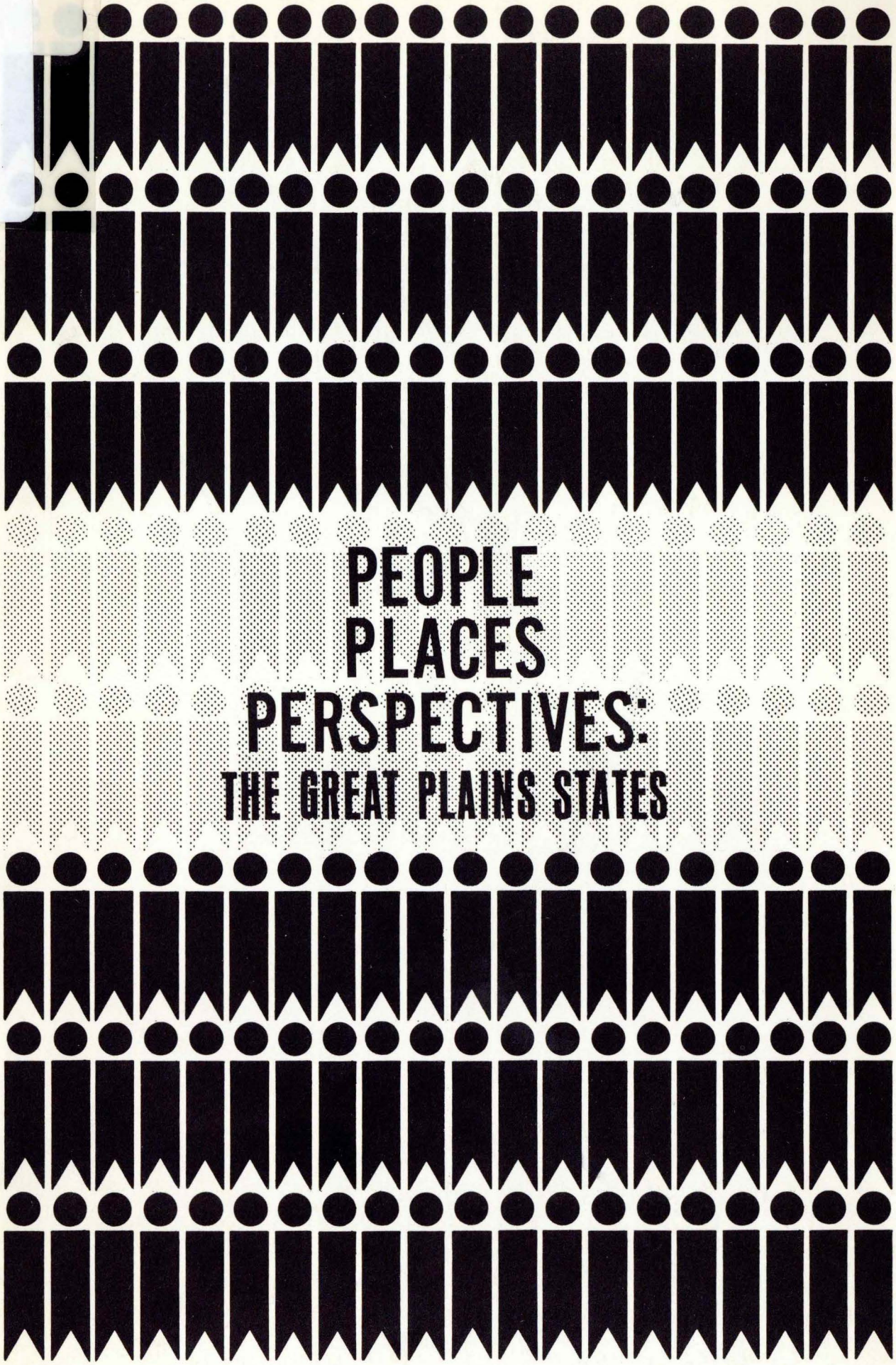

PEOPLE PLACES PERSPECTIVES:

THE GREAT PLAINS STATES

PEOPLES - PLACES - PERSPECTIVES: THE GREAT PLAINS STATES

by

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FOREWORD

The impact of scientific, technological, social and economic change on the American way of life necessitates a re-examination of the educational system. These changes modify established needs and create new needs to be met by the public school system. Instructional programs and supporting services must be developed to meet these needs.

The primary purposes of school district organization are to make possible: (1) the desired quality or excellence of the program and services; (2) the efficiency of the organization for providing the programs and services; and (3) the economy of operation, or the returns received for the tax dollar invested in education.

Americans have always been a mobile people. The covered wagon of the "Westward Ho" era gave way to the house trailer and the moving van. The trees of the forest gave way to farming land which is giving way to superhighways and emergent megalopolises. These changes, together with other related demographic factors, have major implications for the structuring of all governmental services, and especially for education. Dr. Ellis Hanson, Director for the Great Plains Project in Iowa, was invited to identify the major characteristics of these changes, with particular reference to implications for education. This paper is a report of his findings and recommendations.

The value of this paper rests upon its utilization by those with advisory and/or decision making responsibilities about the educational structure in each state. It represents a beginning point for further study and evaluation, and for establishing criteria upon which guidelines can be developed for effective and constructive school district organization.

Respectfully submitted,
Ralph D. Purdy, Director
Great Plains School District
Organization Project

February 8, 1968

Reviewers and Advisors

A series of conferences were held in Columbia and Jefferson City, Missouri; Lincoln, Nebraska; Pierre and Brookings, South Dakota; and Des Moines and Ames, Iowa, to review preliminary drafts of the publication.

Individuals participating in the reviewing sessions were:

Dr. Rex R. Campbell, University of Missouri, Columbia

Mr. Arthur Summers, Department of Education, Jefferson City

Mr. Kenneth Kirchner, Department of Education, Jefferson City

Dr. William Schroeder, Department of Education, Lincoln

Dr. Marvin Scholten, South Dakota State University, Brookings

Dr. Robert Antonides, South Dakota State University, Brookings

Mr. Leonard Balsinger, Department of Public Instruction, Pierre

Mr. Earl Boxa, Department of Public Instruction, Pierre

Mr. Charles S. Sisk, Bureau of Public Health Statistics, Pierre

Mr. David Gilliland, Department of Public Instruction, Des Moines

In addition to the review committees, Dr. Jon Doerflinger, Iowa State University, has served in a consultant capacity in the development and production of the publication.

INTRODUCTION

The Great Plains School District Organization Project was initiated in March, 1966, with a grant from the U. S. Office of Education under Title V, Section 505, of the Elementary and Secondary Education Act of 1965. The Project has been a cooperative undertaking of four states: Iowa, Missouri, Nebraska and South Dakota.

The long range objective of the Project since its inception has been to enable State Departments of Education in each of the four states to provide increased leadership for the purpose of improving school district organization.

The real basis of all educational undertakings is people. Where people presently live, work, and play and where they may in the future be expected to live, work, and play has a profound effect on describing and projecting future organizational patterns for educational endeavors. For this reason a comprehensive demographic study was initiated early in the project in order to provide data for further study and development.

This publication, one of three demographic studies initiated by the project staff, is intended to relate to lay citizens, professional educators, legislators, and other interested groups within the Great Plains area major changes that have taken place and are likely to occur in the future regarding the people of the area. The information included herein should aid decision makers in arriving at realistic solutions to some of the acute problems facing educational planners in the Midwest.

Any publication or report dealing with projections is subject to serious scrutiny. Long range projections are, at best, "guesstimates" based upon historical and present discernible trends. As new and unexpected inputs are introduced during the projection period, alterations should certainly be anticipated. For this reason, the reader is cautioned to consider seriously the assumptions associated with each set of projections included in this publication. Their application and utility should be controlled by the stated assumptions.

The dynamics of school district organization are entwined in all facets of community and general societal adjustment. Demography, the statistical study of human populations, is only one of many areas that require detailed exploration. Only when all investigative efforts are amalgamated into a concerted statewide evaluation, can the ultimate potential for major organizational adjustments be realized.

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CHAPTER I

NATIONAL POPULATION TRENDS

Social scientists have attempted to identify specific periods in the evolution of the American society and attach labels to them with varying degrees of success. The Socio-Economic Group of the Battelle Memorial Institute has described the evolution in terms of three specific periods: 16, p. 2-4) the Agricultural Era, the Manufacturing Era, and the Human Resources Era.

The Agricultural Era extended from the nation's early settlement period to the opening of the frontiers and was characterized by the majority of the populace earning their livelihood from agricultural endeavors.

The Manufacturing Era, which followed the Industrial Revolution in the mid-nineteenth century, has ensued in the United States for the past five to six decades. It is best characterized by massive development of manufacturing and related activities and the consequent shift of the labor force from agrarian endeavors to manufacturing activities.

The Human Resources Era, which is presently emerging, will provide man his employment through intellectual endeavors rather than the transformation of natural resources to useful products, as formerly. Five distinct characteristics have been suggested to identify this Era: (16, p. 3-4)

1. Though total employment in manufacturing will increase, the percent of the total work force engaged in manufacturing is expected to decline from the present 27 percent level to 23 percent by 1975.
2. A population growth of 14 percent between 1965-1975 will result in a substantial increase in economic activity.
3. White collar occupations will increase and account for over half of total employment of 1975.
4. Annual rate of growth for the gross national product is projected to be 4.2 percent, substantially above the 2.8 percent annual average which occurred between 1929-1964.
5. Expendible income available to the average family will increase. In 1960, 16.8 percent of the U. S. households earned in excess of $10,000; by 1975, over 30 percent of the households will have incomes in excess of $10,000.

The United States presents an outstanding example of rapid population growth, but at a declining rate. The population doubled five times between 1790 and 1950—three times between 1790 and 1865 at intervals of 25 years, once in the 35 year period from 1865 to 1900, and once in the 50 year period from 1900 to 1950. The combined effects of the Great Depression and restricted immigration brought both birth rates and growth rates to new lows during the 1930's. Projections made in the 1930's and 1940's suggested 165 million as the peak population for the United States at the turn of the century. (39, p. 41)

However, an unprecedented upsurge in both marriage and fertility rates during the forties and fifties contradicted all projections. The population of the United States passed the 165 million mark in 1955, is over 200 million today, and is being projected to exceed 300 million by the turn of the century. (37, p. 4)

Agriculture is considered by many to be the most highly automated of American Industries today. In 1900, over 71 percent of the total U. S. labor force was engaged in agricultural occupations. In 1960, only 7.5 percent was so engaged. Leading agricultural economists predict that by 1975 this figure may drop to only four percent of the total labor force.

REGIONAL DISTRIBUTION

Though the total United States population has increased, the gains have been unevenly distributed throughout the country. In the fifteen year period 1950-1965, 43 percent of the total U. S. population increase was accounted for by five states: California, New York, Florida, Texas, and Ohio. During this period the greatest increase percentage-wise was reflected in four distinct geographic areas:

1. The far west and south southwest;
2. The gulf coast area: Texas to Florida;
3. The Great Lakes Area: Milwaukee to Buffalo; and
4. The Eastern Metropolitan Complex: Boston to Charlotte, North Carolina.

The average national growth rate during this period was 18.5 percent, but the growth rate for the Great Plains area was only 12.6 percent. (28, p. 6) Recent projections for the period 1965-1980 indicate the West North Central Division, including Nebraska and South Dakota, will have the lowest growth rate of all sections of the United States, 14 percent. (12, p. 28) The area encompassing Iowa and Missouri will experience a growth of approximately 18 percent, or slightly below the expected 21 percent national increase.

RURAL-URBAN COMPOSITION

The development of technology and changing social, economic and political conditions has resulted

in increased concentration of population in urban areas. In 1790 when the first census was taken, only 5 percent of the nation's population was located in 24 urban places. In 1960, 125 million persons, or approximately 70 percent of the total population, were residing in urban complexes. (36, Tables 3 and 8) Some of the most reliable projections presently available suggest that by 1980 at least 80 percent of the total U. S. population will be residing in urban places. (22, p. 37)

Several discernible trends can be identified in the character of urban growth. First, the central cities have experienced stable or very small population growth during the past fifteen years. Second, the major increases in urban populations are manifested in increased suburban concentrations. In 1965 it was estimated that 52 percent of the urban population was located in areas outside the central cities. This trend is expected to continue and may reach 60 percent by 1980. (12, p. 37) Third, the high rate of in-migration of non-whites to the central cities and out-migration of whites to the suburbs may be expected to continue. In 1960 approximately 95 percent of the Negroes residing in the North and West sections of the United States lived in urban places. With the increased migration of the Negro from the South to the North and West, greater concentrations in central cities may be expected.

AGE COMPOSITION

Within the general population, there are indications of some major changes in the age composition. From an average age of 16 years in 1800 the American society had matured to an average age of 30.2 in 1950. Since 1950 the average age has been declining and we see today an average age estimated at 27.2 years. Table 1 presents the projected national increases by age groups for the period 1965-1980. They present some startling data when compared with the period 1950-1965.

TABLE 1. Estimated U.S. population increases by age groups 1965-1980 (22)

Age Group	(in millions) Increase	Percent of Increase
65 Years & Over	5.0	27%
35-64 Years	5.0	8%
18-34 Years	24.0	57%
14-17 Years	2.4	17%
5-13 Years	4.0	11%

During the previous fifteen year period the 14-17 age group had increased 67 percent and the 5-13 age group had increased 61 percent. The 1980 projections of 17 and 11 percent respectively for these age groups reflect the tremendous impact birth control practices are expected to have on the total population.

CHAPTER II

THE DIMENSION OF POPULATION CHANGE: THE GREAT PLAINS STATES

Population changes since 1900 have greatly redistributed the Midwest population. Massive migration, both within states and out of the states, best characterizes the pattern of movement. Migration is essentially a social response to change. It is a product of the changing capacities in the agricultural system and the attractions and opportunities in the urban-industrial areas. It has resulted in the dismembering of many communities and the inordinate growth of others.

One result of this migratory movement has been the very sizable decline in populations of most geographic regions of the Midwest. It has accelerated the social and economic decline of small towns and cities which is resulting in changing patterns of organization within our society. It has contributed to the decline of associations and institutions and has been reflected in the area economic activity, educational systems, governmental efforts, and on the basic values and purposes of social existence.

The Midwest population change has shattered the stability of communities and prompts one to question seriously the adequacy of existing social institutions to cope with changing needs and demands.

AREA DELINEATION

The U. S. Census Bureau has delineated the Great Plains as those states in the north central U. S. from Ohio through Nebraska and from Missouri to the Canadian border. For purposes of this paper the Great Plains states have been delimitated to include only Iowa, Missouri, Nebraska and South Dakota.

The four states present today a population distribution substantially different from that found in 1900. From predominately rural populations, three of the four states, South Dakota being the exception, have moved to majority urban populations. Causes of this change are numerous and complex, but it is possible to establish certain broad categories of change which help to explain the shifts.

Population responds to changes in the economy, to the level of technology, and to the existing social organizations. Changes in population, in turn, tend to modify these changes.

Changes in farm technology are certainly responsible in part for the great changes in the Midwest.

Another element of the economy, the trade patterns of communities, has also changed. With rapid expansion and improvement of transportation, the small rural village is no longer required to provide goods and services to the declining rural populace. We may reasonably expect increased concentration of the area population along interstate highways spanning all four states. This linear, or strip, city configuration is presently discernible in the following Midwest areas:

1. Sioux Falls, S. D., to Joplin, Missouri, through Sioux City, Omaha, St. Joseph, and Kansas City;
2. Dubuque, Iowa, to Cape Girardeaux, Missouri, through Davenport and St. Louis;
3. Omaha through Lincoln to Grand Island;
4. Davenport through Des Moines to Council Bluffs; and
5. St. Louis through Columbia and Jefferson City to Kansas City.

In addition to the emerging linear configuration, the continued concentration of the Midwest population in relatively few large urban areas has prompted the development of social, economic, and governmental programs on an enlarged "economic area" concept.

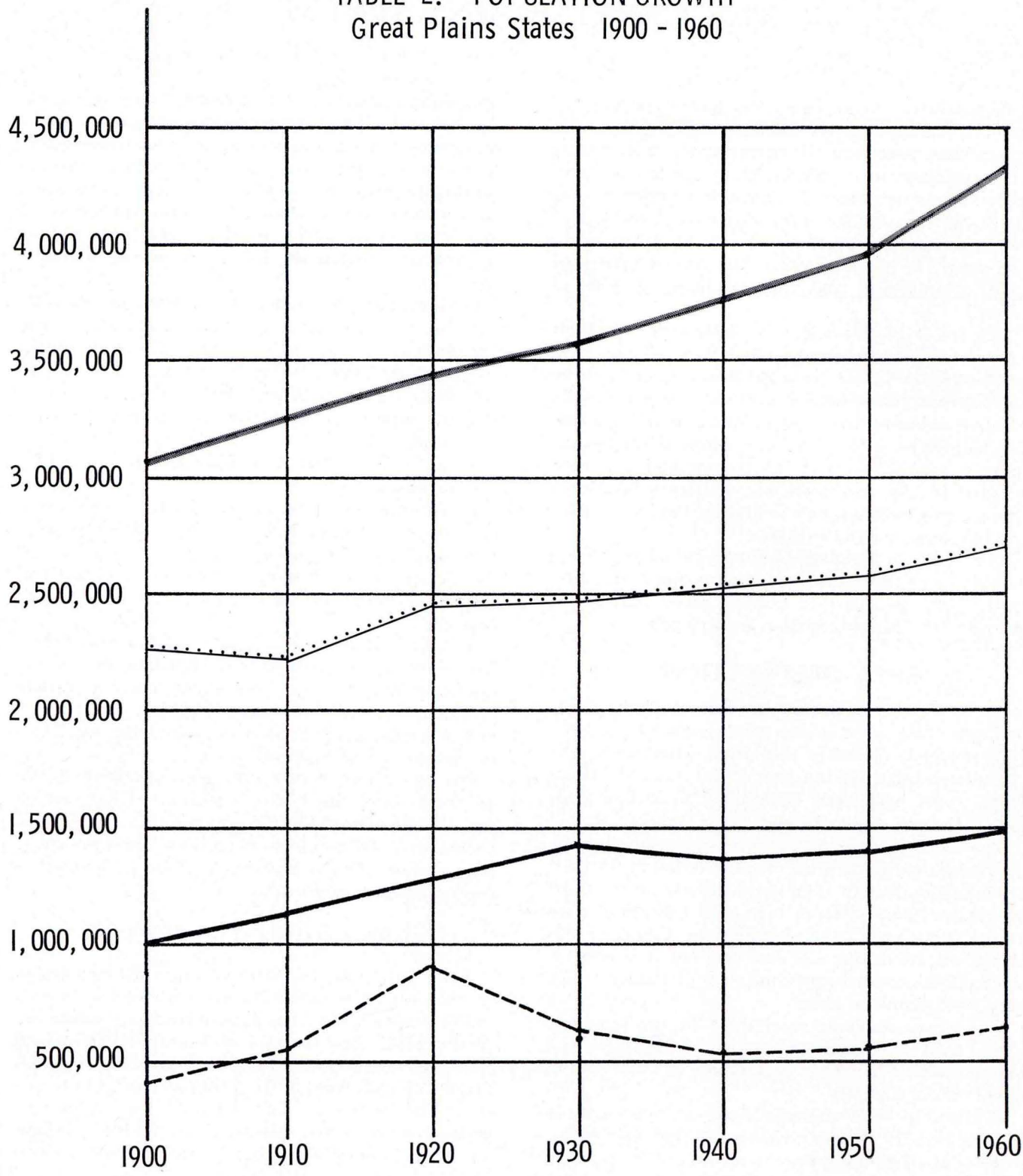
Two basic characteristics stand out above all others in describing the demographic characteristics of the four-state area. First, all four states reflect a massive exodus from rural farm areas. This is a direct result of the increased application of technology and automation to agricultural endeavors.

Second, urban centers with populations of 25,000 or more show the greatest percent of population growth. Most incorporated communities with populations of 2,500 or more reflect some increase, or at least stability. Few communities below 2,500 have recorded stability or growth.

AREA GROWTH PATTERNS

Table 2 indicates the pattern of regional population growth. With the exception of a two decade period, 1930-1950, each state has experienced population increases. Since 1930 the rate of increase has remained relatively consistent in Iowa and Missouri, but has fluctuated considerably in Nebraska and South Dakota. The latter two encountered 4.5 and 7.2 percent declines respectively during the 1930-1940 decade. They made very slight recoveries with 0.7 and 1.5 per-

TABLE 2. POPULATION GROWTH
Great Plains States 1900 - 1960



cent increases respectively in the 1940-1950 decade and have approximated the rate of increase of Iowa and Missouri since that period.

Even though overall population has increased, the rate of increase has been substantially below the national rate of increase. This is reflected in Table 3. In 1960 all four states ranked lower in overall U. S. rankings of population than at any previous time.

TABLE 3. Population rankings of Great Plains States, 1960 (36)

State	National Ranking 1960
Missouri	13
Iowa	24
Nebraska	34
South Dakota	41

The total population of the four-state area in 1960 was 9,169,194, or only 5.11 percent of the total U. S. population. This represented a decrease of .54 percent of the total U. S. population in the period 1950-1960. Population estimates available in July, 1966, indicate the area population has increased to 9,442,000. This represents only 4.82 percent of the total U. S. population, or a further decline of .29 percent during the most recent six year period.

The data presented in Table 4 suggest that Iowa recorded little change in total state population during the six year period 1960-1966. By contrast, Nebraska's population increased by 2.0 percent and Missouri's by 5.6 percent. Of the 50 states, only South Dakota recorded a decrease during this period. Some estimates presently available in South Dakota suggest this decline may be more extensive when the 1970 decennial census is recorded.

TABLE 4. Estimate of total resident population, July 1, 1966 (34)

State	July 1, 1966	April 1, 1960	Approximate Number	Change Percent
Iowa	2,760,000	2,757,537	+3,000	+0.1
Missouri	4,564,000	4,319,813	+244,000	+5.6
Nebraska	1,439,000	1,411,330	+28,000	+2.0
South Dakota	679,000	680,514	−1,000	−0.2

AREA DISTRIBUTION

The ability to establish and maintain social institutions is enhanced by the uniform distribution of population. The topography, climatic conditions, natural resources, and the resulting patterns of industrial development have resulted in extremely inequitable distribution of the population in most of the Midwest area. Table 5 indicates the 1960 density distribution of the area population ranges from a high of 12,296 per square mile in one Missouri county to a low of one or less in some counties of Nebraska and South Dakota. The average county population density ranges from 9 people per square mile in South Dakota to a high of 63 per square mile in Missouri.

Since 1910 all states have recorded consistent increases in density distribution but with varying magnitudes. During the past fifty years the concentration

TABLE 5. County population density range, Great Plains States, 1960
(Density reported in people per square miles of area) (36)

State	High	Low	Average
Iowa	448	18	49
Missouri	12,296	6	63
Nebraska	1,032	1	18
South Dakota	106	1	9
United States			50.5

of people has increased in South Dakota by only 1.3 per square mile while Missouri has recorded an increase of 14.6 per square mile during the same period. Table 6 presents the changing pattern of population density for the period 1910-1960.

Maps 1-4 are included in the appendix to illustrate the great variations that exist between the four states as well as within each of the states. Though variations do exist, the population distribution is much more uniform in Missouri and Iowa than in Nebraska and South Dakota.

RURAL-URBAN DISTRIBUTION

One of the most significant aspects of the demographic changes presently taking place within the Great Plains area is the dramatic increase being recorded in the population of urban centers and the parallel decline in rural populations.

In the 1950-1960 period all four recorded very substantial gains in urban population. Table 7 indicates that urban increases in each of the four states offset rural declines and resulted in general population increases of 5.2 percent in Iowa, 9.2 percent in Missouri, 6.5 percent in Nebraska, and 4.3 percent in South Dakota.

Since 1960, three of the four states have over one half of their population living in urban areas. South Dakota remains the only predominantly rural populated state within the area being studied. Table 8 suggests the present range of rural-urban composition in the four states varies from a high of 66.6 percent in Missouri residing in urban centers to only 39.3 percent in South Dakota.

TABLE 7. Percent of population change, rural-urban Great Plains Area, 1950-1960 (36)

State	Urban	Rural	Total
Iowa	+16.9	−5.5	+5.2
Missouri	+18.2	−5.2	+9.2
Nebraska	+23.2	−8.3	+6.5
South Dakota	+23.3	−5.2	+4.3

In 1960, the U. S. Census Bureau classified a total of 13 areas within the four states as Standard Metropolitan Statistical Areas (SMSA's). These areas are reported in Table 9. Six are located in Iowa, four in Missouri, two in Nebraska and only one in South Dakota. The percent of increase in SMSA population during the 1950-1960 period varied from a low of 18 percent in Iowa and Missouri to a high of 22.1 percent in South Dakota and 27.3 percent in Nebraska.

TABLE 6. AREA AND POPULATION DENSITY SQUARE MILE
Great Plains States 1920 - 1960

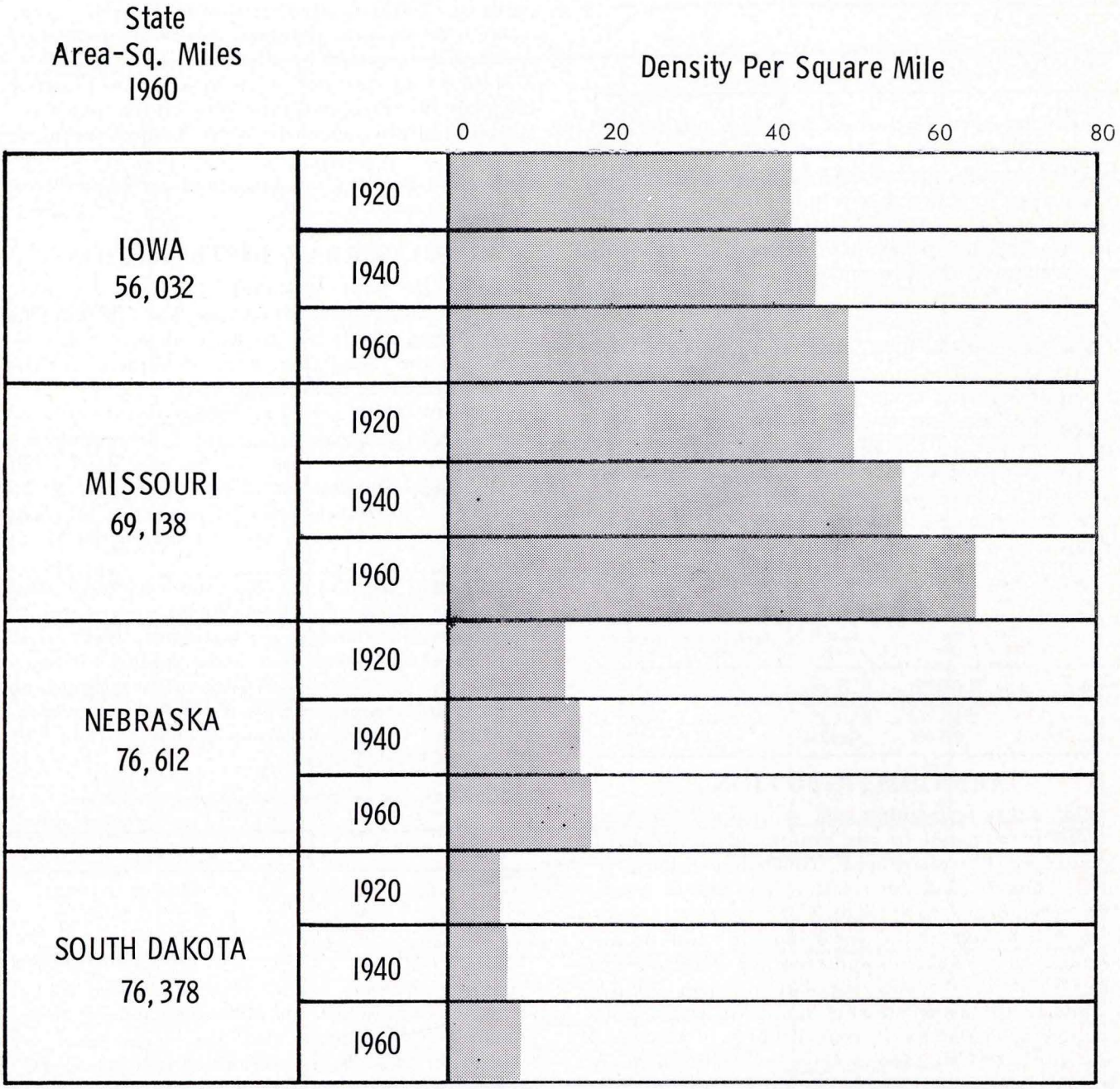


TABLE 8. PERCENT OF POPULATION BY GROUPS OF PLACES
According to Size, 1950 - 1960

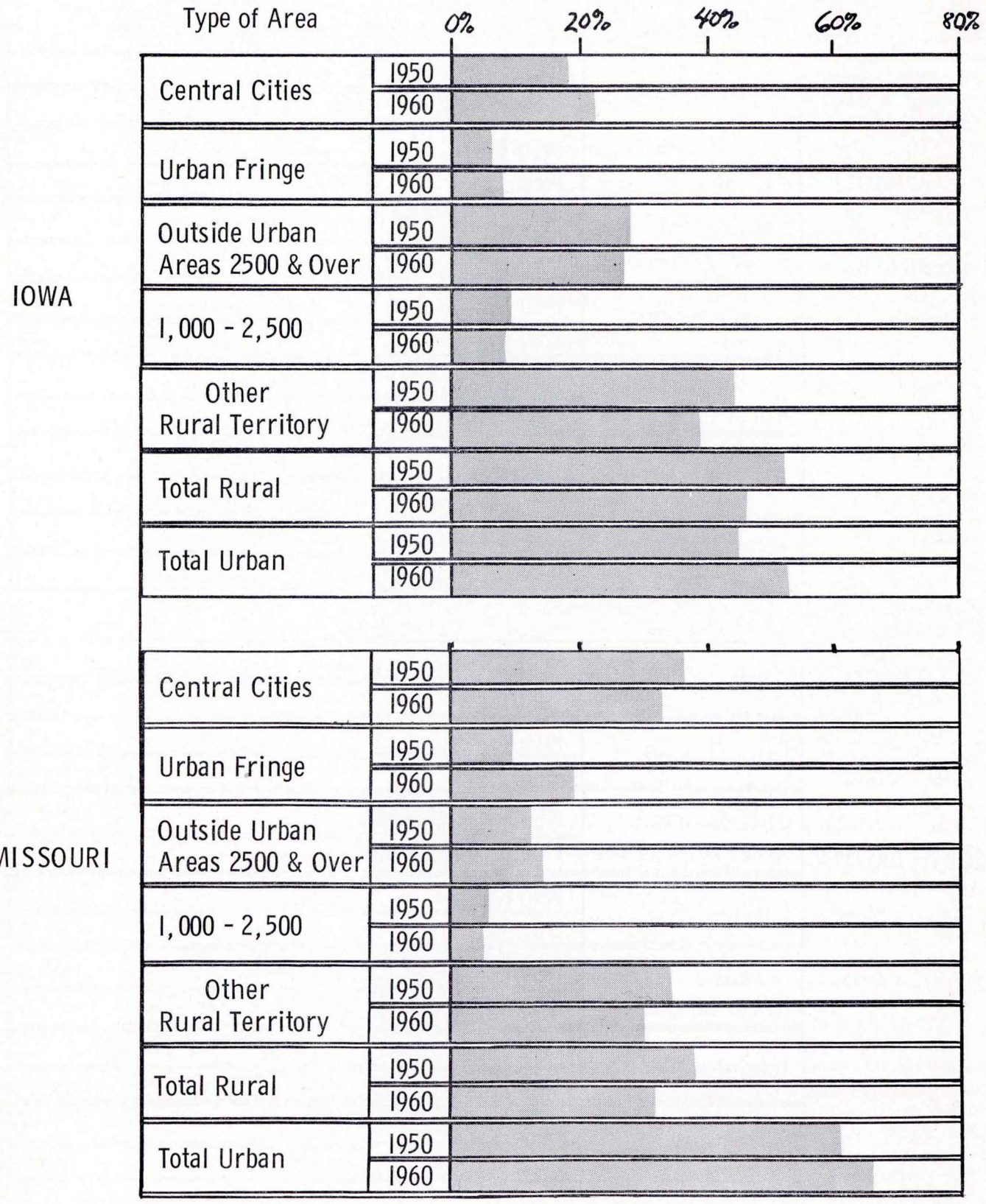


TABLE 8. PERCENT OF POPULATION BY GROUPS OF PLACES
According to Size, 1950 - 1960
(Continued)

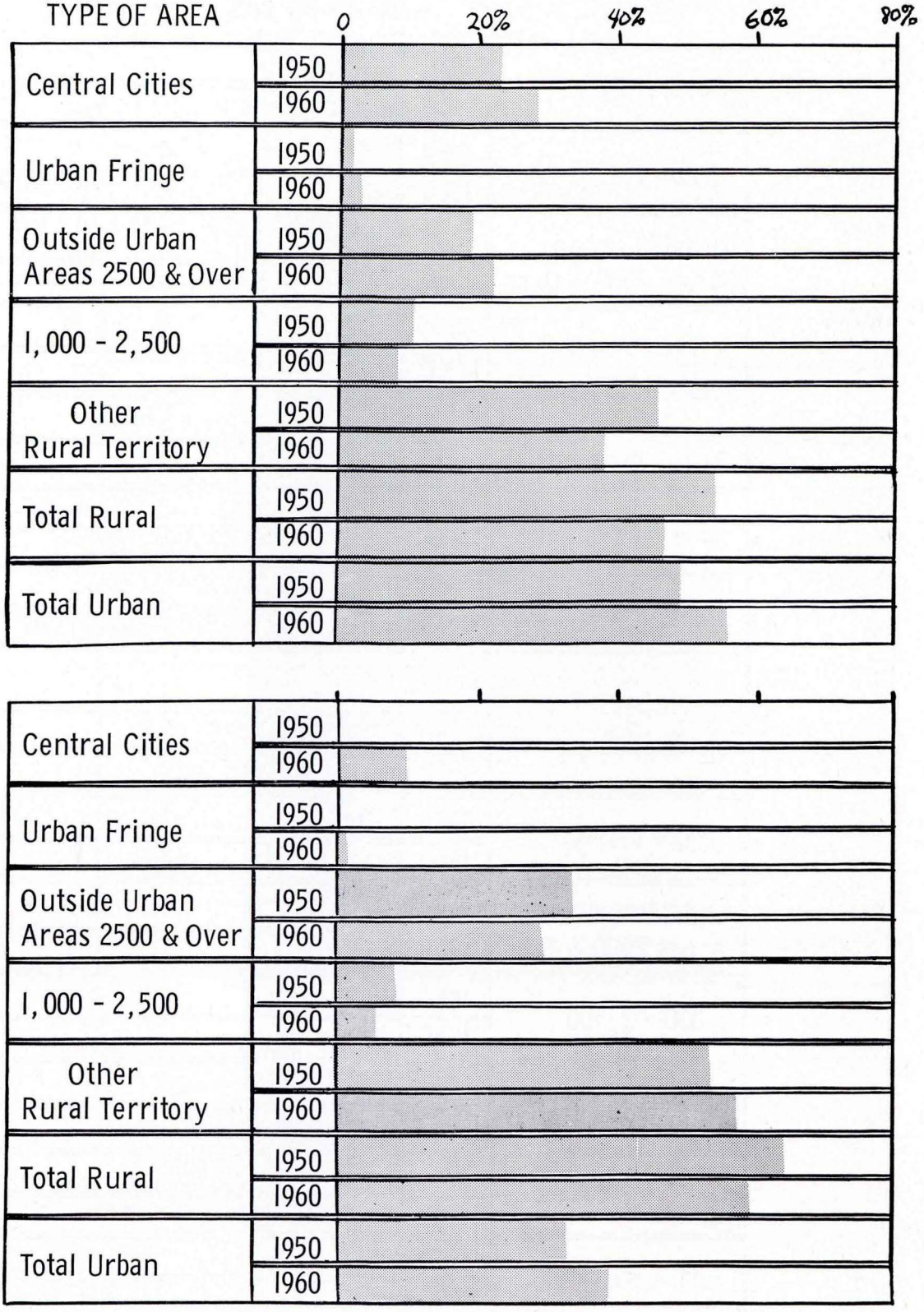


TABLE 9. Standard Metropolitan Statistical Areas, Great Plains States, 1960

Iowa:	
	Cedar Rapids, Iowa—Linn County
	Davenport, Rock Island, & Moline Scott County, Iowa Rock Island County, Illinois
	Des Moines, Iowa—Polk County
	Dubuque, Iowa—Dubuque County
	Sioux City, Iowa—Woodbury County
	Waterloo, Iowa—Black Hawk County
Missouri:	
	Kansas City, Missouri—Kansas Johnson & Wyandacte County, Kansas Clay & Jackson Counties, Missouri
	St. Joseph, Missouri—Buchanan County
	St. Louis, Missouri—Illinois—St. Louis City Jefferson, St. Louis & St. Charles Counties, Missouri
	Madison & St. Clair Counties, Illinois
	Springfield, Missouri—Greene County
Nebraska:	
	Lincoln, Nebraska—Lancaster County
	Omaha, Nebraska—Iowa Douglas & Sarpy Counties, Nebraska Pottawattamie County, Iowa
South Dakota:	
	Sioux Falls, South Dakota—Minnehaha County

TABLE 10. Population of states by metropolitan-non-metropolitan residence Great Plains States, 1950 and 1960 (36)

Satte	In SMSA's	Outside SMSA's	In SMSA's	Outside SMSA's	In SMSA's	Outside SMSA's
	1950		1960		Percent Increase 1950 to 1960	
Iowa	776,366	1,844,707	915,762	1,841,775	18.0	–0.2
Missouri	2,118,891	1,835,762	2,499,968	1,819,845	18.0	–0.9
Nebraska	416,455	909,055	530,043	881,287	27.3	–3.1
South Dakota	70,910	581,830	86,575	593,939	22.1	2.1
TOTAL	3,382,662	5,171,354	4,032,348	5,136,846		

Thirty-three percent of Iowa's total population was concentrated in six urban areas in 1960. Fifty-seven percent of Missouri's population was located in only four SMSA's, with the largest concentrations in the St. Louis and Kansas City areas. Thirty-seven percent of Nebraska's total population was reported in Omaha and Lincoln and twelve percent of South Dakota's population was reported in the only SMSA identified in the state, Sioux Falls.

Missouri, with 57 percent urban population, is the only one of the four states that approached the national average of 63 percent urban population.

TABLE 11. Percent of population in SMSA'S Great Plains States, 1960 (36)

	Percent of Pop. in SMSA's in 1960	Rank by Total Population	% of Total U.S. Population
Iowa	33	24th	1.5
Missouri	57	13th	2.4
Nebraska	37	34th	0.8
South Dakota	12	40th	0.4
United States	63		

Another consideration is the number of urban centers within the area with populations of 25,000 or more residents. In 1960, Iowa had 14 such cities, Missouri 12, Nebraska and South Dakota three each. Consideration of this group is important since these cities represented the group with the greatest percent of population increase during the past ten year period. Table 12 illustrates the growth between 1940 and 1960 of all cities over 25,000. Most urban areas with populations of 2,500 or more reflected stability or some growth, but the greatest increase was recorded in the already larger cities.

MIGRATORY PATTERNS

A general pattern of substantial out-migration began in the Great Plains during the early 1900's and has continued unabated. As can be seen from Maps 5-8, all but six of Iowa's 99 counties experienced out-migration. The six counties that reported in-migration are urban centers with 50,000 or more population or are adjacent to such counties.

All but eighteen of Missouri's 115 counties displayed out-migration. The eighteen that report in-migration are within metropolitan complexes, are developing recreational areas in central Missouri, are major governmental centers, or are the locations of major colleges and universities.

Only five of Nebraska's 92 counties reported in-migration. Four of these are located in the Omaha-Lincoln complex. The remaining one, Kimball County in western Nebraska reported a substantial in-migration during the 1950-1960 period because of oil developments in the area. Since 1960 there has been a reduction in the rate of in-migration, though it has continued higher than in most areas of Nebraska.

Only four areas of South Dakota reflected growth. The Minnehaha County area reported in-migration as a result of the Sioux Falls area development.

The central South Dakota growth in Stanley and Hughes Counties was a result of federal dam construction. Since completion of these federal projects, there has been a very substantial out-migration in Stanley County, but some degree of stability is evidenced in Hughes County as a result of increasing governmental employment in the state capital of Pierre. Pennington and Meade Counties reported in-migration as a result of federal missle developments. Since withdrawal of these projects in the early 1960's, a sizable out-migration has been recorded in Meade County. Expanding recreational developments and the continued operation of the Ellsworth Air Force Base have stemmed out-migration from Pennington County.

Further analysis of the migratory patterns indicate the overwhelming percentage of those who move from the four states come from the white population and are in the 18 to 44 age group. During the 1950-1960 period the movement of the white population from the states varied from a low of 4.3 percent in Missouri to a high of 14.3 percent in South Dakota, with Iowa and Nebraska each approximately 9 percent.

TABLE 12. POPULATION GROWTH OF CITIES 25,000 & ABOVE
Great Plains States 1940 - 1960 (36)

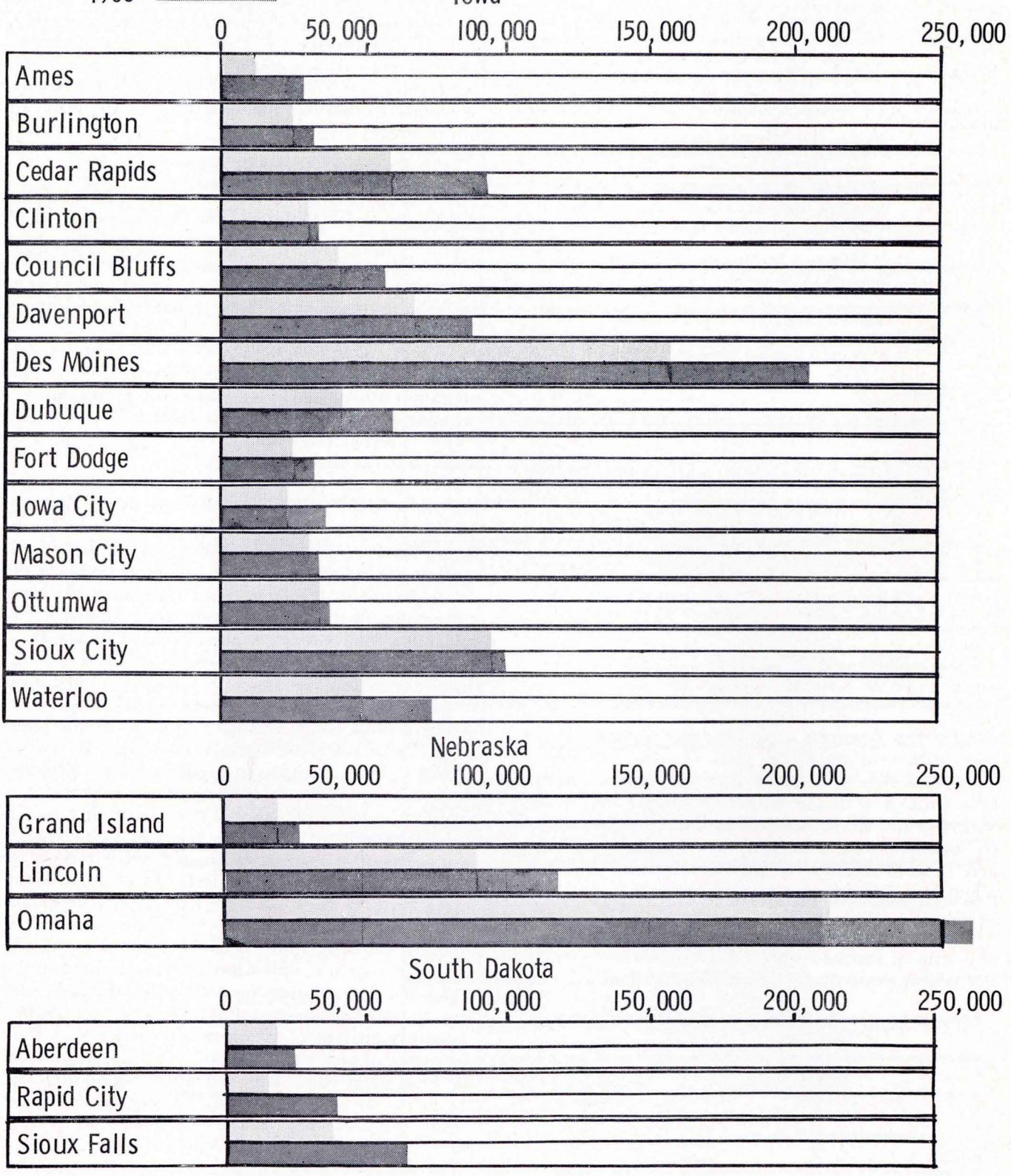
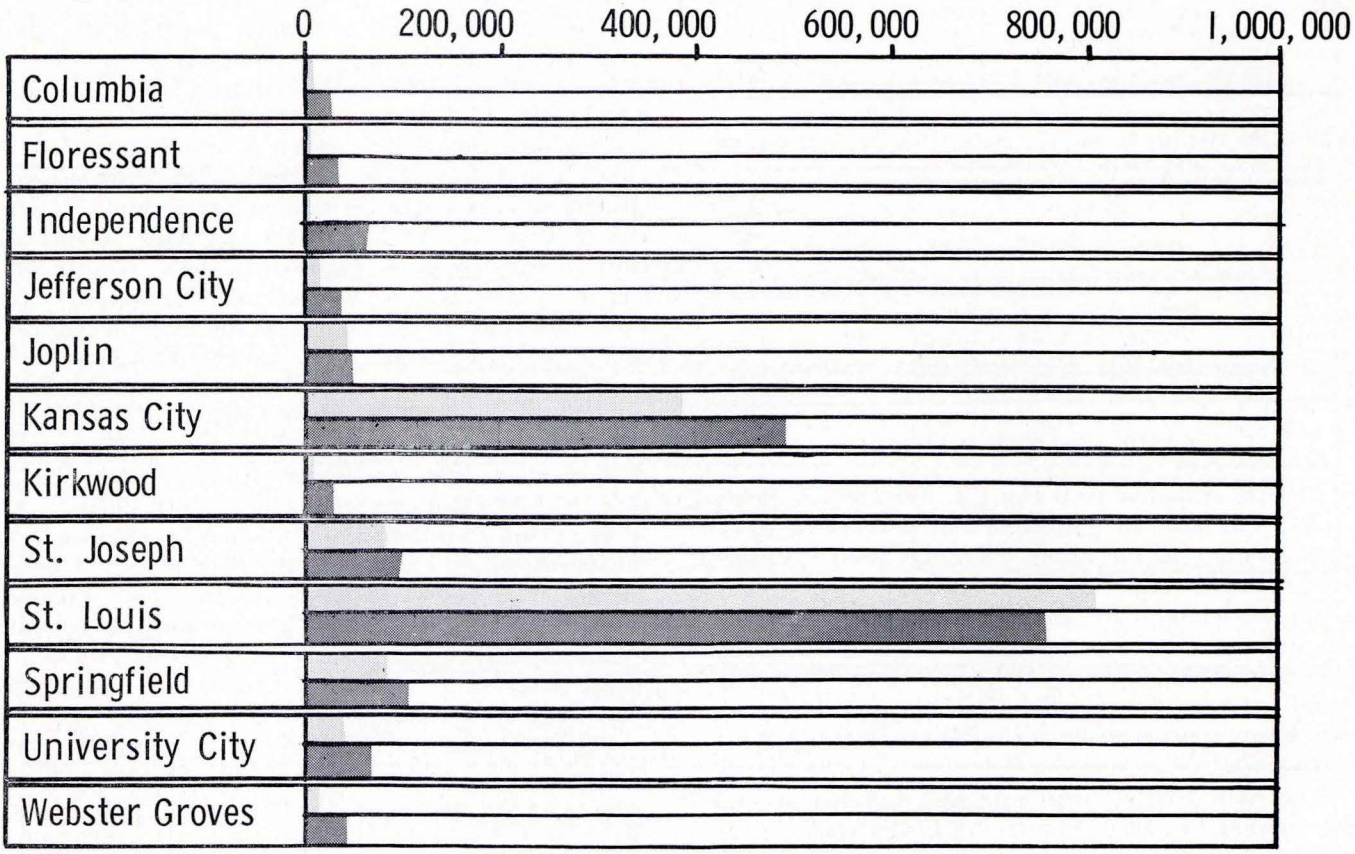


TABLE 12. POPULATION GROWTH OF CITIES 25,000 & ABOVE
Great Plains States 1940 - 1960 (36)
(Continued)
Missouri



WHITE—NON-WHITE DISTRIBUTION

During the same period three of the four states reported substantial in-migration of non-whites, mostly Negroes moving into the urban centers of Omaha, Council Bluffs, Lincoln, Kansas City, St. Louis and Des Moines. This increase was approximately 12 percent in Iowa, 9 percent in Missouri, and 17 percent in Nebraska. Though these percentages appear large they represent a relatively small proportion of the total state population in each case. Table 13 indicates the range in Negro population of the area varies from a low of .17 percent in South Dakota to a high of 9 percent in Missouri. During the twenty year period 1940-1960, the increases ranged from 34.2 percent in Iowa to 57.5 percent in South Dakota, the greatest portion of this increase occurring after 1950.

South Dakota presents quite a different picture in relation to the non-white population. Out-migration of 19 percent is indicated in this category for South Dakota. This may be accounted for in the substantial number of Indians that have been moving from the state since the early 1940's.

TABLE 13. Net migration by color—1940 to 1950—1950 to 1960 (34, p. 34) (In Thousands)

State	White				Non-White			
	1940 to 1950		1950 to 1960		1940 to 1950		1950 to 1960	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Iowa	−198	−7.9	−236	−9.1	+3	+14.3	+3	+12.3
Missouri	−222	−6.3	−158	−4.3	+32	+13.1	+28	+9.3
Nebraska	−139	−10.7	−121	−9.3	+4	+19.9	+4	+17.5
South Dakota	−74	−11.9	−90	−14.3	−5	−21.2	−5	−19.4
U. S.	+1,522	+1.3	+2,685	+2.0	−160	−1.2	−25	−0.2

TABLE 14. Population distribution by race, 1900-1960 United States (32, p. 1-144, 1-145)

Year	Total Population	White	Negro	% Distribution White	% Distribution Negro
1900	75,994,575	66,809,196	8,833,994	87.9	11.6
1910	91,972,266	81,731,957	9,827,763	88.9	10.7
1920	105,710,620	94,820,915	10,463,131	89.7	9.9
1930	122,775,046	110,286,740	11,891,143	89.8	9.7
1940	131,669,275	118,214,870	12,865,518	89.8	9.8
1950	150,697,361	134,942,028	15,042,286	89.5	10.5
1960	178,464,236	158,454,956	18,860,117	88.8	10.6

TABLE 15. Distribution of population, White and Negro Great Plains States, 1960 (34, p. 26-27)

State	White	Negro	Total	% Negro	% Increase Negro Population 1940–60
Iowa	2,728,709	25,354	2,754,063	.9%	34.2
Missouri	3,922,967	390,853	4,312,820	9.0%	37.5
Nebraska	1,374,764	29,262	1,404,026	2.08%	51.6
South Dakota	653,098	1,114	654,212	.17%	57.5

LIVE BIRTH RATES

The trend in live births in the area has paralleled closely the national pattern. From peak birth rates, reached early in the fifties, there has been a sizable reduction in all four states. The most dramatic changes have occurred since 1962. The extensive application of new birth control practices has resulted in dramatic decreases in birth rates since 1962. The trend has been downward each of the past five years and there appears to be no stabilization in prospect yet.

The national live birth rate was reported at 18.5 per thousand in 1966. The rate of births in each state was lower than the national rate during 1966.

An internal state analysis of the birth rates indicates the highest birth rates are being recorded in the counties with urban centers. Existing rural counties have consistently recorded the largest declines in live birth rates. This is a manifestation of the sizable out-migration of the 18-44 age group from rural areas.

CHANGING AGE COMPOSITION

Significant changes have taken place in the age structure of the American population. From an average age of only 16 in 1800 our population has matured to one with a median age of less than 30 in 1960.

Of greater concern, however, is a consideration of changes that have and are presently taking place in the age distribution of the population. Several distinct trends were discernible in 1960 and have magnified since then. The percentage of the total population under 15 and over 65 has increased substantially. At the same time the percentage in the 25-45 age range has decreased markedly. This changing composition is a manifestation of variable live birth rates during the 1920-1950 period, increasing life expactancy, and out-migration from the area. This has resulted in a decline of median age of the population from 30.2 years in 1950 to an estimated 27.2 years in 1965.

As a result of this changing composition nationally, during the next fifteen year period the 65 and over age group may be expected to increase by 27 percent, the 35-64 age group by only 8 percent, the 18-34 group by an explosive 57 percent, the 14-17 year group by about 17 percent, and the 13 and below group by about 11 percent. (22, p. 49-50)

The four-state area increases will be similar to the national progression with one major exception. The percent of the population 65 and over, already larger than the national average, will increase even more unless there is an alteration in out-migration rates of this group to warmer climates for retirement purposes.

TABLE 16. Live births and birth rates per 1,000 population 1940 to 1964 (34, p. 48)

	Number					Rate						
	1940	1950	1960	1963	1964	1940	1950	1960	1963	1964	1965	1966
Iowa	47,337	63,074	64162	57,840	56,226	18.6	24.1	23.3	20.8	20.4	18.4	17.7
Missouri	68,226	87,694	97,926	90,482	92,841	18.0	22.2	22.7	20.9	21.1	18.7	18.0
Nebraska	22,711	31,953	34,262	32,748	30,423	17.3	24.1	24.3	22.4	21.9	18.6	17.5
South Dakota	12,629	18,074	17,620	16,748	15,628	19.6	27.7	25.9	22.7	21.9	19.5	17.9
U. S.	2,558,647	3,631,512	4,257,850	4,098,020	4,054,000	19.4	24.1	23.7	21.7	21.2	19.4	18.5

TABLE 17. U. S. POPULATION BY AGE 1940, 1950, 1960

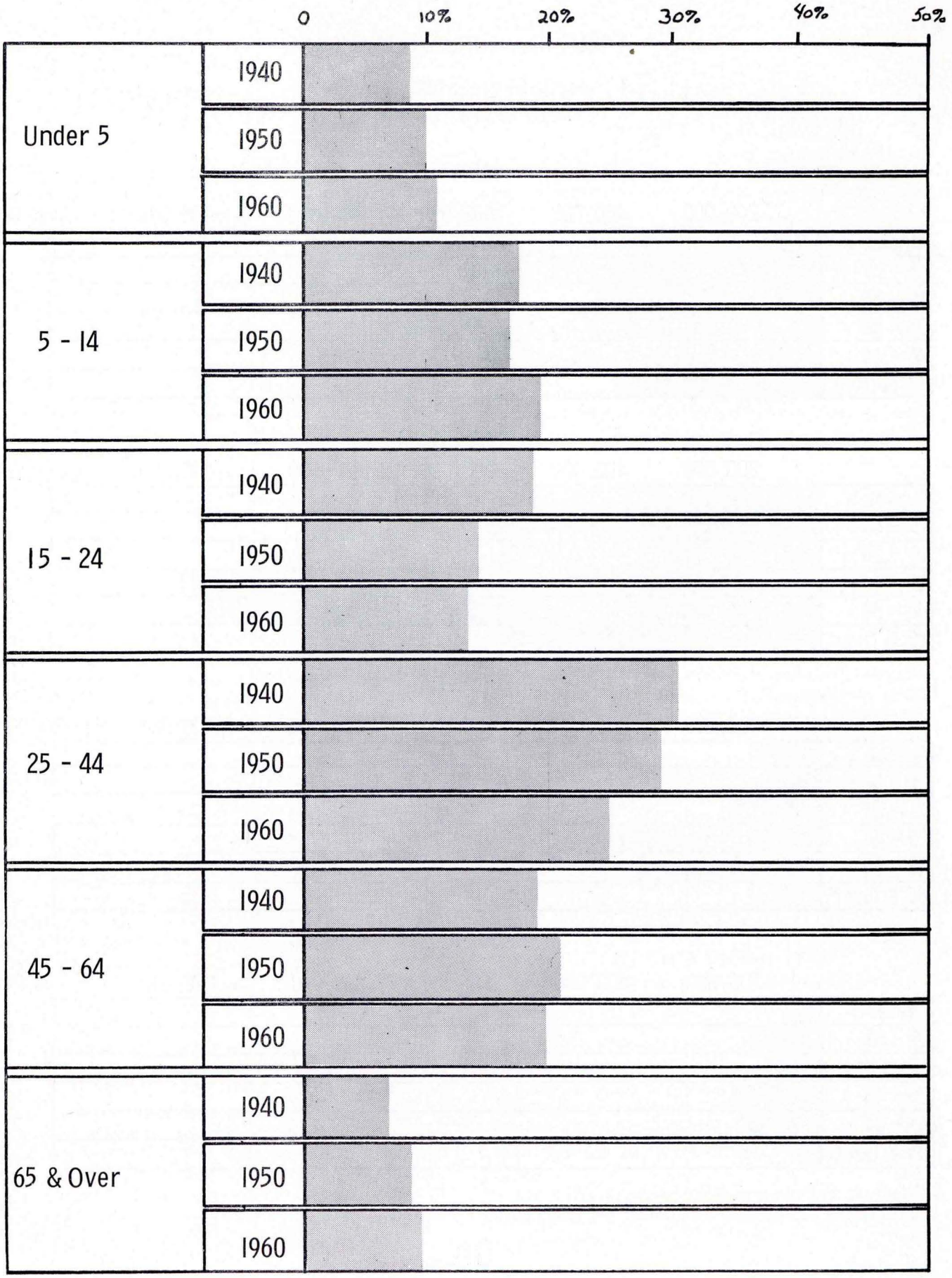
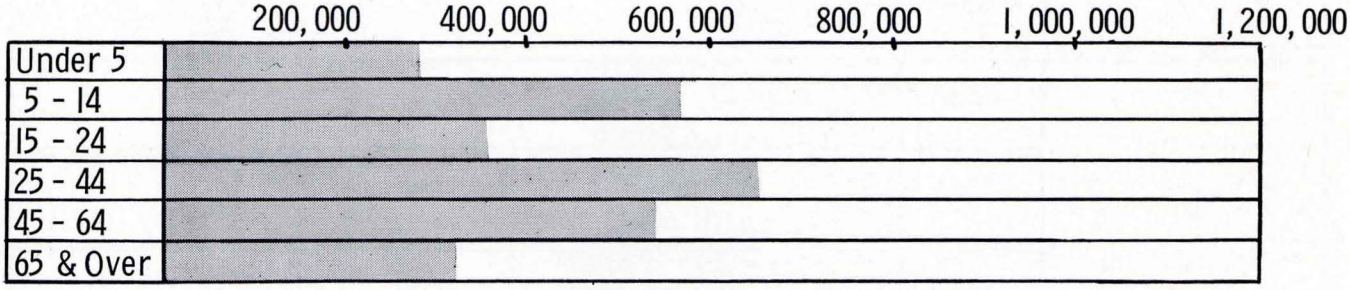


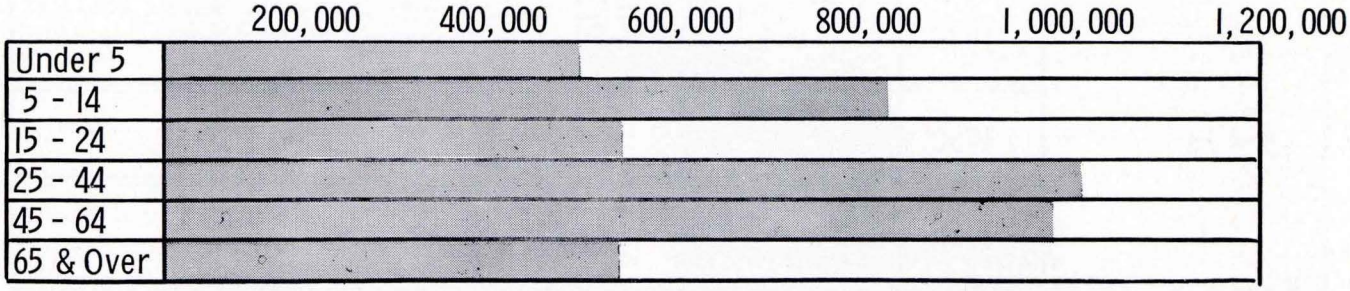
TABLE 18. POPULATION BY AGE

Great Plains States, 1960
(Reported in Thousands)

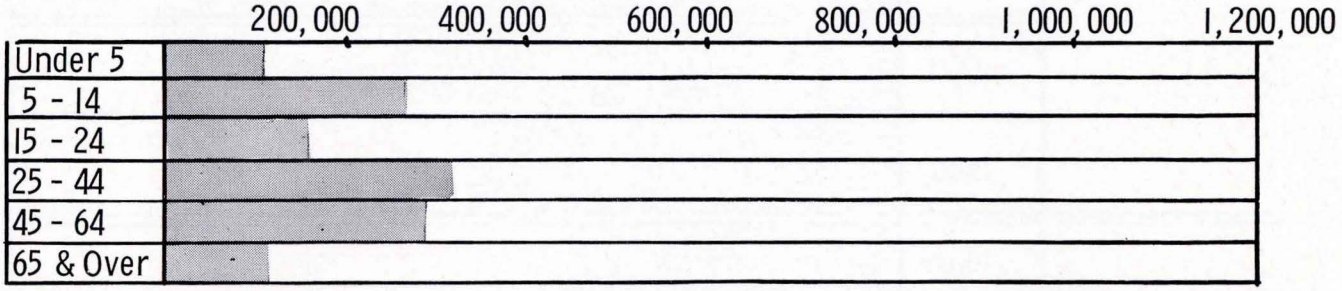
IOWA



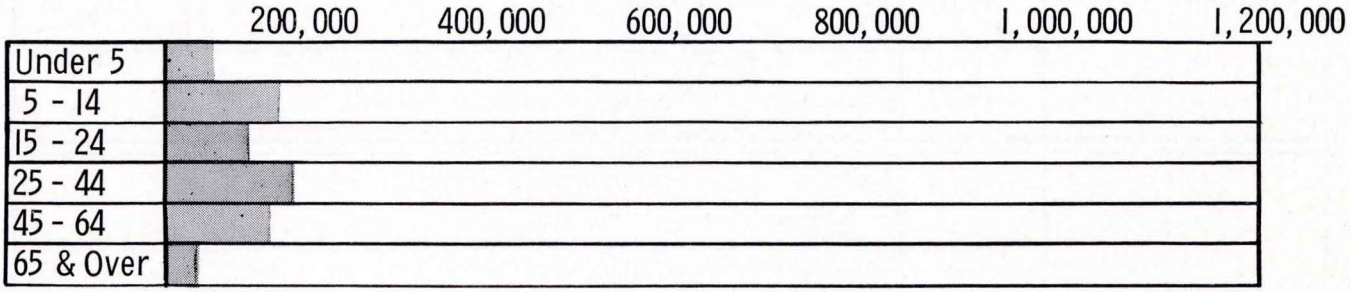
MISSOURI



NEBRASKA



SOUTH DAKOTA



CHAPTER III

PERSPECTIVES FOR THE GREAT PLAINS AREA

When viewing the chronology of population development and associating present discernible trends in the social, political, economic, and cultural spheres with the historical development, a similar pattern of future development emerges for the four Great Plains states included in this study.

GENERAL GROWTH PATTERN

As is indicated in the projections which follow, three of the four states will record population increases in the next decade. Depending upon the assumptions utilized, the South Dakota population could go in either direction. The losses estimated between 1960 and 1967 would strongly suggest as we move into the 70's and 80's the total state population will probably continue to decline. However, the rate of growth of all states will be substantially below the anticipated national growth rate.

RURAL-URBAN DISTRIBUTION

With the increased application of technology and implementation of automation anticipated in agriculture, the rural population of the area will decrease further. By 1980 the rural-urban composition of Missouri, Iowa, and Nebraska will approach 70 percent urban and 30 percent rural. The rate of urbanization in South Dakota has not approached that of the other states. Because of the limited number of urban centers presently, and the consequent potential for growth, the composition of South Dakota may approach 45 percent urban and 55 percent rural by 1980.

COMMUNITY SURVIVAL

In Iowa, Missouri, and the eastern one-third of both Nebraska and South Dakota, most cities and towns of 2,500 or less will encounter increasing difficulty in maintaining stable population. The smaller communities (2,500 or less) of the entire area will find it increasingly difficult to remain viable cohesive community centers. The exceptions to this will be smaller communities within a 25-30 mile range of major urban centers and those communities located in isolated areas.

Development over the past 20 years indicates that all communities within a 25-30 mile radius of urban complexes, regardless of their size, have remained stable or experienced some growth.

In the western portions of Nebraska and South Dakota, communities of less than 1,500 people will encounter difficulties in surviving. However, these smaller communities in the very sparsely settled areas will probably persist for some time as minimum convenience centers providing a very limited range of goods and services to a relatively large geographic area.

OUT-MIGRATION

Unless substantial economic inputs are initiated within the area creating jobs at the skilled and semi-skilled levels, the out-migration of the vital 18-45 year age group is expected to continue at a rate comparable to that of the past fifteen years. This is expected to produce an additional drain from the area of the child-bearing age group and the group possessing the highest income producing potential.

Percentage-wise, the largest increase in area population will be recorded in the age group 65 years and over.

METROPOLITAN GROWTH

Within the urban complexes a number of trends are discernible. By 1980 at least seventy percent of the total area population will be residing in metropolitan complexes. This will result in the densely populated areas expanding and becoming more densely populated and the already sparsely populated areas becoming more sparsely populated.

The extensive movement of the white population from central cities to suburban areas will continue. In addition, the movement of Negroes from central cities to suburban areas which began in the late 1950's is expected to accelerate.

The largest in-migration is expected to take place in the cities of St. Louis, Kansas City, Omaha, Council Bluffs, Lincoln, and Des Moines. The bulk of the in-migration to central cities is expected to be in the lower socio-economic white and Negro groups and they will migrate primarily from southern states and the large eastern cities. In-migration to suburban areas will continue to be from the predominantly white middle income and upper income groups.

IMPLICATIONS FOR COUNTY GOVERNMENTS

In most areas of the Midwest, counties were laid out during early periods of statehood consistent with the existing mode of travel and communication. The criteria generally employed resulted in the creation of counties which permitted people to travel by horse and buggy to the county courthouse and return home in one day. Little concern was evidenced for other than time-distance criteria in these early determinations.

The development of transportation and communication, changing patterns of association, and diminish-

ing rural populations have eroded the power and influence of county government. Just as the township has disappeared from the scene as a necessary and viable government entity, so is the existing form of county government. It is reasonable to expect the county, as a unit for local government and school government, will become increasingly more obsolete.

LEGISLATIVE IMPLICATIONS

The recent Supreme Court decisions relating to legislative reapportionment have already had a profound effect on the compositions of legislatures in the area. Rural dominance of the legislatures in Iowa, Missouri, and Nebraska has come, or will soon come to an end. Though still rural dominated, the South Dakota Legislature has recently been reapportioned according to more representation to urban elements. The continued application of the one man–one vote concept will accord increasing legislative authority to urban elements as we approach the 21st century.

LONG-RANGE PROJECTIONS

The population estimates and projections to 1985 are presented in the following pages. Three separate sets of projections have been included. Each set employs different assumptions; therefore, *they must be utilized in light of the stated assumptions.* Additional projections have been prepared in Iowa and Missouri by groups and individuals for their own purposes. Similar developments are under way in Nebraska and South Dakota. They have not been included here because of their limited comparative value. Since variations exist in the assumptions employed in each individual state's projections, those developed by the U. S. Census Bureau and employing uniform assumptions were incorporated in this report. One limitation imposed by utilizing the Census Bureau's projections is the absence of projections on a county basis. Only state-wide projections are available. If specific county projections are desired, those developed individually in each state will have to be utilized.

Bureau of Census Estimates and Projections, Series I-B or I-D are considered by population experts in the four states to be the most realistic ones for general application.

ASSUMPTIONS

1. The national-state fertility rates will be reduced gradually and the ratios of state rates to national rates will all reach unity in 50 years.
2. Gross interstate migration patterns of 1955-1960 will continue throughout the projection period.
3. Series B assumes there will be only a slight decline in national fertility levels.
4. Uniform mortality rates from national life tables were used to derive the number of deaths for each 5 year interval.

IMPLICATIONS

1. The total growth of the four states will be comparable to that experienced since 1950.
2. The rate of growth, approximately 9 percent in Iowa, Nebraska and South Dakota, and 13 percent in Missouri, will be substantially lower than the expected national growth rate.

TABLE 20. Estimates and projections of the population of Great Plains States, 1960-1985 (Series I-D)*

	1960	Est. 1965	1970	1975	1980	1985
Iowa	2,758	2,758	2,718	2,706	2,741	2,822
Missouri	4,320	4,492	4,584	4,692	4,846	5,042
Nebraska	1,411	1,459	1,469	1,480	1,502	1,533
South Dakota	681	686	678	874	681	697
U. S.	179,323	193,795	203,943	214,387	226,685	240,750

ASSUMPTIONS

1. The national-state fertility rates will be reduced gradually and the ratios of state rates to national rates will all reach unity in 50 years.
2. Gross interstate migration patterns of 1955-1960 will continue throughout the projection period.
3. Series D assumes there will be a substantial decline in national fertility levels.
4. Uniform mortality rates from national life tables were used to derive the number of deaths for each 5 year interval.

IMPLICATIONS

1. As a result of declining fertility levels, Iowa and South Dakota will experience population de-

TABLE 19. Estimates and projections of the population of Great Plains States, 1960 to 1985 (Series I-B)* (In 1,000s)

	1960	Est. 1965	1970	1975	1980	1985	Est. % of Change
Iowa	2,758	2,758	2,743	2,807	2,921	3,078	9.7
Missouri	4,320	4,492	4,636	4,870	5,172	5,515	13.2
Nebraska	1,411	1,459	1,406	1,538	1,605	1,678	9.1
South Dakota	681	686	686	702	730	767	9.2
U. S.	179,323	193,795	206,345	222,805	242,311	263,627	18.3

*These projections are considered inflated by sociologists and demographers in all four states.

clines to 1975. Thereafter, a slight increase will be noted.

2. In Missouri and Nebraska increases will be recorded each 5 year period but at rates substantially below national growth rates.

TABLE 21. Projection of the population of Great Plains States assuming no net migration (Series III): 1970 to 1985*

	1960	1965	1970	1975	1980	1985
Iowa	2,758	2,758	2,870	3,046	3,271	3,522
Missouri	4,320	4,492	4,689	4,975	5,328	5,722
Nebraska	1,411	1,459	1,532	1,638	1,770	1,918
South Dakota	681	686	727	785	858	941
U. S.	179,323	193,795	206,345	222,805	242,311	263,627

*These projections are considered inflated by sociologists and demographers in all four states.

ASSUMPTIONS

1. Regardless of gross population movement net interstate migration for each period after 1965 will balance out to zero.

IMPLICATIONS

1. Assuming zero migration each state will experience very substantial growth.
2. The rate of growth in each state will equal or exceed expected national growth rates.
3. Between 1960 and 1985 the population of Iowa, Missouri, and Nebraska will increase by approximately 25 percent and South Dakota population will increase by approximately 40 percent.

TABLE 22. Projections of population of states by age and sex, 1970 to 1985 (Series I-B)* (In 1,000s)

	1960	1970	1975 Male	1980	1985	1960	1970	1975 Female	1980	1985
IOWA										
All Ages	1358	1351	1385	1449	1536	1401	1397	1422	1472	1543
Under 18	511	493	493	513	559	490	472	471	489	532
5 to 17	365	361	341	347	384	352	347	327	331	366
18 to 24	122	141	154	159	149	130	152	165	170	161
18 to 44	422	436	479	537	585	428	434	463	509	550
45 to 64	275	275	269	254	245	290	291	284	266	248
65 & Over	150	147	145	145	146	192	199	203	208	212
MISSOURI										
All Ages	2183	2248	2365	2519	2695	2309	2388	2505	2653	2819
Under 18	793	806	842	903	1004	767	778	809	866	962
5 to 17	562	586	579	606	687	547	568	559	583	660
18 to 24	211	247	276	296	281	224	264	293	310	294
18 to 44	710	755	837	938	1020	746	786	860	953	1028
45 to 64	454	458	454	440	430	499	507	504	487	471
65 & Over	227	229	232	237	241	298	317	333	347	359
NEBRASKA										
All Ages	721	732	757	791	829	738	755	781	814	849
Under 18	271	270	276	289	312	261	260	266	278	300
5 to 17	190	195	189	194	213	184	188	182	187	205
18 to 24	73	87	95	99	94	72	86	93	97	92
18 to 44	232	246	269	298	320	231	242	261	286	305
45 to 64	141	141	137	129	122	150	152	150	142	134
65 & Over	77	75	75	75	74	97	101	105	107	109
SOUTH DAKOTA										
All Ages	346	346	353	368	387	340	341	349	362	380
Under 18	137	133	134	140	151	131	127	127	132	142
5 to 17	97	97	92	94	104	92	92	87	89	97
18 to 24	35	41	45	46	44	33	39	42	43	41
18 to 44	107	111	120	134	146	102	105	113	124	134
45 to 64	66	66	64	60	55	66	66	65	61	57
65 & Over	37	36	35	35	35	40	43	44	45	46

*These projections are considered inflated by sociologists and demographers in all four states.

CHAPTER IV

THE EMERGING AREA DEVELOPMENT CONCEPT OF THE GREAT PLAINS AREA

In recent years increasing attention has been directed to research and study of enlarged geographic areas that might be utilized for economic considerations. Extensive analysis of area concepts have been conducted by various individuals associated with the Upper Midwest Research and Development Council. Borchert and Adams (8, p. 4) have made a comprehensive study of Montana, North Dakota, South Dakota, Minnesota, Northwest Wisconsin, and the Upper Michigan Penninsula. One of their most significant contributions was the definition of Trade Center types by business function for the entire area. From the lowest to the highest hierarchy they characterized the following types of Trade Centers in the Upper Midwest: (8, p. 2)

Hamlet
Minimum Convenience
Full Convenience
Partial Shopping
Complete Shopping
Wholesale-Retail Centers

In terms of the six-state area they studied, they recorded only 41 percent of the hamlets maintaining a high school. As the size of the centers become larger they provided a wider range of services, including educational services.

The impact on education of the above economic growth patterns and a substantial out-migration were explored by Keller and others (20). Their study suggested three major improvements needed to be instituted throughout the Upper Midwest area in order to adapt to the changing economic structuring (20, p. 9). They suggested improved teaching standards, more effective school district organization, and sound school financing.

Borchert and Adams (8, p. iv) suggested five implications for community organization and development:

1. Shopping trade areas provide a framework for cooperative development of facilities and services which cannot economically be duplicated in every small community.
2. A number of medium size cities, which have significant wholesale distribution centers for rural areas, are becoming increasingly important as retail and service centers while their wholesaling trade is growing slowly or declining. Hence, these centers need to devote increasing attention to developing attractive and diverse regional shopping and service facilities.
3. There is a growing need for cooperative, community-wide planning among retail merchants, services, professions, and governments if downtown districts are to be salvaged in small and medium-size cities.
4. A number of small, farm service centers are stable, viable business locations and merit continued maintenance. Others have been over-developed and must be cleared of obsolete structures.
5. The most competitive centers provide not only the widest possible array of retail establishments, but also professional services, educational, recreational, and entertainment facilities, and pleasant surroundings.

Similar efforts at defining larger areas, most frequently for economic considerations, have been noted in the four states involved in this study.

TABLE 23. Characteristics of upper midwest trade center areas (8, p. iv)

	No. of Centers	Median Pop.	Population Range	Mean No. Retail Functions	Percent Maintaining High Schools
Hamlet	1,820	160	30– 180	6.0	41%
Minimum Convenience Centers	378	800	300– 3,700	14.4	94%
Full-Convenience Centers	111	1,600	800– 3,600	21.7	97%
Partial Shopping Centers	127	2,500	1,200– 8,700	27.1	97%
Complete Shopping Centers	79	9,500	3,700– 27,900	35.8	100%
Wholesale-Retail Centers	17	42,400	23,100–155,800	45.6	—

IOWA ECONOMIC AREAS

The first extensive effort in the identification of larger geographic areas for economic consideration in Iowa was recorded in the work of Fox (17). He has delineated 12 "Functional Economic Areas" for the state. Only four are totally within Iowa. The remaining eight encompass areas in adjoining states. These areas, overlapping in some instances, include approximately 75 percent of the land area of the state and over 90 percent of the state's population. The areas not identified with a Functional Economic Area (FEA) have, for the most part, limited population and no identifiable relationship with contiguous cohesive areas. Map 9 indicates the Iowa areas developed by Fox.

The FEA's were delineated by initially identifying the Standard Metropolitan Statistical Areas of Iowa as reported by the U. S. Census Bureau. Fox suggests that people tend to arrange themselves in concentric circles around the center of their labor market area, with distances from the center measured in terms of minutes. Based upon the assumption that the maximum desirable travel time for employment purposes would be 60 minutes or approximately 50 miles, square configurations were superimposed upon the Iowa map since Iowa road networks are primarily north-south and east-west. Assuming further that a population center of at least 50,000 was necessary to develop the highest hierarchy of functional significance, all such cities were identified. The 12 FEA's suggested for Iowa each possess population centers of approximately 50,000 or more and a surrounding geographic area that conforms to the time-distance concept of one hour's travel time. Further, by utilizing the Borchert-Adams scale and definitions (8, p. 4), it is possible to define central place hierarchies within the Functional Economic Areas.

Fox's work suggests it is possible to establish in each Iowa FEA a commonality of travel patterns, retail and wholesale trade characteristics, educational levels, occupational distribution and governmental relationships. In viewing these generally defined characteristics, Fox suggests these are people-oriented rather than resource-oriented regions.

In discussing the utilization of the functional economic areas, Fox suggests: (18, p. 21)

> We believe that the functional economic area concept can be used to illuminate a number of problems. One of these is the nature of an optimum organization of residentiary activities within a labor market area and an optimal rate of introduction of new technology by the firms or plants in each such activity. A second is the analysis of local demand for labor (current and projected) in relation to changes in activity levels and in technology. Consumption theory may also be related to control place hierarchies within Functional Economic areas.

On September 8, 1967, Governor Harold Hughes (25, p. 3) announced plans to issue an executive order defining 16 regional centers for Iowa. The move is predicated on the belief that Iowans are ready to move toward replacing counties with something more suited to modern transportation and communication.

Each of the 16 regional centers proposed would be the location of branch offices for field agents of the many state agencies who have workers outside the Iowa capital. It was suggested that a group of cities and counties in the region would be able to support schools, parks and other facilities that none could finance alone. The present development of area technical schools and colleges and the discussions presently under way to create regional jails and health centers was cited as evidence that county lines are giving way and citizens have come to recognize that programs and services cannot be duplicated in every town and in every county.

Map 10 indicates the regional areas recently ascribed by Iowa's Governor.

MISSOURI ECONOMIC AREAS

Denny (15) and Campbell (12) have conducted extensive projects in area identification in Missouri. Each has utilized unique techniques but both have arrived at similar delineations.

Denny (15) suggested that the selection of "Growth Centers" and the delineation of their potential-equal boundary lines is essentially an exercise in arithmetic, or more properly, geometry. He has suggested the following specific procedures for identification:

1. Decide on the desirable minimum population base. (40,000 was used for the Missiouri base.)
2. Decide on the maximum radius of service. (50 miles maximum in Missouri—32 miles average. This should equate with a travel time not to exceed one hour.)
3. From 1960 census data list in numerical rank all cities within the state and the marginal area by population.
4. Divide population into eight predetermined class intervals.
5. Begin inscribing concentric circles on the state map beginning with the largest population interval.
6. Bisect the overlapping areas until polygons are formed around all centers.
7. Adjust boundaries to account for natural barriers.

Following this procedure Denny created 31 Growth Center Areas for Missouri. These are illustrated on Map 11. For utilization in state planning he adapted the initial area configurations to conform to existing county boundaries. This adjustment resulted in his identification of 24 Transitional Groupings of Counties around Growth Centers. This is shown in Map 12.

By comparison, Campbell's (11) Missouri studies have related to the identification of "Traffic Flow Communities." The basis for his determination has been actual traffic counts made on major and secondary roads throughout the state of Missouri by the Highway Department. He has stratified the Traffic

Flow Communities into three levels or hierarchies. The highest level areas evolve from highway flow into the cities of St. Joseph, Kirksville, Hannibal, Columbia, Kansas City, Sedalia, Jefferson City, St. Louis, Joplin, Springfield and Poplar Bluff. The configuration of these is quite similar to the areas defined by Denny.

There is growing evidence to indicate some of the "Growth Centers" identified by Denny may not be holding up as viable units. Some efforts to consolidate "Growth Centers" are presently underway, chiefly in southeast Missouri.

Map 13 illustrates Campbell's highest level of communities. With slight modification these could be adjusted to coincide with existing political boundaries.

His identification of two lower levels of area identification is an important one and infrequently developed in other states. The second order centers are formed around 29 cities and the third order areas have as their core the 41 cities of Missouri with populations over 5,000.

NEBRASKA ECONOMIC AREAS

Techniques developed by Denny have been utilized by Evans (38) in defining growth centers for Nebraska. Some adaptations of the Missouri criteria were necessary to compensate for sparsity of population in northwestern Nebraska.

Utilizing 40,000 as the minimum population base, except in the western area where 25,000 was accepted, 18 growth areas were delineated. At the time of this identification, the population varied from 448,000 in the Omaha area to a low of 25,000 in the Valentine area. Neither Denny nor Evans has attempted to adjust area boundaries to political boundaries. Their area delineations are presented in Map 14.

Ottoson (24), who has worked extensively with the Great Plains Agricultural Council, a cooperative undertaking of 10 Plains states, has proposed 14 viable economic areas for Nebraska that coincide with existing county boundaries.

He suggests the proposed county groups . . . (24, p. 322)

> are not by any means the best that could be devised. They are in fact only a first approximation. For example, if present county boundaries could be based on natural topographical divisions, which would be more logical. The supercounties shown are presented partially for their shock value: they seem so huge the initial reaction is to think, 'this is too far.' Yet with modern transportation and with population changes in the Plains, which give every indication of continuing, these combinations may not go far enough for a permanent long-run solution.

Map 15 presents Ottoson's 14 economic areas.

SOUTH DAKOTA ECONOMIC AREAS

In South Dakota, Antonides (1) has identified 12 "Trade Area Communities." In arriving at the number he first determined the trade centers of the state. Fifteen cities were classified as trade centers. Listed in the descending order of their 1958 retail trade volume they were: Sioux Falls, Rapid City, Aberdeen, Watertown, Mitchell, Huron, Yankton, Pierre-Ft. Pierre, Brookings, Winner, Lead-Deadwood, Belle-Fourche, Madison, Mobridge and Vermillion.

Some characteristics of each area which indicated community cohesiveness were:

1. Common communication media served the entire area. Daily newspapers and radio stations were present in most of the 15 cities.
2. Doctors, dentists, and medical services seemed to be concentrated in the 15 cities.
3. A number of smaller trade centers were dependent upon the 15 larger units. This varied from only four in the Vermillion area to 69 in the Aberdeen area.
4. Highway networks were such as to permit travel to the core city within one hour's time.
5. Existing political structures were considered. It was suggested that present structuring necessitates cooperation among and between counties and must involve whole counties, not just parts of counties.
6. There was a consistent pattern in the concentration of retail sales, as measured by volume of sales, within major cities within each area.

Seven specific criteria were employed in the determination of proposed economic area boundaries for South Dakota (1). They were:

1. The unit should be based upon normal trade areas.
2. The counties should be contiguous.
3. There should not be physical barriers.
4. The people should have similar interests as much as possible.
5. The unit should be large enough in area, economic base and population to solve the problems.
6. The unit should be large enough so that the same grouping of counties could be used for more than one purpose.
7. The unit should be of an optimum size for efficient working relationships, minimum costs, and maximum returns.

The areas initially identified and then adjusted to conform to political boundaries are illustrated in Maps 16 and 17.

In addition to the efforts of Antonides, a number of other area development efforts are under way within the state. Few use the same area delineation, but all tend to regroup existing counties into 4-12 enlarged geographic areas. There are presently 10 Medical Planning Areas, six Soil Conservation Districts, five Motor Patrol Districts, four Title III Planning Areas, 12 Greater South Dakota Association areas, five State Department of Health areas, and six post-high school vocational school areas. Though this listing is not all inclusive, it indicates the extent of area development already under way in South Dakota. This same pattern is evidenced in each of the states involved in this study.

SUMMARY

In each of the four states involved in this study, geographically enlarged areas have been described for economic considerations. Considerable similarity exists in the criteria employed by Antonides (1), Campbell (12), Fox (17), Hughes (25), and Ottoson (24) in defining these areas. All areas possess characteristics of enlarged cohesive communities. They possess great potential and utility in planning for education as well as for economic considerations.

The following criteria have been employed in varying degrees to identify enlarged economic areas in Iowa, Missouri, Nebraska and South Dakota:

1. A hierarchy of communities have been identified. These range from small hamlets or villages to at least one central city within each economic area.
2. A pattern of distribution of essential services has been established among the communities of varying size within each area.
3. Patterns of travel within areas have been established when considering employment, recreation, health and welfare activities, and acquisition of goods and services.
4. The location and distribution of industrial resources which provide employment opportunities within the area have been established.
5. Time-distance factors have been applied in each state.
6. Patterns of road networks and resulting travel patterns and habits have been considered.

CHAPTER V

IMPLICATIONS OF DEMOGRAPHIC CHANGES FOR THE EDUCATIONAL SYSTEMS OF IOWA, MISSOURI, NEBRASKA, AND SOUTH DAKOTA

The four Midwest states utilized in this study presently account for approximately 24 percent of all legally organized school districts in the United States. In September, 1967, the four states reported a total of 5,264 school districts. Though the specific terminology varies in describing districts, the general types of districts organized are:

Comprehensive districts: districts maintaining K-12 or 1-12 programs.

High school districts: districts maintaining only high school programs.

Elementary districts: districts maintaining only elementary programs.

Non-operating districts: districts operating no educational programs.

Considerable variation exists among the four states when viewing the existing structural organization. Table 24 indicates the great differences. All but 19 of Iowa's 474 school districts are comprehensive districts providing K-12 educational programs. This is a dramatic reduction from the 4,850 districts that were organized in 1940.

The 19 districts presently organized as elementary districts or non-operating districts are expected to be dissolved by July, 1968. The creation, in Iowa, of K-12 districts is the result of a legislative mandate requiring all areas of the state to be attached to districts providing K-12 programs by July 1, 1966. The 19 areas indicated previously are either in the process of reorganization with K-12 districts or are involved in litigation regarding their attachment to K-12 districts.

In Missouri, considerable progress has been made in creating K-12 districts. In 1940, a total of 8,663 school districts were organized. (19) Of this number, 7,263 were elementary districts, 554 were non-operating districts, and 846 were K-12 districts. The greatest change occurring in the Missouri structural pattern has been the merging of elementary districts with already existing K-12 districts.

A similar structural change has occurred in Nebraska, though on a more limited scale. From 7,047 districts in 1940, the number has been reduced to 2,172 in Nebraska today. In 1940, 5,306 elementary districts were operating, 32 high school districts were organized, there were 696 K-12 districts, and 1,013 non-operating districts. The greatest change has resulted from combining elementary districts and non-operating districts in Nebraska with already operating K-12 districts.

The pattern of change in South Dakota is quite different from any of the other Plains states. In 1940, 3,287 school districts were legally constituted in South Dakota. They were classified as: 2,636 elementary districts, 351 non-operating districts, 5 high school districts, and 295 K-12 districts. While all other states recorded sizable reductions in the number of non-operating districts, this type of district flourished in South Dakota until 1963. Since 1963, when 1,190 non-operating districts were organized, the number has declined to 596. Mandatory legislation by the South Dakota Legislature in 1966 is expected to eliminate this type of district by July 1, 1968.

IMPACT OF DEMOGRAPHIC CHANGE ON SCHOOL DISTRICT ORGANIZATION

In a study recently completed by Hanson (19) an assessment was made to determine the impact selected demographic variables has exercised on the changing pattern of local school district organization in Iowa, Missouri, Nebraska and South Dakota. Nine demographic variables, all considerations, employed by Antonides (1), Fox (17), Campbell (12) or Denny (15)

TABLE 24. Great Plains school district organization pattern, 1940 & 1967

State	Total Number of Districts		K-12 Districts		Elementary Dists.		High School Districts		Non-Operating Districts	
	1940	1967	1940	1967	1940	1967	1940	1967	1940	1967
Iowa	4,850	474	970	455	3,455	6	0	0	425	13
Missouri	8,663	815	846	478	7,263	238	0	0	554	99
Nebraska	7,047	2,172	696	325	5,306	1,822	32	20	1,013	5
South Dakota	3,287	1,803	295	211	2,636	992	5	4	351	596
TOTAL	23,847	5,264	2,807	1,469	18,660	3,058	37	24	2,343	713

in identifying enlarged communities for economic consideration were employed. They were:

1. Area in square miles.
2. Change in total area population, 1940-1960.
3. Change in population density per square mile, 1940-1960.
4. Change in population under age 18, 1940-1960.
5. Change in number of persons employed in agriculture, 1940-1960.
6. Change in median family income, 1940-1960.
7. Change in median school years completed for persons 25 years old and over, 1940-1960.
8. Change in number of retail trade establishments, 1940-1960.
9. Change in volume of retail trade, 1940-1960.

When changes which had occurred between 1940 and 1960 in each demographic variable were compared with changes that had occurred in types of school organization within 364 counties, 54 economic areas, and the four states, there were no high positive relationships (correlation coefficient of +.50 or more). This study proved quite conclusively that the changing organizational pattern of school districts in the four state area has not been related to major demographic changes occurring since 1940. Neither has local school district organization moved in the direction of area development as have many other facets of our economy.

The findings of this study suggest that the concern expressed for reorganization of school districts because of demographic changes has been more lip service than operationalized practice.

Hanson (19, p. 136) concludes there is little evidence to indicate criteria for local school district organization presently employed by State Departments of Education in Iowa, Missouri, Nebraska and South Dakota have displayed a serious concern for demographic changes. The criteria allude to communities and groups of interrelated communities. However, they advocate minimum sizes which fail to recognize the changing composition and distribution of population in delineation of a community.

IMPLICATIONS FOR EDUCATIONAL PLANNING

When analyzing the data assimilated for this study, a number of implications can be made that may have relevance for educational planners in the Midwest as well as other parts of the country.

1. *The criteria of a local community or a group of interrelated local communities as the basis for a school district is obsolete and indefensible.*

Since the early 1940's, one of the prime criteria that has guided the formation of new local districts has been the conviction that a proposed district should encompass one or more community centers that were compatible and preferably contiguous. When one views the massive movement of people from the small communities and the rural areas of the Midwest, this concept is no longer tenable. The small communities of Iowa, Missouri, Nebraska and South Dakota have little hope of survival as dynamic cohesive social and economic entities. Some may remain as minimum convenience centers and provide a very limited range of goods and services to a declining population.

Educational organizations, which reflect our social system, must therefore be organized around enlarged social, political, and economic communities. The practice of organizing school districts around a community or group of interrelated communities is inconsistent with present identifiable patterns of association.

If local school district organization is to be compatible with other facets of community development, the individuals and groups responsible for organizing schools must look beyond the residentiary activities and interests of the local community. The increased vistas of social, economic, governmental, and cultural environments must be identified and employed in the delineation of enlarged geographic areas for local school districts.

2. *Local school districts should be organized around city centers with populations of at least 2,500 to 5,000.*

In order to insure stability and existence over time *an adequate pupil population base must be assured before forming new school districts.* The optimum size city center which displays the greatest potential for stability or growth is one that presently possesses a population of at least 5,000 within the corporate limits. There is little indication that communities of less than 2,500 can, or will in the future, remain dynamic community centers unless they are within a 25-30 mile radius of a major urban center or are located in isolated areas. Therefore, the minimum size city center to utilize in future school organizational planning should possess a population of at least 2,500.

In the isolated areas of central and western Nebraska and South Dakota, there remains the crucial problem of an adequate population base to permit the economical and efficient development of quantitative and qualitative educational programs. In these sparsely populated areas it may be necessary to form school districts around city centers of 1,000 to 1,500. In these instances larger geographic areas will be necessary. This configuration would still necessitate creation of districts with a limited pupil population base. Under these circumstances, states must begin to assume greater responsibility in assuring qualitative comprehensive educational opportunities.*

3. *All areas of each state should be in a K-12 district.*

The practice of permitting school districts with limited enrollments to cease operating and send students to contiguous school districts on a tuition basis has flourished in the Midwest. The practice prevents school patrons from participating fully in the governance of their schools. It is a practice, however, which

*These statements should be considered in conjunction with Implication #4.

has persisted because of the tax advantages that accrue from not supporting fully a K-12 educational program.

Every citizen, regardless of his residence, age, or dependency status, profits from a state's educational system and should be a full participating and contributing member of the system.

4. *Emerging demographic changes necessitate future school district reorganization be based upon comprehensive state-wide planning.*

The changing composition and distribution of state populations, increasing mobility, and the identification of universal educational needs requires a new look at our approach to organization.

The Midwest states have, since 1940, gone through various stages of piecemeal reorganization. In most instances, the basic responsibility has been legislatively delegated to County Reorganization Commissions, County Boards of Education, or some other group operating at the county level. The results are today an incredible maze of jagged, irregular, and illogically conceived districts—districts created by the selfishness and greed of some of the indifference of others.

As increasing demands are imposed upon educational systems to contribute to sustaining and improving our general society, increasing resources will be required. This in turn necessitates more realistic approaches to allocating human and financial resources. In order to insure qualitative and equitable educational opportunities to all students in the state, comprehensive planning should proceed through a legislatively created commission or through a legislative mandate to the state education agency.

5. *An enlarged and strengthened middle echelon of school government should be developed in the four Midwest states.*

If local school districts are to provide comprehensive educational programs at a high level of quality, and do this with maximum efficiency and economy, variable structural patterns will probably be required in the Midwest. Essential in any state structure are elements of flexibility and adaptability. If school organizations are to be truly sensitive to societal needs, the potential for adjustment to rapidly changing demographic conditions must be assumed. The existing legislatively created rigidity of organizational structure has been one of the chief deterrents to extensive educational improvements in the Midwest.

In most areas of Iowa and Missouri, and in the eastern portions of Nebraska and South Dakota, it should be possible to form *administrative districts* with minimum pupil populations of 4,000-5,000 students. Because of size limitations, these districts would be, of necessity, restricted in the quantity of educational programs and services they could provide.

To supplement and coordinate services to local districts, multi-county educational service agencies should be created. With a pupil base of at least 30,000 students, this middle echelon of school government would be able to provide the articulation, coordination, and service functions the administrative districts of 4,000-5,000 could not economically provide for themselves. The point should be emphatically made here that the multi-county educational service agency is not intended to provide programs and services local districts should provide themselves. It would be providing only those programs and services optimum size local districts in this geographic area could not provide themselves because of excessive costs or incidence of need. The statewide creation of this type of educational unit would provide a degree of flexibility heretofore unknown in education.

Within each of the four states we find a trend to create, around the perimeter of central cities, a proliferation of suburban school districts. Many of these districts presently enroll in excess of 5,000 students, but certainly do not approach the size of optimum districts. It is difficult to defend this organizational pattern when the combination of several such districts would provide the potential for more extensive educational development.

6. *Increasing attention must be directed to the problems of urban education in the Midwest.*

As indicated earlier, three of the four states involved in this study already have predominantly urban populations. Public school enrollments in urban centers are swelling as rural enrollments decline. In Iowa, the 25 largest school districts presently enroll 40 percent of all the state's public school students. In Missouri, schools in the Kansas City and St. Louis metropolitan complexes enroll 44.7 percent of all Missouri public school students. Omaha and Lincoln presently enroll approximately 50 percent of all Nebraska public school students. In South Dakota, two cities, Sioux Falls and Rapid City, enroll approximately 20 percent of all public school students. If the state system of education is to meet the needs of all, it must do so where the students are located. This is in the urban centers! Increasing amounts of each state's resources, both human and material, must be diverted to the urban centers.

As the strip city configurations described earlier flll in and the megalopolises expand, increasing attention must be directed to urban education. It is readiiy apparent that planning for education in central cities cannot be isolated from the total urban complex. The interrelatedness of economic, social, cultural and governmental spheres necessitates serious consideration of the metro approach to educational planning.

As urban centers have enlarged, they have developed educational systems autonomous and separate from most segments of the state education system. In many instances they operate today quite independently of the state education agency. As statewide planning and development emerges, it would certainly suggest the necessity for a concerted effort to realign the relationships between state education agencies and urban school systems.

The challenges facing educational planners in the Midwest, as well as most sections of the country, are multitudinous. With sizable increases in urban population, declining rural and small city population, great variances in the density distribution, substantial out-migration, and a rapidly changing age composition, the task of describing an organizational structure to provide for optimum educational opportunities is difficult and complex.

Only through a comprehensive statewide assessment, and the resulting readjustment of all structural components in cincourse, will the type of organizational structure emerge that is so direly needed in the Midwest today.

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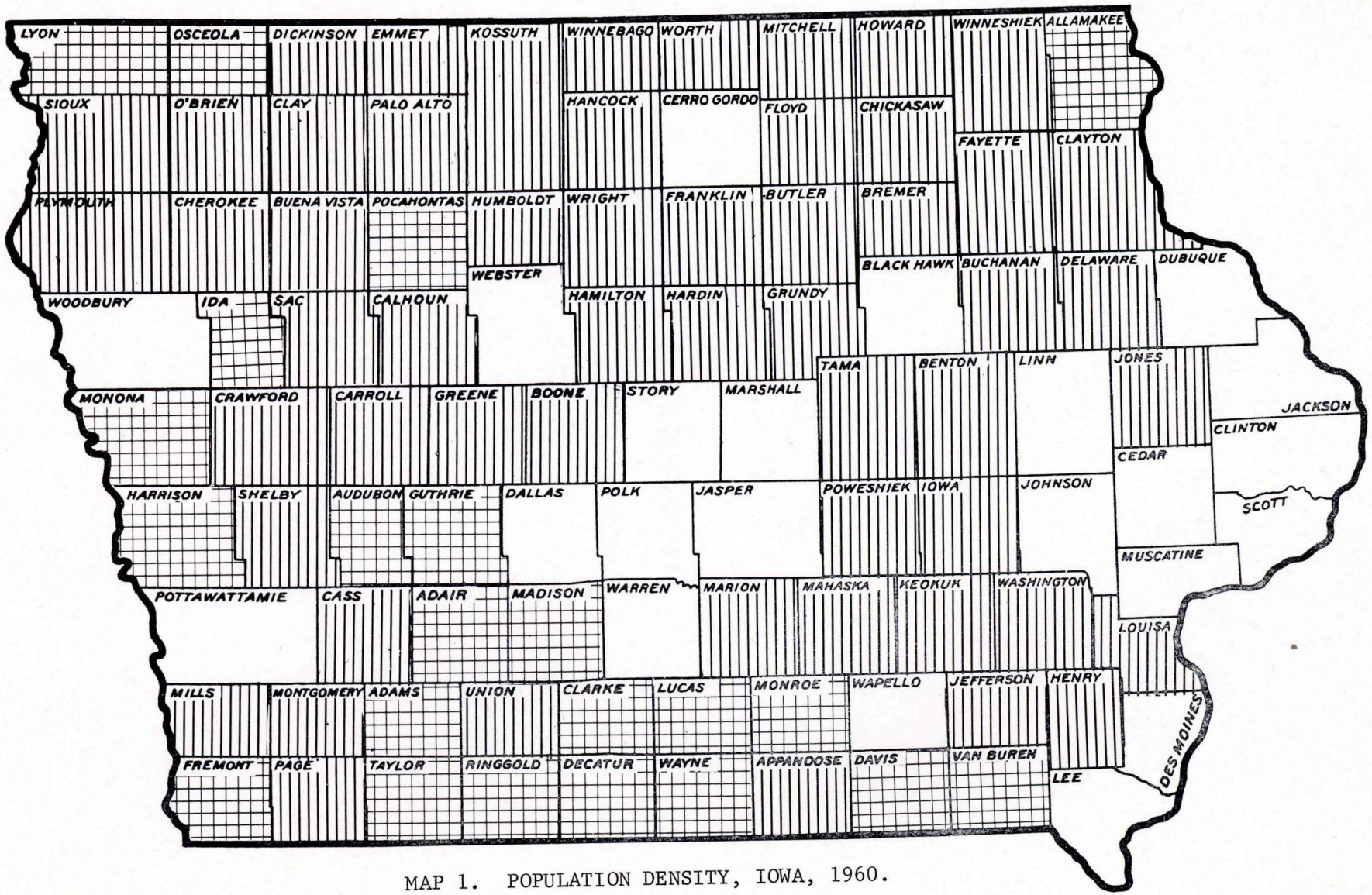
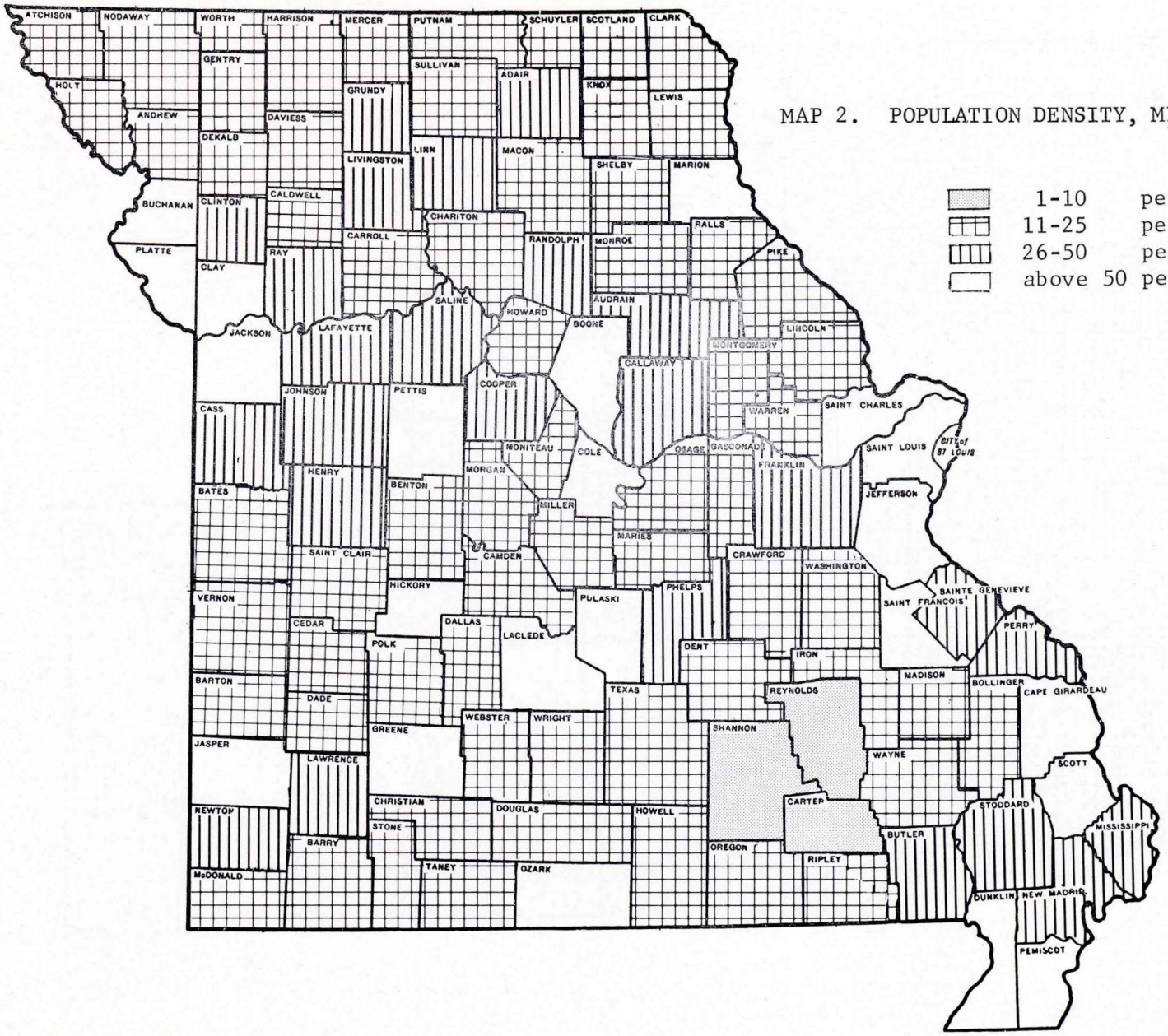
APPENDIX



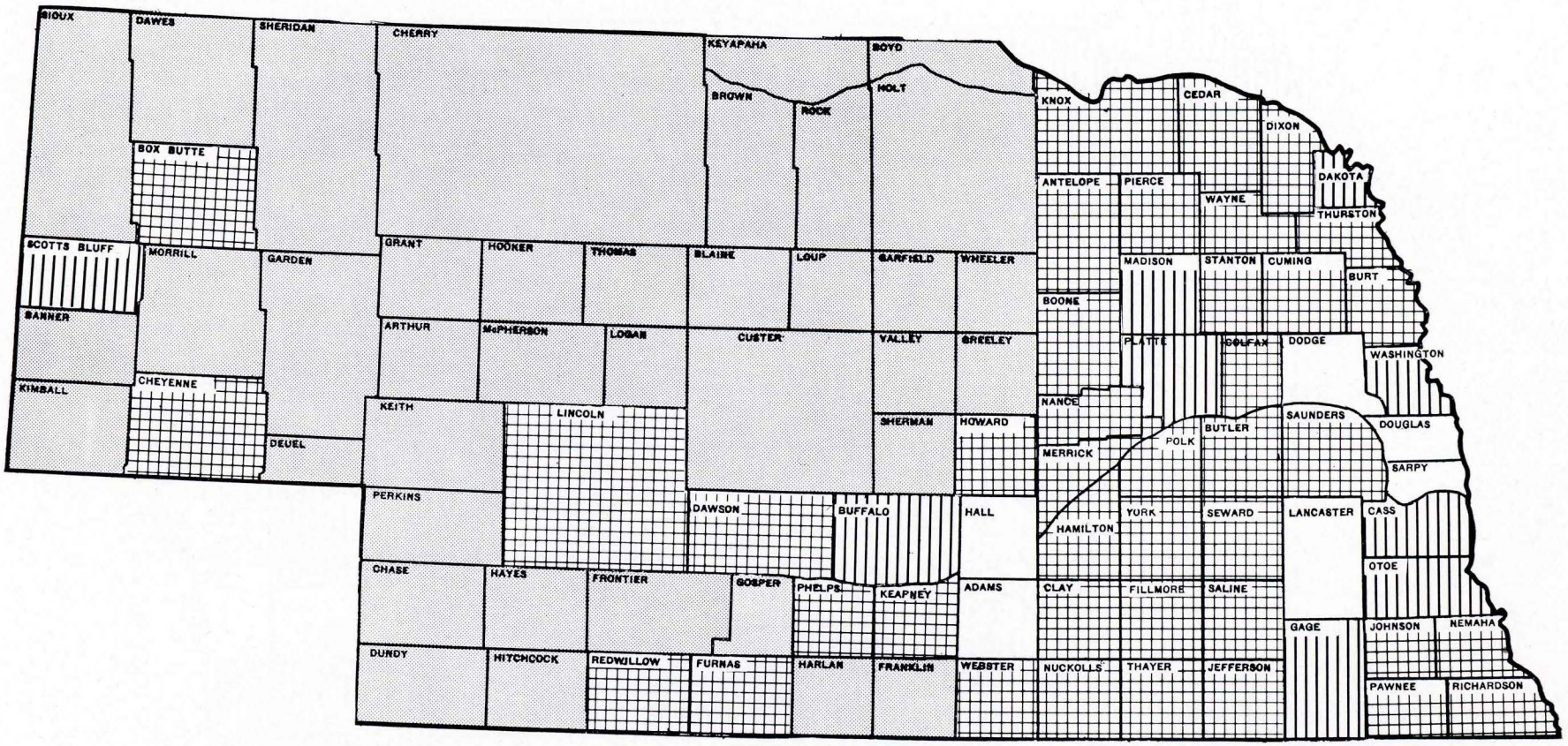
MAP 1. POPULATION DENSITY, IOWA, 1960.

1-10 per square mile
11-25 per square mile
26-50 per square mile
above 50 per square mile



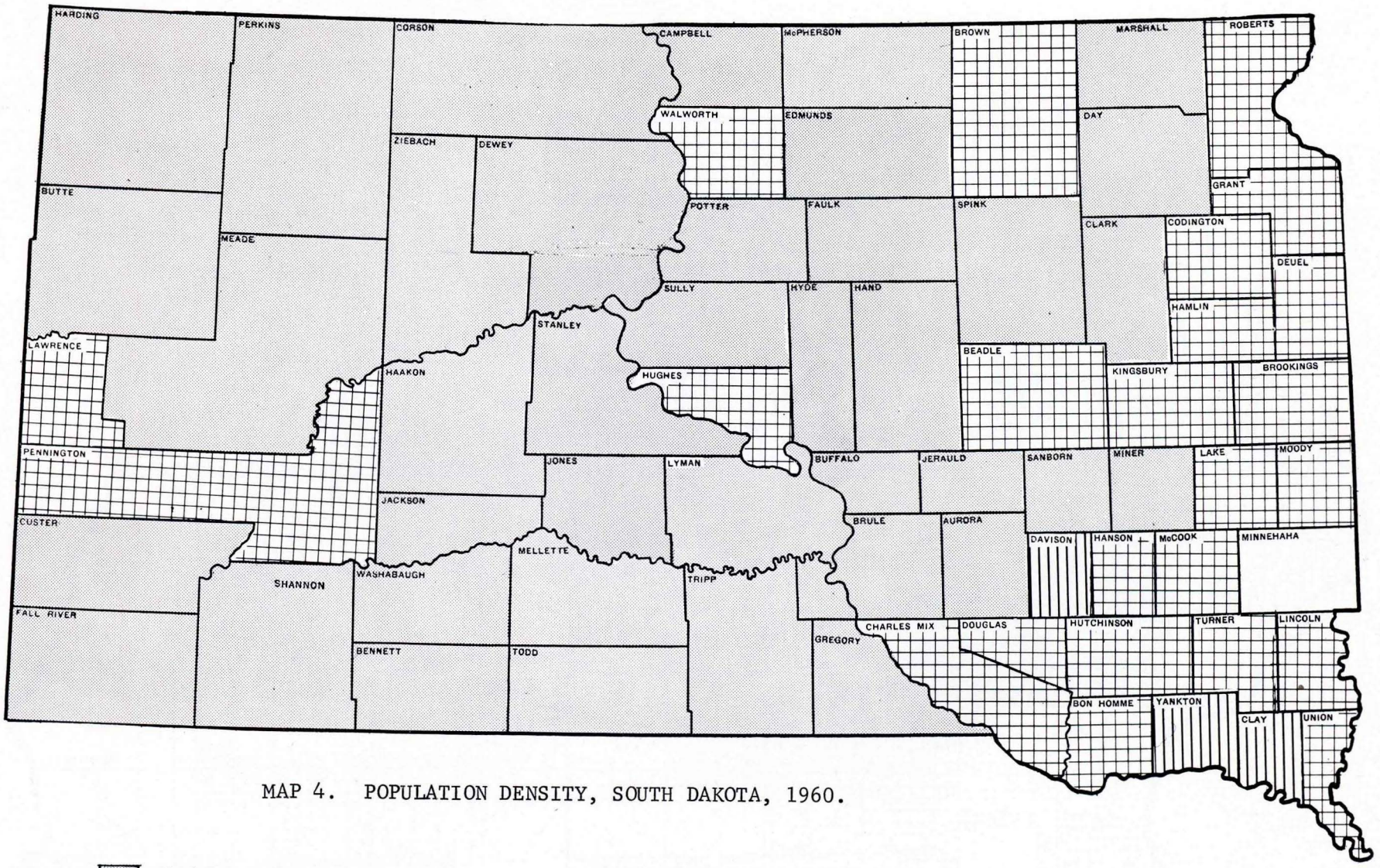
MAP 2. POPULATION DENSITY, MISSOURI, 1960.

1-10	per square mile
11-25	per square mile
26-50	per square mile
above 50	per square mile



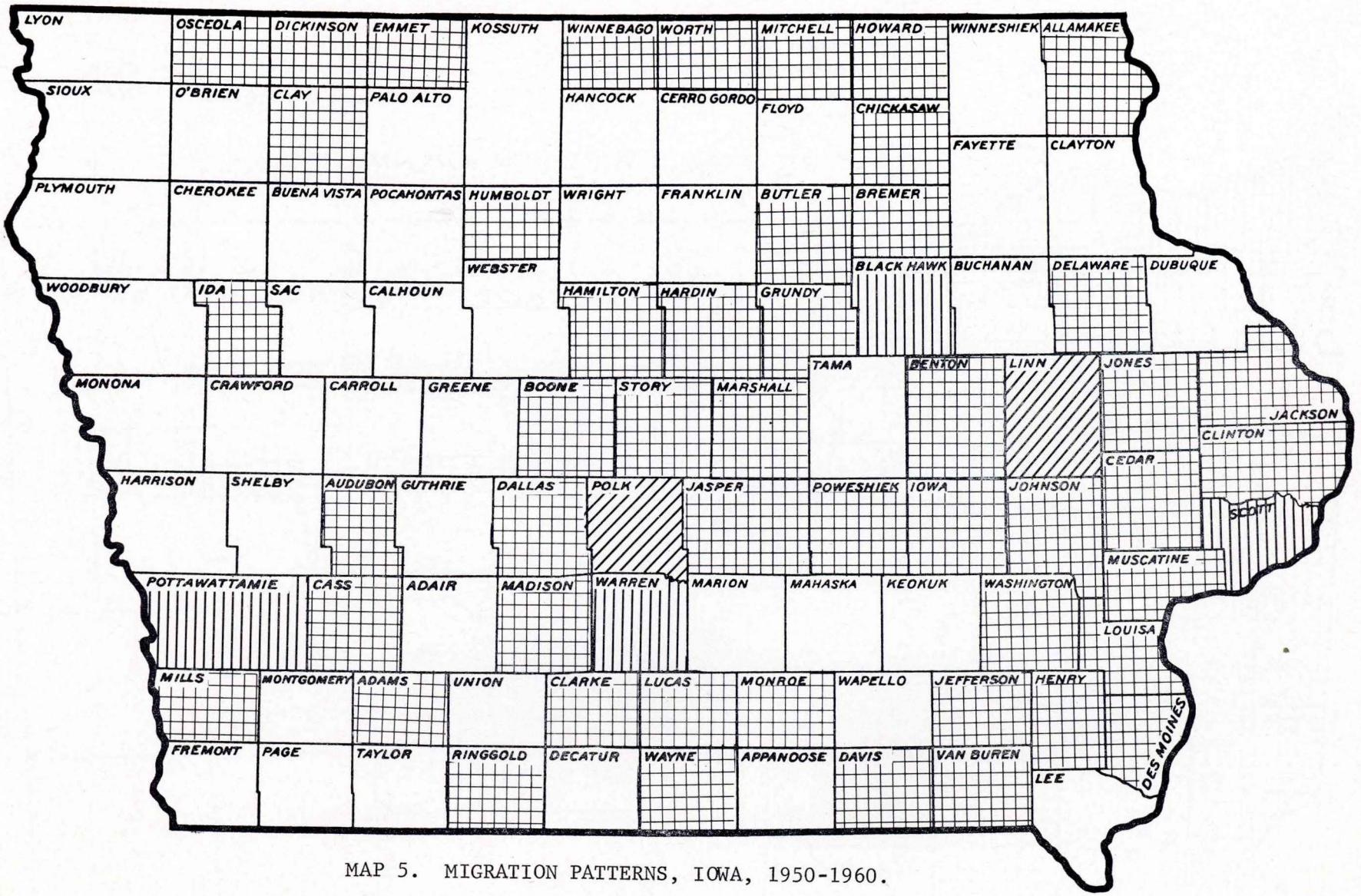
MAP 3. POPULATION DENSITY, NEBRASKA, 1960.

1-10 per square mile
11-25 per square mile
26-50 per square mile
above 50 per square mile



MAP 4. POPULATION DENSITY, SOUTH DAKOTA, 1960.

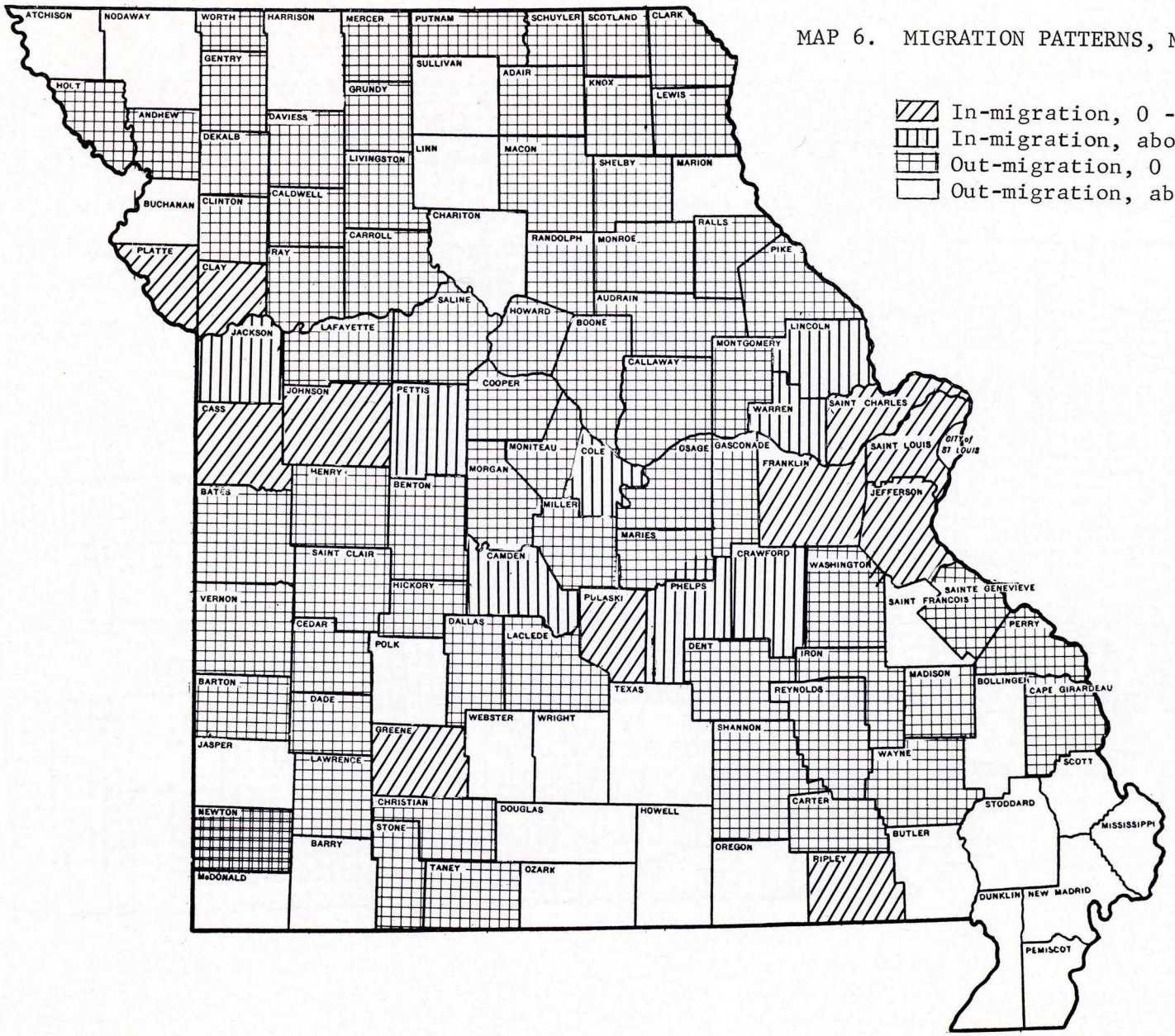
1-10 per square mile
11-25 per square mile
26-50 per square mile
above 50 per square mile

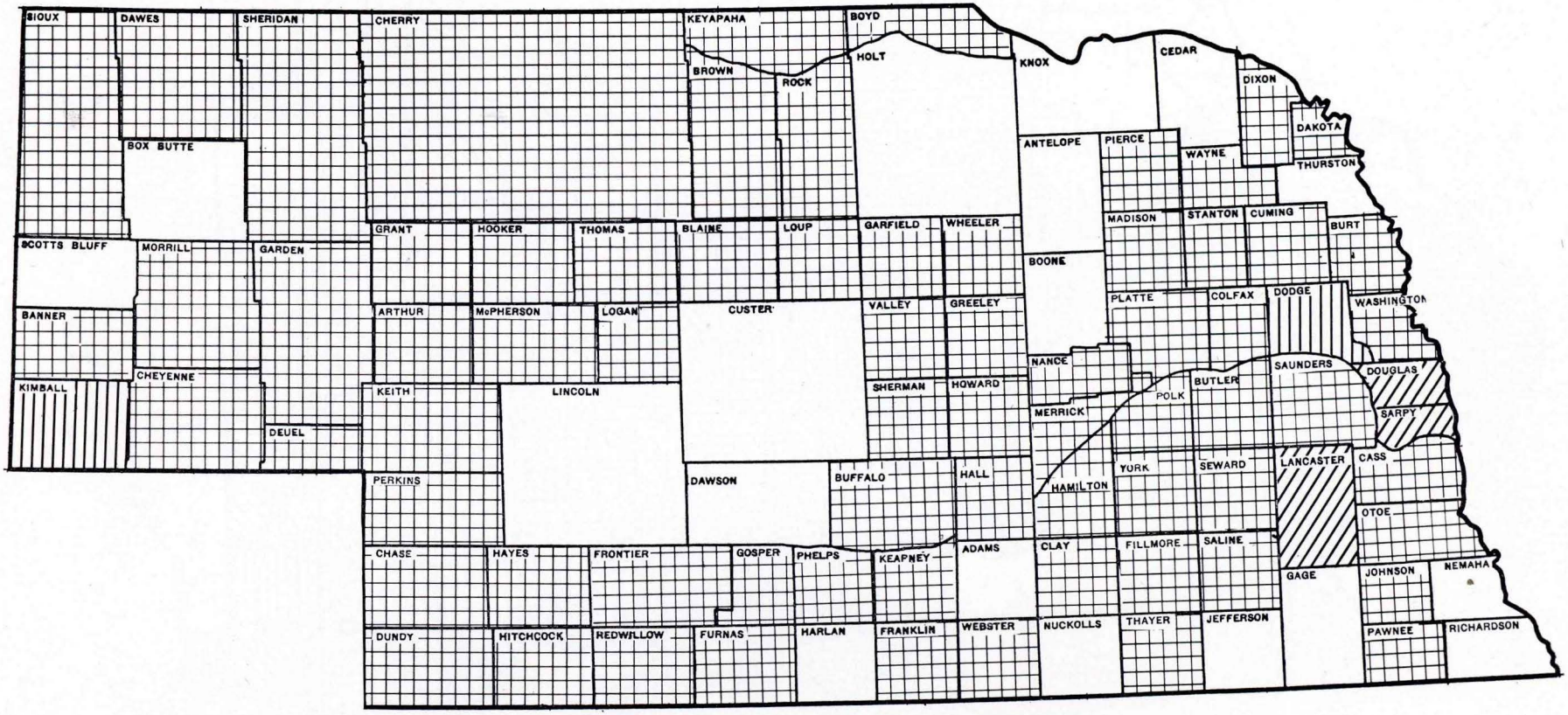


MAP 5. MIGRATION PATTERNS, IOWA, 1950-1960.

In-migration, 0 - 2,500
In-migration, above 2,500
Out-migration, 0 - 2,500
Out-migration, above 2,500

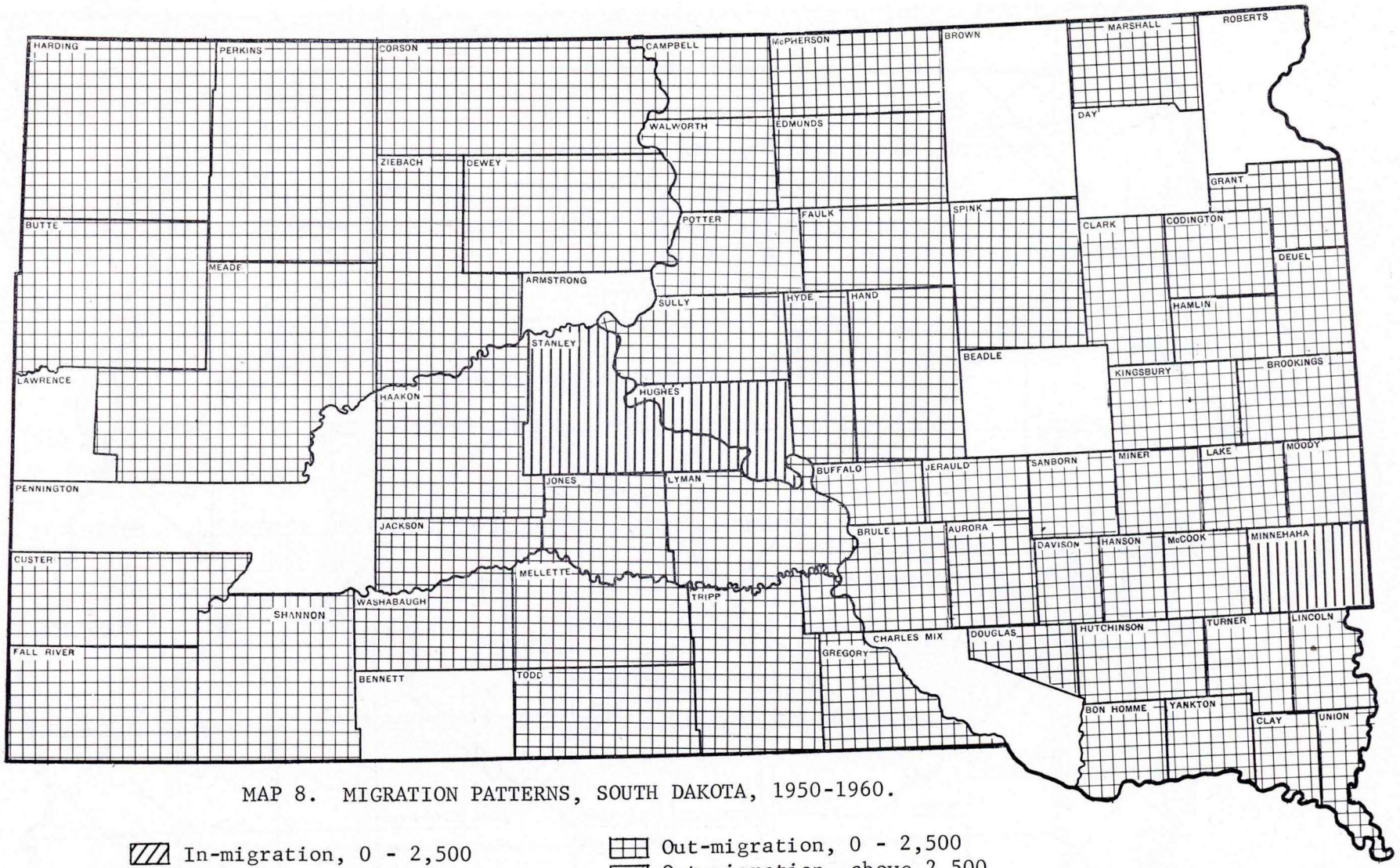
MAP 6. MIGRATION PATTERNS, MISSOURI, 1950-1960.





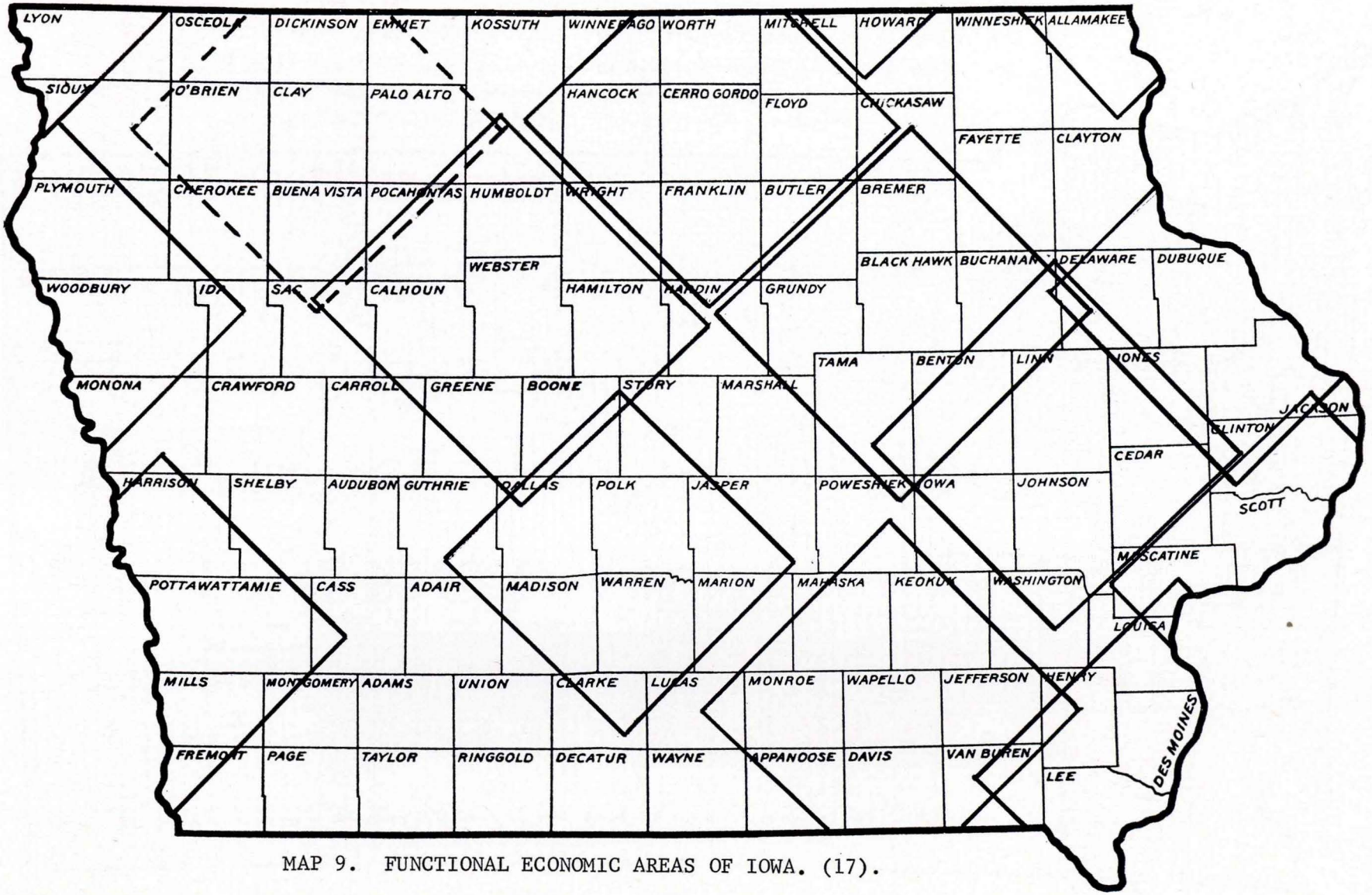
MAP 7. MIGRATION PATTERNS, NEBRASKA, 1950-1960.

In-migration, 0 - 2,500
In-migration, above 2,500
Out-migration, 0 - 2,500
Out-migration, above 2,500

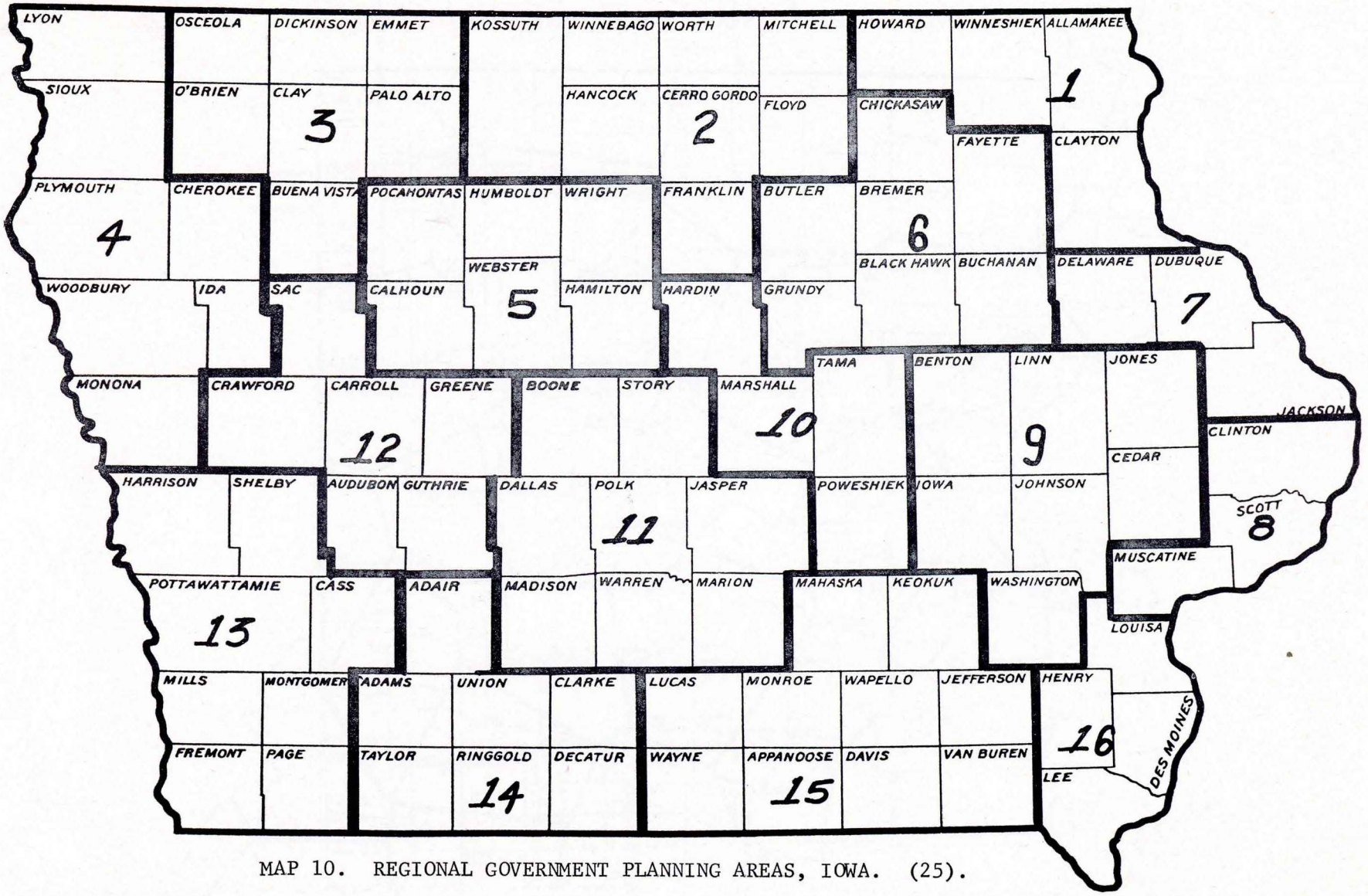


MAP 8. MIGRATION PATTERNS, SOUTH DAKOTA, 1950-1960.

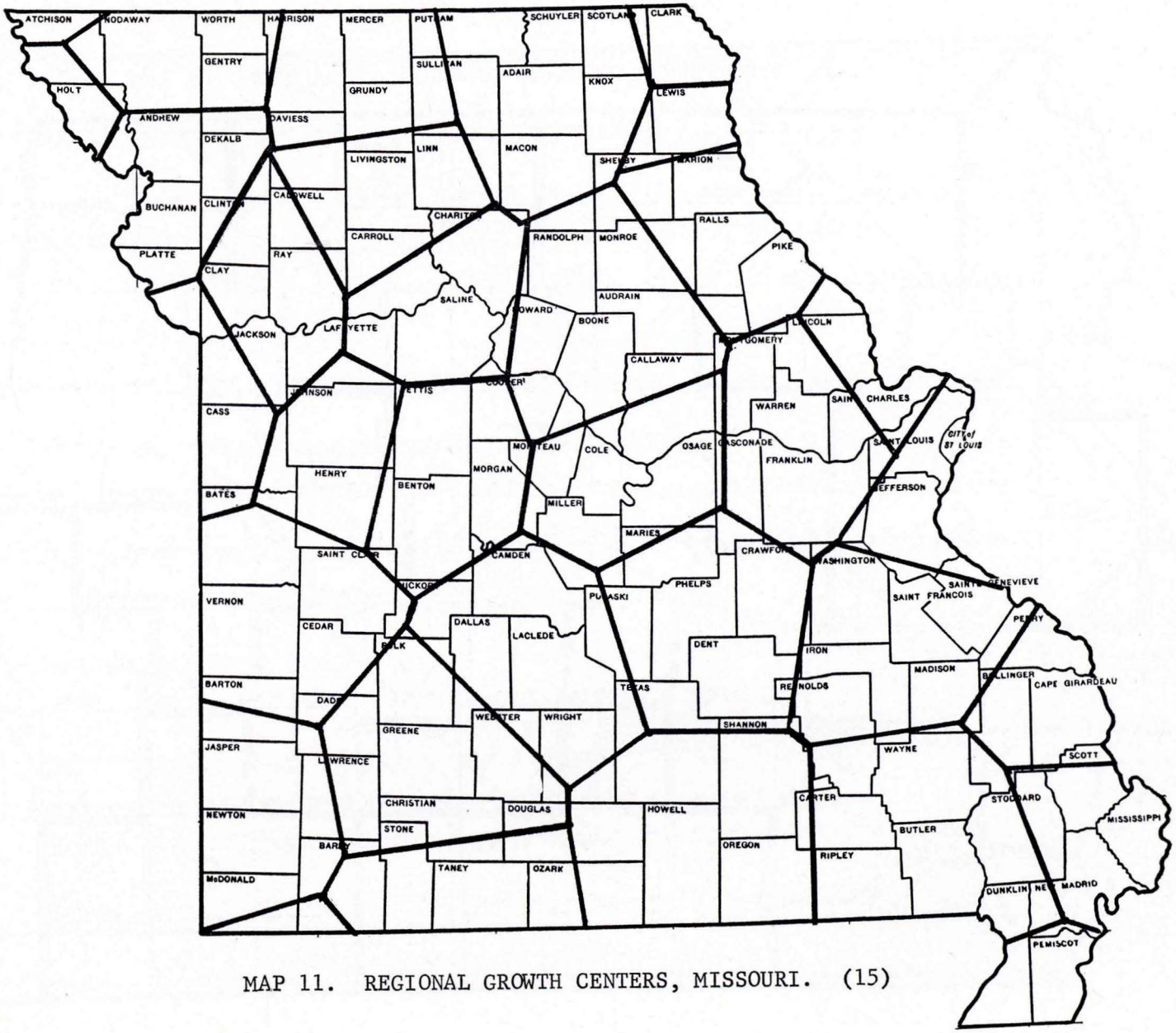
In-migration, 0 - 2,500
In-migration, above 2,500
Out-migration, 0 - 2,500
Out-migration, above 2,500



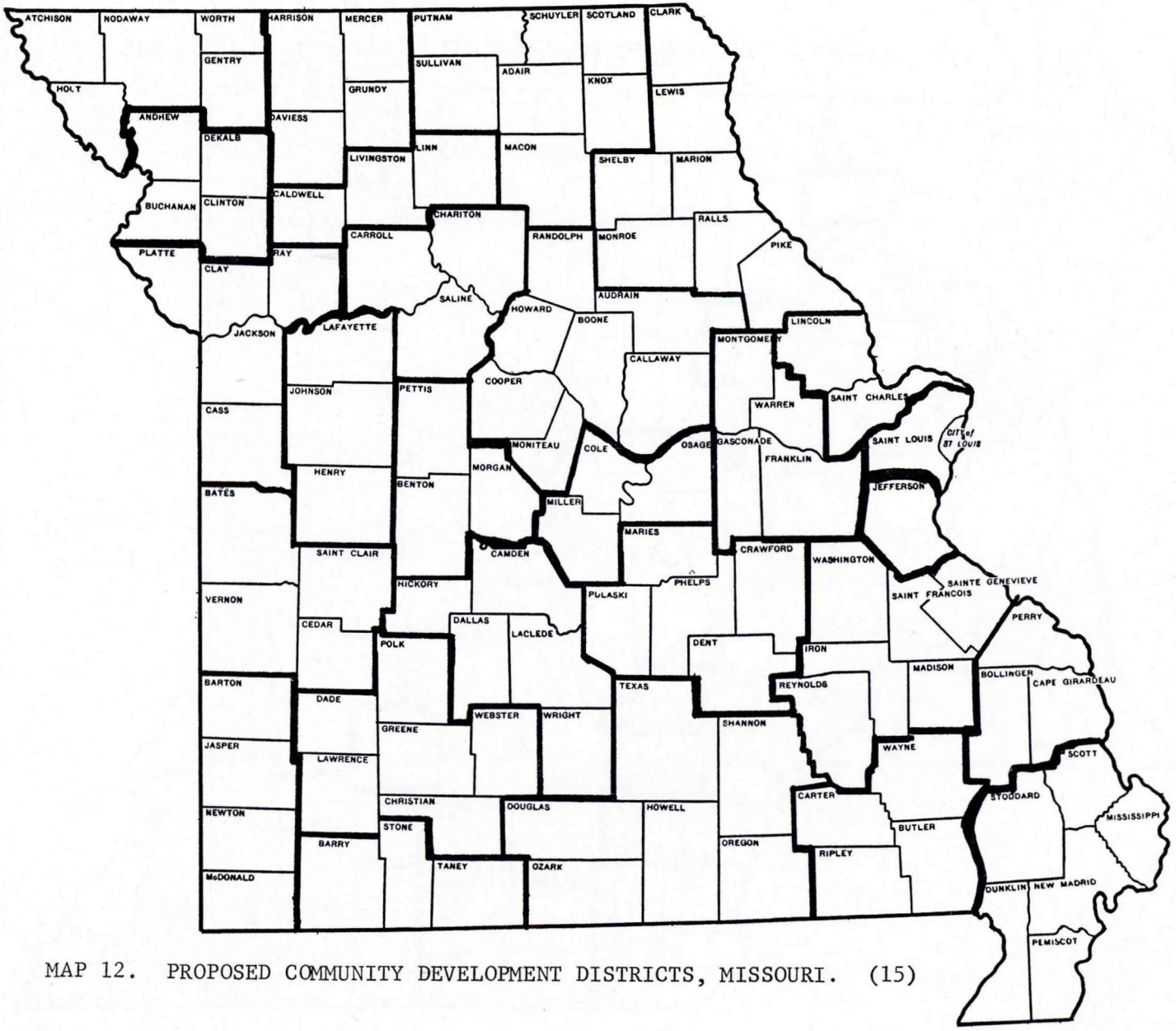
MAP 9. FUNCTIONAL ECONOMIC AREAS OF IOWA. (17).



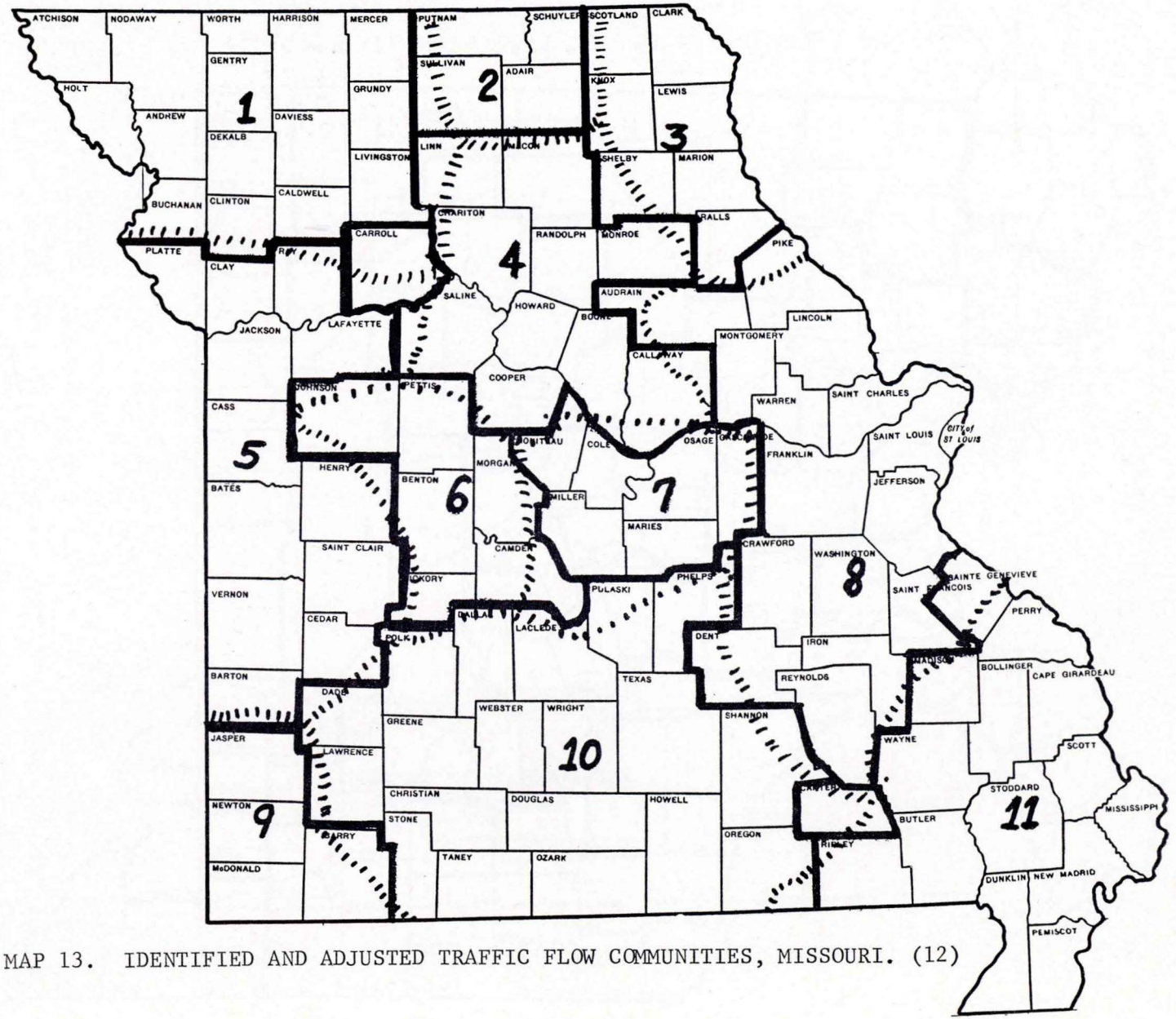
MAP 10. REGIONAL GOVERNMENT PLANNING AREAS, IOWA. (25).



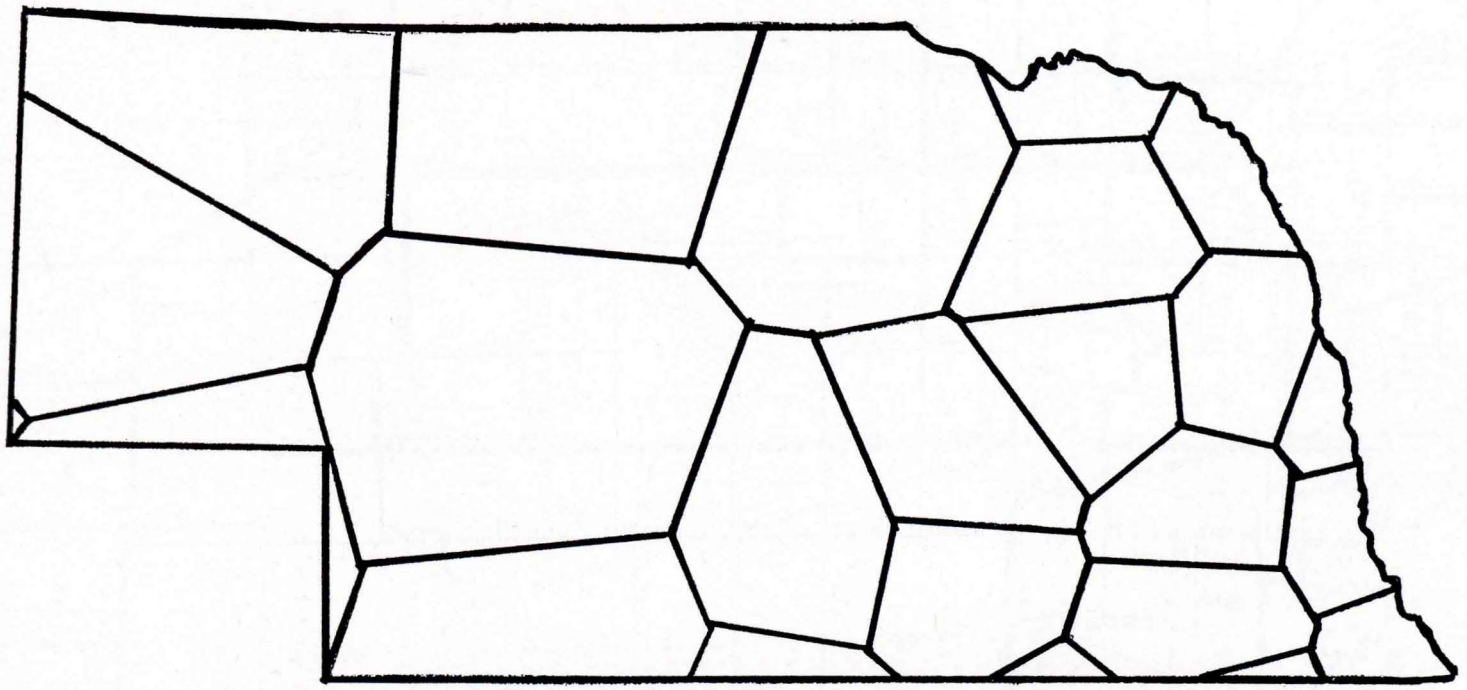
MAP 11. REGIONAL GROWTH CENTERS, MISSOURI. (15)



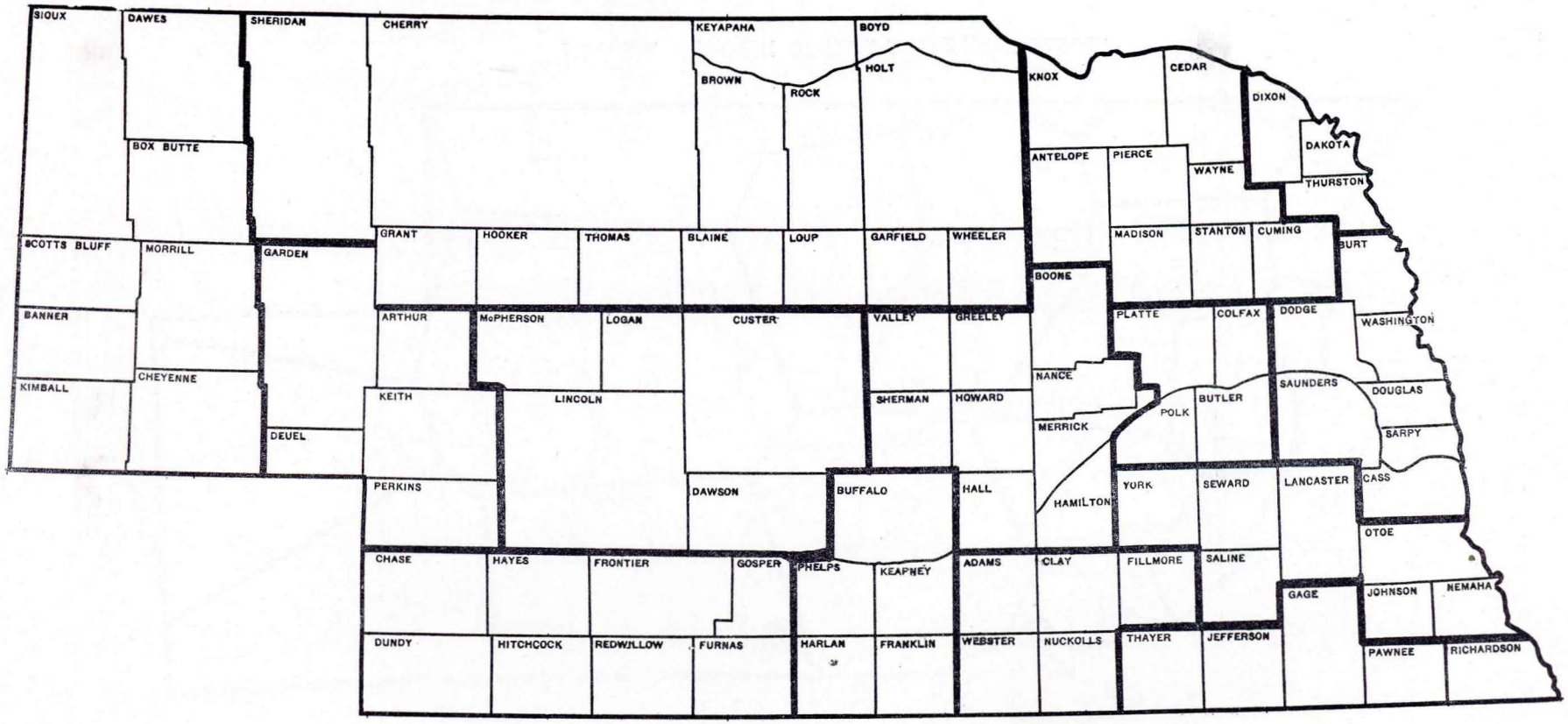
MAP 12. PROPOSED COMMUNITY DEVELOPMENT DISTRICTS, MISSOURI. (15)



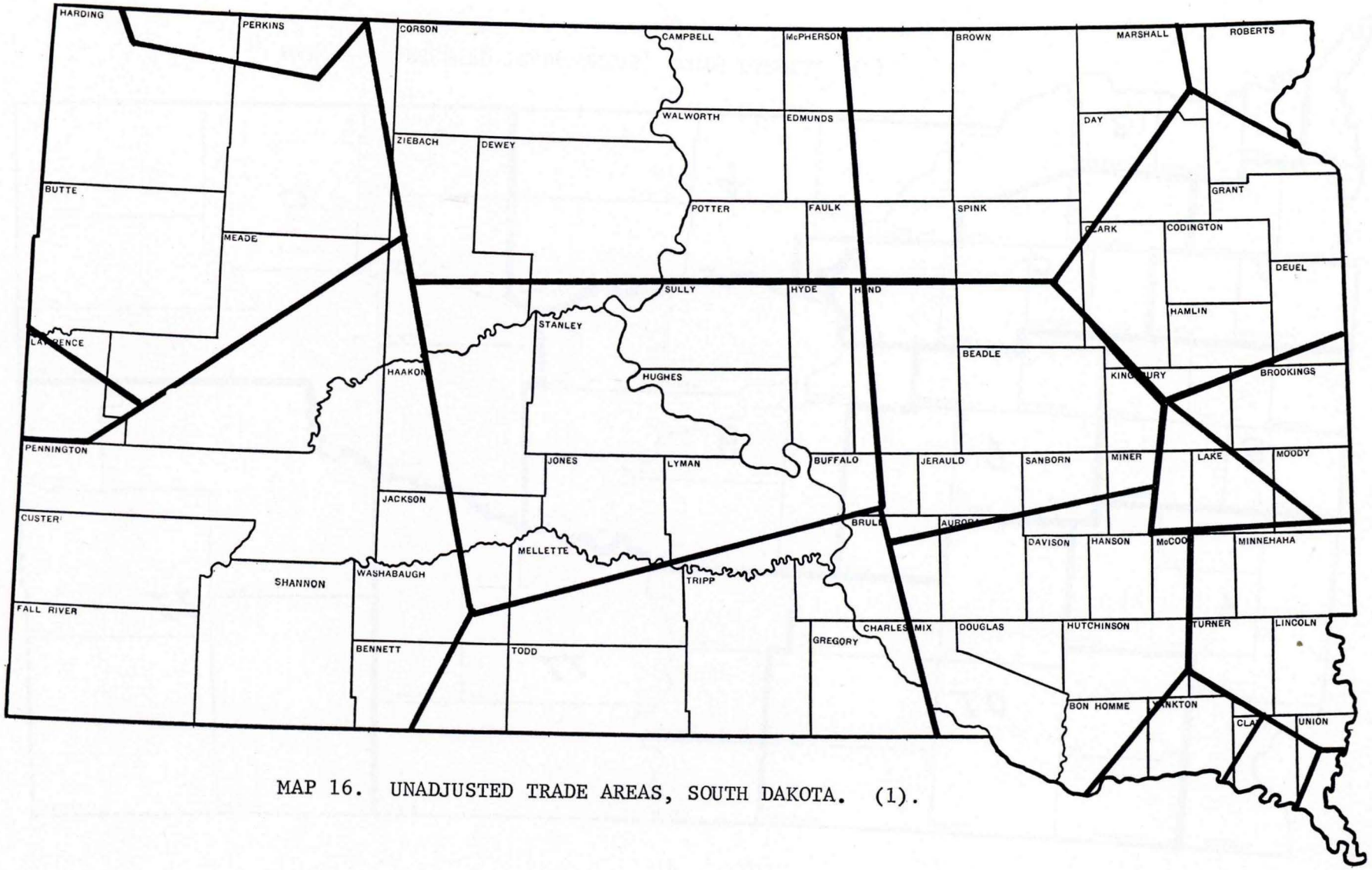
MAP 13. IDENTIFIED AND ADJUSTED TRAFFIC FLOW COMMUNITIES, MISSOURI. (12)



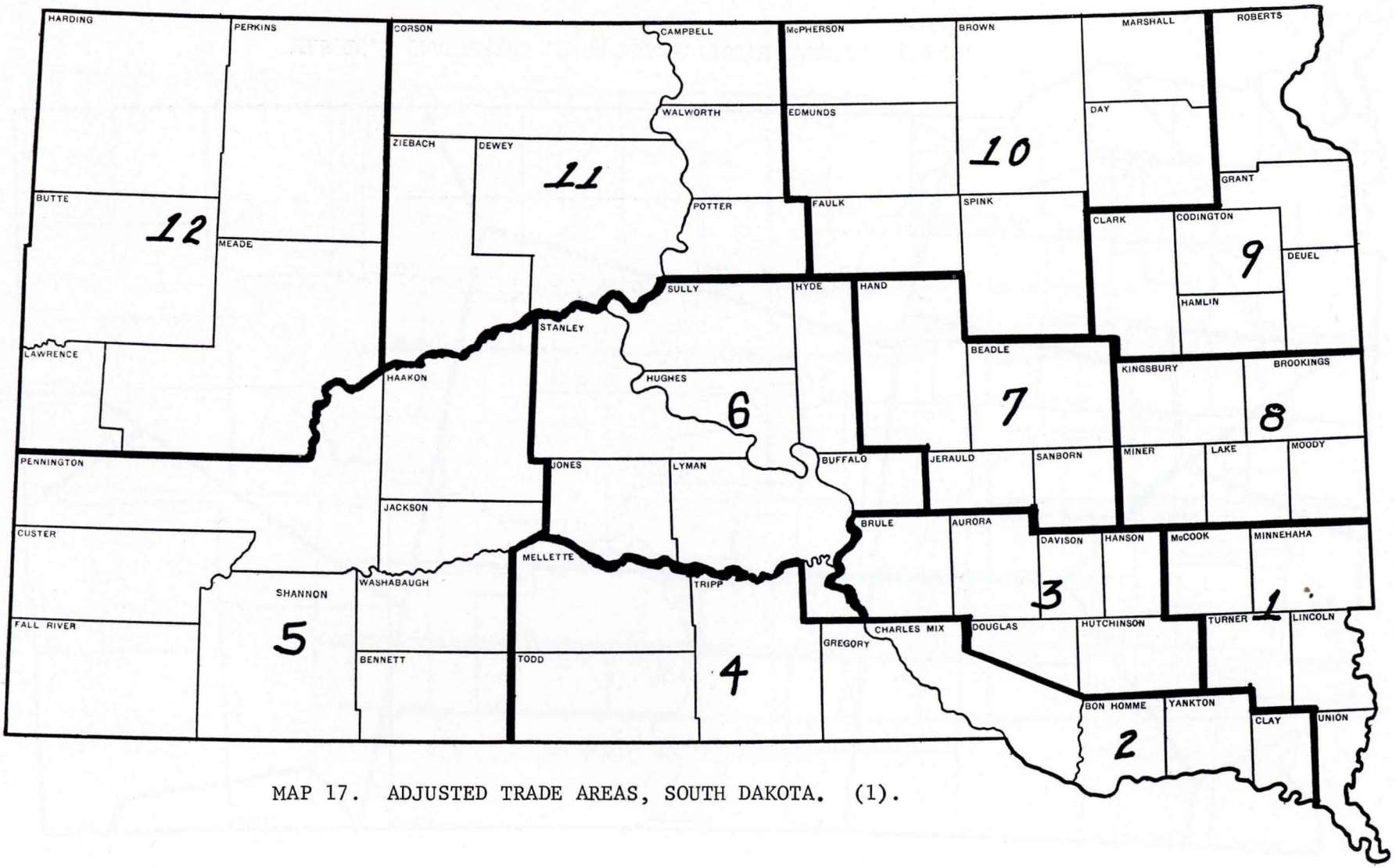
MAP 14. GROWTH CENTER AREAS, NEBRASKA.



MAP 15. ECONOMIC AREAS, NEBRASKA. (24).



MAP 16. UNADJUSTED TRADE AREAS, SOUTH DAKOTA. (1).



MAP 17. ADJUSTED TRADE AREAS, SOUTH DAKOTA. (1).