



# Farmland Preservation, Development Rights and the Theory of the Growth Machine: the Views of Planners\*

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**Abstract** — We examine the effectiveness of farmland preservation measures in challenging efforts to convert agricultural land to nonfarm uses in rural/urban fringe areas. Our focus is on programs based on the exchange of development rights in the northeastern United States. We employ theoretical constructs from Logan and Molotch's theory of the urban growth machine. They argue that the commodification of land associated with urbanization is the most important source of wealth and power for land-based elites. Yet, the activities of these elites are sometimes challenged with growth control measures like farmland preservation. To evaluate the effectiveness of these programs to defend farm land-use over purely commercial land exchange for speculative gain, we draw on data from focus group discussions and a survey of planners in metropolitan areas of the region. Our analysis also considers the limitations of such programs in the context of the absence of regional land-use planning. We find that farmland preservation programs based on the exchange of development rights do challenge some aspects of urban growth, but are also the result of those same development dynamics. Thus, they reflect certain class biases associated with the development of rural/urban fringe areas. However, we conclude that these programs could become more effective farmland protection tools with the implementation of comprehensive land-use planning.

## Introduction

The notion of the city as a growth machine was introduced by Molotch (1976) and elaborated in Logan and Molotch (1987). They theorize that the city is an engine of growth that centres on the exchange of land. Once land is commodified, or stripped of commitment to a specific use, Molotch and Logan maintain that it becomes the most important source of wealth and power in the urban social system. The growth machine essentially operates to the advantage of land-based elites. However, this dynamic does not go unchallenged by a variety of social groups with different interests in stalling or containing the growth machine. For example, environmentalists, although they are a complex group, often constitute a prominent contemporary interest opposed to further urban development. An important institutional challenge to the urban development dynamic is the imposition of growth controls. One of the most direct means to limit

growth in rural/urban fringe areas is farmland preservation, which makes some land unavailable for development. The objective of this paper is to evaluate the effectiveness of such growth control to stall development on the rural/urban fringe.

Interest in farmland preservation grew with the burgeoning environmental movement of the 1970s. This interest lent support to the National Agricultural Lands Study which attempted to address concerns about the loss of productive farmland and food security (Coughlin *et al.*, 1980). However, some resource economists note that the extensive attention given to food production "obscured the more widespread and immediate concern of agricultural land-use change in *urbanizing areas*" (Barrows and Trout, 1988). In fact, many of the most innovative farmland preservation efforts have been applied in rapidly urbanizing areas rather than "deep" rural areas.

The preservation of land in urbanizing areas has a sense of urgency since open space is visibly disappearing. With some frequency, environmentalists are able to mobilize public support by appealing to a collective concern about this obvious problem. For example, places like Boulder, Palo Alto, Santa Barbara and Ann Arbor have studied ways, and implemented some measures, to limit growth. Some of these communities purchased land to create greenbelts, or urban growth buffers (Logan and Molotch, 1987; Molotch, 1976). However, this method of preserving open space has its limitations, especially in rapidly urbanizing areas of the Northeast. When growth pressures are strong, development can skip over buffers creating a "leapfrog" effect. Moreover, the amenities associated with buffer areas can encourage even more concentrated development in their immediate vicinity. Finally, public purchase of land is expensive, especially in rural/urban fringe areas where strong development pressures often lead to sharp land value increases. Under these circumstances, farmland preservation becomes a valuable tool to protect the environment and open space, and to control urban growth.

This paper evaluates two important types of farmland preservation programs, purchase of development rights (PDR) and transfer of development rights (TDR), and their effectiveness in altering growth machine dynamics in rural/urban fringe areas in metropolitan areas of the northeastern United States. First, we review Logan and Molotch's (1987) theory of urban growth, highlighting those elements that bear directly on farmland preservation. Then, using data from focus group discussions and a survey of planners in the metropolitan northeastern United States, we assess these farmland preservation programs' effectiveness in defending farm land-use over the purely commercial exchange of land for speculative gain. We also evaluate the effectiveness of farmland preservation in the absence of regional land-use planning. We conclude with an assessment of the relationship between farmland preservation programs and growth machine dynamics.

### **Farmland preservation and the growth machine**

Farmland preservation measures were developed in reaction to urban development pressures during the 1970s and 1980s in metropolitan areas like those along the United States' Boston/Washington, D.C. corridor. Authors use different names like "diffuse urbanization" (Hawley, 1978), "leapfrog development" (Woodruff and Frink, 1980), "penturbia" (Lessinger, 1987), and "the metroplex" (Pizor, 1987) to refer to the same pattern. Research in the 1970s and 1980s showed that more people prefer to live in

rural areas near large cities than either in big cities or in remote rural areas (Fugitt and Brown, 1990). Advances in transportation and communications technology, federal subsidies and tax relief for home ownership, and the growth of less centralized employment in the manufacturing and service sectors allowed more people to realize those preferences, unlike earlier urban development highly concentrated around a core city (Pizor, 1987; Hawley, 1978). The recent settlement spread over wide areas of land in small clusters or along transportation corridors with large tracts of land interspersed between or along residential clusters. As a result, more than 80% of the land base within Metropolitan Statistical Areas (MSAs) of the Northeast is rural, and the rural population is growing faster than any other population segment of MSAs. Agricultural production has continued in the extensive rural portions of MSAs (Heimlich, 1989a).

This settlement made many rural/agricultural areas part of the domain of the "urban growth machine". Molotch (1976) and Logan and Molotch (1987) characterize the city as a growth machine that centres on the exchange of land. The land market, more than any other commodity, is the most important source of wealth and power in the urban social and political system. The growth machine allows property owners to realize land's speculative value, and this aim is achieved through economic growth. Various local elites with interests in the real estate market are unified by local social establishments organized to encourage this growth. The most important entities include political organizations, the news media, public and private utilities, but others like universities, arts organizations, sports teams, organized labour, self-employed business people, and corporate executives also play an important part in maintaining widespread ideological support for continued growth.

Land-use planning provides a key institutional underpinning for the growth machine. Most important in this regard is the decentralized character of planning activity. Logan and Molotch (1987, p. 153) argue that this organization of planning supports the growth machine: "Planning, virtually from its inception in the United States, has primarily been at the service of the growth machine. Similarly, home rule, whether at the city or sub-urban level, takes its form only through the surrounding growth machine dynamics . . . The political autonomy of places, as well as the planning power this entails, reproduces and exaggerates the inequalities between places rather than leveling them." Dispersed planning allows economic elites to capture speculative values associated with an active real estate market. The advantages enjoyed by elites

in seizing such opportunities have only been extended by corporate growth and metropolitan expansion, because jurisdictional units involved in planning have not enlarged in a parallel fashion. Under these circumstances, elites engaged in the real estate market can play different localities off one against another to maximize their investment options.

Not all planning, however, is equally suited to the promotion of growth. Zoning poses the potential to channel growth in ways that are in the collective interest of the locality. Logan and Molotch (1987) doubt that this potential to give collective interests a higher priority over the narrower ones of elites is actively pursued. Instead, they argue that zoning is typically used to distribute returns on real estate investments within a metropolitan area in such a way that overall growth can be sustained.

Controls which limit development, on the other hand, pose a more direct challenge to the growth machine. Growth controls include limits on the total amount of construction permitted, down-zoning, utility restrictions, and open space requirements. Molotch (1978) and Logan and Molotch (1987) are skeptical about the effectiveness of these controls, but they do acknowledge the potential of such controls to significantly alter growth machine dynamics and shift development away from a singular focus on exchange values to one that considers the importance of the varied use values of land.

Environmentalists increasingly stress the importance of use values over rents and profits associated with real estate markets.<sup>1</sup> As such, the environmental movement poses a direct threat to the growth machine. According to Logan and Molotch (1987) environmentalism poses a significant challenge because it is able to draw political support from a broad population base including the women's movement, racial and ethnic minorities, and different social classes. Recent trends in public opinion indicate this support has remained substantial over two decades and has recently grown (Dunlap, 1992). These and other groups are increasingly united in their varied concerns with the environmental consequences of continued growth, and the fragility of places slated for development, and advocate, instead, urban redevelopment and reinvestment.

One example of such concern is the widespread

interest in the fate of farmlands in rural/urban fringe areas of the Northeast and the strong public support for the preservation of farmlands (Freedgood, 1991; Mackenzie and Cole, 1987). Not only is there a concern with farmland for its own sake, but new residents in rural/urban fringe areas also value agriculture as part of the ambience they seek in moving to a rural area. Local agriculture provides high quality, fresh produce and open space, and maintains scenic values, water and air quality, and a habitat for wildlife. All of these amenities preserve the quality of life in the area (Heimlich, 1989a; 1989b; Lessinger, 1987; Lockeretz, 1987; Otte, 1974).

The preservation of farmland in rural/urban fringe areas is a curious phenomenon, because the concern to protect this resource is partly an outgrowth of the urbanization of rural/agricultural areas. Consequently, Logan and Molotch (1987, p. 226) conclude, "The dynamic is identical to that underlying the urban growth machine, but in a rural context . . .". Real estate interests want to develop open lands and realize speculative values through an active real estate market. In this context, farmers and other established residents who hold land tend to want development so as to realize the exchange value of their property while newcomers, on the other hand, are often interested in farmland preservation to protect the "rural way of life" they sought in moving into the area in the first place (Rudel, 1989; Lapping *et al.*, 1983; Bultena *et al.*, 1982). This explains, in part, the antipathy many farmers often express toward farmland preservation. This is especially the case among those nearing retirement age.

#### *Research questions*

As a result of urbanization, a number of farmland preservation measures have been adopted to support farming as a land-use in rural/urban fringe areas. However, land-use conflicts in rural/urban fringe areas raise questions about the actual effect of farmland preservation programs. Do these measures support farming as an end in itself to be preserved over and above the farm's value as real estate? More specifically, do they support the economic viability of farm enterprises? A variety of direct and indirect measures to support farm enterprises have been adopted by localities throughout the nation. These measures include right to farm ordinances, preferential assessment of farmland, agricultural zoning, and the purchase of development rights (Heimlich, 1989a; 1989b; Atash, 1987; Bushwick and Heimstra, 1987; Lapping and Leutwiler, 1987; Carr and Duensing, 1983; Lapping, 1980). However, few

<sup>1</sup>This sentiment is expressed in widespread support for preservationist objectives over earlier conservationist ones more oriented to continued economic development of natural resources (Shabecoff, 1993).

localities have adopted these measures as part of a comprehensive regional development package that considers a variety of conditions essential to viable agricultural production. These factors include infrastructure, access to labour, waste recycling, and access to markets and credit (Blobsaum, 1987; Vail, 1987; Mundie, 1982). Logan and Molotch's (1987) argument that fragmented locally oriented planning establishes a structural basis for the unimpeded operation of the growth machine raises an additional question as to the nature of farmland preservation. Are existing farmland preservation measures effective in the absence of comprehensive regional land use planning?

### Scope of the analysis and data

As already noted farmland preservation encompasses a wide variety of important measures. However, many of these measures are not directly relevant to the questions we raise here. Exclusionary zoning practices like requirements specifying large minimum lot sizes and underground utilities indirectly protected farmland by restricting development. However, such practices have been subject to legal challenges on the grounds that they unfairly restrict the development of affordable housing in developing areas. In fact, such zoning was declared unconstitutional in New Jersey, and in 1983, the State Supreme Court mandated municipal compliance with its ruling (Bullard, 1990; Logan and Molotch, 1987; Pizor, 1987). Other means, including incentive programs like preferential farmland tax assessment and right to farm laws, while important, have only been weak devices to maintain farm economic viability and to protect farmland. These limitations prompted farmland preservation activists to turn to voluntary land use control programs like the purchase of development rights (PDR) and compensatory zoning programs like transfer of development rights (TDR). These programs are growth control measures designed to keep agricultural land in farm production and unavailable for development. Thus, they are directly related to the questions we pose here.

The general goals of PDR and TDR programs for farmland preservation are similar. Their primary emphasis is to protect the best and most productive farmland from development. Other commonly cited program goals include keeping farmland affordable for future generations, providing working capital to keep farms financially stable, and the preservation of open space and other environmental amenities (Freedgood, 1991). The basic idea underlying these programs is that landowners possess a combination of separable property rights. Daniels (1991) likens

property rights to a bundle of sticks with each stick in a bundle representing a different 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" (Daniels, 1991, 421). Under PDR programs, for example, farmers voluntarily sell the development rights, or conservation easement, and receive payment for development restrictions placed on the land. PDR involves public purchase of development rights. It is widely used in the Northeast. Purchase of development rights is most often financed with public funds, including the issuance of government bonds. Payments are made directly to farmers, and the sums are usually quite large, because development values in urbanizing areas are high and often are only slightly below full-purchase values. Thus, PDR provides substantial benefits to farmers at public expense. PDR is widely used in the Northeast, and nine states have active state-level programs. As of 1991 the northeastern state-level programs had purchased conservation easements from 1,253 farms covering 172,120 acres (Freedgood, 1991).

TDR, on the other hand, is based on private market exchange of development rights. This exchange is between areas zoned for preservation and others zoned for development. Property owners in preservation areas are not allowed to develop the land, and with their options thus limited have an incentive to sell their development rights to landowners in the receiving areas. Landowners in development areas are allowed to build at higher densities than established zoning normally would permit but only in the specified area and only with a development right attached to it. This means that development rights will be transferred from those who own them to those who can use them to take advantage of the opportunity to create more buildable lots. In this way the equity position of those who lose their land's development potential is maintained. TDR is less widely used than PDR, but successful programs have been established, for example, in Montgomery County, Maryland and the New Jersey Pinelands. TDR has received increasing attention in recent years, because it operates at little cost to the public (Pitt *et al.*, 1988).

Although PDR and TDR programs operate differently, their outcome is similar. After farmland development rights are sold, the farmer retains title to the land, and can sell or bequeath the land to others, but its use is limited to farming and open space. Use restrictions (conservation easement in the case of PDR or zoning under TDR) apply to the land either in perpetuity or for a specified period of time. Since land is deprived of its former develop-

ment market value, it retains a lower use value and this, in turn, permits those entering farming or expanding farm operations to do so at reduced costs. This aids in the intergenerational transfer of agricultural assets.

We draw on data from an ongoing study of agriculture and development planning in metropolitan areas of the northeastern United States to begin to answer these questions. Our target population is local (i.e. municipal or county) planners. They provide valid information about perceptions of current trends and expectations about the future, because of their interactions with various segments of the local population. Their interactions are likely to be most intense with those segments of the population actively engaged in the local planning process. Experts on the policy making process agree "that a relatively small subset of the general population engages in the policy process on a regular basis" (Dietz and Rycroft, 1987, p. 8). Planners provide an important perspective on local efforts to promote agriculture, because they are charged with developing local land use plans that reflect local interests. Planners must attempt to clearly identify significant local interests and work to incorporate them into local planning initiatives. These efforts are an attempt to articulate a community vision of the future. Thus, because planners play a central role in this effort, we assume that they are a source of valid information about local expectations of the agricultural future.

Focus group interviews we conducted in the Spring of 1992 provide one source of data for this analysis. This technique brings people together at the same time to provide data on highly focused topics. This method of data gathering is frequently used in combination with other qualitative and quantitative techniques (Krueger, 1988). Our focus group data is useful in beginning to address the questions raised above.<sup>2</sup> The focus group was composed of planners from the most urbanized portions of the region, the Boston/Washington, D.C. corridor. Planners at the session included representatives from Massachusetts, Maryland, New Jersey, New York and Pennsylvania. It included planners working for governmental and private nonprofit agencies in metropolitan areas. These planners work with a variety of planning agencies at the municipal, county, regional and state levels. The focus group dealt with a variety of issues including farmer response to urbanization, planning agency response to the farm/nonfarm interface, planning tools available and their relative importance and effectiveness

in dealing with agricultural issues, alternatives to conventional planning practices, the role of state and federal policies, and the opportunities or limitations posed by current fiscal and political realities. All discussions were tape recorded and later transcribed for textual analysis.

Our second data source is from a survey of planners involved in farmland preservation in the metropolitan Northeast. Our planner survey data were collected by mail during the latter half of 1992. We contacted 259 planners involved in land-use planning within the 1993 U.S. Census Bureau designated metropolitan areas of the Northeast. We identify metropolitan counties in 11 states (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont). The 210 responses returned yielded an overall response rate of 81%. We present the geographic distribution of the respondents in Fig. 1.

No comprehensive listing of planners was available, so we constructed the list from three sources to cover those working in the public sector, for private non-governmental organizations, and as consultants to public and private agencies. Firstly, we wanted to cover all counties of the metropolitan Northeast, so we could match our sample data with available Census information. Much of the Census data of greatest interest to us is from the Census of Agriculture. Counties are the lowest level of aggregation for which this data is available. However, different levels of government (municipal, county, region, state) have primary responsibility for planning in different areas, so we identified the relevant jurisdiction in each county. We identified county planning agencies for 117 metropolitan counties with 50 or more farms in the county. In places without a county planning office, we identified either the largest municipality in the county engaged in planning or the regional public planning agency with primary responsibility for land-use planning in the area. These offices then represented the county. One hundred and twelve planners representing these agencies replied to our survey for a response rate of 89%.

Use of the mailing list of the northeast office of the American Farmland Trust allowed us to tap planners from private non-governmental organizations. We identified 63 persons with a mailing address within a metropolitan area of the region, and 73% responded. Finally, in an attempt to reach planners working as consultants to public and private organizations and to include planners not identified in either of the other lists but working in the area we drew from the membership list of the American

<sup>2</sup>Complete transcripts of the focus group sessions are available from the authors.

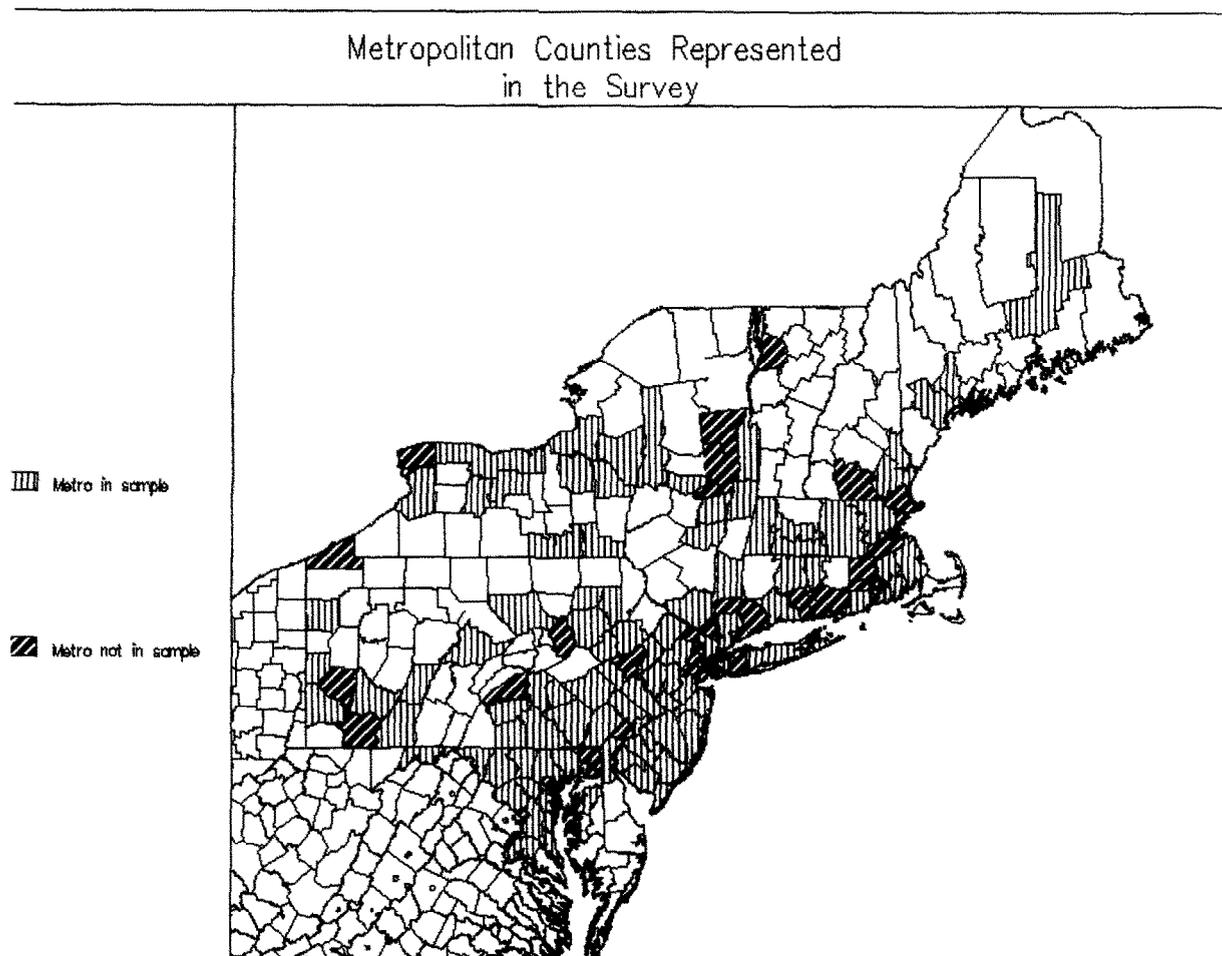


Figure 1.

Planning Association's Rural and Small Town Division. Sixty-three persons on this list had mailing addresses within the metropolitan Northeast, and 82% responded to the survey.

#### Farmland preservation in the defense of use values

The spread of development into agricultural areas creates well documented problems that erode the economic viability of farming as a land-use. This process shifts interest away from the agricultural use of the land to its commodity exchange value. Farm problems on the rural/urban fringe include the loss of cropland to alternative uses, complaints about farm practices like the application of chemicals or manure, damage to crops and property resulting from trespassing and vandalism, the loss of farm support businesses, and skyrocketing land values (Heimlich, 1989b; Brooks, 1987; Van Driesche *et al.*, 1987; Raup, 1980; Berry, 1978). These pressures often create an "impermanence syndrome" amongst established farmers who begin to doubt that their operations could survive in this changed environ-

ment. This term refers to farmer reluctance to invest or even to disinvest in farming based on expectations of agricultural decline and urban development (Heimlich and Anderson, 1987; Lockeretz, 1987; Beaulieu and Molnar, 1985; Gustafson and Bills, 1984; Lapping, 1980).

Despite these problems, some farms have flourished in MSAs because they cater to the preferences of nonfarm residents. Compared to their nonmetropolitan counterparts, metropolitan farms as a group are more specialized in the production of high value commodities, sell more commodities direct to consumers, and are smaller and make more intensive use of resources. Heimlich (1989b) claims that there is a process of adaptation that takes place over time, as farmers come to better take advantage of opportunities available within the metropolitan setting. However, this adjustment is neither easy nor automatic for rural/urban fringe farms.

Focus group participants raised concerns similar to those expressed in the literature. In particular, equity and cash flow are key aspects of the financial

status of farms operating in rural/urban fringe areas. Farms that are unable to generate a sufficient cash flow or unable to draw on a large equity base are unable to cope with high and growing costs of production often related to increasing regulatory requirements. According to one planner:

Another aspect that we're noticing is changes in the regulatory environment that are a cause of pressures on farming. Increased requirements in terms of nutrient management, water quality, and these are adding to the costs of farming. At the same time we see a gap in terms of policy, in terms of enabling farmers to adopt sustainable practices such as cost sharing for composting operations [4].<sup>3</sup>

While regulation is a concern for all farmers, it is even more significant in rural/urban fringe areas:

There's a lot of concern about regulation pertaining to water quality, ground water quality, wetlands protection. As we have a nonagricultural group moving into an area, the farmers begin to lose their political clout in these small towns. And as you have these bedroom communities starting to sprout up, and more and more people who have no connection to agriculture, they start to demand certain things of the farmers. When I go out on the farm, it's very rare when the first thing that doesn't come out of farmers' mouths is that they are going to go out of business because of all the regulation [2].

Such constraints contribute to the impermanence syndrome mentioned above. The following statement illustrates this point:

For commercial agriculture in our area, the trend is definitely out. Folks who are in agriculture in our area are looking at that saying, well, how long do we have? Should we go buy that new milking machine? Should we make investments in the parlour? Should we buy that new combine that's going to set us back \$150,000? They're not making those kinds of capital investments, because of the impermanence thing [3].

Thus, the preservation of land for use in agriculture as opposed to allowing it to become an object of commercial exchange is problematic from a financial standpoint. To remain viable in the urbanizing environment, farmers must strive to both protect their equity base, and to maintain an adequate cash flow. They do this by taking advantage of surround-

ing opportunities. Off-farm employment is one important outside income source for metropolitan farms. For example, more than 43% of all farm operators in the metropolitan Northeast reported a principal occupation other than farming (Bureau of the Census, 1987). This says nothing about the sideline employment and the off-farm employment of other household members. The important point is that off-farm income provides an important source of income for the farm household's budget that rounds out an otherwise insufficient farm income. Our focus group participants report that many farmers express a desire to farm full-time, but find that they simply cannot afford to do so:

. . . a majority of them who would like to be full-time farmers, just plain and simply cannot afford it. That's the bottom line; economics is driving them off the farm, but many of them are so dedicated that they are doing both, now [1].

This circumstance is especially true of middle-aged farmers (about 35–50 years) with growing family responsibilities.<sup>4</sup>

Another example of tapping surrounding opportunities is how some farmers and farm advocacy groups have begun to explore cooperation with local governments as an additional farm revenue source. One specific effort is for farmers to charge tipping fees for accepting municipal leaf compost on their land. Representatives of one farm advocacy group described their efforts to help farmers draw upon this income source:

We're finding that another way of working with farmers is to work with municipal recycling officials. Again . . . County has been a leader in this. One of the greatest sources of new revenue for farmers has been from tipping fees. Farmers can see municipalities as resources [6].

PDR and TDR are public policies designed to directly address the issue of farmland preservation, and they play a direct role in the financial stabilization of farms, drawing on farm equity to free capital from investment in farm operations. Farmers are compensated for the potential development value of their land, and this can represent a significant capital infusion to the enterprise. For example, farmers who participated in one of the nine state level PDR programs in the Northeast have received an average of about \$1,600 per acre since about 1977 (based on actual amounts reported in Freedgood, 1991). Over 60% of the planners we surveyed reported active PDR programs in their areas. TDR programs are far less common; one in five planners surveyed indicated active programs in their areas. Figure 2 shows that both PDR and TDR programs are found

<sup>3</sup>Bracketed numbers refer to individual focus group participants.

<sup>4</sup>The incidence of this strategy of supplementing household income is also related to the organization of the farm operation (e.g. commodity mix, size of the operation, etc.), and the types of employment opportunities available in the area. For example, our focus group participants noted the combination of cash grain production with employment as either a teacher or a construction worker was common.

**Table 1.** Main source of support by conflicts between farm and other land uses that hamper farmland preservation

| More supportive of farmland preservation | Land-use conflicts hamper farmland preservation |           |                |           | Total (%) | n |
|--|---|-----------|----------------|-----------|-----------|---|
|  | Sometimes (%)                                   | Never (%) | Don't know (%) | Total (%) |           |   |
| General public                           | 27.6  | 51.7      | 20.7           | 100.0     | 58        |   |
| Farmers                                  | 53.5  | 34.9      | 11.6           | 100.0     | 43        |   |
| About the same                           | 47.6  | 40.2      | 12.2           | 100.0     | 82        |   |
| Neither supportive                       | 50.0  | 40.0      | 10.0           | 100.0     | 10        |   |
| Don't know                               | 20.0  | 20.0      | 60.0           | 100.0     | 17        |   |
| Total                                    | 41.3  | 40.9      | 17.8           | 100.0     | 210       |   |

Chi-square = 28.4, 8 d.f. ( $P < 0.001$ ).

throughout much of the region, but concentrated along the highly urbanized Boston/Washington, D.C. corridor.

Our focus group participants reported a number of instances where funds from PDR and TDR transactions were used to invest in farm operations, often to comply with regulations that make their operations more environmentally friendly.

What the landowner [on the first farm we preserved in our program] did was he took his money and put up an enormous slurry system. It's a big dairy farm, they milk about 150 head, and he's got a big chicken house. So he took his money and sunk it into conservation practices. I love to use that example, because it is a two for one deal [4].

We have a similar situation to that. A good deal of money that we pay to farmers is sunk back into the farm [2].

Thus, PDR and TDR programs may play an important part in enhancing farm economic viability by contributing to financial stability.

However, consensus does not necessarily exist on whether the central goal of PDR and TDR programs should be to maintain farming as the most desirable use of these lands. There are divergent opinions about the ultimate values of alternative uses preservation of these lands are to assure. The preservation of farm use of these lands may or may not be consistent with these competing values. In administering these farmland preservation programs, planners must take into account sometimes complimentary, sometimes competing functions of farm land such as (listed in ascending order of importance in the group discussion): environmental protection, open space protection, and urban growth accommodation.<sup>5</sup>

<sup>5</sup>These potential uses, while distinct, are not necessarily mutually exclusive.

As noted above, farmland preservation programs grew out of environmental concerns in the 1970s. The use of land for farming is obviously closer to its natural state than urban development. However, farming is not necessarily benign with respect to the environment. Modern agricultural methods disrupt natural ecosystems in a number of ways, but of greater significance in rural/urban fringe areas is that farming can create environmental hazards for people living nearby:

The problem is that I think for the most part, the population is appreciative for agriculture for no other reason than they like to drive by the farms and see the pretty land and the cows. But there are certain things going on in agriculture, and certain issues popping up that there are going to be inherent problems; the pesticide issue, the groundwater issue. There is just no way at this point to convince the individual to protect the farm that they feel is threatening their health. The cranberry industry is the largest industry in the state and they are really under fire right now; the pesticide issue and the wetland conversion [2].

This statement indicates that farmland preservation may take place in a context of conflict over the appropriateness of alternative land uses. Table 1 shows that, overall, planners we surveyed are evenly divided between those who report conflicts between farms and other land uses. However, a higher proportion of planners report conflicts when they perceive farmers to be more supportive of farmland preservation than the general public. This finding suggests that farmers may be more supportive of farmland preservation in areas where there are more frequent challenges to their land-use practices. On the other hand the planners' responses indicate that they do not believe conflict drives public support for farmland preservation.

The protection of open space is another environmental concern that may oppose *farmland* preservation. For those that value the protection of open space more than agriculture, farming is seen more as a means to an end than as an end in itself:

Counties With PDR and /or TDR Programs

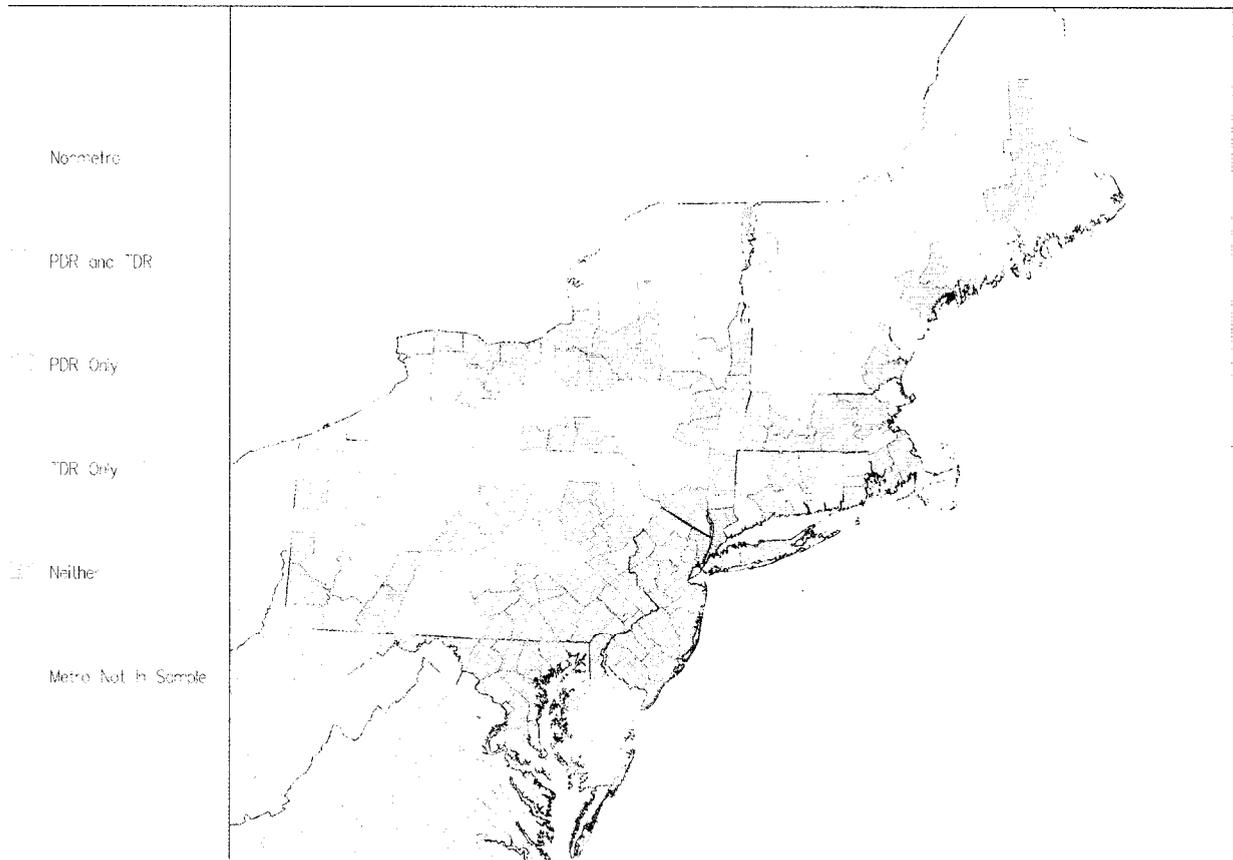


Figure 2.

When farms get to the point where they are concerned about farmland protection, it's at a point where farming is really not a viable way of life. There's the last few farms in town, and it's too late. I think we have to make a distinction between farmland protection for the sake of agriculture and open space protection, and that's where a lot of towns start to push to protect farmlands. Where it's scenic qualities and other environmental attributes as opposed to wanting it to be there for agricultural purposes and, in fact, we'll often have situations where towns will move to protect the farm, and then try to prevent it from being used as a farm [2].

This statement leads us to a consideration of farmland preservation's role in accommodating urban growth. This connection addresses the question of whether or not farmland preservation subverts the growth machine. As the last quotation suggests, farmland preservation often originates in response to urbanization, rather than in the attempt to preclude it. This fact leads Lapping (1980) to conclude that farmland preservation is best characterized as an urban planning technique. One of the focus group participants makes this point as follows:

If you've got to the point that you need to purchase development rights to save farmland, it is not a rural area. It is an area that is an urbanizing area. In most of the areas that I'm doing PDR, the land use is rural, but the pressures that are there, that are driving the need to purchase the rights, they are urban pressures. I'm convinced that certainly in my lifetime, if not a lot sooner, we'll know whether we've been successful in keeping agriculture in the state viable. We're not that far from the point of no return, at least with the type of agriculture that is going on right now [2].

Planners throughout the metropolitan Northeast are most likely to see farmland preservation as a growth management tool. About one-half of the planners surveyed considered the promotion of orderly growth to be the main objective of farmland preservation in their area. Table 2 shows that regardless of whether planners consider protection of farmland or open space a priority in the area, the highest proportion of them see the promotion of orderly growth as the primary objective of farmland preservation. These findings underscore the close associ-

ation between farmland preservation and growth management; promotion of orderly growth is cited as the most important objective by the highest proportion of planners when farmland protection is a planning priority in their area.

In this context PDR and TDR programs are market driven growth management tools. That is, they are most active when land sales are brisk. This leads to important limitations in forestalling urban development as a PDR program administrator points out:

We're concentrating all our efforts on putting together large blocks of farmland in areas where there isn't a public sewer for miles. We'd like to concentrate on heavily agricultural areas, especially in today's market, but we can't cut deals in those areas. The only places where farmers are willing to negotiate with us are the places where there's considerable development pressure. In large areas of the state where we'd like to spend our money, the fair market value is very close to the agricultural value of those farms, and there is little if any PDR value. We realize that it would be the best investment, but we're forced to go to other areas because the purchase price is highest [2].

However, this planner goes on to acknowledge that his state's PDR program has been successful in helping localities limit development of existing farmlands. Without PDR localities have few means to effectively stop development. But he is convinced that the success of PDR is the reflection of an abundant supply of land for development, and that once this supply is exhausted PDR will face political opposition:

The PDR program is 12 years old now, it still has a great deal of support, and there is every indication at this point that we will be refunded and continue to purchase land. But as land becomes more and more scarce, developers and realtors start to look at us as a threat to their business. Right now there hasn't been a problem in this state, we haven't had a real estate lobby working against us because there has been plenty of land to go around. But at some point the realtors are going to come to realize that we are a threat to their existence, so I think you might start to see a backlash, and a lot of towns are also convinced that they are taking land off

**Table 2.** Objective of farmland preservation by land-use planning priority

| Objective              | Planning priority |                |                    |             |           |
|------------------------|-------------------|----------------|--------------------|-------------|-----------|
|                        | Farmland (%)      | Open space (%) | About the same (%) | Neither (%) | Total (%) |
| Limit overall growth   | 15.6              | 22.9           | 19.8               | 14.3        | 19.7      |
| Promote orderly growth | 57.8              | 45.7           | 52.7               | 14.3        | 50.2      |
| Neither                | 22.2              | 20.0           | 18.7               | 14.3        | 19.7      |
| Don't know             | 4.4               | 11.4           | 8.8                | 57.1        | 10.4      |
| Total                  | 100.0             | 100.0          | 100.0              | 100.0       | 100.0     |
| <i>n</i>               | 45                | 70             | 88                 | 7           | 210       |

Chi-square = 20.5, 9 d.f. ( $P < 0.02$ ).

the tax rolls with this kind of thing and it is hurting them financially to do it. I think you could start to see people start to argue against public funding at the state level, anyway for PDR. All it takes is one governor to come along who doesn't support it, and that's it [2].

Results from our survey of planners indicate that cost constraints are already an important consideration in the metropolitan Northeast. Almost one-half (46%) of the planners report that costs of farmland preservation measures affect planning priorities in their area. Almost all of those reporting this effect (91%, not shown), indicate that cost constraints have limited farmland preservation efforts in their area. As Table 3 indicates, costs of farmland preservation affect planning most in those areas where cost concerns have grown over the past 5 years.

Our analytic purpose to this point has been to evaluate whether or not PDR and TDR programs support farm land-use as an end in itself. That is, do these programs challenge the urban growth machine dynamic of stripping land of its use value and treating it exclusively as a commodity for speculative exchange? One planner comments on the clash of values implicit in farmland preservation and those held by farmers:

In some of the discussion with the farm community, we're dealing with fundamentally different value systems, where private ownership and rights, and the right to do with the land what you want, is actually valued higher than public interest in managing resources. If push came to shove, based on certain value systems, we'd let the whole thing go to hell before we let the government regulate. That's a hurdle that there's no way that you're going to break through that problem; it's a basic value difference. You almost need a spiritual revolution. You end up muddling through a political process doing the best that you can with the tools we have, at the same time acknowledging that our actions are totally and completely imperfect [3].

This statement captures the essence of PDR and TDR programs. Yes, they do contribute to the financial stability of farms, thereby sustaining farm-

ing as a use of the land. However, there is no consensus about why farmland preservation is important, and it is often simply a means to other ends. Certainly farmland preservation can contribute to environmental and open space protection which constrain the growth machine by removing land from the market. However, these efforts are seriously constrained by attempts to accommodate urban growth. Farmland preservation measures are a response to urban growth, and as such are limited in the extent to which they challenge the growth machine dynamic.

### Farmland preservation and regional land-use planning

Fragmented locally based planning provides an important structural basis for the success of the growth machine, according to Logan and Molotch (1987). This point led us to pose the question, are farmland preservation measures effective in the absence of comprehensive regional land use planning? Issues regarding the relationship between zoning and farmland preservation provide a useful focus to address this question.

One problem is that existing plans and zoning are often not consistent with the goals of farmland preservation. Planners in our focus group voiced strong opinions that PDR and TDR need to be backed up by strong zoning in order to be truly effective. For example, the economic viability of a farm that has sold its development rights may be threatened if existing zoning allows for the development of potentially conflicting non-farm land uses surrounding it. The following quotation illustrates this point:

One of the interesting things that we discovered with PDR in one township where we have about 15,000 acres that we had targeted for preservation, we started to buy development rights using state funds and county matching funds. We spent about \$15 million in one township and we purchased about 3,200 acres at just a little under

**Table 3.** Cost concerns compared to 5 years earlier by costs of farmland preservation affecting planning priorities

| Cost concerns compared to 5 years earlier | Costs affect planning priorities |           |                |           | Total (%) | n |
|---|----------------------------------|-----------|----------------|-----------|-----------|---|
|   | Sometimes (%)                    | Never (%) | Don't know (%) | Total (%) |           |   |
| More important                            | 60.3                             | 23.3      | 16.4           | 100.0     | 116       |   |
| About the same                            | 33.3                             | 57.4      | 9.3            | 100.0     | 54        |   |
| Less important                            | 30.8                             | 61.5      | 7.7            | 100.0     | 13        |   |
| Don't know                                | 10.0                             | 35.0      | 55.0           | 100.0     | 23        |   |
| Total                                     | 46.3                             | 36.0      | 17.7           | 100.0     | 210       |   |

Chi-square = 46.4, 6 d.f. ( $P < 0.001$ ).

\$5,000 an acre. We had a core of more than 3,000 acres that was preserved, but we had absolutely no control over what was happening around that 3,000 acres. The zoning was 3 acre lots around that area, and we were having very inefficient use of land for residential purposes [3].

TDR programs are another example. They are clearly limited if no regional authority exists that can adjust “windfalls and wipeouts” associated with program implementation across local political boundaries (Pitt *et al.*, 1988). The regional authority must establish zoning that clearly identifies areas for the purchase (receiving zones) and sale (sending zones) of development rights. The following exchange illustrates this point:

One of the big issues (regarding TDR) that we’re wrestling with in New York State is we have town, county, and state government, but when you come to sending and receiving zones a lot of them try to cross the municipal boundary lines. That becomes a big problem, because our regional school system is not using the same lines as we would identify [5].

People have wrestled with it and basically decided never to put a receiving area on a municipal boundary, because of ratables. From a planning perspective, exactly what you should be doing is scouting out the best receiving areas and political boundaries shouldn’t be all that they are. So we’ve just backed away from that whole issue and said no straddling of township lines, because we just don’t know how to deal with it [3].

Fragmented and inappropriate land use planning seriously compromises PDR and TDR programs. The following statement puts farmland preservation efforts in perspective:

I think it points up the real problems, that is, we’re buying out bad planning. We’re basically trying to buy our way out of really lousy planning. Where you’re surrounded by 1 acre lots, if you ask the town fathers or the town planner, if there’s 20,000 acres do you really want to have 20,000 homes, a population of 60,000 people? The answer you’re going to get is, no. Then why

do your zoning ordinances support that level of development? I think the problem you face is that in a county with 40 municipalities each one is making its own land-use decisions. You basically have to attack the process piecemeal, a township by township battle. I think you have to look at what is going on statewide, a process of comprehensive plans, PDR, TDR. Go out there with every tool available [3].

Almost 60% of the planners we surveyed (123 of 210) reported working with neighbouring jurisdictions on planning issues, but this cooperation did not necessarily result in the implementation of farmland preservation programs. Table 4 shows that the frequency of planner interaction across political boundaries is clearly related to higher incidence of farmland preservation program implementation; one-half of those who worked with neighbouring jurisdictions “often” reported some implementation of “regional” farmland preservation programs as a result. We do not know why more frequent cooperation had this positive result, but these findings do suggest that mechanisms for on-going cross-jurisdictional work can result in more coordinated farmland preservation efforts. Still, less than 10% of the planners surveyed reported working with other jurisdictions on what they considered a frequent basis (i.e. “often”).

Virtually everyone in the group expresses strong sentiments in favour of regional planning. The following statement captures the general sentiment of the group:

I view regional planning as a strong framework for an area that obviously downplays political boundaries and emphasizes natural boundaries. I view regional planning as providing a direction and a strong framework; and also in some areas being specific particularly in terms of infrastructure allocations. I don’t think it has to serve home rule in the traditional sense of serving home rule. I think it’s a broad document to map out the foreseeable future of an area, and designed to meet all the needs of a diverse population, but can be implemented at the local level [3].

**Table 4.** Planners who reported cooperative work with neighbouring jurisdictions by resulting implementing of specific regional farmland preservation programs

| Regional farmland preservation programs implemented | Work with neighbouring jurisdictions |               |
|---|--------------------------------------|---------------|
|   | Often (%)                            | Sometimes (%) |
| Often   | 22.2                                 | 1.0           |
| Sometimes   | 50.0                                 | 33.3          |
| Never   | 22.2                                 | 49.5          |
| Don't know  | 5.6                                  | 16.2          |
| Total   | 100.0                                | 100.0         |
| <i>n</i>  | 18                                   | 105           |

Chi-square = 15.5, 3 d.f. ( $P < 0.001$ ).

The consensus view is that the lack of regional planning is clearly an important limit on the effectiveness of programs to preserve farming as a land-use in urbanizing areas. Planners surveyed generally believe that land-use planning should be established, funded and implemented as part of an effort that involves the cooperation of various levels of government. Table 5 shows that a sizeable majority of planners feel that land-use policy should be established within states through some effort involving the cooperation of state, regional, county and municipal governments. Larger proportions, however, believe that funding should come from higher levels, especially state government. A larger minority feels that the federal government should be involved in funding than in establishing or implementing land-use policy. Clearly, the highest proportion of planners feels that land use policy is appropriately implemented at the local level.

Table 5 reports planners' ideals for regional land-use planning. Yet how well do actual farmland preservation efforts meet up to their ideal? Table 6 indicates that *regional* involvement in farmland preservation planning, funding and implementation falls far short of the ideals expressed by planners; i.e. higher proportions of planners thought that

regional entities should be involved than actually are. Lower proportions of planners report federal and state involvement in funding farmland preservation than thought that these levels of government should provide funding for land-use planning more generally. Finally, actual local implementation of farmland preservation falls short of ideals. A far lower proportion of planners reported municipal governments to be involved in farmland preservation than the ideal. Thus, while there is clear sentiment amongst planners for greater cooperation between levels of government in implementing regional land-use planning, there is considerable divergence from these ideals in actual involvement.

Ironically, regional planning efforts that transcend local jurisdictions have often been initiated not to preserve farmland, but to deal with agriculturally related environmental problems that affect the nonfarm population:

I think one of the big things that happened in New York was when the Clean Water Act was enacted New York City had to bring their watershed into compliance with the regulations. Farmers were very concerned about what the impact on land-use would be of a filtration plant. The farming community sat down with the New York City Department of Environmental Protection

**Table 5.** Level of government planners believe land-use planning should be established, funded and implemented

| Governmental level | Level at which land-use planning should be |             |                  |
|--------------------|--|-------------|------------------|
|                    | Established (%)*                           | Funded (%)* | Implemented (%)* |
| National           | 15.8*                                      | 43.3        | 12.7             |
| State              | 62.7                                       | 91.8        | 43.4             |
| Regional           | 67.5                                       | 46.2        | 57.1             |
| County             | 56.3                                       | 54.3        | 60.8             |
| Municipal          | 62.2                                       | 58.7        | 80.7             |
| <i>n</i>           | 210  | 210         | 210              |

\* Per cent of *n*. Percentages do not sum to 100, because respondents selected more than one category.

**Table 6.** Levels of government involved in planning, funding and implementing farmland preservation

| Governmental level     | Involvement in farmland preservation |              |                     |
|------------------------|--------------------------------------|--------------|---------------------|
|                        | Planning (%)*                        | Funding (%)* | Implementation (%)* |
| National               | 11.0                                 | 4.8          | 6.5                 |
| State                  | 79.5                                 | 71.4         | 70.6                |
| Regional               | 36.2                                 | 3.8          | 12.2                |
| County                 | 56.3                                 | 54.3         | 60.8                |
| Municipal              | 62.2                                 | 58.6         | 33.3                |
| No cooperative efforts | 3.8                                  | 15.2         | 3.8                 |
| <i>n</i>               | 210                                  | 210          | 210                 |

\* Per cent of *n*. Percentages do not sum to 100, because respondents selected more than one category.

and came up with plans for reducing farm pollution as an alternative to a filtration plant. New York City has said, we'll do this as a cost sharing and provide farmers with the money to improve their management practices; you know, keep the cows out of the creeks and things like that [5].

I think the state also plays a role in forcing the issue. There's a lot of issues that towns would just as soon ignore and not get involved in altogether, because they are difficult to deal with. The state can force the issue to be addressed. That's what they're doing with groundwater regulations. How many towns want to tackle that bee's nest? The state is coming in and playing the bad guy [2].

Although such efforts are initiated in response to primarily urban or non-farm problems, they may unintentionally establish the basis for a comprehensive regional plan that makes farmland preservation a more effective means of stalling the growth machine. Ultimately, the original intent of regional planning may be less important than its real consequences. The important point is that planners believe that the lack of comprehensive regional planning clearly limits the effectiveness of farmland preservation. Without one, the other will not succeed. As one planner accurately concludes:

The trick is how you get comprehensive planning in place [3].

## Conclusion

According to Logan and Molotch (1987) most growth controls do not pose a direct challenge to growth machine dynamics. However, farmland preservation programs, like purchase of development rights (PDR) and transfer of development rights (TDR), may pose a challenge to growth machine dynamics, because they remove land from the market and make it unavailable for development. Furthermore, these programs support farming as a use of that land by contributing to the financial stability of agricultural enterprises.

Ironically, PDR and TDR are responses to the dynamics of the growth machine and are introduced as a consequence of it. To some extent, these programs are part of an effort to deflect growth into other areas, but the force of their opposition to the growth machine is partially eroded by conflicts over the actual objectives of farmland preservation. Just as the growth machine may reflect the interests of urban elites, so might farmland preservation reflect similar class biases. That is, is farmland preservation an end in itself or simply a means to other ends like environmental or open space protection sometimes bound to specific class interests?

These programs also often lack the necessary institutional underpinnings like those that would be provided by comprehensive regional land use planning. However, as Popper (1992) has observed, such a basis may be developing as a result of urban oriented environmental protection efforts that are necessarily regional in scope. Thus, there is some reason to believe that farmland protection could, in the future, more effectively alter urban development in rural/urban fringe areas. In the meantime, farmland preservation activists must live with the fact that their efforts are, in the words of one planner, "totally and completely imperfect actions".

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