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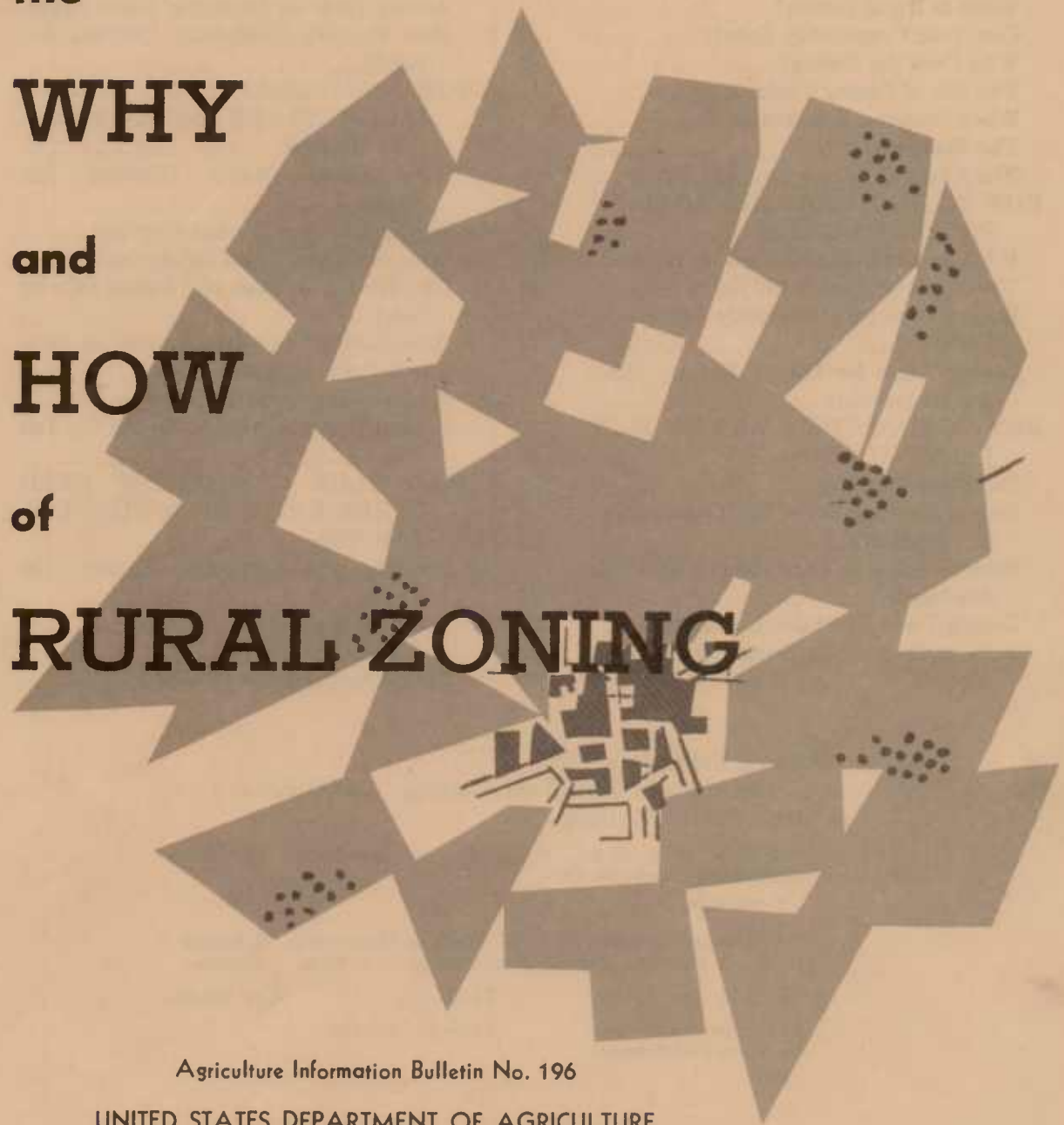
U. S. DEPARTMENT OF AGRICULTURE

the WHY and HOW of RURAL ZONING



Agriculture Information Bulletin No. 196

UNITED STATES DEPARTMENT OF AGRICULTURE

contents

	Page
THE ROLE OF ZONING IN COMMUNITY PLANNING AND DEVELOPMENT	1
What Is Rural Zoning?	1
Can Your Community Zone?	2
Who Does the Zoning?	3
The Use of Zoning Tools	3
When Should a Community Zone?	4
The Master Plan	5
The Kinds of Zoning Districts Needed	9
HOW ZONING TOOLS ARE USED TO PROTECT HOMES	10
What Areas Should Be Used for Homes?	10
The Types of Residential Zones	11
Zoning Tools for One-Family Residential Districts	11
Zoning Tools for Higher Density Residential Districts	15
HOW ZONING TOOLS ARE USED IN FARMING AREAS	17
Lands for Farming	21
Should Farming Zones Be "Cumulative" or "Exclusive"?	24
Several Kinds of Farm Zoning Districts Are Needed	25
Zoning Tools for Stable Rural Areas	26
Is Your Community Becoming an Urban Sprawl?	30
More People Each Decade	31
How Much Land Will Be Needed for Nonfarm Uses?	31
Zoning Tools for Changing Rural Areas	33
How Farming-Residential Districts Are Zoned	33
HOW COMPLEMENTARY ZONING DISTRICTS ARE USED IN FARMING AREAS	35
How Country-Home Districts Are Zoned	36
Zoning Aims in Suburban Districts	38
Why Set Aside Areas for Agriculture?	40
Can We Have Cities and Farms Side by Side?	42
How Zoning Tools Are Applied in General Farming Zones	43
Exclusive Agricultural Districts	45
Several Districts Needed To Do the Job Well	47
WILL YOUR COMMUNITY NEED OTHER KINDS OF ZONING DISTRICTS?	48
Forestry and Recreation Zoning Districts	48
Areas for Business	53
Zoning for Industry	56
Operating the Zoning Tools	57

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preface

Countryside, U. S. A. is changing. The farmsteads, livestock, fields, orchards, and woodlots are still there, but farmers everywhere are getting new neighbors—neighbors who work in town or in local business or industry. These neighbors are of all trades and professions, and some of them are part-time farmers. Their houses are found in every State, near cities and towns and miles away in the open country. They came to the countryside for cheaper land and lower taxes, sunshine and open spaces, room to relax and enjoy outdoor living, a safe and healthy environment in which to raise their children, a place to grow a garden and perhaps keep a few chickens, a refuge during misfortune, and a home in their declining years.

The change in the rural scene often begins when a farmer sells off a front lot or two or perhaps a front tract of an acre or so. Later, a house is built on the lot or tract. The price the farmer received was high compared with the value per acre of his farm as a whole. Because of this, other farmers are induced to sell off their frontages. More houses follow. Later, entire farms are broken up into tracts of 5, 10, or more acres, or whole farms are sold and subdivided. The change continues and as the years go by, country roads begin to look like residential streets. As the nonfarm population grows, land is bought for gas stations and roadside stores and shops, then for other business and industrial uses.

More people living closer together have brought new problems to countryside, U. S. A. A farmer up the road objects to assessments based on speculative land values; he says he is being taxed out of existence. A homeowner complains about a junkyard that was recently located across the road. A mother doesn't want a proposed tavern to be built near her home. A housewife is disturbed about the smell from a neighbor's barn. A farmer grumbles about children leaving his gates open and about dogs chasing his livestock. But he and his farmer neighbors are more concerned about the decline in local farm service and marketing industries. Others in this changing community are concerned about the remnants of farms, the declining agricultural production, falling water tables, septic tank odors, traffic congestion, billboards, and the need for more and better roads, new schools, additional fire protection, sewers, public water systems, and so on.

What of the future? As the community grows, are these problems likely to increase in both volume and number? With so much land, it would seem that there is ample room for farmers and their new neighbors to live side by side in peace. What's wrong? What can the community do to cope with these problems? What can the county, the town, or the township do?

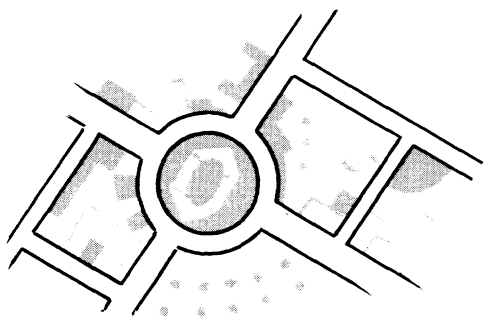
Many local units of government have legal tools that can be used to deal with the problems that concern the people of countryside, U. S. A. These tools can be used to guide the expected future growth of the community toward desirable ends. Among the tools are community planning, subdivision control, building codes, plumbing codes, and zoning ordinances. This bulletin is concerned mainly with zoning regulations, which are the legal tools used in rural zoning ordinances.

Everywhere zoning tools are used to shape better communities and to lessen the growing pains of those already established. Communities are using these tools to prevent the haphazard mixture of conflicting land uses that often comes with unguided growth, that depresses property values, and that causes friction among neighbors. This bulletin describes the various kinds of rural zoning regulations that can be used, how they are to be used, their purposes, and the benefits to the community and its people that will result from their use. It is intended to present an overall picture of the progress of zoning in the United States and of the problems and steps involved in zoning.

In preparing this bulletin, the author, who is trained in both law and economics, drew freely upon the ideas and data found in many

planning and zoning publications issued by both private organizations and State and local government agencies. Mention can be made here of only a few of these sources.

The Ins and Outs of Planning, by H. H. Smith and E. L. Gerber, sponsored by the New Jersey Dept. of Conservation and Economic Development . . . 1952; *Zoning in New York State*, New York (State) Department of Commerce 1952; *Economic Aspects of Urban Sprawl*, issued in 1956 by the Lower Mainland Regional Planning Board of B. C., (Canada); *Principles of Industrial Zoning*, published in 1951 by the National Industrial Zoning Committee, Columbus, Ohio; *Greenbelt*, issued in 1956 by the Planning Department, Santa Clara County, Calif.; *Agricultural Zoning Makes Sense*, by George Alcorn and R. H. Sciaroni, and *Farm Land Disappears*, by R. H. Sciaroni and George Alcorn, issued by the Agricultural Extension Service of the University of California in 1954 and 1953, respectively; *People are Talking*, a series of articles, issued in 1953 by the Upper Montgomery County Planning Commission, Rockville, Md.; *Zoning and Civic Development*, issued in 1950 by the Construction and Civic Development Department, Chamber of Commerce of the United States; *Rural Zoning in Wisconsin*, by Walter Rowlands, Fred Trenk, and Raymond Penn, Wis. Agr. Expt. Sta. Bul. 479, 1948; and *Your Community and Township Zoning*, by L. A. Wolfanger, Mich. Agr. Expt. Sta. Cir. Bul. 184, 1945.



the WHY and HOW of RURAL ZONING

By ERLING D. SOLBERG, agricultural economist, *Farm Economics Research Division, Agricultural Research Service*

THE ROLE OF ZONING IN COMMUNITY PLANNING AND DEVELOPMENT

What Is Rural Zoning?

Zoning in this country had its beginning in tiny colonial settlements along the Atlantic coast long before the Declaration of Independence was signed. The earliest zoning measures were simple; they consisted of regulations to keep gunpowder mills and storehouses to the outer edges of each settlement. These public safety measures were adopted as a result of frequent experience with explosions and fires at the powder mills.

In 1692, Massachusetts granted Boston, Salem, Charleston, and certain other market towns power to influence the location of "offensive" industries. Each was authorized to assign areas within the town where these activities would be least objectionable for slaughterhouses, stillhouses, and houses for trying tallow and currying leather.

These early zoning laws were passed in the interest of public health and safety. To separate dangerous and offensive activities from the rest of the community, a basic zoning tool, the "use" regulation, was used. These early communities thus exercised a limited degree of control over the uses that owners might make of their land.

Since those early times, zoning tools of this kind have been used to attain many other community purposes. Land uses and activities that conflict are kept apart. Zoning ordinances of cities, towns, townships, and counties have created separate districts for homes, stores, and factories. Many counties have protected productive agricultural lands by enclosing fertile areas in farm zoning districts. In Wisconsin, Michigan, Minnesota, and other States, some counties have created zoned districts for forestry and recreational uses. Cutover land not suited to farming but valuable for growing tree crops was set aside for forestry. In some of these counties, areas that contain many lakes were zoned for recreation.

Building-tract regulations, a second group of zoning tools, are used by many local governments to set lower limits on the size of building lots or tracts. The question as to how large a building tract should be often arises. The proper size depends on location. In cities and villages where public water supplies and sewers are available, tracts may be small, but they must be large enough to assure adequate light, air, sunshine, and open spaces. In the open country, where wells and septic tanks are used, building tracts need to be larger for sanitary reasons. If a pig or two, a family cow, or chickens are kept, still more room is needed in the interest of public health and to reduce possible annoyance from offensive noises, odors, or flies. Other community purposes that may be attained by requiring differing minimum sizes of lots for various kinds of zoning districts are discussed later.

A third zoning tool is often used also. This tool is the power to limit the height and size of buildings and structures. It is useful in crowded urban areas, but it is seldom used in the open country. The few communities in farm districts that use this tool except barns, silos, windmills, and other farm structures, aside from the dwelling, from the regulations.

The last of the four basic kinds of zoning tools that are available to many communities is regulation of the "density of population." This zoning power may be used either to prevent overcrowding or to check a wasteful scattering of population. Overcrowding of the land may end in slums in the country as well as in the city. An unwise concentration of population may congest highways, overload existing water mains and sewers, and burden taxpayers with the cost of additional public facilities, including new roads and schools. Similarly, if it

becomes necessary to provide a few isolated families with schools, roads, and other public services, high per capita costs to taxpayers may result.

Many communities control the density of population by applying "use," "building-tract," and "building-size" zoning tools. For example, a community may be divided into several kinds of zoning or use districts—farming, residential, business, industry and, if needed, forestry and recreational districts. Populace communities often create two or more kinds of residential districts. In some of these districts, only 1-family houses are permitted; in others, 2-family houses are allowed; and in still others, apartment houses are encouraged. Population densities can be influenced also by requiring building tracts to be larger in some residential districts than in others. A similar effect on densities may be obtained by limiting the height and size of buildings and the percentage of the area of each building tract that may be covered by buildings.

Other communities check excessive scattering of population and save tax dollars by discouraging the building of new nonfarm homes in areas set aside for farming districts and by excluding new year-long residences from forest zoning districts. The zoning tools used to attain these community ends are discussed later in this bulletin.

Rural zoning, then, is the division of the community, by means of local laws called zoning ordinances, into suitable kinds of districts or zones for agriculture, residences, business, forestry, and so on. Local laws are then applied in each kind of district to regulate (1) the use of land, buildings, and structures; (2) the size and coverage of building lots or tracts; (3) the height and size of buildings and structures; and (4) the density of population.

Zoning ordinances are an exercise by local units of government of the police powers granted by the State—that is, the power to safeguard and promote public health, safety, morals, or the general welfare. Often, a State's grant of zoning powers is spelled out in greater detail as follows:

> For the purpose of promoting health, safety, morals, or the general welfare, the legislative body of (cities, counties, towns, or townships) is hereby empowered to regulate and restrict—
>
> 1. The height, number of stories, sizes of buildings and other structures.
> 2. The percentage of the lot that may be occupied, the size of yards, courts, and other open spaces.
> 3. The density of population.
> 4. The location and use of buildings, structures, and land for trade, industry, residence, or other purposes. To this list a number of States add: Recreation, agriculture, grazing, water conservation and forestry, or some of these.

Can Your Community Zone?

Local units of government are creatures of the State. The powers they possess are received from that source. The legislature is the custodian of the State's zoning powers; it may give or it may withhold. Grants of zoning powers to counties, towns, or townships are usually made by the legislature in zoning enabling acts. These acts do not zone communities. Instead, they indicate the scope that zoning may have—the areas that may be zoned, the zoning tools that may be used, and the way in which these tools are to be used.

State legislatures have passed enabling acts giving zoning powers to about half of the 3,000 counties in the United States. In some States, all counties may zone; in others, only the more populous counties may do so. Towns or townships are authorized to zone in a number of States in the Northeast, Great Lakes, and Plains sections. Most of the enabling acts permit the designated local unit to zone the entire area within its boundaries, except those areas that are incorporated cities and villages. A few of the acts, however, permit the zoning of only the more densely settled districts. About 80 percent of the present rural zoning enabling acts grant the 4 main types of zoning powers previously discussed. The rest grant lesser powers.

Does your community have the zoning powers it needs? Before zoning, it must have the right tools. Your local officials will know. If your community lacks zoning tools entirely or if it does not have the proper tools, your State legislature can provide them.

In using zoning tools, certain pitfalls must be avoided. Unless these tools are used correctly and for proper community purposes only, the zoning ordinance may be set aside by the courts. The steps to be followed in preparing and passing a zoning ordinance and in

amending or changing it are set out in your zoning enabling act.

The zoning must serve a public purpose that touches and affects health, safety, morals, or the general welfare. The zoning regulations must be uniform within each district. They may differ from district to district, but those within a district must apply uniformly to each class or kind of property. Finally, zoning tools cannot be used to cure past mistakes, such as badly mixed land uses. A business that is already established in the area when the area is zoned for a residential district may continue to operate at the same place. A business of this kind is called a nonconforming use; it has a "vested" right to remain. Zoning applies to future uses and structures. A similar *new* business can be prevented from moving into the same residential zoning district.

Who Does the Zoning?

Zoning ordinances are local laws that are adopted by the local people themselves, either directly at special zoning elections, or indirectly by the legislative body of the community. The enacting procedure to be followed in your community is set forth in the same enabling act that granted your zoning powers.

Most of our States have placed the formal power to pass local zoning regulations with the elected agents of the people, the legislative bodies of local units of government. In cities, towns, and villages, this body is usually the council; in counties it is the county board, whatever its more formal name may be; in towns, it is most often the town board. But in a few States, town zoning ordinances must be approved by the citizens assembled in town meetings. In several other States, proposed county zoning ordinances must be referred to the vote of the people. Whatever the formal enacting agency, rural zoning must be both understood and wanted by the people of the community, if it is to succeed.

The Use of Zoning Tools

A community's zoning powers have been likened to a kit of mechanic's tools or a shed full of farm machinery. The kit or shed contains tools for doing a variety of jobs. The jobs that can be done with carpenter or farm tools are limited by the purposes for which each tool was designed. A skilled operator knows how to select the proper tool with which to get a particular job done.

This is true also of zoning tools. Some are designed to attain certain community ends; others are used to reach other goals. The community must be wise in its selection of the tools it wants to use. Again, the skill of the operator is important. But there are certain jobs that cannot be attempted through the use of zoning tools. Definite limits on the jobs that may be done are set by the kinds and numbers of zoning powers that have been granted to your local unit of government. The unit may not have the zoning tools it needs. Other limits are set by the number and types of community objectives that may be attained through zoning. These objectives, which are listed in your zoning enabling act, are provided by the State legislature to guide your community in the proper and legal use of its zoning tools.

It must be remembered that zoning tools may be used only in the interest of public health, safety, morals, or the general welfare. Zoning regulations, many of which are combined in zoning ordinances, must promote one or more of these public ends. The various regulations must be combined into a whole, in accordance with a comprehensive plan for the community. The plan and the related zoning regulations, for example, must be designed to advance one or more community objectives or goals which are to—

1. Lessen congestion in the streets.
2. Secure safety from fire, panic, and other dangers.
3. Promote health and the general welfare.
4. Provide adequate light and air.
5. Prevent the overcrowding of land.
6. Avoid undue concentration of population.
7. Facilitate the adequate provision of transportation, water, sewerage, schools, parks, and other public requirements.

If the community decides to zone, these objectives are also orders to guide it in the use of zoning tools. Most States include all these objectives in laws that grant zoning powers. States in which community problems and goals

may differ have added several more. Among them are listed goals to—

1. Encourage the most appropriate use of land and water.
2. Protect and guide development of rural areas.
3. Conserve and develop natural resources.
4. Foster agriculture and other industries.
5. Protect the food supply.
6. Prevent blight and depreciation.
7. Conserve the tax base.
8. Secure economy in governmental expenditures.
9. Prevent a wasteful scattering of population.
10. Promote a wholesome home environment.
11. Protect residential sections from traffic, noise, smoke, fumes, and other unwholesome conditions and influences.
12. Prevent development of unsanitary areas for housing purposes and relate housing density to practical or available facilities for waste disposal.
13. Secure safety from flood or windstorm.
14. Facilitate adequate water flow, water supply, and drainage.
15. Prevent soil erosion.
16. Preserve the traffic-carrying capacity of highways.
17. Reduce waste from an excessive mileage of roads.
18. Lessen traffic congestion and accidents.
19. Conserve the natural and scenic beauty and attractiveness of roadsides.

These two lists illustrate the many different objectives that local units of government in the various States may attain by using zoning tools. But each community must look to its own zoning enabling act for the ends it can gain by zoning.

Most zoning enabling acts contain general instructions to the community as to the way in which the zoning shall be done, as follows:

> Such (zoning) regulations shall be made with reasonable consideration, among other things, to the character of the district and its particular suitability for particular uses, and with a view to conserving the value of buildings and encouraging the most appropriate use of land throughout such municipality.

This legislative order, which must be followed, is intended to prevent an improper and unfair use of zoning tools; it is designed to guide zoning efforts to encourage the best use of land, from the viewpoint of both landowners and operators and the community.

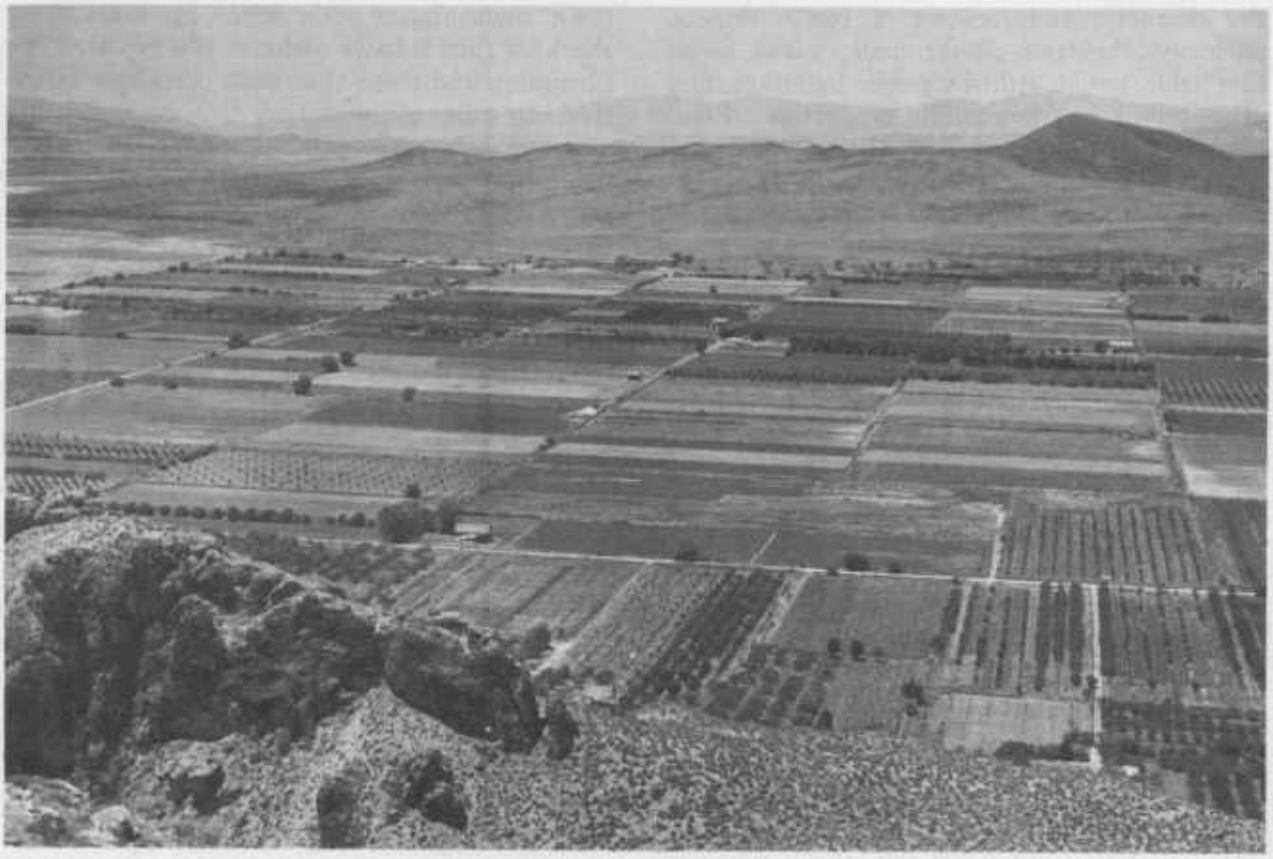
When Should a Community Zone?

The choice of a time to zone in any community is a decision that the people concerned must make. Another look at a job that cannot be done with zoning tools, and a look at the kinds of communities in which zoning works best, will make the decision easier.

Zoning tools cannot be used to force the removal of an objectionable property or use that was there before the area was zoned. These "nonconforming" uses or structures may continue even though they are located in a zoning district where new uses of the same kind are prohibited by the zoning ordinance. The owner of the objectionable property may legally continue to use it as he has in the past, or he may sell and the buyer may carry on as before. Common examples of nonconforming uses are stores or factories in districts set aside for homes. Usually, all that zoning can do in these instances is to prevent the objectionable uses from being enlarged or from becoming reestablished after they have been abandoned, or to prevent worn-out or destroyed buildings from being rebuilt.

That is, zoning tools cannot be used retroactively to correct past mistakes. They cannot be used to unscramble the jumbled mixture of conflicting land uses that trouble many communities today. Zoning must start with the community as it is. If zoning is built on this base, it can prevent further deterioration and give direction to future growth. Many communities wait too long before zoning.

Zoning looks mainly to the future. Zoning tools work best if they are used before a community grows up in a hit-or-miss way, and before blight occurs. If used in time, zoning can both prevent and improve. It can prevent harmful uses that depress property values from infiltrating home neighborhoods, and it can set apart desirable areas for business and industry and provide guidance for orderly growth. By using zoning tools, local people working to-



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The fertile soils of level valley lands are best for farming. Productive soils may be reserved for agriculture by enclosing the areas within farm zoning districts.

gether can shape the future of their community and save many tax dollars in the years ahead.

The Master Plan

Zoning tools thus work best in communities that have given serious thought to the future and have worked out a master plan of development based on a study of resources, problems, needs, and potentials. The idea is to achieve reasonable harmony of *public* plans for future investments in roads, water supplies, sewers, schools, parks, and so on, and for the *private* development of properties for residential, business, or industrial uses. The master plan is a blueprint that suggests how present and future improvements and land uses should be related. With a good master plan to provide guidelines, a community can use more wisely its zoning and related tools to assure that each new private development will be in reasonable accordance with and contribute to the overall harmonious growth of the local community. Most enabling acts specify that the zoning map and regulations shall be based on a comprehensive community plan.

How the Master Plan is Prepared

Everyone plans. We hear: "I plan to build a new house," "I plan to buy the adjoining 40 acres," "I plan to tile-drain the lower field," "We plan to save our money to send our children to college," "We plan to build a larger church." In each instance, the speaker or group not only has looked at what he or they have but also has thought about a method of obtaining what he or the group wants. Each plan foresees future needs and goals and calls for intelligent foresight.

A master plan for a community is only a large-scale edition of a family or group plan. Planning is concerned with the long-range physical development of the community, including

the character and location of roads, streets, parkways, bridges, playgrounds, parks, aviation fields, public utilities, public buildings, and other public and semipublic properties. Planning is also concerned with the general location in the community of districts for residences, business, industry, farming, and other uses.

How is the master plan for a community prepared? First, the community makes a study of what it has, including public and private improvements of all kinds; its land and other natural resources, both developed and unused; its industries, business and residential areas, and farms; and, most important, its people with their many different skills. Second, the community gives thought to its current problems and needs and its potentials. It then decides what it wants in the future and proceeds to prepare the master plan and maps. They will guide the community in making the best use of what it has to get what it wants.

No two families are exactly alike. They differ with respect to numbers in the household, age, resources, skills, potentials, and so on. This is true also of communities. They differ as to population and age distribution, resources, age and character of industrial and business developments, skills of the people, residential areas, type and importance of farming, rate of community growth, and so on. A community plan, like a family plan, should be hand tailored for the particular community. Both family and community plans work best when those who must live with the plan have had an integral role in the planning process. Because good planning requires technical skill and experience, the community will do well to employ an expert in planning to *help* with the task. But the technician alone should not attempt to prepare a plan *for* the community. Instead, the plan should be prepared *by* the people of the community *with* the help of the technician. All groups in the community — businessmen, officials, farmers, housewives, sportsmen, conservationists, and any others — should take an active part in working out the master plan.

What Does Your Community Have Now?— How do local units of government get planning underway? The first step is to assemble information about what the community (county, town, township, or other area) has now. The checklist that follows includes the types of information and maps that have been used effectively by other communities. But because communities differ so greatly, some of the materials listed may not be pertinent to, or needed by, yours. Other kinds of maps and information not included here may be required. Each community, therefore, should be guided by its own needs.

Land

1. An accurate base map of the area of the local unit of government and relevant surroundings.
2. Aerial photographs of the entire community.
3. Maps showing topography, geology, mineral resources, including sand, gravel, valuable clays, and rock.
4. Map showing drainages and watersheds, rivers, streams, lakes, ponds, and other bodies of water, underground water sources, swampy areas, and flood plains.
5. Maps showing main soil types, stoniness, known subsoil information, and land use capability classes.
6. Map of present land uses, indicating the location of industrial, business, residential, farming, forest, and recreational areas.

Improvements

7. Maps showing transportation facilities, including waterways, railroads, truck and bus lines, highways, streets and roads, and reports on the condition and adequacy of all public thoroughfares.
8. Map indicating location and capacities of public service plants and facilities, including water and gas mains, powerlines, and storm and sanitary sewers.
9. Map showing location of public and private schools, school district boundaries, school bus routes, and reports on the condition, capacity, and adequacy of school facilities.

10. Map and reports on the location, condition, and adequacy of public buildings, parks, playgrounds, other recreational facilities, and public properties.

Economic base

11. Map showing location of industrial and business areas and studies of the economic base of present industries.
12. Reports on local trade areas and market areas, both local and more distant.
13. Data on employment, wage rates, and income.
14. Map of farming areas showing types of farming and location of farm and nonfarm homes.
15. Studies of the total contribution to the community's economic base of agriculture plus related processing industries, supply firms, and associated employment.
16. Map of forested areas showing location of farms, both operating and abandoned, and of tax-delinquent lands.
17. Map of present and potential recreational lands indicating location of improvements.

People

18. Map of existing 1-family, 2-family, and multifamily housing areas, and report on condition of housing, housing supply, and rate of construction.
19. Reports on population growth, characteristics, and distribution throughout the community.
20. Data on educational levels, and technical and trade skills.
21. Information on existing churches, hospitals, and health facilities.
22. Data on public housing, and welfare and cultural facilities.

Government

23. Map showing publicly owned land, including Federal, State, county, city, town, township, or other local public ownerships.
24. Studies of local taxation and of the cost of public services by types of districts.
25. Data on bonded indebtedness and important public improvements now under construction.
26. Copies of existing plans for physical development in the area by public agencies, including local, State and Federal agencies.
27. Copies of the community's present subdivision code and zoning ordinance and map, if any.

What Does Your Community Want?—When the community has this information at hand, the second step in the planning process can proceed on a foundation of fact. The community next prepares its master plan, which outlines what it wants in the future. To be practical, the plan must necessarily be financially possible.

Planning for a community, like planning for a family, is nothing more than the use of wise foresight. In each instance, the planner foresees future problems, needs, and objectives, and charts his course many years in advance. Planning is like an investment in the community's future combined with insurance against future problems.

Countryside, U. S. A., is growing rapidly. Many more people will live or work there 10 and 20 years from now. How many will there be in your community? Growth brings changes that may be for the better or the worse. It brings growing pains that may result in waste on a large scale, but if communities keep their houses in order, losses may be cut at the source. Growth brings problems that will become more difficult to solve as time goes by.

More people will bring need for more jobs, convenient places to shop, wholesome districts in which to live, fertile areas for farming, and room for rest and for play. What areas in your community are most suitable for each of these uses? A growing community will need new roads, schools, churches, public buildings, water, sewers, and other public facilities. Where might these improvements be located? Sites might be selected with a view to encouraging the fullest use of present and proposed facilities. Unnecessary duplication should be avoided. The location of present and proposed

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Many attractive homesites may be found along country roads. Urbanization usually begins with the sale of a few front lots for country homes. As the years pass, more and more nonfarm homes are built. [Courtesy of Farm Journal (Black Star Photo)].

public buildings and service facilities will influence markedly the types of uses to which your land will be put in the future. Land use and improvements are interrelated. The master plan will suggest how they should be related to make the best use of all resources of the community, without causing undue disruption or destruction of valuable resources.

The master plan of a community is often presented in a comprehensive report which consists of a series of maps and proposals for future improvements as follows—

Land and improvements

1. Map showing a desirable future land use pattern, with areas suitable for industry, business, homes, farming, forests, recreation, and other uses indicated.
2. Map showing location of proposed roads and streets.
3. Map showing location of proposed public service plants and facilities, including water, gas and power lines, and storm and sanitary sewers.
4. Map indicating future locations for public buildings, schools, playgrounds, and parks.

People and the economic base

5. Suggestions for fostering business, industrial, and agricultural development with a view to obtaining a balanced economic base.
6. Reports on undeveloped natural resources of all kinds that are available in the area.
7. Suggestions for restoring, and then protecting with proper use, neglected water, soil, and forest resources.
8. Reports on market trends and changing shopping habits.
9. Reports on population trends, employment, and income.
10. Reports on future needs for public housing, and health and welfare facilities.
11. Reports on future needs for educational, cultural, and recreational facilities.

Government

12. Studies indicating trends in the community and area.
13. A long-range program of public improvements and a related financial program.
14. Studies of tax measures designed to encourage the allocation of resources, including land, to their most suitable uses.

How the Master Plan Is Carried Out

The third step in the planning-zoning process is for the community to find ways to get what it wants from what it has now. The master plan will provide overall guidelines. Practical ways of putting the master plan into effect must be found. Both public improvement programs

and private development will need to be oriented toward the overall objectives. Over the years ahead, the many pieces can be made to fit together.

A master plan is carried out in two ways — by government and by private individuals and agencies. Most of the construction in a community is done by private persons and concerns who develop property for residential, business, and industrial purposes. The success or failure of the plan will depend most on the cooperation obtained from these developers. Although a good plan may be expected to receive support from all groups, the community will need to keep a directing hand on the reins. It can support; it can educate; and it can give formal guidance. Here are some of the ways in which these things can be done:

1. Program proposed public improvements ahead for several years, with priorities indicated.
2. Conduct an active educational program by means of local meetings, newspaper, radio, and so on, to explain the objectives of the plan to all the people and to win their support.
3. Pass a sound subdivision ordinance. Subdivision control is the regulation of the way raw land is subdivided into lots or tracts and made ready for development. It is concerned with the layout of proposed subdivisions. Subdividers are often required to construct streets, curbs, and sidewalks, and to install sewers, water mains, and other utilities and services.
4. Pass a good building code. Building codes provide certain minimum standards and regulations for assuring safe and stable (1) design, (2) methods of construction, and (3) use of materials and equipment in building and structures, and for assuring safe maintenance, use, and occupancy.
5. Pass a sanitary code. Sanitary or plumbing codes require compliance with minimum standards of workmanship and materials in the installation, alteration, maintenance, and repair in dwellings and other buildings of pipes, fittings, fixtures, and other appliances for the conveyance of water, sewage, and gas.
6. Pass a good zoning ordinance.

A good zoning ordinance is the community's most useful formal tool for guiding the many developments of private builders into the overall pattern of the master plan. It provides local measures for assuring that the community's growth is orderly.

The Kinds of Zoning Districts Needed

What kinds of zoning districts will your community need? How many of each kind? The answers to these questions will differ for each community. The numbers and types of zoning districts will depend on the problems and needs involved. From 3 to 5 types of zones are often found in agricultural counties and townships. Most county ordinances establish industrial, business, residential, and agricultural zones as a minimum. Some forested counties have created only three kinds of zones — forestry, recreational, and unrestricted. But in fast-growing counties that contain extended urban fringes, the problems and needs are different. Many counties of this kind have established 2 or 3 kinds of zoning districts each for residences, for business, and for industry, and in addition, one or more kinds of farming districts for the protection of agriculture.

Where in your community should each kind of zoning district be? The master plan with its map indicating suitable areas for industry, business, homes, farming, forest, recreation, and other uses will be of help here. Later in this publication, the various kinds of zoning districts and the regulations for each are discussed. Consideration is given to the many factors that should be kept in mind in selecting suitable areas for each kind of zone. The areas selected for the several kinds of districts are usually shown on a map called the zoning map of the community.

HOW ZONING TOOLS ARE USED TO PROTECT HOMES

Is your home located in a neighborhood of well-kept houses and yards—an area that is free from soot and grime, noise, and traffic dangers? Is it a neighborhood in which you can relax and enjoy outdoor living and where your children have room to play? If you live or plan to build your home in a pleasant neighborhood, have you given thought to what the area may be like tomorrow? Perhaps there are vacant tracts across the street, at the corner, or in the next block. What uses are likely to be made of them? More homes, perhaps? Or will one or more of these tracts be used for gas stations, stores, taverns, or junkyards?

One needn't go far to find once promising residential areas which after a few years became a mixture of conflicting land uses. As a result, the character of the neighborhoods changed. Many homes declined in value. Will your neighborhood go the way of others down the road to blight? Or is it protected by zoning regulations against probable invasion by harmful land uses? Protection for your home can be attained by zoning. Desirable areas for homes can be set aside for many years of stable usefulness.

What Areas Should Be Used for Homes?

What areas in your community are most suitable for residential uses? What areas should be avoided? What are some of the things that should be kept in mind in deciding on the areas to be zoned for homes?

The community as it is now—its land uses and improvements, both public and private—must be considered first. Then come the public improvements planned for the future. A good place to begin is with the present residential areas in your community. If these areas are not seriously invaded by business and industry, they should be zoned for homes. But it should be remembered that business and industrial activities now located in existing residential areas are nonconforming uses and have a right to remain. As mentioned earlier, zoning can only prevent establishment in these areas of new conflicting uses.

Automobiles have given communities a wider field of choice in selecting suitable areas for new residential districts. These areas may be in or near cities or villages or they may be in the open country. There is plenty of room for new homes around our cities, but locations are not equally suitable. Some areas are desirable; others should be avoided.

ARMY ENGINEERS 50106-1951

Flooded homes at Manhattan, Kans. These lowlands, which flood periodically, are not suitable for homesites. There is higher land in the background.

Lowland areas that may flood are not good places in which to build homes. Sooner or later, the river will come along to take the areas back and sweep the houses away. Also to be avoided are other low, chronically wet areas. We have enough "Wet Acres Estates," with a pool on every tract, wet basements, and smelly septic-tank fields. Before long, these homeowners will pay for costly drainage and sanitary sewers. Areas of tight soils, which are not suitable for septic tanks, should be avoided also unless sewers are provided.

What are the qualities to look for in a residential area? Areas of this kind should be on well-drained land, possibly sloping to assure a better view and with adequate room for green open spaces. They should be attractive and healthy areas in which to live, with air that is free from soot and grime. They should be convenient to parks, playgrounds, schools and churches, shopping centers and places of work, but away from the noise and bustle of business and industry and the heavy traffic of through streets. Finally, they should be free from the threat of invasion by conflicting land uses that

may depreciate property values. Other things to consider are the presence or absence of roads and streets, water and sewer mains, and other service facilities. If additional facilities are needed, as is likely in growing communities, many tax dollars may be saved by concentrating residential growth in areas in which public services can be provided most efficiently. Here, another look at the master plan may be helpful.

There is a further consideration. In growing communities, space is needed for uses other than new homes. Suitable areas are needed for business and industrial expansion, for public purposes, and for agriculture. Land needs for these uses, which differ greatly, are discussed in later sections.

The Types of Residential Zones

How many kinds of residential zoning districts does your community need or want? Many rural communities have only 1 or 2 kinds. Populous communities may have 3, 4, 5, or more. Should there be separate residential zones for 1-family dwellings, 2-family dwellings (duplexes), and apartments (multifamily)? A further separation may be attained by having subdistricts, as for example, several classes of 1-family zones that differ only as to the minimum size of the lots or tracts that are permitted in each. Or should there be only one type of residential zone, or one zone among others, that admits all housing types? Under the first method, which is widely favored, residences are separated into districts on the basis of housing types. The second approach, which finds support in some older communities that contain a variety of housing types, relies on population density regulations, such as tract area per family, height and size of buildings, tract coverage, and setback requirements, to assure open and spacious residential areas.

The kinds of residential zoning districts and the number of each kind needed will depend on the size of the community, its population, and other things.

Zoning Tools for One-Family Residential Districts

If the objectives to be attained by the use of zoning tools are clear, the task of choosing the proper tools with which to do the job and then using the tools correctly becomes easier. The chief tasks of zoning in detached 1-family residential districts are (1) to protect residential areas from invasion by conflicting land uses; (2) to prevent the overcrowding of land and the depreciation of property values and the tax base; (3) to assure quiet, attractive, and convenient neighborhoods; (4) to prevent creation of fire, health, safety, and other hazards; and (5) to save tax dollars by preventing the overloading of public facilities.

Zoning tools can be adapted to individual communities to attain these ends. These tools include use, building-tract, building-size, and population-density regulations. The community can design regulations that vary by districts. It can give zoning guidance to future growth along lines that will develop the kinds of districts the community wants.

Use Regulations

With use regulations, a community can permit selected harmonious uses of land and buildings in a district and exclude all others. In detached 1-family residential zones, the uses usually permitted are 1-family dwellings, accessory buildings, and activities and uses not conducted as a business; occupations customarily conducted in the home by doctors and other professional people; such buildings and facilities as schools, playgrounds, parks, churches, libraries and museums; and customary farming operations. These are examples only. Perhaps additional uses should be permitted in the 1-family districts in your community. If the district is in a rural area where there is ample room for other given uses, this will surely be true.

But in thickly settled residential areas, permitted uses may be further restricted. In these areas, farming operations are sometimes restricted to the growing of field, row, and tree crops, and the keeping of farm animals is prohibited. The intention is to prevent one landowner from hurting his neighbors by the way he uses his land. For the same reason, other zoning ordinances prescribe the conditions under which livestock and poultry farming may be carried on in residential districts. Following are examples of regulations sometimes applied in 1- and 2-family residential districts:

1. There may be kept not more than 1 saddle horse, 1 cow, or 2 goats for each one-half acre in area of the parcel of land upon which the same are kept nor more than 100 fowl for each one-fourth acre in area of the parcel of land upon which the same are kept.
2. No saddle horses, cows, or goats shall be kept within a distance of 200 feet from any dwelling other than a dwelling upon the parcel of land upon which the same are kept nor within a distance of 50 feet from any dwelling.
3. More than 12 fowl shall not be kept within a distance of 50 feet from any street line nor within a distance of 50 feet from any dwelling.
4. The conditions under which saddle horses, cows, goats, or fowl are kept shall be such as may be specified by the county health officer.

Zoning regulations for each district should be tailored to local conditions and needs. In considering what uses to permit, it is well to remember that a major objective of zoning for 1-family districts is to create quiet, safe, attractive, and convenient neighborhoods for homes.

Use regulations are double-edged. Some uses are permitted and all others excluded. Among those ordinarily excluded from 1-family zones are business and industry, including taverns, junkyards, billboards, and so on. The objective is to protect home neighborhoods from probable future invasion by injurious uses. Industries are likely to produce noise, smoke, and fumes. A store on every corner might be convenient, but it would mean an increase in noise, litter, fire hazard, and traffic congestion, which would depress residential property values. Timely zoning can prevent this.

Tax savings must be considered also. Often, more costly public facilities and services are needed for areas in which varied land uses are permitted than for districts zoned exclusively for homes and related uses. Perhaps the changing rural community can reap its greatest reward by using zoning tools to guide residential growth. By setting a pattern for the future, savings can be effected in outlays for roads and streets, water and sanitary facilities, schools and school services, police and fire protection, and other public and semipublic services.

Building-Tract Regulations

Lot or building tract regulations are handy tools for obtaining adequate light, air, and open spaces around buildings and to help assure a suitable density of population in the community. With these tools, a community may specify the minimum size of lots or tracts permitted in its various districts, the size of front, side, and rear yards, including the setback of buildings from roads and streets, and the percentage of the lot or tract that may be covered by buildings.

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The appearance of this residential street is enhanced by a uniform setback of houses from the curb. Spacing of houses allows for side yards. Safety is increased by the provision of driveways and space for off-the-street parking.

Why vary tract sizes?

Many communities have 2 or more kinds of 1-family residential zones that differ as to minimum sizes of lots or tracts permitted. A community may have several reasons for requiring such differences. Tracts of various sizes are suitable for small, medium-sized, or large dwellings. Some areas may be served by public water or sewer mains, or both; others may rely on private wells and septic tanks. Reasons other than sanitation also prompt decisions as to the minimum sizes of tracts permitted in districts served by off-the-tract mains. Tracts in these districts are often smaller than those required in areas where mains are not available. In the latter areas, larger tracts are needed to assure a safe separation of water supply and drainage from septic tanks or cesspools. Frequently, tract sizes are varied according to the type of soil and its percolating capacity. Tight or wet soils are readily saturated with septic tank effluents,

which may reach the surface, endanger public health, and give off foul odors.

What size tracts?

What are the minimum sizes of lots or tracts that should be required in 1-family residential districts? The answer will depend on the problems of the individual community and on the kinds of districts it wants. Minimums required by county zoning ordinances collected from many States range from 5,000 square feet to 2 acres. The range includes minimums of 6,000, 7,500, 8,000, and 10,000 square feet. Some ordinances require tracts containing not less than 15,000, 20,000, or 30,000 square feet. Also included are ½-acre, 1-acre, and 1½-acre tracts. Examples of minimum-tract area requirements in several county ordinances follow:

1. 20,000 square feet when private well and septic tank are provided, or 10,000 square feet when soil conditions permit, on written approval of the county board of health;
2. 7,500 square feet when public water supply and septic tank are provided, or 6,000 square feet when soil conditions permit, on approval; or
3. 6,000 square feet when public water supply and public sewers are provided.

Why regulate shape of tracts?

Closely related to the size of residential lots or tracts are their shape. Here again, the community can benefit by using zoning tools. It can require tracts with wide frontages in preference to long strips with narrow frontages. Wide frontages permit more flexibility in locating the dwelling, whether it is large or small, on the tract. Adequate open spaces around houses are possible where they are most needed. Narrow frontages result in the crowding of houses along the road or street. Also, long narrow tracts are an ever-present threat to future property values. The rear end of a long tract offers room for conflicting uses and buildings, and long tracts are more readily divided into smaller ones. If the latter occurs, the area may soon be overcrowded.

Reasonable minimum widths of frontages of lots or tracts of different sizes vary with local conditions, but the standards applied by some communities for 1-family detached residential districts may be helpful. The following ratios of minimum tract sizes to minimum frontages are often required:

Size of lot	*Frontage (feet)*
6,000 square feet	50
7,000 square feet	60
8,000 square feet	70
½ acre	100
1 acre	150
2 acres	200

That is, the lots or tracts would be about twice as long as they are wide.

Why yards?

Adequate front, side, and rear yards around dwellings make a neighborhood a better place in which to live. These spaces allow room for lawns and trees, for children to play, and for sunshine, light, and air in the home. Zoning tools may be used to designate how far houses must be set back from roads or streets, to assure ample space between adjoining dwellings, to obtain a reasonable distance between the dwelling and another to the rear, and to limit the area of the tract that may be covered by buildings.

Why front yards?

A reasonable setback from the street reduces the noise, dust, and gas fumes that can reach the house and promotes health and safety. A sufficient setback also assures more light and air and produces a firebreak area. Fairly uniform front yards or setbacks add to the appearance of a neighborhood. When setbacks differ greatly, the dwellings nearer the street shut off the view from those pocketed farther back. There are also reasons of safety. Traffic dangers are lessened by adequate sight distances at intersections. Blind corners where vision is obstructed by buildings, hedges, or other high plantings involve dangers familiar to all motorists. Ample vision clearance at intersections calls for compliance of those on corner tracts with setback requirements of both front and side roads. The streets will be safer, especially for children, who sometimes dash out between parked cars, if off-the-street parking space is provided with each new dwelling. There is also the tax angle. Providing space on the street for vehicles at rest means wider streets, which cost more.

Suitable depths of front yards in 1-family detached residential districts are governed by the width of the roadway, the size and shape of

lots or tracts, and the height of buildings, among other things. Minimum depths of front yards are measured either from the highway property line or from the center line. County zoning ordinances often require 25 feet, measured from the property line. Distances required by other ordinances range from 20 to 60 feet or more. Some require deeper front yards along primary highways than along secondary roads or streets. A different rule is sometimes followed when buildings with varying setbacks were erected before zoning. For example, if buildings exist on 25 percent or more of the tracts in a block, or for some other specified distance along a road, all new buildings must conform to the average setback. An alternative is the predominant setback.

Why side yards?

Zoning tools should be used also to assure adequate side yards in residential districts. Dwellings that are too close together rob each other of light and air. Rooms with side windows only are likely to be dark and airless. Also, there is greater danger of fires spreading to adjoining buildings. Side yards should be wide enough to assure privacy, permit entry in case of fire, and allow room for an offstreet parking platform or a private driveway. Adequate side yards improve the appearance of a neighborhood, prevent overcrowding, and assure more stable property values.

The minimum width of side yards in detached 1-family residential districts depends on several considerations, such as size of building tracts, permitted maximum heights of buildings, and whether the district is located in the open country or in or near a town. A convenient rule that is often applied in urban residential areas requires the minimum width of the space between dwellings to be half the height of the building. If the dwelling is 35 feet high, the sum of the required widths of the 2 side yards will be almost 18 feet. Each side yard would be 9 feet wide or, to allow room for offstreet parking, one side yard might have a minimum width of 8 and the other of 10 feet. Assuming tract frontages of 50 feet, a width of 32 feet remains for the dwelling. Under this height-width rule, higher houses would require related increases in widths of side yards. In rural areas where building tracts are larger, the following relations between tract sizes and widths of each side yard have been suggested: One-fourth and one-half acre, 25 feet; and 1 acre, 35 feet.

Why rear yards?

Adequate rear yards are equally important. An ample open space reduces the fire hazard from houses to the rear, affords a measure of privacy, allows for light and freer movement of air, and adds to the appearance and enjoyment of the home. Backyards provide an area of green and shade for family rest and recreation; a safe place, which may be fenced, in which small children can play; and a place for a garden, clothesline, and accessory buildings.

How deep should rear yards be in 1-family detached residential districts? Again, the local situation must be taken into account. Some communities insist that rear yards shall be as deep as the dwelling is high. Houses 35 feet high would require rear-yard depths of 35 feet. In other communities, minimum depths are a stated percentage of the total length of the building tract. Ratios range from 20 percent for short tracts to 35 percent for longer ones. Zoning requirements for rear yards are concerned only with minimum depths. The rear yards may be deeper, as they usually are in rural areas, where tracts are larger.

Why limit tract coverage?

As we have seen, many benefits may accrue to homeowners from the use of zoning tools to regulate minimum sizes of building tracts and minimum front, side, and rear yards. Minimum tract requirements indirectly limit the area of the tract that may be covered by buildings. A related direct control is often used also. Zoning regulations in many communities specify the maximum percentage of building tracts that may be covered by buildings. Because maximum permitted tract coverage, minimum tract sizes, and front, side, and rear yard requirements are interrelated, they should be considered together as parts of a whole. Maximum tract coverage allowed in detached 1-family residential districts in urban areas range from 20 to 40 percent, depending on the density of population wanted in the particular district. These maximums serve to protect open spaces on building tracts from becoming overcrowded

with an occasional large building or with accessory buildings.

Maximum coverage allowances and minimum size regulations for building tracts, and front, side, and rear yard requirements, and restrictions on building heights (discussed later) are related zoning tools that may be used to control population densities in residential districts. Large tracts, large yards, and low coverage allowances result in lower densities of population, while smaller tracts, smaller yards, and greater tract coverage permit higher population densities.

A community may want to control population densities in its residential areas for many reasons. It may want to protect or create a variety of desirable zones for homes; to prevent undue crowding of land, with its threat of future urban or rural slums; or to protect property values and the tax base. Or it may want to achieve all of these goals. Other aims may be to prevent concentrations of population that will overtax water or sewer mains, drainage facilities, and roads, or that will necessitate costly additions to schools. All these aims are related to the basic reasons for using zoning tools—the fostering of public health, safety, morals, and general welfare.

Building-Height Regulations

Many rural zoning ordinances limit both the height of buildings and the number of stories they may contain. Detached 1-family dwellings are usually limited to 2½ stories and may not exceed 35 feet in height. These restrictions on height do not apply to structures that are not used for human occupancy. Church spires, chimneys, antennas, poles, silos, barns, and so on, usually may be higher.

Restricting the height of buildings assures a fair sharing of view, light, and air among neighbors. It prevents the pocketing of dwellings with their gloomy, airless side rooms between adjoining taller buildings. It protects the privacy of private yards. It prevents one owner from taking advantage of the open spaces provided by others. Shade from taller buildings often stunts the growth of grass, flowers, and shrubs in neighboring residential yards. In winter, when it is most wanted, sunlight is reduced. Also, tall buildings reflect more street noise than lower ones. Trees and shrubbery tend to absorb noise.

Some additional reasons for limiting building heights in residential districts should be mentioned. The restrictions serve to control the density of population. Tall buildings house more people, attract more traffic, and cause more congestion. There are also safety considerations. Fires are more readily suppressed when houses are low. One reason for limiting the height of country homes is to permit the less costly fire-fighting equipment to reach roof fires. Finally, height limitations in 1-family residential zones help to protect property values. Homeowners soon begin to move away and values decline when attractive residential areas change following invasion by buildings that are out of harmony with others in the area.

Zoning Tools for Higher Density Residential Districts

Your community may need several types of residential districts. In addition to the detached 1-family zones, it may need higher density residential districts for 2-family dwellings, for apartments and, perhaps, for row houses and public group-housing projects. One or more of these types of zoning districts have been created by many counties and townships that are experiencing rapid suburban growth. Your community's need for zones of this kind will depend on its size, its location with respect to expanding urban centers, and its estimated future growth.

Two-Family Residential Districts

There are 2 common types of 2-family buildings: (1) The duplex—2 dwellings side by side joined by a common party wall; and (2) the flat—1 dwelling unit above the other.

Zoning ordinances usually permit the same uses in 2-family residential districts that are allowed in 1-family zones, including 1-family dwellings and a few other uses that vary with local needs. Population densities in these districts are usually greater than in 1-family zones. Here the community can readily influence densities by careful use of building-tract zoning tools. For example, if the same minimum tract sizes are required in 2-family districts as in 1-family zones, permitted population densities in the former zones will be about

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twice as great as in the latter. Many zoning ordinances avoid extreme differences in densities on adjoining tracts by requiring larger tracts for 2-family buildings. Increases in tract sizes required range from 20 to 60 percent or more.

Benefits that accrue from applying zoning tools in 1- and 2-family residential districts are similar and the same reasons prompt the use of each tool. Wise use of zoning measures will help to make the district a better place in which to live, rest, and play.

Multiple-Family Residential Districts

How much land should your community set aside as high-density residential districts and where are the best locations? Only a small percentage of the land area of the average community is needed for these purposes, although there are exceptions. In an average city, 2 or 3 percent of the land area is used for apartments and other multihousing purposes. In less populous communities, the percentage needed for high-density housing is usually lower. It has been suggested that normally not more than 1 percent, but in exceptional instances up to 10 percent, of a community's developed area is needed for these uses. Communities should avoid zoning too many areas for high-density housing. If such zoning is not avoided, tracts that otherwise might have been desirable for 1- or 2-family houses are likely to remain idle for years. Owners of high-density-zoned tracts tend to hold them off the lower density market hoping that the "lightning" of apartment development will strike their particular tracts.

High-density residential areas are often found near the business centers of older communities. But in recent years of rapid urban growth and more flexible transportation, many apartment developments have been located farther out along main arterial roads, often beyond city limits. These two types of residential areas differ greatly. The older areas often consist of a mixture of apartments, 1-family dwellings, and other types of housing. The newer developments often comprise sizable tracts of land that are used for apartment-type housing only. Because of these differences, the zoning problems also differ and so do the ways in which zoning tools are applied.

The existence of mixed-housing areas and of areas for apartments only has given rise to two basic but divergent methods of zoning high-density residential areas. Both methods are widely used. One method separates residential buildings on the basis of housing types by creating separate zones for 1-family dwellings, 2-family buildings, apartments, and so on. The other permits apartment and other group housing to be located in any residential district, if population-density regulations are met. Density may be controlled in various ways. The number of families per acre may be limited; adequate open spaces may be required; the height of buildings may be restricted, and so on.

Which of these alternative methods is preferable for your community? With respect to existing mixed-housing residential areas, there is often little choice. Zoning can't unscramble mixed-housing areas. In these areas, zoning tools can be used only to guide future growth. But with regard to future high-density housing areas, the community can either zone by housing types or it can prevent overcrowding in residential areas by applying density regulations.

Each method has both its strong and its weak points. Mixed housing may result in dwellings pocketed between apartments. High buildings with narrow sideyards may be harmful. Later zoning amendments may lower original standards. But passing amendments to permit apartments in 1-family residential districts is usually difficult. Residential neighborhoods usually change when apartment buildings are erected therein. Sometimes apartment houses are located to exploit private home surroundings. Also, traffic increases and public facilities may become overloaded.

But permitting multifamily housing, with density safeguards, in any residential district assures greater flexibility for community growth and change. It is a way of avoiding possible future overcrowding of areas that otherwise would be set aside for high-density housing only. Also, because the capacities of public service facilities are directly related to the number of people to be served, population-density regulations are useful guidelines for planning future streets and other public improvements.

The kinds of uses that should be permitted in multiple-family residential districts will de-

pend on local conditions. Planning experts can be helpful here. All types of residential uses are permitted in the mixed-housing residential districts favored by some communities. The same mixture is usually permitted in multiple-family residential districts of communities that separate residential buildings in zones on the basis of housing types. Although high-density housing is excluded from 1- and 2-family residential zones, most zoning ordinances allow 1- and 2-family dwellings in multiple-family districts. Other uses permitted in lower density residential zones are also admitted, as are such group residential uses as rooming and boarding houses, dormitories, fraternity and sorority houses, private lodges and clubs, tourist homes, and residential hotels with restaurants for guests. Also permitted are such institutions as hospitals, sanitariums, homes for the aged, nursing homes, and sometimes facilities of various charity organizations. Zoning regulations for high-density residential zones differ greatly. Your community may want to exclude some of these uses and admit others. Your planning adviser can offer useful suggestions.

Adequate control of population density is vital in multiple-family residential districts, in both mixed-housing zones and zones that separate housing types. As in 1- and 2-family residential districts, building-tract zoning tools, together with building height and size regulations, are useful in preventing overcrowding, but the zoning tools are not used in quite the same way. In 1- and 2-family zones, population density is controlled by regulating the size of building tracts, regulating front, side, and rear yards, and limiting tract coverage and building heights. In multifamily zones, population-density controls may be applied in different ways.

The regulations may provide that no more than a stated number of families be permitted per acre. Or, they may require a minimum number of square feet of open space for each family. The maximum number of families that should be allowed per acre, or the minimum area of open space that should be required per family, will necessarily vary greatly, depending on the population density desired in the district. A maximum of 14 families per acre has been suggested for apartment districts in small towns, but higher maximums are frequently found. A widely accepted rule permits no more than 40 families per acre. A practice that is increasingly favored permits large-scale builders who erect two or more apartments on large tracts to distribute the required open spaces in areas for common use as playgrounds, parking lots, and so on.

Another way to control density is to require a stated ratio between total floor area and total area in open spaces. This ratio, for example, might be 2 to 1—for each 2 square feet of floor area, 1 square foot of open space might be required. Under this method, the percentage of tract areas required for open spaces increases with increases in apartment size, height, and number of stories. The reverse is the case with respect to maximum tract coverage allowed, which decreases with increases in gross floor area within buildings. Maximum tract coverages allowed for apartments range from less than 30 to 50 percent or more.

Many zoning tools not discussed here are often applied in high-density residential districts. Your planning adviser will know how these tools may be used.

HOW ZONING TOOLS ARE USED IN FARMING AREAS

We have discussed the many ways in which zoning tools may be used to protect the home—by regulating the minimum sizes of building tracts and yards, by limiting the height of buildings, by controlling population densities, and by excluding from residential districts all uses that are not in harmony with accepted uses. We have seen how zoning tools are used to exclude farm animals from residential districts or to regulate the conditions under which animals may be kept. The purpose of zoning of this kind is to prevent one landowner from using his land in a way that will hurt his neighbors.

These basic zoning tools can be used, though in different ways, to protect agriculture. Farmers need to take a second look at the zoning kit and to examine each tool more closely. Zoning tools can be used either for or against farmers,

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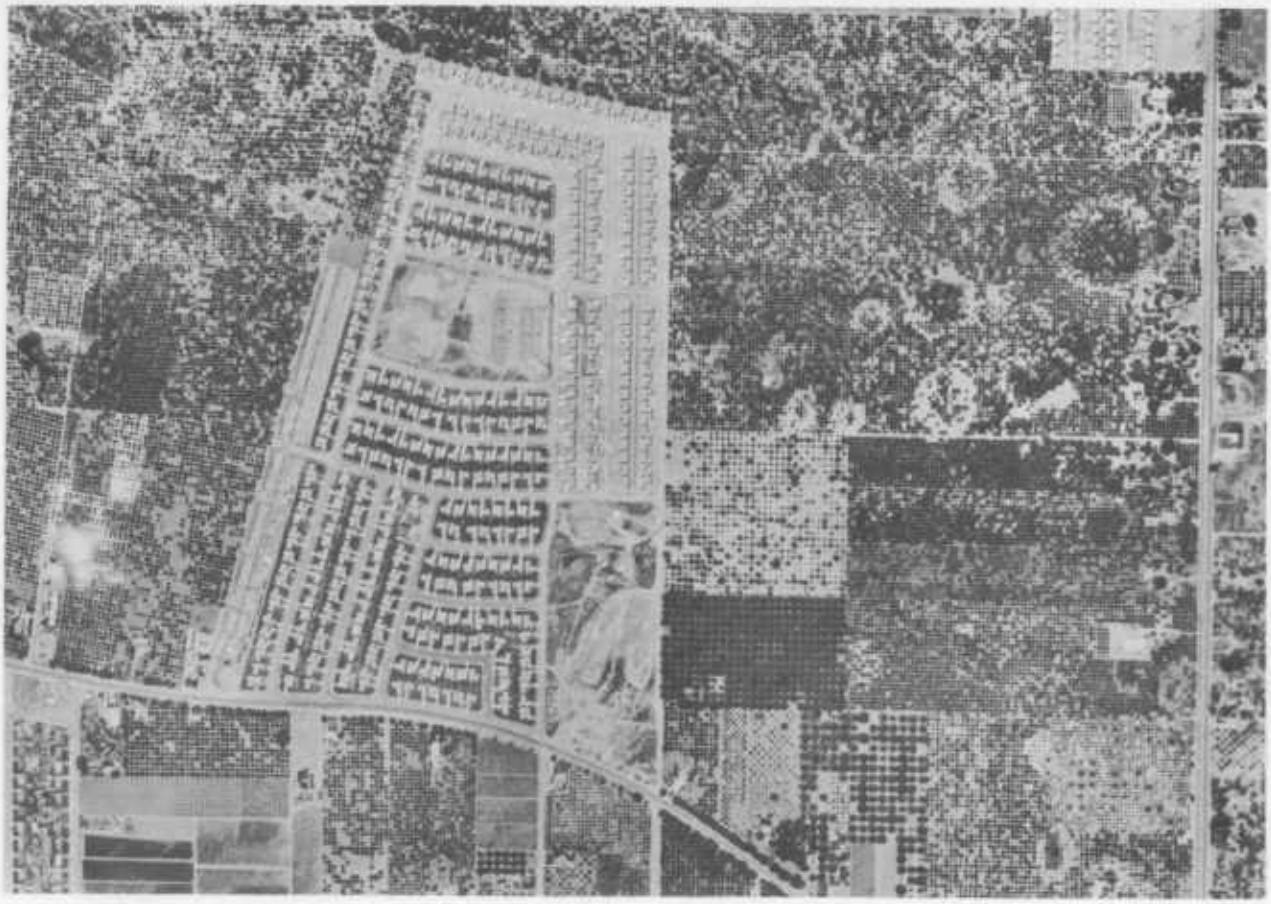
Before: A rural community of orchards and truck farms in Santa Clara County, Calif., in 1950. Note the farm homes in the orchards along the roads.

depending on who uses them and the purposes for which they are used. In many rural communities, farmers have learned to use zoning tools to the advantage of agriculture and the community as a whole.

Farmers need first to realize that absence of zoning in their county or district offers no protection. Instead, it permits their neighborhoods to become a dumping ground for those commercial and industrial activities that are excluded elsewhere. It also permits a widespread scattering of nonfarm residences and subdivisions all over the farm countryside. Sooner or later, this unguided urban encroachment into productive farming areas means that farmers pay higher taxes for the public improvements and services demanded by others. More people mean more roads, new schools, and increased school bus transportation. Later, improvement districts, with farmland included, may be created to help pay the cost of public water and sewer systems. Tax revenues from many nonfarm homes do not pay the cost of schools and other public services these homes require.

As more nonfarm people move in, other urban-agricultural conflicts arise. Objections to farm odors and flies have resulted in regulation of farming and feeding practices by health authorities. There are also objections to smoke from smudgepots, dust from farming operations, noises made by farm animals and by tractors that operate in early hours and at night. Objections to crop spraying and dusting have resulted in the banning of some effective insecticides and in requirements for time and wind permits. In some places, dusting may be done only at night.

In other farming areas, additional urban-agricultural conflicts may occur. Among these are a lowering of the underground water table,



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After: By 1956, agriculture had been replaced by subdivisions in the foreground and on the left and right. More land was being cleared of orchards to make room for homes. Suburban growth has resulted in a pattern of mixed residential and agricultural land uses.

as a result of pumping to supply scattered subdivisions; more frequent flooding of farmlands because of rapid runoffs from roofs and streets of subdivisions; injury to irrigated crops because of pollution of streamflows; and injury to crops because of air pollution. There are also increased trespass hazards, particularly at harvesttime. This has caused some truck crop, fruit, and berry growers to post guards during harvesting. In some localities, added costs and inconveniences arise from a decline in local agricultural service and marketing facilities, which have moved farther out.

The urban-agricultural conflicts generated by urban encroachment are serious and costly for many farmers. These conflicts and the problems created may be separated into the following three groups:

1. Problems of excessive taxes resulting from a shifting to farm taxpayers of development and public service costs.
2. Problems that result from adverse effects of nonfarm land uses on agricultural plant and operations.
3. Problems created by objections of nonfarm people to certain farming activities and practices.

What can farmers do to avoid these conflicts and the problems they cause? Leaving agricultural areas unzoned won't help. Inaction merely permits urban encroachment to move in unguided.

Another way is to except agricultural activities from zoning regulations. This is done in about a sixth of the zoning enabling laws that grant zoning powers to rural units of government. Most of these laws prohibit any zoning regulation or restriction on the use of land, and

MINN. HIGHWAYS 46-262

Modern highways facilitate a widespread scattering of nonfarm homes out among the farms for many miles beyond city limits.

the use, repair, or alteration of buildings or structures for agricultural purposes. In a few instances, the exceptions are not so broad.

These agricultural exemptions may stem from the fact that farmers think of rural zoning as negative, as regulations that may be used against them, instead of positive tools that can be used to protect them. Exemption of agriculture from zoning will not stop urban encroachment; nor will it prevent the resulting increases in taxes or reduce the impact on farmers of conflicts between nonfarm and agricultural land uses. However, the exemption does mean that objections to farming activities and practices are not reflected in zoning restrictions on agriculture. This doesn't mean that all kinds of farming activities or practices are allowed in rural areas where nonfarm people live. In these areas, for example, hog farms for disposal of garbage and offal may be suppressed under public nuisance laws, without zoning. Nor may farmers endanger the lives of nonfarm residents with poisonous crop dusts or sprays. In these instances, public health authorities take action. There is also the risk of lawsuits ending in money damages.

Illinois has passed a county zoning enabling statute that exempts land and structures used for agricultural purposes from zoning regulation. Its county zoning ordinances, therefore, permit agriculture in any zoning district. However, as agricultural uses are not defined in the enabling statute, most of the county zoning ordinances contain a limiting definition of such uses. These definitions, of which the following is an example, were designed to prevent abuse of the exemption from zoning regulations:

> Agriculture shall be considered to mean the growing of soil crops in the customary manner in the open on tracts of land at least 3 acres in size and shall include

all activities associated with the acreage so used in the neighborhood where situated. Incidental retail selling by the producer of products raised on the premises . . . shall be considered a permissible activity provided . . . that space necessary for parking of vehicles of customers shall be furnished off the public highway.

Seven of twelve county zoning ordinances in Illinois contain limiting definitions of agricultural uses. But, as might be expected, the minimum areas specified vary from county to county; they include 1, 3, 10, and 15 acres, depending on the county. Under these ordinances, agricultural uses are exempt from zoning regulations only if they are conducted on a tract of land that is at least as large as the minimum area specified in the particular ordinance. Most farms are larger than even the largest of these minimums. Therefore, agricultural uses on most farms in the seven counties are exempt from zoning regulations. However, in these counties, agricultural uses may be restricted or regulated if they are maintained on tracts that are smaller than 1, 3, 10, or 15 acres, depending on the county. Most tracts of these sizes are more suitable for country homes than for farming. As in residential zoning districts, objectionable agricultural activities on these small tracts may be restricted.

The statutory exemption of agriculture from zoning regulation in Illinois and other States has not prevented the creation of farm zoning districts for the protection of agriculture. Similar districts have been established in many States without such statutory exemptions. In these farm zoning districts, agriculture and closely related activities are permitted and most other land uses are excluded. The nonfarm uses that are permitted in farming zones, as well as the uses excluded, vary greatly, depending on local ordinances. Usually, however, business and industrial uses are excluded from agricultural zoning districts. In a number of farming zones, the influx of nonfarm homes is discouraged by requiring tracts to have minimum sizes of 3, 5, 10, and even 20 acres. Besides requiring large minimum tracts, some recent county zoning ordinances in California prohibit nonfarm residences in agricultural districts.

Four ways of dealing with urban encroachment have been examined. These are: (1) To leave farm areas unzoned; (2) to exempt agricultural uses from zoning regulations; (3) to have such exemptions not apply on small tracts; and (4) to use zoning tools to separate agricultural uses from nonfarm uses that cause urban-agricultural conflicts. Each of the first three methods invite urban encroachment with its resulting conflicts. With the use of methods 2 and 3, some of the impacts of the conflicts on farmers may be lessened by treating the symptoms, that is, by exempting agricultural uses from zoning regulations. The fourth method reaches the cause of the problem by separating agricultural uses from nonfarm uses that result in urban-agricultural conflicts. The degree of separation that is desirable varies with the locality. The use of zoning tools will be guided by local zoning objectives, which may include some or all of the following:

1. To prevent scattered haphazard suburban growth and guide orderly transition.
2. To secure economy in governmental expenditures.
3. To avoid restricting or hampering agriculture because of preventable urban-agricultural conflicts.
4. To prevent an unfair shifting to farmer taxpayers of public construction and service costs.
5. To prevent rural areas from becoming the dumping grounds for land uses that are not wanted elsewhere.
6. To keep productive farming areas in agriculture until they are needed for nonfarm uses.
7. To reserve the more fertile soils for farming.
8. To protect the economic base of local agricultural service and marketing firms and industries.

Lands for Farming

Rural land is rated by the Soil Conservation Service in accordance with those physical properties that determine the capability of the land to produce permanently. Properties considered in the rating include soil quality, slope, erosion, and other permanent physical features that limit land use or impose risks of erosion or damage. Based on these permanent physical properties, rural land is placed in one or another of eight broad land-capability classes. Lands in classes I through IV are suitable for cultivation.

C—1086-6-LC

Is this a wise allocation of soil resources? Fertile lands of class I are used for homesites, while less productive lands around it remain undeveloped.

Land in class I is good land from every standpoint. Class II land is good cultivable land with moderate limitations or risks of damage. Class III land has severe limitations or risks of damage but can be cultivated regularly if the limitations are taken into account. Class IV land has severe limitations, but it is suited to occasional or limited cultivation. The next three classes of land are not suited to cultivation, but with increasing degrees of limitations, they can be used for grazing or forestry. Class VIII land is suited only to wildlife, watershed, or recreational uses.

A recent nationwide survey by the Soil Conservation Service indicates that about 17 million acres of cultivable land in land classes I, II, III, and IV were diverted to nonfarm uses from 1942 to 1956 inclusive. This is an average of about 1.1 million acres per year. A study that covered the last decade shows a diversion to urban and related nonagricultural uses of about 1 million acres of rural land annually. These acres were converted to urban and suburban homesites, business and industrial uses, highways, airports, defense establishments, and other public and private nonfarm uses. An estimated 500,000 of the million or more acres absorbed annually is diverted to urban and suburban uses, including scattered nonfarm homesites. Much of the land taken for suburban and industrial expansion and for highways and airports are the flattest, least erodible, and most fertile farmlands. It costs less to develop level land for nonfarm uses. But it costs more to grow food on less fertile or more erodible land.

Are the most productive agricultural lands in your community being diverted to suburban and related uses? Are alternative areas of less fertile soils available that might be used instead for nonfarm purposes? When alternative lands of differing soil capabilities are available, and both are suitable for nonfarm uses, the community has a choice. By inaction, it can permit the loss of its fertile soils and with them may go much of the local farming industry. By taking timely and appropriate action, the com-

SCS CALIF. 7169

A walnut orchard on class I agricultural land is giving way to a residential suburb.

munity can guide nonfarm uses of land to less fertile lands, reserve the better soils for farming, and have both agriculture and suburban-industrial growth.

Usually, it is not imperative for industry or subdivisions to occupy the best farmland. But there is little point in farming poor land. Agriculture is as essential as trade and industry. Soil and water are part of the agricultural plant. If farmers are called on to operate a poor plant, or one that is too small, efficient production cannot be expected.

Agriculture is more demanding soilwise than any other land use. Fertile acres often produce 2 or 3 crops a year. Yields on these acres are higher than those on less fertile soils. Production in some areas is 5 to 10 times greater from irrigated land than from nonirrigated land. Also, fertile soils are usually more easily worked, even after heavy rains, than less productive soils. Preparation of seedbeds is easier and less costly, and so also are planting, cultivation, and harvesting.

Land needs of agriculture are also demanding in other ways. In zoning land for farming, location, topography, weather, including air drainage, soil type, water, and irrigation and drainage improvements should be considered, along with soil fertility.

Fertile soils are a priceless heritage of any people. Large sums have been spent to save topsoils from wind and water erosion. We now face a new problem—erosion of our best farmlands by diversion to nonfarm uses, which do not require the most fertile soils. Your community can reserve its more fertile soils for farming and make the low-producing agricultural acreage available for other uses.

Fertile soil resources are not irreplaceable in the sense that their yields of food and fiber

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cannot be replaced by farming in other States or regions. But those in each local community are irreplaceable. Once converted to nonfarm uses and covered with streets and structures, the good lands are not likely ever to be reconverted into farms.

Should Farming Zones be "Cumulative" or "Exclusive"?

Two alternative methods used in zoning residential districts were discussed on the preceding pages. Two alternative methods are used also in zoning farming areas. The first permits both nonfarm housing and agriculture, plus activities closely related to each, in farm zoning districts. The second, which was recently developed in California, permits only agriculture and related activities in farm zoning districts. It excludes nonfarm housing and related uses from these zones.

These two contrasting ways of applying use regulations in zoning residential and agricultural districts are used also in zoning business and industrial districts. In exclusive districts, only the classes of land uses indicated by the names of the districts (residential, farming, business, or industrial) are permitted. A cumulative district's name is descriptive of the "least restrictive" use of an array of land uses that are permitted in the district. For example, under many ordinances, the various types of zoning districts are arrayed from the most restrictive to the least restrictive, in this order: Residential, farming, business, industrial, and unrestricted. Each district in the array admits the uses allowed in the preceding more restricted zones. That is, land uses permitted in each succeeding district in the array from the most to the least restricted are cumulated as follows: In the residential districts having the highest restrictions, only homes and related uses are permitted; in agricultural districts, homes plus farming are permitted; in business districts, homes plus farming plus trade are allowed; and so on (fig. 1).

This mixing of conflicting land uses in the less restrictive cumulative-type districts has been justly criticized. Although factories are kept away from homes in residential zones, homes are not kept away from factories in industrial districts. Obviously, if the public interest is served by excluding factories from one, it would be similarly served by excluding homes from the other. By doing so, slums could be prevented. Also, when homes are kept out of business and industrial districts, space is reserved for future expansion. In recent years, increasing numbers of zoning ordinances have created exclusive-type districts for business and industry.

Which type of farm zoning district is most suitable for your community—cumulative, exclusive, or both? The choice will depend on the problems that face your community and the jobs it wants zoning to do.

In many communities, there are farming areas in which agriculture is likely to be replaced in a decade or so by suburban homes and related uses. In these areas of rapid transition from agriculture to nonfarm uses, the appropriate tool is a cumulative-type farm zoning district, which admits nonfarm homes.

Many communities also have farming areas that will not be needed for nonfarm uses in the near future but may be needed for them at a more distant time. These areas can serve as land reserves from which various kinds of zoning districts may be carved as the need arises. There are also productive farming areas that will not be needed for purposes other than farming in the foreseeable future, if ever. Cumulative-type farm zoning districts are not the best tools for holding areas of this kind in agriculture for the longer term.

Change in the rural character of farming districts usually begins with the use of a few roadside tracts for nonfarm residences. This is permitted in cumulative-type farm zones, although it may be discouraged by requiring large minimum-size building tracts. With the passing years the process brings more nonfarm homes into the farming district. It also brings more urban-agricultural conflicts, including higher taxes stemming from school, sanitation, and other public-service needs. In the end, the rural community is economically and politically submerged. If, before results of this kind occur, the local decision favors the retention of an area in farm use, a cumulative type of farm zoning district is not the proper tool. It has a built-in defect for the task at hand; it allows nonfarm residential uses in the district.

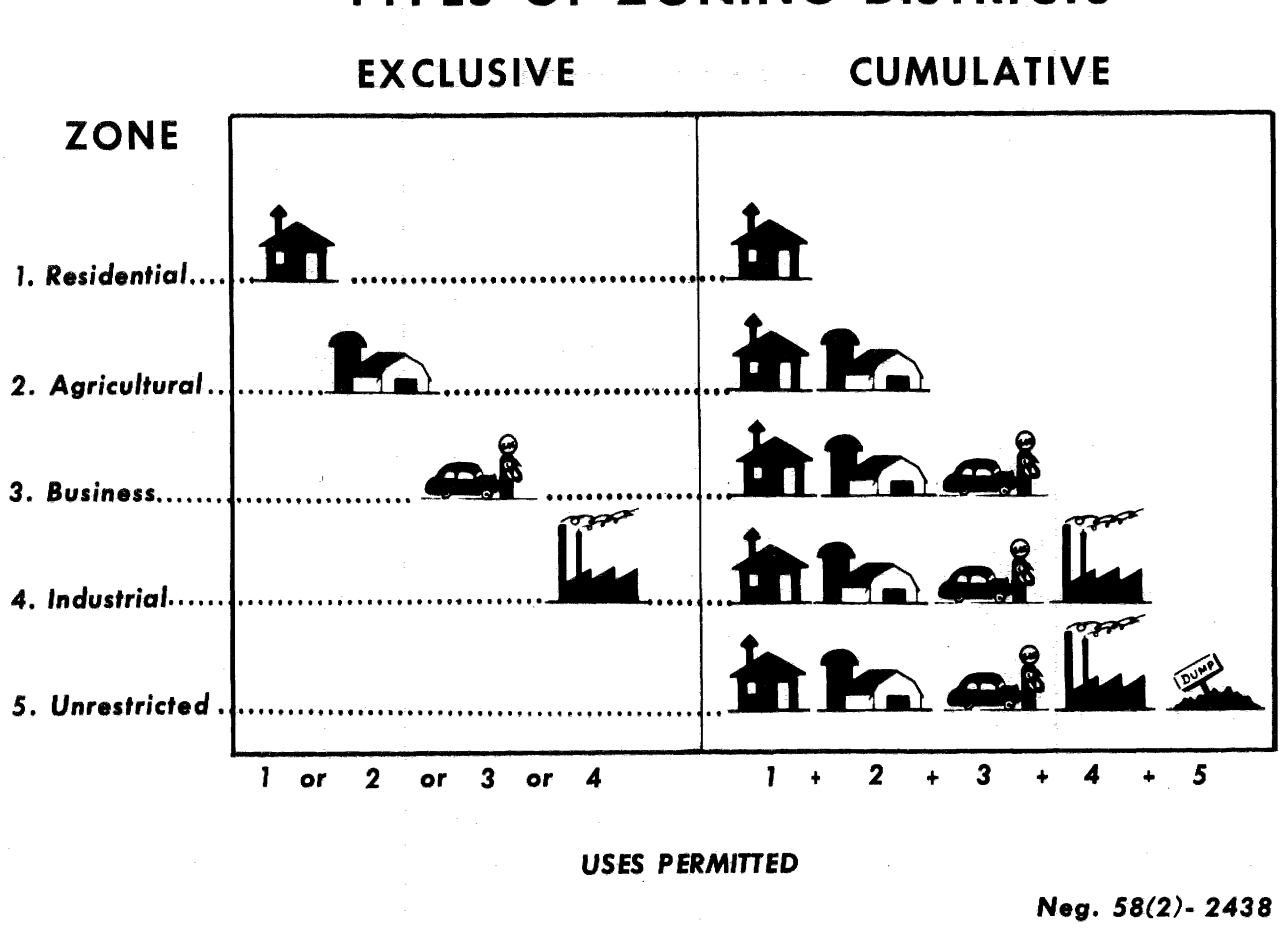


Figure 1.—The names of the respective zoning districts indicate the major class of land uses permitted in exclusive-type districts, and the last or least restricted of the array of land uses allowed in the cumulative-type districts.

Exclusive-type farm zoning districts separate agricultural activities from nonfarm uses that cause urban-agricultural conflicts. Excluding nonfarm uses from agricultural districts prevents a piecemeal beginning of urban encroachment that often takes the most fertile soils first, and ends, sooner or later, with most of the good soils lost to agriculture. The farmers who remain are trapped in an urban economy.

The exclusive type of farm zoning districts was developed by California farmers to protect agriculture from an onrushing, haphazard urban encroachment. These districts provide firm zoning tools for setting aside productive agricultural areas for either the short or the long term. Also, they provide effective tools for reserving the more fertile soils for farming.

Several Kinds of Farm Zoning Districts Are Needed

Each farm zoning district and its related regulations should be a custom-made job. Because communities and the agricultural areas in each differ greatly, there should be little copying from a neighbor. Some communities and their farming areas are far from large population centers. Distance lessens urban pressures on their stable rural economies. In communities near expanding cities, agriculture is often under heavy pressure from urban encroachment. Here are likely to be found farming areas in various stages of transition from agriculture to nonfarm uses. Degrees of transition may range from a scattering of nonfarm homes along roads in outlying areas to areas

closer in, where most of the land has been diverted to nonfarm uses.

Farm zoning districts are community tools for coping with certain problems and gaining certain objectives in agricultural areas. These problems and objectives differ from place to place. The tasks of zoning also differ. It follows that several kinds of farm zoning districts are needed, each designed to do the particular job at hand. In stable agricultural areas, the problems and objectives that will respond to zoning direction are few and simple. Helping to preserve the area's rural character by keeping out a few objectionable kinds of land uses may be the chief task of zoning here. In changing agricultural areas, zoning has many different jobs to do. These may include guiding suburban growth, saving tax dollars, avoiding urban-agricultural conflicts, and reserving fertile soils for farming. Here, several kinds of farm zoning districts are needed.

Many counties have created farm zoning districts to cope with local problems and to permit attainment of diverse local objectives. The many districts established may be grouped into five general classes, based on differences in regulations. The names given the classes of districts in the list below were selected to suggest the main land uses found in each. They may or may not be the same as the names used in the ordinances. The first two are transitional-type districts designed to encourage change from agriculture to residential uses in the near future. The other three are for agriculture over the long term. Establishing districts of the latter type does not preclude using such zones as a reserve from which other kinds of zoning districts may be carved by zoning amendments, when and if the need arises.

Farm zoning districts	*Comments*
Regulations favor nonfarm homes:	
1. Country home or estate zones.	Transitional for short term. Large minimum tracts. Agriculture restricted.
2. Suburban or residential-farming zones.	Transitional for short term. Large minimum tracts. Agriculture less restricted.
Regulations invite nonfarm homes:	
3. General rural, or farming-residential, zones.	Small minimum tracts. Agriculture not restricted.
Regulations favor agriculture:	
4. General farming zones.	Large minimum tracts. Nonfarm homes discouraged.
5. Exclusive-type farming zones.	Large minimum tracts. Nonfarm homes excluded.

Zoning Tools for Stable Rural Areas

Perhaps you farm in a stable rural area away from urban-agricultural conflicts. Many areas of this kind are found along main highways far beyond urban centers and along secondary roads nearer town. In these areas, farms are well kept, homes are attractive, and farm buildings are substantial. Nonfarm business and industry are scarce.

Distance from cities shields these rural areas from urban pressures. But the yardsticks of yesteryear are becoming outmoded. Good roads and automobiles have brought a change whose final form is only foreshadowed. Daily commuting distances to office, store, or factory are measured in terms of travel time rather than in miles. Millions of people have come to accept morning and evening trips of 45 minutes to an hour between home and work. Expressways, a recent invention, have increased permissible highway speeds, and outlying areas have been brought within accepted commuting zones. The expressway age is young. Should we soon expect new suburbs beyond present suburbs, and urbanization scattered far afield?

In stable rural areas, the objectives of zoning often are the protection of the agricultural character of the districts by preventing the gradual entry of unsuitable commercial and industrial activities and encroachment of multiple-family housing.

The first step in using zoning tools to attain these ends is to decide on the boundaries of the proposed farm zoning district. Areas with soils that are marginal for farming but are suited to forestry and recreational uses should be separated from agricultural areas. In Wisconsin and neighboring States, large areas of land that are submarginal for farming have been set aside for more profitable forest and recreational uses.

Thought should be given to the location of the boundaries of farm zoning districts. Their location should reflect differences in soil qualities and other local factors discussed earlier. When district boundaries have been located, other zoning tools should be selected and applied to the tasks the community wants done. Among these tools are use regulations, building-tract regulations, and perhaps height limitations to be applied only to buildings for human habitation.

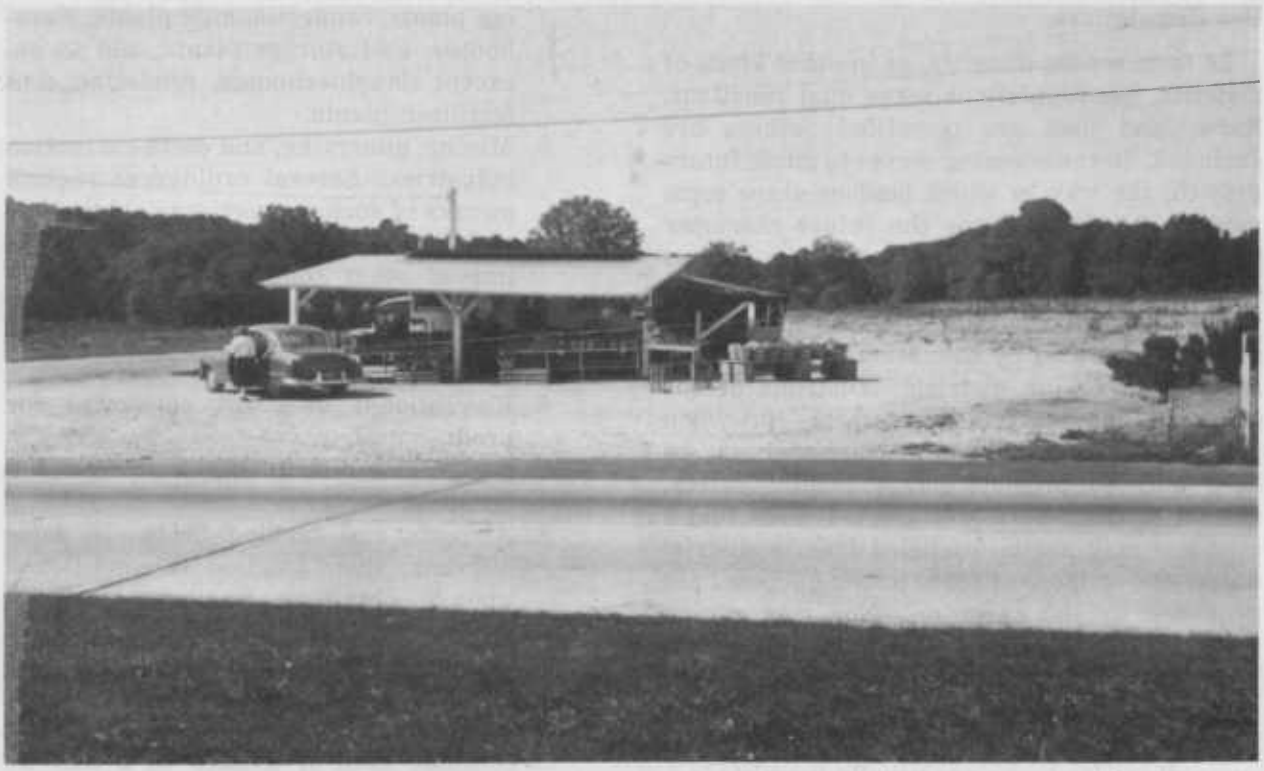
Use Regulations

In farm zoning districts, as in other kinds of districts, use regulations serve dual functions. Some land uses are permitted; others are excluded. Because zoning serves to guide future growth, the way in which land uses are separated will help to shape the future character of the district. It will also foreshadow success or failure in gaining proposed zoning objectives. There are no fixed rules to say how land uses must be separated by admission to or exclusion from farm zoning districts. Districts of the same kind may vary in this respect. But when it is remembered that zoning measures may be used only to promote public health, safety, morals, or the general welfare, it follows that a land use may not be excluded from a district unless one or more of these public purposes are promoted by the exclusion. Nor may zoning tools be used to discriminate against a particular landowner. All properties of the same kind must be treated alike.

In farm zoning districts for stable rural areas, these land uses are usually permitted:

1. All land uses that are permitted in detached 1-family residential districts. These include 1-family dwellings, home occupations, schools, playgrounds, churches, libraries, museums, and similar buildings and facilities. Many districts also admit 2-family housing.
2. All agricultural land uses, buildings, and activities, except farms for disposal of garbage and offal. Farms of this kind have received much zoning attention. In some farm zoning districts, they are prohibited outright. In others, they are permitted in areas where they are least offensive but a special permit, which may or may not require periodic renewal, must be obtained. In several other districts, such farms are permitted provided all buildings for housing hogs and all roaming yards are at least 500 feet from any adjacent property line or any public highway.
3. Roadside stands for the sale of farm products grown on the premises, if enough off-the-road parking space for customers is provided.
4. Plants for the processing and storage of agricultural products, such as packing plants, canneries, milk plants, warehouses, cold storage plants, and so on, except slaughterhouses, rendering, and fertilizer plants.
5. Mining, quarrying, and earth-extraction industries. Several ordinances require owners of such properties to obtain permits before starting operations; or they impose other conditions, such as setbacks of 300 feet, 500 feet, or other distances, from roads, parks, schools, or dwellings.
6. Recreational uses not conducted for profit.
7. Essential public utility buildings and facilities.
8. Airports and landing fields. In some districts, their location is conditioned upon the obtaining of a permit.
9. All preexisting nonconforming uses, buildings, and structures. Uses and structures of this kind that were there before the ordinance was passed may continue even if located in a district where new uses and structures of the same kind are prohibited.

Usually, zoning regulations for farm zoning districts list permitted uses, beginning with permitted general classes followed by minor classes and specific uses permitted also. Some other uses are allowed by special permit, or conditionally, if certain regulations are complied with. This avoids undue rigidity. All other uses are prohibited, either by omission from the list of permitted uses, or expressly by name. Ordinarily, the land uses listed below are excluded from farm zoning districts in stable rural areas: (1) Slaughterhouses and rendering and fertilizer plants; (2) wrecking yards, junkyards, and used-car sales lots; (3) outdoor advertising signs, except unlighted signs of limited size that advertise products produced on premises; (4) all industrial uses, except plants for processing agricultural products; (5) commercial recreational uses; (6) noxious trades and activities that constitute public nuisances; (7) stores and other nonfarm business activities, particularly taverns and public dancehalls. Some kinds of business and recreational uses occasion moral and safety hazards. If these enterprises and other business properties are widely scattered,



PUBLIC ROADS 57-1219

A roadside stand with off-the-road parking space for the convenience and safety of customers.

PUBLIC ROADS 55-2049

Automobile graveyards mar the front yards of many attractive communities.

the cost of providing adequate police protection is greatly increased.

You may have in mind a land use that is not included in the list of permitted uses that should be allowed in the district, or an additional use that should be excluded. You are probably right. Emphasis in the cited lists of permitted and excluded land uses was on major classes of land use rather than on minor classes and specific uses. The two lists are composite examples gleaned from many ordinances of land use regulations for a typical farm zoning district in a stable rural area. Because of the differences in districts and in their zoning problems, and to avoid errors in the use of zoning tools, any community that is considering zoning will do well to obtain the services of a planning and zoning adviser to help prepare its zoning plan and ordinance. This advice cannot be too greatly emphasized.

Building-Tract Regulations

Usually, only a few types of building-tract regulations are needed or applied in farm zoning districts in stable rural areas. The most common are setback regulations to keep buildings from being too close to public roads. Even in many States where agricultural activities are exempt from zoning regulations, when farm buildings are erected or moved, setbacks are required in the interest of safety on the highways.

Frequently, a 25-foot setback from the property line is required. Required distances may range from 20 to 60 feet or more, but annoyance from noise, dust, and gas fumes increases as the volume of traffic increases and decreases with distance from the roadway. Therefore, wider setbacks are sometimes required along busy highways than along less traveled roads.

Parking on busy highways is a hazard in any district. Concern over safety brought the generally accepted zoning regulations that require operators of roadside stands to provide off-the-road parking space for customers.

Even on small farms, there are ample open spaces around the farm home and between neighboring homes. However, all farm zoning districts may contain some nonfarm homes that are in clusters. If in the future such homes are likely to be built in groups, some thought should be given to the establishment of minimum tract sizes. To protect public health, tract sizes will need to be large enough, considering percolating capacities of soils, to assure a safe separation of wells and septic tanks or cesspools. Some counties require minimum tracts of 20,000 square feet when private wells and septic tanks are used, or 10,000 square feet when soil conditions permit, on written approval of local health officials. Other benefits, which were discussed earlier, will accrue from the use of building-tract regulations.

Building-tract regulations are justified only when they serve the public interest. They are not justified for farms. Regulations for nonfarm building tracts may serve many public ends, including protection of health and safety. The absence in one instance, and the presence in another, of a zoning problem stems from the difference in sizes of farms and sizes of nonfarm building tracts. Therefore, in many farm zoning districts, building-tract regulations are applied to nonfarm building tracts but not to farms. This is true in both States that do and those that do not exempt agricultural activities from zoning regulations. It is done by applying building-tract regulations to tracts that are as small as or smaller than the size specified in the ordinance, but not to tracts that are larger, except for setback of buildings from roads. This method provides zoning protection where it is needed and avoids regulation where it is not needed.

Building-Height Regulations

The same local fire organizations usually serve farm zoning districts, adjoining villages, and residential districts. Less expensive fire-fighting equipment is needed to suppress roof fires on low buildings than on tall ones. Tax dollars therefore may be saved by a uniform zoning limitation on building heights throughout the area served.

Height restrictions in farm zoning districts are applied only to buildings to be used for human occupancy. The maximum height of dwellings, including farm homes, is usually limited to 2½ stories and not more than 35 feet. These height restrictions, as do other zoning regulations, apply only to dwellings erected after the ordinance is passed. Existing higher dwellings are nonconforming. Many other benefits from zoning restrictions on building heights

in residential districts were discussed in an earlier section. These benefits do not accrue to farm homes, which are not likely to be crowded in future by neighbors building too close. Even in farm zoning districts, this is not always the case with nonfarm homes, which are sometimes erected close together on small tracts.

Are These Zoning Tools Adequate?

In farm zoning districts in stable rural areas, the chief tasks are to protect the district from objectionable nonfarm land uses and activities and to provide a small measure of zoning guidance for residential growth. The zoning tools applied are use regulations and a few building-tract and building-height regulations. Distance from cities is relied on to shield the farm district from urban pressures and encroachment.

The cumulative-type farm zoning district admits, in addition to agriculture, all land uses permitted in a more restricted detached 1-family residential zone. Nonfarm homes are permitted anywhere in the district, provided building tracts are as large as the minimum size required and dwelling heights are within the limits set.

Each farm zoning district and related regulations need to be tailored to the local tasks at hand. Types of districts and regulations that promise adequate protection for agriculture in stable rural areas provide little protection for farmers in areas on or near an expanding urban fringe. Yet farm zoning districts with regulations that differ very little from those of the district discussed on preceding pages are often established in agricultural areas that are under severe urban pressure. This type of farm zoning district will not prevent unguided, haphazard urban encroachment, future urban-agricultural conflicts, or successive increases in taxes to service a costly scattered settlement; nor will it reserve the more fertile soils for farming. Other kinds of districts and zoning tools are needed. Among these are the exclusive-type farm zoning district and minimum size tracts of several acres. The use of these districts and techniques is discussed in later sections.

Is Your Community Becoming an Urban Sprawl?

Is your community becoming more urban as the years go by? If so, is the change orderly, that is, are new areas developed for nonfarm uses only as needed when older areas are filled in with homes? Or is your community becoming an urban sprawl that is neither town nor country?

Urban sprawl means scattered building development, although the sprawl may have several forms. It may consist of homes and other buildings strung along roads and highways for many miles beyond city limits. It may consist of premature subdivisions, which may not sell for many years. Or, it may consist of a helter-skelter scattering of nonfarm dwellings on small tracts in rural areas. All three forms are found in many communities.

Sprawl areas usually require the same kinds of public services and facilities that are needed in normal suburbs—roads, schools, police and fire protection, sanitary and storm sewers, garbage collection, power and gas lines, bus transportation, and so on. Funds to pay for these services are raised at various levels of government. County taxpayers pay for some; town and district taxpayers for others; and subscribers are billed for specific services.

The cost per family of providing most public services needed in residential areas decreases as population density increases (at least until fairly high-density levels are reached). But an urban sprawl has scattered building development and low densities. For these reasons, larger total outlays for physical facilities are required per family to provide essential services. The large initial investment and scattered housing combine to increase the annual service costs per family. Typically, in sprawl areas, a part of the cost of providing public services is shifted to outside taxpayers.

Local roads, for example, cost more to build and maintain per family served in sprawl areas than in more populous suburbs. This is true also of some other public services. In normal suburbs, taxes collected locally cover expenditures in the locality; in sprawl areas, a tax deficit is usually made up by larger levies on other taxpayers in the taxing unit.

Increases in the costs of specific services, such as power and gas, may be paralleled by similar shiftings of service costs. In sparsely settled areas, longer power and gas lines are needed per household served. This is true also of water mains and sewer lines. Charges are made for

these specific services, and often all customers of the same class are treated alike. However, overall rates in the areas served, which may be large or small depending on the type of service, are gaged to yield a fair return on the investment as a whole. Losses in some areas are made up by excess revenues in others.

The effects of urban sprawl on public service costs are therefore twofold. Urban sprawl results in higher per family service costs, and the increased cost does not fall entirely on persons in sprawl areas. It is shared widely over the taxing unit or service area. The shifting of the cost of public services is likely to continue until the sprawl area becomes more densely settled. This may take years or decades, or it may never occur.

Many taxing units on the expanding urban fringes of cities contain both farming areas and areas in nonfarm uses. These nonfarm areas may be urban sprawls or residential areas with higher densities. Sprawl areas, as we have seen, typically pay less in taxes than they receive in local public services; residential areas with normal densities usually pay their own way; and agricultural areas on the urban fringe as a rule pay much more in taxes than they receive in local public services.

This unfair tax burden on farmers is due to the use of the assessed value of land, plus improvements, as the usual basis for local taxation. A tax on real estate to raise local revenues is based on two time-honored tax principles, which may be valid elsewhere but which work a hardship when applied without modification in mixed residential-agricultural areas. One assumes that the assessed valuations of real estate owned, which for farmers consists largely of land, reflect correctly the taxpaying ability of farmers compared with rural nonfarm residents. Often, this is not true of the urban fringe. The other assumes that the cost of and benefits from public services are related fairly to actual and assessed values of each real property ownership. This may not hold in fact. Taxes on operating farms that consist of large tracts of land on the urban fringe are often many times as high as the value of the public services the owners receive for their tax money.

Besides increasing and shifting the costs of public services, urban sprawl is a destroyer of farmland. Many fertile acres remain for years as idle building tracts, or as small part-time farms with low and declining yields per acre. Urban sprawl also spoils the area for future orderly urban development. After years of haphazard growth, a crazy quilt pattern of property lines is established that may defy creation of an adequate street system, for example.

How large is the urban sprawl, if any, in your community? How large is it in square miles? More important, how large is it in terms of numbers of years that will pass before it fills in with new homes, assuming that the sprawl area absorbs the entire growth of your community? Will 10, 20, or 30 years be required? This will depend on several things, including the expected annual growth of population.

More People Each Decade

In recent decades, millions of people have moved to the countryside. The largest growth in population from 1940 to 1950 occurred near, rather than in, central cities. The same trend continued at an accelerated pace through 1955. What about future decades? Population estimates for the Nation for 1975 range between a low of 207 million and a high of 228 million people. Will the additional people live in the city or in rural areas?

What was the population of your community in 1940, in 1950, and in 1955? What is it likely to be in 1960, in 1965, and in 1975? Is future growth likely to continue at about the present rate, or at an increased or decreased rate? Finally, about how many square miles of land will your community need in order to provide space for homes plus related schools, parks and roads, for the increase in population expected by 1965, for example?

How Much Land Will Be Needed for Nonfarm Uses?

A well-planned suburban residential district needs roughly 15 percent of its gross area for schools and recreation, and from 15 to 20 percent for streets and roads. This leaves two-thirds of the area for building tracts, or about 67 in each 100 acres. Here are a few simple figures. If a minimum size of one-half acre is set for tracts, each 100 acres will net 134 building tracts. Assuming 3.5 people per family, each 100 gross acres will provide space for homes and related uses for 469 people. This is

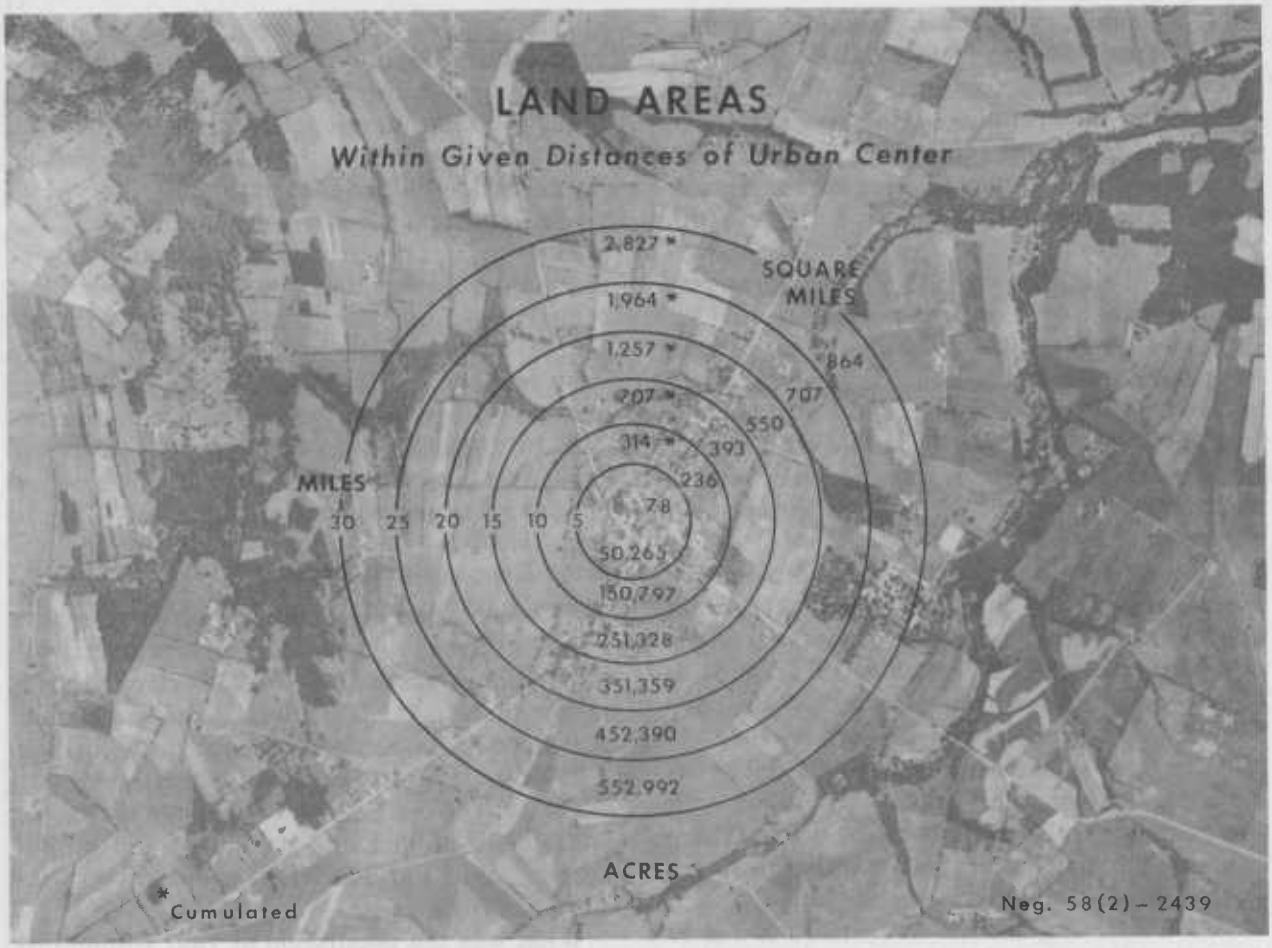


Figure 2.—Automobiles and modern highways have brought vast areas of farmland within accepted commuting distances. In most communities, only a small percentage of the available land will be needed for nonfarm uses in the foreseeable future.

an average density of 4.7 persons per acre. If building tracts are a quarter of an acre in size, the average density is 9.4 people per acre. Densities in urban residential districts are often higher. Densities of 12 or more per acre in 1-family zones, and of 40 per acre in apartment zones are common.

These estimates of land needs do not include space for business or industry. In the average community, the total area required for business is not likely to be larger than 2 or 3 percent of the developed areas served. Land needs for industry and for railroad uses vary greatly among communities. Five or six percent of developed areas for industry and the same percentage for railroad uses have been suggested as good working averages. More space is needed for these uses in some communities and less space in others.

How many acres will a community need for reasonable living, transportation, and working space for each additional 1,000 people? Assuming ½-acre building tracts, 213 gross acres are required per 1,000 people for living space, schools, roads, and so on. With quarter-acre building tracts, 106 gross acres are needed. The average of the 2 is 160 acres. If 15 percent, or 24 acres, is added for business, industry, and railroad uses, the total becomes 184 acres per 1,000 people. This figure appears to be reasonable when it is compared with the national average for urban areas of 166 acres per 1,000 people.

Your community's land needs for living, transportation, and working space may be more or less than 184 acres per 1,000 people. But this figure gives a working rule for estimating the acreage needed to provide for future in-

creases in population. If 184 acres are needed for 1,000 people, 1,840 acres, or about 3 square miles, will be needed for 10,000 people.

How far into the country will your community need to expand to provide space for the increase in population expected by 1965, for example? Figure 2 shows a circle enclosing an area that extends 5 miles from an urban center and contains 50,265 acres, or nearly 78 square miles. Recall that 10,000 people require only about 3 square miles for living, transportation, and working space. Assuming that the entire area is suitable for development, there is enough space within 5 miles of an urban center to provide room for 260,000 people at a density of 1,000 people per 184 gross acres.

The area in figure 2 between the 5- and 10-mile circles contains 236 square miles. Assuming the same density and land suitable for development, the area contains living, transportation, and working space for 785,000 people. Five miles farther out is another area of 393 square miles, beyond that another of 550 square miles, and so on.

Space must be found for new homes and public uses, and for business and industrial growth. Large areas within accepted commuting distances border most urban centers. Usually within such reaches, areas of both good and poor soils are found. When areas of both types are equally suitable for nonfarm uses, the community can choose the less fertile soils for these uses. It can determine the location of new highways and other service facilities. In this way, it can influence the direction of future suburban growth. Too often in the past, urban growth has taken the flattest, most fertile lands first—the best truck-crop and dairy lands. These lands are already served by roads and utilities. Farmers are pushed further out, or to less fertile acres.

How far is your farm from an urban center? How many more people will make their homes adjacent to your urban center during the next 5 years, and the following 5? Is the expected suburban growth during the next 5 or 10 years reasonably likely to absorb the area between your farm and town? You have or can get a reasonable basis for making a considered judgment as to this.

Many farmers get "subdivision fever" every time they hear that a nearby town has added a few thousand people. It is possible that a windfall may come their way. But it is more likely that unless these farmers and their neighbors take collective action, the "fever" will end in higher taxes and other costly and hampering urban-agricultural conflicts. Farmers on or near the urban fringe should realize that there are not likely to be families to build houses on every possible quarter-acre, half-acre, 1-acre, or even 5-acre tract in any segment of potential "suburban pie." If farmers overlook these facts, urban sprawl has a time-tested way of shifting the costs of public services to farmer-taxpayers.

Zoning Tools for Changing Rural Areas

The kinds of farm zoning districts and regulations that are suitable in changing rural areas depend on the tasks set for zoning. These tasks vary greatly between communities, and they may vary within farming areas of the same community. Some communities may want nonfarm homes and related uses to be located anywhere in farming areas. These communities need only one kind of agricultural zone—a farming-residential district. Other communities may want to divide their respective agricultural areas into several zones, some for near-term transition to nonfarm residential uses, and other zones for long-term, if not permanent, use for agriculture. These latter communities will want several kinds of zones—farming-residential and agricultural districts—each kind being a part of a zoning-district pattern for the farming areas.

How Farming-Residential Districts Are Zoned

Communities with only one kind of farm zoning district, a farming-residential zone, may be found in areas under urban pressure, as well as in areas distant from the urban fringe. Zoning problems in these two dissimilar kinds of areas differ greatly in most instances, as do zoning objectives. However, farm zoning districts and related regulations in these two kinds of areas are often similar, sometimes too much so. This doesn't mean that zoning has the same effect in both kinds of areas. The effects differ greatly. A variety of objectives may prompt the creation of farming-residential zoning districts in areas under urban pressure. A most

frequent aim is to encourage nonfarm residential development anywhere in farming areas, but with proper safeguards against potential slums. Other common objectives are to protect these areas from intrusion of objectionable business and industrial activities and from nuisance-type agriculture. There is also the broad and ever-present zoning purpose—to foster public health and safety.

Boundaries of farming-residential districts usually enclose the community's entire agricultural area. Both good and poor farmlands are included and are zoned alike. Luckily a declining number of ordinances continue to set aside a part of the agricultural countryside in unrestricted districts. Unrestricted districts make farming areas a dumping ground for activities that are not wanted elsewhere.

Use Regulations

Farming-residential zoning districts are necessarily cumulative-type zones. As the district's name suggests, both agricultural and nonfarm residential uses are permitted. Detached 1-family dwellings are always admitted, 2-family buildings are usually allowed, and many of these districts also allow multiple-family housing. When nonfarm housing is permitted, of necessity closely related land uses are allowed. The result is a mixture of agriculture and nonfarm residences and activities related to each.

The land uses listed here are usually permitted in farming-residential zoning districts:

1. All land uses that are permitted in 1-family residential districts and in 2-family zones. These include 1-family and 2-family dwellings, home occupations, schools, libraries, churches, playgrounds, and other public or semipublic buildings and facilities that are appropriate in residential areas.
2. Many of these districts also admit all land uses that are permitted in multiple-family residential districts. Among these are apartments and such multiple-family housing as rooming and boarding houses, private lodges and clubs, tourist homes, and so on. Also permitted are various kinds of institutions — hospitals, sanitariums, homes for the aged, asylums, facilities of charity organizations, and so on. Minimum building tracts ranging up to 10 acres or more are sometimes required for institutional facilities.
3. All agricultural land uses, buildings and activities, except farms for disposal of garbage and offal.
4. Roadside stands with customer parking space for sale of products produced on the premises.
5. Agricultural processing industries and warehouses.
6. Mining, quarrying, and earth extraction, which can be performed only where such resources are found.
7. Noncommercial outdoor recreation.
8. Commercial stables and riding academies.
9. Cemeteries and mausoleums.
10. Essential public-utility building and facilities.
11. Airports and landing fields.
12. All nonconforming uses, buildings, and structures.

Use regulations for farming-residential zoning districts, as for other districts, separate land uses into broad, mutually related groupings. This is done by permitting selected land uses in the district and excluding all others. Land uses usually excluded are: (1) Slaughterhouses, and rendering and fertilizer plants; (2) wrecking and junkyards; (3) general outdoor advertising; (4) manufacturing, except agricultural industries; (5) commercial recreation; (6) stores and other nonfarm business; (7) all nuisance-type trades and activities.

Zoning regulations differ among farming-residential districts. Land uses that are excluded from one district of this type may be permitted in another or allowed under special permit. The granting of special permits may be conditioned on the selection of suitable sites or on compliance with other safeguards.

Building-Tract Regulations

Serious attention should be given to building-tract regulations wherever nonfarm people in large numbers are likely to make their homes, as in farming-residential zoning districts. If public water and sewers are not available, minimum sizes of building tracts should be large enough to assure safe separation of wells and septic tanks. But if off-the-tract watermains and

sewers are available, smaller minimum tracts may be allowed safely. With smaller building tracts, however, greater attention should be given to the sizes of front, side, and rear yards.

Farming-residential districts are actually transition zones that are changing from agricultural to residential and related uses. The change may be completed in a few years or it may take many decades. Building-tract regulations for residential districts, which are useful in guiding this change, were discussed in an earlier section. The benefits from regulation of building tracts in farming-residential zones accrue to present and future nonfarm residents, rather than to farmers. Even small farms are large enough to avoid the overcrowding that these regulations prevent. These tools can be used in a way that will benefit nonfarm residents and will not uselessly burden farmers. This can be done by applying the regulations only where they are needed, that is, to tracts that are smaller than a stated size. For larger tracts some simple rule, for example, that no structure may be within 30 feet of a property line, could be applied. All properties should be subject to regulations that require buildings to be set back from roads.

Building-Height Regulations

Zoning regulations in rural areas usually limit dwellings to 2½ stories and not more than 35 feet in height. Multiple-family buildings, including apartments, can be higher. Building-height regulations, and the reasons for them, were discussed in a preceding section on residential districts.

Are These the Proper Zoning Tools?

The question may be answered either "Yes" or "No," and either answer will be correct, depending on the tasks zoning is expected to do.

Consider a farming-residential zone located in an area under urban pressure and encompassing the entire agricultural area in the community. The main tasks of zoning in the district are to guide the expected transition from agricultural to residential and related land uses, to guard against future slums, and to exclude objectionable business and industrial activities. The zoning tools applied do not differ greatly from those applied in agricultural districts in stable rural areas. The most notable differences follow. Multiple-family housing, which is usually excluded from stable farm districts, is admitted. In the farming-residential zone, building-tract regulations are given greater attention.

An influx of nonfarm residents is expected in the farming-residential district, but not in the stable rural area. In the latter, distance from cities, rather than zoning tools, is relied upon to shield agriculture from urban encroachment.

The zoning regulations applied in the farming-residential zone permit subdivisions and scattered nonfarm homes to be located anywhere in the district, but prevent the adding of business and industry to the land use mixture. The regulations that require setback of buildings from roads will reduce travel hazards, and building-tract regulations will help to prevent overcrowding.

If other tasks are contemplated, these are not the proper zoning tools. The regulations applied will not prevent scattered residential development. More than likely an urban sprawl will result. Nor, as used, will these zoning tools reserve the better soils for farming or prevent urban-agricultural conflicts. Like other tools, zoning tools must be chosen for, and used to do, the particular task at hand.

HOW COMPLEMENTARY ZONING DISTRICTS ARE USED IN FARMING AREAS

Mention was made earlier of two alternative approaches to the zoning of changing agricultural areas. The first—the sole farming-residential zoning district—was described. The second is the creation of several complementary kinds of farming-residential and agricultural districts, each designed for limited but differing purposes within the overall agricultural zoning-district pattern.

Communities that follow the second approach establish one and sometimes two kinds of zones for near-term transition from agricultural to residential uses. In addition, they create one or more kinds of districts for long-term, if not per-

SCS N. J. 40,401

Shall our better soils grow crops or houses?

manent, use for agriculture. Two transition-type districts for the short term, which were mentioned earlier, are (1) country-home or estate zones, and (2) suburban or residential-farming zones. Zoning regulations applied in both types of zones favor nonfarm homes. Two other kinds of districts listed earlier were (1) general farming zones, and (2) exclusive-type farming zones. Regulations applied in both of these farming zones favor agriculture.

Complementary residential-farming zones and agricultural zoning districts are designed and used collectively to: (1) Foster orderly suburban growth; (2) conserve tax dollars by avoiding an urban sprawl; (3) prevent urban-agricultural conflicts; (4) prevent the shifting of development costs to farmer taxpayers; (5) prevent waste from premature subdivisions and resulting idle acres; (6) reserve the more fertile soils for farming; (7) protect both farming and residential areas from objectionable business and industrial uses; (8) protect the economic base of local agricultural service and marketing industries; (9) further the general welfare.

One kind of district is needed to attain certain of these objectives; other kinds of districts are needed to attain others among them; and several complementary districts operating at the same time are needed to attain all of them. Described on succeeding pages are four types of residential and farming zones that may be put into effect simultaneously to attain the objectives listed above. Slightly different results may be attained by using only two districts, a farming-residential transition zone and an agricultural zone.

How Country-Home Districts Are Zoned

Many communities prepare the way for nonfarm people to flock to the countryside to build their homes. Instead of permitting helter-skelter settlement, they set aside desirable areas as country-home or estate districts and as suburban or residential-farming districts.

Country-home or estate zoning districts are designed, as the name suggests, to encourage residential developments of higher-than-aver-

age price homes on fairly large building tracts. Zoning regulations in these districts are shaped to foster and protect present and coming residential land uses rather than agriculture, which is going out. Conflicting business and industrial uses are excluded, and agricultural activities and practices that menace residential values are either regulated or prohibited.

Land needs of estate districts are not exacting. The flattest and most productive areas are not needed, as rugged land is usually more attractive to these homeowners. Although scenic qualities are prized, the location must be readily accessible from town. Country-home districts need to be serviced with roads, sidewalks, water, gas and sewer mains, and powerlines, or at least some of these. Wasteful and costly overexpansion of public facilities can be avoided by limiting the size of districts to near-term needs. Scattered development, as observed earlier, increases the cost of public services. A part of these added costs is shifted to customers and taxpayers in other areas. Instead of inviting a costly sprawl, these residential districts can be enlarged by zoning amendment, as the need arises.

Use Regulations

The land uses permitted in country-home districts are usually limited, as the chief aim is to create a desirable environment for homes. Land uses ordinarily permitted are as follows:

1. One-family dwellings and accessory buildings and activities.
2. Customary home occupations.
3. Necessary buildings and facilities, such as schools, libraries, museums, churches, parks, and playgrounds.
4. Noncommercial outdoor recreation.
5. Commercial stables sometimes, with regulations for protection of adjoining properties.
6. The growing of field, row, and tree crops.
7. Either commercial or noncommercial nurseries and greenhouses in about half of these districts.
8. For obvious reasons, which are discussed later, the raising of farm animals has received varied regulatory treatment in these districts.
9. Roadside stands for sale of agricultural products grown on premises.
10. Essential public utility buildings and facilities but only on compliance with specified conditions.
11. Small unlighted signs of limited size, either directional or advertising products produced on premises.
12. All nonconforming uses, buildings, and structures.

Country-home or estate districts are transition zones. Although the ultimate land use is clear, it takes time to complete the change. In the meantime, agriculture in some form will continue on many farms and small tracts. Nonfarm homeowners have little ground to complain about the growing of field, row, or tree crops. But the raising of farm animals, particularly on small tracts, in areas that are becoming more and more residential may be objectionable, if not an actual health menace. What should be done? Farmers in the district want to continue to raise farm animals. Some nonfarm homeowners object to this, but others on acreage tracts want to keep a family cow, a saddle horse, a few rabbits, chickens, or other small animals for domestic needs.

There appears to be no best solution. Alternatives have ranged from no regulations to prohibition of the raising of farm animals in these districts. Sometimes certain kinds of farm animals and farms are prohibited; maximum numbers that may be kept on small tracts are limited; permissible numbers are related to tract sizes; and the condition and location on the tract of animal shelters and roaming yards are regulated.

The appropriate solution in each district will depend on the local problem. Fortunately, the diversity of regulations that have been used offer a choice of alternatives, or several measures may be combined. This range of available zoning tools should permit the working out of solutions that are fair to both farmers and nonfarm homeowners.

Because country-home districts are residential or potential residential zones, it seems fair to exclude the more objectionable kinds of farms, such as commercial hog ranches, goat farms, mink farms, and so on, from these districts. Farms of these kinds are often excluded either by zoning regulations or as nuisances.

Equally objectionable as a health menace is the keeping on a small tract of large numbers of most kinds of farm animals. Usually, a few animals may be kept with safety, and most nonfarm residents need only a few to take care of domestic needs. The solution then would appear to be to relate permissible numbers of farm animals to tract sizes, and to limit to domestic needs the maximum numbers that may be kept on residential tracts.

Necessarily, regulation of the keeping of farm animals for domestic purposes varies between districts. In some country-home zones, the minimum area required for each horse or cow is a half acre; in other zones it is 1 acre. The maximum number of livestock allowed per household in various districts, assuming that minimum area requirements are met, is 1, 2, or sometimes 3 animal units. Poultry is often limited to 12 fowl of any kind; and rabbits or similar animals are frequently limited to 12. Usually, maximums are set for each class of domestic animals, leaving selection of the kinds of livestock, poultry, or other animals kept to the resident. Regulations often designate minimum distances from roads or residences at which shelters or roaming yards for domestic animals may be placed. Required distances of 30 to 100 feet from dwellings are common.

Regulating the keeping of farm animals on farms that have ample room will serve no public purpose. It is logical, therefore, to apply these measures only where needed, that is, to tracts that contain less than a specified area. Pending subdivision, larger tracts and farms can be exempt.

Zoning regulations that pertain to country-home districts usually list permitted land uses and prohibit all others. The following uses are usually excluded: (1) Multiple-family housing; (2) hog ranches, livestock feed yards, and other malodorous agricultural land uses; (3) agricultural processing industries; (4) commercial recreation, except stables (which are sometimes allowed by permit); (5) commercial and industrial land uses, except home occupations.

Extensive use is made in these districts of special permits. Many uses not otherwise allowed are permitted upon the obtaining of a permit, if they are located in areas where they are least objectionable or on compliance with special regulations. Undue rigidity is thereby avoided.

Tract and Height Regulations

What size should minimum building tracts be in country-home districts? There are several things to be considered in making this decision. If public water and sewer mains are available, building tracts may be small though large enough to avoid overcrowding. If wells and septic tanks are used, larger building tracts are needed to assure safe water supplies and sanitary septic tank fields. Finally, if farm animals are kept for domestic needs, still larger building tracts are needed to safeguard public health. Minimum sizes of building tracts required vary with local conditions. They range from 10,000 square feet to 5 acres and include half-acre, 1-, and 2-acre sizes among others.

Your community need not compromise on some one minimum building-tract size if 2 or 3 sizes, each applied in a different problem area, will serve better. Two or three country-home districts may be set up with generally similar zoning regulations except for minimum building-tract requirements. Or only one district with 2 or 3 differing tract-size zones may be created. For example, under either method, minimum requirements for tracts might be as follows: (1) 10,000 square feet in areas served by off-the-tract water and sewer mains; (2) one-half acre, or larger if necessary, in areas that rely on wells and septic tanks; and (3) 1 or 2 acres or more in any area where the keeping of farm animals to provide for domestic needs is permitted.

The public interest will also be served by suitable front-, side-, and rear-yard regulations in these districts, as in other residential zones. Regulations as to yards will vary, depending on the minimum tract sizes required. The height of dwellings in these zones is often limited to 2½ stories, or 35 feet.

Zoning Aims in Suburban Districts

A second kind of transition zone is often created on the urban fringe to guide community growth. This is the suburban or residential-farming district. The transition expected is from farms of prevailing sizes to small farms

and nonfarm residences. Over the years, the districts may become entirely residential.

The major tasks of zoning in suburban districts are to guide the expected change in land use; to prevent the intrusion of objectionable business and industrial uses; and to reduce probable conflicts resulting from a mixture of residential uses and agriculture on the many small farms and on the remaining larger farms. The agriculture conducted on small farms in these zones may be either on a commercial scale or merely to provide for domestic needs.

Zoning regulations applied in suburban districts are similar to those used in country-home districts. Use regulations are about the same in both zones, with one important difference. Regulations concerning the keeping of farm animals are less restrictive in suburban districts. Where small farms are encouraged, this is logical. But there are also nonfarm homes to consider and to protect. The long-term goal is mainly residential. Regulations relating to the keeping of farm animals in these zones must consider the interest of four groups: Nonfarm residents, commercial and noncommercial farmers on small farms, and farmers on larger farms.

Zoning ordinances usually permit all kinds of agricultural activities in suburban zoning districts, except those specifically prohibited, limited, or regulated. The exceptions are necessary in the interest of public health in these small-farm zones. As in country-home districts, certain odorous farms, including hog ranches, cattle feed yards, and mink farms, are prohibited. Although building tracts as small as one-half acre and 1 acre are sometimes permitted, usually there are no restrictions on the number of poultry or other small farm animals that may be kept per tract. Again, there are exceptions. A few districts limit numbers to a total of 50 poultry and other small animals and also regulate the location on the tract of shelters and roaming yards.

Minimum size building tracts, other than one-half acre and 1 acre, required in various suburban zoning districts are 2, 2½, and 5 acres, and in one instance, 20 acres. Tracts ranging from 2 to 5 acres in size are large enough to permit the keeping of a family cow, a saddle horse, and perhaps a pig and some chickens, without creating health hazards. These tracts are too small for much commercial livestock farming.

The numbers and kinds of livestock kept on many small farms are more closely related to family needs than to size of tracts. Often, as many animals are kept on 1 acre as on 2 or even 5 acres. Health hazards from and complaints about objectionable uses next door may therefore be expected to decrease as tract sizes increase. A logical solution would be to relate numbers of livestock units permitted to tract sizes. This is done in a few suburban zoning districts, where 1 or 2 acres are required for each head of livestock. But a different solution is favored. This solution specifies only the maximum numbers of livestock that are permitted per minimum size tract. These maximums vary by districts, but they range from 3 to 5 head of livestock of the kinds chosen by the residents. In most instances, these numbers are more than ample for domestic needs.

Livestock raising or dairying on farms with ample acreages usually does not present a zoning problem. But the crowding on small acreages of large herds of cows or other livestock is likely to be objectionable in populous areas. Crowding of this kind is prevented in many suburban zoning districts. Minimum space required for the establishment of commercial dairies or livestock farms ranges from 3 to 20 acres, with 5 acres frequently specified. Some additional regulations are applied in a few districts to commercial dairies with herds of more than 5 cows. Feed pens, milk barns, or livestock shelters on these dairy farms may not be located closer than 500 feet from any dwelling except on the home premises.

Front-, side-, and rear-yard regulations, as well as limits on building heights in suburban zones, resemble those applied in country-home districts. Regulations requiring suitable setbacks of proposed buildings from public roads are needed whether the minimum size of building tract permitted in the zone is small or contains several acres. The need for side- and rear-yard regulations increases as minimum tract sizes decrease.

In both country-home and suburban zoning districts, zoning tools are used to foster and protect land uses that are, or soon will be, mainly residential. In country-home zones, keeping of farm animals on small acreages is

restricted to family needs. These zones are clearly intended to be residential. In suburban zoning districts, poultry and small animals are usually permitted on small farms without restriction, but livestock farming is restricted, perhaps generously, to family needs. Most of the zoning regulations that are applied in both kinds of districts are applied to tracts of limited acreage only. Pending subdivision, all agricultural activities, with a few exceptions, are unrestricted on the larger farms. The types of farming activities excepted are those that are likely to endanger the overall objectives of the districts.

Zoning regulations for country-home and suburban zoning districts were shaped to favor the coming primary land use, which is residential. In succeeding sections, some zoning districts that were designed to favor agriculture are discussed.

Why Set Aside Areas for Agriculture?

There are many reasons for setting land aside for agriculture; but in your community only a part of them may be sound. Several reasons that were discussed on earlier pages need be only briefly reviewed here. One is the prevention of urban-agricultural conflicts—conflicts that may be reflected in higher taxes for farmers, in objections to and interference with accepted farming practices, and in damage to the farm plant or to crops, as a result of an unwise mixture of land uses.

Additional reasons for keeping farming areas zoned for agriculture for the short or the long term have been advanced and accepted. Safer urban water supplies have been assured by keeping watersheds in farms. Flood damages have been greatly reduced by zoning flood plains for farming and excluding residential develop-

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Room is being made in this orchard for another row of houses.

ment. Valuable sites have been reserved for future industrial development by zoning to agriculture for the waiting period, to prevent absorption for less suitable uses. Finally, zoning tools have been used as aids in keeping fertile soils producing food and fiber. The community and its people may have many good reasons for taking such action.

Why, as is often the case, does urban expansion absorb the most fertile acres first? The reasons are partly historical. Many of today's growing cities were yesterday's market towns, which were erected to serve nearby farming areas. Roads were built to connect these farms with the towns, and other public facilities were provided. Later, when the towns grew, advantage was taken of existing public improvements. This is still done today. As urban growth continues, many towns spread out over fertile acres, "destroying the very asset that brought them into being."

There are other reasons for building houses rather than growing crops on our most fertile soils. One is the habit of looking at only a part of the problem. If the market price of a tract of land exceeds its value for farming, usually we conclude that a nonfarm use is best for the tract from either a private or a public viewpoint. Reasoning of this kind fails to give adequate thought to the advantages that might accrue to the community, the State and the people, from using less fertile lands for nonfarm uses, when equally suitable alternative sites are available. These extra-market benefits are both direct and indirect. They accrue to farmers, labor, trade, and industry, and particularly to processors and suppliers.

Many communities have areas of differing soil quality. Very often these alternative areas are suitable for development for either subdivisions, trade, or industry. In these instances, the community has a choice. In making its decision in the public interest, it might well be guided by a study of the several classes of benefits that may be retained or lost by the decision arrived at.

Benefits to People on the Land

First, benefits accrue to people on the land from having an efficient and highly productive agricultural plant. These benefits may be divided three ways, with shares to ownership, to management, and to labor. Very often, the whole goes to the same person.

Efficient production requires good soils and farms of adequate size. Yet in many communities, houses and factories are still built on the better farmland, even though less fertile land that is equally suitable may be available. As a result, farmers are often pushed to the less productive acres. Why this lack of logic? One answer is found in our market-guided reasoning. It goes something like this: If the market price of a tract of land is more than its value for farming, the best use of the tract is for nonfarm uses. But how do we arrive at the tract's value for farming? Usually by capitalizing, that is, establishing the total value of the net return received year after year from the farming operation that goes to ownership. The other two shares mentioned earlier, the benefits that accrue to management and to labor, are neither similarly valued nor added to the total. Our conclusions, therefore, are arrived at by looking at only a part of the problem.

The community looks at the problem from a broader public viewpoint. It is concerned with total benefits. In deciding on the best use of fertile soils, the community may want to take into account all three shares from farming operations that accrue to people on the land. It is often said that labor and management are mobile. Displaced farmers can move into the next county, where there is more room, or into another State. If this happens, their agricultural production is lost to the county or the State from which they move. The lost production can be grown elsewhere, but fertile soils are irreplaceable. Once covered with buildings and paving, their potentiality for crop production is lost permanently.

Benefits to Trade and Industry

Indirect benefits from keeping the more fertile acres in food production may be of vital importance to the community and its people. These benefits accrue to various off-the-farm groups. They accrue first to the agricultural industries—the canneries, freezers, processing and packing plants, cold storage plants and warehouses, milk plants, creameries, and so on. The business volume of these industries may suffer greatly from a reduction in the commu-

nity's fertile soil base. Heavy losses of investment are possible also.

A second group that will benefit or suffer as the case may be are the supply firms that deal in hay, feed, seed, fertilizers, sprays, farm machinery, equipment, gasoline, automobiles, lumber, crates, and the hundreds of other items that farmers buy. There are also the byproduct industries, the trucking firms, banks, merchants, and the many persons who look to the food industries and supply firms for employment. Merchants may make adjustment by selling other types of products to new customers rather than by selling the same plus other products to both old and new customers.

Reducing Growing Pains

Communities that are growing rapidly are certain to have some growing pains. With a little forethought, undue waste can be avoided. Very often the market value of space for subdivisions is the same regardless of the quality of the soils or the value of farm improvements thereon. But the social cost of having idle or less productive land subdivided is less than with fertile, improved acreage in highly productive farms. When orchards are bulldozed out, the investment made in them is lost to the community. When productive farms are subdivided, production from them ends. Because the quality of soil is not a major consideration for subdivision purposes, the community would gain by reserving the better soils for agriculture.

Other kinds of waste might be avoided also. Urban sprawl often results in wasteful use of many fertile acres that remain primarily in agriculture. Division of land into farm units of uneconomic size often occurs. During the waiting period before eventual subdivision, the loss of agricultural production is often substantial. Idle land and declining production per acre on many small farms follow a breakdown of rotation patterns and general decline of the community's farm plant.

Another probable loss should be borne in mind. When urban growth displaces agriculture in fertile land areas, irrigation and drainage systems are often disrupted. Frequently, the investments in irrigation and drainage facilities and in soil conservation improvements are lost.

Choosing the Least Costly Alternative

We have examined at some length the many kinds of benefits that may result from reserving the more fertile soils for farming. Some of these benefits accrue to people on the land; others accrue to related industries, trades, and labor, which may or may not be located in the rural areas involved. Still another group of benefits from reserving open spaces, of which more is said later, results to the adjacent urban community. Finally, a statewide advantage may be gained in terms of food and raw material costs from maintaining an ample local production of food and fiber.

This array of benefits that may be retained or lost is long enough to invite respectful concern. The public interest would be served if communities looked beyond the difference between market prices and values for agriculture for guidance in allocating soil resources. Many benefits not reflected in this price-value relationship may accrue from reserving the more fertile areas for agriculture. The choice between alternative areas available for urban development should be based on studies to determine the least costly from the viewpoint of the community. Assuming equivalent values for developed building tracts, the pertinent comparison would be between the costs involved. Significant costs would consist of the net agricultural values foregone, together with costs for essential improvements. The difference between the two would indicate the net advantage of developing the least costly alternative. Under these circumstances, the prevailing market prices that have been created by the operation of community influence would not be a significant consideration.

It seems shortsighted for communities that are fortunately endowed and can have both farms and urban growth to sacrifice the former for the latter instead of keeping the two. Communities may often be justified in exercising both zoning and spending powers in order to direct urban growth to less fertile lands.

Can We Have Cities and Farms Side by Side?

Mention has been made of the forces that are blunting yesterday's sharp differences between city and country and that are prompting new community forms. Electricity and motortrucks

permit economic decentralization of industry, and automobiles allow employees to live many miles from places of work. These new forces have brought us sprawling metropolitan areas of new commercial and industrial districts on the urban fringe. They have brought bedroom suburbs, scattered rural residences, and part-time farms; residential islands or pockets far out among the farms; urban sprawl; and areas of mixed land uses, some of which may soon become rural slums.

What kinds of communities are present forces shaping for tomorrow? What kinds of residential neighborhoods may we expect? Perhaps we may expect more of the same, both good and bad. But with a little guidance, it should be easy to avoid at least the known pitfalls. It should be possible to do more. New community patterns would permit agriculture, industry, and subdivisions to live side by side. By reserving the more productive soils for farming, many communities, as they expand, can obtain the open spaces—agricultural greenbelts—that are the dream of many urban planners.

Many agriculture-oriented benefits that accrue from reserving the better soils for farming were examined on the preceding pages. An additional group of benefits that by contrast are urban-oriented can also be realized. The setting aside of productive areas for agriculture promises the continued existence for years to come of spacious open spaces on the urban fringe. This maintains the attractions that brought many nonfarm residents to the countryside in the first place. Benefits can also be derived from a lower overall density of population and from a reduction of pressure on traffic arteries. Others will result from the use of agricultural greenbelts as major disaster firebreaks.

Substantial benefits may also accrue from concentrating suburban growth on the less fertile acres, which would follow the setting aside of the more productive areas for farming. Urban sprawl can be avoided by holding potential residential areas in agricultural zones comprised of sizable farms until the land is needed for nonfarm homes. In this way, better planned subdivisions and lower development costs are made possible. Large sums can be saved for taxpayers. By concentrating development, large savings are possible in the cost of providing public services, including roads and streets, water, sewers, light and power, telephones, schools, and so on.

Two kinds of farm zoning districts—general farming zones and exclusive-type farming zones—have been used in agricultural areas to attain these and related benefits and objectives. The former zone admits and the latter excludes nonfarm residences. Both kinds require large minimum size tracts; either kind may be used to attain farm zoning objectives. But the zoning tools applied and the results obtained differ.

How Zoning Tools Are Applied in General Farming Zones

The zoning tools needed and the way in which they are applied, in general farming zones as in other kinds of zoning districts, will depend on the tasks set for zoning. The main tasks laid out for general farm zoning districts are to reserve the better soils for farming and to avoid urban-agricultural conflicts of whatever form. These districts operate in conjunction with other kinds of zones. The several zones support each other and share the zoning tasks. The guiding of residential growth is the major job of residential, country-home, and suburban zoning districts. An additional task of these districts is to prevent the wasting of tax dollars for public services as a result of a wasteful scattering of nonfarm residents. This desirable objective is furthered by zoning for agriculture. It limits the area of potential urban sprawl. However, zoning areas for agriculture, even for the long term, does not foreclose later use for other purposes. Farm zoning districts constitute a reservoir from which other kinds of zones may be carved as the need arises. In deciding on the boundaries of farm zoning districts, the exacting land needs of agriculture should be kept in mind.

Use Regulations

Within general farm zoning districts, general farming is permitted, plus all uses that aid and further the use of land for farming. The latter group includes a number of nonfarm land uses. Some are closely related to agriculture. Others are deemed necessary or desirable. In these districts, zoning regulations are applied to favor agriculture, but nonfarm uses cannot be ignored and certainly not harmed. The attention to be

given to nonfarm uses in a particular zone will depend on the kinds of nonfarm uses that are admitted.

Although districts vary greatly, these land uses are usually permitted in general farm zoning districts:

1. All land uses that are allowed in detached 1-family residential districts. These include 1-family dwellings, home occupations, schools, playgrounds, churches, libraries, museums, and similar buildings and facilities.
2. All agricultural land uses, buildings and activities, including the growing of field, truck, and tree crops, dairying, livestock raising, poultry farming, hog raising, and so on.
3. Nurseries and greenhouses.
4. Roadside stands (with customer parking space) for sale of products produced on premises.
5. Agricultural industries required by local agricultural production.
6. Mining, quarrying, and earth extraction, which can be performed only where these resources are found.
7. Noncommercial outdoor recreation.
8. Commercial stables.
9. Kennels and animal hospitals.
10. Essential public and public utility buildings and facilities.
11. Other selected nonfarm land uses that are important to the locality. The location of certain nonfarm land uses may be conditioned upon the obtaining of a permit.
12. All nonconforming land uses, buildings, and structures.

What kinds of land uses should the ordinance exclude from general farm zoning districts? A rule suggested is that all uses detrimental to the use of land for agriculture shall be prohibited. Usually, the ordinances list permitted classes of uses and prohibit all others. Very often, some of the excluded uses are also listed. Among these are business and industry, taverns and public dancehalls, wrecking and junkyards, and fertilizer and rendering plants.

Minimum Tract Sizes

Several reasons for the regulation of building tract sizes have been discussed. Regulation of tract sizes in agricultural zoning districts serves two added purposes. These purposes are to discourage the location of subdivisions and scattered nonfarm residences throughout the districts, and to reserve the land in these districts for agriculture.

In order to further these objectives, what minimum size of tract should the regulations require? Several things must be kept in mind in deciding this. The minimum must be large enough to discourage purchase for residential development, and to serve the primary purpose of the district, which is agriculture. Many types of farming require only a few acres. Finally, the minimum size of tract established for an agricultural district must not be detrimental to any other zoning district. Tracts should be considerably larger than those in zoning districts created for residential purposes. Otherwise, the tract size regulations will not operate to guide residential development away from the agricultural districts.

It should be remembered that these are cumulative-type districts. They admit all land uses that are allowed in the more restrictive 1-family residential districts. This includes nonfarm dwellings. The task of barring nonfarm dwellings in these areas is left to the minimum tract size regulations. Unless this zoning tool is adequate, the job will not be done.

Tracts that consist of any fractional part of an acre are not large enough for farming, nor do they discourage residential development in farming districts. Tracts of several acres are needed. The appropriate size depends on local conditions. Minimum tract sizes required by the ordinances now in use range from 2 to 20 acres, and include 3, 4, 5, and 10 acres. The size most often required is 5 acres.

Safety on the highway calls for a suitable setback of buildings from roads in agricultural districts, as in other zones. For the same reason, off-the-road parking space should be required for each roadside stand. Limits on dwelling heights are justified also in the interest of safety in case of fire.

The regulations applied in general farm zoning districts will do the assigned tasks sucessfully only if the minimum tract sizes required are large enough to discourage effectively future nonfarm residential development in these districts. If development of this kind occurs,

urban-agricultural conflicts will arise and increase as the years go by. If tract size requirements hold the line against urban encroachment, the tasks expected of the zoning tools used are likely to be performed. Sharper zoning tools are used to hold the line in exclusive-type agricultural zoning districts, as discussed in the following section.

Exclusive Agricultural Districts

Residential development is the main cause of urban-agricultural conflicts in many farming areas. Also, it takes the largest share of the fertile acres that are diverted to nonfarm uses. Zoning measures need to be directed at the main cause of the problem. This can be done by creating exclusive-type farm zoning districts. Within these districts only agriculture and a few additional uses that further the use of land for farming are permitted. All other uses, including nonfarm residences, are excluded. In these districts, zoning tools are used directly to exclude nonfarm homes. By contrast, in the general farm zoning districts described earlier, nonfarm homes are merely discouraged by requiring large minimum tract sizes. Large tract sizes are also required in exclusive-type agricultural zones. Reasons for this are discussed later.

In California, farmers have been especially hard hit by urban expansion in recent years. Old problems were aggravated and new problems emerged. Many farmers gave up and moved away. Others stayed to try to find ways of protecting agriculture. These farmers developed the exclusive-type farm zoning district. Similar districts were recently created in Pennsylvania. Although exclusive-type districts are new in agricultural zoning, the principle on which they are based is old. Since the beginning of zoning, residential districts have been set aside for homes and related uses only. In Wisconsin and neighboring States, large areas of land that are submarginal for farming have been enclosed for many years in forestry and recreational zoning districts. Within these zoning districts, only forestry, recreation, and certain related uses are permitted. In recent years, the creation of "exclusive" zoning districts for business only and for industry only is finding favor. Now agriculture is catching up.

Use Regulations

Use regulations in exclusive-type farming districts are designed and used for the protection of agriculture. Land uses—nonfarm residences and subdivisions—which require expensive roads, schools, and utilities, are excluded. These exclusions have been the main source of the objections voiced against normal farming practices, and the main reason for conversion to nonfarm uses of fertile soils.

Several counties in California have created exclusive agricultural districts. The districts differ from each other and the regulations applied vary with local conditions and needs. For example, in one exclusive farming district, the following uses only are permitted:

1. Residences of owners and tenants, other members of their families, and their employees.
2. Temporary farm labor camps incident and necessary to the gathering of the crops grown on the premises.
3. Field and truck crops.
4. Orchards and vineyards.
5. Drying of crops.
6. Storage, bottling, and wholesaling of wine.
7. Apiaries.
8. Greenhouses, nurseries, landscape gardening.
9. Arboretums, botanical conservatory.
10. Forest land, pasture.
11. Dairies and processing dairy products.
12. Poultry raising, egg production, and hatcheries.
13. Livestock ranches and guest ranches.
14. Riding academies and stables.
15. Animal breeding.
16. Sale and storage of hay and straw.
17. Fur farms.
18. Uses customarily incident to any listed permitted use.

A few other land uses may be established in the district upon the securing of use permits. Among these are elementary and high schools, churches, parks, playgrounds and community centers, golf courses, and permanent farm labor camps. Other farming areas might need different regulations.

Minimum Tract Sizes

Although residential development is excluded, minimum tract size regulations are nevertheless applied in exclusive agricultural districts. In the district just described, land may not be subdivided into tracts containing less than 2½ acres. This limitation is applied by the county's subdivision ordinance; its zoning ordinance requires buildings in the districts to be set back 25 feet from roads. It also fixes the minimum width of side yards at 8 feet and requires rear yards to be 25 feet deep, although a lesser depth, but not less than 20 feet, is allowed in some instances.

In other exclusive agricultural districts, different minimum tract sizes, more correctly called farm-site areas, are required. Several zoning ordinances apply different minimums to different areas of the same zoning district. In some areas, the acreage may be subdivided into farm sites of not less than 3 acres; in others, the minimum may be 5 acres; and in still others, the smallest farm site allowed is 10 acres. The areas of the district to which each minimum applies are shown on the zoning map. One single-family dwelling or one 2-family dwelling is permitted on each 3-, 5-, or 10-acre farm site. On parcels that contain more than 10 acres, an additional 1-family dwelling is allowed for each 10 acres or fraction thereof.

The primary land use in exclusive agricultural districts is farming, and other permitted land uses are secondary and accessory. Residences are allowed only as accessory uses to permitted agricultural uses. But the need for farm housing usually varies with the intensity and type of farming. Also, the various types of farming call for appropriate but differing minimum sizes of farm sites. Zoning regulations for exclusive agricultural districts should reflect these differing housing and farm-size needs.

Intensive types of farming are often conducted on small tracts. Extreme examples are nurseries and greenhouses. In certain zoning districts created for the protection of this intensive form of agriculture, farm sites having an area of not less than 1 acre and an average width of 150 feet are required. On tracts of this kind, one single-family dwelling may be constructed. Two dwellings may be constructed on parcels containing 3 acres, and for each additional 3 acres of ownership an additional dwelling is permitted. Also allowed are buildings for the housing of workers employed on the premises. Zoning regulations are used in these districts to permit housing that contributes to agriculture and to exclude nonfarm housing that is detrimental to agriculture.

Protecting Your Farm

In California, exclusive agricultural districts have been created to protect a variety of agricultural areas. These include areas in orchards, truck crops and general farming, and areas used for dairying, poultry raising, and nurseries and greenhouses. A good beginning has been made. Can exclusive agricultural zoning districts be designed to protect areas with other types of farming, such as your own? Very possibly they can be. The new zoning tools used to protect agriculture are both sharp and flexible. We may expect these tools to be used in new ways to achieve new ends. We may expect farmers to develop other zoning tools as the need arises. A closer look at some new zoning techniques may suggest ways of using zoning tools to protect your farming operation.

Special agricultural zoning districts have been created for the protection of nursery and greenhouse farmers, whose activities are usually carried on in populous areas. A residential district may have filled in around them. The area may or may not be zoned residential. If it is, the nursery and greenhouse properties are probably nonconforming uses. If so, residential zoning regulations may prevent the rebuilding of greenhouses that are destroyed or are old and unusable.

A special kind of agricultural zoning district is required to protect this intensive type of agriculture. The districts need not be large. Areas of some recently created districts range from 35 to 60 acres. Necessarily, these small zones were set aside exclusively for nurseries and greenhouses, and for residences accessory to the permitted agricultural uses. The minimum area of farm sites was set at 1 acre, with numbers of housing units allowed increasing with size of ownership, as described in the preceding section. Timely zoning of these intensive agricultural districts can prevent encroachment of conflicting land uses. It can safeguard the right to expand and to rebuild worn-out greenhouses.

The exclusive agricultural districts set aside for general farming differ greatly from the special-purpose agricultural zoning districts. A wide range of agricultural activities, as listed earlier, is permitted. Also, in these districts, farm sites of the same minimum size may be allowed throughout the district, or differing minimum sizes may be designated for various parts of a district. Mention was made earlier of 3-, 5-, and 10-acre minimums in the same zone.

Whether a special-purpose exclusive zoning district is more suitable than a district designed to protect general farming depends on the local problem. But an exclusive general agriculture district does not call for zoning regulation of agricultural activities. Instead, conflicting nonfarm land uses are excluded. Also, a possible advantage may accrue from dividing these districts into several areas or zones with differing minimum farm size requirements. Types of farming such as poultry raising, for example, require only a small acreage per farm. Usually the less productive soils do very well for this. Other types of farming require units that contain larger minimum acreages and, preferably, the most fertile soils. Perhaps a wise use of minimum farm size regulations will serve to maximize future agricultural production in the community. Logically, the minimums established will vary with the type of farming that prevails in a particular district. They should be large enough to permit efficient operating units. It would be unfortunate if zoning tools encouraged a degree of parceling that eventually pauperized the very agriculture that zoning is presumed to protect.

Several types of agriculture are frequent targets of complaints by nonfarm neighbors. Among these farming activities are feed-lot dairying, poultry raising, mushroom farms, and fur farms. Some of these farms are noisy; all have objectionable odors at times. Various zoning measures have been used for their protection. These include exclusive agricultural districts for general farming as well as districts for special types of agriculture. Feed-lot dairy areas have been enclosed in special but not exclusive farm zoning districts, and nonfarm land uses have been discouraged by specifying that farms shall contain not less than 5 acres. Other areas containing valuable fur farms have been included in general agricultural districts. In these districts, subdivisions are discouraged by a minimum tract requirement of 1 acre. Within exclusive general-farming districts, concentrations of various types of agriculture are found and encouraged. Among such groupings are areas in orchards of various species, in orchard and poultry, truck-crop, and livestock farms, and so on.

Complaints about nuisance aspects of farming activities are likely to be most frequent in localities where areas of concentrated livestock, dairy, or poultry operations border on subdivisions or populous residential districts. Can these boundary-oriented conflicts be avoided? Several zoning measures have been directed toward that end. One of these is to prohibit livestock feed pens, shelters, and roaming yards within 500 or 1,000 feet of any residential district. Another is to create a buffer zone of "light" agriculture between "heavy" agricultural districts and residential districts. In these buffer zones, minimum size tracts of several acres might be required and numbers of poultry, cattle, or other farm animals kept per tract might be limited. Buffer zones are widely used in cities to separate residential areas from industrial or business districts.

Several Districts Needed To Do the Job Well

Two approaches used in zoning agricultural areas that are under urban pressure have been discussed. Under the first, only one kind of district, a farming-residential zone, is used. This type of district does little to discourage urban sprawl. Under the second approach, 4 complementary types of zoning districts (or 2 at the least) are employed as a team to do the job. These 4 types of districts are country home, suburban, general farming, and exclusive farming zones. In addition, residential districts are used to help with the job.

All these districts working together are directed toward the overall goal. Each plays a different but related part. Each has its own task to do. The zoning regulations for each type of zone are designed to achieve the respective tasks assigned. Because the tasks differ, the regulations also differ.

Both country-home and suburban zoning districts, although they differ somewhat as to the regulations applied, are designed for near-term

transition to residential uses. In addition, residential zoning districts are provided. Residential land uses, rather than agriculture, are favored in these three types of districts. General farming and exclusive farming districts are designed for agriculture over the long term. Zoning regulations for both types of zones favor agriculture. In one, zoning tools are used to discourage and in the other to exclude nonfarm homes. As a result, residential development is guided toward areas that have been set aside for residential purposes.

Can these districts operating as a team do the jobs expected of them? You may recall some of the objectives of zoning in agricultural areas on the urban fringe. High on the list of zoning goals in such areas is the saving of tax dollars. Overinvestment in public service facilities is avoided by concentrating residential development in suitable districts set aside for homes. Annual service costs are kept down by preventing urban sprawl. Also, urban-agricultural conflicts, including the shifting of development costs to farmers, are reduced by discouraging, if not preventing, the widespread scattering of subdivisions and other nonfarm housing throughout agricultural areas. Finally, a more efficient agriculture is assured by setting the more productive areas aside for farming until needed for nonfarm uses. Necessarily, when several districts contribute toward a common goal, the success of the whole will depend on the effectiveness of the several parts. By making wise and timely use of zoning tools, many communities can have both agriculture and urban development in an orderly way.

WILL YOUR COMMUNITY NEED OTHER KINDS OF ZONING DISTRICTS?

Forestry and Recreation Zoning Districts

Forestry and recreation zoning districts are special types of zoning tools. They are useful in a variety of areas. They may be used to protect existing commercial forests, and recreational areas, and to encourage the blocking in and growing of new forests as well as to develop new recreational areas. Some communities need districts of this kind; others have no need for them. In various States, these kinds of areas have been zoned for forestry or recreational use or both:

1. Areas that contain a sizable acreage of commercial forests.
2. Areas of poor soils that are submarginal for farming but suitable for forestry.
3. Swamps and other wetland areas that are subject to frequent flooding but are unsuited to farming.
4. Watersheds that are sources of urban or irrigation water supplies.
5. Areas now in recreational uses that need protection from invasion by conflicting land uses.
6. Areas with recreational potentials such as attractive lake and stream frontages.
7. Areas with many abandoned and idle farms.

Forestry zoning districts are useful tools for attaining some community objectives; recreation zoning districts are better for achieving others. Both the types of zones and their related regulations are shaped for the tasks at hand. Because these tasks differ, there are differences between the two kinds of districts and between zones of the same kind. But these differences may be slight. Both forestry and recreational activities are often carried on, encouraged, and protected in districts of each kind. In these situations, the zones may be very much alike. Some combined forestry-recreation districts have been created. In other situations, depending on the tasks assigned, forestry zoning and recreation zoning districts may differ greatly.

Realizing the Zoning Goals

In the early thirties, rural people in the cutover counties of Wisconsin pioneered in forest and recreation zoning. They had certain jobs they wanted zoning tools to do for them. They wanted land use order instead of chaos in the cutover areas. They wanted farming lands to be separated from forest and recreation lands. To attain these objectives, they developed some new zoning tools. They shaped zoning districts and regulations to help prod into profitable forestry and recreational uses lands that were not suited to farming and were often idle. Before examining these new zoning tools, let us look at

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Areas that are marginal for farming may be valuable for growing forest crops. Wise zoning can aid reforestation programs.

the 1930 scene with its zoning problems and objectives.

In the late twenties, the lumbering era of northern Wisconsin came to an end. The era opened before 1850 and reached its heyday in the 1890's. It flourished for many decades. The settlers in this area believed that farming would follow logging, as had been the case in the rest of the State. Nurtured by this belief, a costly pattern of local government was created. Young forest growth was not protected from fires, which were considered beneficial because they helped to clear the land. Farm settlement was promoted by land and logging companies, speculators, railroads, counties, and the State. During this colonization period, many people settled in isolated places.

But the dream was soon to end. Someone had failed to examine the soils—or rather, they had refused to believe what they saw. Many thousands of acres colonized were not suitable for farming. An avalanche of tax delinquency lowered the curtain on the era in the late twenties and early thirties. The deepening depression soon cleared away the farm-it-all confusion. More realistic uses of cutover lands were sought. It soon became obvious that it was new forests or nothing on thousands of acres of charred stump prairies. In this period of crisis, the people of northern Wisconsin decided that the forests must be restored.

There were many problems ahead. Some of them stemmed from the mistakes of earlier years. Cutover lands dedicated to growing

trees could not carry the taxload required to maintain the existing local government structure. It had been designed for an expected farm economy rather than a forest economy. Road and school costs were high because many settlers lived in out-of-the-way places, often on land that was submarginal for farming. The clearing and brush burning done by these isolated settlers increased the risk of fires in the proposed new forests.

What has zoning done to help bring order from the land use chaos? The objectives and tasks of zoning were to separate forest land from farmland; to aid the blocking-up of public and private forests; to prevent the wasting of labor and capital on barren land; to guide prospective farmers to better soils in established farm communities; to help in removing the hazard to new forests from fires caused by clearing and brush-burning, and to assist in reducing the cost of road, school, and other public services.

Shaping the Needed Tools

These objectives required the shaping of new zoning tools. In some Wisconsin counties, only two kinds of zoning districts—combined forestry-recreation and unrestricted zones—were created. In other counties, three kinds of districts—separate forestry, recreation, and unrestricted districts—were established. The zoning was done by using 2 of the 4 basic zoning tools—restrictions on future use of land and buildings and regulation to prevent the wasteful scattering of population. Zoning districts of the exclusive type were used.

Zoning in the cutover counties of Wisconsin began in Oneida County in 1933. The initial zoning ordinance, which set the pattern for many that came later, created only two kinds of zoning districts. Large areas of land that were submarginal for farming were enclosed in forestry-recreation districts. The rest of the county, including areas suitable for farming, was placed in unrestricted districts where any land use not in conflict with other legislation is permitted. In the forestry-recreation districts, the following uses are permitted and all other uses, including family dwellings for year-long occupancy, are prohibited:

1. Production of forest products.
2. Forest industries.
3. Public and private parks, playgrounds, camp grounds, and golf courses.
4. Recreational camps and resorts.
5. Private summer cottages and service buildings.
6. Hunting and fishing cabins.
7. Trappers' cabins.
8. Boat liveries.
9. Mines, quarries, and gravel pits.
10. Hydroelectric lines, powerplants, flowage areas, transmission lines, and substations.

Six of the uses listed, if trappers' cabins are included, are directly related to recreation. Two permitted uses pertain to forestry, and the rest relate to extractive industries and hydroelectric developments. All uses not listed, including farming, trade and industry, are excluded by implication. Family dwellings for year-long occupancy are prohibited in forestry-recreation districts. Uses of this kind are deemed most likely to increase road, school, and other service costs.

Forestry-recreation zoning helped to guide cutover lands, which were often idle, into more suitable uses in many counties. Areas not suitable for farming were set aside in forestry-recreation districts. In these restricted districts, the blocking-up of both public and private forest was encouraged. As establishment of new farms and year-long residences was not permitted in the restricted zones, the raw land would necessarily be acquired only for forestry or for recreational purposes. The zoning helped also to work a change in county policies on the sale of land. Before zoning, the counties had offered tax-forfeited lands to any buyer, regardless of the proposed uses. After zoning, tax-reverted forest lands within restricted districts were either added to county forests or sold for forestry purposes. A place had been found for tax-delinquent forest land, which was no longer a drug on the land market.

Prohibiting establishment of new farms in restricted zones had other desirable effects. It prevented uninformed families from settling on poor land where they were doomed to poverty and failure. There were better soils in the unrestricted districts. Also, it lessened the risk of forest fire caused by land clearing, and of trespass and poaching by settlers.

Zoning tools could not be used to require existing isolated settlers to move. These settlers were legal nonconforming users and had a vested right to remain. Instead, they were bought out by individuals, corporations, and counties that were blocking up forest holdings; or their places were exchanged for better land in established communities. As the settlers moved out of the woods, forest fires in forestry-recreation zoning districts became less frequent. After these settlers had moved, roads and schools that were no longer needed were closed. The savings permitted a lowering of taxes.

Zoning in the cutover counties played two roles. The first role was preventive and consisted of maintaining the status quo. It prevented the entry of conflicting land uses. New farms and year-long residences, among other uses, were excluded from forestry-recreation districts. The second role was remedial and helped to correct past mistakes. When individuals, corporations, and counties began to assemble acreage for forests, the slow process of reshaping the prevailing chaotic land use pattern began. As the blocking-in continued, and lands that were more suitable for growing trees than for other uses were returned to forestry, the zoning ordinance operated to hold the gains. The effect of zoning in this operative setting was largely retroactive.

The end goal of zoning and related programs was to obtain the best use of land resources. This meant new forests on millions of cutover acres. New forests promised payrolls and raw materials for forest industries; they promised renewed recreational attractions, as charred wastelands gave way to growing pine trees; and they promised more cover for wildlife and clearer and more stable streams, as the forest grew in expanse and maturity.

The private costs of settlement on lands ill adapted to agriculture are reflected in low returns from farming, abuse of the land, poorly equipped homes, and rural poverty. If these farms are isolated, other private costs are incurred. The greater the distances, the higher are the costs of visiting neighbors, and of going to church, the polls, the doctor, school, the store, shipping points, nonfarm employment, and so on. Inconveniences result from lack of public services, such as electric power, telephones, and mail delivery. Individuals and their families lack social contacts. A rural community cannot afford to permit farmers to settle on poor land. Many public and private costs can be avoided by zoning such lands to forestry.

Finding Tools for Other Tasks

Zoning districts and their related regulations should be designed to solve local problems. The forestry-recreation district just described is a case in point. It was shaped to cope with the problems of certain cutover areas and counties. Other counties with different zoning problems needed different kinds of districts and regulations. Some have needed two kinds of zoning districts for their forested areas. One type was the usual forestry-recreation district, which was renamed forestry district. The second, a recreation district, had similar regulations, except that occupancy of family dwellings and other housing was permitted throughout the year. This difference was logical, because caretakers were needed at resorts in winter, and roads in the recreation districts were kept open the year round. Some later ordinances excluded sawmills, planing mills, mines, quarries, and gravel pits from the recreation districts.

In areas containing well-blocked commercial forests, zoning goals and regulation might be different. There the zoning task might be to help maintain the status quo. Several forestry districts enclosing such areas have been created. In these districts, forestry and related uses, plus some other selected activities, are permitted, but summer cottages and hunting and fishing cabins are excluded. In these areas, forest values are high. Losses from fires could be high also.

The reasons for zoning watersheds vary widely. As with other types of zoning, the regulations applied vary with and reflect the zoning objectives. For example, a number of watershed zoning districts have been created to protect urban water supplies that originate in wooded, upstream areas. All land uses that might result in contamination of the water are excluded from these zones. About the only land use permitted is forestry. Less restrictive regulations have been applied to protect other sources of urban water. Examples are watersheds comprised of farmlands. Some of these watersheds have been enclosed in farm zoning districts in which the permitted minimum size

of tracts is 2 acres or more. Such comparatively large minimums are designed to discourage subdivisions and other nonfarm housing, which are a common source of stream pollution.

Zoning objectives and regulations may differ in watersheds that erode badly if agriculture is attempted. In these watersheds, common goals are to prevent siltation of streams and water supplies, to protect water-retaining vegetation and sod, and to avoid hillside erosion and gullies that speed water and silt runoff. Zoning has been used in such watersheds to restrict the plowing of new land and the cutting of native trees.

These varied districts and regulations illustrate the range of zoning tools that have been shaped to solve local problems. New objectives give rise to new tools. Remedies are as varied as local zoning needs.

Has Recreation Been Neglected?

As the decades pass, we become increasingly urban. We hear people say: "We want to get away from the city for awhile." Rising incomes, automobiles, and long weekends have provided the means and the time to "get away." What are these people looking for? Perhaps a cottage of their own at the seashore, on the bank of some lake or stream, hidden away in the mountains, or just out in the woods. Or perhaps they want to go hunting or fishing, or to vacation at a resort, a park, a popular playground, or some other place of rest and recreation. Will they find what they want? Today, millions are looking for such places. In past decades, there were only thousands. Recreation is big business and it is growing fast. It promises new revenues, new employment, and new taxable wealth for many rural communities.

Recreation has its own requirements. They differ from place to place, depending on prevailing recreational uses. Areas for summer homes need to be quiet, beautiful, and undisturbed. The values most prized may be largely destroyed by unwise clearing of streambanks, lakeshores, or seashores. They may be destroyed

Forestry and recreation go hand in hand. Both land uses will benefit from zoning.

by silt coming into streams and lakes or by pollution of water. One task of zoning in many areas set aside for summer homes is to help retain as much of the natural environment as is consistent with development. Others are to exclude conflicting land uses and to prevent overcrowding, which may lead to pollution of water bodies.

Areas devoted to other recreational uses have additional requirements. Even commercial recreation districts, whether at the seashore or in the mountains, must guard their natural attractions or recreation seekers will soon look elsewhere. Zoning can also guide development, thus preventing value-destroying haphazard growth.

Many rural counties have areas that are more valuable for recreation than for agriculture. Wooded places that are not suited to farming might be zoned for forestry. Locations of scenic beauty might be zoned and developed as recreational sites or camping grounds. Many hilly rural areas, where agriculture is on the way out, have recreational potentials. Many abandoned farms in wooded country have become prized summer homes. Nor should the recreational potential of historic areas or the attraction for visiting motorists of unspoiled roadsides be overlooked. Appropriate zoning regulations to protect and improve each kind of area are available. Many a rural community's greatest natural resource is its scenic beauty.

Recreation districts, as noted earlier, range from areas maintained as nearly as possible in their natural wooded condition to areas developed as commercial resort zones. Between these extremes are many shadings. In the most restrictive zone, only individual cottages, cabins, and accessory recreational facilities are permitted. Either seasonal or year-long occupancy may be allowed. In a less restricted zone, multiple recreational housing, consisting of hotels, cabin courts, and the like, are permitted also. Additional uses admitted to a third kind of district include commercial recreational facilities. In a fourth type of zone, stores and other facilities for servicing the recreational trade are added to the mixture of permitted recreational land uses.

Recreation districts, therefore, may be designed for private cottages only or for commercial recreation exclusively, or districts of the cumulative type may be created. Cumulative-type zones may admit such selected classes of recreational uses as are suited to the locality.

Also, zoning regulations may be shaped in different ways to attain special local ends. In one or more districts, for example, use permits are required for specified commercial recreational facilities; special permission is required for all-year habitation; accessory service stores are allowed, if they are located on the same parcel of land as the service; retail stores may not be in operation from December 1 to March 31; and the posting of premises against public hunting is prohibited except for tracts of less than 40 acres that contain housing. In some recreation-residential districts designed for year-round use, farming is prohibited, but gardening, poultry, and livestock raising to provide for family needs are allowed.

Zoning tools have the flexibility needed to foster and protect recreational values. Scenic beauty is a priceless resource. It may be wasted by shortsighted exploitation, or it may be protected and developed to yield positive economic returns.

Areas for Business

In deciding on areas to zone as business districts, several things must be kept in mind. Among them are the community's present business areas and their adequacy, and its estimated future needs for land for business. These things might be considered in the light of recent trends in kind and location of business districts that have stemmed from changes in preferences of customers and from other forces.

Existing business areas take several forms, only 1 or 2 of which may be found in your community. They may consist of stores at rural crossroads or of general business districts in rural centers or small towns. They may take the shape of ribbon business areas along highways at the edge of towns, or farther out. Or, larger urban communities may have two kinds of business districts—retail business zones, and a general business district for both retail and wholesale trade. Recent developments are neighborhood shopping centers of about a dozen shops and the larger regional shopping centers.

A good place to begin is with the present business areas in your community, whatever their form. Unless they were recently built, these areas probably consist of a mixture of business,

residential, and other uses. This is a natural result of expansion over the years. Some of the stores and shops may be in the wrong places, for instance, in areas developed with homes. But zoning tools cannot be used to make them move, as we have learned. The thing to do is to begin with the business areas as they are and move on to future needs.

The Land Needed

The general tendency is to zone more land for business than is reasonably needed. Only 2 or 3 percent of the developed area of the average community is used for business. As much as 5 percent may be needed in unusual instances.

Land needs for business in an average community may be described also in terms of frontage. One source suggests an average of around 50 feet of business frontage per 100 persons. Most of this frontage will be in the central business district. Several communities are reported to be devoting about 15 front feet per 100 persons to local shopping centers in outlying residential areas.

The total area of land used for business will increase with the growth of the community. More people will need more room for shopping. Areas zoned for business should be ample to allow for expected future growth. They should be large enough to avoid bestowing undue advantage upon owners of present business properties. But "overzoning" for business should be avoided. In some communities, commercial districts contain up to 5 times the area required to meet foreseeable future needs. Overzoning has been called zoning for a "wishful" use rather than for the "best use."

Zoning for a wishful use is costly from both public and private viewpoints. Streets in business areas need to be wider and heavier than in residential areas. Larger water and sewer pipes and different tract sizes and building setbacks are also required in business zones. Overzoning for business denies zoning protection for residences in areas that have no business prospects. Although it is not needed for trade, this land is often overpriced for homes. Even at lower prices, these areas may still be unattractive as homesites because a business may be located next door in the future. Frequent results are land lying idle, declining property values, blight, and slum areas developing at the center of the community.

Where Will the Housewife Shop?

As a rule, the housewife drives a car, which she uses on her shopping tours. She wants a convenient place to park it while shopping. Her car is having far-reaching effects on the character and location of business districts. A store within walking distance of home is no longer necessary. At the same time, residential growth in outlying suburbs, plus traffic and parking problems downtown, has made many central business areas less accessible for shopping. One result has been a movement of stores to the suburbs. Retail business is said to follow population.

The new outlying business centers may take several forms. One is the neighborhood shopping center mentioned earlier. These centers cater to the shopper's everyday needs. They are found in both the city and the suburbs. They are placed well back from the roadside and provide ample off-street parking space. There the housewife can park, shop, and load her bundles with convenience and safety. Apparently she likes these centers; they are springing up throughout the country.

Larger outlying business areas are often found at the intersections of major arterials. These centers contain a greater number and variety of shops and serve wider trade areas. But often, parking space must be found at the curb, if it is found at all. Congestion and hazardous traffic result. Ordinarily, crossing the street to shop on the other side cannot be done with safety and ease.

Ribbon business districts are another form of outlying business area. They are strung along traffic arteries in both town and country. They have been said to cause traffic congestion, increase road hazards, and decrease the carrying capacity of arterials. In recent years, their adverse effects are causing concern to many people. Motorists are concerned with keeping highways efficient and safe. Following congestion, they foot the bill for a new road in another place. Homeowners who live in the suburbs or in the country but work in the city are concerned about travel time. As traffic slows be-

PUBLIC ROADS 55-1096

A commercial area fronting on a busy highway. Similar areas are found in each State. Traffic is slowed and lives are endangered. Heavy losses are incurred by businessmen when congestion forces highway relocation.

cause of increased congestion, travel time increases, and the value of country residential properties may decline.

Farmers who use the highways to move their products to market are also affected adversely. They are concerned about possible spoilage and increased hauling costs resulting from slowed traffic. In the same way, businessmen whose merchandise moves to and from their establishments over public highways see their costs increased by poorer transportation service.

Many roadside businessmen are also becoming concerned about the future of their districts. Too often in recent years investments have been lost when it became necessary to build new arterials to carry traffic diverted because of congestion. Losses of this kind are likely to be larger in the future. The Federal-Aid-Highway Act of 1956 calls for construction over a 13- to 15-year period of an interstate system of highways. A vast mileage of new roads with controlled access is proposed. Much traffic will be diverted from present roads.

New trends in business areas also bear watching. Large community shopping centers and the still larger regional shopping centers are winning increasing favor. These centers are located near traffic arteries but stores do not front on the arteries. Convenient offstreet parking space is provided. The new centers may offer stiff competition to roadside merchants as well as to downtown stores.

There is one further consideration. Modern business centers call for substantial improvements on small areas. Usually, they yield a tax surplus above the cost of public services.

Where will the housewife go to shop 10 years from now? Recent trends in business areas provide a clue. They also point to the kinds of areas that might be reserved for business growth in the future. Compact areas rather than long ribbons of frontage are needed for

modern shopping centers. These areas should be zones for business only. This calls for exclusive instead of mixed-use zoning districts. Partial development with homes soon ruins an area's usefulness for a shopping center. A compelling attraction of such centers is the convenience of a variety of shops in a compact area.

Zoning for Industry

Industry gives people jobs. More and more of these jobs are held by rural people—nonfarm residents, part-time farmers, and members of farm families. The factories they work in may be in town or country, because electric power and motortrucks have permitted decentralization of industry.

Communities everywhere are competing for new industries. Many changing rural communities are in the race. They look for industry to become an important, if not the primary, base of their new economic life. Industry provides employment. People follow, or remain where there are jobs.

Various inducements are offered to industry. Important among these are suitable industrial sites. Just any land won't do. The land requirements of industry are exacting, and they are changing. What lands, if any, should your community zone for industry? How much land? What kind of land? Where is it located? Finally, what kinds of zoning regulations are needed?

The Land Needed

The land needs of existing industry must be considered, plus land for future use. Existing industries need room in which to operate and to expand. If new industries are expected, adequate space will be needed for new plants. Modern factory buildings of 1 or 2 stories are spread over a large acreage. Buildings are often set well back from highways, and sites are landscaped. Offstreet parking areas for employees are provided. All this adds up to ground space.

The acreage of land needed for industry varies by communities. For an average community, 5 or 6 percent of developed urbanized areas for industry and 5 or 6 percent for railroad uses has been suggested. Your community may need more or less space than the average, depending on its size, type, and location. But don't overzone. The setting aside of extensive leftover areas for industry should be avoided.

Lands Best for Industry

Industry needs land that is fairly level, well drained, and free from floods. Nothing is gained by zoning hilly or swampy areas for industry, as is sometimes done. Industry will simply locate elsewhere. Nor is it logical to zone the best farmland for industry, if other less fertile land that is equally suitable is available. Although more and more industries are becoming good neighbors, a few remain odorous and smoky. Prevailing winds might be considered in zoning areas for such industries.

Industrial districts are the community's workshops. As such they should be located where transportation is favorable. Materials of many kinds need to be brought in. After processing, other products are shipped out. The form of transportation that is most suitable varies by industries. Those that use bulky raw materials in quantities prefer sites on navigable water. Other industries rely more on rail transportation or on motortrucks. Air shipment is growing in favor with some industries.

These transportation needs suggest where to look for areas suitable for industrial sites. Take a look at vacant land fronting on navigable waters. Consider areas near freeways, and particularly near important crossings. Look for sites near major airports. Also, examine areas from 500 to 2,000 feet wide that lie between a main highway and a parallel railroad. Remember too that industry prefers areas with adequate water, sewage, and power facilities, and with fire and police protection. If your community contains areas that meet the many exacting requirements of good industrial sites, it will be wise to zone enough land to take care of the present and foreseeable future needs of industry.

Zoning Tools for Best Results

Industries are usually excluded from residential districts. There are many reasons for this: Factories often cause smoke, noise, odors, and dust. They generate heavy truck traffic, cause residential property values to depreciate, and so on. Should dwellings in turn be excluded from industrial districts? This seems sensible

but often it isn't done. Why? There are the same objectionable odors, noises, and smoke. One reason is adherence to a traditional theory, which favors cumulative-type zoning districts. That is, districts of less restricted uses admit the uses of the more restricted zones.

Cumulative-type zoning regulations permit a mixture of factories, stores, and homes in industrial districts. These districts are not good places in which to live, and too often, only cheap houses are built. Blight and slums may well follow. There are other consequences also. Invasion by residences often preempts land needed for plant expansion; it breaks up, for scattered housing, potential industry sites into parcels that are too small for industry. In either instance, industry will look elsewhere for space. Suitable space is often found in some farmer's field miles from town.

In recent years, cumulative-type industrial districts have been giving way to exclusive-type zones. In these latter districts, only industry and related uses are permitted. Residences are excluded, except for cottages for watchmen and caretakers. Exclusive-type zones are better zoning tools for reserving scarce industrial sites needed for future expansion of the employment base and the property tax base. Pending development for industry, the areas reserved can be held in large parcels and used for agriculture. Thus, site values for future use by industry are protected.

Many rural zoning ordinances provide for only one kind of industrial district. Other ordinances create two kinds of zones, one for "light" and the other for "heavy" industry. In addition, ordinances of both types often require special permission to locate certain kinds of industrial uses, which are referred to as noxious trades. These include uses that are objectionable because of noise, dust, smoke, vibration, odor, flashing lights, or danger of explosion. Requiring special permission gives a flexible measure of control over the location of these "trades." It provides a useful tool for the protection of other land uses—industrial, business, and residential—both within industrial districts and other zones.

Ordinarily, more than one equally suitable site can be found for most industries, including the noxious trades, although there are some exceptions. Minerals, rock, sand, and gravel can be taken only where they are found. Sand and gravel deposits, for example, may or may not be available within the boundaries of industrial districts. It seems unwise, therefore, to group sand and gravel operations with other types of industry, which are less limited as to choice of suitable sites, and restrict all to industrial zones. Instead, special permission might be required for the location of sand, gravel, and similar extractive operations. It has been suggested that the granting of such permission might be conditioned on a suitable plan for assuring aftertreatment of worked-over pit areas. The aim would be to make these areas useful in the future for some form of agriculture, recreation, or business.

The separation of industries into two classes of so-called light and heavy industrial uses is often done rather arbitrarily. The aim is to assign to heavy industrial districts those activities that are not good neighbors because they create objectionable noises, odors, vibrations, and so on. But new industrial techniques may make good neighbors out of yesterday's bad neighbors. Many offensive qualities of industry have been lessened or ended. Therefore, under some recent ordinances, separation of industries is based on the effect of each industry on its surroundings. Sets of performance standards that differ by zoning districts are established. Industries that can comply with the performance standards may locate in the respective zones. This permits a wider choice of industrial sites with a resulting decentralization of industry.

Operating the Zoning Tools

Zoning laws are community tools, and like many other tools they need operators to get the jobs done. Also, like other tools, they must be kept in working order and overhauled occasionally. All this takes money. Good zoning administration means an adequate annual budget. Little is gained by acquiring good tools and leaving them on the shelf.

The community will need to appoint or designate an officer to administer the ordinance. This individual should be both competent and courageous. It will be his duty to see that land is used only for the purposes allowed in each district, and that setbacks and other regulations are complied with. The most successful way of

getting compliance is to require a building or zoning permit before construction begins. This allows for a review of proposed building and land use plans before costly errors occur. The owner will then know what he can and cannot do. Later, before the building is put to use, an occupancy permit might be required. This second permit is a way of preventing someone from changing approved plans and building a store instead of a dwelling.

It is probable that there will be some violations of the ordinance. In these instances, appropriate legal action will need to be taken to enforce the regulations.

The zoning ordinance of any growing community needs to be overhauled from time to time. Amendments are needed in types and numbers of districts, in district boundaries, and in regulations. The steps that must be followed in amending an ordinance are spelled out in the laws that grant zoning power to the community.

Amending the ordinance can be abused. Many ill-advised changes in zoning maps and regulations have been adopted. A helpful test has been suggested for evaluating proposed amendments. The need for the change is doubtful unless it will benefit not only (1) the property involved, but also (2) the adjacent property, and (3) the community as a whole. Many zoning enabling laws contain safeguards against hasty and ill-considered changes: If proposed amendments are protested by many of the people affected, a larger favorable vote is required for adoption. Approval by two-thirds, three-fourths, or even of all members of the legislative body may be required.

A board of adjustments or board of appeals is essential in zoning administration. This board has been called the safety valve of zoning. Persons aggrieved by the zoning ordinance may appeal to the board. Its powers are usually limited to three functions: It decides on the meaning of ordinance provisions when any question arises; it grants special permits under conditions allowed in the ordinance; and it grants variances from strict enforcement of the terms of the regulations so as to prevent undue hardships that might result, for example, because of the unusual size, shape, or slope of a particular tract. The decisions of the board may be appealed to the courts.

As a final reminder, zoning tools are properly employed only in the interest of public health, safety, morals, or the general welfare. Zoning regulations adjudged to be capricious, arbitrary, or unreasonable will be voided.

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