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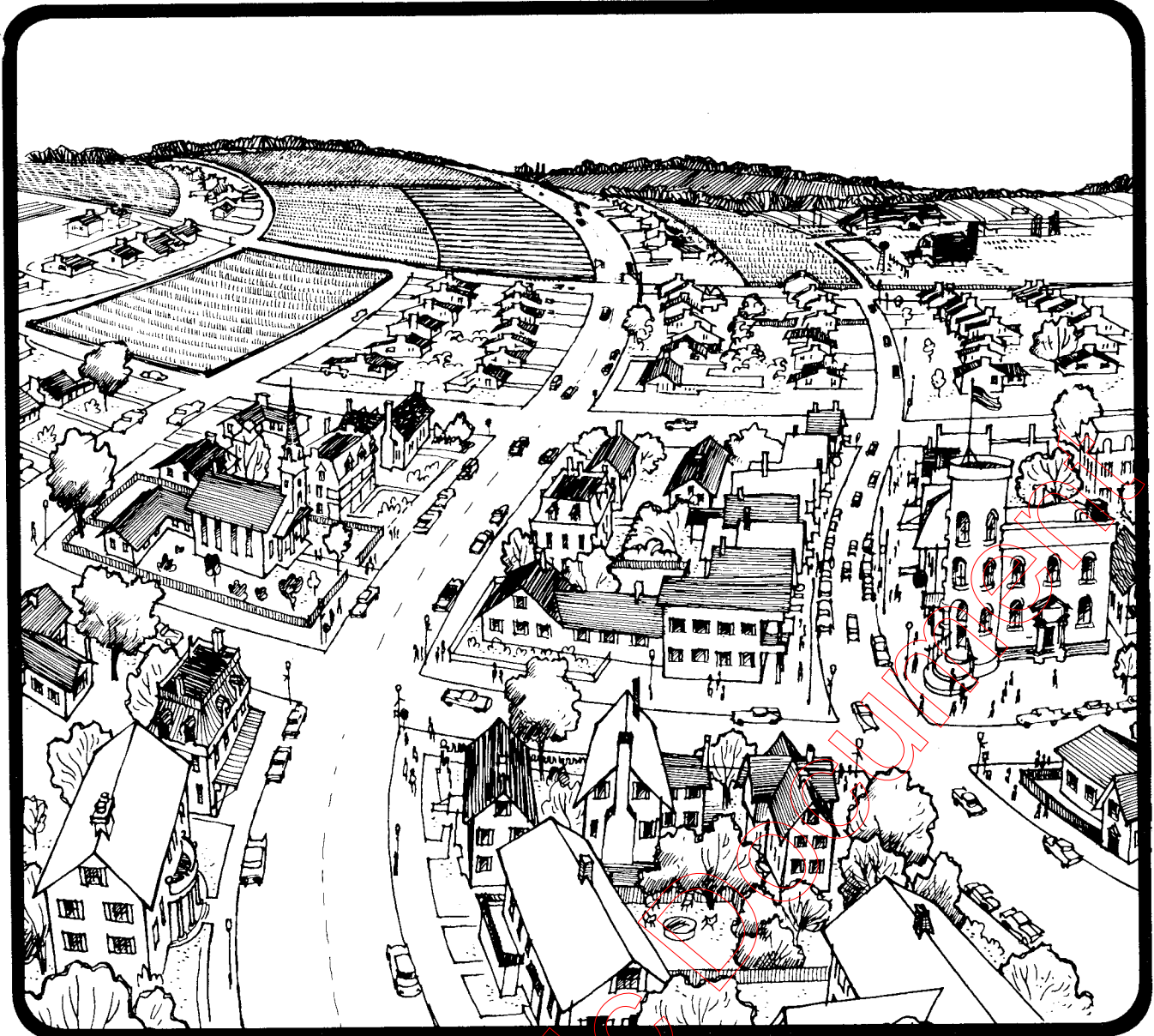
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FARMLAND PROTECTION TECHNIQUES

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THE ISSUE

The farmland protection issue is very much on the public policy agenda. Concern is expressed not only with irreversible land use changes that reduce our food-producing capabilities, but also with related problems of uncontrolled urban development. Land is being used inefficiently; witness "urban sprawl" and "strip" development that uses up and impacts large amounts of land. The most productive, level land is often used first, rather than more scenic and rolling land that may cost more to develop initially. Public service costs rise as urban growth spreads out randomly across the rural landscape. Competition and conflict between farm and nonfarm uses increases as urban development invades good farm areas. Usable open space for city residents to refresh themselves and get relief from urban congestion can disappear.

Results of the 1980 population census point up the movement of people from central cities to suburbs and rural fringe areas. Almost every major city in the Midwest lost population, but often the total county numbers increased, particularly in counties adjoining the large urban centers. And this at a time when higher energy costs seem to dictate the need for less travel from home to work and problems of a scattered settlement pattern are escalating.

Land use policy is a warm topic in widely divergent discussion arenas. In many Indiana counties, in several states, and in Washington, D.C., the issue is on the front burner. Concern is expressed about future food production capacity by those with a world outlook; there is a general fear of natural resource scarcity triggered in part by energy shortages and a continuing interest in creating a high quality environment. The response to these concerns is coming slow or fast, depending on the temperature of the issue and the rate of growth. Consider the efforts to identify and protect "prime" farmland, the calls to halt urban sprawl around growing cities, and possible new controls on land use coming out of water quality planning and other environmental initiatives.

A number of states and local units of government are using land use control policies and incentive programs to guide physical development and hopefully reduce the amount of productive farmland going into non-farm uses. Unfortunately, some of the early programs involving use value assessment, tax incentives, and other devices, are both costly to taxpayers and of questionable value to the community.

A few states have shown willingness to devote large amounts of tax money to farmland protection programs or have endorsed strong land use controls. However, a justifiable concern for individual property rights, potential "windfalls" and "wipeouts" from zoning controls, and a mood of fiscal conservatism has made most state legislatures cautious in adopting new programs. And, we know that individual land owners would need very large subsidies or very strong controls to stop sales to developers where market pressures are substantial and land has a high value for non-farm uses. The potential role of the federal government in direct land use controls will probably remain

limited, and there appears no strong movement for expanded federal involvement in land use decisions.

How serious are these problems and what should be done about them in terms of farmland protection? This publication attempts to analyze some of the current issues in agricultural land use, and reformulates these popular expressions of concern into a policy decisions context. We examine land use policy options that may be appropriate, given our experience with present policies and proposals for future changes. Both local and state policies are examined: those in use now and potential approaches. Combination of state and local policies are described that can create package programs with complementary features.

PROBLEM: LOSS OF PRODUCTIVE FARMLAND

How Much?

Although different studies are not in agreement, most analyses show farmland acreage is decreasing in the U.S. every year, primarily due to urban encroachment. Recent USDA figures reveal that the annual acreage loss is about 2.7 million acres. This isn't catastrophic when you consider total U.S. acreage is slightly over one billion acres, but it is a trend causing concern for more and more farmers, government land use planners, and environmentalists -- an unusual coalition that has been developing in recent years as resource scarcity fears begin to surface.

Findings reported in 1981 from the National Agricultural Lands Study put the loss of Indiana farm lands at about 74 thousand acres per year, converted to urban, built-up, rural transportation, and water resource needs for the period 1967 to 1977. Of this 74,000 acres annual conversion, about 25,000 is considered to be "prime" farmland. Should conversion continue at this rate, the state will lose an additional 575,000 acres or 4% of total acres, by the year 2000.

Earlier studies put land lost to urban growth at lower figures. An Iowa State University study reported in 1976, predicted an average annual loss of 28,000 acres in the state to urban growth, mining, and recreation needs from 1967 to 2000. Estimates from USDA Soil Conservation Service have gone as high as 88,000 acres converted per year (see Table 1). Forecasts vary in part due to slight differences in the definition of "urban growth" and precisely what kind of land uses are included in the term.

Preliminary data from the 1978 Agricultural Census complicates land loss figures even more. Because of different data gathering techniques and different definitions of a "farm" used for the 1978 census as compared to 1974, direct comparisons are hard to make. However, more farm land is shown in 1978 than in 1974, for the state. In fact, many fast growing counties are credited with more land in farms than in earlier census counts. A significant undercounting of small farms in 1969 and 1974 due to different definitions, and possibly more complete enumeration in 1978, are factors that help explain the increase.

Table 1: Shift in Land Uses in Indiana

	<u>1958</u>	<u>1967</u>	<u>1977</u>
	(acres and percentage in each use)		
Cropland	14,199,000 61.3%	13,881,000 60.0%	13,312,000 57.7%
Pastureland	1,857,000 8.0%	2,298,000 9.9%	2,148,000 9.3%
Forest Land	3,693,000 15.9%	3,761,000 16.2%	3,533,000 15.3%
Other (Farmsteads, wetlands and other in rural areas) ^a	1,916,000 8.3%	1,364,000 6.0%	1,251,000 5.4%
Urban and Built-up (including Transportation)	1,189,000 5.2%	1,487,000 6.4%	2,364,000 10.2%
Federal Land	303,000 1.3%	340,000 1.5%	464,000 2.1%
<hr/>			
Total Land	23,157,000 100%	23,131,000 100%	23,072,000 100%
<hr/>			

Sources: "Indiana Soil and Water Conservation Needs Inventories," 1958 & 1967, U.S.D.A., and the "National Erosion Inventory," 1977, U.S.D.A. - SCS.

^aIncludes: Small water areas of 87,000 acres for 1958 and 95,000 acres for 1967.

Prime Farmland

Concern is often centered on so-called "prime" farmland. Across the nation an effort is being made to define, identify, and map highly productive land. The basic premise is that this valuable resource should be kept in agricultural use since it can be farmed at relatively low cost and will support intensive, efficient, high output of food and fiber crops. Indiana has the highest proportion of prime farmland of any state. When farmers are forced to rely more heavily on marginal, "non-prime" crop land, food costs may rise and exports could be reduced. Marginal land requires more fertilizer and possibly more machinery operations, leading to greater energy usage and management problems. Soil conservation is more difficult on less productive land.

The Soil Conservation Service of U.S.D.A. has developed criteria for the classification of prime farmland. Their definition is as follows:

"Prime farmland is land best suited for producing food, feed, forage, fiber, and oilseed crops, and also available for these uses (the land could be cropland, pastureland, rangeland, forest land, or other land but not urban builtup land or water). It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops economically when treated and managed, including water management, according to modern farming methods."

Prime farmland meets the following criteria:

- The soils have an adequate moisture supply either by natural rainfall or by irrigation and have good water storage capacity.
- The soils have a mean annual temperature and growing season needed for high crop yields, that is, they are not too cold or too hot.
- The soils are neither too acid nor too alkaline for vigorous plant growth.
- The water table is either lacking or at a depth that it does not adversely affect the plant growth.
- The soils are not flooded frequently during the growing season.
- The soils do not have a severe erosion hazard.
- The soils have a permeability rate of at least 0.06 inch per hour in the upper 20 inches.
- The surface soils are not so stony as to cause difficulty in farming operations with large machines.

The concept of prime farmland is helpful in deciding on just what land should be designated for protection efforts; but a number of factors need to be considered in the process:

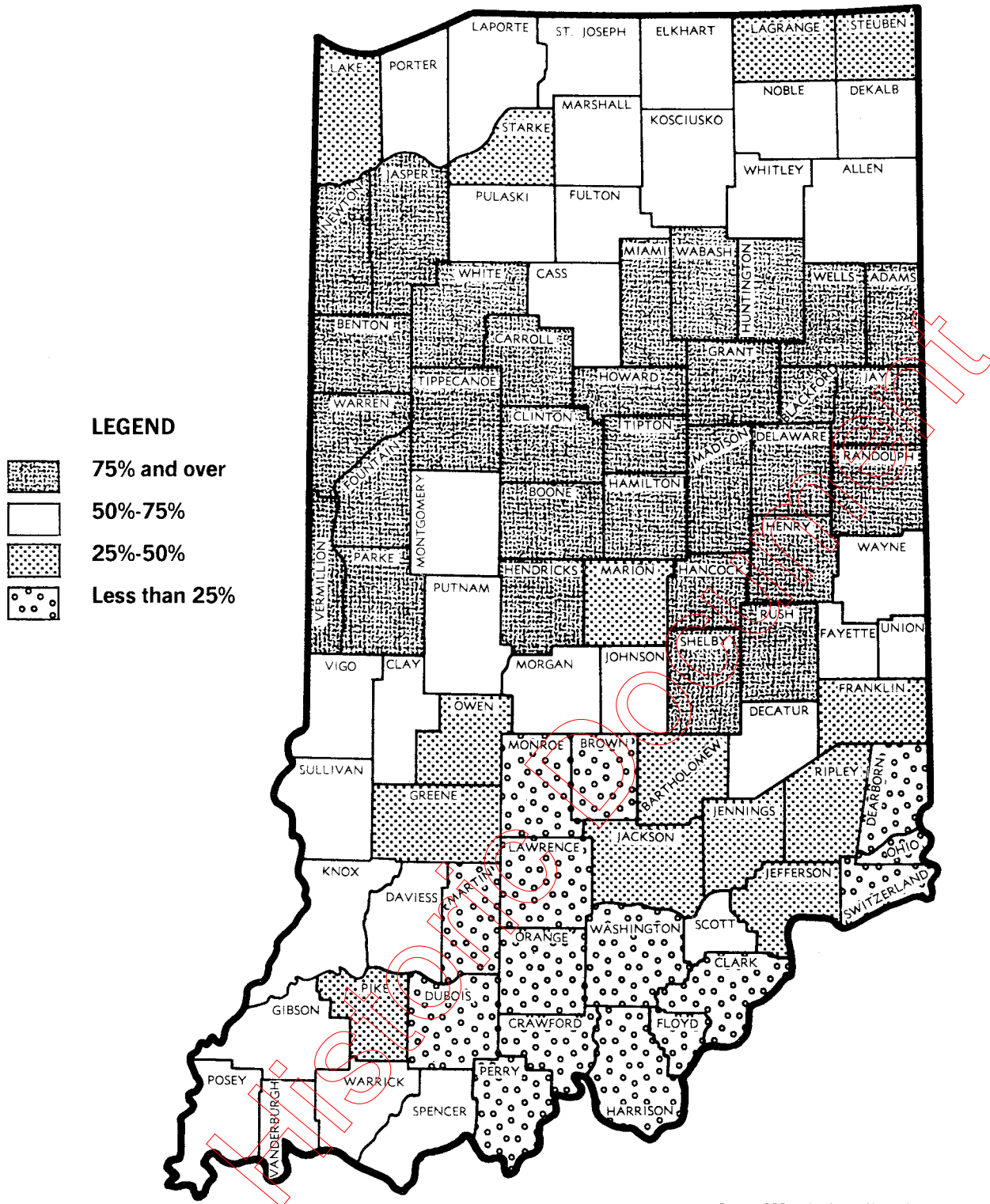
1) Some counties may be almost 100% prime farm land or 100% with no prime farm land, using national criteria or even statewide definitions. Further classifications are likely needed to differentiate land quality.

2) Prime farmland is often "prime" for developers also. Productive land at the fringe of a growing city may have to give way to urbanization.

3) The quality of land is only one factor (but an important one) in a community's decision on what to attempt to protect over time. Other factors are discussed later in the section on "Growth Management."

Indiana has a relatively high proportion of prime farmland as shown in Figure 1. And, unfortunately, some of the fastest growing counties in central and northern Indiana have many acres of prime farmland threatened by urban sprawl.

Figure 1. Prime Farmland in Indiana.



Source: SCS family of maps No. 5, 32.4500 and information from SCS field personnel. Albers equal area projection. USDA-SCS Lincoln, Nebr. 1981

How Serious?

Not only is it difficult to say exactly how much land is being converted to urban uses, but the seriousness of their shift is not easy to assess. One problem is that when you lose productive farmland to urban development, it is an irreversible action -- once the land is converted, it is gone forever as food producing land. Further, developers tend to acquire prime farmland for development rather than more marginal land, since flat, well-drained land can be developed at less cost. At times unique lands suited for specialty crop production are taken.

Just how much land should be left in agriculture versus other uses is a matter of judgment. We will certainly have enough land in the foreseeable future to meet domestic food needs. The unknowns here include the magnitude of future food exports, which in turn is a function of world population growth, food production in other countries, and their buying power. Pessimists who are predicting widespread starvation in a few years, those who view U.S. farm exports as an important tool in international diplomacy, and those recommending a vast expansion of food exports to improve balance of payments, argue for retention of food producing land. Others point to a decline in the rate of productivity increase of food production, and argue that future technology will not permit the same rapid increase in per acre output we have enjoyed in the past.

But most projections seem to be saying that despite steady loss of farmland, the supply of land in total seems adequate for the foreseeable future for both urban and agricultural needs. Barring enormous and unforeseen demands, there is plenty of land to go around in the United States for some time to come.

This conclusion, however, misses the real issue. Competition for land in certain choice locations is causing problems. Pressure on remaining farmland is very heavy near growing urban concentrations. Jobs, attractive environment, and a range of amenities make certain locations very desirable. Maintaining a viable agricultural industry becomes difficult as more intensive urban uses drive out less intensive agriculture and open space uses. Well-drained, easy-to-develop land is taken first by developers, the same land that is prime for agriculture. A study of land use changes occurring in southern Indiana, near the Louisville metropolitan area, found that two-thirds of the land converted from rural to urban uses was Class I and II farmland. About 20,000 acres were taken in a 30-year period, in a dispersed pattern of growth sprawling along major highways in five counties. Water lines and other public services followed the scattered development, reinforcing the pattern and impacting even more farming areas. Cities must expand, but where and how is the question. Prime farmland adjacent to a growing city should probably be used for urban purposes.

More farm and range land will be impacted by coal surface mining and oil shale development, both likely to expand considerably in the future. To the extent mined lands are reclaimed, the loss may not be irreversible, however.

With population beginning to level off, and in fact declining in parts of the country, the urban pressure against farmland will decline in many areas. Huge projects like the interstate highway systems, new recreational areas, water projects, and airports would appear to require less land in the future than in the recent past. But unknown and unforeseen land needs may come along to build up demand to new levels. In the long run, our domestic land requirements are hard to predict, let alone the impact of changes around the world.

Maintaining an Agricultural Industry

A final point on the matter of protecting productive farmland: more important than the total supply of arable land is the maintenance of large enough agricultural areas to sustain agricultural industry in some of our more populated regions. It is possible to squeeze out enough farmers from a particular region so that there are too few operators to keep agri-business suppliers going or maintaining themselves. A minimum critical mass is needed to keep agriculture viable, wherever you locate it.

The argument that we should maintain some agriculture in even the most urban counties is harder to defend, except on grounds that a minimum food-producing capability should be encouraged close to population centers for emergency purposes. We need farms and farmers, but not necessarily as part of every community, since our transportation and communication systems are well-developed, and we get food from all over the world. A counter argument here is the higher cost of transportation because of the energy crisis and more push to avoid transporting goods.

Agriculture is an important basic export industry that sells products outside the region and brings outside dollars back into the area. Economists know the value of such export industries in stimulating the local economy, and the business-multiplier effect.

PROBLEM: URBAN SPRAWL

Two Forms of Sprawl

Urban sprawl can take many forms, but two patterns of development are common. One is long, strung out "strip development" along major roads leading out from urban concentrations. Often a mixture of residences, businesses, unused open space, an occasional light industry, and farms, can string out for miles on one or both sides of the highway. Access to farmlands is reduced and residential and agricultural land uses mixed together. The "strip" community lacks cohesiveness; speeds must be reduced on the highway; and incompatible land uses are typical.

A second form of sprawl is "scattered" development, where primarily rural residences pop up randomly, either one by one or in small subdivisions. Again the mixture of nonfarm residences with farms causes conflict, impacts more land than necessary, and wastes valuable land. Frequently, large lots are required for the rural residences and this land is not well-utilized by the home owner.

Public and Private Costs of Sprawl

The high public and private costs of sprawl were documented in a recent study commissioned by the Department of Housing and Urban Development. Three community types were analyzed: (1) "low density sprawl," which was single family dwellings in largely a grid pattern; (2) a "combination mix," containing five different dwelling types; and (3) "high density planned communities," where a variety of housing types were clustered together. About four times as much land was used in the low density sprawl neighborhoods and there was more vacant land, but less land devoted to useful, public open space. The high density planned communities had 21 percent lower total investment costs than the combination mix and 44 percent less than the low density sprawl community.

The nonfarm rural resident can find his living environment lacks quality. Spread out, scattered neighborhoods are not "communities" at all, and may lack a cohesive infrastructure and essential public services. Privacy and serenity of rural living can give way to a physical environment dominated by a strange mixture of land uses, endless roads, and unusable open space.

The cost of extending public services to a scattered population can be an economic drain on taxpayers. Rural residents want and need improved roads; adequate police, fire and ambulance services; as well as public utilities and transportation services. Distance and time translate into more costly service distribution systems.

Energy Conservation

Increasingly, citizens and officials are concerned with rising energy costs associated with transportation and commuting from rural areas to jobs and schools. As energy prices increase, the expense of living in the country and working in town will escalate. "Spread city" is not energy efficient. Compact urban development reduces travel distances for both the private and public sectors of the economy. It is the liquid fuels used in transportation that are in the shortest supply, and are increasing in price. Energy shortages may turn out to be the strongest single factor working against urban sprawl.

Competition and Conflict

When nonfarm uses come into predominantly farming areas, conflict can result. Farmers want to operate with a minimum of interference from residents complaining about odors, chemical sprays, and other impacts from modern farming operations. Encroachment near concentrated livestock and poultry operations is particularly sensitive.

Investments in expensive buildings and facilities is often a long time proposition. Changing land uses around a farmstead can diminish the usefulness of the investment, and in some cases lead to the complete termination of some enterprises. It does not matter "who was there first." If the character of an area changes from agricultural to residential or some other use, the new use may be given priority over the old.

Farm enterprises near the edge of growing cities may need to be phased out over time in favor of urban growth. Expansion of the urban area at the fringe of the city usually makes more sense than "spread city" all over a greater area.

In a free enterprise system land naturally moves from extensive uses like farming to higher per acre returns like residential, business, or industrial use. In many counties land outside the central cities is virtually unprotected. In fact it is simply awaiting development at some future time.

A poll conducted by Indiana Prairie Farmer magazine showed strong concern among Hoosier farmers with current land use problems. By better than 2 to 1, the 358 farm families interviewed favored implementation of some kind of state-wide land use policies, and 78% saw a need to find ways to protect prime farmland. Young farmers particularly are recommending action be taken at the county and state level to protect farmland and guide urban development as it impacts rural areas.

When anyone is allowed to do whatever he likes with land, difficulties can be created for other people. One farmer selling off land for development purposes can create problems for neighboring farmers who want to continue farming. Rural nonfarm residents may not be compatible with farmers, and find their investment in a home in the country was a mistake. There is competition, and in some cases even conflict, over land in certain locations and for specific kinds of land. And there can be adverse impacts of particular land use upon the rest of the community.

In sum: (1) we are not likely to "run out" of land, in total, for food production or urban uses; (2) land is being used inefficiently for urban development; (3) urban sprawl is costly for the private and public sector; and (4) competition for choice land in certain locations leads to serious conflicts and unfortunate external impacts.

WHAT CAN BE DONE

What Are We After?

None of us wants more restrictions on the use and sale of our land than is absolutely necessary. The right to private ownership and enjoyment of land is a fundamental right guaranteed by a free society. Any land use controls designed to get at the problems enumerated earlier must work within our value system, and can probably only modify the basic market system. Fortunately, land use policies that can help to guide physical development and growth can probably accomplish two major objectives at the same time: the protection of farmland, and a reduction in urban sprawl.

These two goals can be translated into four even more specific public purposes that might be served by land use policies:

1. More efficient land use and conservation of valuable resources;
2. Reduction in negative external impacts, in conflict;
3. Reduction in public and private costs connected with development;
and
4. Improvement in the quality of our living and working environment.

Controlling Land Conversion

The community that wants to get serious about controlling development will have to control the process of converting land from extensive uses like farming and open space, to more intensive purposes like residential, business, or industrial uses. The process involves both private and public interests as shown below.

Land Conversion Process

A. Private parties involved:

1. Land owners
2. Land speculator
3. Developers, brokers, site planners, and builders
4. Home buyers, renters, and businesses
5. Lenders

Not all of these people are necessarily involved. The original land owner can act as the developer, and other steps be combined or bypassed. Financial institutions provide large amounts of capital where needed to fuel the whole process.

B. Public interests involved:

1. Facility and service developers
 - a. Sewer and water systems
 - b. Highways and roads
 - c. Schools
 - d. Other public facilities and services
2. Controls and/or stimulators
 - a. Zoning and subdivision controls
 - b. Tax laws
 - c. Credit programs
 - d. Housing codes
 - e. Other controls and programs

Public institutions are an integral part of the process. Without the extension of critical public services, development would stop. Local, state, and federal government impact development through the various controls listed

construction. It is one of the oldest and most common techniques used to discourage urban development and maintain farming areas. The high cost of purchasing a large lot tends to hold down urban encroachment, and spreads out the development that does take place. The concept is simple to administer, applies equally to all, and gives a "safety valve" outlet to provide for some exception to the general rule.

The critics of large lot zoning techniques point out that the 5, 10, 15, or 20-acre lots that are created probably waste valuable land, unless the land is farmed by the owner, or is part of a larger adjoining farm operation. Owners of large lots often ask for permission to parcel off additional lots, creating more potential home sites.

The large lot concept is often combined with exclusive agricultural zoning, to allow some nonfarm development.

In areas of small, specialty farms, the large lot size can reflect the minimum acreage needed for a successful farming enterprise, and becomes a device for encouraging agriculture, more than a device for discouraging non-farm development.

General Restrictions on Development

A number of regulatory devices are used to restrict development in rural areas that can slow down urbanization and, in effect, protect farmland. Limits on the number of parcels landowners can sell off are sometimes used. The landowner may be allowed to sell only to a relative for a second homesite; or restricted to one lot sale a year; or allowed to parcel off only one lot from a larger land holding at any time. These restrictions are similar in their impact to the density zoning described earlier, but are not directly tied to acreage limitations or density ratios.

Permission for development in rural areas can be tied to the availability and present capacity of public services. When carrying capacities of existing services are low and large public investments would be needed to service new urban development, local government may deny development opportunities in such locations and encourage development where excess capacities are in place. Examples include:

- 1) No rural residential subdivision on unimproved roads;
- 2) No development beyond municipal sewer systems; or
- 3) Future growth areas designated where public services are to be improved and/or extended in the future.

Development can be timed, or phased in, with capital improvements in the community, so that an area is "ready" for development when it occurs. Public tax money and service charges can be minimized, and at the same time the impact on valuable farmland reduced.

fairly effective enabling legislation and a tradition of local, more than state, control.

Zoning as used in many counties is a relatively weak tool, however. We have not been able to stop scattered and strip development of homes and businesses that come on one at a time. Forcing builders to create large lots out in the country has not been very satisfactory. But, we are moving toward special ordinances that will help protect from non-farm encroachment around intensive livestock operations. Counties are instituting subdivision control ordinances for rural areas. And, a number of counties are considering or have passed plans and ordinances creating relatively "exclusive agricultural zones." It is a recognition that agriculture merits protection from urban growth, and important to preserve, in itself.

Agricultural zones can be designated in rural areas where farming is the predominant use. Agriculture and accessory uses becomes the permitted use, with all other uses requiring a special exception from the Board of Zoning Appeals or rezoning by the Plan Commission. Special exceptions would need to be listed in the zoning ordinance, sometimes with specific performance standards to be met.

The important concept here is: agriculture is treated as the primary, protected use, and all non-agricultural development is subject to review by the planning agency and the public. Ideally, the agricultural zone area is created using a comprehensive growth management process that delineates a number of different land use districts across an entire county. Since zoning in itself is not a powerful device, agricultural zoning may need to be supplemented by other local and state level techniques to be effective.

Specific criteria used to delineate an agricultural zone often include:

- 1) soil productivity, topography, drainage, and suitability for septic tanks;
- 2) livestock concentration;
- 3) degree of urbanization present;
- 4) availability of public services; and
- 5) land subject to flooding or other environmental factors that would interfere with nonfarm uses.

Two kinds of agricultural districts may be appropriate, depending on how exclusive an area is desired, or in other words, the degree of mixing of land uses allowed. Both treat agriculture as a primary use.

1. Exclusive agricultural districts would permit agricultural uses only, with nonfarm uses (such as residences) granted only as a special exception and limited accessory uses permitted. Criteria for granting special exceptions for a single lot nonfarm residence could include sale of lots to relatives of the landowner, limitations on number of parcels sold off,

availability of public services, nearby urbanization, etc. Residential subdivisions would require rezoning.

2. Agricultural districts would permit agricultural uses and nonfarm uses that did not exceed a certain density. This allows for some mixing of nonfarm uses, but sets limits. Farming areas with some nonfarm development already in place could use this kind of zoning. Some residential subdivisions would require rezoning.

This second kind of district would be "less exclusive" than the first, and would recognize that some nonfarm development is allowed. Farming areas surrounding a growing city or town, subject to high urban pressures, could be covered by this kind of a zoning district. The amount of urbanization would be limited according to rules on the spacing of nonfarm development.

Density Zoning

The concept of "density zoning" is gaining some favor in the upper Midwest in an attempt to hold down urban development in farming areas. Local ordinances limit the sale of land for rural nonfarm homes to specified acreage ratios, so that the ratio of nonfarm development to farming area is held down to certain "density" limits. For example, a rural landowner may be allowed to sell off one lot for each 40 acres of farmland, perhaps a one-acre lot. This spreads out the rural non-farm homes and holds down their numbers, minimizing potential impact of urban development. It has the disadvantage of working against cluster development that may be preferable when large numbers of homes are built in an area.

In addition to density limits, local ordinances often contain performance standards that govern septic tanks, access to public roads, setback, and other details.

The number of lots allowed can vary with the size of the acreage owned, in a "sliding scale" scheme that is being used by some local units. Permitted density allowed is greater for small landowners, or in other words, varies inversely with the size of the original parcel. The rationale seems to be that larger farms should be retained in agriculture, while smaller farms are less critical to a county's agricultural base and small farmers are more likely to move out of agriculture.

Another variation in density zoning is to allow some combining of lots into contiguous subdivisions when two or more landowners agree to sell off adjoining land.

Density zoning of the kind described here, seems to work best when farms are large and urban development pressures are moderate. It is somewhat arbitrary, but at least treats all land owners equally.

Large Lot Zoning

"Large lot zoning" refers to the requirement that nonfarm building lots in rural areas be large in size, relative to land needed for actual

above, or programs that stimulate development like easier credit or tax incentives. By studying this complex process, we can begin to see the enormous job of bringing any rational order and control to the land conversion system. A number of difficulties can arise:

1. Several different units of government are involved and no one unit controls the whole process. The trend is to give more power to the states in order to bring together enough authority and resources to have an impact on the process.
2. There is a lack of real commitment and resources to intervene against strong market forces that are at work here. The private parties -- special interests involved -- are usually powerful and able to influence local decision making. Many local governmental units are not in a position to manage the process or effectively intervene.
3. We have the basic problem of freedom in individual property rights vs. control for the benefit of society, plus the issue of controls and regulations that reduce the value of property without compensation. For example, suppose Mr. Jones wants to sell 20 acres to a residential developer for \$10,000 an acre. Mr. Brown next door wants nothing to do with new neighbors and the "hassle" of a changing neighborhood. He would prefer to have the community stay as it is. Should Mr. Jones be denied the privilege of selling his land? Is this a violation of his constitutional property rights?

These are tough questions and problems that have limited our ability to control development in the public interest. And, of course, the whole question of what is the "public interest" is not easy to determine. It takes a great deal of citizen participation in planning to get any notion of what the majority would like to see done.

LOCAL POLICY APPROACHES

We are defining land use policies as "public decisions that guide the physical development of a community." They inject the interest of the total community into private land use decisions. Local policies are those devices and techniques used by counties, towns, and cities, usually under police powers granted local units by the state. The techniques described in this section are permitted under present enabling legislation. Later, we discuss additional techniques which would need state legislative action.

Agricultural Zoning

We need not review here the long history of local involvement in traditional land use planning and zoning controls. We have not done too badly in many respects, but we know the record is mixed. We have been able to discourage some gross misuse of land and to encourage some semblance of order, through local planning units that have developed and enforced comprehensive plans, zoning ordinances, subdivision controls, and other policies. Local planning is in a stronger position in our state than in many others due to

Preferential Assessment

As do many other states, Indiana assesses agricultural land according to its value in present agricultural use rather than its market value for possible development purposes. This, of course, holds down property taxes on farmland, although tax rates can still go up with general rates. This provision, known as "preferential assessment," has some value in preventing the pressure of increased taxes from forcing the conversion of land from agricultural to nonfarm uses, but most studies conclude it has only a minimal impact on farmland retention. It is mentioned here as a device that can help protect farmland, but probably not as a major policy measure.

STATE LEVEL PROGRAMS

A number of states have been wrestling with the issue of farmland protection for many years. It is instructive to review some of the efforts that have been made elsewhere, and analyze their relevance to our own situation in the Midwest, plus some of their strengths and weaknesses. Later in this report we combine elements of programs being used elsewhere with some new special provisions, to develop a unique proposal for our own state. All the programs would require new legislation in Indiana, with one minor exception noted.

We first list a number of major programs that are used primarily as farmland protection devices, then concentrate on those elements and concepts within the programs that appear to be the most effective and feasible.

Agricultural Districts

These are local institutional arrangements, created voluntarily by landowners, to give special benefits and protection to agriculture. First started in New York state, the agricultural district idea has spread to other eastern states in recent years. Variations of the basic concept are being considered in many other parts of the country. A minimum acreage is usually required.

Use Value Assessment

Some form of use value assessment and preferential tax treatment of farmland is present in the majority of the states. In California, the "Williamson Act" of 1965 was an early adaptation of this device. In several states special features include the payment of "rollback taxes" when farmland is sold for development, and other penalties are assessed upon conversion to nonfarm uses.

While general conclusions are hard to make, most studies indicate only minimal value from these devices. The amount of tax incentive is small, and the incentives are not linked to any local land use plans so that benefits are not concentrated on land that "should" be protected. The programs have helped the economic viability of agriculture.

Protection Programs with Tax Credits

Two Midwest states -- Michigan and Wisconsin -- have enacted special farmland protection programs. Farmers sign protection contracts with the state, that bind the landowner to keep land in agricultural uses in return for state income tax rebates. The Wisconsin program ties the incentives to local planning and varies payments with the landowner's income. Wisconsin counties must create agricultural protection plans and zoning ordinances in order for the state income tax credits to continue. The Michigan program does not have local planning requirements.

Development Rights Purchase and Farmland Trusts

A number of relatively new programs have started in eastern urban states with relatively small acreages of productive farmland left. These programs buy up the development rights in farmland, or put on protection restrictions that effectively maintain farms in agricultural production and open space despite heavy urban pressures. Funds come from various sources -- the sale of long term bonds, state general funds, donations, and other financing schemes. Participating farmers are reimbursed for giving up potential development values and continuing present operations.

The programs require enormous amounts of money and only small acreages and key farms have been involved. This specific technique is often tied to other protection devices in these states. Massachusetts has probably done more to date with this device than any other state, as part of their "Agricultural Preservation Restriction Act."

Transferable Development Rights (TDR)

New Jersey, Maryland, and Virginia have had the most experience with this technique, one of the more complicated protection devices.

Under TDR programs, an area is divided into two kinds of zones -- an agricultural zone and a development zone. Each landowner then receives development rights in proportion to the market value of his land. The development rights can be sold to developers who then can build in the zone designated for new growth. These funds go into a common pool and are shared by all landowners. Thus, landowners in the protection zone can capture some of the financial benefits of development without converting farmland to urban uses. Very little, if any, tax expenditures are needed. Development occurs where the comprehensive land use plans call for it.

With all these advantages, it would appear the TDR concept would be utilized frequently. But very difficult administrative decisions, uncertainty over future growth demands, and other complications have limited the use of this technique to only a few unique applications. It remains a concept with many desirable elements that may make it preferable to conventional regulatory approaches. It avoids the "taking" problem associated with zoning applications by substituting incentives and costs in a market.

"Right to Farm" Laws and Protective Legislation

One of the most recent policy innovations that have come as a response to conflicts between farm and nonfarm rural residents, are the so-called "right to farm" laws. Farm residents in a number of states have sought to protect agricultural operations from nuisance suits arising out of these conflicts, by limiting the circumstances under which farm operations can be deemed a nuisance.

The Indiana General Assembly passed such protective legislation in 1981, although it is not called a "right to farm" bill. It includes agricultural and industrial operations, and after defining both, it says that agricultural and industrial operations cannot be ruled to be creating a nuisance if:

- 1) the operation was not creating a nuisance when it began, and changing local conditions alone have given rise to the claim the operation is a nuisance;
- 2) the operation has been going for at least one year; and
- 3) the operation is not being conducted negligently.

These provisions will likely give farmers slightly more protection from urban encroachment than does the common law of nuisance, but the constitutional right to sue is still basically intact. A radical change in farming operations that results in severe environmental impacts may be ruled to be a "different operation" than existed earlier, but the one-year provision establishes a "first-in-time, first-in-right" principle, at least. It warns the new rural, nonfarm residents that they must accept existing conditions when they move in near farm operations.

NEW POLICY PROPOSALS

As we have argued, the farmland protection issue is still an important public concern and a number of policy approaches are being tried. Legislation in many states has created specific programs or related land use control measures that have important protection effects. State planning agencies are identifying "areas of critical concern" that often include "prime farmland." Counties are mapping "prime and unique" farmland, using either national criteria or more local guidelines to designate productive food-producing land. There is a general fear of resource scarcity, triggered in part by energy shortages, plus the continuing interest in environmental issues that impact on land use. A sort of agricultural fundamentalism on the part of rural leaders who consider farmland "sacred" has brought them into a coalition with urban environmentalists and those concerned with the long run implications of dramatic land use changes.

While public interest can be found, the will to come to grips with the issue is not as evident. Only a handful of states have committed substantial funding or instituted tight land use controls to protect more farmland. Some of the older programs are now suspect as continuing research shows benefits to

be small and costs high. Congress is unwilling to pass and fund a significant national program.

We are in a position to seriously explore new approaches to the problem, but at the same time constrained by individual property rights and forced to minimize program costs. For these and other reasons we are forced to consider proposals that are rather modest in scope, that perhaps only extend a bit the present system of land use controls and minimize expenditure of public funds. In this section we outline a program that hopefully combines some of the best features of several devices, to create a total program package that makes use of a number of techniques in a unified approach.

A County Farmland Protection Program Proposal

The program encourages the voluntary formation of agricultural districts in areas designated for protection. Monetary incentives and other benefits are combined with local growth management policies. Objectives of the program are to:

1. minimize conversion of prime farmland to nonfarm use;
2. protect agricultural areas from urban encroachment and reduce conflicts over competing land uses; and
3. strengthen local growth management plans and policies developed by communities with incentives and penalties.

Enabling legislation permits county government to create a "Farmland Protection Program" in cooperation with the state. Not all counties may choose to participate, perhaps only those with highly productive farms and rapid growth will.

The local plan commission designates agricultural zones in a regular planning and zoning process, using specific criteria on soil productivity, degree of urbanization, carrying capacity, etc. County officials approve after extensive public participation. Other devices may be implemented also, such as those listed earlier to create a comprehensive growth management plan.

Landowners within the agricultural area can form an "Ag. District." The district must have a minimum size and a minimum amount of land owned by each individual participating. These become the areas to be protected.

Landowners sign contracts with county and state -- agreeing to keep land in agriculture and open space for a specified time, for monetary and other benefits.

A flat rate/acre/year is paid to participants by the county.

Any change to nonfarm use of land in the exclusive agricultural zone would have to get permission from local planning officials. Thus, the "stick" of zoning is supplemented and reinforced with the "carrot" of an incentive

payment to keep land in agriculture. This creates a double or triple impact on potential land use changes. Landowners signing contracts might also receive other benefits such as a modification of the eminent domain proceedings against farmland, elimination of special assessments for urban public services, and other incentives.

Land values in the agricultural zones would be held closer to prices for farm purposes, while land values elsewhere would rise somewhat. Developers would have to pay more for land in the agricultural areas and would have to pass on added land costs or build elsewhere.

Financing the Programs

The incentives to landowner participants would require substantial amounts of money from some source. We suggest three different financing schemes, one a "self-financing proposal" and the other two using tax funds.

A brief description of each follows:

Transfer Fee Plan: Removal of land from a protection area would result in the assessment of a fee to be paid by the party effectuating the change in land use for nonfarm purposes. Money collected through this fee assessment would go into a fund to benefit those who maintain their land in agricultural use. Such benefits would serve as partial reimbursement for lost development rights. This plan would create a new source of funding, thus avoiding use of existing tax revenues. The Transfer Fee Plan would provide incentives to those holding land in agricultural use and disincentives to those converting land to other uses.

Preferential Assessment Plan: Land in the designated protection areas would be assessed at a much lower rate than non-designated land, providing a significant property tax break to participants. Land owners converting their land to nonfarm use while under contract would be required to pay "rollback" payments. Money accrued from these penalties would partially fund the plan, with additional financing coming from the State as needed.

State Income Tax Incentive Plan: Land owners in preservation areas would sign contracts with State and local authorities. Monetary benefits would come from the return of all or a portion of State income taxes to the participants as an incentive to participation. Additional income would be derived from penalties assessed on early conversion of land.

In all three cases, the incentives are tied closely to locally determined growth plans, and supplement local land use controls.

In the next section, we take one of the alternative proposals for further explanation and analysis.

The Transfer Fee Plan

The transfer fee plan proposed is a modification of a scheme developed by land use specialists looking for a way to create an incentive program without using regular tax revenues.

A county growth management plan is adopted and agricultural zones designated. Within this zone, land owners can voluntarily sign contracts to keep their land in agriculture for a specified period. As one benefit, they receive a cash payment each year from the county fund, based on the acreage under contract.

The protection funds come from a fee assessed on land sold for nonfarm purposes that is in the designated agriculture zone. The fee would be sufficiently high to discourage many sales, but not so high as to constitute a "taking" of land by the police power embodied in zoning. The fee could be a percentage of the sale price or a dollar amount could be stipulated. A variation of this would be to have landowners form special agricultural districts and only those signing contracts would be assessed the fee, if they broke their contract and sold farmland for development purposes or developed it themselves. In counties with little demand for development land, fees would be slow to accumulate, but less incentive would also be needed.

The Transfer Fee Plan and Transferable Development Rights Compared

The transfer fee plan concept has similarities to the transferable development rights scheme, in that both contemplate areas to be developed vs. those to be kept in their present use. Landowners maintaining land in present use and giving up their development rights, share in the benefits of those who sell out for development. The transfer fee plan has fewer administrative problems and is considerably less complicated. However, neither concept has been tried on a large scale and both raise some legal and administrative questions yet to be answered.

As usually recommended, a transferable development rights program (TDR) can be contrasted with the suggested transfer fee plan (TFP) as follows:

1. TDR plans cover a more diverse area, not just agriculture.
2. TDR is most valuable for land under intense development pressure, where the precise location of development is designated. Under TFP, individuals acting in the land market decide what area is to be developed, to a greater extent.
3. TDR requires a rather sophisticated operating agency and plans.
4. Under TFP, no actual sale of development rights occurs, but there is a sharing of revenue from the sale of land for development.

A Hypothetical Example

Applying the TFP proposal to a fairly typical agricultural county illustrates further how the program would work:

Greenfield County - Midwest - U.S.A.

- *Population 100,000, growing at 2% per year.
- *County contains total of 200,000 acres of which 80% or 160,000 acres is in agriculture and open space uses.
- *Approximately 120,000 acres is zoned exclusive agriculture (A1); 40,000 acres zoned transitional agriculture near urban centers (A2).
- *Balance of county zoned residential, commercial, industrial, environmental, etc.
- *About 1,000 acres per year is converted to urban development of all kinds; 400 acres come from A1 zone that planning officials have rezoned or given a special exception for development.
- *Fee assessed at rate of \$1,000 per acre for a total of \$400,000 per year from the 400 acres.
- *400 farm landowners have signed contracts and 80,000 acres are involved. Incentive payments would come to \$5/acre and average \$1,000 per farm for that year from the \$400,000 income to the fund.
- *Land for agricultural purposes in A1 zone sells for \$3,000 per acre and \$5,000 per acre for development, indicating development rights are worth \$2,000 per acre. \$1,000 per acre fee allows seller of land to net \$1,000 in development rights value and another \$1,000 shared by those giving up development rights.

The transfer fee program fits the county that wants to retain agriculture over time but recognizes the right of some property owner to sell for development when that growth will not have serious negative impacts. It gives some degree of flexibility, but more control than without any program.

Not all counties may need such a program. It would work best when:

1. Growth is considerable and development pressure modest to strong;
2. Valuable, prime farmland is threatened by urban sprawl;
3. Development rights are valuable; and
4. All land within a single local jurisdiction is covered (all of a county, for example).

The program is less appropriate when:

1. No development is desired.
2. The community wants to specifically designate all development locations.
3. Only small open areas are involved.

Possible advantages of a transferable fee program include:

1. Monetary incentives and disincentives are created to keep land in agriculture.
2. Little or no tax money is used.
3. It allows for sharing of development value among all landowners. Reduces windfall gains and wipe outs from land use controls.
4. Simple administration is possible.
5. It can be easily combined with traditional planning and zoning techniques.
6. Some flexibility is given to the developer.

Possible disadvantages may be:

1. Not enough land is sold to create a program fund of any size.
2. There is not enough control over development location on the part of the community.
3. The program is paid for by potential home owners, rather than the entire community, since development land would be more expensive.

A number of important questions would need to be answered, including the amount of the transfer fee and the method of collection. But this conclusion seems valid:

Under this scheme farmland is protected where local plans call for it and protected in relatively large pieces. It would particularly cut down on scattered development away from cities, where development makes little sense and impacts farmland.

Growth Management - Putting It Together

The main thrust of this report is that protecting farmland and guiding physical development (or planning) can be accomplished at the same time. Thus farmland protection becomes one aspect of an overall growth management program in a county or a community. The objective is to influence the location of development and set standards to guide the specific project. We are talking

about comprehensive land use planning approaches that have some chance of guiding the land conversion process, and require a coordinated package of planning techniques and policies. "Growth management programs" are extensions and modifications of conventional planning approaches, that hopefully improve on the planning process itself and lead toward desired results.

Briefly, we propose the following stages in a growth management program, to illustrate how the policies examined earlier fit into a land use planning and control system that can be adapted to most communities.

1. Study of the natural resource base - water, soil, natural land types, and climate.

This analysis provides the starting point for planning by indicating the potential of the basic raw material for development - land.

2. Delineation of critical areas - identification of areas with special characteristics that encourage development or imply protection - areas such as flood plains, wet lands, prime agricultural land, historical areas, etc., where development should be precluded or would be expensive and/or risky.

3. Determine current carrying capacity - examination of the natural resources base and critical areas, plus existing services and facilities, and degree of urbanization. These factors are used to help decide location and density recommendations for future growth.

4. General land use plan - recommendation for patterns of growth based on the foregoing analysis of technical factors plus citizen input on their vision of the future community. Location, density, and standards for growth are established that reflect community values and priorities.

The plan provides for agricultural, residential, commercial, industrial, recreational, and other major land uses.

5. Land use control policies - an appropriate mix of policies is implemented to encourage or discourage the kind of development desired, and making use of a number of techniques that can be blended together. Different sorts of policies might include those that are (1) regulatory -- such as zoning, subdivision control ordinances, etc.; (2) incentives -- such as a transfer fee program or a TDR scheme; (3) voluntary association -- such as agricultural districts; and (4) phased public investment -- where the community extends and improves public services in a planned, rational manner.

Ideally, the policies are used in concert to achieve common objectives, with a minimum of counterproductive results.

Summing Up

We have examined a number of land use policy options that can help protect farmland, or at least ensure a more efficient process of land conversion.

The devices will have the greatest impact on land use and potentially on agriculture when the following conditions are met:

1. when the tools are used as part of an overall growth-management approach;
2. when a package of tools are used that complement each other;
3. when agriculture and open space uses are recognized as valuable in themselves, and worth preserving over time;
4. when a combination of "carrots" (incentives like tax refunds) and "sticks" (like zoning regulations) are used to reinforce each other;
5. when widespread public participation and citizen impact has preceded policy implementation;
6. when different levels of government (county, city, and state) cooperate in a unified program.

Under the best combination of public policies and programs, some private development decisions will conflict with public efforts to guide land use changes. Land use changes are made largely as a result of private sector decisions. The question is: How much should public policies intervene in essentially a free enterprise environment, to serve public purposes? This issue is worked out within each community and the results are different for each locality. In terms of farmland saved and open space protected, each community will work out on its own, compromises and tradeoffs.

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