11.6%	3,192	50.2%
\$10,000 to \$14,999	228	460	803	1,491	10.8%	2,794	53.4%
\$15,000 to \$24,999	567	862	1,062	2,491	18.0%	5,818	42.8%
\$25,000 to \$34,999	809	772	900	2,481	17.9%	5,985	41.5%
\$35,000 to \$49,999	794	833	575	2,202	15.9%	7,342	30.0%
\$50,000 or more	1,904	1,039	656	3,599	26.0%	14,167	25.4%
Total	4,677	4,414	4,775	13,866	100.0%	39,298	35.3%

Source: U.S. Census Bureau, Census of Population and Housing, SF-3, 2000

Table 14 shows household income for Woodbury County householders aged 55 years and over for 2000. The purpose for this information is to determine the earning potential of Woodbury County's senior households. The Table indicates 5,584 senior households, or 39.4% of the total senior households, had incomes of less than \$25,000 per year. Furthermore, 3,093 senior households, or 40.1% of the total senior households, had incomes less than \$15,000 per year. These 3,093 senior households accounted for 51.6% of all households that earned less than \$15,000. This indicates many senior households could be eligible for housing assistance to ensure they continue to live at an appropriate standard of living.

The number of senior households could easily continue to grow during the next twenty years; the two largest age cohorts for Woodbury County are the 35 to 44 age cohort, with 15,657 persons, and the 45 to 54 age cohort, with 13,623 persons. Since these are the two largest cohorts, the 55 and over age cohorts should increase faster than all cohorts over the next twenty years. As the size of the 55 and over age cohort increases, these typically fixed income households may be required to live independently for a longer period of time. Also, the fixed incomes seen by seniors tend to decline at a faster rate than incomes for other segments of the population, in terms of real dollars.

The last two columns of Table 14 indicate the total number of households in each income level and the proportion of those households that were age 55 and older. Note that these households age 55 or older comprised 50.2% of all households earning less than \$10,000 per year. By contrast, only 30.0% of all households in the \$35,000 to \$49,999 income range were over 55 years of age, and only 25.4% of all households in the \$50,000 or more income range were over 55 years of age.

TABLE 15: HOUSING COSTS AS A PERCENTAGE OF INCOME, WOODBURY COUNTY, 2000

Household Income Categories	Owner-Occupied Households	% O.O. Households	Renter-Occupied Households	% R.O. Households	Total Households	% of Total Households
Less than \$10,000						
Less than 30% of income	196	0.9%	358	3.2%	554	1.7%
More than 30% of income	661	3.0%	1,385	12.2%	2,046	6.1%
\$10,000 to \$19,999						
Less than 30% of income	1,342	6.1%	1,033	9.1%	2,375	7.1%
More than 30% of income	872	4.0%	1,673	14.8%	2,545	7.6%
\$20,000 to \$34,999						
Less than 30% of income	3,607	16.4%	2,525	22.3%	6,132	18.4%
More than 30% of income	478	2.2%	774	6.8%	1,252	3.8%
\$35,000 to \$49,999						
Less than 30% of income	4,047	18.4%	1,779	15.7%	5,826	17.5%
More than 30% of income	284	1.3%	39	0.3%	323	1.0%
\$50,000 or more						
Less than 30% of income	10,197	46.3%	1,746	15.4%	11,944	35.8%
More than 30% of income	352	1.6%	14	0.1%	366	1.1%
TOTAL	22,036	100.0%	11,326	100.0%	33,362	100.0%
Housing Cost Analysis						
Less than 30% of income	19,389	88.0%	7,441	65.7%	26,830	80.4%
More than 30% of income	2,647	12.0%	3,885	34.3%	6,532	19.6%
TOTAL	22,036	100.0%	11,326	100.0%	33,362	100.0%

Source: U.S. Census Bureau, Census of Population and Housing, SF-3, 2000

Table 15 shows owner-occupied and renter-occupied housing costs as a percentage of householder income in 2000. In addition, the Table identifies the number of households experiencing a housing cost burden. A housing cost burden, as defined by the U.S. Department of Housing and Urban Development (HUD), occurs when gross housing costs, including utility costs, exceeds 30% of gross household income, based upon data published by the U.S. Census Bureau. Table 15 shows 26,830 households, or 80.4% of total households, paid less than 30% of their income towards housing costs. This means the remaining 6,532 households, or 19.6% experienced a housing cost burden.

Table 15 indicates a housing cost burden was more prevalent in renter-occupied households. Overall, 37.3% of all renter-occupied households had a burden versus 34.3% for owner-occupied households. Nearly all of the renter-occupied households were in the income ranges of \$20,000 or less per year.

TABLE 16: HOUSING COSTS AS PERCENTAGE OF INCOME (AGE 65 & OVER), WOODBURY COUNTY, 2000

Household Income Categories	Owner-Occupied Households	% O.O. Households	Renter-Occupied Households	% R.O. Households	Total Households age 65 and Over	% of Total Households
Housing Cost Analysis						
Less than 30% of income	5,000	85.8%	966	53.2%	5,966	78.0%
More than 30% of income	828	14.2%	851	46.8%	1,679	22.0%
TOTAL	5,828	100.0%	1,817	100.0%	7,645	100.0%

Source: U.S. Census Bureau, Census of Population and Housing, SF-3, 2000

Table 16 shows owner and renter costs for householders age 65 and over. In 2000, a housing cost burden affected 1,679 households age 65 and over. There were 828 owner-occupied households, or 14.2% of owners age 65 and over, and 851 renter-occupied households, or 46.8% of renters age 65 and over, that had a housing cost burden. This indicates renters age 65 and over were affected disproportionately by a housing cost burden when compared to owners age 65 and over. Overall, 22.0% of the population age 65 and over experienced this burden. This is nearly identical to the 21.0% proportion seen in the total population.

Income Source and Public Assistance

Income statistics for individuals are also important for determining the earning power of individuals in a county. The data presented show personal income levels for Woodbury County in comparison to the MSA and the State. These data were reviewed to determine whether individuals experienced income increases at a rate comparable to the MSA, the State of Iowa, and the Consumer Price Index (CPI).

TABLE 17: INCOME BY SOURCE, STATE, MSA, AND WOODBURY COUNTY, 1970 THROUGH 2000

Income Characteristics	1970	1980	1990	2000	% Change 1970-2000	% Annual Change	Woodbury vs. MSA
<i>Woodbury County</i>							
Total Personal Income	\$401,943,000	\$965,384,000	\$1,622,036,000	\$2,673,895,000	565.2%	20.9%	86.5%
Non-farm Income	\$386,532,000	\$964,087,000	\$1,602,461,000	\$2,666,946,000	590.0%	21.9%	86.7%
Farm Income	\$15,411,000	\$1,297,000	\$19,575,000	\$6,949,000	-54.9%	-2.0%	48.0%
Woodbury Per capita income	\$3,894	\$9,559	\$16,477	\$25,754	561.4%	20.8%	103.4%
<i>Metropolitan Statistical Area</i>							
Total Personal Income	\$446,758,000	\$1,112,785,000	\$1,860,317,000	\$3,091,184,000	591.9%	21.9%	
Non-farm Income	\$428,736,000	\$1,112,571,000	\$1,832,548,000	\$3,076,694,000	617.6%	22.9%	
Farm Income	\$18,022,000	\$214,000	\$27,769,000	\$14,490,000	-19.6%	-0.7%	
MSA Per capita income	\$3,836	\$9,460	\$16,142	\$24,902	549.2%	20.3%	
<i>State of Iowa</i>							
Total Personal Income	\$10,846,037,000	\$27,668,751,000	\$46,932,893,000	\$77,378,164,000	613.4%	22.7%	
Non-farm Income	\$9,628,033,000	\$27,050,580,000	\$44,928,115,000	\$75,088,914,000	679.9%	25.2%	
Farm Income	\$1,218,004,000	\$618,171,000	\$2,004,778,000	\$2,289,250,000	88.0%	3.3%	
Iowa Per capita income	\$3,835	\$9,495	\$16,885	\$26,431	589.2%	21.8%	

Source: Bureau of Economic Analysis, Regional Economic Information System, CA30, 2000

Table 17 shows personal income by source for Woodbury County, the MSA, and the State. Total income, non-farm income and per capita income showed continued growth. Non-farm income in Woodbury County increased from \$386,532,000 in 1970 to \$2,673,895,000 in 2000, or an increase of 565.2%. This increase exceeded the CPI of 343.8% for the period. By 2000, farm income in Woodbury County had declined from \$15,411,000 to \$6,949,000 or 54.9%. Per capita income increased from \$3,894 in 1970 to \$25,754 in 2000, or an increase of 561.4%, which also exceeded the CPI. The proportion of Total Personal Income that has been Non-farm Income suggests Woodbury County is predominantly a non-farm County. The rate at which non-farm and farm incomes have changed since 1970 indicate Woodbury County has been only slightly dependent on agriculture for income. These data indicate the economy in Woodbury County has been based more on commerce and industry than agriculture. This is typically what would be expected in a metropolitan county such as Woodbury County.

It is important for Woodbury County to understand its position within the MSA. Between 1970 and 2000, Woodbury County maintained nearly the same rate of change in non-farm income as the MSA, and a slightly higher rate of change for personal income. Farm income in the MSA changed at a smaller the County, likely due to the influence of Dakota County, Nebraska. Woodbury County's non-farm income in 2000 was 86.7% of total non-farm income for the entire MSA, and 48.0% of farm income in the MSA. Per capita income in Woodbury County was 103.4% of the MSA, and increased by an annual rate of 20.8% between 1970 and 2000, compared to an annual increase of 20.3% for the MSA.

The per capita income in Woodbury County also increased at a rate higher than the State. In 1970, Woodbury County's per capita income surpassed the State's, it dipped below the state average in 1990, and remained that way through 2000. Woodbury County's per capita income increased at a slightly lower annual growth rate than the State's. Thus, while Woodbury County appears to have a strong economic base, however, the County still needs to monitor and manage its resources and continue to develop its economic base so that it can sustain the economic growth and declines of the past.

TABLE 18: TRANSFER PAYMENTS, STATE, MSA, AND WOODBURY COUNTY, 1970 THROUGH 2000

Payment Type	1970	1980	1990	2000	% Change 1970 to 2000	% Change Per Year
Woodbury County						
Government payments to individuals	\$41,626,000	\$141,688,000	\$256,749,000	\$349,719,000	740.1%	27.4%
Retirement, Disability & Insurance Benefits	\$24,579,000	\$77,201,000	\$148,677,000	\$165,697,000	574.1%	21.3%
Medical Payments	\$6,461,000	\$34,664,000	\$72,131,000	\$133,609,000	1,643.2%	60.9%
Income Maintenance Benefits	\$5,296,000	\$14,104,000	\$19,493,000	\$30,043,000	467.3%	17.3%
Unemployment Insurance Benefits	\$1,227,000	\$7,129,000	\$4,999,000	\$7,015,000	471.7%	17.5%
Veteran's Benefits	\$3,869,000	\$6,086,000	\$6,669,000	\$7,935,000	105.1%	3.9%
Federal Education and Training Assistance	\$176,000	\$2,446,000	\$4,646,000	\$5,094,000	3,019.9%	111.8%
Payment to Non-profit Institutions	\$1,835,000	\$4,863,000	\$8,013,000	\$14,882,000	711.0%	26.3%
Business Payments	\$822,000	\$2,632,000	\$5,431,000	\$8,097,000	885.0%	32.8%
Total	\$44,283,000	\$149,183,000	\$270,193,000	\$372,698,000	741.6%	27.5%
Transfer Payments Per Capita	\$429	\$1,477	\$2,744	\$3,588	736.3%	27.3%
Total Per Capita Income	\$3,894	\$9,559	\$16,477	\$23,224	496.4%	18.4%
Per Capita Transfer Payments as						
% of Per Capita Income	11.0%	15.5%	16.7%	15.4%	40.2%	1.5%
Metropolitan Statistical Area						
Total	\$48,933,000	\$166,476,000	\$306,334,000	\$431,334,000	781.5%	28.9%
Transfer Payments Per Capita	\$420	\$1,415	\$2,658	\$3,474	727.1%	26.9%
Total Per Capita Income	\$3,836	\$9,460	\$16,142	\$22,633	490.0%	18.1%
Per Capita Transfer Payments as						
% of Per Capita Income	10.9%	15.0%	16.5%	15.3%	40.2%	1.5%
State of Iowa						
Total	\$1,051,864,000	\$3,674,247,000	\$7,002,911,000	\$10,472,977,000	895.7%	33.2%
Transfer Payments Per Capita	\$372	\$1,261	\$2,519	\$3,579	862.1%	31.9%
Total Per Capita Income	\$3,835	\$9,495	\$16,885	\$26,431	589.2%	21.8%
Per Capita Transfer Payments as						
% of Per Capita Income	9.7%	13.3%	14.9%	13.5%	39.6%	1.5%

Source: Bureau of Economic Analysis, Regional Economic Information System, 2000

Table 18 indicates Transfer Payments to individuals in Woodbury County from 1970 to 2000. Note the total amount of Transfer Payments equals Government Payments to Individuals plus Payments to Non-Profit Institutions plus Business Payments. The remaining categories listed in Table 18 are components of Government Payments to Individuals.

Total transfer payments reported an increase in each census year between 1970 and 2000. Retirement, disability and insurance benefits, and medical payments comprised the majority of the total transfer payments. The largest percentage increase occurred within Federal Education and Training Assistance, which

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increased by over \$5 million, or 3,019%. Medical Payments also had a dramatic increase of \$127 million, or 1,643.2%.

The trend for total transfer payments per capita between 1970 and 2000 indicates payments increased significantly to individuals in Woodbury County, from \$429 per person in 1970 to \$3,588 per person in 1997, or 736.3% in 30 years. However, transfer payments, as a proportion of per capita income, increased at a much lower rate between 1970 and 2000. In 1970, transfer payments comprised 11.0% of total per capita income, and in 2000 transfer payments were 15.4% of total per capita income.

In 1970, Total Transfer Payments for Woodbury County were \$41,626,000, while the MSA totaled \$48,933,000. Therefore, Woodbury County accounted for 85.1% of the MSA's total. By 2000, Total Transfer Payments for Woodbury County were \$372,698,000, or an increase of 741.6%, while the MSA total was \$431,334,000, or an increase of 781.5%. As of 2000, Woodbury County accounted for 76.6% of the Total Transfer Payments in the MSA. This indicates Woodbury County receives a great majority of all of the transfer payments paid to the MSA, and that fluctuations in the amount of transfer payments made to the MSA are dictated primarily by Woodbury County. In 2000, transfer payments per capita in Woodbury County were \$3,587, and within the MSA payments totaled \$3,474.

Industry Employment

Analyzing employment by industry assists a county in determining the key components of their labor force, which can help in formulating an economic development plan. This section indicates the type of industry comprising the local economy, as well as identifying particular occupations that employ residents.

TABLE 19: EMPLOYMENT BY INDUSTRY, STATE, MSA, AND WOODBURY COUNTY, 1970 THROUGH 2000

Industry	1970	% of Total	1980	% of Total	1990	% of Total	2000	% of Total	% Change 1970 to 1997	Woodbury Co. vs. MSA
Woodbury County										
Farm Employment	2,514	5.1%	2,139	3.9%	1,711	2.9%	1,541	2.3%	-38.7%	82.3%
Non-farm Employment	46,864	94.9%	52,139	96.1%	57,171	97.1%	64,273	97.7%	37.1%	82.3%
Ag. Serv. forestry, fishing, mining and other	474	1.0%	463	0.9%	608	1.0%	726	1.1%	53.2%	N/A
Construction	2,352	4.8%	2,693	5.0%	2,650	4.5%	3,469	5.3%	47.5%	84.6%
Manufacturing	8,516	17.2%	6,177	11.4%	7,425	12.6%	7,780	11.8%	-8.6%	N/A
Transportation and Public Utilities	3,533	7.2%	4,048	7.5%	3,513	6.0%	3,680	5.6%	4.2%	83.9%
Wholesale Trade	2,992	6.1%	3,434	6.3%	3,106	5.3%	3,268	5.0%	9.2%	90.0%
Retail Trade	9,154	18.5%	10,471	19.3%	11,020	18.7%	12,732	19.3%	39.1%	88.3%
Finance, Insurance & Real Estate Services	3,946	8.0%	4,747	8.7%	3,674	6.2%	3,484	5.3%	-11.7%	78.8%
Government and Government Enterprises	10,305	20.9%	13,779	25.4%	18,823	32.0%	22,164	33.7%	115.1%	90.7%
Totals	49,378	100.0%	54,278	100.0%	58,882	100.0%	65,814	100.0%	33.3%	82.3%
Metropolitan Statistical Area										
Farm Employment	3,057	5.5%	2,686	4.2%	2,139	2.9%	1,873	2.3%	-38.7%	
Non-farm Employment	52,682	94.5%	61,100	95.8%	70,477	97.1%	78,058	97.7%	48.2%	
Ag. Serv. forestry, fishing, mining and other	517	0.9%	520	0.8%	703	1.0%	N/A	N/A	N/A	
Construction	2,671	4.8%	3,102	4.9%	3,372	4.6%	4,099	5.1%	53.5%	
Manufacturing	10,413	18.7%	9,967	15.6%	14,171	19.5%	N/A	N/A	N/A	
Transportation and Public Utilities	3,792	6.8%	4,425	6.9%	3,886	5.4%	4,387	5.5%	15.7%	
Wholesale Trade	3,208	5.8%	3,589	5.6%	3,462	4.8%	3,631	4.5%	13.2%	
Retail Trade	10,441	18.7%	11,663	18.3%	12,694	17.5%	14,416	18.0%	38.1%	
Finance, Insurance & Real Estate Services	4,201	7.5%	5,282	8.3%	4,334	6.0%	4,419	5.5%	5.2%	
Government and Government Enterprises	11,177	20.1%	15,367	24.1%	20,581	28.3%	24,449	30.6%	118.7%	
Totals	55,739	100.0%	63,786	100.0%	72,616	100.0%	79,931	100.0%	43.4%	
State of Iowa										
Farm Employment	170,931	13.2%	161,700	10.5%	130,787	8.0%	109,285	5.6%	-36.1%	
Non-farm Employment	1,123,667	86.8%	1,379,342	89.5%	1,511,153	92.0%	1,837,608	94.4%	63.5%	
Ag. Serv. forestry, fishing, mining and other	15,318	1.2%	13,297	0.9%	23,273	1.4%	30,380	1.6%	98.3%	
Construction	63,507	4.9%	74,100	4.8%	71,322	4.3%	100,527	5.2%	58.3%	
Manufacturing	221,421	17.1%	249,834	16.2%	241,576	14.7%	266,882	13.7%	20.5%	
Transportation and Public Utilities	62,033	4.8%	69,381	4.5%	69,421	4.2%	91,834	4.7%	48.0%	
Wholesale Trade	50,191	3.9%	83,066	5.4%	81,632	5.0%	90,865	4.7%	81.0%	
Retail Trade	217,964	16.8%	254,670	16.5%	279,567	17.0%	329,185	16.9%	51.0%	
Finance, Insurance & Real Estate Services	83,713	6.5%	109,213	7.1%	108,733	6.6%	137,584	7.1%	64.4%	
Government and Government Enterprises	219,176	16.9%	304,991	19.8%	401,717	24.5%	536,926	27.6%	145.0%	
Totals	1,294,598	100.0%	1,541,042	100.0%	1,641,940	100.0%	1,946,893	100.0%	50.4%	

Note: Data not disclosed to avoid disclosure.

Source: U.S. Bureau of Economic Analysis, Regional Economic Information System, 2000

Between 1970 and 2000, Woodbury County experienced many changes within its industries. Overall, the workforce in Woodbury County increased by 16,436 jobs, or 33.3%. During the same period, the MSA increased by 24,192 jobs, or 43.4%, while the State of Iowa had an increase of 652,295 positions, or 33.1%. Woodbury County increased at a rate slower than the MSA and the State of Iowa. However, the employment growth in Woodbury County accounted for 76.7% of the total MSA growth.

Industries within Woodbury County with the greatest increases were Services, with an increase of 11,859 jobs, or 115.1%, and Agriculture and related services, with an increase of 252 jobs, or 53.2%. The Construction industry also increased by a large amount by adding 736 jobs, or 47.5%. Finance, insurance, and real estate was the only industry that lost jobs between 1970 and 2000, experiencing a loss of 462 job, or 11.7% decline.

Those sectors that lost employment are indicated below:

Finance, Insurance, and Real Estate (F.I.R.E.) - 462 jobs - 11.7%

The losses in Finance, Insurance, and Real Estate were likely due to relocation and downsizing, which occurred in many industries during the early and middle parts of the period. However, the losses in F.I.R.E. were not typical to trends seen in the United States during this time period; as this sector has tended to be increasing over time.

Increases in employment positions occurred in all other industry categories:

Services	+11859 jobs	+ 33.7%
Retail Trade	+ 3,578 jobs	+ 19.3%
Construction	+ 1117 jobs	+ 5.3%
Government and Government Enterprises	+ 1378 jobs	+ 10.6%
Wholesale Trade	+ 276 jobs	+ 5.0%
Transportation and Public Utilities	+ 147 jobs	+ 5.6%
Ag. Services, Forestry, Fishing, Mining, Other	+ 252 jobs	+ 1.1%

Changes within Woodbury County are reflective of the move nationally for more service-related industries. Woodbury County, together with its economic development partners, needs to identify assets and market the County as an attractive location for businesses to relocate, establish new operations, or assist existing businesses in expanding their scope of activity. This may become easier as telecommuting and technology continues to improve. Another marketing tool that Woodbury County can use is its ability to provide quality, affordable housing in close proximity to the Sioux City metro area.

This information also underscores the importance of Woodbury County's membership within the MSA. If this MSA is going to continue to expand as in the past, and trends suggest growth will continue, people moving into the area will need adequate housing. Since Woodbury County is home to Sioux City, which is the largest city in the MSA, Woodbury County will likely receive most of the population increase within the MSA. The rural atmosphere and proximity to Sioux City may attract people working in the MSA to relocate to Woodbury County. However, future land use policies and strategies will need to be specific and enforced in order to maintain the rural atmosphere seen outside Sioux City.

Commuter Trends

Analyzing commuter trends allows the County to see where residents are working and where workers are residing. This data can help the County develop land use policies that allow people to live in areas near their work while protecting rural values and regulating housing densities.

TABLE 20: COMMUTER POPULATION TRENDS, RESIDENTS OF WOODBURY COUNTY, 1960 - 1990

County of Residence	County of Employment	1960	1970	1980	1990	Total Change 1960-1990	% of 1960 Total	% of 1990 Total	
Woodbury County	Black Hawk County	0	0	0	20	20	0.0%	0.0%	
	Cherokee County	36	50	39	97	61	0.1%	0.2%	
	Crawford County	13	32	0	0	-13	0.0%	0.0%	
	Humboldt County	0	0	17	47	47	0.0%	0.1%	
	Ida County	45	82	85	153	108	0.1%	0.3%	
	Monona County	77	53	187	206	129	0.2%	0.5%	
	O'Brien County	0	13	0	0	0	0.0%	0.0%	
	Plymouth County	105	244	342	394	289	0.3%	0.9%	
	Polk County	0	0	40	98	98	0.0%	0.2%	
	Sac County	4	19	0	0	-4	0.0%	0.0%	
	Sioux County	16	24	27	40	24	0.0%	0.1%	
	Story County	0	0	0	27	27	0.0%	0.1%	
	Woodbury County		35,992	34,024	39,271	39,581	3,589	91.5%	86.6%
	Dakota County, NE		329	1,202	2,657	3,506	3,177	0.8%	7.7%
	Dixon County, NE		0	13	0	20	20	0.0%	0.0%
	Douglas County, NE		58	0	0	61	3	0.1%	0.1%
	Lancaster County, NE		0	0	0	20	20	0.0%	0.0%
	Madison County, NE		0	0	24	14	14	0.0%	0.0%
	Thurston County, NE		22	8	50	66	44	0.1%	0.1%
	Wayne County, NE		0	13	0	0	0	0.0%	0.0%
	Ward County, ND		0	0	42	0	0	0.0%	0.0%
	Minnehaha County, SD		0	0	60	44	44	0.0%	0.1%
	Union County, SD		98	80	299	877	779	0.2%	1.9%
	Elsewhere		533	788	438	452	-81	1.4%	1.0%
	Not Reported		2,009	1,945	0	0	-2,009	5.1%	0.0%
	Total		39,337	38,590	43,578	45,723	6,386	100.0%	100.0%
	Total Commuter		3,345	4,566	4,307	6,142	2,797		
% Commuter		8.5%	11.8%	9.9%	13.4%	83.6%			

Source: Bureau of Economic Analysis, Regional Economic Information System, 1999

Table 20 shows the number of Woodbury County residents having commuted to other counties for employment between 1960 and 1990. The number of Woodbury County residents employed within Woodbury County increased by 3,589, or 10.0%, while the number of Woodbury County residents commuting to other counties increased by 2,797, or 83.6%. The majority of the commuter increase can be attributed to employment increases in Dakota County (South Sioux City), Nebraska, which gained 2,848 employees from Woodbury County. The total workforce commuting from Woodbury County to Dakota County for employment increased from 0.8% of the total in 1960, to 7.7% of the total in 1990. The percentage of Woodbury County residents working in Woodbury County decreased from 91.5% of the total workforce in 1960, to 86.6% in 1990. The remaining 5.7% of the 1990 workforce were scattered between sixteen other counties in three states. In addition, there was also a small percentage working in undisclosed locations, and some that failed to report where they worked.

TABLE 21: COMMUTER POPULATION TRENDS; WORKERS IN WOODBURY COUNTY, 1960 - 1990

County of Employment	County of Residence	1960	1970	1980	1990	Total Change 1960-1990	% of 1960 Total	% of 1990 Total
Woodbury County	Cherokee County	48	47	82	36	-12	0.1%	0.1%
	Clay County	13	6	0	0	-13	0.0%	0.0%
	Crawford County	12	0	16	47	35	0.0%	0.1%
	Dickinson County	0	0	23	50	50	0.0%	0.1%
	Harrison County	8	6	0	20	12	0.0%	0.0%
	Ida County	24	50	66	107	83	0.1%	0.2%
	Lyon County	4	23	0	0	-4	0.0%	0.0%
	Monona County	155	196	393	478	323	0.4%	1.0%
	O'Brien County	21	7	33	8	-13	0.1%	0.0%
	Plymouth County	671	867	1,231	1,767	1,096	1.7%	3.7%
	Polk County	0	0	53	31	31	0.0%	0.1%
	Sac County	4	6	0	0	-4	0.0%	0.0%
	Sioux County	42	40	185	110	68	0.1%	0.2%
	Woodbury County	35,992	34,024	39,271	39,581	3,589	91.2%	83.8%
	Burt County, NE	8	6	0	0	-8	0.0%	0.0%
	Cedar County, NE	24	15	0	0	-24	0.1%	0.0%
	Cuming County, NE	4	4	0	0	-4	0.0%	0.0%
	Dakota County, NE	1,727	1,679	2,579	3,060	1,333	4.4%	6.5%
	Dixon County, NE	98	114	144	318	220	0.2%	0.7%
	Dodge County, NE	0	0	20	10	10	0.0%	0.0%
	Douglas County, NE	74	0	26	80	6	0.2%	0.2%
	Lancaster County, NE	0	0	0	32	32	0.0%	0.1%
	Thurston County, NE	85	28	26	109	24	0.2%	0.2%
	Wayne County, NE	9	35	8	47	38	0.0%	0.1%
	Muskogee County, OK	0	0	40	0	0	0.0%	0.0%
	Brookings County, SD	0	0	3	20	20	0.0%	0.0%
	Clay County, SD	35	18	116	143	108	0.1%	0.3%
	Lincoln County, SD	4	4	5	35	31	0.0%	0.1%
	Minnehaha County, SD	0	0	17	27	27	0.0%	0.1%
	Union County, SD	409	625	958	1,074	665	1.0%	2.3%
	Yankton County, SD	4	15	46	23	19	0.0%	0.0%
	Total	39,475	37,815	45,341	47,213	7,738	100.0%	100.0%
	Total Commuter	3,483	3,791	6,070	7,632	4,149		
% Commuter	8.8%	10.0%	13.4%	16.2%	119.1%			

Source: Bureau of Economic Analysis, Regional Economic Information System, 1999

Table 21 shows the number of persons employed in Woodbury County and where they resided, between 1960 and 1990. The number of workers that commuted in to Woodbury County increased by 4,149, or 119.1%, as compared to the increase of 3,589 by those living and working in Woodbury County. The majority of the incoming commuter population came from Dakota County (South Sioux City), Nebraska. Plymouth County, Iowa also supplied many of the employees working in Woodbury County. Dakota County, Nebraska accounted for 6.5% of all incoming commuters, and Plymouth County, Iowa accounted for 3.7%. The number of Woodbury County residents that worked in Woodbury County accounted for 83.8%. The remaining 6.0% of the 1990 workforce commuted into Woodbury County from twenty-two other counties in three states during this review period.

During 1960, there were 3,345 residents of Woodbury County that commuted elsewhere for employment, while 3,483 workers commuted to Woodbury County for employment. This resulted in a net gain of 138 people commuting into the County. This indicates the County was importing workers to cover employment opportunities.

By 1990, the number of residents commuting to other counties for employment increased to 6,142, or 83.6% more than in 1960. Those commuting into Woodbury County from other counties increased to 7,632, or 119.1% over 1960. The result was a net gain of 1,490 workers commuting into Woodbury County for employment opportunities.

The net gains, seen in 1960 and 1990, are positive. This means Woodbury County has historically been a Retail Trade center and Industrial Trade center for this part of Iowa and the Midwest. However, one item of caution that should be noted is every person that commutes into Woodbury County must return home. In some cases, these people will leave and take their paychecks and other monies home to be spent elsewhere. This could be considered a leakage of potential retail dollars to places outside the County. However, in reality, a number of these commuters will likely spend a portion of each paycheck on retail items before returning home, thus, the net gain of workers should be considered an ever growing positive for the County.

TABLE 22: TRAVEL TIME TO WORK, WOODBURY COUNTY, 1980 THROUGH 2000

Travel Time Categories	1980	% of Total	1990	% of Total	% Change 1980-1990	2000	% of Total	% Change 1990-2000
Less than 5 minutes	2,066	4.8%	1,897	4.1%	-8.2%	2,185	4.3%	15.2%
5 to 9 minutes	7,732	18.0%	8,032	17.6%	3.9%	7,366	14.4%	-8.3%
10 to 19 minutes	21,265	49.4%	22,234	48.6%	4.6%	24,173	47.2%	8.7%
20 to 29 minutes	7,326	17.0%	7,248	15.9%	-1.1%	9,881	19.3%	36.3%
30 to 44 minutes	2,731	6.3%	2,972	6.5%	8.8%	3,713	7.2%	24.9%
45 to 59 minutes	502	1.2%	859	1.9%	71.1%	934	1.8%	8.7%
60 minutes or more	35	0.1%	916	2.0%	2,517.1%	1,437	2.8%	56.9%
Worked at home	1,386	3.2%	1,567	3.4%	13.1%	1,544	3.0%	-1.5%
Total	43,043	100.0%	45,725	100.0%	6.2%	51,233	100.0%	12.0%
Mean Travel Time (minutes)	14.0		15.5		10.7%	17.6		13.5%

Source: U.S. Census Bureau, Census of Population and Housing, SF-3, 1980-2000

Travel time to work is another factor that can be used to understand from where Woodbury County's workforce has been commuting. Table 22 indicates the workforce in 1990 spent an average of 1-1/2 minutes more traveling to work than in 1980. The average travel time increased from 14.0 minutes in 1980 to 15.5 minutes in 1990. The largest increases occurred in the 10 to 19 minute category, which increased by 969 persons, and the 60 minutes and over category, which increased by 881 persons. While the actual increase of these two groups is similar, the proportionate increase is strikingly different. The 10 to 19 minutes group grew by only

4.6%. However, in 1980, there were only 35 persons in Woodbury County traveling 60 minutes or more to work. The increase to 916 persons in 1990 represents a growth rate of 2,517.1% in this group. Between 1990 and 2000, the largest changes occurred in three categories. Those who drove 60 minutes or more increased by 56.9%, while those commuting between 20 and 29 minutes increased by approximately 36 percent. On the other hand, those working at home decreased by 1.5%, as did the number of people commuting between 5 and 9 minutes. This category declined by 8.3% between 1990 and 2000.

Regional Basic/Non-Basic Analysis

A regional basic/non-basic analysis is based upon six occupational areas that were established by the U.S. Census Bureau to evaluate trends in employment and the regional economy. Such an analysis is a tool for the County to use in creating an economic development strategy. The result of the analysis will indicate what occupations may be better suited as target areas for expansion. Basic employment and non-basic employment are defined as follows:

Basic employment is business activity providing goods and services primarily outside the area, the revenues of which are directed to the local area in the form of wages and payments to local suppliers.

Non-Basic employment is business activity providing goods and services primarily within the local area, and the revenues of such sales re-circulate within the community in the form of wages and expenditures by local citizens.

This analysis is used to understand which occupational areas are exporting goods and services outside the area, thus importing dollars into the local economy. The six occupational categories used in the analysis are:

- Managerial and Professional specialty occupations
- Technical, sales and administrative support occupations
- Service occupations
- Farming, forestry, and fishing occupations
- Precision production, craft and repair occupations
- Operators, fabricators, and labor occupations

The formula for determining the basic or non-basic nature of an occupation includes subtracting the State's percentage of workforce in a particular occupation from the percentage of the workforce of the occupation in the County. If the County has a lower proportion of its workforce employed in an occupation than the State as a whole, then that occupation is non-basic.

A related concept to the basic/non-basic distinction is the Base Multiplier. The base multiplier is a number, which represents how many non-basic jobs are supported by each basic job. A high base multiplier means that the loss of one basic job will have a large potential impact on the local economy if changes in employment occur. The rationale behind this analysis is that if basic jobs bring new money into a local economy, then that money becomes the wages for workers in the local economy. Therefore, the more money that can be brought in by basic jobs, the more non-basic jobs that can be supported.

TABLE 23: BASIC/NON-BASIC EMPLOYMENT BY OCCUPATION, WOODBURY COUNTY, 2000

Occupation Category	Number of Woodbury Workforce	% of Woodbury Workforce	% of State workforce	Woodbury County minus State of Iowa	Basic	Non-Basic
Managerial & Professional	14,461	27.9%	22.3%	5.6%	5.6%	22.3%
Technical, Sales & Administrative	14,276	27.5%	29.3%	-1.8%	0.0%	27.5%
Service	8,235	15.9%	14.6%	1.3%	1.3%	14.6%
Farming, Forestry & Fishing	320	0.6%	7.1%	-6.5%	0.0%	0.6%
Construction, extraction, & maint.	4,514	8.7%	10.5%	-1.8%	0.0%	8.7%
Production, trans., & material moving	10,021	19.3%	16.2%	3.1%	3.1%	16.2%
TOTAL	51,827	100.0%	100.0%		10.0%	90.0%
Economic base multiplier	6.4					

Source: U.S. Census Bureau, Census of Population and Housing, SF-3, 2000

Table 23 indicates the occupation category, the percent of Woodbury County employed in each category, the percent of the State employed in each category, and the basic and non-basic employment for that category in Woodbury County, as of 2000.

In 2000, Woodbury County had three basic occupation industries: 1) Technical, Sales and Administrative, 2) Service, and 3) Precision, Craft and Repair. Goods and services from these occupations were exported to outside markets, which in turn generated an infusion of dollars into the local economy. Table 23 shows 90.0% of the jobs in Woodbury County were non-basic, while only 10.0% provided goods and services outside of the County.

The base multiplier for Woodbury County is 6.4. This number indicates 6.4 non-basic jobs are supported by every one (1) basic job. Every time Woodbury County loses a job in a basic occupation, 1) Technical, Sales and Administrative, 2) Service, or 3) Precision, Craft and Repair, the County potentially could lose 6.4 non-basic jobs. While this number is low, in order to decrease the likelihood of potential economic losses, Woodbury County needs to accentuate its basic jobs by diversifying its employment base even more. Counties should strive for a balance of basic and non-basic employment in their economy to ensure future economic stability. The exact balance is a function of the County's particular characteristics, and will likely differ from other counties.

TABLE 24: REGIONAL AND STATE LABOR FORCE COMPARISONS, WOODBURY COUNTY, 2000

Location	Mgr. & Prof.	Tech., Sales & Admin.	Service	Farm, Forest & Fish	Precise, Craft & Repair	Oper., Fab. & Lab.	Basic Multiplier
Iowa	22.3%	29.3%	14.6%	7.1%	10.5%	16.2%	NA
Woodbury County	27.9%	27.5%	15.9%	0.6%	19.3%	8.7%	6.36
Cherokee County	29.2%	21.7%	15.3%	2.3%	21.2%	10.4%	5.47
Clay County	20.0%	29.2%	12.1%	9.4%	11.1%	18.2%	5.98
Monona County	18.7%	24.2%	16.1%	17.6%	10.6%	12.9%	7.40
Plymouth County	18.6%	25.7%	14.2%	14.2%	10.1%	17.1%	12.41
Pottawattamie County	18.8%	34.0%	13.8%	3.9%	11.7%	17.9%	7.91
Average of Counties	19.0%	23.2%	12.5%	6.9%	12.0%	12.2%	7.6

Source: U.S. Census Bureau, Census of Population and Housing, STF-3A, 1990

While four nearby counties had a base multiplier ranging from 5.47 to 12.41, Woodbury County's multiplier was 6.4. The impact of a high base multiplier is that the County is more sensitive to the loss of one basic employment position than many nearby counties, with the exception of Clay County. The reason the base multiplier was lower than other counties was due to the workforce in Woodbury County being only 5.0% basic. This indicates a very small proportion of the workforce is responsible for generating the flow of new money into Woodbury County. The higher the basic percentage becomes the lower the base multiplier becomes.

One way for the County to increase the proportion of basic labor would be to increase the number of jobs in those categories that are already basic, 1) Technical, Sales and Administrative, 2) Service, and 3) Precision, Craft and Repair. Another strategy would be for Woodbury County to diversify its employment opportunities to increase the strength and security of its overall workforce. To do this, Woodbury County must bring some of its non-basic sectors into the basic category.

Table 23 shows two of the three non-basic occupation categories in Woodbury County are quite close to the same percentage as the State; therefore, it is possible for these industries to become basic, if jobs were created within each sector. Note, however, that as jobs are added to one Occupational Category, the percentages for all of the industries will change. This makes forecasting future basic and non-basic occupations complex and difficult.

Summary of Economic and Employment Profile

The economic and employment profile of Woodbury County is similar to many Midwestern, urbanizing counties. In 1990, median household income in Woodbury County was \$25,186. By 2000, Woodbury County had increased its household income to \$38,509, while the State of Iowa's was \$39,469. The larger proportionate increase for Woodbury County was likely due to its increased reliance on non-farm employment. In 2000, employment in Services and Wholesale Trade accounted for 53.0% of all jobs in Woodbury County, but the economy remains very much non-basic.

In 2000, Woodbury County had 29.9% of all households earning less than \$25,000, while 36.1% earned greater than \$50,000. Furthermore, 39.4% of all households age 55 and older earned less than \$25,000 and only 26% of households in the same age bracket earned \$50,000 or more.

A housing cost burden affected many Woodbury County residents in 2000. A housing cost burden occurs when a household must spend more than 30% of its income on housing costs, including utilities. In 2000, 19.6% of all Woodbury County households experienced such a burden. That percentage included 12.0% of all owner-occupied households, and 34.3% of all renter-occupied households. However, the majority of each occupancy group were in the middle and upper income ranges.

Woodbury County is a large economic factor in the Sioux City MSA. In 2000, Woodbury County residents earned 86.5% of all personal income in the MSA. They held 82.3% of all non-farm jobs and earned 86.7% of all non-farm income in the MSA. In addition, they held 82.3% of all farm jobs, yet earned only 48.0% of all farm income in the MSA. In 2000, 15.4% of the per capita income of Woodbury County residents came from government transfer payments. Woodbury County commuters spend an average of 17.6 minutes traveling to and from work, and commuters come and go from several counties in a three state area. Woodbury County has supplied workers as far away as North Dakota, and received them from as far away as Oklahoma.

AGRICULTURAL PROFILE

The agricultural profile gives a County the ability to evaluate the influence of the agriculture industry on the area economy. Since many Iowa counties were formed around county seats and agriculture, the agricultural economy, historically, has been the center of economic activity for the County. The U.S. Census Bureau's Census of Agriculture tracks agricultural statistics every five years. However, the timing of the Census of Agriculture does not coincide with the decennial U.S. Census of Population and Housing, so it becomes difficult to compare sets of census data.

Agriculture Trends

Agricultural trends can help a county identify factors affecting the agricultural economy of the area. Past trends may present evidence of weaknesses in the local economy, and may foreshadow future happenings.

TABLE 25: AGRICULTURAL PROFILE, WOODBURY COUNTY, 1982 THROUGH 1997

Agricultural Characteristics	1982	1987	1992	1997	% Change 1982-1997
Number of Farms	1,579	1,360	1,254	1,306	-17.3%
Land in Farms* (acres)	478,624	451,759	442,247	497,241	3.9%
Average size of farms (acres)	303	332	353	381	25.7%
Total land area for Woodbury County	558,720	558,720	558,720	558,720	0.0%
Percentage of land in farm production	85.7%	80.9%	79.2%	89.0%	3.9%
Total cropland (acres)	414,894	399,325	386,499	427,501	3.0%
Harvested cropland (acres)	359,752	278,373	310,103	365,559	1.6%
Estimated Market Value of Land & Bldg (avg./farm)	\$384,259	\$255,831	\$374,368	\$506,937	31.9%
Estimated Market Value of Land & Bldg (avg./acre)	\$1,243	\$769	\$998	\$1,332	7.2%

Source: U.S. Department of Agriculture, Census of Agriculture, 1992, 1997

* includes land in house-lots, ponds, etc., and non-crop and non-woodland pasture.

Table 25 identifies Woodbury County's key agricultural components and how they have changed between 1982 and 1997. Table 25 indicates the number of farms within Woodbury County decreased between 1982 and 1997, likely due to an agricultural sector that has operated with economic instability. For purposes of the 1997 Census of Agriculture, a farm was determined to be a place that produced and sold, or normally would have produced and sold, \$1,000 or more of agricultural products in 1997. The trend in Iowa has been for farms to decrease in number, but increase in average size. Woodbury County appears to have followed this trend. The average size of farms in Woodbury County increased from 303 acres in 1982 to 381 acres in 1997, an increase of 25.7%.

The percentage of land in farm production, which is calculated by dividing land in farms by the total land area in the County, increased by 3.9% between 1982 and 1997. The number of acres committed to crops, as well as the number of acres actually harvested, has also increased, albeit only slightly.

The average value of land and buildings increased from \$384,259 per farm in 1982 to \$506,937 per farm in 1997, or 31.9%, and from \$1,243 per acre in 1982 to \$1,332 per acre in 1997, or 7.2%. However, the time period between 1982 and 1987 was one of decline for the agriculture industry, with nearly all of the agricultural categories indicating declines. Ignoring the recession of the early 1980s and looking only at the time period from 1987 to 1997, Table 23 shows the average value per farm increased by 98.2% and the average value per acre increased by 73.2%.

TABLE 26: NUMBER OF FARMS BY SIZE, WOODBURY COUNTY, 1982 THROUGH 1997

Farm Size (acres)	1982	1987	1992	1997	% Change 1982-1997
1 to 9	122	123	118	74	-39.3%
10 to 49	208	170	175	198	-4.8%
50 to 179	398	289	266	343	-13.8%
180 to 499	560	483	385	375	-33.0%
500 to 999	224	226	225	207	-7.6%
1,000 or more	67	69	85	109	62.7%
Total	1579	1360	1254	1306	-17.3%

Source: U.S. Department of Agriculture, Census of Agriculture, 1992, 1997

Table 26 shows between 1982 and 1997, the number of farms decreased. All sizes of farms decreased in number, except larger farms of 1,000 acres or more. Smaller farms, those with 1 to 9 acres, had the greatest decline, which was 48 farms, or -39.3% of the 1982 total. Medium size farms, or those with 180 to 499 acres, decreased by the next highest amount. There was a decline of 185 farms, or -33.0% of the 1982 total, in the medium size category.

TABLE 27: NUMBER OF FARMS & LIVESTOCK BY TYPE, WOODBURY COUNTY, 1982 THROUGH 1997

Type of Livestock	1982	1987	1992	1997	% Change 1982 to 1997
<i>Cattle and Calves</i>					
farms	848	596	508	511	-39.7%
animals	106,604	74,222	66,198	62,634	-41.2%
average per farm	126	125	130	123	-2.5%
<i>Beef Cows</i>					
farms	592	429	393	412	-30.4%
animals	28,112	16,182	15,349	18,491	-34.2%
average per farm	47	38	39	45	-5.5%
<i>Milk Cows</i>					
farms	54	32	13	5	-90.7%
animals	1,063	351	254	109	-89.7%
average per farm	20	11	20	22	10.7%
<i>Hogs and Pigs</i>					
farms	598	449	374	190	-68.2%
animals	162,855	144,487	146,568	103,850	-36.2%
average per farm	272	322	392	547	100.7%
<i>Sheep and lambs</i>					
farms	149	105	93	48	-67.8%
animals	7,628	4,863	4,180	1,991	-73.9%
average per farm	51	46	45	41	-19.0%
<i>Chickens 13 weeks and older</i>					
farms	104	60	32	33	-68.3%
animals	7,438	4,010	(D)	(D)	(D)
average per farm	72	67	(D)	(D)	(D)

Source: U.S. Department of Agriculture, Census of Agriculture, 1992, 1997

(D): Withheld to avoid disclosing data for individual farms.

Table 27 indicates the number of farms and livestock by type for Woodbury County from 1982 to 1997. The predominant livestock raised in Woodbury County in 1997 was hogs and pigs. All animal farms showed a decline in the number of operations and total animals raised between 1982 and 1997. Average livestock numbers per farm were calculated for each animal and the results indicate the number of milk cows, and hogs and pigs per farm increased despite the declining number of farms and animals overall. The number of hogs and pigs per farm doubled between 1982 and 1997.

Table 27 indicates livestock in Woodbury County has been dominated by a large number of cattle and calf operations. However, while cattle operations outnumber hog and pig operations by 2.7 to 1, the number of animals in hog and pig operations outnumbered the number of cattle by 1.7 to 1. The number of hogs and pigs in Woodbury County decreased by a smaller amount than the number of cattle and calves. The largest decrease indicated in Table 27 occurred in the number of sheep and lambs, which decreased by 73.9%. The smallest number of animals in Woodbury County was milk-cows, with 109. The number of chickens was not reported in 1992 or in 1997 so data on individual farms would not be disclosed.

TABLE 28: NUMBER OF FARMS & CROPS BY TYPE, WOODBURY COUNTY, 1982 THROUGH 1997

Type of Crop	1982	1987	1992	1997	% Change 1982 to 1997
<i>Corn for Grain</i>					
farms	1,178	1,020	859	808	-31.4%
acres	214,962	162,688	192,504	186,237	-13.4%
average per farm	182	159	224	230	26.3%
<i>Corn for Silage</i>					
farms	260	70	80	117	-55.0%
acres	9,238	2,798	3,240	4,170	-54.9%
average per farm	36	40	41	36	0.3%
<i>Wheat</i>					
farms	14	16	5	6	-57.1%
acres	1,002	697	375	342	-65.9%
average per farm	72	44	75	57	-20.4%
<i>Oats</i>					
farms	493	282	176	77	-84.4%
acres	18,807	9,046	5,415	1,616	-91.4%
average per farm	38	32	31	21	-45.0%
<i>Soybeans</i>					
farms	811	763	690	753	-7.2%
acres	98,143	86,671	97,748	162,550	65.6%
average per farm	121	114	142	216	78.4%
<i>Alfalfa</i>					
farms	653	510	457	458	-29.9%
acres	19,332	17,814	13,051	14,289	-26.1%
average per farm	30	35	29	31	5.4%

Source: U.S. Department of Agriculture, Census of Agriculture, 1992, 1997

Table 28 indicates the number of farms and crop by type from 1982 to 1997. Corn and soybeans have been the two most frequently raised crops in Woodbury County since 1982. All crops decreased in the number of farms and the number of acres, except soybeans. The number of farms growing soybeans decreased, but the number of acres used in their production increased by 65.6%. Corn and soybeans were the only two crops grown on an average of more than 60 acres per farm in 1997. Corn was grown on an average of 230 acres per farm, and soybeans were grown on an average of 216 acres per farm.

Summary of Agriculture Profile

The number of farms and number of acres in farms in Woodbury County decreased between 1982 and 1992, but increased between 1992 and 1997. Overall, the total number of acres in farms in 1997 was more than in 1982; while the average value of farms in 1997 was over \$500,000, which was a 31.9% increase over 1982 values. The most raised animals were cattle and hogs and pigs, and the most grown crops were corn and soybeans. There were 701 farms in 1997 raising either cattle or hogs and pigs, and 1,561 farms growing corn or soybeans.

PLANNING IMPLICATIONS FOR WOODBURY COUNTY

Woodbury County is a diverse, urban county with a rich rural feel and heritage. Much of the County is devoted to the agricultural roots of the area. However, with a population of over 80,000 persons, Sioux City has become an urban center for much of northwestern Iowa, northeastern Nebraska, and southeastern South Dakota. Woodbury County will need to develop policies that will help it define the future character of the area. Given the size and importance of Sioux City to the area, the city's market may make decisions and evolve at a rate faster than the County. The County may need to develop a clear understanding of its future vision in order to preserve the resources it needs to create the future it chooses.

Population projections indicate Woodbury County could increase from approximately 3,400 persons to nearly 19,000 persons by the year 2030. Woodbury County has seen out-migration as a major contributor to its slow to stagnant growth, however, the rate of out-migration has slowed considerably since 1980. The natural change in Woodbury County has added at least 6,000 persons to the population in each of the past two decades. The County will need to address the future population change as part of its future vision so that it can develop related programs, such as in housing and economic development, to encourage and manage population growth at a rate the County can sustain.

Housing units in Woodbury County are generally older, many of which were constructed prior to 1950. A housing program that targets housing updates and improvements could be a factor in the rate of population change the County will experience over the next twenty years. Employment in the County has developed towards a non-farm base. Persons working in these occupations tend to prefer urban amenities, but rural character in their neighborhoods. The county may need to develop policies addressing the juxtaposition of urban and rural characteristics into residential areas.

Although employment has tended towards non-farm occupations, the agriculture sector of Woodbury County's economy is still prevalent. Farm values are increasing, and farm sizes are growing. The agriculture sector may need the assistance of county zoning to protect it from market forces that desire to develop low-density residential communities. In order to determine what is best for the County, it should develop strong policies to explain and support the direction it chooses to follow.

FACILITIES ASSESSMENT

County governments, as well as many other public and private entities, provide many goods and services to the residents within a county. Such facilities are provided to insure the safety, well being and enjoyment of the county residents. The tools used in the process of providing these goods and services are referred to as public facilities. These facilities represent a wide range of buildings, utilities and services that are built and maintained by many governmental agencies and the private sector. These facilities and services provide the county residents with social, cultural, educational, and recreational opportunities, as well as police and fire protection. It is important for all levels of government and the public sector to anticipate the future demand for their goods and services if they are to remain strong and vital. This profile is provided to help the County evaluate its ability to meet future demands and determine the level of services currently provided and that should be provided.

The Facilities section of the Woodbury County Comprehensive Development Plan reviews present capacities of all public facilities and services. The section presents an evaluation of these capacities compared to current demands and accepted standards to determine whether the capacity is adequate, and determines the future adequacy of these facilities and services. Finally, recommended improvements where public facilities are not considered adequate for present or future needs are made.

The Facilities Plan for Woodbury County is divided into the following categories:

- Recreational Facilities
- Educational Facilities
- Fire Protection and Law Enforcement
- County Buildings
- Transportation Facilities
- Communication Facilities
- Public Utilities
- Health Facilities

RECREATIONAL FACILITIES

Woodbury County is located in the Loess Hills region of Iowa. The region is heavily influenced by the Iowa Loess Hills and much of the area is sparsely settled. The Hills dominate the area and there are significant scenic resources, which are utilized for residential enjoyment as well as bringing tourism into the region. The importance of the Hills, to this area, cannot be overstated, and their existence plays a large role in the recreational opportunities available in Woodbury County.

Woodbury County within the Siouxland area, which has a rich history and tradition that allowed it to develop numerous recreational opportunities. The Siouxland area is comprised of the cities of Sioux City, Iowa, South Sioux City, Nebraska, and North Sioux City, South Dakota. Together, these communities have created a wide array of recreational, educational, and historical opportunities for residents and visitors to the area.

The State of Iowa in general has a well-developed recreational system. The state, counties, and cities each own properties within the recreational system. Since Woodbury County is located within the Loess Hills region, there are a large number of recreational opportunities available. Siouxland also provides many recreational experiences. Due to the large number of recreational opportunities in Woodbury County, this Plan presents only a brief overview of them.

Recreation in Woodbury County

- § Stone State Park is located in the northwest corner of Sioux City, along State Highway 12, four miles north of Interstate 29. The park encompasses 1,069 acres in both Woodbury and Plymouth Counties. Visitors are offered many scenic vistas of wooded valleys, prairie ridges, the Big Sioux River, and the neighboring states of Nebraska and South Dakota. The park is located entirely in the Loess Hills, and a portion of the 220-mile long Loess Hills Scenic Byway passes through the park. Stone State Park is nationally recognized as an "Urban Wildlife Sanctuary." Many species of animals are found in the park. Wild turkeys, white-tailed deer, coyotes, and red foxes flourish in the area. The bird-life in the park includes turkey vultures, barred owls, rufous-sided towhees, and ovenbirds. The park is also home to a large population of butterflies. As many as 50 species can be found, including rare species such as the Pawnee skipper and Olympia white. The park is also home to a vast number of bur oak trees, and a wide array of prairie plants, such as yucca, penstemon, rough blazingstar, silky aster, and pasque flower. The Mount Talbot State Preserve covers the northernmost 90 acres of the park.

- § The Dorothy Pecaut Nature Center provides visitors with a variety of interpretive displays, including a "walk-under" prairie, 400-gallon aquarium of native fish, and displays featuring natural history subjects. The park also offers a Lodge for camping on a rental basis, as well as electric and non-electric camper pads. Amenities include a 5-mile equestrian trail, 5 miles of

biking/snowmobile trails, 12 miles of hiking/cross-country skiing trails, a nature trail, picnic areas, and a children's playground.

- § Mount Talbot State Preserve is also located in Stone State Park. This is a geological and biological preserve dedicated in 1989. It is a prime example of the loess hills landforms. The valleys here are relatively moist and support trees and shrubs, with bur oak being the predominant species. A very diverse plant-life, including several rare plant species, is found here. This diversity supports a large number of butterflies, including several rare species.
- § The Loess Hills Scenic Byway is a designated roadway that winds through the Loess Hills. The route was designed to take advantage of the significant and intrinsic qualities of the Loess Hills. These qualities give visitors to the Byway a special opportunity to experience landforms, plants, and animals that are unique to this part of Iowa, the United States, and even to the world. The Loess Ridge Nature Center is located along the Byway in Woodbury County.
- § The Loess Hills Scenic Byway traverses Woodbury County from the extreme northwestern corner of the county, following the Missouri River and Interstate 29 to Sergeant Bluff, then along County Highway D38 to State Highway 982, then south to State Highway 141, then into Smithland, and finally turns south into Monona County. There are three Scenic Byway Loops in Woodbury County; the Stone Park Loop in extreme northwestern Woodbury, the Smokey Hollow Loop north of Smithland, and the Stagecoach Trail Loop, which begins on State Highway 141 between Hornick and Smithland, and continues south into Monona County.
- § The Woodbury County Conservation Board also manages many parks in the County. Their general responsibility is to maintain and develop park and recreation areas, as well as conservation and preservation areas. Some of the county owned parks include:
 - § Brown's Lake-Bigelow Park offers picnic areas and restrooms. Activities include hiking trails, boating, swimming, and fishing. Neighboring Brown's Lake State Wildlife Management Area also offers electricity, drinking water, a children's playground, and facilities for tent and trailer camping.
 - § Fowler Forest Preserve offers picnic areas, electricity, drinking water, and restrooms. Activities include a children's playground and hiking trails.
 - § Little Sioux Park offers picnic areas, electricity, drinking water, and restrooms. Activities include a children's playground, hiking trails, boating, swimming, fishing, and hunting. There are also areas for tent and trailer camping.
 - § Sioux City Prairie Preserve offers hiking trails through undeveloped natural areas.
 - § Southwood Conservation Area offers picnic areas, electricity, drinking water and restrooms. Activities include equestrian, hiking, and cross-country skiing trails, as well as fishing and hunting in natural, undeveloped areas. There are also facilities for tent and trailer camping, and an interpretive nature center.

Table 29 below shows a complete list of all county owned and state owned recreational opportunities in Woodbury County.

TABLE 29: RECREATIONAL OPPORTUNITIES IN WOODBURY COUNTY

Name	Acres	Info Center	Picnic	Elec.	Drinking Water	Toilet	Play Area	Tent Camping	Trailer Camping	Interp.*
Brown's Lake/Bigelow Park	24		Yes			Yes				
Brown's Lake Wildlife Management Area	1,311		Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Copeland Park Access	0						Yes			
Curtain Timber	90									
D.G. Bell Memorial Arboretum	12									
Dakota Bend	109									
Fowler Forest Preserve	108		Yes	Yes	Yes	Yes	Yes			
Inkpaduta River Acres	2									
Lakeport Wildlife Area	121									
Little Sioux Park	375		Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Little Sioux River Greenbelt	25									
Loess Ridge Nature Center	15	Yes				Yes				Yes
Midway Park	20		Yes			Yes				
Mile Long Island	NA									
Mount Talbot Preserve	90									
Oak Ridge Conservation Area	765									
Riverside Bluffs	135									
Shagbark Hills Area	379									
Sioux Bend Wildlife Area	64									
Sioux City Prairie Preserve	151									
Snyder-Winnebago Bends	2,865									
Snyder Bend Park	35		Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Southwood Conservation Area	623		Yes	Yes	Yes	Yes		Yes	Yes	Yes
Stone State Park	1,085	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Walling River Access	13									
Weedland Access	15					Yes				
Wimson Park	6									
Name	Hiking	Eques.	Boating	Swimming	Fishing	Hunting	Undev. Area	Mo. River Access	Scenic Overlook	Owner
Brown's Lake/Bigelow Park	Yes		Yes	Yes	Yes					County
Brown's Lake Wildlife Management Area					Yes	Yes	Yes			State
Copeland Park Access					Yes					County
Curtain Timber						Yes	Yes			County
D.G. Bell Memorial Arboretum										County
Dakota Bend						Yes	Yes			County
Fowler Forest Preserve	Yes									County
Inkpaduta River Acres					Yes					County
Lakeport Wildlife Area						Yes				County
Little Sioux Park	Yes		Yes	Yes	Yes	Yes				County
Little Sioux River Greenbelt					Yes	Yes	Yes			County
Loess Ridge Nature Center	Yes									County
Midway Park					Yes					County
Mile Long Island						Yes				State
Mount Talbot Preserve	Yes						Yes			State
Oak Ridge Conservation Area					Yes	Yes	Yes	Yes		County
Riverside Bluffs	Yes						Yes			County
Shagbark Hills Area	Yes	Yes				Yes	Yes			County
Sioux Bend Wildlife Area					Yes	Yes	Yes			County
Sioux City Prairie Preserve	Yes						Yes			Private
Snyder-Winnebago Bends					Yes	Yes	Yes	Yes		County
Snyder Bend Park	Yes		Yes		Yes	Yes	Yes		Yes	County
Southwood Conservation Area	Yes	Yes			Yes	Yes	Yes			County
Stone State Park	Yes	Yes			Yes		Yes		Yes	County
Walling River Access			Yes		Yes	Yes				County
Weedland Access					Yes		Yes	Yes		County
Wimson Park							Yes			County

Source: The Loess Hills Scenic Byway Corridor Management Plan, vol. I

*Interp. = Interpretive opportunities such as nature walk or hands-on nature activities.

Future plans and present projects of the Woodbury County Conservation Board include the creation of two new conservation areas. These areas are being developed as pen space recreation areas. They are:

- § Owego Wetlands Conservation Area, located approximately 6 miles east and 1 mile south of Salix. This area is comprised of lands that have been offered into the Federal Wetlands Reserve Program. This is a Federal voluntary incentive program aimed at preserving and restoring wetland areas. These lands have been put into a permanent easement that prohibits any activity that would harm the wetland. The Federal government pays landowners to place this limitation upon their land. At Owego, the Woodbury County Conservation Board is in the process of purchasing the residual value of the land. Approximately 320 acres of nearly 1,300 total acres had been purchased at the time of this Plan.
- § Oakridge Conservation Area is comprised of mainly heavily wooded areas and prairie-topped ridges. These ridges also support some cropland. This area is made up of approximately 3,000 acres, and roughly half had been purchased at the time of this Plan. Once complete, this area will connect to Fowler Forest Preserve and Southwood Conservation Area.

Recreation in Siouxland

- § Sioux City is the hub for Siouxland, a tri-state region formed by the joining of the Missouri and Big Sioux rivers. The Siouxland region includes the cities of Sioux City and Sergeant Bluff in Iowa, South Sioux City and Dakota City in Nebraska, and North Sioux City and Dakota Dunes in South Dakota. This region of the country is rich in history and tradition. As a result, Siouxland provides many attractions and opportunities for recreation, education, and exploration. Sioux City alone provides 53 park sites, trails, pools, historic sites, and recreational programs, some of which include:
 - § Adams Nature Center is 1,500 acres of undisturbed land. It provides an opportunity for visitors to experience the natural beauty of the region. The center offers historic buildings, hiking trails, and wildlife observation areas. There are also picnic shelters, restrooms, and facilities for day use.
 - § Bacon Creek Park is a 240-acre wooded area that surrounds a 30-acre lake. The park features a 2.8 mile hiking/nature trail, picnic areas, fitness trail and a concession building. Other activities available at the park include swimming and fishing.
 - § Chris Larsen Park is located in Sioux City, between the Missouri River and Interstate 29, in the Riverfront area. The park offers a picnic shelter, playgrounds, and a walking trail.
 - § Dorothy Pecaut Nature Center is a 10-acre site located in the Loess Hills inside Stone State Park. It offers many educational opportunities including an interpretive center, nature dioramas, and a discovery area where people can handle furs, antlers, fossils and other artifacts.

- § Grandview Park offers some unique features not offered at other area parks. There is a Rose Garden, painted water-towers, and the Grandview Park Bandshell. The park hosts Saturday in the Park, which is a concert series of local performers, as well as hosting the Sioux City Municipal Band. In the winter, this park is popular for sledding.
- § IBP Ice Center has recently been improved and is used for ice sports.
- § Lewis and Clark Interpretive Center is planned for Lewis and Clark Park.
- § Riverside Park includes an Aquatic Center with water-slides. The park also offers a picnic ground, sand volleyball courts, sports fields, a recreation complex, tennis courts, and a community center.
- § Sioux City Auditorium has recently been expanded. At the time of this plan, there is an effort underway to transform the Auditorium into a "River's Edge" event center.
- § There are many other city parks offered at the various other communities in Siouxland. Some of the other city parks in the Siouxland region include:
 - § Cottonwood Cove Park is located in Dakota City, Nebraska. This park provides a boat ramp and docks, picnic tables and shelters, horseshoe pits, and a sand volleyball court.
 - § McCook Lake is located in North Sioux City, South Dakota. This lake is a popular area for boating, fishing, and camping.
 - § Crystal Cove Park is located in South Sioux City, Nebraska. This park features nature trails, and fishing sports.
 - § Jeff Dible Soccer Complex is located in South Sioux City, Nebraska. This recreation area on the riverfront offers 15 soccer fields and is host to many soccer tournaments throughout the year.
 - § Scenic Park is located in South Sioux City, Nebraska. It is a unique park that offers a campground and many attractions. Facilities include 62 RV pads, dump station, tenting area, restroom and shower facilities, sand volleyball courts, 50 meter Olympic pool with water-slide and fountain, playground, tennis courts, boat launching and parking area, handicapped accessible fishing pads, walking eco-path, riverfront baseball and softball complex, soccer fields, and picnic shelters.

Golf Courses in Siouxland

- § Covington Links Golf Course is located at 497 Golf Road in South Sioux City, Nebraska. It is a well-kept course with lots of trees and narrow fairways. This is an 18-hole course, and carts are available.
- § Dakota Dunes Country Club is located at 960 South Dakota Dunes Blvd. in Dakota Dunes, South Dakota, and is a private facility for members and guests only. This is an 18-hole championship course designed by Arnold Palmer. Dakota Dunes is the #1 rated golf course in South Dakota.
- § Floyd Valley Golf Course is located at 2810 Ordway Avenue in Sioux City, Iowa. This is a hilly course with many short holes.
- § Green Valley Golf Course is located at 4300 Donner Avenue in Sioux City, Iowa. This is a nice 18-hole course, and carts are available.
- § Hidden Acres Golf Course is located at RR 1 in Sioux City, Iowa. This is an 18-hole course with large greens. Carts are available.
- § South Ridge Golf Course is located at 618 W. 29th Street in South Sioux City, Nebraska. This is a very flat course with short holes. Carts are available.
- § Sun Valley Golf Course is located at 2101 Military Road in Sioux City, Iowa. This course offers par-3 and regulation lengths.
- § Twenty-seven Flags Golf Course is located at 2299 Alicia Ave. in Sergeant Bluff, Iowa. This is a 27-hole course that includes three 9-hole courses designed for varying golf abilities.
- § Two Rivers Golf Course is located at 150 S. Oak Tree Lane in Dakota Dunes, South Dakota. This is a heavily wooded 18-hole course. It has a challenging layout and is very well maintained.
- § Whispering Creek Golf Club is located on East 170th Street off Morningside Avenue. The course is an 18-hole course which was completed in 2000.

Local Sports

- § Sioux City provides residents of Woodbury County and the surrounding area with many opportunities to enjoy sporting events year-round. The following sports teams have facilities in Sioux City:
- § Sioux City Breeze is a member of the Central Division of the Premier Development Soccer League (Division 4). Division 4 is one class of minor league soccer within the United Systems of Independent Soccer Leagues (USISL). They were founded in 1993. Home games are played on Memorial Field in Heelan Stadium. Their season runs from May through August.

- § Sioux City Explorers baseball team are members of the Central Division of the Northern League. The Northern League is made up of veteran players from the major and minor leagues, as well as true rookies. The Northern League is not affiliated with either Major League Baseball or any teams within the league. However, Northern League baseball is described as being somewhere between "A" and "AA" baseball within the minor league system. The Explorers play at the 3,800 seat Explorer Field, located in Lewis and Clark Park. Their season runs May through September.
- § Sioux City Musketeers are members of the West Division of the United States Hockey League (USHL). This league is comprised of players that are 20 years of age and younger. The Musketeers play home games at Sioux City Civic Auditorium. Their season runs September through March.

Recreational Recommendations

- § Basic park and recreation space and location-planning offers the following recommendations for parks and recreational areas. High-density recreation areas should be located near communities and be user-oriented in design. A range of recreational facilities should be available that are appropriate to the park setting and mass use. General outdoor recreation areas should utilize natural resources, and be equipped with man-made amenities.

It appears that Woodbury County, including the entire Siouxland region, has a well-developed system of parks and recreation areas. The rural areas of Woodbury County appear to be deficient in recreational space. Whether the population of Woodbury County increases or remains fairly stable, there is a need for some parkland development in the rural areas of the County. The communities may be faced with the need to provide more parkland and recreational opportunities for existing residents. It is not only the amount of parkland, but also the location of the parkland that is important. It is recommended that future parkland be centrally located within new and existing developments in order to provide central access to the recreational opportunities.

EDUCATIONAL FACILITIES

PUBLIC SCHOOLS

The public schools in Iowa are grouped into 15 Area Education Agencies (AEA). Woodbury County is included in AEA 12, or the Western Hills AEA. Western Hills AEA is made up of 24 public school districts and numerous private schools in a six-county area in northwest Iowa. The boundaries of 10 public school districts reach into Woodbury County, seven of which are based in Woodbury County. In addition to these public school districts, Woodbury County has several parochial school systems. Figure 4 shows the boundaries of each public school district in Woodbury County.

The 10 public school districts are:

Anthon-Oto	District 270	Woodbury County
Lawton-Bronson	District 3555	Woodbury County
River Valley	District 1975	Woodbury County
Sergeant Bluff-Luton	District 5877	Woodbury County
Sioux City	District 6039	Woodbury County
Westwood	District 6992	Woodbury County
Woodbury Central	District 7098	Woodbury County
Battle Creek-Ida Grove	District 504	Ida County
Kingsley-Pierson	District 3348	Plymouth County
Maple Valley	District 4033	Monona County

Anthon-Oto public school district is located in Anthon, and contains two schools in one facility. The elementary school serves grades K through 5, and the middle school serves grades 6 through 8. High school students in this district attend the Anthon-Oto/Maple Valley High School in Mapleton. The facility in Anthon is considered to be in good condition, and meets current needs for space. A technology lab was installed in 2000. There are two gymnasiums, a football field, and a baseball/softball field.

Lawton-Bronson public school district contains two schools. Lawton-Bronson Elementary School is located in Bronson. This school serves grades K through 5. Lawton-Bronson High School is located in Lawton, and serves grades 6 through 12. The elementary school is generally in good condition, however, it is not considered to be adequate with regard to spatial needs. Currently, however, there are no portable classrooms being used. The high school was constructed in 1998. The high school provides both a practice football field, and a game football field with track, as well as a baseball field and a softball field.

River Valley public school district contains three schools. The elementary school is located in Washta, and is considered to be in good condition. The middle school is located in Cushing, and opened its doors for classes in August, 1999. The high school is located in Correctionville, and opened its doors for classes in February, 2000. All schools are considered to be adequate with regard to spatial needs. The high school offers a football field and track. A recently constructed

baseball/softball complex is located at the middle school. Baseball is also played at a facility in Quimby.

Sergeant Bluff-Luton public school district contains four schools. The primary, elementary, middle and high schools are all located in Sergeant Bluff. The elementary school was constructed in 2000, and opened its doors for the first time in August, 2000. Due to the opening of this school, the old elementary school is now a primary school, which serves grades K through 2, the new elementary school serves grades 3 through 5, and the middle school serves grades 6 through 8. The high school continues to serve grades 9 through 12. The high school received an addition in 1996. All schools are in good general condition, and meet current spatial needs. No portable classrooms were being used at the time of this Plan. The high school provides a game field for football, and the middle school provides a practice field for football. There are baseball and softball fields behind the new elementary school. Young children in the district use a joint city/school recreation area adjacent to the primary school.

Sioux City public school district is located in Sioux City. This district is the largest in AEA 12, and includes 29 schools. There are 3 high schools serving grades 9 through 12, 4 middle schools serving grades 6 through 8, 20 elementary schools serving grades K through 5, and one elementary school serving grades K through 2, and one serving grades 3 through 5. Many schools in this district have less than adequate space for current enrollments.

The district has recently implemented an expansion plan that included four new schools. The schools included West Middle School, Hayworth Middle School, Eastside Elementary and Westside Elementary. West Middle School opened in the Fall of 2001, while Hayworth Middle School opened in the Fall of 2002. Eastside Elementary and Westside Elementary schools are planned for classes as early as 2003 or 2004.

Athletic facilities are consolidated and shared among schools. East High has the swimming pool. West High has no football field or track, and must use facilities at other high schools. Football games and track meets are held at Roberts Stadium for most high school events. High school baseball games are held at one of the high schools, or occasionally at Explorers Field. Hoover Middle School, West Middle and Hayworth Middle schools have football fields. Woodrow Wilson Middle School uses a city park for athletic needs.

Westwood public school district is located in Sloan. One building houses the elementary school, which serves grades K through 6, and the junior/senior high school, which serves grades 7 through 12. The school building is in good general condition, but is considered less than adequate for spatial needs. At the time of this Plan, the school was using 1 portable classroom, and discussions were underway regarding an expansion that would add 2 or 3 classrooms. Athletic facilities include a football practice field and a football game field with track. There is also a baseball field and a softball field.

Woodbury Central public school district is located in Merville. The elementary school serves grades K through 4, the middle school serves grades 5 through 8, and the high school serves grades 9 through 12. All three schools are located within the same building. The building is considered to be in very good condition. An addition was completed in 1990 which added a new gymnasium, music and general classrooms, commons area, and kitchen. The building is considered adequate for current enrollment needs. Athletic facilities include practice and game fields for football, as well as a baseball field and a softball field.

Battle Creek-Ida Grove public school district contains 4 schools. Battle Creek and Ida Grove each have an elementary school that serves grades K through 5. The middle school serves grades 6 through 8, and is located in Battle Creek. The high school serves grades 9 through 12, and is located in Ida Grove. All facilities are considered in good condition and to have adequate space for current enrollments. The high school offers a football field and a baseball field. The high school also has a track with an all-weather surface that was installed in spring 2000. The middle school offers a football field and a softball field.

Kingsley-Pierson public school district contains three schools in two facilities. The elementary and high schools are located in Kingsley, and the middle school is located in Pierson. The Kingsley facility was constructed in 1979 and is considered to be in good condition. The Pierson facility was constructed in 1917, and is in poor condition. The Kingsley facility offers a baseball complex and a football game field, while the Pierson facility offers a softball complex and a football practice field.

Maple Valley public school district contains 4 schools in 3 facilities. Lower Elementary, or Kindergarten, students attend school in Mapleton. The Intermediary Elementary facility serves grades 1 through 4, and is located in Castana. Upper Elementary students, those in grade 5, attend school in Danbury. Students in grades 6 through 8 attend the Anthon-Oto/Maple Valley Middle School in Anthon. High school students in grades 9 through 12 return to Mapleton for class. Two of the facilities are considered to be in good condition, and are considered adequate for current enrollments. The high school facility currently is considered to be inadequate. The Athletic facilities are located at the high school, and include fields for football, baseball, softball, and track.

FIGURE 4: WOODBURY COUNTY SCHOOL DISTRICT MAP

TABLE 30: PUBLIC SCHOOL ENROLLMENT, WOODBURY COUNTY, 1994/95 THROUGH 1999/00

School District	94-95	95-96	96-97	97-98	98-99	99-00	% of 99/00 Total
Anthon-Oto	359	358	356	327	325	311	1.5%
Lawton - Bronson	586	589	624	611	614	638	3.1%
River Valley*	659	667	650	626	572	597	2.9%
Sergeant Bluff - Luton	1,051	1,098	1,151	1,194	1,243	1,188	5.7%
Sioux City	14,523	14,813	14,738	14,782	14,767	14,645	70.6%
Westwood	823	797	802	804	731	729	3.5%
Woodbury Central	629	635	626	625	622	625	3.0%
Battle Creek - Ida Grove	947	898	899	810	887	878	4.2%
Kingsley - Pierson	523	531	532	523	507	507	2.4%
Maple Valley	645	627	636	632	623	616	3.0%
Total	20,745	21,013	21,014	20,934	20,891	20,734	100.0%

Source: Iowa State University, Department of Economics, 2000

* River Valley data for 94-95 and 95-96 includes the combined data of Eastwood and Willow school districts.

Table 30 shows fall enrollment from 1995/95 to 1999/00, for the public school districts serving Woodbury County. The totals are for the school district as a whole, not just for Woodbury County students. The Sioux City school district is by far the largest in the County, with a 1999/2000 enrollment of 14,645 students, or 70.6% of the total. The next largest school district is Sergeant Bluff-Luton, with 1,188 students, or 5.7% of the total. The smallest school district serving Woodbury County is Anthon-Oto, with 311 students, or 1.5% of the total.

TABLE 31: SCHOOL DISTRICT CHARACTERISTICS, WOODBURY COUNTY, 1990

School District	Students per Teacher	Revenue per Student	Expenditure per Student
Anthon - Oto	12	\$4,799	\$4,612
Lawton - Bronson	14	\$4,213	\$4,201
River Valley*	12	\$4,756	\$4,782
Sergeant Bluff - Luton	16	\$4,529	\$4,875
Sioux City	19	\$4,008	\$4,162
Westwood	15	\$4,855	\$4,783
Woodbury Central	14	\$4,550	\$8,332
Battle Creek - Ida Grove*	13	\$4,470	\$4,327
Kingsley - Pierson	13	\$4,862	\$5,022
Maple Valley	13	\$4,450	\$4,230
Average	13	\$4,589	\$4,933

Source: School District Data Book Profiles, National Center for Education Statistics 1989-1990, The MESA Group, 1995

River Valley data includes the combined and averaged data of Eastwood and Willow school districts. Battle Creek - Ida Grove data includes the combined and averaged data of Battle Creek and Ida Grove school districts.

Table 31 shows several characteristics for each school district serving Woodbury County, as of 1990. At the time of this Plan, more current data was unavailable. Table 31 shows the average number of students per teacher among all districts was 13. Half of the districts were at a ratio of more than 13-to-1, and half were at or below a ratio of 13-to-1. Table 31 also shows revenue and expenditures per student. Average revenue per student was \$4,589, while average expenditures per student were \$4,933. Four of the ten school districts had higher than average revenue, while only two of the ten had higher than average expenditures.

POST SECONDARY SCHOOLS

There are several post-secondary educational opportunities in Woodbury County, all of which are in Sioux City. In addition, there are several other opportunities outside of Woodbury County. These post-secondary schools include:

Briar Cliff College	Sioux City
Morningside College	Sioux City
Western Iowa Technical Community College	Sioux City
St. Luke's College of Nursing and Health Services	Sioux City
Buena Vista University	Storm Lake
Dordt College	Sioux Center
Drake University	Des Moines
Northwestern College of Iowa	Orange City
Iowa State University	Ames
University of Iowa	Iowa City
University of Northern Iowa	Cedar Falls
Augustana College	Sioux Falls, SD
South Dakota State University	Brookings, SD
University of Nebraska – Lincoln	Lincoln, NE
University of Nebraska – Omaha	Omaha, NE
Wayne State College	Wayne, NE

FIRE, RESCUE, AND AMBULANCE PROTECTION, LAW ENFORCEMENT

FIRE PROTECTION

Fire Protection in Woodbury County is the responsibility of 18 Fire Districts located throughout the County and outside of the County. Fire protection is provided by volunteer firefighters, with the exception of Sioux City and Sergeant Bluff. The major concerns of the fire departments are the many acres of open range and farmland, rural residential fires, and hazardous materials storage. Historically, the volunteers have fulfilled their duties and protected Woodbury County exceptionally well. Each of the districts provides regular training for the firefighters and continues to add certified Emergency Medical Technician personnel as needed. The tools and equipment used by the firefighters is in good general condition.

The ability of the fire departments to fight fires is rated by the Insurance Services Office (ISO). This rating is directly related to the cost of homeowner's and renter's insurance. Each district is rated on their ability to control and fight fires in their district. The ISO rating goes from "1" (Best) to "10" (Worst). This rating can be influenced by the water pressure in the area, services provided, the quality, quantity, type and age of vehicles and equipment used by the district, and distance traveled and response time to a fire.

Figure 5 shows the Fire Districts that cover Woodbury County. They include:

Anthon Fire District
Battle Creek Fire District

Bronson Fire District
Correctionville Fire District
Cushing Fire District
Danbury Fire District
Hornick Fire District
Kingsley Fire District
Lawton Fire District
Menville Fire District
Oto Fire District
Pierson Fire District
Salix Fire District
Sergeant Bluff Fire District
Sioux City Fire District
Sloan Fire District
Smithland Fire District
Washta Fire District

FIGURE 5: WOODBURY COUNTY FIRE DISTRICT MAP

RESCUE PROTECTION

Figure 6 shows the Rescue Districts that cover Woodbury County. They include:

- Anthon Rescue District
- Correctionville Rescue District
- Moville Rescue District
- Oto Rescue District
- Salix Rescue District
- Sergeant Bluff Rescue District
- Sioux City Rescue District
- Sloan Rescue District

FIGURE 6: WOODBURY COUNTY RESCUE DISTRICT MAP

AMBULANCE PROTECTION

Figure 7 shows the Ambulance Districts that cover Woodbury County. They include:

Anthon Ambulance District
Battle Creek Ambulance District
Bronson Ambulance District
Correctionville Ambulance District
Cushing Ambulance District
Danbury Ambulance District
Lawton Ambulance District
Moville Ambulance District
Oto Ambulance District
Pierson Ambulance District
Salix Ambulance District
Sergeant Bluff Ambulance District
Sioux City Ambulance District
Sloan Ambulance District

FIGURE 7: WOODBURY COUNTY AMBULANCE DISTRICT MAP

LAW ENFORCEMENT

The Woodbury County Sheriff's Department is located at 407 7th Street, in Sioux City and has 35 sworn officers. There are also 7 security/transport officers, 5 civil division officers, and 6 clerical personnel. They provide service for all communities in the county, 24 hours a day, seven days a week. The county has a communication system that includes 911 service. The Woodbury County Jail is also located at 407 7th Street in Sioux City. 55 certified correctional officers and 3 nurses currently operate the jail.

Presently, there are no standards or models to determine the magical number of sworn officers needed by a law enforcement agency. The only real means of evaluating such an agency is to make a comparison between it and similar agencies in neighboring counties. While such a comparison will not reveal whether an agency is adequately staffed or not, it will help a county determine how its services compare to nearby services.

COUNTY BUILDINGS

The County maintains several buildings in its effort to provide services to its residents. This section provides a brief overview of those buildings and their condition.

The Woodbury County Courthouse is located at 620 Douglas Street, in Sioux City. The Woodbury County Courthouse is considered a national treasure and is listed as a National Historic Landmark, which is the second highest honor bestowed by the Federal government on a historic structure. The building was constructed in 1918. The building has undergone extensive restoration, and parts of the interior are continuing to be restored as of the time of this Plan.



The Courthouse houses many of the functions it was originally intended to house. County offices located in the Courthouse include Assessor, Attorney, Auditor/Recorder, Board of Supervisors, Courtrooms, Veteran Affairs, Treasurer, Engineering, and Planning and Zoning. Since so many County agencies are housed in the building, space is a problem. Due to the building's status as a National Landmark, it cannot be expanded with an addition without incurring much cost and federal red tape.

Trosper-Hoyt Building houses the Motor Vehicle Division of the Treasurer's Office, Department of Human Services, the juvenile detention center, and juvenile court.

The Woodbury County Roads Department main office is located in the Woodbury County Courthouse. There are also four maintenance buildings located in Merville, Correctionville, Oto, and Hornick.

The Woodbury County Library is located at 309 Main Street in Merville. The library currently houses approximately 45,000 to 50,000 titles. The building is fairly old and is in need of repair. Although the library building is considered in poor condition, there are no plans to improve or expand it. The size of the building is adequate for present needs, and there is a large garage that has available space in it.

The library employs 6 people at the Merville branch, two are part-time, and four are full time. There are three other branch sites, each with one part-time librarian. These branch sites are located in Hornick, Pierson, and Danbury. In addition to providing branch sites, the Woodbury County Library provides county residents with many other services. The library sponsors summer reading programs, and story-time for young children. They also provide a Bookmobile service. The Bookmobile was replaced in early 1998 with a new 1997 International Bookmobile, and it is in excellent condition. Bookmobile services include drop-offs to nursery schools, pre-schools, and elementary schools.

The library offers a Deposit service to rural residents by leaving library books in two communities. Books are left at specific businesses in Lawton and Climbing Hill, and then the books can be checked out on an honor system. The library also provides supplemental services to the city libraries of Sloan, Anthon, and Correctionville. This supplemental service provides the city libraries with a once-a-month exchange of titles. This service gives local residents the ability to access a variety of subject material and titles that would otherwise be unavailable in the area.

The Woodbury County Fairgrounds are located in Merville. They are considered in good general condition.

NATIONAL HISTORIC LANDMARKS

There are three sites in Woodbury County that have attained National Historic Landmark status. The National Park Service administers the National Historic Landmark program for the Secretary of the Interior. The National Park Service describes National Historic Landmarks as "places where significant historical events occurred, where prominent Americans worked or lived, that represent those ideas that shaped the nation, that provide important information about our past, or that are outstanding examples of design or construction."

Registry as a National Historic Landmark is a special accomplishment. Only about 3% of all sites listed on the National Register of Historic Places are designated as National Historic Landmarks. This amounts to approximately 2,300 sites among the fifty United States. The preservation of these resources is considered an irreplaceable legacy to present and future generations. The only higher honor bestowed on a structure is that of a National Monument.

The Woodbury County Courthouse is located at 620 Douglas Street in Sioux City. It is a local government building that still serves its original purpose. According to a Statement of Significance released in June, 1996, the National Park Service said the Courthouse "is the only major civic building by a Prairie School architect...the building is in pristine condition and still fulfills its original function."

The building design was called "radical", but was still approved by the County Supervisors in 1915. The cornerstone was laid on July 10, 1916, and the building was completed and ready for occupancy on March 1, 1918. The building is constructed out of Roman brick, with granite at the base and copings. The exterior is lavishly decorated with polychrome terra cotta trimming.

The materials used on the exterior are carried through into the interior. Roman brick columns support a canopy of beautifully ornamented plaster. The dome is ornately decorated, and lighted by clerestory windows that provide richly tinted light. The Roman brick and terra cotta work displayed outside is carried throughout the interior on the surfaces of the walls. The floor of the rotunda is a rich quartzite tile. Surrounding the rotunda is a spacious balcony providing space for four great murals depicting various aspects of Iowa life.

Sergeant Floyd is located at 1000 Larsen Park Road, in Sioux City. Sergeant Floyd is a dry-docked riverboat serving as a museum displaying rare photos and river-related artifacts. It is one of only a handful of surviving U.S. Army Corps of Engineers vessels built to control the Nation's inland waterways. Sergeant Floyd carried government supplies, assisted in dredging and flood control work, and carried Army engineers and visiting legislators on inspection tours.

Sergeant Floyd Monument is located at Glenn Avenue and Lewis Road, in Sioux City. This 100-foot obelisk commemorates the burial of Sgt. Charles Floyd, who was the only member of the Lewis and Clark Expedition to lose his life during the expedition. In 1960, this became the first National Registered Landmark in the United States. Sioux City has undertaken to perform improvements to the parking lot, grounds, and fence.

This monument is continually threatened by physical deterioration. In 1996, the threat level reached Priority 2. Priority 2 indicates the monument faces impending actions or circumstances that likely will cause a loss of material integrity. At the time of this Plan, financial assistance, through grants, have been secured to facilitate the rehabilitation of the monument.

NATIONAL REGISTER OF HISTORIC PLACES

Woodbury County is home to 35 sites listed on the National Register of Historic Places. The National Register of Historic Places is the Nation's official list of cultural resources worthy of preservation. It is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect our historic and

archeological resources. The National Park Service administers the Register for the Department of the Interior. Table 32 shows all of the Woodbury County sites listed on the Register.

TABLE 32: NATIONAL REGISTER OF HISTORIC PLACES; SITES IN WOODBURY COUNTY, 2001

Site Name	Address	City	Date Listed
Ashby, Atchison A House	1807 Summit Street	Sioux City	September 25, 1998
Badgerow Building	622 4th Street	Sioux City	March 24, 1982
Bailey, George A. and Mary Tinkel House	423 10th Street	Correctionville	August 5, 1998
Benson Archeological Site (13WD50)	Address Restricted	Smithland	April 24, 1984
Boston Block	1005 to 1013 East 4th Street	Sioux City	January 3, 1985
Burkam, Elzy G. House	1525 Douglas Street	Sioux City	July 15, 1998
Charles City College Hall	1501 Morningside Avenue	Sioux City	January 21, 1983
Depot	Main Street, South of Railway Street	Hornick	September 6, 1990
Davidson Building	505 6th Street	Sioux City	June 25, 1999
Evans Block	1126 to 1128 4th Street	Sioux City	January 3, 1985
Everist, H. H. House	37 McDonald Drive	Sioux City	September 29, 1983
Florence Crittenton Home and Maternity Hospital	1105 to 1111 28th Street	Sioux City	March 31, 2000
Fourth Street Historic District	1002 to 1128 4th Street	Sioux City	August 15, 1995
Holy Trinity Greek Orthodox Church	900 6th Street	Sioux City	May 1, 1998
Knott, Dr. Van Buren House	2323 Nebraska Street	Sioux City	September 8, 1999
Martin Hotel	410 Pierce Street	Sioux City	January 27, 1983
Martin, T.S. and Company	Junction of 4th Street and Nebraska Street	Sioux City	July 15, 1998
Mary Elizabeth Day Nursery	814 Court Street	Sioux City	October 30, 1997
Midland Packing Company	2001 Leech Avenue	Sioux City	January 25, 1979
Morningside College Historic District	Avenues and Sioux Trail	Sioux City	May 14, 1997
Motor Mart Building	520 Nebraska Street	Sioux City	April 22, 1993
Mount Sanaï Temple	1320 Nebraska Street	Sioux City	October 21, 1999
Newton, James P. House and Maid Cottage	2312 Nebraska Street	Sioux City	March 3, 2000
Pierce, John House	2901 Jackson Street	Sioux City	December 12, 1978
Schulein, Ben and Harriet House	2604 Jackson Street	Sioux City	October 30, 1997
Sergeant Floyd	Missouri River Mile Marker 730	Sioux City	May 5, 1989
Sergeant Floyd Monument	Glenn Avenue and Lewis Road	Sioux City	October 15, 1966
Sioux City Baptist Church	1301 Nebraska Avenue	Sioux City	October 22, 1979
Sioux City Central High School	1212 Nebraska Street	Sioux City	July 23, 1974
Sioux City Free Public Library	705 6th Street	Sioux City	June 2, 1997
Sioux City Public Library (Smith Villa Branch)	1509 George Avenue	Sioux City	May 23, 1983
St. Boniface Historic District	705 West 5th Street, 515 Cook Street, 700 West 6th Street	Sioux City	November 5, 1998
St. Thomas Episcopal Church	1200 Douglas Street	Sioux City	September 27, 1984
Warrior Hotel	6th Street and Nebraska Street	Sioux City	June 27, 1985
Woodbury County Courthouse	7th Street and Douglas Street	Sioux City	December 18, 1973

Source: National Register of Historic Places, National Park Service, 2001

STATE HISTORICAL SITES

The State Historical Society of Iowa is also actively engaged in identifying and recognizing sites that are important to Iowa's history. Their dual mission is to preserve Iowa's historically important sites, as well as educate Iowans about their past. Preserving Iowa's historical legacy includes identifying, recording, collecting, and managing access to Iowa's historical resources. In its effort to educate Iowa residents the State Historical Society of Iowa also conducts and stimulates research,

provides information, and supports and encourages similar efforts of other persons and organizations throughout Iowa. Table 33 shows a listing of sites deemed historically important by the State Historical Society of Iowa.

TABLE 33: STATE HISTORICAL SOCIETY OF IOWA; SITES IN WOODBURY COUNTY, 1999

Site Name	Address	City
Building at 2115 Bryan Street	2115 Bryan Street	Sioux City
Chicago, Milwaukee, St. Paul & Pacific Railroad Yard	3400 Sioux River Road	Sioux City
House at 1950 Nash	1950 Nash	Sioux City
House at 2101 Bryan Street	2101 Bryan Street	Sioux City
House at 2119 Bryan Street	2119 Bryan Street	Sioux City
House at 2135 Boies Street	2135 Boies Street	Sioux City
Orpheum Electric Building	520 Pierce Street	Sioux City
John Rache House	1123 Summit Street	Sioux City
Warfield, Pratt, and Howell Co. Building	7th and Douglas Street	Sioux City

Source: Loess Hills Scenic Byway Corridor Management Plan, Vol. 1, Golden Hills RCD, 1999

TRANSPORTATION FACILITIES

Sioux City offers the residents of Woodbury County many opportunities for their transportation needs. Services are offered for cargo and freight, as well as passenger travel, by various means. Commercial truck lines, national railroad and bus lines, as well as airlines offer services to meet almost any transportation need.

Truck Line Service

Woodbury County is served by major trucking companies, which operate out of the Sioux City area. Sioux City has long been a hub for Midwestern highway travel, and Woodbury County benefits from this status. Interstates and Highways running through Sioux City connect Canada to Mexico, and the East Coast to the West Coast. Woodbury County has relatively easy access to anywhere in the country through Sioux City. Woodbury County also benefits from a 1995 Federal bill which allows the trucking industry to ship to and from Sioux City without having to conform to laws required of other Iowa cities. Prior to 1995, state requirements in Iowa, Nebraska and South Dakota governing truck length and weight were different. This meant the trucking industry had to transfer loads or ship in multiple units in order to cross state lines. The 1995 Federal bill exempted trucking companies from these state laws in the Siouxland region, giving Sioux City and Woodbury County a strategic advantage over other, larger metropolitan areas.

Railroad Service

Sioux City has long been a railroad hub for the Midwest. Sioux City provides Woodbury County residents and businesses with rail transport south to the Gulf of Mexico, west to San Diego and Los Angeles, northwest to Seattle, Tacoma, and Portland, and east to Chicago. This wide availability of destinations has given businesses in Sioux City and Woodbury County a strong advantage over many of their competitors. Freight services are available.

BUS SERVICE

Bus service in Woodbury County is primarily in Sioux City. The close proximity of Sioux City to major Interstate and Highway routes allows Woodbury County residents convenient and competitive transportation options. Passenger services as well as freight services are available.

AIRPORTS

Sioux City provides Woodbury County with excellent airport service. Sioux Gateway Airport has been upgraded and improved in recent years to be a premier airport in the Midwest. This public airport sits on 2,660 acres at approximately 1,098 feet above sea level. There are two runways and one helicopter pad. The main runway, number 13/31, has been converted into a precision instrument runway. It has been resurfaced in concrete and lengthened to 9,002 feet. This means the runway is now the longest in the State of Iowa. Obstructions to this runway include a 4 feet tall fence 82 feet from the runway end, and 39 feet tall trees growing 935 feet from the runway end. The second runway, number 17/35, is 6,599 feet in length and has an asphalt surface. Runway 17/35 has one obstruction; a 16 feet tall pole sits approximately 900 feet from the runway end. The helicopter pad is 40 feet square and paved with concrete.

The airport is served by various airlines that provide passenger, commercial, corporate, and general aviation services. There are nine non-stop flights daily to Minneapolis, and four to St. Louis. The airport is also served by three national car rental agencies. There are 78 aircraft based at the facility, including 37 single-engine, 26 multi-engine, and 15 jet engine. There are also 15 military aircraft and 1 helicopter based at the facility. This airport is closed during periods of snow.

A private airport located near Lawton also serves Woodbury County. Lawton Airport is privately owned, and sits on 8 acres of land at approximately 1,235 feet above sea level. The only runway, number 17/35, is 2,320 feet in length and its surface is turf.

COMMUNICATION FACILITIES

TELEPHONE SERVICES

Western Iowa Telephone Group, located in Lawton, Northwest Iowa Telephone, located in Sergeant Bluff, and US West, located in Sioux City provide local residence telephone services to residents of Woodbury County. Long Distance services are provided by various large, national companies, such as AT&T and MCI. There are also many telecommunications companies in the Sioux City area that provide business telephone services. Cellular and wireless telephone services are also available to Woodbury County residents from many companies, in addition those that provide home telephone service.

RADIO AND TELEVISION

There are several radio stations in the Sioux City area that provide music, entertainment, and information to County residents. Among these radio stations are

KMNS (620 AM), KSCJ (1360 AM), KWSL (1470 AM), and WNAX (570 AM) on the AM side, and KAYA (91.3 FM), KCLH (104.1 FM), KGLI (95.5 FM), KKMA (99.5 FM), and KSUX (105.7 FM) on the FM side.

Woodbury County residents also enjoy several local television stations, including KCAU (Channel 9) and KTIV (Channel 4), all of which broadcast from Sioux City, as well as KMEG (Channel 14) broadcasting from Dakota Dunes, SD. Cable television is provided to many of the urban residents of Woodbury County by Cable One, Inc. Rural residents of the County rely on satellite television.

NEWSPAPERS

Several newspapers serve the Woodbury County area. The largest paper serving the County is the Sioux City Journal, which is a daily paper serving 50,000 customers throughout Woodbury County. The paper also serves as the County's legal newspaper. Other papers serving Woodbury County residents include:

- § The Globe, a Catholic Diocese paper published weekly, serves 30,000 customers.
- § Sergeant Bluff Advocate, published weekly, serves 850 customers.
- § South Sioux City Star, published weekly, serves 4,000 customers.
- § North Sioux City Times, published weekly, mailed to 1,400 customers.
- § Merville Record, published weekly, serves 1,400 customers in central Woodbury County.
- § Sioux Valley News (combined Correctionville News and Anthon Herald), published weekly, serves 1,300 customers in east and east central Woodbury County.
- § Danbury Review, published weekly, serves 580 customers in southeastern Woodbury County.
- § Sloan Starlet, published weekly, serves 1,690 customers in southwestern Woodbury County

INTERNET/WORLD WIDE WEB SERVICE PROVIDERS (ISP)

Residents of Woodbury County have ample opportunity to get online. Sioux City provides Woodbury County residents with many Internet Service Providers. These local ISPs offer 56K service as well as DSL. Residents around the Sioux City/Sergeant Bluff area are also able to get cable modem service. Prices for internet service appear to be competitive with national ISPs.

UTILITIES

ELECTRICAL AND NATURAL GAS SERVICE

Electrical and natural gas service for Woodbury County is provided by MidAmerican Energy. MidAmerican Energy is Iowa's largest utility, and provides service to 653,000 electric customers and 622,000 natural gas customers throughout much of northwestern Iowa, and parts of Illinois, Nebraska, and South Dakota.

MidAmerican operates two coal-fired generating stations in Woodbury County. Neal North Energy Center and Neal South Energy Center are both located approximately 14 miles south of Sioux City, along the Missouri River. These two centers operate 4 total generating stations that combine to produce approximately 1,059 megawatts of power. At the time of this Plan, Generator Units 1 and 2 were operating at near capacity, while Unit 3 was operating at 72% of full capacity and Unit 4 was operating at 41% of full capacity. Supply and output capacity appear to be adequate for current and future needs.

Woodbury County Rural Electric Cooperative Association (REC) also supplies electrical service to Woodbury County residents. REC is a member of Touchstone Energy, a national network of energy-providing cooperatives. REC receives its electrical power from Northwest Iowa Power Cooperative (NIPCO).

Water and Sewer Service

The incorporated communities of Woodbury County have municipal water and sewer systems for their residents. Residents of unincorporated areas of the County must rely on their own well systems for water. However, at the time of this Plan, there were several rural residents of extreme northeastern Woodbury County connected to a rural water system from Cherokee County. Residents of unincorporated areas must also utilize their own septic systems and/or lagoons for sewage removal.

Refuse Collection

Woodbury County does have a County Landfill, located near Merville. There is not a countywide collection service that picks up refuse. Therefore, residents are left to transport refuse themselves, or they can contract with Waste Management, a private company offering refuse pick-up services.

HEALTH FACILITIES

Woodbury County offers high quality health care to its residents. There are numerous local health facilities throughout the County, as well as regional facilities located in Sioux City. Residents of Woodbury County who are in need of medical attention for any of a wide variety of reasons are usually within a reasonable distance from the medical professionals they need. This section of the Plan lists the locations of several different categories of health facilities in Woodbury County. This list is not intended to be comprehensive.

Hospitals

St. Luke's Regional Medical Center is located in Sioux City. This is a 351-bed hospital that serves as a referral center for all of Siouxland, including areas in Iowa, Nebraska, and South Dakota. St. Luke's began as a single, acute care facility, but has evolved into a health system with more than 20 care sites located in a 70-mile radius. St. Luke's encompasses a major medical center, family medical clinics, occupational health clinics, outpatient rehabilitation clinics, an outpatient imaging center, a senior living community, a health education institute, a college for nursing and health sciences, and a charitable giving foundation.

St. Luke's has approximately 175 medical physicians and surgeons on its medical staff, representing 36 different medical specialties. This facility is especially known for its Level II Neonatal Intensive Care Unit, Burn Trauma Center, the Harold and Mary Bomgaars Center for Cancer Care, women's and children's services, orthopedic services, and occupational health services.

Mercy Medical Center is located in Sioux City. This is a 286-bed tertiary care facility, and the hub for an integrated healthcare delivery system that serves a tri-state, 33-county area in Iowa, Nebraska, and South Dakota. This facility provides the complete spectrum of care, including preventive, primary, acute, and tertiary, to more than 100,000 patients annually.

Mercy Medical Center is an active community participant, and offers home care, hospice services, occupational health and behavioral services, helicopter ambulance, a blood bank, community education and outreach, older adult services, children-at-risk programs, and many other community health services. The center also has five Centers of Excellence. These are specialized services that mercy offers on a regional basis. They include the Mercy Heart Center, Mercy Trauma Center, Mercy's neuroscience, orthopedics and rehabilitation services, Mercy Total Joint Care Center, and the Mercy Pain Management Center.

Mercy Medical Center is also one of the major employers in Siouxland, with approximately 2,000 employees, 300 auxiliary members, and 600 volunteers. Mercy employs 45 physicians and 19 midlevel providers. There are 300 physicians with privileges at this facility. The joint Commission on Accreditation of Healthcare Organizations accredits mercy Medical Center.

In addition to these hospitals, residents of Woodbury County are also served by:

Siouxland Community Health Center	Sioux City
Siouxland Regional Cancer Center	Sioux City
Siouxland Surgery Center	North Sioux City, SD

Medical Clinics

Grandview Health Services Center	Sioux City
Midtown Medical Clinic	Sioux City
Sunnybrook Family Clinic	Sioux City
Mercy Medical Center	Sioux City

Moville Area Medical Clinic	Moville
Sergeant Bluff Family Medical Clinic	Sergeant Bluff
Correctionville Mercy Medical Clinic	Correctionville
Anthon Mercy Medical Clinic	Anthon
Nursing Homes and Assisted Living	
Casa De Paz	Sioux City
Countryside Retirement Home	Sioux City
Hallmark Care Center	Sioux City
Harvest Morningside Nursing and Rehabilitation Center	Sioux City
Indian Hills Nursing and Rehabilitation Center	Sioux City
Northpark Place	Sioux City
Sunrise Retirement Community	Sioux City
Westwood Nursing and Rehabilitation Center	Sioux City
Embassy Rehabilitation and Care Center	Sergeant Bluff
Correctionville Rehabilitation Center	Correctionville
Holy Spirit Retirement Home	Sioux City
Regency Square Assisted Living	Sioux City
St. Ann's of Sioux City	Sioux City
Sterling House Assisted Living	Sioux City

ENVIRONMENT AND NATURAL RESOURCES ASSESSMENT

INTRODUCTION

The environment and natural resources of a county impact and define the development of land. This section of the Plan provides a general summary of the natural and man-made conditions present in Woodbury County. This includes an identification and analysis of the characteristics of each condition that could potentially impact future land use in Woodbury County. This section will include data grouped into two categories:

Natural Conditions

- § Loess Hills
- § Climate and Topography
- § Watersheds and Wetlands
- § Plant and Animal Life
- § Soil Formation and Classification
- § Soil Parent Material
- § Soil Associations
- § Capability Grouping
- § Prime Farmland
- § Soil Limitations
- § Wildlife and Recreation

Man-Made Conditions

- § Urban Development
- § Transportation
- § Environmentally Sensitive Industries

NATURAL CONDITIONS

LOESS HILLS

An environmental analysis of Woodbury County should properly begin with an introduction to the Loess Hills. Much has been written about these unique formations. The hills take their name from loess, a common parent material in the formation of soils. Loess is quite common throughout the Midwest, however, the hills in Iowa are unique in that the loess deposited here typically measures 60 feet in depth, and has been found in areas to exceed 200 feet in depth. The State of Iowa has designated a Loess Hills Scenic Byway to identify particular routes through the Hills that showcase some of their more unique features. Figure 8 shows the extent of the Loess Hills within Iowa, and Figure 9 shows in greater detail the location of the hills in Woodbury County. Both figures depict the route taken by the Loess Hills Scenic Byway.

FIGURE 8: LOESS HILLS IN IOWA

FIGURE 9: LOESS HILLS IN WOODBURY COUNTY

Some parts of the Loess Hills have been protected through designation as a National Natural Landmark. This designation has been granted to the Turin site in Monona County, and the Little Sioux/Smith Lake site in Harrison County. At the time of this Plan, efforts were underway by several groups to have additional areas within the hills designated as National Natural Landmarks.

Another unique feature of the Loess Hills is the stark, razor-sharp contrast between the rugged western edge of the hills and the flat Missouri River floodplain. The Loess Hills offer a unique mixture of eastern deciduous forests and Midwestern prairie. Much of the lowland areas in the Loess Hills region are covered in woodlands, which tend to be dry. Most of the region, however, is covered in prairie. Depending upon the amount of moisture and the extent of human intervention, the typically prairie-like loess hills are being overtaken by trees and shrubs. This process, called invasion, is accelerated by several factors, including the elimination of prairie fires and an increasing supply of tree and shrub seeds. One researcher has even suggested that this invasion could obliterate the bluff prairies by 2060, unless proper prairie management practices are established.

The Loess Hills are also home to many species of plants and animals, as well as many examples of rare and endangered species. These Hills have been called the state's "most significant region for unusual plants and rare animals." The definition of rare encompasses three different terms. An endangered species is one that is in danger of extinction throughout all or a significant part of its range, a threatened species is one likely to become an endangered species within the foreseeable future throughout all or part of its range, and a rare species is one that may become jeopardized in the future but is currently surviving, but found in only a limited number of places. Various state and federal laws generally protect these species of plants and animals. The number of common species is quite numerous, and they are found in many areas of the Hills. The rare plant and animal species found in the Hills differ from county to county. The locations of rare species found in Woodbury County are depicted in Figure 10.

FIGURE 10: WOODBURY COUNTY, RARE FLORA AND FAUNA

CLIMATE AND TOPOGRAPHY

Woodbury County soils developed under variable climatic conditions. In the post-Cary glaciation period, about 10,500 to 13,000 years ago, the climate was cool and conifers dominated the vegetation. From 8,000 to 10,500 years ago, a warming trend changed the vegetation from conifers to a mixed forest that was dominated by hardwoods. About 8,000 years ago, the climate became warmer and drier. Herbaceous prairie plants became dominant and have continued to dominate to the present time. About 3,000 years ago, a late change in the post-glacial climate from relatively dry prairie conditions to more humid conditions began.

The present climate is mid-continental sub-humid. Nearly uniform climate prevails throughout the County, although there is some variation in rainfall from west to east. The influence of the general climate is modified by local conditions in or near the soil. Most of the water run-off from the very steep Hamburg soils of the loess hills soaks rapidly into the soil. Because of this, the vegetation is unlike that elsewhere in the County. Plants, such as yucca, common in drier parts of the Great Plains, grow in many places on the bluffs. Soils tending to pond water, such as those of the Corley series, are colder and wetter than adjacent soils. Slopes that face north and east tend to be cooler and moister than those that face south, and they are more likely to support natural stands of trees.

Weathering of parent material by water and air is activated by changes in temperature. As a result of weathering, changes caused by both physical and chemical actions take place. Rainfall has influenced the formation of the soils through its effect on the amount of leaching in soils and on the kinds and amount of vegetation that grows. Some variations in plant and animal life are caused by variations in temperature or by the action of other climate forces on the soil material.

Topography refers to the lay of the land. About 40 percent of the County consists of nearly level and gently sloping soils in stream valleys, but most of the remaining 60 percent is rolling to hilly. In much of Woodbury County, however, row crops can be grown in regular rotations in these land types without excessive soil loss. This is largely because the soils are formed in thick deposits of loess.

Woodbury County is located completely within the watershed of the Missouri River. The major tributaries flowing through the County are the Big Sioux River, Floyd River, Maple River, Little Sioux River, and West Fork of the Little Sioux River, as well as Perry Creek, Big Whiskey Creek, Elliott Creek, and Wolf Creek. These streams flow to the south and southwest. Only the Big Sioux River, Floyd River, and Perry Creek enter the Missouri River at Woodbury County. The other streams drain into the Little Sioux River, either naturally or through drainage ditches constructed in the Missouri River Valley. The Little Sioux River enters the Missouri River about 50 miles south of Woodbury County.

Elevations within the County vary by about 400 feet. The town of Hornick, in the Missouri River Valley near the southern boundary of the County, is approximately

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1,060 feet above sea level. Stone State Park, in the loess hills along the edge of the Missouri and Big Sioux River valleys, is at an elevation of about 1,450 feet.

All the towns and villages of the County are at least partly in stream valleys, and about half of them are entirely within a valley. Seven of these towns and villages, and parts of Sioux City, are in the Missouri River Valley.

Watersheds and Wetlands

Watersheds

A watershed is generally defined to be an area of land that catches rain and snow then drains or seeps into a marsh, stream, lake, or groundwater. While Woodbury County as a whole lie within the Missouri River watershed, six smaller watersheds also exist in the County. Figure 11 shows the location of these six watersheds:

Lower Big Sioux	# 10170203
Blackbird – Soldier	# 10230001
Floyd	# 10230002
Little Sioux	# 10230003
Monona – Harrison Ditch	# 10230004
Maple	# 10230005

FIGURE 11: WOODBURY COUNTY WATERSHED MAP

TABLE 34: WATERSHED CHARACTERISTICS, WOODBURY COUNTY, 2000

Watershed	Total Area		Rivers and Streams	River and Stream miles	Lakes	Lake acres
	Square Miles	Acres				
Lower Big Sioux	3,340	2,137,382	35	3,818	160	9,183
Blackbird - Soldier	1,602	1,025,254	24	1,377	139	3,143
Floyd	892	571,046	7	968	30	199
Little Sioux	2,782	1,780,563	35	3,224	286	25,508
Monona - Harrison Ditch	965	617,741	15	894	73	506
Maple	733	468,864	7	1,168	99	653
Total	10,314	6,600,851	123	11,449	787	39,192

Source: United States Environmental Protection Agency, 2000

Table 34 shows several characteristics of the watersheds in Woodbury County. These six watersheds cover a combined area of 10,314 square miles, or 6,600,851 acres. These watersheds cover areas in Iowa, Nebraska, South Dakota, and Minnesota. There are a total of 123 rivers and streams that flow for 11,449 miles throughout these watersheds. There are also 787 lakes that cover 39,192 acres, or 61 square miles.

TABLE 35: COMMUNITY WATER SYSTEM SOURCE, WOODBURY COUNTY, 2000

Community Water System (CWS)	CWS Number	Source Watershed	Population Served
Anthon Municipal Water System	IA9704060	Little Sioux	638
Bronson Water Supply	IA9709046	Monona-Harrison Ditch	209
Correctionville Water Supply	IA9721076	Little Sioux	897
Cushing Water Supply	IA9725094	Little Sioux	241
Danbury Water Supply	IA9729099	Little Sioux	430
East Side Acres	IA9700630	Monona-Harrison Ditch	65
Hornick Water Supply	IA9738057	Monona-Harrison Ditch	222
Lawton Water Supply	IA9743065	Blackbird - Soldier	482
Moville Water Supply	IA9753022	Monona-Harrison Ditch	1,306
Oto Water Supply	IA9758023	Little Sioux	118
Pierson Water Supply	IA9766041	Little Sioux	341
Salix Water Supply	IA9770024	Blackbird - Soldier	367
Sergeant Bluff Water Supply	IA9774033	Blackbird - Soldier	2,772
Sioux City Water Supply	IA9778054	Lower Big Sioux	80,505
Siouxland Residential Inc.	IA9700901	Blackbird - Soldier	90
Sloan Water Supply	IA9780059	Blackbird - Soldier	938
Smithland Water Supply	IA9783060	Lower Big Sioux	252

Source: United States Environmental Protection Agency, Surf Your Watershed, www.epa.gov, 2000

CWS: Community Water System

Table 35 shows the source watershed for each of the community water systems (CWS) in Woodbury County. The water needs of communities in Woodbury County are served by four of the six watersheds that cross the County. However, various residents of the County use all six of these watersheds. Rural residents, for example, use water from all six for personal domestic needs, as well as for irrigation and watering livestock.

Wetlands

Wetlands are unique land features generally distinguished from other ecosystems. There is no single, general, agreed upon definition for wetlands, primarily because wetlands are so diverse. However, wetlands generally include areas where soil has been saturated or inundated with water for part of the growing season. Soils in a wetland contain little or no oxygen and plants adapt to these conditions. The single feature shared by most wetlands is soil or substrate periodically saturated with or covered by water. The water creates severe physiological problems for all plants and animals except those that are adapted for life in water or in saturated soil.

Wetlands play an important role in the ecology of Woodbury County. Wetlands are home to many species of wildlife, many of which live only in wetland areas. Wetlands also provide an important service to nearby areas by holding and retaining floodwaters. These waters are then slowly released as surface water, or are used to re-charge groundwater supplies. Wetlands also help regulate stream flows during dry periods.

The U.S. Fish and Wildlife Service (FWS) produces information on the characteristics, extent, and status of the Nation's wetlands and deepwater habitats. This information has been compiled and organized into the National Wetlands Inventory (NWI). At the time of this Plan, the FWS had mapped 89% of the lower 48 states, and the State of Iowa had been entirely mapped. Maps produced by the NWI are available through their website or national office.

Wetlands are categorized in several classifications, each more detailed and specific than the previous. The NWI uses five systems; marine, estuarine, riverine, lacustrine, and palustrine. Within each system, there are subsystems, classes, subclasses, and dominance types to describe different wetland characteristics. The system classification refers to wetlands that share similar hydrologic, geomorphologic, chemical, or biological factors. Following are definitions and examples of three of the five systems used to describe wetlands. The Marine and Estuarine wetland systems are located in and near the open ocean, therefore, they do not occur in Iowa. Further information on the more specific classifications can be obtained through NWI.

Woodbury County experiences each of these three other wetland systems. They tend to occur most often in east central Woodbury County along the Little Sioux River, and also in the flatland area near the Loess Hills south of Sioux City. However, wetlands of varying sizes and types are located throughout Woodbury County. The following figures depict common ways in which these three systems develop. These figures were produced by the United States Fish and Wildlife Service, and are taken from their 1979 publication entitled "Classification of Wetlands and Deepwater Habitats of the United States." Figures 12, 13 and 14 depict common examples of the riverine, lacustrine, and palustrine wetlands, respectively. Figure 15 shows the occurrence of wetlands in Woodbury County.

FIGURE 12: RIVERINE WETLAND SYSTEM

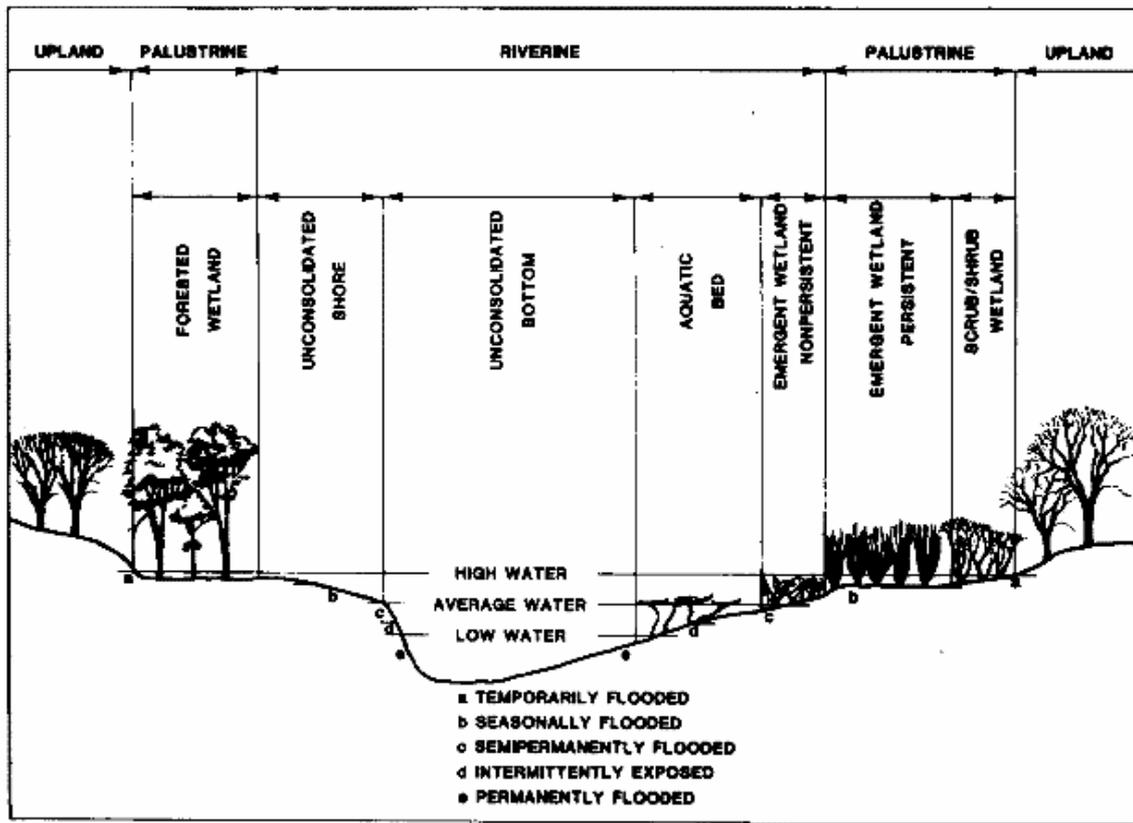


Fig. 4. Distinguishing features and examples of habitats in the Riverine System.

Figure 12 shows the riverine system includes all wetlands that occur in channels, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and (2) habitats with water containing ocean derived salts in excess of 0.5%. A channel is defined as an open conduit either naturally or artificially created which periodically or continuously contains moving water, or which forms a connecting link between two bodies of standing water. Therefore, water is usually, but not always, flowing in the riverine system.

Springs discharging into a channel are also considered part of the riverine system. Uplands and palustrine wetlands may occur in the channel, but are not included in the riverine system. Palustrine Moss-Lichen Wetlands, Emergent Wetlands, Scrub-Shrub Wetlands, and Forested Wetlands may occur adjacent to the riverine system, often in a floodplain.

Figure 13: Lacustrine Wetland System

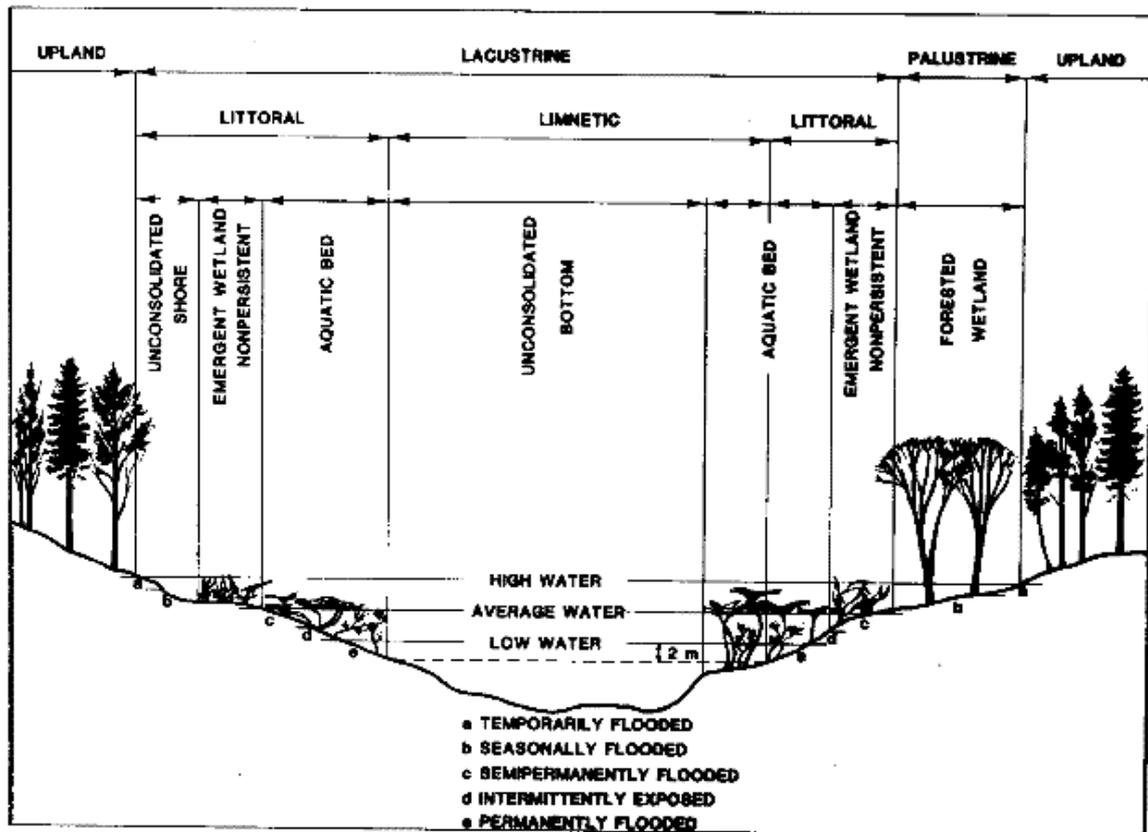


Fig. 5. Distinguishing features and examples of habitats in the Lacustrine System.

The Lacustrine System includes all wetlands with all of the following characteristics: (1) situated in a topographic depression or a dammed river channel; (2) lacking trees, shrubs, persistent emergents, emergent moss or lichens with greater than 30% areal coverage; and (3) total area exceeds 20 acres. Similar wetland areas totaling less than 20 acres are also included in the Lacustrine System if an active wave-formed or bedrock shoreline feature makes up all or part of the boundary, or if the water depth in the deepest part of the basin exceeds 6.6 feet (2 meters) at low water.

The Lacustrine System includes permanently flooded lakes and reservoirs (e.g. Lake Superior), intermittent lakes (e.g. playa lakes), and tidal lakes with ocean-derived salinities below 0.5% (e.g. Grand lake, Louisiana). Typically, there are extensive areas of deep water and there is considerable wave action. Islands of Palustrine wetlands may lie within the boundaries of the Lacustrine System.

FIGURE 14: PALUSTRINE WETLAND SYSTEM

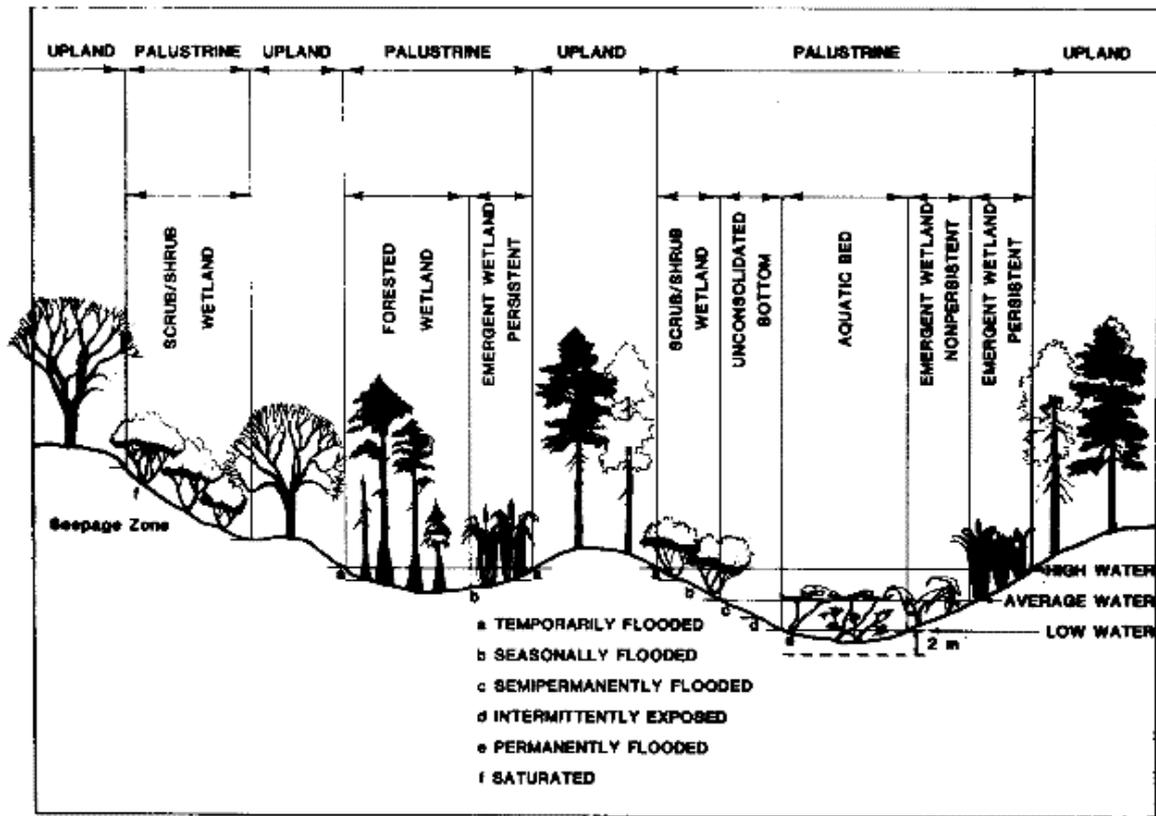


Fig. 6. Distinguishing features and examples of habitats in the Palustrine System.

The Palustrine System includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5%. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 20 acres; (2) lacking active wave-formed or bedrock shoreline features; (3) water depth in the deepest part of basin less than 6.6 feet (2 meters) at low water; and (4) salinity due to ocean-derived salts less than 0.5%.

The Palustrine System was developed to group the vegetated wetlands traditionally called by such names as marsh, swamp, bog, fen, and prairie, which are found throughout the United States. It also includes the small, shallow, permanent, or intermittent water bodies often called ponds. These wetlands may be situated shoreward of lakes, river channels, or estuaries; on river floodplains; in isolated catchments; or on slopes. They may also occur as islands in lakes or rivers.

FIGURE 15: WOODBURY COUNTY WETLANDS MAP

PLANT AND ANIMAL LIFE

A number of living organisms are important in soil development. The activities of burrowing animals, worms, crayfish, and micro-organisms, for example, have greatly affected the properties of the soils. Differences in vegetation cause the more marked differences between soils.

Tall grasses were the dominant vegetation in Woodbury County at the time of settlement. Approximately 20,000 acres were in trees. Trees, therefore, have had a slight influence on soil development, and the soils do not vary a great deal because of this factor. Trees are most common on the steep soils near the Little Sioux River valley. Some stands have been in place long enough to have caused slight, but noticeable, changes in the soils. Trees, especially willow and cottonwood, also commonly grow near the larger streams.

SOIL FORMATION AND CLASSIFICATION

Soil is produced by the action of soil-forming processes on material deposited or accumulated by geologic forces. The characteristics of the soil at any given point are determined by (1) the physical and mineralogical composition of the parent material; (2) the climate under which the soil material has accumulated and existed since accumulation; (3) the plant and animal life on and in the soil; (4) the topography, or lay of the land; and (5) the length of time the forces of soil development have been active.

Climate and vegetation are the active factors of soil genesis. They act on the parent material that has accumulated through the weathering of rocks and slowly change it into a natural body that has genetically related horizons. The parent material also affects the kind of profile that can be formed, and, in extreme cases, determine it almost entirely. Finally, time is needed for changing the parent material into a soil. Some amount of time is always required for horizon differentiation. Usually, a long time is required for the development of distinct horizons.

SOIL PARENT MATERIAL

The soils of Woodbury County formed in loess, alluvium, glacial till, and eolian sand. A few outcrops of sandstone, limestone, and shale of Cretaceous age are in the vicinity of Stone State Park, but none of the soils mapped for this survey formed in these materials.

These parent materials are discussed briefly in the following paragraphs. Persons interested in a more detailed discussion may refer to some of the annual reports of the Iowa Geological Survey.

Loess is the most extensive parent material in the County. It is a yellowish-brown, wind-deposited material that consists mainly of silt particles but contains smaller amounts of clay and sand. The loess contains no pebbles or stones, but it has numerous lime concretions that have formed since it was deposited.

Most of the soils on the uplands formed in loess. The most extensive of these soils are those of the Ida and Monona series. Galva soils are in the northeastern part of the county, and Hamburg soils occupy the bluffs along the Missouri River. The Loess is thickest on the bluffs and thinnest in the northeastern part of the county. It ranges from about 4 feet to more than 100 feet in thickness. In places, mainly in steep hillsides adjacent to the Little Sioux River valley, the loess has been removed by geologic erosion, and glacial till is exposed.

Soil that formed in loess are mainly silt loam or light silty clay loam. Loam generally means a soil is loosely packed, similar to topsoil. These soils provide an unrestricted rooting zone for plants, have high available moisture capacity and are generally well aerated.

Alluvium is the parent material of about one-quarter of the soils in the County. The largest area is in the Missouri River valley. Alluvium consists of sediment deposited along major streams and narrow upland drainage-ways. It varies widely in texture because of differences in the material from which it came and the manner in which it was deposited.

Some of the alluvial material, the local alluvium, has been transported only short distances and retains many of the characteristics of the soils from which it was washed. Judson and Napier soils, for example, generally are at the base of slopes; below soils that were formed in loess. Castana soils were formed partly in material moving down-slope by the force of gravity. All these soils are similar in texture to the soils up-slope.

About 30 soil series are within Woodbury County and were formed in alluvium. Some of the soils formed in alluvium have been in place long enough that they have been affected by other soil forming processes. Luton, Keg, Salix, Lakeport, and Colo soils are in this group. Other soils formed in recent alluvium parent material are the Sarpy, McPaul, Haynie, Modale, Onawa, Blake, and Albaton soils. The most noticeable difference in these soils is the soils in the first group have accumulated more organic matter than the second group.

Luton and Albaton soils were formed entirely in clayey alluvium. Sarpy soils are loamy sand or sand. Keg, Haynie, McPaul, Napier, and Kennebec soils are silt loam. Colo and Lakeport soils are silty clay loam. Blencoe, Blake, Blend, Holly Springs, Onawa, Modale, and Owego soils were formed in alluvium that has layers of differing textures.

Alluvium soils that are mostly sand and gravel occur mainly near the Little Sioux River. They consist mostly of glacial outwash that has been carried and sorted by water. Salida soils, which developed in coarse materials, are on hillsides or high spots in the valleys. Wadena soils formed in medium-textured alluvium underlain by sand and gravel.

Glacial till is the parent material for only a few soils that occur throughout the uplands, especially in the eastern part of the County. Most of the thick, glacial till deposits are covered by loess. The areas that are exposed are on steep hillsides near the Little Sioux River valley where the loess has been removed by erosion.

Most of the glacial till is from the Kansan glaciation. In the northeastern part of the County, where the Galva soils are most extensive, the geological age of the underlying till is uncertain. The unweathered till is firm, calcareous clay loam that contains pebbles, boulders, and sand, as well as silt and clay. The till is a heterogeneous mixture that shows little evidence of sorting or stratification. The mineral composition of its components is similar to that of unweathered loess. Shelby and Steinauer soils formed in glacial till.

Eolian sand is a minor component of parent material in the county. It was deposited by wind during the same period that loess soils were deposited. Eolian sand occurs throughout the uplands in small patches, mostly less than 10 acres in size. The patches are commonly on ridges or hillsides just east of stream valleys.

Eolian sand consists chiefly of quartz, which is very resistant to weathering and, therefore, has not been altered appreciably since it was deposited. Chute soils are the only ones that developed in eolian sand. They have a high content of sand and a low content of clay.

Bedrock outcrops occur only in a small area in and near Stone State Park. Thin soils developed in places in the weathered rock material that overlies the hard rock, but these are of minor extent.

SOIL ASSOCIATIONS

The following sections are direct excerpts from the Woodbury County Soil Survey. These sections are provided in order to allow the Planning and Zoning Commission, Board of Supervisors, and the residents of Woodbury County to make solid, educated decisions regarding the environment and land use.

Albaton-Haynie-Onawa Association

Level or nearly level, stratified, clayey and silty soils that are well to poorly drained. This association occurs as a band 1 to 8 miles wide on bottomlands along the Missouri and Big Sioux Rivers. It is generally level. Crescent-shaped oxbow lakes and swales mark old river channels. This association makes up about 10% of Woodbury County. It consists of about 29% Albaton soils, 10% Haynie soils, 10% Onawa soils, and 60% minor soils.

Albaton soils are generally poorly drained. They are clay-like soils found in swales and other low-lying areas. Haynie soils are well drained to moderately well drained soils found at slightly higher elevations than Albaton soils. Onawa soils, found at intermediate elevations, are somewhat poorly to poorly drained. Onawa soils have a clayey surface layer and are loose to a depth of 2 of 3 feet. Minor soils in the association have widely varying properties. Sarpy soils, for example, are sandy and

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droughty; Grabel, Blake, and Owego soils have sharply contrasting layers; and Modale soils have a silt-like surface layer but are clay-like at a depth of 2 or 3 feet.

The hazard of flooding was serious until dams were constructed upstream on the Missouri River. Most of these areas are now in cultivated crops, mainly corn and soybeans. Although the soils of the association have a high content of lime, they benefit from applications of nitrogen and phosphorus. Many of these soils also need artificial drainage. Surface drainage systems generally are used. Some of these soils, especially the more sandy ones, are subject to soil blowing.

Luton-Salix Association

Level or nearly level, dark-colored, clayey and silty soils that are moderately well to very poorly drained.

This association occupies bottomlands in the western part of the County. Along the western side of the association is a slightly elevated area several miles wide. Along the eastern side is a level, low-lying area, 4 to 6 miles wide, which in some places varies in elevation by only a few inches. This association makes up about 10% of the county. It is 50% Luton soils, 10% Salix soils, and 40% minor soils.

Luton soils are poorly to very poorly drained and are at low elevations. Salix soils are moderately well drained and silt-like, and comprise the majority of soils in the higher elevations. Minor soils in the association are the Keg, Merville, Blencoe, Woodbury, Solomon, and Napa. These soils are generally silty-like and loose to a depth of 2 or 3 feet. Keg soils occupy a sizable acreage, mainly at the highest elevations in the western part of the association. They are well to moderately well drained. Merville soils occupy desilting basins in the eastern part of the association. Most of the other minor soils, such as those of the Blencoe and Woodbury series, are intermediate to Keg and Luton soils in texture and natural drainage. Solomon soils are intermingled with Luton soils and are poorly to very poorly drained. Napa soils contain excessive amounts of sodium salts.

Nearly all of this association is used for farming. Corn is the main crop, but soybeans are also common. Many farmers use a cropping system that consists of corn and soybeans. Some wheat is grown in the wetter parts of the association.

The soils in this association range from slightly acidic to moderately alkaline, and crops generally respond to applications of nitrogen and phosphorus. Artificial drainage is beneficial to most of these soils, and is essential to some. A well-established system of ditches runs parallel to the roads in the association and drains excess water to the Missouri River. The larger ditches also receive water from tributary streams. Surface drains are generally used to get excess water out of the fields and into the drainage network. An increasing acreage has been smoothed and graded to improve drainage and make furrow irrigation possible.

McPaul-Kennebec-Colo Association

Level to gently sloping, silty soils that are well to poorly drained.

This association is in the valleys of the major tributaries of the Missouri River, and includes a narrow strip along the eastern edge of the Missouri River valley, where soils formed in tributary sediments. The tributary valleys are about ½ mile to 2 miles wide. The floodplains are about ½ mile wide. Stream benches flank the larger streams and in most places are separated from the floodplains by escarpments 5 to 30 feet high. This association makes up about 5% of the County. It is about 50% McPaul soils, about 25% Kennebec soils, about 10% Colo soils, and 15% minor soils.

The major soils are calcareous and well to moderately well drained. They make up nearly all of the acreage in some valleys. Kennebec soils in the Little Sioux River valley are underlain by gravel. A number of gravel pits occur in this association. Soils along the West Fork of the Little Sioux River near the northern boundary of the County have gravel fairly near the surface. Most of the stream benches along the West Fork, the Maple River, and other streams are covered with loess. Gravel, where present is at a depth of 15 to 20 feet. Ida and Monona soils are on these benches. They are deep, well-drained, silt-like soils formed in loess. Napier and Castana soils are along the edges of the valleys.

Nearly all of this association is cultivated. A few low-lying areas, subject to frequent flooding, have been left in trees, and some of the steep escarpments are in trees or permanent pasture. The main crops are corn, soybeans, oats, and a mixture of alfalfa and brome grass.

The floodplains are subject to at least occasional flooding, unless protected by levees. The major crops generally consist of corn and soybeans. The soils on stream benches are droughty where gravel is near the surface, but in many places the main hazard is erosion. A great deal of water from the uplands flows across these soils. Most areas are nearly level or gently sloping, and they are used mainly for row crops. Runoff needs to be controlled in the sloping areas to control the loss of soil and water.

Ida-Hamburg Association

Steep and very steep, silty soils that are well to somewhat excessively drained. This association is found on narrow ridgetops and long, steep hill sides, the steepest hills have small but prominent bench-like relief, or catsteps. The catsteps are the result of slumps in the soil. Most of the valleys are narrow and are dissected by deep, wide gullies that have vertical sides. This association makes up about 5% of the county. It is about 70% Ida soils, 12% Hamburg soils, and 18% minor soils.

Ida and Hamburg soils are calcareous, silt-like, loose soils that formed in loess. Ida soils are well drained, and Hamburg soils are somewhat excessively drained. The main limitation to farming is the slope. Minor soils in the valleys, including those of the Napier, Kennebec, McPaul, and Castana series, are silt-like and slightly to moderately alkaline. The use of Napier and Castana Soils is limited somewhat by the slope, which can be 20% in places. Steinauer soils, which formed in glacial till, are on the lower part of steep hillsides. They are clay-like and less permeable than other soils of this association.

This association is used for growing feed corn for cattle, hogs, sheep, and poultry. The steepest hills are left in native vegetation, such as big bluestem, little bluestem, and other native grasses. The soils in valleys and on concave foot slopes contain more moisture, and in places they support bur oak and other trees. The ridges and valleys that are wide enough are used for corn, soybeans, oats, and a mixture alfalfa and brome grass. Areas too steep for regular cultivation, but where farm machinery can be used, are left in semi-permanent pasture consisting of brome grass or brome grass and alfalfa.

Terraces and contour tillage are used to control runoff and erosion on cultivated field. Large, level basin terraces built at the base of steep hills at the edge of the valleys check runoff, control riling, and help slow the formation of large gullies. A number of dams and other gully control structures have been built in the smaller valleys as part of watershed programs.

Ida-Monona Association

Gently sloping to steep, silty soils that are well drained.

This association is on narrow, gently sloping ridge tops and steep hillsides. The area is dissected by numerous small valleys, where streams drain southwesterly into the Missouri River. Gullies 20 to 50 feet deep are prominent features of the landscape. Soils on hillsides have slopes of 10% to 40%, and most of the steepest soil areas along the larger stream valleys. This association makes up about 60% of the County. Ida and Monona soils each make up about 30% to 40% of the association, and minor soils make up approximately 25%.

Ida and Monona soils are of the Steinauer, Napier, Kennebec, and McPaul series. The Ida soils have a high content of lime. Monona soils are neutral or slightly acidic. Steinauer soils developed in glacial till on the lower part of rolling to steep hillsides. They are loose and high in content of lime, and they contain many pebbles and stones. Napier and Kennebec soils occupy the valleys. They are found in silt-like material deposited by water. They are deep, dark colored, and neutral to slightly acidic. McPaul soils occur in the larger stream valleys. They are stratified, and calcareous.

Galva Association

Gently sloping and strongly sloping, dark-colored, silt-like soils that are well drained.

This association is predominantly located on gently sloping ridgetops and sloping hillsides. In a few areas nearly all the soils are gently sloping, and in others the slope is no more than 9%. There are some steep hillsides near the Little Sioux River. This association makes up about 10% of the County. It is about 50% Galva soils and 50% minor soils, such as those of the Judson, Colo, and Steinauer series.

Galva soils formed in loess parent material. They are well drained and slightly acidic in reaction. Judson and Colo soils occupy most of the valleys in the association. They are silt-like and slightly acidic. Drainage is restricted on the Colo soils. Steinauer soils are located on the more sloping hillsides near the Little Sioux River.

These are calcareous, loose soils that formed in glacial till. Pebbles and stones are on the surface in many areas.

Row crops are common on Galva soils and most of the soils in the valleys. Corn and soybeans are the main crops. Alfalfa, red clover, and bromegrass are used for meadows. The more strongly sloping soils are used for permanent pasture. Cash-grain crops and livestock operations are the major sources of income.

Contour tillage and terraces are used to control erosion on the sloping soils of this association. The topography is such that a practical system of terraces with a minimum of short rows can be used in most places.

FIGURE 16: WOODBURY COUNTY GENERAL SOIL MAP

SOIL LIMITATIONS

There are limitations that can be placed upon soils depending upon what the County wants to review. Since this Plan is generally directed at land use and development, this section will briefly describe several relevant limitations commonly placed on soil where development could potentially occur. Following these descriptions, maps depicting these limitations within Woodbury County are shown.

Slope

Slope limitations are based upon the incline of the surface of the soil. Development obviously favors lower slopes. This limitation is presented as a percentage of slope, which is equal to the number of feet the slope falls for every 100 feet of horizontal distance. Figure 17 shows the slope characteristics of Woodbury County soils.

Capability Grouping

Capability grouping shows, in a general way, the suitability of soils for most kinds of field crops. The groups are made according to the 1) limitations of the soils when used for field crops, 2) the risk of damage when the soils are used, and 3) the way the soils respond to treatment. The grouping does not take into account major and generally expensive alteration to the land that would change the slope, depth, or other characteristics of the soils. Also, it does not take into consideration the possibility of major reclamation projects; and finally, it does not apply to rice, cranberries, horticultural crops, or other crops requiring special management.

Capability classification can infer much about the behavior of soils when used for purposes other than typical field crops. However, this classification is not designed to be a substitute for studies designed to show suitability and limitations of soils for rangeland, forest, or engineering uses. This capability system groups all types of soils into both a capability class and a subclass. Capability classes, the broadest groups, are designated by the roman numerals I through VII. The numerals indicated progressively greater limitations and narrower choices for practical use. Capability subclasses are designated by the capital letters E, W, and S. Subclass indicates the soils main limitation within one class. The classes are shown in Figure 18, and are defined as follows:

- § Class I soil has few limitations that restrict their use.
- § Class II soil has moderate limitations that reduce the choice of plants or require moderate conservation practices.
- § Class III soil has severe limitations that reduce the choice of plants, require very careful management, or both.
- § Class IV soil has very severe limitations that reduce the choice of plants, require very careful management, or both.
- § Class V soil is subject to little or no erosion but has other limitations, impractical to remove, that limit their use largely to pasture, range, woodland, or wildlife habitat.
- § Class VI soil has severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife habitat.

- § Class VII soil has very severe limitations that make them unavailable for cultivation and that restricts their use largely to pasture or range, woodland, or wildlife habitat.
- § Subclass E soil is subject to erosion unless close-growing plant cover is maintained.
- § Subclass W soil is prone to holding excess water, either in or on the soil, which can interfere with plant growth or cultivation (in some soils wetness can be partly corrected by artificial drainage.)
- § Subclass S soil is shallow, droughty, or stony.

Corn Suitability

Corn suitability ratings provide a relative ranking of all soils based upon their potential to be used for intensive row crop production. This index is based upon a comparison of one soil's potential yield against another over a period of time. The index considers average weather conditions as well as frequency of use of the soil for row crop production. Ratings range from 100 for soils having no physical limitations for row crops to as low as 5 for soils with severe limitations for row crops. The ratings assume a) adequate management, b) natural weather conditions, c) artificial drainage where required, d) soils low on the landscape are not affected by frequent flooding, and e) no land leveling or terracing. Although predicted average yields will change with time, it is expected that the relations between soils will remain relatively constant over time. This means these ratings should continue to provide useful information as average yield changes. These ratings are shown in Figure 19.

Flooding Frequency

Flooding frequency is a common limitation to land use. Flooding frequencies are based upon the temporary covering of soil with water, either from overflowing streams or runoff from adjacent slopes. Where soil complexes exist, the highest frequency of the component soils will be the frequency of the complex. Figure 20 depicts the frequency with which areas of Woodbury County experience flooding. Code numbers and classifications are:

- 00 = NONE Flooding is not probable.
- 10 = RARE Flooding is unlikely but possible under unusual weather conditions.
- 20 = OCCAS Flooding occurs on an average of 50 times or less in 100 years.
- 30 = COMMON Flooding is likely under normal conditions.
- 40 = FREQ Flooding
- 50 = PONDED Standing water on soils in closed depressions. Unless the soils are artificially drained, only percolation or evapotranspiration can remove the water. (Ponded is for short duration unless otherwise specified).

Permeability

Permeability is the quality of the soil enabling water to move downward through its layers. Permeability is categorized based upon the number of inches per hour that water moves downward through the saturated soil. Whenever clay-like material or material overlying bedrock is 1 to 5 inches thick and continuous, the permeability is slower than the overlying material. Permeability listed for complexes is the most limiting class of the soils in the complex. Where the permeability listed includes a slash, this indicates two materials with different permeabilities occur, i.e. MR/S means moderately rapid material over slow material. Class abbreviations and code numbers for permeability are as follows. Figure 21 shows the permeability classes that occur in Woodbury County.

§	VR	=	00	=	Very Rapid [>20.0 inches per hour]
§	R/VR	=	05	=	Rapid/Very Rapid
§	R	=	10	=	Rapid [6.0 to 20.0 inches per hour]
§	MR/VR	=	15	=	Moderately Rapid/Very Rapid
§	MR/R	=	20	=	Moderately Rapid/Rapid
§	M/VR	=	25	=	Moderate/Very Rapid
§	MR	=	30	=	Moderately Rapid [2.0 to 6.0 inches per hour]
§	M/R	=	35	=	Moderate/Rapid
§	R/M	=	40	=	Rapid/Moderate
§	MR/M	=	45	=	Moderately Rapid/Moderate
§	M	=	50	=	Moderate [0.6 to 2.0 inches per hour]
§	MS	=	55	=	Moderately Slow [0.2 to 0.6 inches per hour]
§	MS/M	=	56	=	Moderately Slow/Moderate
§	MR/MS	=	57	=	Moderately Rapid/Moderately Slow
§	MS/R	=	58	=	Moderately Slow/Rapid
§	R/S	=	60	=	Rapid/Slow
§	MR/S	=	65	=	Moderately Rapid/Slow
§	M/S	=	70	=	Moderate/Slow
§	S/R	=	72	=	Slow/Rapid
§	VS/R	=	75	=	Very Slow/Rapid
§	S	=	80	=	Slow [0.06 to 0.2 inches per hour]
§	M/VS	=	85	=	Moderate/Very Slow
§	VS	=	90	=	Very Slow [<0.06 inches per hour]

Soil Suitability for Septic Systems

Soil suitability is critical in determining those areas in Woodbury County where septic systems should or should not be installed. The most common risk associated with septic system siting is contamination of the soil or water in the area.

Another limitation in Woodbury County is the presence of the Loess Hills, as described in this excerpt from *Fragile Giants, A Natural History of the Loess Hills*, by Cornelia F. Mutel. "To prevent collapse of loess on upland surfaces, extreme care must be taken in planning and executing construction. Test borings can determine water content and the need to drain subsurface loess. Loess should not be cut into too deeply. Surface runoff and water from downspouts and gutters must be

diverted. Leaks in sewer and water lines must be prevented. Care must be taken to avoid overwatering of lawns. Flattened areas must be adequately drained. Failure to take such steps will result in continued loess collapse and damage to structures.” This quote makes apparent the risk associated with allowing loess to become saturated with water. Special care must be exercised when locating septic systems in and near loess.

Figure 22 indicates where limitations occur in Woodbury County. These limitations are listed as Slight, Moderate, or Severe. This information should be reviewed prior to making decisions about future development/residential building requests. The County should also request applicants wanting to locate in areas with Moderate or Severe limitations to submit certified soil samples either confirming or refuting the soils conditions presented in the General Soil survey shown in Figure 16.

Wind Erodibility

The wind erodibility limitation is based upon soil classes that have similar properties affecting their resistance to soil blowing in cultivated areas. The groups indicate how susceptible the class is to soil blowing and the amount of soil lost. The wind erodibility group of a complex is the most limiting group of the soils in the complex. Soils are shown in Figure 23, grouped according to these distinctions.

- 1 Sands, coarse sands, fine sands, and very fine sands. These soils generally are not suitable for crops. They are extremely erodible, and vegetation is difficult to establish.
- 2 Loamy sands, loamy fine sands, and loamy very fine sands. These soils are very highly erodible. Crops can be grown if intensive measures to control soil blowing are used.
- 3 Sandy loams, coarse sandy loams, fine sandy loams, and very fine sandy loams. These soils are highly erodible. Crops can be grown if intensive measures to control soil blowing are used.
- 4L Calcareous loamy soils that are less than 35% clay and more than 5% finely divided calcium carbonate. These soils are erodible. Crops can be grown if intensive measures to control soil blowing are used.
- 4 Clays, silty clays, clay loams, and silty clay loams that are more than 35% clay. These soils are moderately erodible. Crops can be grown if measures to control soil blowing are used.
- 5 Loamy soils that are less than 18% clay and less than 5% finely divided calcium carbonate, and sandy clay loams and sandy clays that are less than 5% finely divided calcium carbonate. These soils are slightly erodible. Crops can be grown if measures to control soil blowing are used.
- 6 Loamy soils that are 18% to 35% clay and less than 5% finely divided calcium carbonate, except silty clay loams. These soils are very slightly erodible. Crops can easily be grown.
- 7 Silty clay loams that are less than 35% clay and less than 5% finely divided calcium carbonate. These soils are very slightly erodible. Crops can easily be grown.
- 8 Stony or gravelly soils and other soils not subject to blowing.

Prime Farmland

About 57% of Woodbury County, or 316,000 acres, are used for crops. About 17%, or 96,000 acres, are used for pasture, including much of the county's 25,000 acres of woodland. Most of this agricultural production takes place in areas of prime farmland. Prime farmland, as defined by the USDA, is land best suited for food, feed, forage, fiber, and oilseed crops. Prime farmland can be found as cropland, pasture, woodland, or other land, but it does not comprise urban or built-up land or water areas. The necessary soil qualities, growing season, and moisture supply are those needed to economically produce a sustained high yield of crops. Prime farmland produces the highest yields with minimal inputs of energy and economic resources, and farming on this land results in the least damage to the environment.

The temperature and growing season for prime farmland are generally favorable. Prime farmland also typically has an adequate and dependable supply of moisture from either precipitation or irrigation. Acidity or alkalinity of the soil is usually within acceptable limits. Prime farmland has few or no rocks, and water and air easily permeate through the soil. The wind erodibility does not generally require intensive management. Prime farmland is not excessively saturated with water for long periods nor is it frequently flooded during the growing season. Slopes generally range from 0 to 6 percent.

Prime farmlands are categorized by different letter designations. These designations describe the limitations found in a particular area. Some soils have a seasonal high water table and soils that are frequently flooded qualify for prime farmland only in areas where these limitations have been overcome by a drainage system or flood control. A number following the letter designation indicates the need for these types of measures. Prime farmlands are shown in Figure 24. The designations are:

- § P = Prime
- § P2 = Prime, where drained
- § P3 = Prime, if protected from or does not flood more than once in 2 years during a growing season.
- § P5 = Prime, where drained and protected from flooding.
- § S = Statewide Importance, soils that generally can be highly productive for cropland, but occur on slopes greater than 6% or have limitations in drainage or flood control that are more difficult to overcome. These soils are in capability class 3 or 4. At the time of this Plan, these soils were a potential listing as they had not yet been approved by the State of Iowa.
- § L = Local Importance, soils that generally are poorly suited or unsuited to cropland due to steep slopes or flooding and wetness limitations. They may be important in the County, however, for other uses such as pasture, wildlife, or recreation. These soils are a potential listing of soils that may be considered by county officials for this designation.

FIGURE 17: WOODBURY COUNTY SLOPE MAP

FIGURE 18: WOODBURY COUNTY SOIL CAPABILITY GROUPING

FIGURE 19: WOODBURY COUNTY CORN SUITABILITY MAP

FIGURE 20: WOODBURY COUNTY FLOODING FREQUENCY MAP

FIGURE 21: WOODBURY COUNTY PERMEABILITY MAP

FIGURE 22: WOODBURY COUNTY SUITABILITY FOR SEPTIC SYSTEMS MAP

FIGURE 23: WOODBURY COUNTY WIND ERODIBILITY MAP

FIGURE 24: WOODBURY COUNTY PRIME FARMLAND MAP

WILDLIFE AND RECREATION

Woodbury County supports many kinds of wildlife that contribute to the economy of the County. Soils and the distribution of vegetation largely determine the variety of wildlife located in the County. Most of the soil associations in the County include areas suitable for the development of recreation facilities. Many places are too steep and unsuitable for farming and can be developed for recreational uses.

Topography and soil characteristics such as fertility influence wildlife populations. Topography affects the number of wildlife through its influence on land use. Wildlife is more numerous on fertile soils than on less fertile soils. Extremely rough, irregular areas may be hazardous to livestock and unsuitable for wildlife.

Throughout Woodbury County, large areas of nearly level or gently sloping soils are cropped intensively. Such soils support only limited numbers of wildlife because they lack suitable shelter and nesting areas. Natural wetness and available water capacity of soils are important in selecting sites for the construction of fishponds and habitat for waterfowl. Naturally marshy areas can be developed to provide aquatic or semi-aquatic habitat for waterfowl and for some fur-bearers.

The wildlife resources of the County are important primarily for the opportunities they provide for recreation, in the form of hunting and fishing. Many species of wildlife, such as songbirds, hawks, owls, snakes, and other predators, are beneficial in that they help control the numbers of rodents and undesirable insects. The fur-bearers, especially muskrat and mink, provide income for the farmer.

The soils of Woodbury County provide suitable habitat for a number of wildlife species. Soils in the Missouri River valley, and especially those near the River, provide food for a large number of migrating ducks and geese in fall and spring. These soils include those of the Albaton, Onawa, Blake, and Haynie series. A number of oxbow lakes and marshy areas are filled with water part of the time and provide resting-places for migrating waterfowl.

Pheasant are located throughout the entire County, but typically are most abundant in areas where crops occur to provide good food supply and plenty of cover for shelter and nesting areas. Pheasants find good habitat on uplands occupied by gently sloping to moderately steep soils of the Monona, Galva, and Ida series. The drainage-ways and narrow bottomlands that provide food and cover for birds are occupied mostly by soils of the Napier, Judson, Kennebec, and Colo series. Limited numbers of Hungarian partridge find habitat in the uplands.

Many animals, such as fox, raccoon, skunk, woodchuck, and cottontail rabbit live throughout the County. White-tailed deer frequent areas adjacent to the river bottoms. Squirrels are most abundant on wooded east or north facing slopes adjacent to streams. Muskrat, mink, and other fur-bearers frequent the rivers and creeks throughout the County, most commonly along the Missouri River. The Missouri and Little Sioux Rivers, tributary streams, and well-managed farm ponds provide fishing. The Missouri River and Browns Lake are also used for boating.

Although there are many areas in the County suitable for wildlife, many more acres could be developed for wildlife habitat and recreational uses. All the soils will support good wildlife habitat if properly used. Farm ponds provide opportunities for improving habitat for wildlife. Herbaceous and woody planting provide food and cover. Small odd-shaped areas that have little farming value can be developed for wildlife habitat by protecting natural cover or by establishing needed cover. Sites suitable for such purposes are many areas of alluvial land, borrow pits, maple land, marshes, and riverwash areas.

MAN-MADE CONDITIONS

Future development in Woodbury County may be affected by the presence of man-made features such as the geographic locations of urban communities, the location of county roads and highways, recreational facilities, current farmstead development, and facilities that discharge pollutants. It is important for Woodbury County to know where these features are located within the County, and which of these features could potentially hinder development.

URBAN DEVELOPMENT

The rural areas of the County have had limited development beyond livestock production and crop production uses currently in place. This indicates present land use policies have minimized this type of development, or there may not be a substantial market demand for rural non-farm residences, commercial or industrial uses in areas other than those in and around the urban centers within the County.

Due to the geographic location of the County, its population and corresponding development patterns over the past decades, there is only one large urban community, and many smaller rural/urban communities within the County. The City of Sioux City, located in the northwest corner of the County, had an estimated population of 82,697 persons in 1998. The remaining towns and villages in Woodbury County had an estimated combined population of 18,850 persons in 1998. This indicates most urban development in the County will continue to occur in the Sioux City and surrounding area, with acreage development near the rural/urban communities.

Several U.S. Highways and State Highways, as well as U.S. Interstate 29 serve Woodbury County. These highways provide Woodbury County with a well-connected transportation system. All areas of Woodbury County are accessible via one of these highways. Many communities and Sioux City especially, are located along the route of one or more of these highways. The location of these urban areas indicates future development, including additional non-agricultural residential, commercial, and industrial uses will probably tend to locate along these Highway corridors near one of the urban areas. Existing and future areas of urban development are considered in detail in the Existing and Future Land Use sections.

Transportation

The major transportation routes within Woodbury County consist of U.S. Interstate 29, U.S. Highways 75 and 20, and State Highways 31, 141, and 982. A vast majority of commercial, industrial and highway related uses are situated along these highways in areas in close proximity to Sioux City and other rural/urban areas. This suggests future commercial and industrial uses, in the County, will develop in a location along these highways, probably in close proximity to larger urban areas.

A large, regional airport located near Sioux City serves Woodbury County. Sioux Gateway Airport has played an important role in the development of the Siouxland area. This airport provides the area with passenger, commercial, and freight transportation needs. The location of this airport may further drive development to locate near the Sioux City area.

Environmentally Sensitive Industries

These industries discharge or emit potentially harmful substances into the air, soil, and water. Various Federal statutes and laws require monitoring of many of the substances discharged. Discharge of some of these substances also requires a permit. The Environmental Protection Agency (EPA) is the Federal agency charged with management of these various programs.

TABLE 36: ENVIRONMENTAL STATUS OF WATERSHEDS, WOODBURY COUNTY, 2000

Watershed	TRIS facilities	RCRIS facilities	CERCLIS facilities	PCS facilities	AIRS/AFS facilities
Lower Big Sioux	39 / 4	45 / 4	0 / 0	47 / 7	8 / 0
Blackbird - Soldier	35 / 31	49 / 37	0 / 0	37 / 20	46 / 20
Floyd	19 / 19	50 / 50	0 / 0	24 / 24	33 / 33
Little Sioux	11 / 11	50 / 45	0 / 0	32 / 32	43 / 43
Monona - Harrison Ditch	0 / 0	14 / 14	0 / 0	10 / 10	12 / 12
Maple	2 / 2	26 / 26	0 / 0	11 / 11	12 / 12

Source: United States Environmental Protection Agency, Surf Your Watershed, www.epa.gov, 2000

The numbers displayed denote: the total number of facilities in the watershed / the number of facilities within Iowa located in the watershed.

Table 36 shows the number of facilities in each watershed that release pollutants into the environment. The waste produced is categorized into four areas. The numbers in Table 36 show how many companies have registered with local, state, and federal agencies regarding their activities involving those types of waste. These numbers represent distinct sites. Some companies may have multiple sites, if so, each was counted. However, some sites have multiple permits, but the site was only counted once. The four categories shown in Figure 25 are as follows:

- § TRIS is the Toxic Release Inventory System prepared by the EPA. This inventory documents more than 650 toxic chemicals that are being used, manufactured, treated, transported, or released into the environment. Companies that manufacture these chemicals are required to report the quantity of chemicals stored on-site to state and local governments. These reports are then submitted to the EPA.
- § RCRIS is the Resource Conservation and Recovery Information System used by the EPA to monitor compliance with the Resource Conservation and Recovery Act (RCRA). This system is used to track companies that generate, transport, treat, store, and dispose of hazardous waste (as defined by federal hazardous waste codes). Such companies must file reports concerning their activities to state environmental agencies, which are then also filed with the EPA.
- § CERCLIS is the Comprehensive Environmental Response, Compensation, and Liability Information System, used by the EPA to monitor compliance with the Comprehensive Environmental Response, Compensation, and Liability Act

(CERCLA, also known as "Superfund"). This system is a repository for site and non-site specific data related to the creation of hazardous waste sites through the improper storage and disposal of hazardous waste.

- § PCS is the Permit Compliance System, which contains information on permits issued to companies engaged in discharging substances into the waterways of the United States. These permits are issued under the authority of the National Pollutant Discharge Elimination System (NPDES). This system tracks data on permit issuance, permit limits, and monitoring data on more than 75,000 facilities nationwide.
- § AIRS/AFS is the Aerometric Information Retrieval System (AIRS)/AIRS Facility Subsystem (AFS). The information in this system is used to track the compliance status of point sources with various regulatory programs and to report air emissions for pollutants regulated under the Clean Air Act.

General source information on these systems and the companies that are contained within them can be obtained from either the EPA regional office or their website.

In addition to these industries, Woodbury County is also home to several sensitive archeological sites that are worthy of protection. These area are depicted in Figure 26.

FIGURE 25: WOODBURY COUNTY ENVIRONMENTALLY SENSITIVE INDUSTRIES MAP

FIGURE 26: WOODBURY COUNTY ARCHEOLOGICAL AREAS

SUMMARY OF ENVIRONMENTAL AND NATURAL RESOURCES PROFILE

The information presented in this environmental section is beneficial because it provides a detailed picture of the condition of natural resources within Woodbury County. This information will help the County determine areas that may need special consideration for or protection from development. An example of such an area is the Loess Hills. Due to soil limitations and the value of wildlife in the hills, the County may want to allow only minimal development in the area, and even then with specific development guidelines and regulations.