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The Purchase of Development Rights

Preserving Agricultural Land and Open Space

Thomas L. Daniels

The use of public money to purchase development rights to privately held land has become increasingly popular in recent years as a way to preserve agricultural land and open space. Several states and counties have devoted substantial dollars toward the purchase of development rights (PDR). The majority of PDR programs are found in the Northeast, and are particularly popular in urban fringe areas where farmland and open space are under intense pressure for conversion to urban or suburban uses. It is unlikely, however, that PDR programs alone can preserve a critical mass of farmland. Indeed, a number of states have chosen not to use PDRs among their growth management techniques. Although PDR programs are likely to remain controversial because of the sizable costs involved, they do offer more permanent farmland protection than zoning or property tax breaks and provide private landowners with compensation in return for restrictions on development.

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The concern over the conversion of farmland to nonfarm uses seems to have abated since the National Agricultural Lands Study of 1981, which claimed that between 1967 and 1977 the United States lost three million acres of farmland each year (U.S. Department of Agriculture and the Council on Environmental Quality 1981). In the 1980s, surplus crop production and low crop prices precipitated a farm crisis in many parts of the nation. In 1983, seventy-eight million acres of cropland were idled under government programs and, in 1988, sixty-nine million acres of cropland were idled (Lapping et al. 1989). These figures suggest an abundance of farmland. Yet from a regional or local perspective, the picture looks considerably different. Roughly one-fifth of the nation's prime farmland (identified by the Soil Conservation Service as Class I and II) is located within metropolitan counties. When counties adjacent to metropolitan counties are included, these greater metropolitan areas include over one-third of the nation's prime farmland (Hiemstra and Bushwick 1989).

The search for effective techniques to maintain land in agricultural use has long frustrated planners, elected officials, farmers, and concerned citizens. While each state provides some form of property tax break to owners of farmland, these inducements are generally small compared to the large sums that developers can offer. Agricultural zoning is used in over three hundred counties and communities (Toner 1984), but this is notorious for its impermanence. Also, many farm zones have minimum lot sizes that allow the land to be broken into parcels that are too small for commercial farming. Even in cases where property tax breaks are employed in combination with agricultural zoning, the political pressure to rezone to another more lucrative use may be too great.

Farmers are largely unenthusiastic about agricultural zoning: It restricts their use of the land without compensation. A farmer's land is not only a source of livelihood but may be looked upon as an insurance policy and a retirement fund. Thus, there are often only two choices left to the farmer: either to continue in farming and hope to pass along the farm to the next generation or try to sell out for development, which may involve a battle over a zoning change.

The purchase of development rights represents a middle ground between these two extremes. A landowner's property rights are often compared to a bundle of sticks, with each stick in the bundle representing a separate right. Each right may be used or disposed of separately. For example, the bundle of rights includes mineral rights; the right to sell, lease, or mortgage; surface rights; air rights; and development rights. Under a PDR arrangement, the farmer voluntarily sells the development rights (also known as a conservation easement) and receives compensation for the development restrictions placed on the land.[1] The farmer retains title to the land and can sell or pass along the land to others, although the use of the land is limited to farming and open space. The conservation easement runs with the land either in perpetuity or for a period of time specified in the easement document.[2] The easement typically prohibits residential development except for the owner, the owner's children, or farm labor (Derr 1988).[3] Public access is not normally allowed, nor is the dumping of garbage or removal of soil (Derr 1988). Normal agricultural practices are permitted if they comply with state and federal statutes.

The goal of PDR programs is to keep land in agricultural and open space use. The farmer can use the money received to buy down debt, reinvest in the farm, or for other purposes. The PDR program carries the underlying assumption that the farmer has a right to develop the land in a way that might not be limited by the current zoning. The payment purchases that right to develop and in essence gives the buyer an interest in the farmer's real estate.

The Growing Popularity of PDRs

The purchase of development rights to preserve farmland and open space has enjoyed increasing popularity in recent years, especially among states along the densely settled Boston-Washington corridor. In 1980, only four states—Connecticut, Maryland, Massachusetts, and New Hampshire—had enacted PDR programs. By 1990, nine states had adopted the PDR approach: all six New England states, Maryland, New Jersey, and Pennsylvania. Also, in May 1990, the New York legislature passed a $1.975 billion bond issue that could be used in part to purchase development rights to farmland (American Farmland Trust 1990).

Maryland leads all other states with nearly 80,000 acres under permanent easement restrictions (Table 1). The state has used the proceeds from a 5 percent farmland conversion tax and an Open Space Fund for purchasing development rights, and thus has been able to accumulate easements on a significant number of acres over time. Most other states use bonds as the primary funding source.

State-level PDR programs are still in their infancy: In the nine states with PDR programs, just under 150,000 acres have been preserved, and over half of those are in Maryland. The preserved acreage is small compared to the more than one million acres that were taken out of farming in those states between 1978 and 1987, and the number of farm acres remaining in 1987 (Table 2). Moreover, the rate of farmland loss in seven of the nine states accelerated in the 1982 to 1987 period from the 1978 to 1982 period. It was this more rapid loss of farmland that may have spurred the creation of PDR programs in Vermont (1987), Pennsylvania (1989), and Maine (1990).

The purchase of development rights is by no means a panacea. The farmland that it preserves may not be sufficient to sustain agriculture as a local industry. Indeed, in urban fringe areas, PDRs may be more successful in preserving open space amenities than in ensuring a thriving agricultural sector. The northeastern United States contains about 2 percent of the nation's cropland, so the national impact of preserving farmland in this region is indeed slight (Derr 1988). Five of the states using PDRs have fewer than one million acres of farmland remaining; agriculture is not a major industry. Even so, PDRs have proven politically popular in urban fringe areas. Taxpayers and elected officials will need to continue to fund PDR programs if the promise of farmland preservation is to have a chance of success.

The Pros and Cons of PDR Programs

No single farmland preservation technique is a perfect solution. While a PDR program may help achieve some goals, it may fall short in others. The two main strengths of a PDR program are that it scores high in fairness to landowners and provides substantial permanence in farmland preservation (Coughlin and Keene 1981). The landowner is compensated for development restrictions, and the land cannot be developed, except for agricultural-

TABLE 1: Purchase of development rights by state to March 1990

State	PDR begun	Acres	Farms	Funds authorized (in millions)	Funds spent (in millions)
Connecticut	1978	17,313	114	48.3	40.8
Maine[a]	1990	330	1	1	.38
Maryland	1977	79,482	534	78	68
Massachusetts	1977	27,650	285	80	65
New Hampshire	1979	2,090	26	3.6	3
New Jersey	1983	8,900	68	100	50
Pennsylvania	1989	496	5	100	.6
Rhode Island	1982	1,362	18	10.5	7.5
Vermont[b]	1987	9,128	30	6.9	5.1
TOTAL		146,751	1,081	428.3	240.38

a. Maine's PDR program was initially part of the state's Land for Maine's Future program. The first purchase of development rights came from the board's funding of $9.5 million, after which a separate PDR account was established.
b. Vermont's allocation includes programs for a variety of land acquisitions, in addition to purchasing development rights to farmland.
Source: American Farmland Trust, 1990.

TABLE 2: Change in acres in farm use in states with PDRs

	Farmland acres			Percent change	
State	1978	1982	1987	1978–82	1982–87
Connecticut	455,731	444,242	398,400	−2.5	−10.3
Maine	1,500,390	1,468,674	1,342,588	−2.1	−8.6
Maryland	2,614,439	2,557,728	2,396,629	−2.2	−6.3
Massachusetts	617,359	612,819	615,185	−.7	+.4
New Hampshire	484,631	469,582	426,237	−3.1	−9.2
New Jersey	987,309	916,331	894,426	−7.2	−2.4
Pennsylvania	8,543,661	8,297,713	7,866,289	−2.9	−5.2
Rhode Island	66,233	62,466	58,685	−5.7	−6.1
Vermont	1,633,049	1,574,441	1,407,868	−3.6	−10.6
TOTAL	16,902,802	16,410,125	15,406,307	−2.9	−6.1
U.S.	1,014,000,000	987,000,000	964,000,000	−2.3	−2.3

Net change in acres 1978–1982 for the nine states: −492,677
Net change in acres 1982–1987 for the nine states: −1,003,818
Net change in acres 1978–1987 for the nine states: −1,496,495

Source: U.S. Department of Agriculture, *Census of Agriculture, 1987.*

related uses. The compensation is less than full fee simple, though it may comprise a large percentage of the fee simple value (Lapping 1980, Derr 1988).

The ultimate goal of a PDR program is the preservation of a critical mass of farmland in neighboring blocks, which can help farm supply businesses thrive and assure farmers that development will not be encroaching in the near future. This helps combat the Impermanence Syndrome (Coughlin and Keene 1981) characterized by farmers reducing investment in their farms and preparing to sell for nonfarm uses as they perceive an inevitable wave of development coming their way.

The sale of development rights can be especially useful for young farmers who need capital and to farmers nearing retirement who want to pass the farm along to the next generation. The sale of an easement can provide a retiring farmer with a nest egg to live on, and reduces the value of the farm for estate tax purposes.

The experiences of Suffolk County, New York, and King County, Washington, however, point out several of the problems with using PDRs to preserve farmland and manage growth. Suffolk County, New York, which covers the eastern two-thirds of Long Island, founded the first county PDR program in 1972. Suffolk and some of

TABLE 3: Pros and cons of PDRs

Pro	Con
Fairness: landowner compensated for development restrictions.	PDR not based on landowner's financial situation.
Permanence, except for eminent domain, twenty-five-year term easement, or if government purchasing the easement sells it back to the landowner.	Expensive. Development possibility of rights may cost over 50 percent of fair market value, and cost may exceed value of land as farmland or open space. Some protection might be achieved at far less cost through zoning.
Landowner turns part of fixed asset (land) into liquid asset (cash). May reinvest cash in farm or pay off debt.	Compensation is paid to landowner for development value that the landowner did not create. Rather, this increased land value was created by public investment in roads, schools, and sewer and water lines that have made the landowner's property more accessible. Thus, PDR pays landowner an unearned increment.
Possible reduction in property taxes and estate taxes. Provides greater security for farming in a neighborhood or region.	Weakens the credibility of zoning. Restrictions on land use need not require compensation if they further the public health, safety, and welfare and if some reasonable economic use remains.
Program is voluntary, of greater acceptability to landowners than police power methods.	Landowners may refuse to participate.
	Administration may be cumbersome. May foreclose future options by selling development rights.

its townships have spent $26.5 million to buy rights to 5,852 acres (Lyons 1989). Critics of the program have noted that the development rights to over two thousand acres were purchased from speculators who were not farmers (Cerra 1980). Also, the development rights may have cost as much as 85 percent of the fee simple value and more than the agricultural value of the property (Lapping 1980). In addition, nearly 20,000 acres of farmland, or almost one-third of the farm acreage in the county, was converted to other uses between 1969 and 1987 (U.S. Department of Agriculture 1987). Simply put, development occurred more rapidly than farmland preservation. A further problem arose when only one-quarter of the PDR applicants accepted offers in the second phase of the Suffolk County program (Hiemstra 1983). Thus, the land under protection was scattered and not in contiguous blocks. This pattern could easily result in farmland being surrounded by incompatible nonfarm uses over time. The county recently appropriated $10 million to purchase development rights on in-fill farm parcels to create blocks of preserved land (*Farmland Preservation Report* 1990).

King County, Washington, operated a program from 1984 to 1986, and spent $53 million to buy the development rights to 12,568 acres (King County 1987). The program targeted eleven regions within the county, but in only four regions were the development rights to over one thousand acres purchased. As with Suffolk County, the creation of a critical mass of preserved farmland may prove elusive. Moreover, King County lost over five thousand acres, or 9.4 percent of its farmland between 1982 and 1987. In essence, these county programs appear to be primarily oriented toward preserving open space and secondarily directed at maintaining a viable farm economy.[4] In all likelihood, the loss of farmland in these two metropolitan counties would have been greater without a PDR program. At present, the rising development value of farmland will make additional purchases of development rights difficult and expensive.

Other weaknesses in the program include the high cost of purchasing development rights, the voluntary nature of PDR programs, and the time involved in processing easement applications. Initial purchases of development rights in King County, Washington, cost on average $8,000 an acre though the total program average was slightly over $4,000 an acre (King County 1987). By contrast, Maryland paid about $800 an acre for development rights between 1985 and 1988 (Maryland Agricultural Land Preservation Foundation 1989). During the same period, Massachusetts spent on average $2,500 per acre (Massachusetts Department of Agriculture 1989). In some cases the value of the development rights exceeds the value of the land for farming.

The voluntary element means that many farmland owners may choose not to participate in a PDR program, undermining the accumulation of a critical mass of farmland to support the agricultural infrastructure. This can result in the creation of isolated islands of preserved land, which could actually invite development because of the permanent open space. The voluntary aspect also frustrates the negotiation of a mutually agreeable easement price. For example, in the second phase of the Suffolk County program, landowners rejected offers on 3,000 acres and agreed to sell development rights on only 1,000 acres (Hiemstra 1983). Moreover, the voluntary aspect may also affect the equity of the program: A well-to-do landowner may be able to afford to sell development rights whereas a poor landowner may need the higher returns from selling for nonfarm use.

The administration of a PDR program can be somewhat cumbersome. Because government bureaucracies process applications to sell development rights, months may pass between application and actual settlement. The more levels of government involved in acquiring the development rights, the longer the process is likely to take. Applications must be reviewed and ranked, appraisals performed, offers made and accepted, and approvals obtained from various government agencies. In Pennsylvania the process can take up to a year or longer. The state may take two months to review an application after it has been approved at the county level, and then an additional four months to present the landowner with a check for the development rights. The length of the acquisition process may discourage some landowners and may inconvenience others who are looking to settle for tax purposes within a certain calendar year.

A further argument against PDRs is that they compensate landowners for the increased value of their land brought about by public investment in roads, schools, and sewer and water lines, not by the efforts of the landowner. It was exactly this unearned increment that Henry George sought to capture with his famous single tax, which would recoup for the public any increase in private land value brought about by public investment. Yet, by selling an easement, the landowner is effectively giving up any future appreciation in the development value of the land and is preserving land in farming and open space for the benefit of the public at large.

Lyons (1989) contends that a purchase of development rights to some farmland may drive up the price of other farmland in the area, but offers no data to substantiate his claim. This could occur in a township or small county, but is unlikely to happen in a large county with many farms or throughout an entire state. On the other hand, farmland with no development rights remaining should sell at its agricultural use value, thus aiding in the transfer of farmland within a farm family or to another farmer.

In some cases, PDRs may undermine the acceptability of zoning as a land use control. Zoning typically does not involve the payment of compensation in return for development restrictions, but is considered a legitimate use of government police power under the Tenth Amendment. In addition, zoning need not fall afoul of the Fifth Amendment provision against the taking of private property without just compensation, so long as zoning is construed as reasonable by the courts. To date, the strongest affirmation of zoning comes from Oregon where the courts have ruled that zoning is legitimate without compensation if at least some economic value of the land remains. That is, zoning need not allow land to be put to its "highest and best" use. But in the Northeast, the possibility of a challenge to agricultural zoning under the taking doctrine is very real (Mackenzie 1988). In short, zoning is malleable and politically vulnerable, whereas PDRs are legally sound and afford more permanent protection for farmland.

Finally, the purchase of development rights in perpetuity holds considerable potential for closing future land-use options. Once a landowner sells the development rights, the land must remain in agriculture or open space use. It is conceivable, however, that as time passes a farm without development rights could be surrounded by nonfarm development that renders the farm inviable. A farm with no development rights can be condemned for a public purpose, but provisions for landowners to buy back their development rights are rare. Pennsylvania allows that if after twenty-five years a farm can no longer be worked because of neighboring nonfarm development, then the landowner may apply to buy back the development rights at the original price plus the appreciated value.

Administration of a PDR Program

The initial PDR administrative decisions are legislative: how much to spend over time and where to house the program—in a separate agency, the county planning department, the state department of agriculture, or some combination of the two departments.

Two different funding strategies have emerged. The PDR program can exist briefly with substantial public expenditures, as in King County, Washington, or the program can continue indefinitely at a more modest level of funding as in Maryland. Because of the high cost of acquiring easements and the goal of assembling a critical mass of farmland, it may be politically more expedient to spread out the costs over time and more realistic to acquire gradually large blocks of land under easement.

In small states or in states with limited agriculture, PDR administration might be most efficient through a stage agency. In large states with substantial amounts of agricultural land, it might be best to have the program managed on the county level, using county and state money and some state overview. This arrangement would simplify administration and allow each county to determine which lands to preserve and how much to pay.

TABLE 4: The PDR process

I. Legislation appropriates funds and creates an administrative agency
II. Administration
   A. Create state or county agency, autonomous or advisory
   B. Target farms and farmland
   C. Rank applicants by development pressure and the quality of the farmland
   D. Conduct appraisals
   E. Negotiate and purchase development rights
   F. Monitor and enforce PDRs

The first task of the state or county agency is to determine which farmland development rights to purchase. This involves mapping important farmlands (SCS Class I, II, and III), identifying farmland that can be preserved over the long run, and devising a system for ranking applications. To determine which lands to protect through PDRs, administrators may do well to follow the Internal Revenue Service criteria concerning the *donation* of development rights. The donation of development rights is considered a charitable contribution, which a landowner may use as a deduction from taxable income (up to 30 percent of adjusted gross income in any one year, not to exceed six years).

The IRS requires that donations be in accord with public policy, do not block development, and are not in areas where there is no development pressure (Diehl and Barrett 1988). For example, in the case of a farm with adjacent sewer and water lines and development on three sides, the purchase of development rights might not successfully preserve the land for farm use because of the conflicting land uses next door. Also, the development rights here would be very expensive.

The IRS encourages the preservation of farms that are under moderate development pressure, where municipal sewer and water and major roads are not adjacent to the property, but where there is some development in the general vicinity. In this case, purchasing development rights could make a very real difference in keeping development from encroaching upon farmland and in discouraging the extension of urban services.

It may appear that the goal of a PDR program should be to buy up the development rights to as many acres as possible. Although the development rights to land with low development pressure could be purchased fairly inexpensively, in anticipation of development well in the future, the IRS takes a dim view of such easement donations. The argument is that limited public funds should be spent on purchasing development rights in those areas where it could make a difference, not where development is unlikely to occur.

Determining which development rights to purchase constitutes a *triage* approach to disbursing public funds. Rather than follow a "worst first" course of action in which development rights would be purchased in areas of heavy development pressure, or a "most acres for the money" approach, a middle course strategy involves buying development rights in areas of moderate development pressure. The middle course strategy is directed at purchasing rights to a significant number of acres to preserve a critical mass of farms and farmland and to discourage the spread of development. The critical mass would enable farm support businesses to remain in operation and help farming continue as a viable part of the local economy.

Administrators can institute a numerical ranking system to objectively determine which development rights

Newly built homes advertised for sale next to farmland. Haphazard land use patterns and higher valued nonfarm uses put pressure on farmers to sell out.

to purchase and in what sequence. The ranking system features two main criteria—the degree of development pressure and the quality of the farmland—further broken down into categories that are assigned numerical points. The property with the highest total point score ranks first and receives top priority for development rights purchase. Extra points can be assigned to applicants near or adjacent to properties already under easement. This scoring recognizes the added value of achieving a critical mass of preserved farmland.

The administrator must decide how much importance to give to development pressure as compared to the quality of the farmland. The *National Agricultural Land Evaluation and Site Assessment Handbook,* devised by the Soil Conservation Service, recommends that, when acquiring easements, 50 percent of the total points reflect development pressure and 50 percent the quality of the farmland (U.S. Department of Agriculture 1983). Such a system will tend to rank moderately pressured farmland highest, thus reinforcing the triage guideline that the IRS applies, and targeting those farms for which a purchase of development rights can make a very real difference in terms of long-range security.

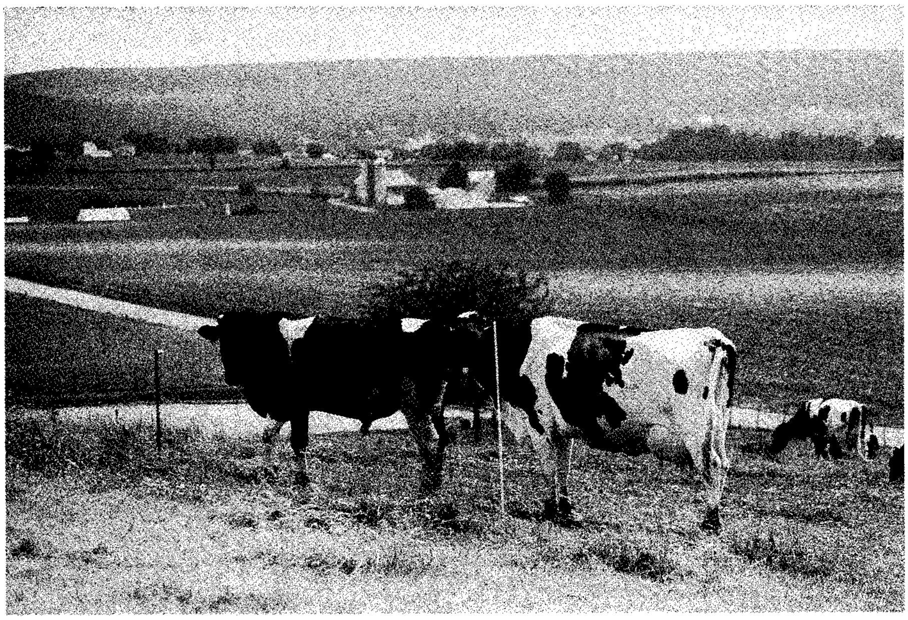
If, by contrast, development pressures were weighted at 70 percent of the overall score, farms with moderate development pressure and very good soil would not be favored. Moreover, the county or state agency would be compelling itself to purchase expensive development rights on comparatively few acres.

Once applications have been ranked, the value of the easements must be determined. The most common method is to have the county or state agency hire a qualified appraiser, who estimates the property's fair market value without an easement and the agricultural use value subject to the easement. The difference between the two is the value of the easement or development rights. For example, if the fair market value is $700,000 and the agricultural value is $400,000, then the development rights are worth $300,000.

The appraisal process has some pitfalls, however. First, an appraisal is really nothing more than an educated guess of what a property would fetch on the open market or from another farmer. Second, most appraisals of rural land are based on comparable sales. These data may be difficult to compile, both for sales of similar farms for development and for transactions between farmers. Third, the appraiser might not be experienced in valuing farmland and development rights.

A further complication is determining how to appraise the development rights of farmland subject to agricultural or other zoning. Zoning, of course, is not permanent, nor is it predictable. It is unclear precisely what kind of development would be allowed on a property if it were rezoned from farm to nonfarm use. Would rezoning permit intensive residential development, large lot residential development, or commercial or industrial development? Each of these nonfarm uses implies a different land value. On the other hand, agricultural zoning may limit the types and intensities of nonfarm uses, so as to severely restrict the land's development potential.

Thus, in determining a fair market value, the appraiser must face alternative options that entail widely divergent values of development rights. For example, if the agricultural zoning allows only one unit per twenty-five acres, then a two hundred–acre farm might be judged to have a development value of only $250,000 above the agri-



Large contiguous blocks of farmland make up a critical mass, which will help agriculture remain free of land use conflicts. The goal of a PDR program should be to create large blocks of preserved farmland.

cultural value. If rezoning were anticipated to encourage development, the development value could push the fair market value considerably beyond the agricultural value. Farms already zoned for one unit per acre could have a development value in the millions of dollars above the agricultural value. The National Trust for Historic Preservation and the Land Trust Exchange caution that:

> The possibility, if not the probability, of future change in zoning is easy to assert but useless to claim unless recognized in the market. Any proposed higher than current use requires both closeness in time and reasonable probability. Quantification of the support for the probability of change—both statistical and anecdotal—is essential. The value that theoretically or hypothetically could be added to land by possibilities of development is not an appropriate pre-easement consideration unless factually supported in the report (1984, 20).

In short, one of the most challenging and important determinations that an appraiser must make is the likelihood of a change from agricultural zoning to nonfarm zoning. This will have a major impact on the appraised value of the development rights.

Another consideration is that farm buildings should be included in the agricultural but not the development value of the land. Developers usually tear down barns, silos, and other outbuildings. This consideration reduces the difference between the fair market value and the agricultural value of the land.

The appraisal places an upper limit on the value of development rights. County and state agencies will have a difficult time justifying an offer that is in excess of the appraised easement value. At the same time, agencies should not be automatically bound to offer the full appraisal value. Any real estate transaction involves negotiations. The county or state agency should try to get the best price possible, without discouraging the landowner from selling an easement. In return, the landowner is under no obligation to accept an easement offer from the county or state agency. The transaction is strictly voluntary. The landowner may also want to have his own appraisal done for bargaining purposes.

A potentially thorny aspect of acquiring easements is monitoring compliance. The enforcement of land regulations is spotty at best, but unlike zoning, an easement is attached to the land deed and runs with the land. A violation of an easement provision could result in the loss of tax benefits and the government agency can require redress of any violation. Typically, government agencies are preoccupied with acquiring easements and spend little time on monitoring and enforcement.

Similarly, the easement document must be carefully crafted to withstand any legal challenges. It is possible that unspecified uses, subdivision, and even liability for hazardous waste sites may cause the easement holder considerable expense and, ultimately, frustration in attempting to preserve farmland.

Other State Farmland Protection and Growth Management Efforts

Some states have chosen the more traditional land-use approaches of comprehensive plans, zoning, and capital improvement plans to protect farmland and manage growth.[5] But, with the exception of Oregon, these statewide approaches have proven no better and perhaps even worse than the PDR programs. The states using a regulatory approach are generally distinguished by having several million acres of farmland (Table 5), whereas four of the six New England states and New Jersey each have fewer than one million acres in farm use. The substantial acreage of farmland suggests that the critical mass is not threatened in these larger states, and that a regulatory approach may be more cost effective in the long run. The data on farmland conversion, however, do not bear out the superiority of a regulatory approach, except in the case of Oregon. The five states together lost over 6 million acres of farmland between 1978 and 1987, compared to 1.5 million acres lost in the nine states with PDRs over the same period. Also, the rate of loss in the five states without PDRs was slightly greater. Such comparisons, however, must be tempered by the fact that most PDR programs are new and, except for Oregon and Wisconsin, statewide regulatory efforts to manage growth and protect farmland are also quite new.

Oregon's Land Use Program, begun in 1973, has required all counties and municipalities to draft comprehensive plans, establish urban growth boundaries to limit the extension of municipal services, and place agricultural land in exclusive farm use (EFU) zones. To date, seventeen million acres have been zoned for exclusive farm use, although most of these acres are in the rangeland of eastern Oregon, where there is little development pressure. The term "exclusive" is something of a misnomer, however. EFU zones allow nonfarm dwellings and land partitions if they do not harm existing farm operations. New farm parcels and farm-related dwellings are permitted if they are associated with commercial farm operations. The EFU zone also protects farmers from nuisance suits and offers use-value property taxation.

The primary problem with Oregon's zoning approach has been the creation of thousands of hobby farms of less than fifty acres generating less than $10,000 a year in sales (Daniels and Nelson 1986, Daniels 1989). These hobby farmers are in fact rural residents who compete with commercial farmers over the land base. Although the value of farm output rose by over $100 million in Oregon's densely settled Willamette Valley between 1982 and 1987, one-third of the farmland base is owned by hobby farmers (Daniels 1989).

In sum, Oregon's short-term record with agricultural zoning is good, given the strength of commercial agriculture, but the long-term results may be quite different if hobby farmers intrude into commercial farming areas and rezonings to nonfarm uses occur. Nonetheless, Oregon provides a good example of how millions of farmland acres can be protected, at least in the short run, at rather modest public cost.

Hawaii has employed four statewide zones: urban, rural, conservation, and agricultural. Agricultural land may be converted to nonfarm use, but this land must be contiguous to urban or rural residential districts (Lapping et al. 1989). When the Hawaii program was formulated in 1961 agriculture was the main industry. Since the 1960s, however, tourism has held sway over the islands, and over 12 percent of Hawaii's farmland was taken out of production between 1982 and 1987. Zoning alone may not be sufficient to preserve the farmland base in Hawaii over the long run. In short, if the land is more valuable for nonfarm uses, agricultural zoning may not be able to withstand political pressures to rezone to nonfarm uses.

Wisconsin's program of county farmland preservation plans, agricultural zoning, and state income tax breaks appears to have had mixed results. Since 1977, when the Farmland Preservation Act was started, landowners have enrolled 8.1 million acres—nearly half of the state's farmland—in the program (Farmland Preservation Report 1990). But from 1978 to 1987, Wisconsin had about 1.2 million acres taken out of farm use.

Florida's 1985 statewide Growth Management Act requires that local comprehensive plans be drawn up by the end of 1990 and that public services (sewer and water lines, roads, and schools) be in place before new development can occur to promote a tighter pattern of devel-

TABLE 5: Change in farmland acres in statewide planning areas

State	State planning begun	Farmland acres (in millions)			Percent change	
		1978	1982	1987	1978–1982	1982–1987
Florida	1985	13.0	12.8	11.2	−1.6	−12.6
Georgia	1988	13.4	12.3	10.7	−8.4	−12.6
Hawaii	1961	1.99	1.96	1.72	−1.5	−12.1
Oregon	1973	18.1	17.7	17.8	−1.7	+0.4
Wisconsin	1976	17.8	17.2	16.6	−3.4	−3.6
TOTAL		64.29	61.96	58.02	−3.6	−6.4
US					−2.3	−2.3

Net change in farmland acres in the five states 1978–1982: −2.33 million
Net change in farmland acres in the five states 1982–1987: −3.94 million

Source: U.S. Department of Agriculture, *Census of Agriculture, 1987.*

Farms provide open space amenities as well as an agricultural industry. Yearly in Lancaster County, Pennsylvania, agriculture generates $822 million in farm product sales and in tourism, $400 million. The local PDR program, created in 1984, has preserved over 10,000 acres of farmland.

opment and less sprawl onto farmland (Stroud and O'Connell 1986). The drafting and approval of local plans, however, has taken longer than expected and many localities did not have approved plans as of mid-1991. Florida experienced a loss of over 1.5 million acres of farmland between 1982 and 1987. In response to rising population growth and development pressure, the Florida legislature in 1990 passed a mammoth $3.2 billion land acquisition program (The Conservation Fund 1990). This program strongly implies that regulatory measures alone will not adequately manage Florida's rapid population growth that may reach fifteen million people by the year 2000.

In Georgia, a state growth management law requiring local communities to draft comprehensive plans was passed in 1989. The program is still largely in the formative stages, but emphasizes local plans and regional plans. Like Florida, Georgia lost over 1.5 million acres of farmland between 1982 and 1987.

Vermont, Rhode Island, New Jersey, and Maine are pushing local planning within state guidelines, but each state also has an active PDR program. Vermont and Maine have large amounts of farm and forest land relative to their overall size. Maine's 1988 legislation requires every city and township to adopt a comprehensive plan by 1996 (Laitin 1988).

In Vermont local planning is spotty and agricultural zoning is not widely used. Vermont's Land Use and Development Law—Act 250 of 1970—created a permit system for developments of regional impact. Although the act includes a provision for preserving prime farmlands, development can not be denied solely on the basis of involving prime land. Between 1982 and 1987 the rate of farmland loss in Vermont was the highest in New England, which suggests that Act 250 was ineffective in preserving farmland (Daniels and Lapping 1984). More recently, Act 200, passed in 1988, does not mandate local plans, but rather encourages them to be completed by 1996. Unless local communities in Vermont undertake comprehensive planning and zoning, the loss of farmland will probably continue at a fairly rapid rate.

In New Jersey, the nation's most urbanized state, and in Rhode Island, with its small amount of farmland, agricultural land is often under intense development pressure. Rhode Island's 1988 program requires local plans to comply with statewide goals and to be approved by the state. New Jersey's state plan, due to be finalized in 1990, but not yet completed, includes a seven-tier system in which agricultural regions are designated for limited development and are required to develop plans and regulations to protect farmland (Guskind 1988). In all four states, PDRs are probably best viewed as one growth management technique that complements a larger planning framework that is just now being put into place.

PDRs as a Growth Management Tool

Growth management programs encompass goals for controlling the rate, timing, location, type, density, and cost of development. The purchase of development rights is one of several planning techniques for managing growth and preserving farmland and open space. While most PDR programs are rather new, they hold some promise for influencing the location, rate, and timing of development by protecting a limited amount of farmland in areas where zoning and property tax breaks alone may be insufficient to withstand development pressures. The high costs and the voluntary nature of PDRs may render the goal of creating a critical mass of preserved farmland difficult. But when used in conjunction with comprehensive plans and restrictive agricultural zoning, the purchase of the development rights to a few thousand to several thousand acres in a region could help create a critical mass of farmland to guarantee the survival of farm support businesses. This preserved farmland could help assure other farm owners in the vicinity that development will not be encroaching in the near future. Within a county or state there are usually priority areas that a county or state PDR agency can target so that a critical mass of farmland can be preserved in a few areas rather than purchasing rights to isolated tracts of land throughout the county or state.

Zoning and farm use–value property tax breaks will continue to be the first line of defense in the effort to keep land in farm use. Tax breaks are found in every state and agricultural zoning can be applied to many more acres than a PDR program. Zoning is virtually costless to the public, and property tax breaks do not create a major shift in tax burden, at least in the short run. The durability of agricultural zoning is somewhat suspect in Hawaii and Wisconsin, but has fared well in Oregon. Another important tool, embodied in the Oregon and Florida planning programs, is the management of capital facilities, particularly the location of sewer and water lines, to limit intensive nonfarm land uses. But these land-use planning techniques are designed to be flexible and to manage growth, rather than provide permanent protection of the farmland base. Finding elected officials with the will and courage to say "no" repeatedly to developers or to farmers who want to rezone land for development is rare. Thus, the purchase of development rights remains attractive because of the long-term protection it can provide for farmland.

Yet, the issue of farm viability remains. While a PDR program can help to stabilize the farmland base, profitability is a more important determinant of whether farming in an area can survive over the long term. The problem here is that the farm commodity and lending programs are controlled at the federal level, while the farmland controls are imposed at the state or local level. The two ultimately need to be better coordinated (Lapping 1982).

Finally, the support of the farming community for a PDR program is crucial because of the voluntary nature of the program. If farmers perceive that the program will be of financial benefit to them, they are likely to participate. But if offers to purchase development rights are not competitive with the development option, then farmers will probably avoid the PDR program and take a wait-and-see stance toward selling their land for development.

NOTES

1. The terms "development rights" and "easements" are often used interchangeably. Strictly speaking, development rights are negative easements in gross. A positive easement gives one party the right to use another party's land, such as for a hiking trail. A negative easement restricts what landowners can do with their land. An easement also may be either appurtenant, connected with the ownership of nearby land, such as a right-of-way; or in gross, which grants the holder of the easement a claim upon the property, such as the right to develop.
2. Easements can be extinguished through eminent domain, although the easement holder would have to be compensated along with the landowner.
3. In Pennsylvania, for example, only one additional dwelling is allowed, and the dwelling must be occupied by someone who is involved with the farm operation.
4. Another county PDR program exists in Forsyth County, North Carolina, in the vicinity of the Research Park Triangle. By mid-1990, development rights had been acquired on 1,234 acres at an average cost of $1,483 per acre. From 1984 to 1989, Lancaster County, Pennsylvania, operated its own PDR program and acquired easements on 5,500 acres (mostly through donation rather than purchase). In 1989, the Lancaster County program was effectively merged with the state PDR program. Easement costs in Lancaster averaged about $800 an acre from 1984 to 1988, and rose to $1,300 an acre in 1989.
5. A good summary of the state growth management systems appears in *Growth Management: A Review of Seven State Systems and the Outlook for Pennsylvania*, 1990, Southwestern Pennsylvania Regional Planning Commission, Pittsburgh, PA.

REFERENCES

American Farmland Trust. 1990. *Northeast Farmland Update* 1, 4.

Buckland, J. 1987. The History and Use of Purchase of Development Rights in the United States. *Landscape and Urban Planning* 14: 246-7.

Cerra, Frances. 1980. Suffolk Plan to Save Farms Is Still at Issue after Four Years. *New York Times*, April 3, B8.

The Conservation Fund. 1990. *Common Ground Newsletter* 1, 4.

Coughlin, Robert E., David Berry, John Keene, Thomas Plaut, and Ann Strong. 1977. *Saving the Garden: The Preservation of Farmland and Other Environmentally Valuable Land.* Philadelphia: Regional Science Research Institute.

Coughlin, Robert E., and Thomas Plaut. 1978. Less-than-Fee Acquisition for the Preservation of Open Space: Does It Work? *Journal of the American Institute of Planners* 44, 4: 452-62.

Coughlin, Robert E., and John C. Keene, eds. 1981. *National Agricultural Lands Study, The Protection of Farmland: A Reference Guidebook for State and Local Governments*, especially Chapter 7, Land Use Controls: Purchase of Interests in Land. Washington, DC: U.S. Government Printing Office.

Daniels, Thomas L. 1989. Evaluating Farmland Retention in Oregon: A Comparison of Agricultural Zoning Performance. Paper presented to the Association of Collegiate Schools of Planning, Portland, Oregon, October.

Daniels, Thomas L., and Mark B. Lapping. 1984. Has Vermont's Land Use Control Program Failed? *Journal of the American Planning Association* 50, 4: 502-8.

Daniels, Thomas L., and Arthur C. Nelson. 1986. Is Oregon's Farmland Preservation Program Working? *Journal of the American Planning Association* 52, 1: 22-32.

Derr, Donn A. 1988. Historical Overview of Purchase of Development Rights Programs in the Northeast. In *Purchase of Development Rights Programs in the Northeast*, edited by J. Mackenzie. Newark, DE: University of Delaware Agricultural Experiment Station.

Diehl, Janet, and Thomas S. Barrett, eds. 1988. *The Conservation Easement Handbook: Managing Land Conservation and Historic Preservation Easement Programs.* Alexandria, VA: Land Trust Exchange and Trust for Public Land.

Farmland Preservation Report 1, 1.

Gerard, Jennie. 1984. Criteria for Agricultural Land Protection. In *Land-Saving Action*, edited by R. L. Brenneman and S. M. Bates. Covelo, CA: Island Press.

Guskind, Robert. 1988. New Jersey Says Enough. *Planning* 54, 6: 24-30.

Hiemstra, Hal. 1983. Suffolk County, New York, Purchase of Development Rights Program. *Proceedings of National Workshop on Purchase of Development Rights Programs to Protect Farmland.* Washington, DC: National Association of State Departments of Agriculture Research Foundation.

Hiemstra, Hal, and Nancy Bushwick, eds. 1989. *Plowing the Urban Fringe: An Assessment of Alternative Approaches to Farmland Preservation.* Fort Lauderdale: Florida Atlantic University and Florida International University.

Illi, Warren. 1984. Appraising Conservation Easements. In *Land-Saving Action*, edited by R. L. Brenneman and S. M. Bates. Covelo, CA: Island Press.

King County. 1987. *King County's Farmland Preservation Program Acquisition Summary.* Seattle: King County, Natural Resources and Parks Division, Department of Parks, Planning and Resources.

Laitin, Jon, 1988. Down East Drama. *Planning* 54, 8: 21-4.

Lapping, Mark B. 1982. Beyond the Land Issue: Farm Viability Strategies. *GeoJournal* 6: 519-23.

———. 1980. Agricultural Land Retention: Responses, American and Foreign. In *The Farm and the City: Rivals or Allies?* edited by A. M. Woodruff. Englewood Cliffs, NJ: Prentice-Hall.

Lapping, Mark B., Thomas L. Daniels, and John W. Keller. 1989. *Rural Planning and Development in the United States.* New York: Guilford Press.

Lyons, William. 1989. Suffolk County, New York: Pioneering the Purchase of Development Rights Method to Protect Farmland. In *Plowing the Urban Fringe: An Assessment of Alternative Approaches to Farmland Preservation*, edited by H. Hiemstra and N. Bushwick. Fort Lauderdale: Florida Atlantic University and Florida International University.

Mackenzie, John, ed. 1988. *Purchase of Development Rights Programs in the Northeast.* Newark, DE: University of Delaware Agricultural Experiment Station.

Maryland Agricultural Land Preservation Foundation. 1989. *Fiscal Year 1989 Annual Report.* Annapolis: Maryland Agricultural Land Preservation Foundation.

Massachusetts Department of Agriculture. 1989. *Summary of Expenses for the Agricultural Preservation Restriction Program: Fiscal Years 1980 through 1989.* Boston: Massachusetts Department of Agriculture.

National Association of State Departments of Agriculture (NASDA). 1986. *Farmland Notes* 5, 8: 3.

National Trust for Historic Preservation and the Land Trust Exchange. 1984. *Appraising Easements: Guidelines for Valuation of Historic Preservation and Land Conservation Easements.* Washington, D.C.: National Trust for Historic Preservation.

Stroud, Nancy, and Daniel O'Connell. 1986. Florida Toughens Up Its Land-Use Laws. *Planning* 52, 1: 12-15.

Thompson, Edward P., Jr. 1984. Protecting Agricultural Lands. In *Land-Saving Action*, edited by R. L. Brenneman and S. M. Bates. Covelo, CA: Island Press.

Toner, Bill. 1984. Ag Zoning Gets Serious. *Planning* 50, 12: 19-24.

U.S. Department of Agriculture and the Council on Environmental Quality. 1981. *The National Agricultural Lands Study, Final Report.* Washington, DC: U.S. Government Printing Office.

U.S. Department of Agriculture, Soil Conservation Service. 1983. *National Agricultural Land Evaluation and Site Assessment Handbook.* Washington, DC: U.S. Department of Agriculture.

U.S. Department of Agriculture. 1987. *Census of Agriculture, 1987.* Washington, DC: U.S. Government Printing Office.