Land Use in Michigan
Michigan State University
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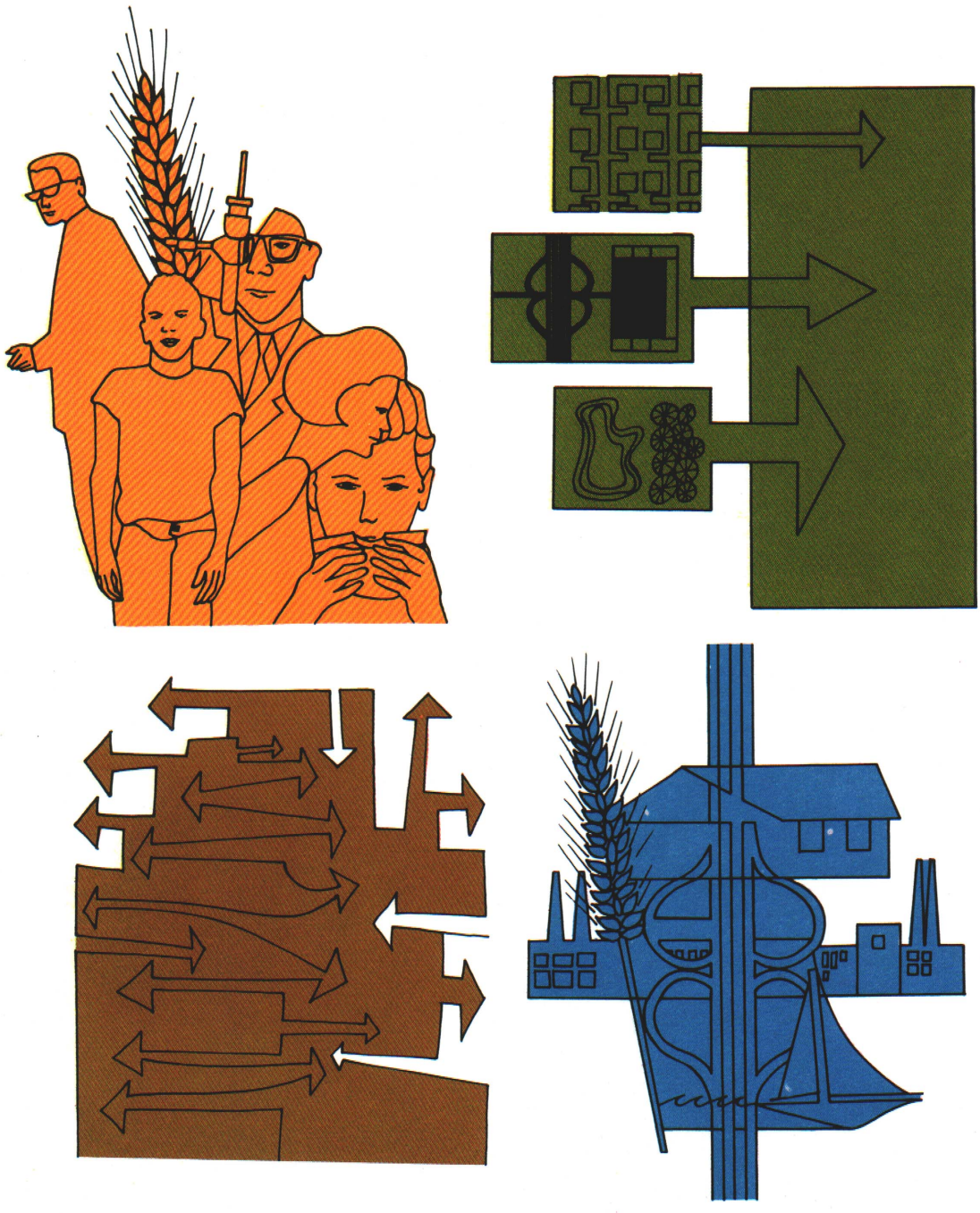

LAND USE *IN MICHIGAN*

A series of educational meetings conducted by Michigan State University state and county Extension staff members to study the use of land for man . . . by man . . . to provide a bright environment for tomorrow . . . and tomorrow's men.

Issued in furtherance of cooperative extension work in agriculture and home economics, acts of May 8, and June 30, 1914, in cooperation with the U. S. Department of Agriculture. George S. McIntyre, Director, Cooperative Extension Service, Michigan State University, E. Lansing, Mich 1P-1:68-5M-DB

PREFACE

Michigan people have recognized significant land-use changes almost everywhere in the state. They have been concerned about the meaning of these changes to their jobs, their homes and businesses, their communities and their favorite recreation areas. Michigan State University's Cooperative Extension Service is frequently asked for information about these changes and for counsel in individual and community decisions about land use.

This publication was prepared by the Michigan State University Extension Land Use Education Guidance Committee to help in answering these important questions. Several other sets of materials have also been prepared for this purpose. The combined information can be used as the basis for Land-Use Education programs by formal and informal citizen groups and it is also hoped that this material will be generally useful wherever it may go.

Extension Land Use Education Committee

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A CHANGING MICHIGAN

BY WILLIAM J. KIMBALL

On the Great Seal of the State of Michigan is the Latin phrase, *Si Quaeris Peninsulam Amoenam Circumspice,* meaning, "If you seek a pleasant peninsula, look about you."

These words were put on the Great Seal by Lewis Cass, Governor of the Michigan Territory, as he designed the seal for the first Constitutional Convention in 1835. The people of Michigan have continued to hold strong feelings about the welfare of their peninsula through the years.

People in Michigan are becoming increasingly concerned about how changes in the use of land will affect their occupations, their homes and communities, their favorite recreation areas and the beauty of the land itself. They need to understand the effects of land-use changes if they are to wisely plan the future development of their community, their county and their state.

The next few pages are an overview of some of the more important land-use changes taking place in Michigan today. Later pages will put this overview into a broader context by examining some of the land-use changes taking place in other parts of the world.

Land Use Changes in Southern Michigan

Signs of land-use change are evident almost anywhere in Michigan. In southern Michigan there are sprawling suburbs and new country homes scattered throughout farming areas. Factories are rising far from the old population centers. Almost every community seems to have its new residential subdivision, edge-of-town shopping center and industrial park.

In these same southern Michigan areas there is evidence also of a rapidly changing agriculture. Fields are larger and mechanization is common. Many old homesteads are occupied by more than one nonfarm family.

Land Use Changes in Northern Michigan

In northern Michigan, including the upper peninsula, the land scene is quite different. Here the most frequent sign of change is the myriad new cottages, resorts, marinas and recreation facilities. Developments range from the crudest hunting cabin just off the road to the most elaborate, multi-million dollar ski lodge back among the hills.

There are other signs of change in the north: a greatly expanding wood-using industry; vast clear-cut areas producing new crops of pulpwood and deer feed, and coniferous plantations in all stages of growth indicating massive reforestation efforts. The term "Northern Cut-Over Area" is now completely outmoded and "The Northern Forest-Recreation Area" is far more appropriate. Jobbers' trucks roll daily to the huge pulp mills, chipping firms, scattered saw mills and pallet plants.

In many northern communities the combination of new recreation facilities and expanded wood-using industries has resulted in increased prosperity. But in between the booming areas there are a great many abandoned farms and sleepy, dying towns. In many northern areas there are fewer

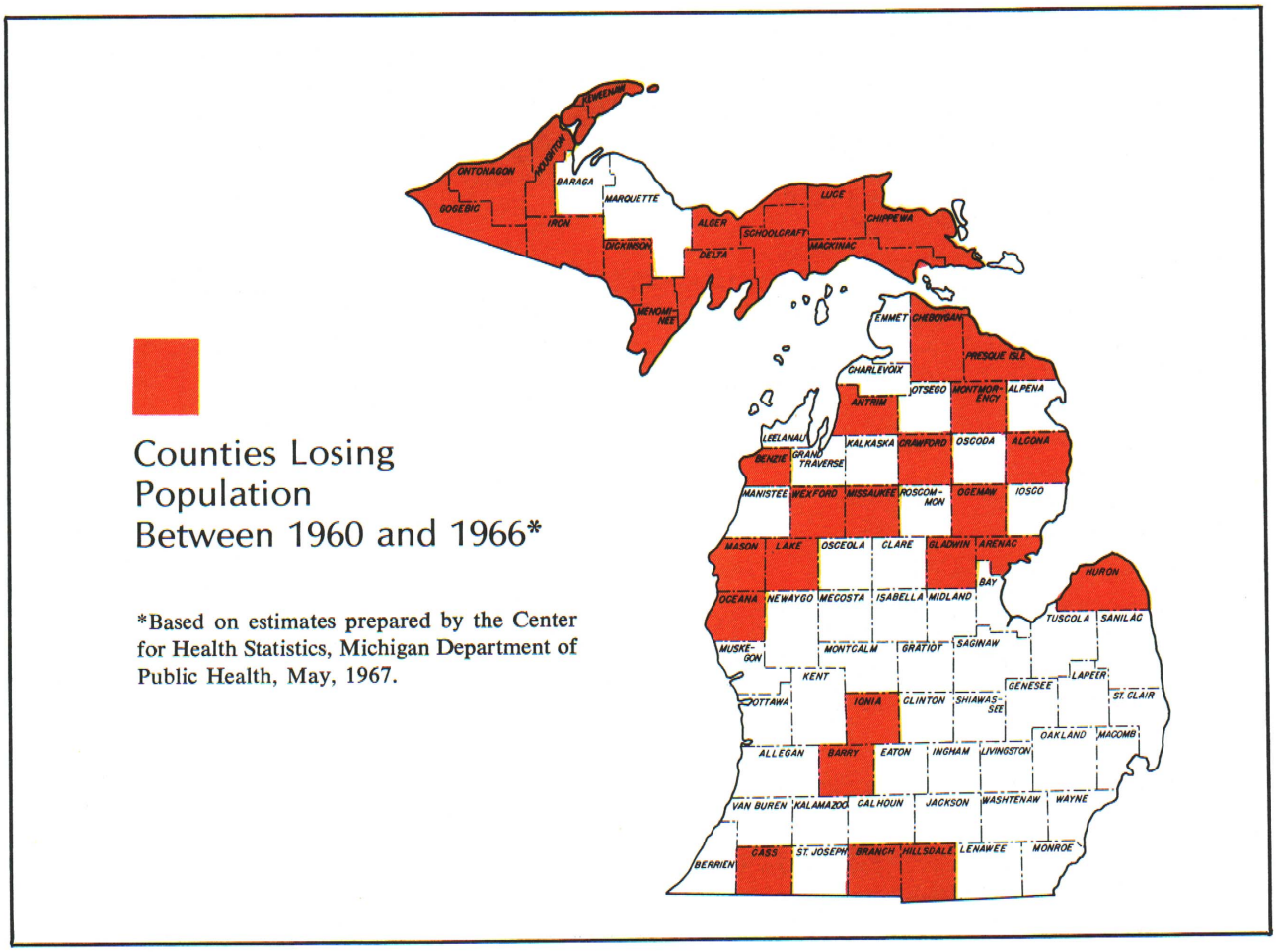
people than there were only a few years ago.

These are some of the physical signs of rapid change in Michigan. These kinds of changes are not new to Michigan — in its short history the state has moved from an Indian range to a hunting and trapping territory, from a lumbering capital to a vast new agricultural settlement. Now it has become a complex of intensified forestry, recreation, agriculture, industry, and sprawling urban growth. Today's changes are more rapid and more disquieting because of the many people involved, and the relatively fixed resource base already so extensively used — the land.

Changes in Population

The growth, development and movement of Michigan's population have resulted in many of these dramatic changes in land use. Michigan's population at the turn of the century was only 2.4 million, and about 39 percent was urban. The population was well scattered throughout the state. The big shifts in population began with the rapidly expanding automobile industry in southeastern Michigan, and big spurts in population growth developed around the major cities with their new manufacturing opportunities. New opportunities developed for combining rural living with urban employment. The 1920 census showed 61 percent of Michigan's population as urban, 23 percent rural farm, and 16 percent rural nonfarm.

The shift to urban areas was accelerated further during the 1920's. Although there were signs of a reversal during the Depression of the 1930's, the manufacturing demands of World War II gave the cities new drawing power. Increased mobility made shifts to urban areas easier in the late forties and the fifties.



The 1960 census showed that 16 Michigan counties lost population between 1950 and 1960. A great many others, mainly in northern Michigan, were barely holding their own. Health reports for 1966 indicate that 34 counties are losing population while urban centers continue to grow. Another situation, long suspected, showed up in the 1960 census: the large cities were not the real growth centers. Suburban sprawl was creating the largest growth in neighboring townships and nearby smaller cities. By 1960 only 5.6 percent of Michigan's population was classified as "rural farm".

Changes in Agriculture

Population trends are good indicators of land-use change. With other information, they help pinpoint specific changes. For example, the number of farms in Michigan reached its peak in 1910 with nearly 207,000, while area in farms peaked at slightly over 19 million acres in 1920. The 1964 Census of Agriculture indicates that the number of farms has decreased to 93,504 and the farm land to 13.6 million acres. These dramatic shifts have occurred as agriculture has become more efficient and productive, using fewer operators and laborers.

The shifts of land out of agriculture have been in two basic categories. The largest acreage shifting out of agriculture has been to lower or less intensive uses, primarily in northern Michigan and the upper peninsula. Light soils, short seasons, and promising opportunities off the farm have caused many to leave farming. The Soil Bank Conservation Reserve has helped to speed the process of returning land to forestry and recreation uses.

The second major category of land shifting out of agriculture has been for higher or more intensive uses. Expansion of residential, industrial and commercial land into farm areas accounts for the majority of this category. A significant part has gone into highways and other transportation uses.

Changes in Urban Areas

The nearly 6 million additional people in the cities and suburbs of southern Michigan from 1900 to 1960 created many new land-use demands. Not only was land acquired through annexation to cities but much was acquired by speculators around the cities for later development. In cities of over 15,000 in southern Michigan, urban land area grew from 668,720 acres in 1940 to 1,057,600 acres in 1955, then to 1,721,787 acres in 1961. New figures are not available to carry on these comparisons. If these trends, however, are projected on a straight line basis, urban uses could call for over 4 million acres by the early 1980's. There is little likelihood of this. The weedy, idle fields on the edge of our cities already provide good evidence of over-speculation.

Changes in Forest and Recreation Land

Forest and recreation changes are the most difficult to comprehend. Classification is especially complicated because of the multiple-use of forest lands. Approximately 10.3 million acres — slightly over one-half of Michigan's forested land — is used primarily for timber production. An additional 4.6 million acres are owned for recreational purposes, while 6 million acres are held for other purposes, including a large proportion for which the owners have no clear purpose in mind. With increased demands for recreation uses and wood products, owners are responding by improving cutting practices, stocking, and overall management of forest and recreation land.

Changes in Transportation

Everywhere in the state there are new transportation facilities. Michigan people are proud of their new superhighway system which links all major population centers with limited access, four-lane freeways. New and expanded airports, facilities and flights are evidences of improved air transportation.

Improved transportation is a major land-use change in itself, but it also helps speed all the other changes.

Further information on this subject may be obtained in Research Report 52 of Project '80 "Land and Water Resources" by Raleigh Barlowe, M.S.U., 1966

LAND USE IN A CHANGING WORLD

BY ARTHUR MAUCH

In our rapidly growing, interdependent society, no community, nor country, nor state, nor even a nation stands alone. All are a part of a world community. The actions of one have pronounced effect on the others. To look at Michigan's land-use changes alone would be a near-sighted and incomplete effort. Michigan's land-use situation must be viewed in a world perspective.

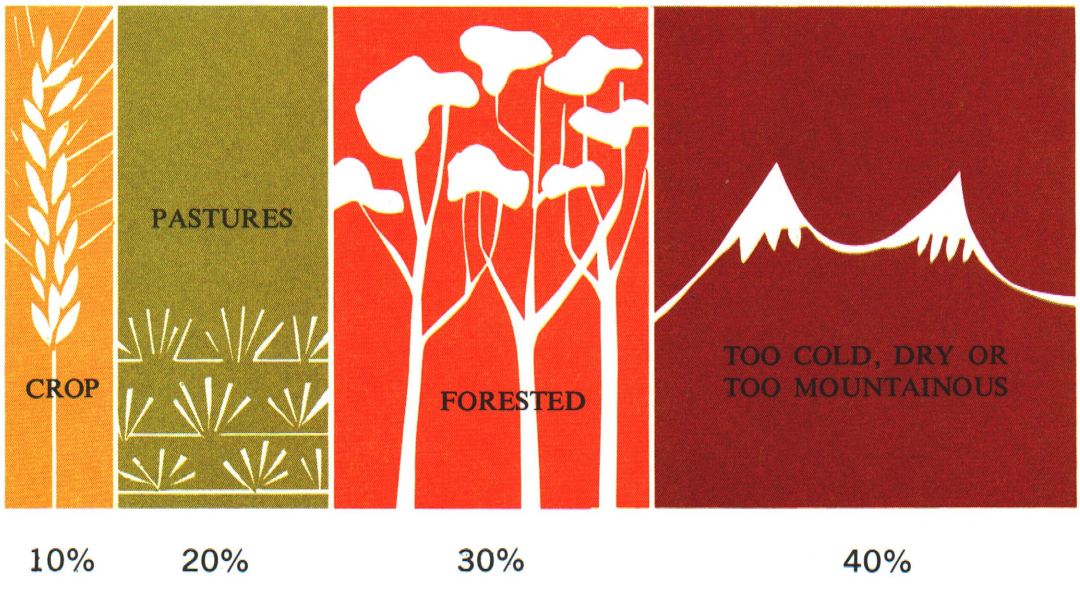
In order to understand Michigan's changing land use, it is necessary to examine the world population and the land and food picture. The following pages give a brief examination of some of the land-use changes taking place in the world today.

The World's Population

In discussing some of the problems and issues of the world's population and the land and food supply, let us first look at the world's rapidly growing population.

Today, there are about 3.5 billion people living in the world. It took over 6,000 years of recorded history for population numbers to reach the 3-billion mark. But it will take only another 30 years to add another 3 billion people to the world's population. This tremendous population growth is placing an intense pressure on the world's land resources. We may actually again be returning

Figure 1 LAND USE AREAS IN THE WORLD



to the point where land, as a limited productive resource, will play a strategic role in determining human progress. Let us now examine this limited productive resource of agricultural land.

The World's Land Resources

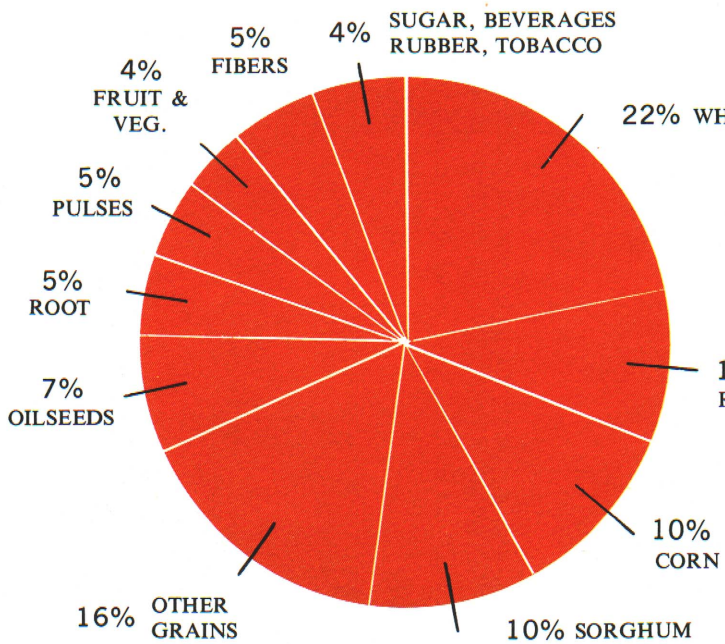
Man's food comes from two main sources — the land and the sea. The earth's land area is about 33 billion acres. But much of this land cannot produce food. About 40 percent of it is too cold, too dry, too mountainous, or too infertile to grow cultivated crops (Figure 1). Crop production on the remaining 60 percent of the earth's land is often restricted by temperature, rainfall distribution, topography and soil conditions.

Present uses indicate that about 30 percent of the total land area is in forest. This leaves about 30 percent for agricultural uses of which two-thirds (or 20 percent of the total land area) is being used for grazing purposes. The remainder — 3 billion acres or nearly 10 percent of the total land area of the world — presently is being used for crops.

The harvested acreage of cropland in any given year usually is about 2.3 billion acres. The difference is in fallow land, crop failure and omission of minor crops. Most of the world's cropland is used to produce grain. Over 1.6 billion acres or 71 percent of the total is used for grain production (Figure 2). Wheat alone accounts for 22 percent and rice for another 13 percent. Even so, rice supplies a greater share of man's food energy since the calories per acre for rice are nearly double that of wheat. Corn, sorghum, barley, oats, rye and other cereal grains are planted on 35 percent of the cropped area. The area of grain-producing land per person in the world has declined substantially over the past 25 years.

Nonfood crops such as cotton, tobacco, jute and rubber are planted on about 7 percent of the cropland. This leaves 22 percent of the harvested cropland for the production of oilseed, roots and

Figure 2 ANALYSIS OF WORLD CROPLAND USE
(2.3 Billion Acres Harvested)



INCREASING THE FOOD SUPPLY

To feed the world's people there appear to be six alternatives. These are to: (1) increase the amount of land cultivated, (2) increase yields per acre, (3) shift from animals to crops, (4) rely upon synthetic foods, (5) increase the food taken from the sea, and (6) use hydroponic methods of production.

tubers, legumes, sugar, beverage crops, fruits and vegetables.

If all of the productive soil areas were connected into a single land mass, it would make up a mythical continent of about 5½ million square miles, (about 1½ times the size of the United States). This is less than 3 percent of the earth's total surface. The density of population on this mythical continent would be about 400 people per square mile — about 8 times that of the United States. It would provide just a little over one crop acre per person.

One of the major problems arises from the fact that the population and the food supplies are not in the same place (Figure 3). The really big problem is in the Far East where over half of the people live and where they have little more than a fourth of the food supply. On the other hand we in North America have only 6.7 percent of the people and produce about 22 percent of the food.

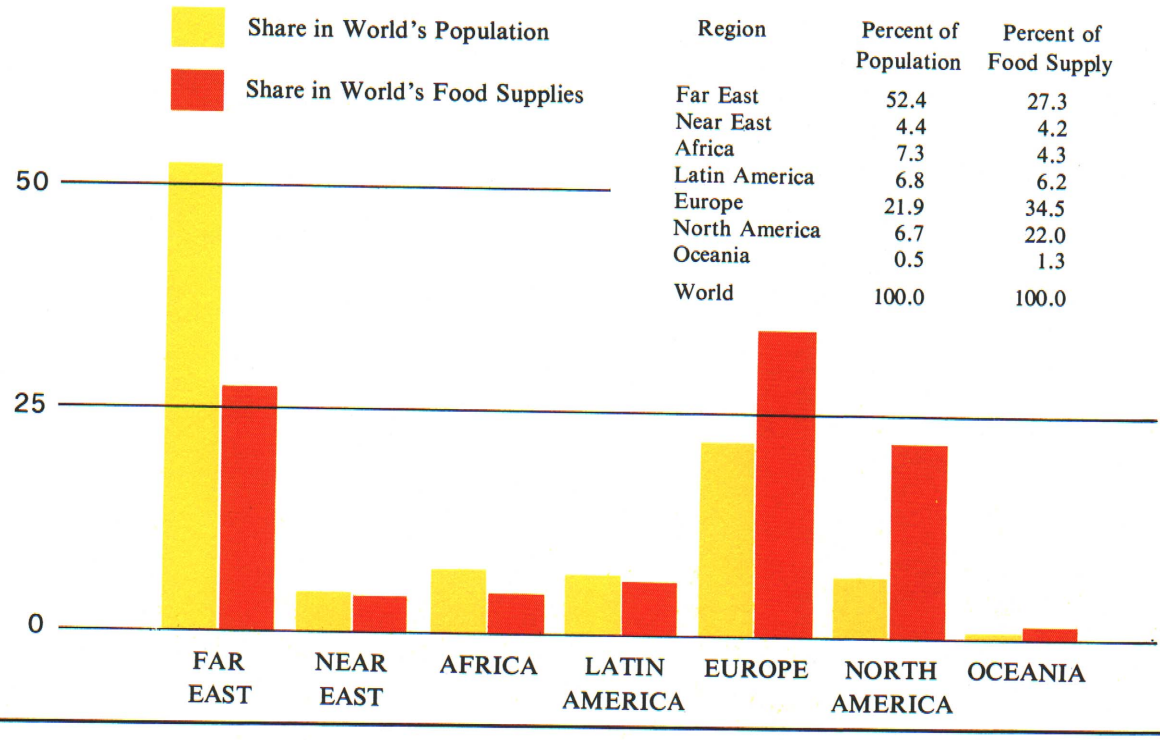
The developed areas of the world have been dependent largely on yield increases for additional output in the last 25 years. All of the less developed areas — Asia, Africa, and South America — have been dependent more on expanded acreage. However, during very recent years parts of Asia have become dependent more on rising yields.

Relationships of population and land within a country go through three stages as population increases. In the first stage, agricultural land is plentiful and farmers expand acreage through individual effort. Government assistance is important in the second stage as land is brought into cultivation by clearing, irrigation, drainage, controlling malaria, etc. In the third stage, cultivated land declines while yields per acre increase rapidly. In this stage many countries become dependent increasingly upon imported food.

Possible Solutions to World Food Problems

There are only two ways to solve the hunger problem of the world. One is to reduce the num-

Figure 3 WORLD DISTRIBUTION OF POPULATION AND FOOD SUPPLIES



Region	Percent of Population	Percent of Food Supply
Far East	52.4	27.3
Near East	4.4	4.2
Africa	7.3	4.3
Latin America	6.8	6.2
Europe	21.9	34.5
North America	6.7	22.0
Oceania	0.5	1.3
World	100.0	100.0

ber of people and the other is to increase the food supply. We will not concern ourselves, here, with the first alternative.

There are several ways to increase world food output. One is to increase the amount of productive land. Another is to increase yields. Still another is to process greater quantities of our crops directly for human food rather than through livestock, or to process chemically mineral salts or even waste products to feed the exploding world population.

Wide areas could be cropped, and much land which has been exhausted could be restored to a state of productivity. In the long run, the opportunities are substantial. Estimates indicate that between 5 and 6 billion acres, or double the present cropland area in the world, could produce crops for human consumption. Much of this potentially available land is swampy and would require drainage; or is forested and would require clearing; or is too dry and would require irrigation; or is infested with mosquitoes or otherwise is unattractive for human settlement.

Most of the cultivated land between the current 3 billion acres and the physical potential of 5 to 6 billion acres has such serious defects that it is too costly to consider at present. However, if the effective buying power (need plus purchasing power) increases, thereby resulting in rising food prices, some of this land may be developed. Some land may be added to the cultivated area through irrigation as capital becomes more plentiful and as more efficient means of converting sea water to fresh water become available. Bringing new land into production carries not only substantial costs, but also high risks. The Russian "new land" project is an example.

The world's grain area has been expanding at less than one percent per year in recent decades. World population has been increasing about two percent per year. Thus, the grain cropland area per capita is diminishing. If future expansion follows the trend, something less than 50 percent of the world's future food can come from new cropland. This is because the better soil is already in use today and the newer lands would be less productive.

With our present combination of resources and rate of technological improvement we can expect to achieve the largest increase in world food production by increasing yields per acre. Additional labor or capital inputs are not too effective unless combined with improved technology. And the less developed countries tend to spend little on research. They look to developed countries for new technology. This works fairly well in industry, but the direct transfer of agricultural technology presents many problems.

Since most of the less developed areas are in the tropics, the crops and livestock are different from those of the temperate zone and technology does not transfer readily. The man-land ratio in developing countries would benefit most by increasing output per acre rather than output per man-hour of labor. Land is the scarce item, while labor is plentiful. Through technology in less developed areas there must be developed techniques that will substitute both labor and capital for land. Better management is a requisite. This is the way it has been done by our Michigan farmers. This is the way it must be done the world over.

Summary

Land use changes are taking place almost everywhere. In our interdependent society these changes affect people and land both nearby and far away.

In Michigan, farms and farm lands are decreasing while urban areas and population are increasing. There is a shifting of population from farms to central cities to suburbs and rural nonfarm areas. The forest and recreation industries are also growing rapidly.

In the world, population is growing at a much faster rate than croplands. Food is not being produced rapidly enough to keep pace with this growing population. Food production and population often are not in the same areas.

The world could increase food production by bringing more cropland into production. But the best lands already are in food production, and to bring the poorer lands into production would be costly.

Another solution to producing more food would be to increase the yields from present cropland. This will be extremely difficult in less developed nations.

The whole land-food-people question must continue to receive major attention.

FOCUS ON LAND USE IN MICHIGAN

BY WILLIAM J. KIMBALL AND GORDON BACHMAN

When white man first came to Michigan, about 95 percent of the land was forested. Much of this was swamp, marsh, bog or wet timber land. Wildlife was plentiful; streams and lakes ran clear; and rich iron and copper deposits lay undisturbed in the upper peninsula.

But in the relatively short time since white man settled in Michigan, the state's land surface has undergone continual change. Changes in the way man has used Michigan's land surface have been strikingly dramatic.

Early explorers and trappers did little to alter the state's physical landscape. But they did establish several settlements and forts along the lakeshores surrounding Michigan in the last half of the seventeenth century. These settlement sites were usually selected because of their strategic defense locations.

In southern Michigan, great changes in the landscape followed the opening of the Michigan Territory for settlement in 1818. Farmers seeking new homes and opportunities came to southern Michigan in increasing numbers to claim and clear the land for farming. Several roads were built extending north and westward from Detroit to encourage further settlement in the more interior regions of the state.

In the central and northern parts of the state it was the vast forest and mineral resources that provided the incentive for expansion and settlement.

Between 1840 and 1910 much of the forest that covered nearly all the land in the upper peninsula and northern lower peninsula was cut and transported to the growing eastern and midwestern markets. The extension of rail lines into new areas, technological improvements in sawmill equipment and year-round cutting hastened the death of the virgin forest. By 1910 most of the saleable timber had been cut, and the Michigan timber boom was over.

It was also during this time that large companies were formed to mine the rich copper and iron deposits in the upper peninsula. Later, increased production costs and competition forced the companies to replace men with automated mining equipment. But despite the reduction in the number of people employed in mining operations, the amount of copper and iron mined has remained nearly the same.

Since World War II, attention has shifted from expansion and exploitation of natural resources to a realization of the increasing need and demand for more space to live, work and play. This demand has been brought about by rapidly expanding population, technology, income and leisure time.

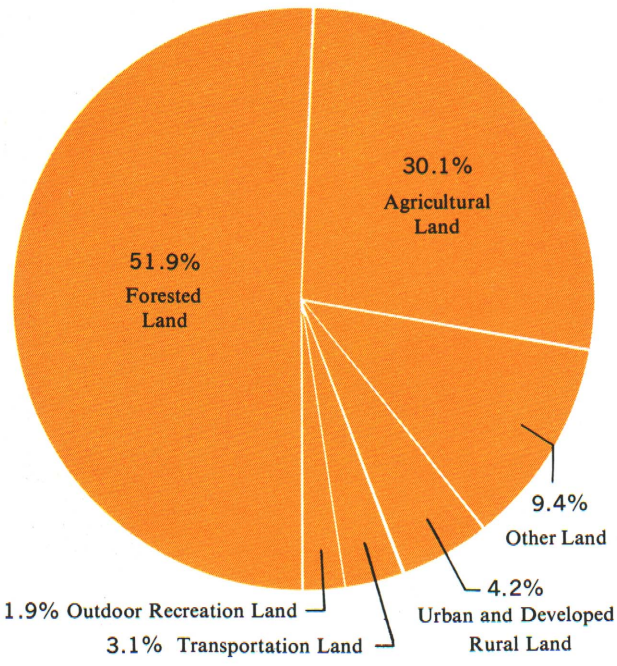
Michigan's population is becoming increasingly concentrated in and around a few large cities and decreasing in most rural areas and smaller communities. Competition is becoming very intense between various interests for the use of land near population centers. Much of this new growth is taking place on land formerly used for agriculture.

Michigan's Current Overall Land Use Picture

White man's first use of Michigan's land was primarily for trapping. As more people settled in Michigan, lumbering, mining and farming developed into important uses of the land. Accompanying Michigan's increasing population has been the growth of land uses such as recreation, transportation and urban areas.

Figure 1 below provides a picture of Michigan's present land-use situation. It shows the percentages of Michigan's present land areas that are in the various land use categories.

The "other" category is a residual category. It represents land that cannot be fitted into the major land use classifications used in this report. This "other" category includes such uses of land



as: land underlying streams, swamps and marshes, wasteland, private roads and lanes, ditches and mining land.

The next few pages will examine each of these land-use categories in greater detail. A listing of sources of data in this chapter is provided at the end of the chapter.

Urban and Developed Rural Land

Urban and developed rural lands include land areas in both urban and rural settings which have been developed for residential, commercial, manufacturing or processing purposes. This classification includes all residences (both farm and nonfarm), all wholesale and retail businesses (except agricultural and timber enterprises), port facilities, and all areas or establishments devoted to manufacturing and/or processing of goods.

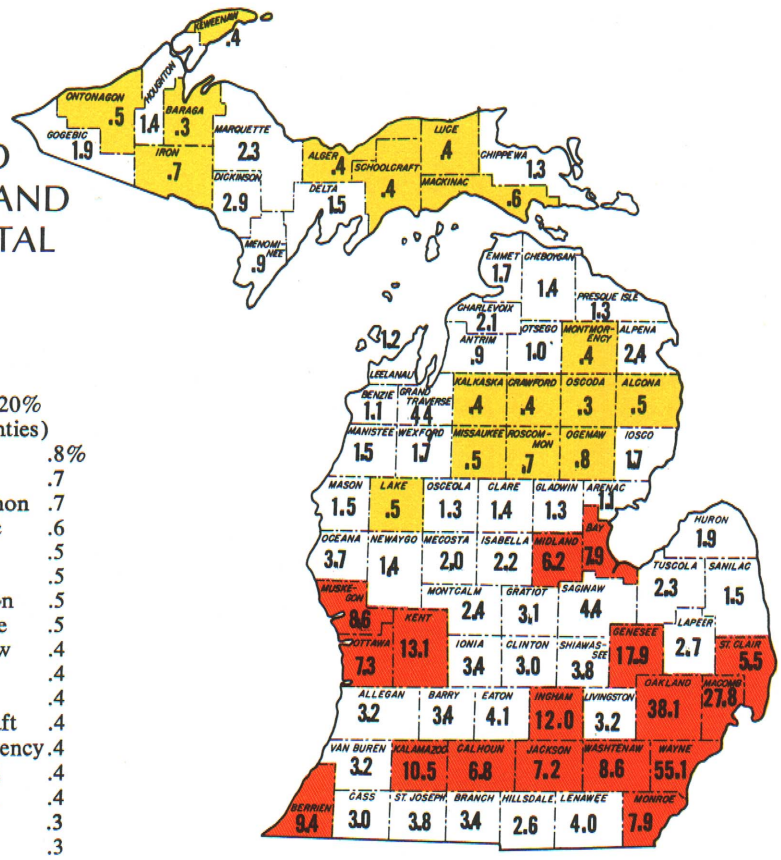
Although urban and developed rural land occupies only 4.2 percent of the state's total land area, the functions and activities that occur on it make it one of the most influential of all land uses.

About 1,538,570 acres are classified as urban and developed rural land. Nearly 80 percent of this is located in communities having a population of 500 or more and their adjoining unincorporated urbanized areas. The remaining 20 percent is developed land in small communities and rural areas.

Counties with a high percentage of land areas in urban and developed rural lands are concentrated in the southern half of the lower peninsula (Figure 2). As might be expected, the low-percentage counties are in the upper peninsula and the northern half of the lower peninsula. The Detroit area alone accounts for nearly 35 percent of all urban and developed rural land in the state.

Increasing urbanization has greatly altered the urban land distribution in Michigan. In 1900, only 39 percent of Michigan's 2.4 million residents lived in urban areas, and the geographic center of popu-

Figure 2 URBAN AND DEVELOPED RURAL LAND AS A PERCENT OF TOTAL COUNTY LAND, 1967



Top 20% (17 Counties)		Bottom 20% (17 Counties)	
1. Wayne	55.1%	67. Ogemaw	.8%
2. Oakland	38.1	68. Iron	.7
3. Macomb	27.8	Roscommon	.7
4. Genessee	17.9	70. Mackinac	.6
5. Kent	13.1	71. Lake	.5
6. Ingham	12.0	Alcona	.5
7. Kalamazoo	10.5	Ontonagon	.5
8. Berrien	9.4	Missaukee	.5
9. Washtenaw	8.6	75. Keweenaw	.4
Muskegon	8.6	Alger	.4
11. Monroe	7.9	Luce	.4
Bay	7.9	Schoolcraft	.4
13. Ottawa	7.3	Montmorency	.4
14. Jackson	7.2	Crawford	.4
15. Calhoun	6.8	Kalkaska	.4
16. Midland	6.2	82. Oscoda	.3
17. St. Clair	5.5	Baraga	.3

lation was in northern Gratiot County. In 1966, over 90 percent of Michigan's 8.1 million residents lived in an urban or suburban area, and the geographic center of population was in southwestern Oakland County.

Declining or near static population levels in most upper peninsula and northern lower peninsula counties indicate that relatively little land is being shifted into new homes, businesses or industries. But land use shifts are taking place in already incorporated urban areas.

However, since 1940 in the southern lower peninsula the amount of urban land area added to communities with over 15,000 population has increased by over 1 million acres — an average of over 50,000 additional acres per year.

Transportation Land

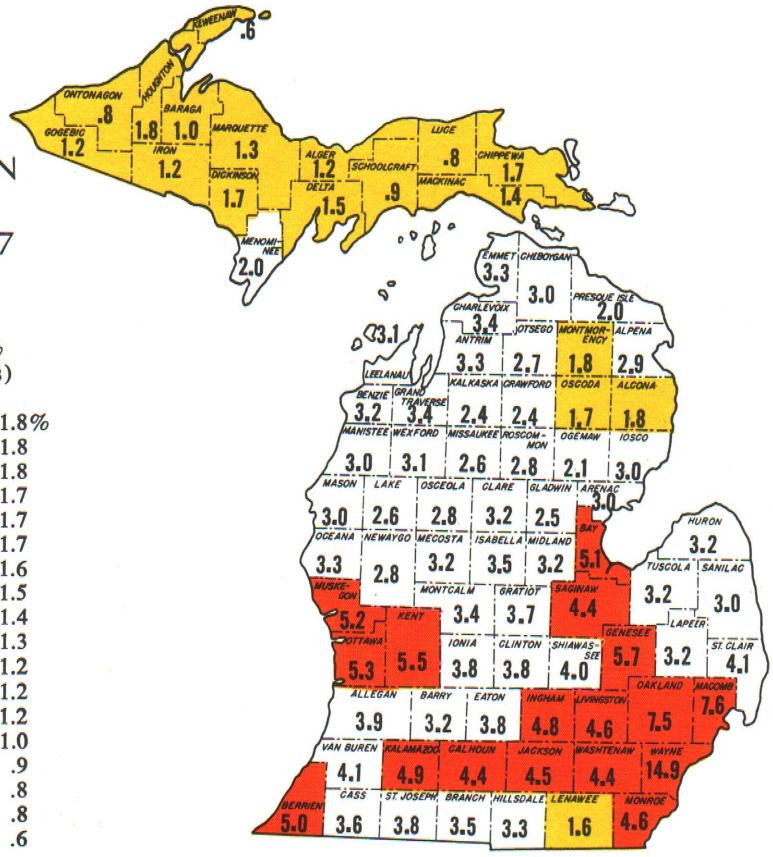
Transportation land includes land devoted to public highways, streets and roads, railroads and airports. Transportation land does not include land area devoted to pipelines and power transmission lines, for these are usually constructed under easements which still permit owners to use the land.

Although transportation uses occupy only a small amount of surface area, they significantly influence land use. The value and use of much land is largely determined by the availability and type of transportation facilities near it.

Transportation ways and facilities presently occupy 1,109,890 acres, or about 3.1 percent of Michigan's land area. Counties with the highest percentage of their land used for transportation are concentrated in the southern half of the lower peninsula — particularly in the southeast part of the state (Figure 3). The low percentage counties are concentrated in the upper peninsula.

Motor vehicle facilities account for about 85 percent of all land devoted to transportation uses. There are currently about 13,900 miles of publicly owned streets and highways in Michigan, occupy-

Figure 3 TRANSPORTATION LAND AS A PERCENT OF TOTAL COUNTY LAND, 1967



Top 20% (17 Counties)		Bottom 20% (17 Counties)	
1. Wayne	14.9%	67. Montmorency	1.8%
2. Macomb	7.6	Houghton	1.8
3. Oakland	7.5	Alcona	1.8
4. Genesee	5.7	70. Oscoda	1.7
5. Kent	5.5	Chippewa	1.7
6. Ottawa	5.3	Dickinson	1.7
7. Muskegon	5.2	73. Lenawee	1.6
8. Bay	5.1	74. Delta	1.5
9. Berrien	5.0	75. Mackinac	1.4
10. Kalamazoo	4.9	76. Marquette	1.3
11. Ingham	4.8	77. Iron	1.2
12. Livingston	4.6	Gogebic	1.2
Monroe	4.6	Alger	1.2
14. Jackson	4.5	80. Baraga	1.0
15. Saginaw	4.4	81. Schoolcraft	.9
Calhoun	4.4	82. Ontonagon	.8
Washtenaw	4.4	Luce	.8
		84. Keweenaw	.6

ing approximately 978,000 acres. Since 1951, 7,154 miles of highways have been built — an average of 77 miles a year. Over the past 10 years, nearly 30 percent of all miles of highways built by the state have been high-speed freeways.

Railroads are second largest user of transportation land area. In 1965 there were 6,613 miles of mainline railroad trackage in Michigan, occupying approximately 77,000 acres of land. Unlike highways, railroad mileage has been declining in Michigan since about 1910. Much of this decrease is due to abandoning short feeder lines.

Airports are the third largest user of transportation land. In 1967, airport facilities covered 53,500 acres. With the exception of Keweenaw County, every county in the state contains at least one licensed airport or landing field.

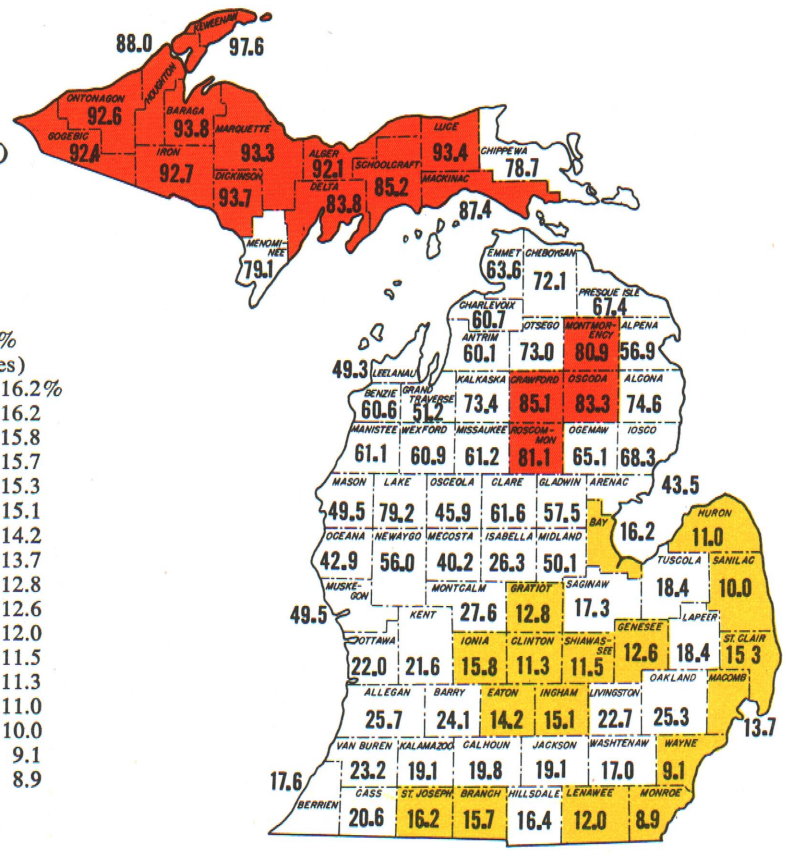
Forested Land

Forest land includes lands that are at least 10 percent stocked (occupied by standing trees) and capable of producing timber or other wood products. Forested land also includes reforested areas and ungrazed woodlands.

Prior to settlement by white man, 35.5 million acres (over 95 percent) of Michigan's land surface were forested. But the clearing of land for farms, exploitive logging practices during the Michigan timber boom, and forest fires have greatly altered this original forested land. By 1935, only half the original forested area and less than 10 percent of the original saw timber remained.

Since the end of the Michigan timber era (about 1910), the amount of forested land in Michigan has continually increased. Today 18,845,400 acres of Michigan's land surface may be considered forested land. This represents 51.9 percent of Michigan's land surface. The majority of this new growth has occurred in the less agriculturally suited areas in northern Michigan. The forest cover in most upper peninsula counties is now approaching the pre-settlement level as a result of natural and artificial regeneration.

Figure 4 FORESTED LAND AS A PERCENT OF TOTAL COUNTY LAND, 1967



Top 20% (17 Counties)		Bottom 20% (17 Counties)	
1. Keweenaw	97.6%	67. St. Joseph	16.2%
2. Baraga	93.8	Bay	16.2
3. Dickinson	93.7	69. Ionia	15.8
4. Luce	93.4	70. Branch	15.7
5. Marquette	93.3	71. St. Clair	15.3
6. Iron	92.7	72. Ingham	15.1
7. Ontonagon	92.6	73. Eaton	14.2
8. Gogebic	92.4	74. Macomb	13.7
9. Alger	92.1	75. Gratiot	12.8
10. Houghton	88.0	76. Genesee	12.6
11. Mackinac	87.4	77. Lenawee	12.0
12. Schoolcraft	85.2	78. Shiawassee	11.5
13. Crawford	85.1	79. Clinton	11.3
14. Delta	83.8	80. Huron	11.0
15. Oscoda	83.3	Sanilac	10.0
16. Roscommon	81.1	82. Wayne	9.1
17. Montmorency	80.9	83. Monroe	8.9

Michigan's forested lands are highly concentrated in the upper peninsula where 89 percent of the land is forested (Figure 4). Counties with the lowest percentages of their land devoted to forestry uses are concentrated in the southeastern and lower central part of the state. The low concentration of forested land in this area reflects the high proportion of these lands devoted to agriculture, transportation and urban uses.

Agricultural Land

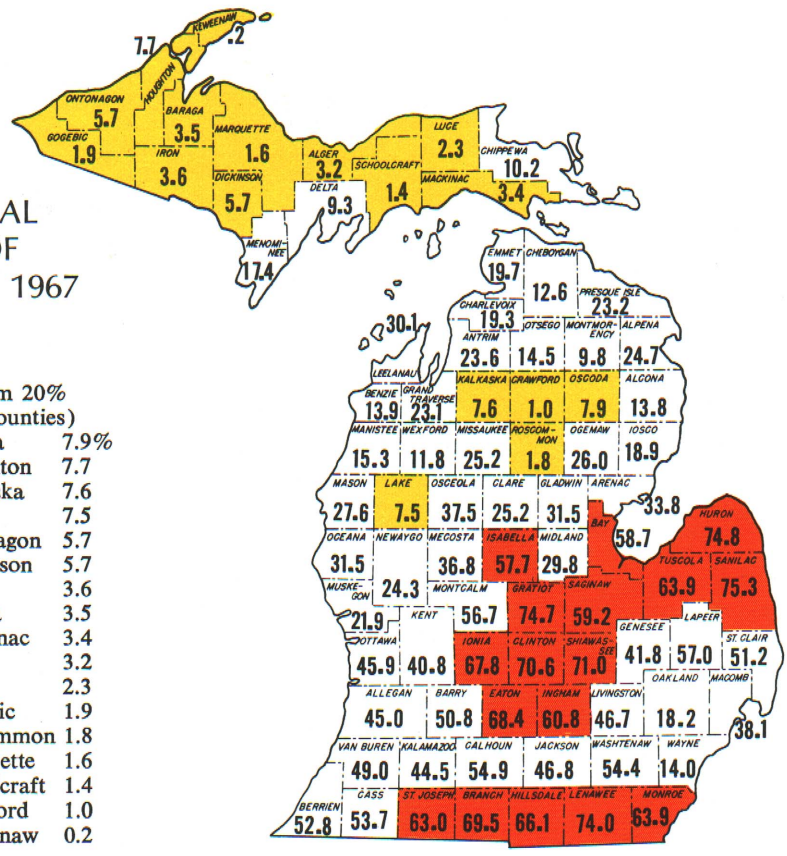
Agricultural land includes land used for raising livestock and crops (except timber land) and all cropland including that land listed in the 1964 Census of Agriculture as idle land, crop failure and cropland in improvement grasses. Agricultural land does not include land areas for farm or rural nonfarm house lots, barn lots, lanes, private roads, ditches, land area of ponds and wasteland.

Agriculture ranks second to forested land as a user of Michigan's land resources. In 1964, 10,939,-628 million acres, about 30.1 percent of all land in the state, were used for raising crops and livestock.

Historically, the amount of land used for agriculture has been declining. With the exception of a brief resurgence during the Depression and World War II, the relative position of agriculture as a user of land has fallen steadily since reaching its peak in the early 1900's. Since 1940, the number of farms, total farm acreage, and acreage devoted to agricultural uses have constantly declined. At the same time the average farm size and the amount of land left idle or planted into grasses or legumes have increased.

Today 8.3 million of Michigan's nearly 11 million acres in agricultural land are located in the 38 counties below the Bay City-Muskegon line. These southern counties have an average of almost 55 percent of their land areas devoted to agricultural uses while some of these counties have over 80 percent of their land in agricultural uses (Figure 5). The exception to this predominately agricul-

Figure 5 AGRICULTURAL LAND AS A PERCENT OF TOTAL COUNTY LAND, 1967



Top 20% (17 Counties)		Bottom 20% (17 Counties)	
1. Sanilac	75.3%	67. Oscoda	7.9%
2. Huron	74.8	68. Houghton	7.7
3. Gratiot	74.7	69. Kalkaska	7.6
4. Lenawee	74.0	70. Lake	7.5
5. Shiawassee	71.0	71. Ontonagon	5.7
6. Clinton	70.6	Dickinson	5.7
7. Branch	69.5	73. Iron	3.6
8. Eaton	68.4	74. Baraga	3.5
9. Ionia	67.8	75. Mackinac	3.4
10. Hillsdale	66.1	76. Alger	3.2
11. Tuscola	63.9	77. Luce	2.3
Monroe	63.9	78. Gogebic	1.9
13. St. Joseph	63.0	79. Roscommon	1.8
14. Ingham	60.8	80. Marquette	1.6
15. Saginaw	59.2	81. Schoolcraft	1.4
16. Bay	58.7	82. Crawford	1.0
17. Isabella	57.7	83. Keweenaw	0.2

tural area is the Detroit metropolitan area, where the state's largest urban population exists.

Michigan's northern counties have considerably less of their lands in agricultural uses. The upper peninsula has only two counties with more than 10 percent of their land area in agricultural uses. Counties in the northern portion of the lower peninsula have about 20 percent of their land areas devoted to agriculture.

The distribution of agricultural land by use is also significant. The primary use of agricultural land in southern Michigan is for producing crops. Further north the predominant use is grazing.

The 1959 and 1964 Census of Agriculture show an increase in the amount of cropland in soil improvement grasses from 392,000 acres to 639,000 acres — an increase of 63 percent. In 1964, idle cropland amounted to 844,000 acres — 7.7 percent of Michigan's agricultural land.

The distribution of unused cropland is also significant. Over 30 percent of all agricultural land in the southern portion of the lower peninsula is either idle or planted in soil improvement grasses. One contribution to this high percentage in southern Michigan is land speculation, a practice normally associated with urban growth.

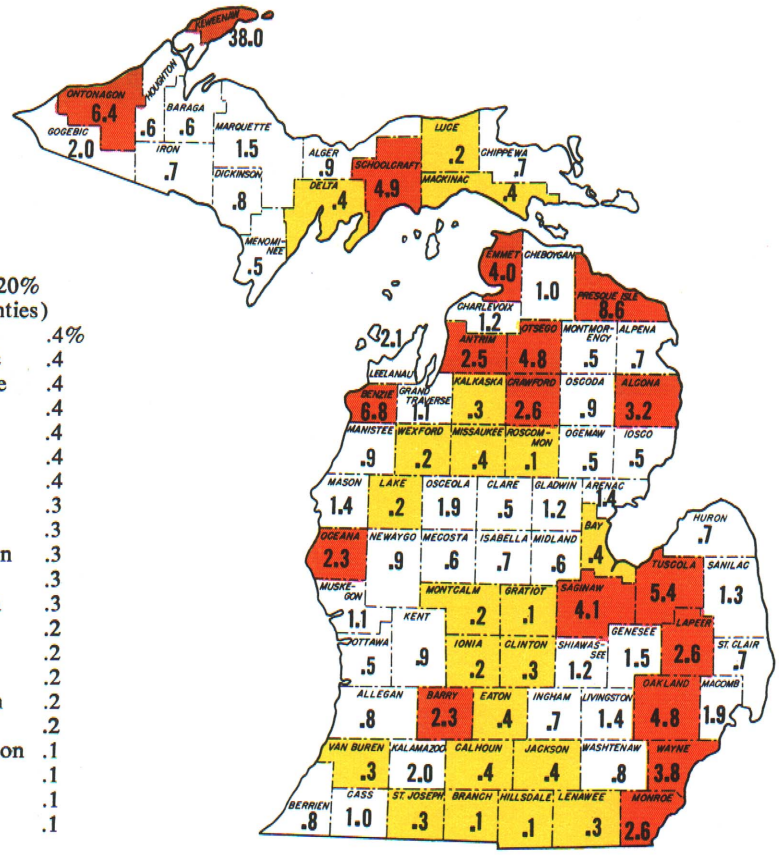
Outdoor Recreation Land

Outdoor private recreation land includes land areas of privately owned outdoor recreation enterprises devoted to cabins, cottages, home sites, camping grounds, field sports areas, fishing waters, golf courses, hunting areas, natural scenic and historical areas, riding stables, shooting preserves, vacation farms, and winter sports areas.

Outdoor public recreation land includes publicly owned land used primarily for recreation purposes that fall in the six classifications of outdoor recreation resources developed by the Outdoor Recreation Resources Review Commission.

These classifications range from high density recreation areas to primitive areas and historic sites.

Figure 6 OUTDOOR RECREATION LAND AS A PERCENT OF TOTAL COUNTY LAND, 1967



Top 20% (17 Counties)

1.	Keweenaw	38.0%
2.	Presque Isle	8.6
3.	Benzie	6.8
4.	Ontonagon	6.4
5.	Tuscola	5.4
6.	Schoolcraft	4.9
7.	Oakland	4.8
	Otsego	4.8
9.	Saginaw	4.1
10.	Emmet	4.0
11.	Wayne	3.8
12.	Alcona	3.2
13.	Crawford	2.6
	Monroe	2.6
	Lapeer	2.6
16.	Antrim	2.5
17.	Oceana	2.3
	Barry	2.3

Bottom 20% (17 Counties)

	Delta	.4%
67.	Mackinac	.4
	Missaukee	.4
	Bay	.4
	Eaton	.4
	Jackson	.4
	Calhoun	.4
73.	Kalkaska	.3
	Clinton	.3
	Van Buren	.3
	Lenawee	.3
	St. Joseph	.3
78.	Luce	.2
	Wexford	.2
	Lake	.2
	Montcalm	.2
	Ionia	.2
83.	Roscommon	.1
	Gratiot	.1
	Hillsdale	.1
	Branch	.1

For this report all government-controlled forest land classified as Natural Environment Areas (Class III) by the Outdoor Recreation Resources Review Commission has been excluded from the outdoor public recreation classification. These are areas suitable for recreation in a natural environment and are usually used for a combination of uses such as grazing, lumbering, recreation and mining.

According to available records, Michigan contains 677,488 acres of land used for outdoor recreation. This is about 1.9 percent of the state's total land surface area.

Outdoor recreation land in private ownership represents 305,661 acres — 45.1 percent of the total outdoor recreation land in the state. Of this amount, 48 percent are hunting areas or shooting preserves; 15 percent are golf courses; and 8 percent are winter sports areas.

Counties with a higher percentage of land devoted to outdoor recreation are somewhat concentrated in the southeast and northern parts of the lower peninsula (Figure 6). The concentration in the southeastern part of the state represents the state's acquisition of new recreation lands near population centers.

The major concentration of counties with a low proportion of their land devoted to outdoor recreation is in the south-central portion of the lower peninsula.

Michigan's Inland Water

Although inland water is not given major attention in this analysis of land use, it must be considered in order to account for the remainder of Michigan's surface area.

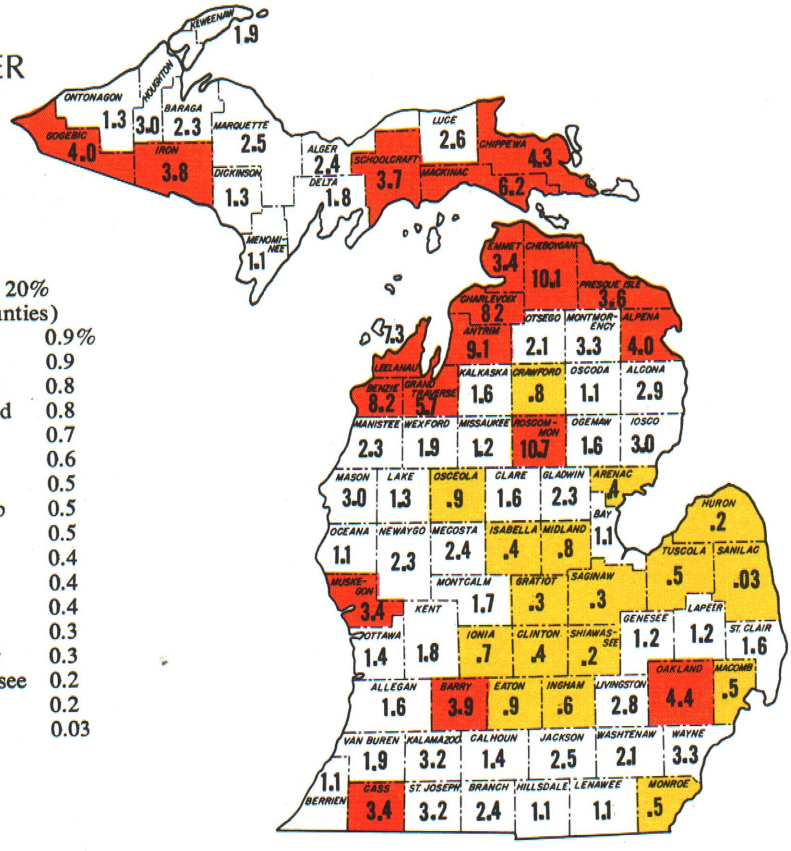
The surface area of Michigan includes three categories:

1. *land surface*

Figure 7 INLAND WATER SURFACE AREA AS A PERCENT OF TOTAL COUNTY AREA, 1967

Top 20% (17 Counties)	
1. Roscommon	10.7%
2. Cheboygan	10.1
3. Antrim	9.1
4. Benzie	8.2
Charlevoix	8.2
6. Leelanau	7.3
7. Mackinac	6.2
8. Grand Traverse	5.7
9. Oakland	4.4
10. Chippewa	4.3
11. Alpena	4.0
Gogebic	4.0
13. Barry	3.9
14. Iron	3.8
15. Schoolcraft	3.7
16. Presque Isle	3.6
17. Cass	3.4
Muskegon	3.4
Emmet	3.4

Bottom 20% (17 Counties)	
67. Osceola	0.9%
Eaton	0.9
69. Midland	0.8
Crawford	0.8
71. Ionia	0.7
72. Ingham	0.6
73. Tuscola	0.5
Macomb	0.5
Monroe	0.5
76. Clinton	0.4
Isabella	0.4
Arenac	0.4
79. Gratiot	0.3
Saginaw	0.3
81. Shiawassee	0.2
Huron	0.2
83. Sanilac	0.03



2. *inland water surface,* including land areas underlying streams, lakes and ponds
3. *bottom lands* of the Great Lakes extending out to adjoining international or state boundaries.

According to the 1940 U.S. Census of Areas, Michigan has a surface area of 61,946,240 acres. Of this amount, 24,688,000 acres (about 40 percent) lie under the Great Lakes. The remaining 37,258,240 acres of Michigan's surface area are classified as land surface and inland water.

Nearly 955,000 acres (about 2.6 percent) of the state's 37,258,240 acres of surface area underlie inland lakes and ponds. Data are not available on the amount of land underlying inland streams, swamps and marshes. The remaining 36,303,464 acres are considered as Michigan's land surface.

Figure 7 shows the distribution of inland water surface as a percent of each county's total surface area. It reveals a concentration of low percentage counties in the thumb area and central lower peninsula. Most of the high percentage counties are found in the upper peninsula and northern lower peninsula.

Inadequate records make an analysis of inland water trends difficult. But approximately 243,000 acres, slightly more than 25 percent, of Michigan's lakes and ponds have been created artificially. With the continual construction of farm ponds and artificial lakes, one might assume an upward trend in inland water area. But increased land drainage has lowered water table levels enough in some areas to dry up some of the more shallow bodies of water.

Summary

In its short history, Michigan has moved from a hunting and trapping territory to a lumbering and mining capital, to an agricultural settlement, to a vast interrelated complex of intensified forestry, recreation, agriculture, industry, transportation and sprawling urban growth.

Some of these land uses such as forestry and agriculture have been with Michigan a long time and continue to be the largest uses of land. Others, such as transportation, recreation and urban and developed rural land, are relatively newer and take up smaller areas of land. But even though these uses account for smaller areas of land, they have a pronounced effect on the use of surrounding land.

Looking into the future, the land area devoted to agriculture is expected to decline due to farm-to-city migration and technological developments resulting in greater agricultural productivity.

Land devoted to urban and developed rural land uses will increase as a result of population increases and higher levels of living. It will become chiefly concentrated in and around present urban centers. Much of this expected future urban land will come from land now in agriculture or from land currently held for future urban expansion.

Forested and outdoor recreation land is expected to increase in the future. Much of this increase will come from shifts of land out of agriculture and into forestry and recreation uses. The largest increase can be expected in lands for public parks and private recreation. Much of this increase will likely come in areas near population centers.

Moderate increases can be expected in land devoted to transportation uses.

Sources

Much of the data used throughout this chapter were taken from Rodney Despain, "An Analysis of Land Use in Michigan," (unpublished Master's thesis. Department of Resource Development, Michigan State University, 1967).

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Dunbar, Willis Fredrick, *Michigan: A History of the Wolverine State,* Grand Rapids: William B. Eerdmans Publishing Co., 1965.

Smith, Norman F., 'Michigan Forests and Forestry,' (Lansing, Michigan, Department of Conservation, May 2, 1947), Unpublished Manuscript.

Urban and Developed Rural Land

Land areas within the city limits of all incorporated cities of more than 2,500 population were taken from:

1. U.S. Bureau of Census, *City-County Data Book,* 1962.
2. U.S. Bureau of Census, *Area Measurement Reports, Michigan,* 1967.
3. Michigan Department of Commerce, *Preliminary Population Projections For Small Areas in Michigan,* Working Paper No. 9, November, 1966.

To determine the developed areas of municipalities of 500 to 2,500 population, communities with various populations and land areas were derived by sampling various U.S. Geologic Survey Maps. These area-population ratios were then applied to other municipalities whose populations were derived from:

1. U.S. Geologic Survey Maps.
2. Michigan Department of Commerce, *Preliminary Population Projections for Small Areas in Michigan,* Working Paper No. 9, November, 1966.

Developed areas of municipalities under 500 population and dwellings and other developed areas located outside municipal boundaries and suburb areas were obtained through a developed area to population ratio. Statistics for determining this ratio were taken from detailed land use studies of St. Clair, Monroe, Kalamazoo and Otsego Counties. The ratio was adjusted on a county unit basis to reflect variations in population density and household size.

Transportation Land

Railroad acreage was determined by applying acreage right-of-way (100 ft.) of rail lines to mileage measurements taken from Michigan Public Service Commission, *Official Railway Map of Michigan,* January, 1965.

Airport acreage was taken from:

1. Michigan Aeronautics Commission, *Michigan Airport Directory,* Lansing, Michigan.
2. *Licensed Airports, Landing Fields, and Limited Use Fields,* January, 1967 (unpublished)
3. Various topographic maps of the U.S. Geologic Survey used to determine areas of military airbases.
4. Files in the Michigan Aeronautics Commission containing applications to the FAA for licensing of airports in Michigan.

Highways, street and road acreage was determined by applying acreage right-of-way widths for various road classifications to mileage measurements obtained from:

1. Michigan Department of State Highways, *15th Annual Progress Report,* 1966, p. 12 and tables 2-1 and 3-1.
2. Michigan Department of State Highways, *1966 Michigan State Highway Map.*
3. *State Trunk Line Section Log Record,* April 28, 1966, (in files of Michigan Department of State Highways).
4. Other miscellaneous records in files of Michigan Department of Highways.

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United States Forest Service, North Central Forest Experiment Station, *Preliminary Forest Area Statistics — Michigan, 1965.* (unpublished report in files of Ray Pfeifer, Michigan Department of Conservation.)

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U. S. Bureau of the Census, *U. S. Census of Agriculture, 1964: Michigan* (Preliminary reports)

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U. S. Bureau of the Census, *U. S. Census of Agriculture, 1959: Michigan*

Outdoor Recreation

Outdoor Recreation Resources Review Commission, *Outdoor Recreation For America,* Washington: U.S Government Printing Office, 1962, pp. 97-117.

Michigan Department of Conservation, *Michigan Outdoor Recreation Plan, 1966,* Appendix, J., (unpublished)

National Association of Conservation Districts, *Inventory of Existing Outdoor Private Recreation Enterprises,* 1965, (in files of E. T. Van Nierop, State Soil Conservation Committee, East Lansing, Michigan)

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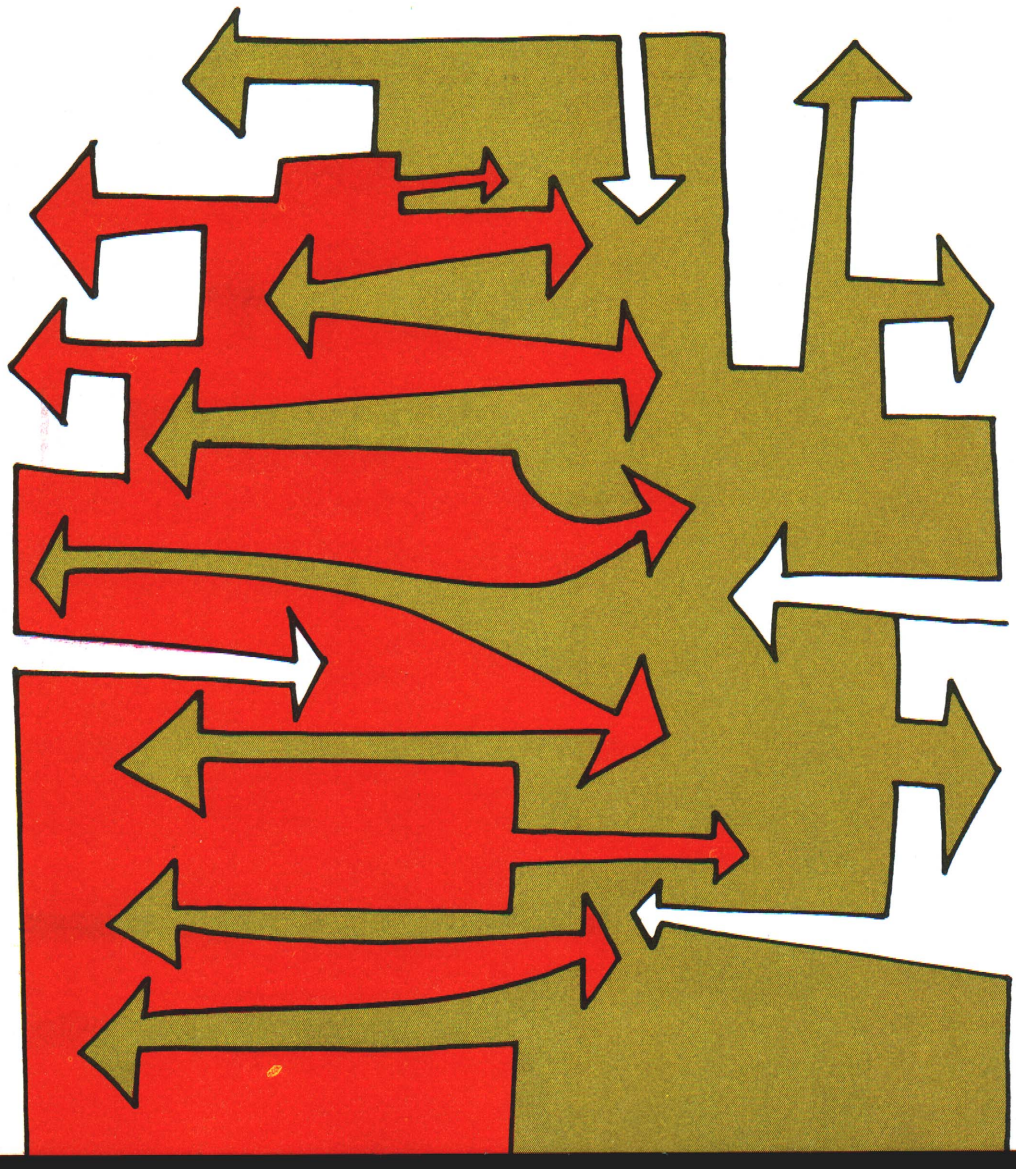
U.S. Bureau of the Census, *Sixteenth Census of the United States: 1940, Areas of the United States.*

C. R. Humphrys *et al., Michigan Lakes and Ponds,* Department of Resource Development, Michigan State University (East Lansing: By the Author, 1965).

MICHIGAN LAND-USE CHANGE CONFLICTS AND PROBLEMS

BY EUGENE F. DICE AND GEORGE P. GRAFF



Factors that Determine How Land will be Used

LEFT TO ITSELF, LAND HAS GENERALLY NO VALUE. Only when some productive or leisure use is connected with it does a given area of land have value. Beneficial uses not directly involving economic production add values. Typical of such use are recreational, aesthetic, or sentimental uses. On the other hand, idle land held for speculative purposes is considered to be productive in the sense that economic gain is expected at some point in the future.

No one factor establishes what kind of use will take place on a given land area. Rather, combinations of factors determine the use. For example, desirable topography alone may not be reason enough for locating a subdivision on a specific parcel. But if the desirable topography is near a city, and zoning permits it, the combination may result in its use as a subdivision site.

Behind all the reasons for deciding how land will be used are the wants and desires of individuals and society at a given time. At one time, for example, following harvest of Michigan's timber, many people wanted to obtain the cutover lands for farming. More recently, the low economic returns from agriculture, relative to other occupations, has turned many people away from farming. Income from shops or professions promises more in meeting new wants and desires. Many people, however, still have the desire to own a small piece of land in the country. The fulfillment of this want is evident in the widespread development of homes on large lots and subdivisions outside the urban centers.

Determinants of land use may be grouped under three major headings; *physical, economic,* and *social.*

Physical determinants of land use typically include such factors as climate, soil types, geography, terrain, and water supplies. Within certain limitations, these may be altered to suit the habitation and/or production needs of society. For example, temperatures and terrain may determine where winter recreation areas will be located; soil types may determine the kind of agriculture possible; and water supplies may determine the kinds of human settlement. As technology increases, however, the physical determinants have a decreasing influence over land use types.

Economic determinants of land use are based upon productive capacity and profit making aspects of units of land. Money inputs (costs) differ greatly and the potential profit will differ among agricultural production, residential development, industrial development, recreational enterprise, etc. Furthermore, the profit potential will differ in relation to the location. For example, an 80-acre farm within a mile of urban development and an 80-acre farm 125 miles from an urban area will not have the same net income potential even though the soil may be equally productive on both.

Social or governmental determinants of land use include legislation dealing with zoning, planning, health, education, safety, and welfare. These are responsive to the changing needs of society. Society also asserts less formal influences on the use of a given area of land. Differences in social customs and nationality, for example, have been powerful forces in deciding how land will be used and by whom.

The general social objectives aimed for through legislation are to maintain a desirable balance in growth and development while allowing for changing needs over time. Controls may prevent specific undesirable uses or they may encourage desirable uses. Such land-use controls as zoning are expressions of the majority of the people since they are subject to public approval.

The aim of bringing about some degree of balance in uses of land calls for judgements to be made in regard to just what the best use for a given unit of land really is. Officials, and other representatives of the community must make land-use decisions and act as arbiters when issues arise. Planners and other experts are called upon to help in answering the question of what the best use may be. They talk in terms of *highest and best use.*

Generally, land is being devoted to its *highest and best use* when it provides the highest possible returns, relative to costs, economic and otherwise, to owners or to the community. Returns may be measured as money, as intangible values (recreation, scenic, etc.) or as a combination of monetary and intangible values. The highest and best use may depend upon either productive capacity or location. It also may depend upon the kind of activity taking place upon it in relation to a more productive or

more socially desirable activity which could take place there. Also, the highest and best use of a unit of land is subject to change over time.

Conflicts involved in Changing Land Use

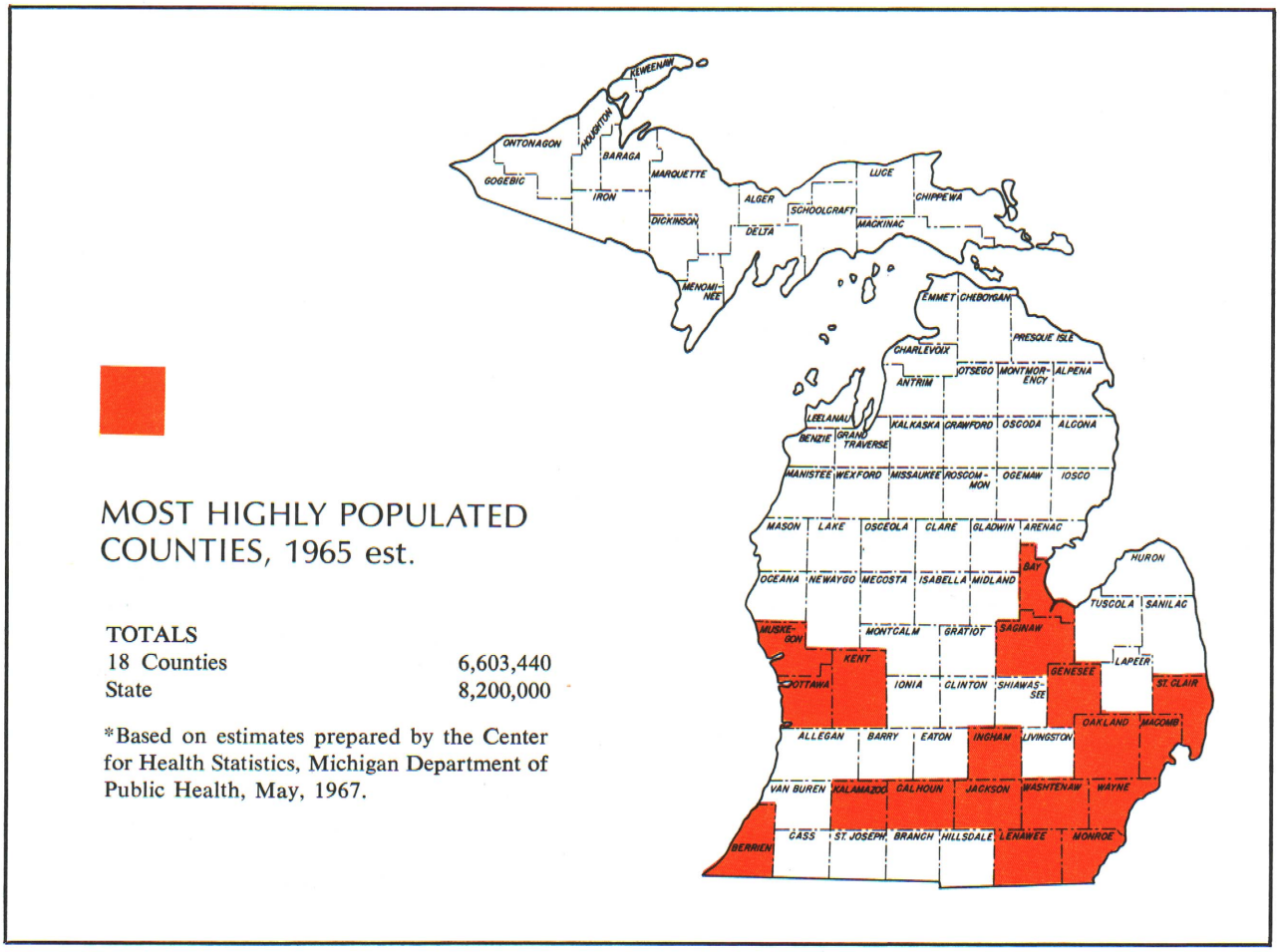
Conflicts associated with changes in land use take place among four broad categories of land use. These are agriculture, suburban, urban, and the combination of forestry-recreation. Each has major subtypes associated with it.

Agricultural use can be broken down into such activities as cropping, grazing, farmstead, and etc.; urban can be divided into such sub-types as residential, commercial, or industrial.

The reason for adding suburban use as a category is the fact that it encompasses the characteristics of land use in transition. The function (or purpose) of the suburban area is to provide land area for new homes, new schools, new shopping centers, etc. By nature, it is identified as being neither urban nor farm. Yet it has some of the characteristics of each. It is in contact with agricultural use, urban use, and forestry/recreation use types. It is the area where land-use conflicts and problems occur most frequently. In a time perspective, it is a land use that occurs *after* agriculture but *before* urban land use.

The forestry-recreation category encompasses commercial forestry and forestry-oriented recreation. Much of the recreational potential of the state is directly associated with the forested areas.

None of the four categories has a clear boundary around it. There is some overlap of uses among all types. Some agriculture occurs in urban areas, and recreational land use may occur in each of the other three broad categories. A distinction is made among the different uses at the point where one use becomes predominant over the



MOST HIGHLY POPULATED COUNTIES, 1965 est.

TOTALS	
18 Counties	6,603,440
State	8,200,000

*Based on estimates prepared by the Center for Health Statistics, Michigan Department of Public Health, May, 1967.

others. Although uses may be intermingled, there is always a scale of power among the four types where one has gained the upper hand.

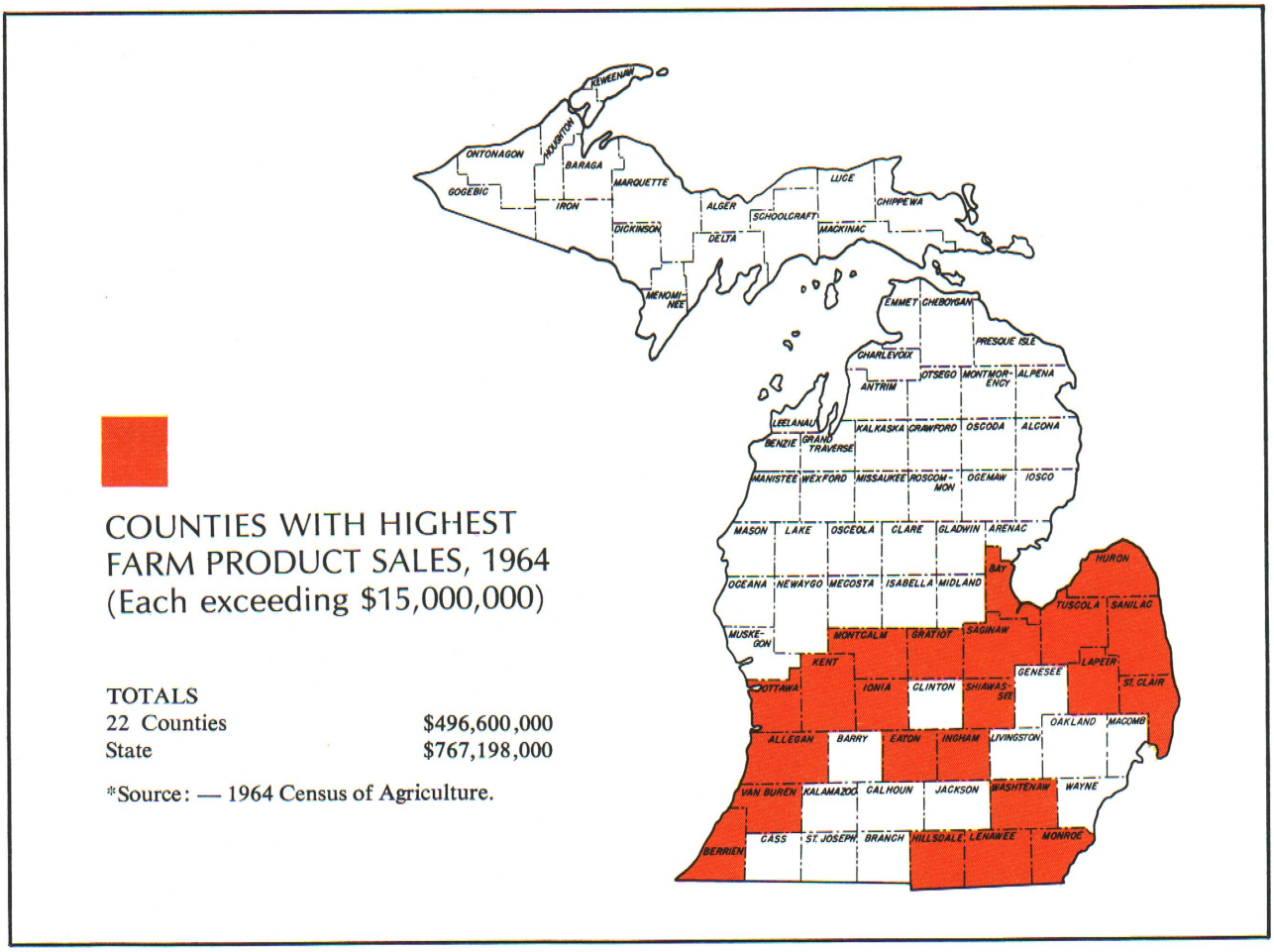
Conflicts occur when one of the four broad categories must find new land area in which to grow. New space must be gained at the expense of another category, as for example, when growth expands into agricultural zones or when an urban area feels the need to annex suburban areas. The struggle is between the existing use and the potential use, between a new use for the space occupied by an older use. All the determinants of land use — physical, economic, and social — may become active in the struggle to determine whether the old use or the new shall prevail.

The definition of conflicts here assigned to the interaction among the major categories of land use differs from the definition of conflicting land uses. Conflicting land uses occur when activities on adjacent or nearby properties are incompatible. For example, a church and a factory in the same block would represent conflicting uses.

The conflicts among the major categories of land use result from the human conflicts underlying land-use change. The pursuit of wants and necessities by people brings about change in economic activity that determines how land is used. It is, by this reasoning, in the political arena that the resolution of land-use conflicts occurs through legislated controls. In this sense, land-use change is the result, not the cause, of political, economic, and social change.

The four maps in this chapter show some of the causes for land-use conflicts in Michigan. These four big users of land — people, agriculture, manufacturing, and trade — are all concentrated in the same section of the state. The conflicts among these users are mainly for acreage within the area generally south of a Bay City to Muskegon line. They are not usually searching for land outside this area where there is less competition for available space.

This desire to utilize the same land area that is already most intensively used creates maximum



COUNTIES WITH HIGHEST FARM PRODUCT SALES, 1964
(Each exceeding $15,000,000)

TOTALS	
22 Counties	$496,600,000
State	$767,198,000

*Source: — 1964 Census of Agriculture.

pressures within the limited land area. Nonetheless, there is a tremendous acreage within this same southern Michigan region which is now devoted to less than its highest and best use. There is considerable room for economic expansion in this area. Meanwhile, the northern areas of the state with an abundance of land are not sharing in the returns for higher uses. The most productive agricultural land available in quantity in the state is located in the same area where urban and suburban uses are growing and where there is the greatest need for new day-use recreational areas.

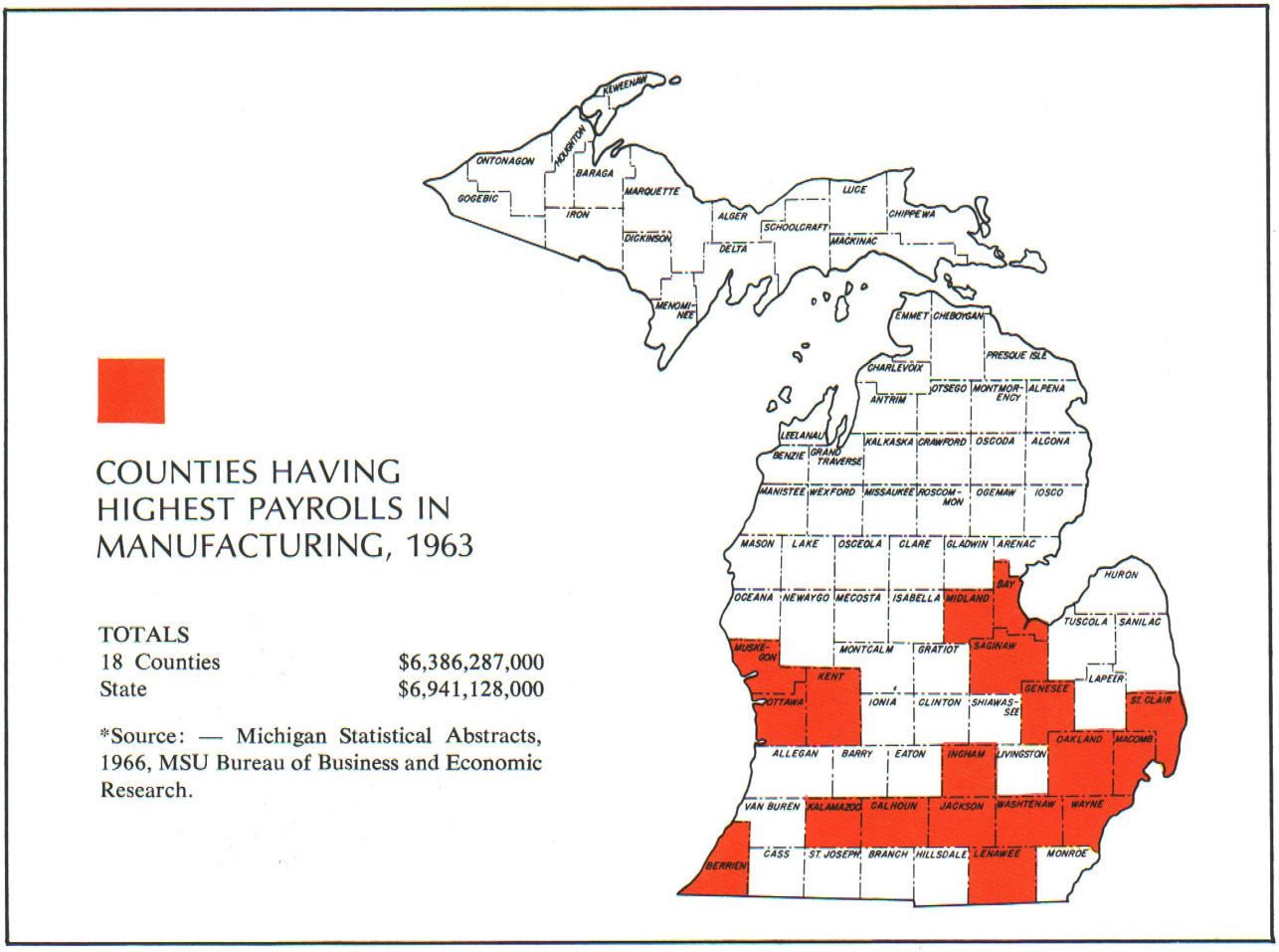
The need for efficient communication between the many communities and activities in this busy section of the state also demands intricate and extensive highway transportation systems. Highway systems absorb vast acreages of land and are therefore among the competitors for land. Routes through open lands are the most economical right of way, yet significant amounts of land for roadways must come within the most highly developed urban and suburban areas. Frequently their most direct pathway is through existing playgrounds or parks. Forests and outstate recreation areas are subjected to inroads from transportation systems also.

Problems Created by Land Use Change

The struggles for land among the four major land use categories have been described above as *conflicts*. Numerous local and individual issues and hardships result from the overall conflicts. These are the battles over what is happening on individual units of land. These resultant hardships are the *problems* created by land use change.

Problems in Agriculture

Lower economic returns per acre unit in agriculture place it at a disadvantage in relation to the



COUNTIES HAVING HIGHEST PAYROLLS IN MANUFACTURING, 1963

TOTALS	
18 Counties	$6,386,287,000
State	$6,941,128,000

*Source: — Michigan Statistical Abstracts, 1966, MSU Bureau of Business and Economic Research.

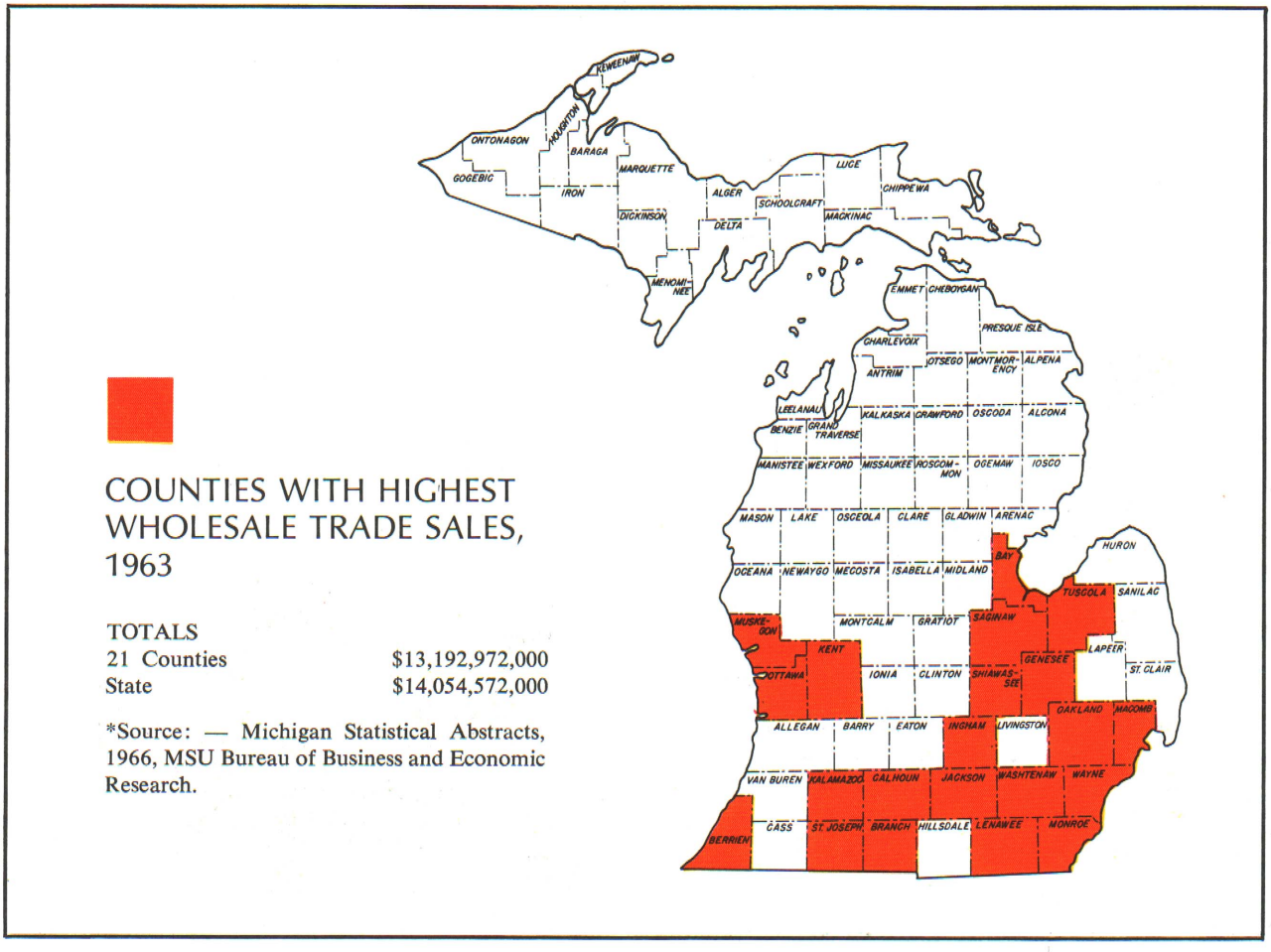
higher use purposes of urban and suburban categories. Even on the most productive farm land, cows do not produce as high income per acre as automobile production or apartment buildings. During the period of change from agricultural land use to suburban and urban uses, there are significant cost increases for those farmers who attempt to stay in business as well as other land owners. The increased costs are levied for new streets, sewers, schools, water systems, and others which result in little direct benefit to the farmers.

The impact of these problems is evident in the case of a southern Michigan farmer. Because his 40-acre farm was situated between the city and a new suburban development, his land was taxed an additional $36,000 over a ten-year period for sewers and water lines. This is an added cost of $90 per year per acre. It is doubtful whether the income per acre reaches this figure.

In another eastern Michigan county, farmers have complained that the per acre annual property tax rate exceeds the income from cash rent on their land. The problem is not just that of money to pay the increased tax. The problem includes the choice of relocating or going out of farming.

What happens to the individual farmer in such a situation? Typically, the small scale operator will make major changes in his farming practices. He may change from livestock and cropping to cash cropping. He may obtain off-the-farm employment while renting his land to other farmers. He may give up both the farming operation and the land. In any event, the problems caused by land-use change bring about a major change in his way of life and his attitudes.

There is a food supply crisis, at least in some areas of the world. It is evidently not yet urgent enough to force the issue of conserving productive farm land. Other alternatives in the production of food are apt to emerge. Yet, our generation cannot ignore the prospect of more, rather than less, hunger in the world. Nor can it ignore the need for considering the agricultural producer who is now being displaced by suburban growth.



COUNTIES WITH HIGHEST WHOLESALE TRADE SALES, 1963

TOTALS	
21 Counties	$13,192,972,000
State	$14,054,572,000

*Source: — Michigan Statistical Abstracts, 1966, MSU Bureau of Business and Economic Research.

It is necessary to understand the problem of losing productive agricultural land and the way in which it affects the individual farmer in the agricultural community. Take a few instances: Outdor rhubard production and bedding plant nurseries are being displaced now in the Grand Rapids area. Mushroom beds in Macomb County, as well as hothouse rhubard businesses, are moving out because new homes, factories, schools and shopping centers need the space they occupy. The orchards in Oakland County are giving way to subdivisions. These productive activities alone represent millions of dollars for agricultural industry and thousands for the individuals who must move. New uses that replace them result in more economic or social production, but less food. They give way to higher uses.

The Other Side of the Problem

The other side of this coin consists of problems of meeting the varied needs of the changing community. Schools, streets, sewers, water, protection and recreation all have to be obtained and maintained. The method used to provide the community facilities is the obvious one — taxation. The property tax, when drawn from farm land and a small number of residential lots, does not provide sufficient revenues. Sales tax revenues redistributed by the state offer partial fulfillment. But the real problem is that the community, in a period of change, does not attain a balance in the kinds of taxable development necessary and the needed investment in facilities. The shopping centers, commerce, industry, service and professional trades have not come in at this stage of development to add their economic resources in meeting the financial needs. Sewer lines, water lines, and all the other utilities have a basic cost per yard or per mile whether all lots have buildings upon them or not. Sparse settlement cannot effectively provide the services and utilities needed.

The problem which emerges is clearly the one of topsy-like pattern of growth. Repeatedly, the streets, sidewalks, lawns and driveways of recent subdivisions are being ripped up for the purpose of installing water and sewer lines. How much more economical it would have been to have installed these utility lines before, rather than after, everything else had been finished. Yet the installations cannot be paid for when there are not enough tax-producing uses on the land. This is where the cost of failure to plan ahead of time strikes hardest.

Planning, as a process, is designed to avoid later problems as the community grows. Yet one of the problems in most communities is the lack of public interest and support for planning and zoning.

Problems of Distraction in Mixed Land Uses

Problems at the neighborhood level also stem from the fact that agricultural and suburban land uses are intermingled at the edge of town. These are in the nature of nuisance problems. For example, the odors which develop from some agricultural production and processing operations are disturbing to subdivision residents. Many times the odor-causing operations are seasonal only. An example of this is pickle processing where strong odors are present over a period of a few weeks. Another is commercial poultry production where odors may be most disturbing only during certain periods of the year. Concentrated commercial swine production operations also give rise to odor disturbances.

Agriculture is by no means the only production or processing operation which creates odor problems. The pulp and paper industries, chemical industries, fish canneries, tanneries, sanitary fills, sewage treatment and others may also be included. Nevertheless, when the nuisance reaches major proportions, the comfort of residents and the economic activity causing the odor collide, bringing about problems in land use. Do you cause the economic activity (canning, poultry production, manufacture of chemicals, etc.) to leave the community? Do you zone to prevent further residential development? Can the economic activity be made odorless at some cost to the owner? How do you treat the ill feelings which develop within the community?

Noise is another problem which sometimes causes consideration of land-use changes. Stone crushing, cement and tarvia manufacture, processing of iron ore, rail centers, farm machinery and trucking operations are among the noise-making economic activities. Leisure time activities like power boating, motorcycle contests, auto racing of

one form or another are equally accused. Like the problem of odors, noise creates both social and economic problems. The prevailing land-use habits permit the presence of these activities within areas of residential development and growth.

Visual nuisances arising from uses of land also reach problem proportion. Although the state has had a weed control statute on the books for decades, hundreds and perhaps thousands of acres, annually grow wild with a profusion of weeds. Not only are these weed-covered lands unsightly, they may also be looked upon as health and safety hazards from the standpoint of spreading fires or as obstructions at street intersections. Their psychological impact may contribute to litter and other destruction of the neighborhood environment.

Lack of respect for private rights may emerge as a problem where different land uses exist side-by-side. Not a few farmers have worried over the fact that children from a subdivision climbed over or through their fences and into their pastures or orchards. No less were their worries over the possible vandalism or unintentional destruction of property by subdivision residents. An especially difficult problem is caused by hunters entering private property without the owner's permission.

The problems of distraction referred to above result from the fact that use on the land is changing. The older use is still present in some degree. The new use is expanding but is perhaps not yet dominant. Some of the land area is in between the old use stage and the new use stage — that is, it may be idle open space. The people associated with the different uses of land have not yet developed mutual understandings and feelings. The farm people are not accustomed to children from the subdivision overrunning their fields and woodlots or to strange hunters entering without permission. And the subdivision residents are not familiar with the noises, odors and activities of the farm. Distractions lead to more serious community problems.

Recreation Areas

In the midst of the conflict among uses of land, there is a real problem in the allocation of space for recreational purposes. The dual impact of a growing population and increased time away from work places new demands upon the already burdened facilities. The Michigan Department of Conservation* has calculated that the state needs 93,000 acres in new parks in order to take care of the long lines of waiting autos at the entrances. It projects a need of 167,000 acres to be dedicated to wildlife recreation production.

These acres represent the needs of only one department. To these must be added the other municiple and public space needs for recreation development. The problem is how to provide the space for this need when the land could otherwise be producing goods or providing other services. It also encompasses the need for protecting the recreation areas from conflicting uses.

The inland lakes of the state have offered vacation opportunities for residents and tourists for generations. But lots with narrow frontage have congested the waterfront. Increased use of water and low capacity sanitary facilities have created problems of water pollution and health hazards at these recreation sites.

Land in Obsolete Uses

Another problem emerges during periods of rapid changes in land use. This is the problem of obsolete uses and renewal or renovation. Obsolete use areas are generally referred to as blight or slum areas. It is normal that growth and change in the basic nature of a community makes some of its parts obsolete. Production processes and equipment become outdated. So too, do both public and private structures, like stores, homes, hotels, factories and dairy plants, to mention only a few. As these functional aspects of a community become obsolete, they return less and less to the economic well-being of the whole community. A point is reached beyond which the cost of maintaining the obsolete is greater than the returns it contributes to the community. Typically they become costly and pitiful slums before action is taken to improve the situation.

The process of becoming obsolete does not happen only in urban areas. Evidence of blight is to be found in the rural areas as well. Abandoned farms or agricultural processing plants are one indication. Whole rural communities have also become obsolete.

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*"*Man, Land, and Leisure" article reprinted from* Michigan Conservation *January-February 1967, Michigan Department of Conservation. Glen C. Gregg, Department of Recreation.*

Obsoleteness as a problem involves both public and private investments. Perhaps one of the greatest problems in renovating obsolete regions is reconciling the private needs and wants with the public concern for improvement. No private owner likes to be told that his property has to be renovated for the good of the community. Yet, to thrive, the community must find ways to heal its sores. What is the acceptable answer to the problem of resettlement of those, usually poverty-ridden, who cling to life in the obsolete areas?

An additional problem in renovation is deciding what land-use type shall replace the obsolete. Planners or others may prepare grand designs appealing to the eye. But investors, politicians and officials may have vastly different ideas about new uses.

Problems of Old Community and New Development

The healthy growth of economic enterprise makes continually increasing demands upon land use, both for the necessary space in which to carry on the economic enterprise (factories and parking lots, etc.) and upon the surrounding area for the service activities and employee homes. Further, the transportation linkage with other supply, consumption and management centers creates demands for space around the area of the new development.

The problem involved in this type of change rests chiefly in the existing community's inability to identify and implement the zoning, planning and growth changes quickly and adequately enough. The factory itself, employing hundreds or perhaps thousands, frequently calls for changes in zoning ordinances. Employees will add to the needs of the community's water supply system, its highway system, its sewerage and waste disposal systems, etc. The supporting services add similiar but smaller scale demands upon land resources. The growth of residential area creates demands for changes in zoning districts and other aspects of land use. Political and social problems arise out of the obvious differences in the way of life and value systems between the new residents and the "old timers" in the community.

Some land-use problems in such changing communities result from insufficient public interest in planning and zoning.

After all the prime recreation sites have been developed for other purposes, the community becomes aroused.

After a subdivision runs out of water, something is done to provide a new water system.

After a lake becomes polluted, its users put up a fight about its condition. In each case, it is no mystery why correction after the problem arises is more costly than avoiding the problem before it gets out of control.

Waste Disposal

The disposal of the wastes created by society brings about numerous problems in land use. Where do you find a place for a junk yard, a garbage dump? Not next door to *my* property. *My* land would be worthless. Yet land area for disposing of wastes is necessary. Recovery of the metal from junked appliances and vehicles is an important economic activity. These activities do create problems when they are located among other uses of land — public parks and dumps, junked car lots and good homes, public beaches and sewage treatment plants don't go well together.

Alternatives in Land Use

The preceding review has highlighted some of the conflicts and problems resulting from changes in land use. What are the alternatives as Michigan citizens look to the future? Choices will be made. They can develop from deliberate study and implementation, or they can "happen" as a result of disinterest on part of the public.

Alternatives must be based upon some consciousness of geographic, economic and social factors. In terms of economic importance in the state of Michigan, manufacturing provides the larger income, followed by tourism-recreation, then by agriculture. In addition, tremendous economic investment and returns stem from residential and trade centers. Are these the highest and best uses for the land of this state? Here are some of the alternatives:

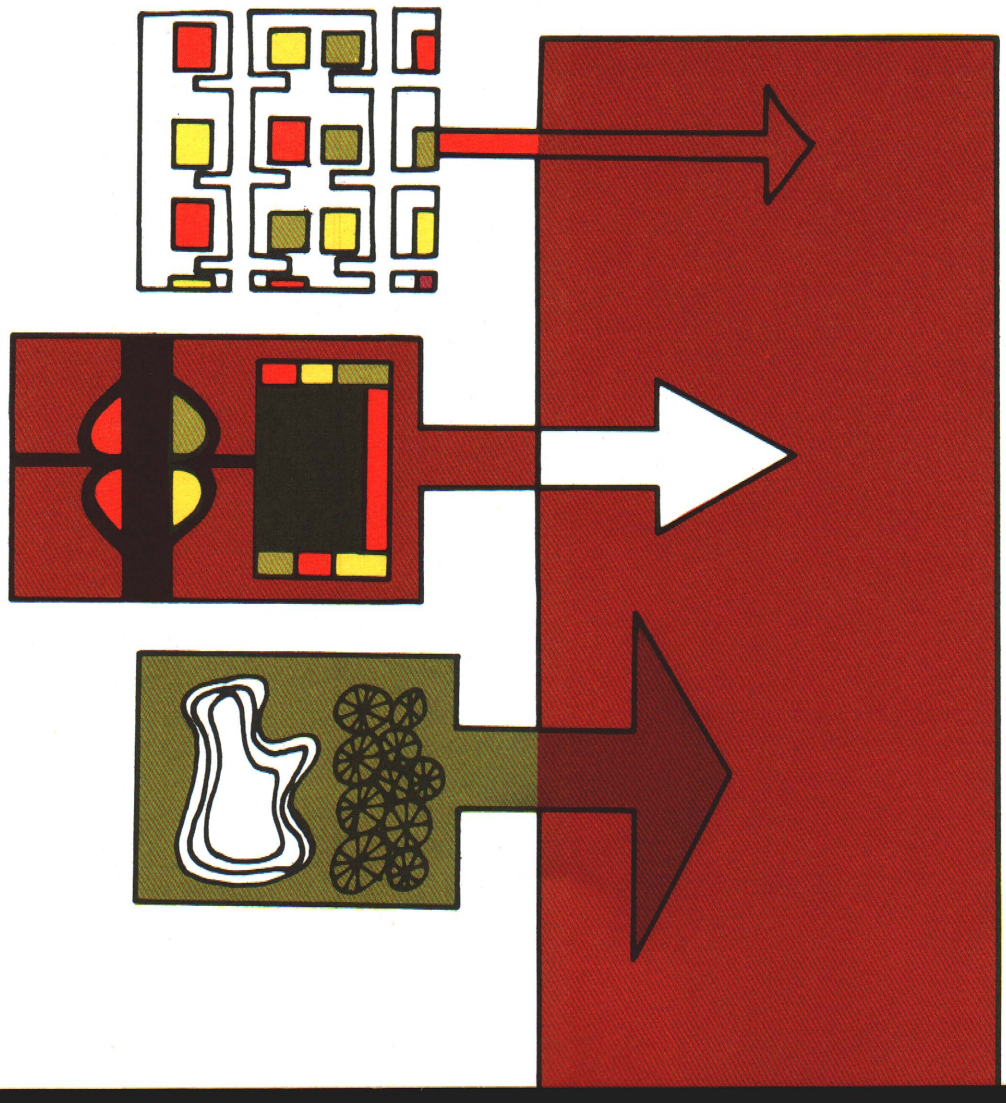
1. **Industrial.** — If manufacturing is the highest income producer in Michigan, why not zone the whole state industrial? People can find other places to raise food and enjoy a vacation. The Corn Belt states can easily produce the food needed in Michigan. And

a large part of the land area of the state is covered by scrub forest and low income uses. More manufacturing plants in those areas could improve the total income. No doubt, though, our air, water, forests, beaches and the like would be depleted.

2. **Tourism—Recreation.** — The state has an abundance of scenic wonders, sandy beaches, fishing, hunting, camping and resort areas. More can be developed. Why not zone the whole state as one vast recreation-resort playground? Michigan is part of the most highly populated region in the nation. People will have more leisure and more money in the future for longer vacations. Michigan could make itself the primary outdoor vacation land for the industrial centers stretching from Baltimore to St. Louis and Minneapolis. All Michigan people could be retrained to operate the recreation business and we could close down all the industrial plants, turn all farm land over to recreation, repair all our polluted streams, replant depleted forest areas and manage the game and fish and forests for the tourist trade. However, our individual incomes might suffer some.
3. **Agricultural Production.** — We could, of course, put more emphasis on growing farm products in Michigan. Some would say that we have a moral obligation to the hungry peoples of the world to put all productive land into food production. The state has the basic capability, because of soil and climate, to produce a great variety of food products. We could even use the water from the Great Lakes and inland lakes and streams for production of food if we would move out the industry and big cities. Industry could relocate in areas where it is impossible to produce food. A shift in this direction, however, would drastically reduce the economic well-being of the state of Michigan, with only a minor impact on the world hunger problem.
4. **Urbanize.** — With such a good climate, and with all the outdoor recreation possibilities, we could zone most of Michigan for urban and residential use. With new fast travel opportunities, people could live in Michigan and work their 40 hours a week in some place like Pittsburg, Louisville, Chicago or Kansas City. We could comfortably house more than 100,000,000 people in Michigan on this basis by using all the cleared farm land for housing developments. Space for streets, sidewalks, expressways and parking areas would have to be included. At least two counties would have to be zoned for the sole purpose of disposing of garbage and other wastes.
5. **Do Nothing.** — Easiest alternative of all would be just forget about the idea of doing anything at all about land use — let all the problems and conflicts take care of themselves. If people are unhappy with what is going on next door, let them move away. Let everyone do as he wants with his own land. Why pay any attention to the capacity of the land to produce, just let it go to whomever can make the most money on it. If the waste problem gets too bad, let the city (or township) hire somebody to clean it up. Why spend good tax money to pay for expert planners, anyway; we can take care of our own land use problems?
6. **Coordinated Planning and Use.** — The alternative of actively pushing for combinations of land use in Michigan also exists. As citizens we can do something about harmonious land uses. We can have farms and cities and factories and forestry if we are interested enough. Because of changing national and international trends, it would be folly to think that the perfect combination of uses for extended periods of time could be achieved. Plans for use of land must be flexible and changeable in order to respond to new and sometimes better economic or social opportunities. They must also be sufficiently adjustable to respond to the changing nature of political activity. This merely means that land-use planning is not a once-for-all exercise. Coordinated, zoned, or otherwise regulated uses of the land provide opportunity for a variety of uses to exist but it reduces to the minimum the likelihood of extreme problems or conflicts. It further utilizes the knowledge available on the capacity of land to produce, the social needs and the economic opportunities that relate to specific areas as a means of suggesting the highest and best use. With this information, the proper tools, good organization and the spirit of good citizens, Michigan people can make wiser choices for the best combination of the alternatives available.

PREPARATION AND IMPLEMENTATION OF LAND-USE PLANS

BY ALVIN E. HOUSE AND CHARLES KAUFMAN



WITHIN A COMMUNITY, AREA OR REGION, individuals are linked together by common problems, common resources and common opportunities which make them interdependent socially and economically. While individuals within a community are inclined to pursue goals which sometimes conflict, they nevertheless share a kind of community destiny. Some communities are finding ways to give more order and purpose to the investment of their resources through community planning.

Brief History of Public Planning

Public planning of resource use is not new. It is as old as the wandering tribes of prehistoric men. Down through history men have had to plan ahead, developing skills and methods of reasoning, in order to survive. But men have never been content simply to survive. Ancient Egypt, Greece and Rome planned public projects rivaling those of contemporary societies in scope and grandeur. The Kingdom of Solomon, as described in the Bible, provides an example of elaborate public planning several hundred years before Christ. This early planning involved leadership by tribal heads, kings, or strong autocratic systems of government.

In the United States public planning must take place within a constitutional, democratic form of government. Early examples of national planning were attempts to give order and purpose to monetary policy, foreign trade, transportation and commerce. Local communities planned streets, public buildings and a small number of services.

Washington, D. C. is an excellent example of extensive early U.S. city planning. The design of its central city is sometimes referred to as a wagon wheel. Central streets come out of the hub of the wheel in a spoke pattern. Noteworthy also is Rock Creek Park which follows a scenic creek within the city for miles. But this kind of city planning has been all too rare. The citizens of the suburbs of Washington today give little evidence of increased knowledge gained from those early city planners.

Attitudes Which Hinder Planning

Extensive public planning has been hindered by the 19th century idea that the free enterprise system, operating without government restrictions, would bring about a wholesome balance of economic and social power, economic growth and prosperity. This idea was inherited from 18th century philosophers and political economists who felt an unfettered land market would bring about a pattern of land use in accord with the goals of the society. General planning of local community development took place within the building and development restrictions of common law, (judge-made law) arising out of the doctrine of nuisances within the framework of property law.

Cherished as it is, the right of man to use his property as he wants has been an obstacle to land-use planning. Private property has been considered one of the fundamental attributes of our society and has played an important role in the growth of our economy. But fear of losing property rights through public control of land use has also hindered planning.

Attitudes toward property rights are slowly changing with pressures of increasing population and changing technology. Private property in land resources does not represent the power base and source of community esteem it once did. It is possible that this change in attitude is responsible for a growing grass roots demand for more public regulation of land use. It is possible that land-use regulation which is unthinkable to us now may be commonplace to our grandchildren.

When we look at the problem of public control of our complex environment today, other obstacles become apparent. High geographic and social mobility of people seem to lessen interest in long term community resource allocation problems and land-use problems. Local government is becoming paralyzed by fragmentation. The power and influence structure of the community seems vague and lines of authority are becoming difficult to discern. It sometimes appears that no one is really in control of development trends in a community.

Public planning raises the fear that all individual rights will be eroded and the individual will be worse off. But all human activity rises from sources of vitality both within and outside of the individual. These sources are so interdependent that they must be nurtured with great care if the individual and the community are to achieve anything close to their potential. So individual rights are of no value if there is no community serving as a base for individual development or if the community is ineffective. However, it is also true that the vitality of the community erodes when community

life becomes the central focus and individual development is neglected.

Many citizens still do not realize that the sum of individual decision making does not necessarily make a desirable land-use pattern. As pointed out in Chapter 3, there are areas of conflict among purposes, values and individual activities which make community planning a necessity to avoid disharmony and disorder. Through *reconsideration of goals, studying opportunities, and planning compromise courses of action,* most legitimate interest groups in the community can get more of what they want than they thought possible.

While the U.S. is moving into a public planning era, most public plans which deal with more than one land-use problem at a time are never carried out. Effective communication among citizens, local government boards, and planners has been missing. Elaborate plans for integrated, harmonious, and often extensive community development lie gathering dust while each community problem is attacked separately. It is almost as though citizens felt the forces generated from one solution could not reach and influence any other facet of community activity and vitality.

Land use studies and planning have often been of educational value to local officials and the few community leaders who knew of them. But planning without hope of implementation soon loses its excitement. To maintain interest in planning we must develop (1) *means of including all community interest groups in the planning process* and (2) *improved means of carrying out the plans.* Public planning of land use is the most difficult kind of planning to carry out. Most of the private and public decisions of a community are involved in one way or another.

The following sections will set forth the framework for planning and regulation of land use, as well as ways for making it more effective.

Public Control of Land Use — Planning and Implementation

The power of local governments to regulate land use is delegated by state government. The inherent power of state government to regulate, promote or limit the activities of citizens in their use of land is usually divided into five categories:

The Police Power — The exercise of this power is essential to the health, safety, morals and general welfare of the people. Traffic controls, or the "zoning" of traffic, provide a readily understood example. Zoning of land use activities will be discussed in detail later.

The Power of Eminent Domain — Under this power private property necessary for public use may be taken by government after just compensation is paid to the property owner. Land for highways, parks, public buildings and other public projects is often acquired in this manner.

The Taxing Power — This power is used not only to raise revenues which support the regular functions of government, but also works intentionally and unintentionally to regulate the activities of persons and groups. For example, a heavy tax on land improvements might discourage such improvement, while a relatively low tax on undeveloped land might encourage speculators to hold title long after all land around had been developed.

The Spending Power — This power goes hand in hand with the taxing power. Government may tax one activity to discourage it, while encouraging a favored activity by placing additional funds into its development. Government can not only bring about substantial changes in resource allocation and investment through the spending power, but may also substantially influence our basic attitudes toward various enterprises. For example, government pays part of the costs of fencing or landscaping junk yards on some federal highways. This investment can change an essential but unsightly land use activity into something more pleasant. This, combined with other public policies, will raise the esteem of salvage businesses.

A dramatic example of changing land use through the spending power is provided by the "soil bank" program. The federal government has paid farmers to keep their farm land in grass or trees, but did not acquire title to the land. Government purchase of land for public parks usually involves the passing of title, however. In California some local governments are controlling some aspects of land use through purchase of easements. Although the title of the land does not change hands, the owner of the easement can exercise any of the rights, or uses, granted in the easement. People often change their activities substantially for enough money. The spending power is thus a powerful tool, provided government can raise the necessary revenues to exercise that power.

The Power of Public Ownership — This power has already been discussed above. Government

may own land and use it for purposes permitted by law, or not prohibited by law.

These powers of state government are usually exercised in combination, but the interaction of forces generated by the exercise of these powers is given too little attention. An existing pattern of taxation, land-use regulation, and spending, may be bringing about the worst possible land-use pattern in a community, even though the exercise of each power, individually, may appear to be in the public interest.

Formal Planning Process

The planning commission is a formal organization authorized by enabling legislation and established by township, county or municipal processes. The planning commission functions as an advisory group. As land-use plans are developed by the planning commission, they become operative only when they are adopted by the legislative body in the form of ordinances.

The unique character of the planning commission among the agencies of local government requires it to work closely with other departments and boards, as well as with civic and community groups. In carrying out the planning function within this framework, the commission's objective would be to gather facts, organize them, interpret them, indicate alternate courses of action, and rank the potential courses as to relative suitability and desirability.

Planning then is nothing more than giving direction to the institutions which govern the activities of men in the light of the limitations imposed by the natural and social environment.

It would be a long and tedious process to detail the functions and procedures of a duly constituted planning commission. Perhaps six steps in the planning process will be sufficient:

1. *determination of objectives*
2. *research leading to an understanding of the problem*
3. *discovery of alternate solutions*
4. *choice of alternatives*
5. *detailed execution of a chosen alternative*
6. *continuation of study and re-evaluation of the plan.*

It should always be kept in mind that planning is a tool and process for achieving a community structure that affords good living and working conditions; provides adequate community services and utilities; and assures a sound and continuing base for the rendering of public services. Planning is for people!*

Commissions and Community

Community interest groups are part of our American society. The planning commission must not only be aware of these groups but must actively seek their advice and keep them informed on the objectives, operations and programs of the planning program. An informed and concerned public provides the greatest motive power for the achievement of the plans developed by the planning commission.

The so-called 'citizen participation process' is only one of the many tools available in every community to help solve community problems. The planning commission or any other formally organized group must be concerned about all of these and put forth its best efforts to make each one contribute to a balanced community development.

In most situations there will be several different kinds of organized community efforts underway at the same time. There must be some form of coordination to insure a harmonious relationship between these efforts.

Citizen Advisory Groups

The use of an informal citizen advisory group is an important tool available in each community for solving community problems. The group is a device which can be used to preserve good relationships and help in coordinating solutions for highly complex community problems.

It is an excellent two-way channel of communication to help in the development of ideas for official use, or in creating widespread understanding and support among large numbers of people necessary to successful community development programs.

**For a more complete discussion of the planning function, the following reading is suggested: "Michigan Local Planning Commissioner's Handbook," available from the Institute for Community Development, Continuing Education Service, Michigan State University, East Lansing. (This publication is in the process of being revised)*

More information on legal procedure of establishing Planning Commissions is contained in the following leaflets: Municipal Planning, Regional Planning, County Planning, and Township Planning. These are prepared by John Pierce, Specialist in Land Use, Department of Resource Development, Michigan State University

The group should be formed with great care. Every member should be widely respected and able to speak with authority for the group or groups he represents. This will give prestige to the advisory committee and insure its members an opportunity for effective service. The duties of this group should be restricted, however, and it should never undertake any of the responsibilities of an operating agency.

Often various civic programs are underway which have over-lapping interest, making the creation of a coordinating body advisable.

This body usually consists of at least one representative of each active organization involved. It serves as a means of keeping each organization informed of what other organizations are doing. It can help to prevent conflicts, establish areas of responsibility, and make available to each organization the existing services of others.

In most communities, problems are emerging which do not fit an established pattern. As a result, no existing organization seems to be 'just right' to deal with the problems. The need then arises to create a group to deal with these problems. Special studies, such as population, transportation, education, commerce, agriculture, and recreation must be undertaken. In most cases the studies require the formation of a group to do the job.

Such groups have usually been able to function effectively, especially if they are organized to accomplish one purpose and then are disbanded.

The relationship of this informal structure to the formal planning group becomes a very important part of the planning function. Citizens' organizations can contribute through public hearings, but to be really effective they should have closer access to the planning commission than that provided by public hearings.

Zoning

Zoning is a method of dividing the land in a county, township, or city by local laws into suitable zones or areas for specific types of development such as residential, business or industrial. Regulations are then applied in each of the districts or zones.

These regulations can deal with the use of land, the use of buildings, the height of buildings, the density of population, etc.

It must be remembered that zoning is not a substitute for planning but rather it is one of the tools used in carrying out a land use plan.

The aim of zoning is to protect land owners and the community from haphazard and careless development that may destroy land values and bring about discomfort and possible financial loss to citizens.

People feel the need for zoning because of pending changes in land use — to protect homes from industrial encroachment and agricultural land from subdivisions. Areas that are changing, increasing in population and industry, or threatened with "strip development" growing up along the highway will feel a very strong need for protection. There are all degrees of need for zoning in both rural and urban areas.

Land-use zoning is an extension of the police power that is reserved to the states under the Constitution of the United States. This power is extended to the counties, townships, and cities through enabling acts and charters granted by the State Legislature. Zoning then becomes a function of local government.

Zoning can be a reasonable legal tool for providing desired arrangement, circulation, light, air, and general comforts of life so that the most appropriate and economic utilization can be made of the land. A harmonious relationship of the structures on the land can be achieved when zoning is used in conjunction with other land-use planning arrangements.

What Zoning Can and Cannot do

It must be pointed out that zoning is not an all-powerful answer to the many problems confronting a growing community. Counteracting this general limitation is the positive force of zoning. Some of the pros and cons of zoning are outlined below:

Zoning Cannot

1. *correct past mistakes in land use which have resulted in inconsistent uses of neighboring properties;*
2. *assure that a community will perpetually retain the land uses originally assigned to it under zoning;*
3. *maintain a productive area in agriculture close to aggressively expanding urban development;*
4. *guarantee the owner of a $100,000 house that he will not have a house of much less value built on the next lot;*

5. *establish higher esthetic and development standards for a community than the general community desires;*
6. or, *guarantee the soundness of structure built in a zoned district.*
7. *succeed in a rapidly changing community if it is not based on planning;*
8. *be of great value to a community where land use has not been changing for several years and where it does not seem likely to change;*
9. *abate a public nuisance if the business which is polluting the air or water or disturbing by excessive noise is operating within a district zoned for that activity;*
10. *be an effective tool for resource management without coordination with neighboring zoning bodies;*
11. *be effective through an ordinance alone without systematic and sympathetic administration;*
12. *guarantee that its adoption will be followed by industrial or commercial development.*

Zoning Can

1. *help protect agricultural operations by controlling the leapfrog movement of residential subdivisions into farming areas, with their consequent damage to water tables, water supplies, machinery and crops.*
2. *help avert the limitations on normal farming operations which have followed residential movement into farming communities;*
3. *help keep the lid on farm taxes which have been forced up disproportionately by urban sprawl with its swiftly rising public costs;*
4. *keep farming communities from being dumping grounds for everything from garbage to businesses which are trying to avoid municipal regulations;*
5. *protect individual property owners from future harmful or undesirable uses of adjacent property;*
6. *protect the public's property from inconsistent or harmful uses, as the location of a truck terminal next to a high school;*
7. *assist community economic growth by helping to reserve adequate and desirable sites for industrial, recreational, and commercial use;*
8. *increase safety on streets and reduce congestion by requiring off-street parking areas and building setbacks;*
9. *make a safer community with easier access for police and fire vehicles through minimum space requirements;*
10. *create a healthier community through density standards which guarantee adequate light and air and discourage future slum development;*
11. *prevent excessive future private and public costs for extensive flood damage through flood plain zoning, restricting low lying lands to uses which will not be impaired by flooding;*
12. *make a community more attractive with adequate recreation space by preserving open space and natural terrain features;*
13. *protect the peace and quiet of future residential neighborhoods from the noise, traffic, and lights of commercial development;*
14. *protect future industry from harrassment by residential neighbors whose objections to its noise or odors might bring on lawsuits; and*
15. *help control and concentrate businesses which collect, process or destroy garbage, trash, and used materials.*

The Board of Appeals also has a key role in interpretation.*

Land Subdivision Control

Because of the rapid expansion in numbers of subdivisions in the urban fringe and in the rural areas, subdivision controls are playing an important part in the planning process.

Subdivision controls offer a set of ground rules of uniform procedures for processing and approval of land developments. These rules require com-

**For further reading on the subject of zoning, the following are suggested: "Rural Zoning In A Nut Shell," Extension Folder F 272, Michigan State University Cooperative Extension Service, available from County Extension Offices. "Zoning — An Aid To Community Resource Development" P.A. 814 Federal Extension Service — U.S.D.A. (Government Printing Office, Washington, D. C.) "The Why and How of Rural Zoning" Agri. Info. Bul. No. 196 Economic Research Service — U.S.D.A. (Government Printing Office, Washington, D. C.)*

pliance by the subdivider before he can begin work on a development.

Proper approval and recording is required before any lots are sold. It has been common practice to sell lots on option prior to the approval or the recording of the subdivision.

It is now required that land be suitable for building sites, with adequate drainage, proper access to lots, and orderly layout and use of land.

To avoid the hazard of flood damage, it is now required that property for residential use be outside flood plain areas. Unwary buyers have, in the past, bought lots in dry periods only to find their home flooded during rainy seasons or spring thaws.

Act 288 of the Public Acts of 1967, known as "Subdivision Control Act", replaces in total the old Plat Act. The new act should be carefully studied by government officials, service agencies and subdividers. There are several sections within the new act which allow the local government unit to raise the minimum standards of development of certain aspects of subdivision.

Private Instruments

Restrictions may also be placed on the use of land by the device known as private instruments. These can be used to specify the use of a particular piece of property. Property owners can be affected by specific provisions in their deeds which limit the scope of their ownership rights. These provisions involve deed reservations and restrictions. Some of these are reserved mineral rights, timbercutting rights, rights of way, etc. Deed restrictions are private controls over the future use of land.

Individuals can work together on a formal or an informal basis to obtain desired land-use control through deed restrictions and reservations. Working through formal associations, members of a subdivision can coordinate deed restrictions to conform property use to desired standards. Informally, public opinion and social pressures can bring about individual conformance, which can influence land-use practices as they are carried out on a local or state basis.

Public Building Restrictions

In the Michigan statutes, public building restrictions may be found in the Township Minimum Construction Requirements Act, Act No. 185, Public Acts of 1943 as amended, and County Minimum Construction Requirements Act, Act No. 62, Public Acts of 1943, as amended.

Building codes provide standards to guide construction. They promote good building standards, and may thereby contribute to safe and attractive homes and commercial establishments. The code sets minimum standards for the kind of materials and type of construction that may be used.

Organizing Local Government to Facilitate Planning and Guiding

Land-use planning is probably the most difficult type of planning local governments face, and, up until now, the least successful. Land use planning requires integration of virtually all community and private planning. Planning for location of private and public community activities as well as setting quality and quantity standards for many of these activities shapes the community environment.

Many economic communities in Michigan have expanded during the first two-thirds of this century to the extent that old governmental boundaries have been bypassed. Detroit provides the most extreme example. The Detroit metropolitan area covers most of six counties and in 1964 contained 67 cities, 39 villages, 109 townships, 165 school districts and 18 miscellaneous special-purpose districts. While there are isolated evidences of cooperation among the units of government in the area, the best interest of great numbers of people are frustrated by duplication of effort, fragmentation of tax bases, unequal distribution of leadership ability and many other inequities.

Problems involved in getting this complex, fragmented community to make decisions and carry out programs *as a community* are overwhelming. Most Michigan communities have many more opportunities for working out tolerable land-use patterns, even though they may not create really pleasant and beautiful communities.

Even rural communities are fragmented in many respects. Duplication of government services exists in both rural and metropolitan areas. A few county boards in rural areas are beginning to see the problem and work together in planning. But land-use plans which represent a view of the total developing community are rarely drawn up and even more rarely carried out.

The development of public programs across governmental boundaries may be accomplished in

two general ways, or a combination of the two ways: (1) Through cooperation and coordination of activities. This way is growing rapidly in popularity. (2) Through governmental reorganization and boundary changes. Consolidations of governmental units are rare in Michigan today, except in the case of school districts.

Cooperation and Coordination or Reorganization?

When officials of two or more local government units face the need to develop a joint program, they look favorably upon cooperation to get the job done with as little reorganization as possible. Cooperation involves little political sacrifice, but reorganization may threaten the positions of elected officials, government employees, neighborhoods and communities and various other interest groups. Reorganization raises questions about the representation of different constituencies and the impact of taxes and services. Most reorganization proposals face a largely apathetic public. Local government reorganization proposals over the nation as a whole typically attract less than 30% of the voters to the polls. Lack of an understanding of the issues is at the root of the problem.

Voluntary cooperative planning and working arrangements between local governments may become the foundation of later reorganization and consolidation of local governments. This is what proponents of reorganization hope and opponents fear. Increasingly, attractive federal grants to local governments are conditioned upon cooperative planning and execution of programs.

Michigan has broken some ground here. The Detroit Area Supervisors Inter-County Committee (SIC) is the nation's first voluntary regional council of governments. The attempt is being made now to develop an intergovernmental council in the area with a broader base with representatives from cities, villages, townships and possibly school districts. The work of the SIC has resulted in a number of intergovernmental agreements for coordinating services in the area.

Michigan regional planning laws provide a statutory base for cooperative planning. And Article VII, Section 28, of the Michigan Constitution provides a basis for local governments to administer programs together which each unit involved has the authority to administer separately. They can share the costs and transfer functions from one unit to another. Transferring functions, although cooperative in nature, is actually a kind of reorganization. These opportunities should be investigated carefully by local government boards and councils.

Intergovernmental Agreement — Under this arrangement, local units work jointly or cooperatively or contract with still another governmental unit. Intergovernmental agreements are useful in broadening the geographic and economic base for planning and administering services at lower costs.

Local governments in California make extensive use of this approach, with counties contracting to provide services to cities. Los Angeles county has entered into nearly 1,000 contracts to provide services to cities, from assessing to dog control and street maintenance.

A basic weakness is that agreements for services are practical only when the immediate local interest of each community receiving the service is not in conflict with the interest of the government providing it. They are not suited to effective decision-making on issues which transcend local interest. Where one unit of government develops a monopoly in water service, for example, some outside authority is needed to review water contracts to prevent exploitation of price and service.

Voluntary Regional Council of Governments — These are voluntary associations of public officials from most or all of the governments of a developing area, formed to facilitate communication, develop a consensus regarding area needs and promote and coordinate programs to attend to needs. They have no powers and their recommendations therefore go to constitutent governments or to state legislatures. For example, the metropolitan Detroit area council is expected to represent over 350 units of government. These governments would elect a small executive council which would hire a full-time clerical and research staff. Federal moneys are available to help in financing, along with foundation funds and contributions by the participating governments.

Although area councils are lacking in legal powers, they have produced tangible results in a number of metropolitan communities by stimulating cooperation among members, taking stands on legislation effecting their area and coordinating relationships with state and federal agencies. Since legal powers are not involved, boundary lines may be flexible and powers of existing governments

are not disturbed. Another distinct advantage is that these councils give their attention to nearly all the problems facing the area they represent. This is extremely important for it overcomes the fragmentation of community responsibility. Priorities of community investment may be considered and land-use planning may include an entire developing area in which interdependencies exist.

The lack of legal power has its disadvantages, however. The fundamental issues of allocating regional resources, establishing priorities and handling conflicting interests of local communities require governmental institutions that can make decisions and enforce them on the basis of a majority vote. But the area council can lay the groundwork for establishing such a decision-making unit.

Area government functions may be performed by the county in all but a few large regions of Michigan. Many people are saying that the county is the logical unit to take over many area planning functions, area services and area land-use regulation.

Transfer of Functions to State Government

In Michigan, state government is taking over greater responsibility in local education, welfare, regulation of natural resource use and general economic development. Local governments can urge the legislature to shift additional responsibilities to the state. Conceivably the State Police could take over the duties of sheriffs. The state could finance and administer development districts by creating a variety of basic services in an area. The state could take over the road functions of counties. The state could regulate land use to a far greater extent than local governments. State performance has the advantage of a broader financial base and the advantage of flexibility in keeping pace with the constantly changing geographic area over which the functions need to be performed.

But transferring functions to the state erodes away responsibility of local government. It diminishes the stature of local governments as general-purpose governments. They lose ability to focus local interest and stimulate citizen participation in government.

It has also been discovered that strong local government is needed to assist in the administration of many federal and state agency programs.

Annexation and Consolidation

Annexation and consolidation are the two general means by which local governments may overcome geographic and economic fragmentation.

The nation's cities achieved their present size largely in this way. The period of greatest annexation was prior to 1900, before areas around large cities became densely populated.

Around the turn of the century, annexation became more difficult as suburbanization increased and residents of the fringe areas succeeded in getting constitutional and statute law changes to require separate majority votes in both the annexing city and the territory to be annexed. New cities and villages gradually were incorporated around the edge of the central cities and annexation became very difficult.

In Michigan the largest annexations between 1948-63 have been made to Grand Rapids, Lansing and Kalamazoo. During the period each of these cities gained more than 13,000 residents through the annexations of more than 10 square miles each. But in the southeastern part of the state incorporation has been the rule, rather than annexation. In the six-county Detroit Area there were 30 city incorporations and 11 village incorporations from 1945-1964.

The problems to be faced in reducing fragmentation of local government through changing boundaries are very great. Dr. Charles Press, Chairman of the Department of Political Science, MSU, lists five points that arise in the determination of city boundaries in Michigan which have very significant implications for the future.

1. Annexation and merger are difficult to implement. By Michigan law, annexation to cities of over 15,000 population requires:
   a. majority vote of approval in the area to be annexed;
   b. majority vote of approval of the combined voters of the annexing city and the rest of the township from which the area is to be taken.

   These two majorities are difficult to obtain. Local communities develop special advantages or interests to which they cling tenaciously. In the case of annexation by small cities, majority votes are required only in the annexing city and in the territory to be annexed. But this is also difficult to obtain.

2. The residents of sparsely populated areas generally vote heavily against incorporation or annexation. Rural populations tend to doubt whether city governments will adequately represent their interests. As an area urbanizes, interest in incorporation increases. At this point, incorporation is looked upon as a means to improve services without becoming part of the large city.
3. Urbanized township areas of substandard development or made up of large ethnic minority groups are often excluded from annexation or incorporation proposals.
4. City planners are tempted to set new boundaries that include all desirable industrial locations and leave out residential areas. This swells assessed valuations and municipal tax receipts at proportionally reduced service costs.
5. Servicing new areas that are sparsely populated is expensive.

Setting boundaries for proposed annexation or incorporation campaigns involves a delicate balance of political forces. The interests of sheltered social or economic enclaves, interests of undeveloped but valuable territory, interests of substandard developed territory and the interests of the city must all be balanced to achieve the desired majority votes. In Lansing and Grand Rapids, intensive educational campaigns preceded the annexation vote. In any event, people should be made more accurately and fully aware of their own interests in proposed boundary changes. Poor information abounds.

Boundary Commission Proposal

A major revision of the existing annexation and incorporation statutes has been considered by the Michigan Legislature during the last few years. The proposal would establish a State Boundary Commission which would take away some of the control that local voters have had over annexations and incorporations. It would establish a commission of three state members appointed by the governor, supplemented by two members appointed from a county in which a boundary change is pending.

The proposal contains a number of criteria to be applied by the commission to particular boundary changes. These include assessed valuations, land-use patterns, population, governmental costs, service needs of units involved and probable consequences of proposed changes on the separate units involved.

The commission system would probably decrease the total number of incorporations. It would have the power to deny permission to vote on boundary changes. Until now, incorporation has been easier to accomplish than annexation. The commission plan might reverse this situation. The growth of existing municipalities would be somewhat favored over the proliferation of new and separate incorporations. The plan could serve to lower the number of hasty boundary changes motivated by local antagonism. But no boundary commission could put together what has already been torn apart. That would be an almost impossible job even for a constitutional convention or for the legislature.

Special Districts

Unlike general local government, special districts are organized to perform one or a small number of specific functions. Special district governments are sometimes called *authorities*. The school district is a special district. Other examples are port districts, sewage districts, park districts.

The key advantage of the limited-purpose special district is its political feasibility. It poses only a minor threat to existing political organization and power by clipping off functions of general government a little at a time. But carried far enough, this erosion can weaken local general government.

Being specialized, the special district board and its staff can concentrate upon a narrow area without much concern for the host of interrelated problems facing a county board or a city council. Progress in the specialized area may be swift.

But extensive use of special districts complicates the problem of coordination of community functions. A scale of priorities of investment becomes difficult to establish. Associations of general government boards and councils suggest that the problem can be overcome if membership on the governing boards of the special districts be limited to members of general government boards, serving *ex officio*.