

A well-designed Land Evaluation and Site Assessment (LESA) system can help public officials, with limited funds, acquire development rights to a "critical mass" of preserved farmland

Using LESA in a purchase of development rights program

By Tom Daniels

PURCHASE of development rights (PDR) has become an increasingly popular farmland preservation tool. In 1980, only four states—Connecticut, Maryland, Massachusetts, and New Hampshire—and a handful of individual counties (most notably Suffolk County, New York) were using PDR programs (3). In the mid-1980s, King County, Washington, raised \$50 million to purchase development rights to farmland in the greater Seattle area (5). And as of 1990 active purchase of development rights programs for farmland preservation exist in all the New England states except Maine and in Maryland, New Jersey, Pennsylvania, California, and Forsyth County, North Carolina (1, 3).

Under a PDR program, the landowner sells the right to develop the land but retains all other rights and responsibilities (4). In this way the landowner receives financial compensation in exchange for keeping the

land in farming and open space. The sale of development rights is recorded as an easement attached to the landowner's deed, and the easement stays on the deed even if the land is sold or passed on through inheritance.

A common task in PDR programs is identifying and ranking farms on which to purchase development rights. Some programs are designed to base this decision primarily on minimizing costs, such as the Maryland program; others are designed to emphasize location, such as King County (5, 6). A carefully crafted Land Evaluation and Site Assessment (LESA) system can balance both location and cost considerations to implement a strategy of acquiring development rights to a "critical mass" of farmland at a reasonable cost. The critical mass helps to keep farm-support businesses in operation and preserve farming as an industry. The reasonable cost makes the PDR program politically acceptable.

The LESA system

LESA was developed by the Soil Conservation Service (SCS) to help implement the

1981 Farmland Protection Policy Act. The system's primary purpose was to provide local decision-makers with an objective and consistent numerically based system of determining what farmland should be available for development and what should be protected for farming. LESA was first tested in 1981, and a LESA workbook was widely disseminated to local governments in early 1983 (7).

The LESA system employs two major categories for evaluating farmland: the productive quality of land and local development pressure. These two criteria can be broken down into several factors that are assigned numerical scores, weights, and total points per factor. For each farm property, then, the total points per factor are added to produce an overall score. The score is compared to a predetermined level and a decision made whether a farm should be available for development or should remain in farm use. This process may be useful for local and regional comprehensive land use planning and for evaluating the importance of specific parcels.

In the LESA handbook, the land quality factor is based on soil productivity on a scale



up to 100 points; the development pressure features add up to 200 points. The higher the point score, the more desirable it is to preserve the farm. The sample farm in the accompanying table, which scored 273.7 points, is clearly a candidate for preservation. If the farm had scored only 150 points, it might be better put to a nonfarm use.

Adapting LESA for a PDR program

One of the strengths of LESA is its adaptability to a variety of land use planning purposes. One of the purposes mentioned in the LESA handbook is to aid implementation of a program to purchase development rights to farmland.

To date, little, if any, research has been conducted on the use of a LESA system as

part of a PDR program. Research is important to determine whether a LESA system would be a useful tool for helping decision-makers select farmland on which to purchase development rights.

Identification of important farmland can be accomplished through soil maps indicating land quality and tax maps showing parcel size. Minimum criteria for easement applications based on soils and parcel size can serve as an initial screening. The LESA approach then can be employed to rank qualifying applications.

The LESA handbook suggests that the following issues be considered in using LESA to rank farms for easement purchase:

- ▶ Goals: What are you trying to achieve through a PDR program?
- ▶ Value of the land for agriculture.

▶ Agricultural economic viability of the farm.

- ▶ Market for products.
- ▶ Existing rights and easements.
- ▶ Probability of conversion to nonagricultural use.
- ▶ Effect of loss of land on area agricultural industry.
- ▶ Land use regulations and community development plans.
- ▶ Compatibility of agriculture with other land uses in the area.
- ▶ The location and scale of public infrastructure.
- ▶ Assigning points for each factor and weighting each factor.

PDR program goals

In determining which land to protect through the purchase of development rights, administrators may do well to follow the Internal Revenue Service (IRS) criteria concerning the donation of development rights. The IRS requires that donations of development rights be in accord with public policy, do not block development, and are not in areas that have no development pressure (4). The IRS in effect encourages 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 some development is occurring in the vicinity. In this case, purchase of development rights could make a real difference in keeping development from encroaching upon farmland.

Rather than follow a "worst-first" course of action, in which development rights would be purchased in areas of heavy development pressure (adjacent to municipal sewer and water), or a "most-acres-for-the-money" approach (buying development rights in areas with little development pressure), a middle-course strategy involves buying development rights in areas of moderate development pressure. The middle course strategy would be directed at purchasing rights to a significant number of acres, thus preserving a "critical mass" of farms and farmland and discouraging the spread of development. The critical mass of farms and farmland would enable farm-support businesses to remain in operation and thereby help farming continue as a viable part of the local economy.

The ranking system

In creating the ranking system, an administrator or a planner must decide how much importance to give to development pressure relative to farmland quality. The LESA handbook (7) states that "most LESA

Standard LESA system applied in McHenry County, Illinois (7)

Site Assessment Factors	Weight Assigned	Maximum Points Possible	Sample Farm Points	Total of Points x Weight Assigned
1. Percentage of land in agriculture (1-1/2 miles)	2.1	21	9	18.9
2. Percentage in agriculture adjacent to site	1.5	15	8	12.0
3. Percentage of site in agriculture	1.1	11	7	7.7
4. Percentage of land zoned agriculture (1-1/2 miles)	1.8	18	8	14.4
5. Availability of zoned land	1.3	13	10	13.0
6. Distance from city/village	1.7	17	10	17.0
7. Environmental impact	1.7	17	10	17.0
8. Compatibility with surrounding area	1.5	15	10	15.0
9. Impact on historic/cultural features	.2	2	10	2.0
10. Transportation accessibility	1.3	13	10	13.0
11. Availability of central sewer	.8	8	10	8.0
12. Agricultural support system	.6	6	10	6.0
13. Soil suitability for on-site disposal	1.1	11	5	5.5
14. Size of site	.4	4	8	3.2
15. Consistency with county plan	2.1	21	10	21.0
16. Consistency with municipal plan	.8	8	10	8.0
Site assessment subtotal		200		181.7
Ag evaluation subtotal		100		92.0
Total points accrued				273.7
Total points possible		300		300.0

Note: The land evaluation portion assigns points for soil productivity based upon the yield of bushels of corn per acre, up to 100 points. Maximum points per factor = 10.

systems are designed to have land evaluation amount to about one-third of the total value of the system. For purchase of development rights, one may want the land evaluation part to be equal to about one-half of the total value." Thus, by increasing the emphasis on land quality and lowering the importance of site assessment (development pressure), the modified LESA system will tend to rank moderately pressured farmland highest, targeting farms for which a purchase of development rights provides long-range security.

If development pressure were weighted at two-thirds of the overall score (as the LESA system does when used to rate farmland for development potential), the relatively heavy emphasis on development pressure would favor farms under substantial development pressure, but farms with moderate development pressure and very good soils would not rank as high. Moreover, by favoring farms with heavy development pressure, a county or state agency would be compelling itself to purchase expensive development rights on comparatively few acres. Although the land quality and soil productivity factors will be similar to the standard LESA, the site assessment component should be modified so agricultural land that is subject to moderate pressure for conversion to nonagricultural use receives a higher number of points for acquisition of development rights.

The Lancaster County experience

Lancaster County, Pennsylvania, began purchasing development rights to farmland in 1984 under the auspices of the county Agricultural Preserve Board. Lancaster is the leading agricultural county in Pennsylvania and the entire Northeast, with \$741 million in farm products sold in 1988 (1). Two-thirds of the county's 600,000 acres is in farm use, even though the county is one of the fastest growing metropolitan areas in Pennsylvania and has more than 400,000 residents. About 242,000 acres are zoned for effective agricultural use on a sliding scale that allows one three-quarter-acre to two-acre building lot for each 25 acres. In addition, 97,600 acres, most of which are zoned for effective agricultural use, comprise 23 agricultural security areas in which farmers have the option to apply to the Agricultural Preserve Board to sell development rights.

From 1984 through 1988, the Agricultural Preserve Board acquired development rights to 64 farms covering 5,660 acres, although 39 of these developments were donated and many of those purchased were for a 25-year term at \$250 an acre. With the beginning of the state purchase of development rights program in 1989 Lancaster County accepted

and ranked 29 applications and purchased development rights on seven farms at an average cost of \$1,300 per acre.

The Preserve Board receives applications to sell development rights from landowners twice a year and then ranks the applications according to a modified LESA system based on a 100-point scale in which 30 percent of

the total score is based on the quality of the farmland (land evaluation) and 70 percent on the amount of development pressure (site assessment) (see tables). For example, in the first table, farm number 2 ranks highest for purchase of development rights, farm number 1 ranks second, and farm number 3 ranks third. The Lancaster LESA system

The LESA system used to rank applications to sell development rights in Lancaster County, Pennsylvania						
Factors	Maximum Points per Factor		Maximum Possible Points	Farm 1	Farm 2	Farm 3
	Weight					
Likelihood of conversion to nonfarm use						
1. Extent of nonagricultural development in area	10	10	100	80	100	70
2. Proximity to agricultural security area boundary	10	10	100	100	100	50
3. Proximity to planned development	8	8	64	24	64	24
4. Zoning	8	8	64	64	64	0
5. Proximity to sewer service	8	8	64	48	64	24
6. Site development capabilities	10	8	80	40	80	40
7. Urgency	10	3	30	30	0	0
Total points accrued				396	472	208
Total points possible			502			
Total points (adjusted by .139 for 70 points maximum)				55.0	65.6	28.9
Quality of the farmland						
1. Proximity to a farm with a conservation easement sale application	10	3	30	30	21	0
2. Size of Farm	10	3	30	12	0	30
3. Soils	10	10	100	100	80	100
4. Farm product sales	10	2	20	20	16	20
5. Farm buildings	10	2	20	20	10	20
Total points accrued				182	127	170
Total points possible			200			
Total points (adjusted by .021 for 25 points maximum)				22.8	15.9	21.3
Other factors						
1. Stewardship of the land	10	3	30	30	15	15
2. Historic, scenic, environmental qualities	10	10	100	100	60	30
3. Applications	8	1	8	5	5	8
4. Cost	10	10	100	30	100	30
Total points accrued				165	180	83
Total points possible			240			
Total points (adjusted by .021 for 5 points maximum)				3.5	3.8	1.7
Total overall points (100 points maximum)				81.3	85.3	51.9

Factor point values

	Point Value
Likelihood of conversion to nonfarm use	
A. Extent of nonagricultural development in area (1 mile radius) (Weight = 10)	
Intensive development adjacent or in immediate vicinity (10 lots or more/commercial, industrial, or residential uses)	10
Intensive or extensive scattered development within 1/2-mile radius (35 lots or more/commercial, industrial, residential uses)	8
Intensive or extensive scattered development within 1/2-mile radius [20 lots or units (commercial, industrial, residential uses)]	7
Scattered nonagricultural development within 1-mile radius (20 lots or units)	5
No significant nonagricultural development in area	0
B. Proximity to agricultural security area boundary (for land within agricultural security area) (Weight = 10)	
Adjacent	10
Within 1/4 mile	8
1/4 to 1/2 mile	7
1/2 to 1 mile	5
More than 1 mile	0
C. Proximity to planned development (county comprehensive land use plan) (Weight = 8)	
Nonagricultural development planned within 1/4 mile	8
Nonagricultural development planned within 1/2 mile	6
Nonagricultural development planned within 1 mile	3
Planned agriculture within 1 mile (or open space)	0
D. Zoning (Weight = 8)	
Residential, commercial, industrial zoning within 1/4 mile	8
Residential, commercial, industrial zoning within 1/2 mile	6
Agricultural or rural zoning (not effective agricultural zoning) within 1/2 mile	4
Effective agricultural zoning covering 1/2 mile radius	0
E. Proximity to sewer service (existing and planned) (Weight = 8)	
Existing service area within 1/4 mile	8
Planned service area within 1/4 mile	7
Existing service area within 1/2 mile	6
Planned service area within 1/2 mile	5
Existing or planned service area within 1-mile radius	3
No existing or planned service area within 1-mile radius	0
F. Site development capabilities and limitations (Weight = 8)	
Extensive developable road frontage (1/4 mile +) and suitable for on-lot sewage disposal or within 1/4 mile of existing sewer service area	10
Moderately limited by road frontage, suitability for on-lot sewage disposal or dominant floodplain	5
Severely limited by any combination of above factors	0
G. Urgency (Weight = 3)	
Sale or estate settlement pending within 6 months	10
Sale or estate settlement pending within 1 year	7
Sale or estate settlement more than 1 year	0
Quality of the farmland	
A. Proximity to a farm with a conservation easement or an easement sale application	
Adjacent	10
Within 1/2 mile	7
More than 1/2 mile	0
B. Size of farm (Weight = 3)	
75 acres or more	10
50 to 75 acres	7
25 to 50 acres	4
Less than 25 acres	0
C. Soils (Weight = 10)	
75% or more SCS class I and II farmland	10
50%-74% class I and II farmland	8
50% or more class I, II, and III farmland	5
Less than 50% class I, II, and III farmland	0
D. Farm product sales (Weight = 2)	
Gross annual receipts of \$65,000 or more	10
Gross annual receipts of \$25,000 to \$64,999	8
E. Farm buildings (Weight = 2)	
With adequate farm buildings	10
Bare land	5
Stewardship of the land (Weight = 10)	
SCS soil conservation plan fully implemented/or conservation practices used to the full extent necessary	10
SCS plan partially implemented or some practices used	5
Limited or no conservation practices used	0
Historic, scenic, environmental qualities (Weight = 10)	
Exceptional features favorable to preservation (National Register of Historic Places, exceptional scenic contribution on major highway corridor, exceptional or special environmental circumstances)	10
Significant features favorable to preservation (historic site survey, significant scenic contribution on rural township roads, significant environmental circumstances)	6
Features favorable to preservation (significant but undocumented historic features, moderate localized scenic contribution, and/or limited but recognized environmental features favorable to preservation)	3
No significant historic, scenic, or environmental qualities, or severe natural limitations on any farm conversion potential	0
Applications for easement sale	
Third time or more	10
Second time	8
First time	5
Cost (Weight = 10) (for second ranking, if needed)	
Estimated cost of easement does not exceed 15% of total county budget for easement purchases (including state allocation)	10
Estimated cost of easement exceeds 15% of total county budget for easement purchases	3

also has been used to establish a minimum acceptable score of 50 points out of a possible 100 points. Farms scoring below 50 points are not considered for purchase of development rights because of very low development pressure or poor quality land, or both.

The factors

The site assessment factors consist of the intensity of development in the neighborhood of a farm, the county land use plan for the area, the distance to nonfarm zoning districts and sewer service, and the capacity of the site for development (especially road frontage). An urgency factor indicates if a sale or estate settlement is pending. The point scale for each factor is explained in the second table.

Five features comprise the farmland quality factors. These features influence the viability of the farm itself: proximity to preserved farms, size of the farm, soils, dollar amount of farm product sales, and whether the farm has buildings (see table).

The last four factors refer to whether a SCS conservation plan is being implemented on the farm; the historic, scenic, or environmental contribution; the number of times the landowner has applied to sell development rights; and the anticipated cost of the development rights. If the development rights to a farm are estimated to be more than 15 percent of the available budget, the farm receives lower points for the cost factor.

Unlike the recommended LESA ranking system, the Lancaster system places too much emphasis on the development pressure

factors and not enough on farmland quality. Such scoring creates a bias in favor of properties with intense development pressure, which also happen to have the most expensive development rights. Suburban dwellers are a powerful constituency in the county, and those people want landscape nearby to "look nice." Hence, the county government places a high priority on the acquisition of development rights on suburban farmlands that are under considerable development pressure and have the most expensive development rights.

The Lancaster LESA system could easily be adapted to the 50/50 land quality and development pressure emphasis that the LESA handbook recommends. This could be done simply by changing the adjustment numbers (.139, .125, .021) when computing the score for each set of factors. One of the attractive aspects of the LESA approach is that it can be flexible in assigning points for individual factors and overall weightings of factors. In this way the LESA system can be used through trial-and-error testing to devise a ranking system that ranks farms under moderate development pressure the highest.

Striking a balance

The LESA system is a useful tool for ranking properties for purchase of development rights. A PDR program can be most effective by targeting farmland that is under moderate development pressure. The LESA system can be designed to implement that strategy. Jurisdictions may make serious mistakes if they attempt to devise a LESA system without a strategy for purchasing development rights. For example, King

County, Washington, not so sensitive to cost in its strong desire to preserve open space, paid as much as \$18,000 an acre for land (5). Maryland, not so sensitive to location, emphasizes minimizing cost and acquiring the most development rights for the money (6). The Lancaster County approach with LESA offers a potential compromise between the two; it is more sensitive to location than Maryland and more sensitive to cost than King County.

Nonetheless, the Lancaster LESA system could be refined to strike a better balance between farmland quality and development pressure in its ranking system. The more a PDR program is viewed as an open space program, the greater the emphasis will be on location rather than on cost. The more a PDR program is perceived as a farmland protection tool, the more acquiring development rights on a "critical mass" of important farmlands at a moderate cost will be the goal.

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LESA assessment planned

The U.S. Department of Agriculture's Soil Conservation Service (SCS) has initiated a study with Arizona State University (ASU), Oregon State University (OSU), and the University of Pennsylvania to determine to what extent the agricultural Land Evaluation and Site Assessment (LESA) system is being used. The project's principal investigators include Frederick Steiner of ASU, James Pease of OSU, and Robert Coughlin of Penn.

The purpose of the study is to determine to what extent the LESA systems developed to date have met the first three objectives as outlined in the national LESA handbook; these objectives are as follows:

1. The LESA system was designed to be applied consistently from case to case. LESA provides a framework within which land evaluation and site assessment procedures are documented before individual sites are considered. This process permits different

individuals to evaluate sites consistently and without bias.

2. The LESA system was designed to be flexible to accommodate differences among states, counties, or areas. A LESA system can be developed at various levels of government, i.e., state, county, or township, or for land areas, such as a major land resource area. In some states there are wide differences among and even within counties.

3. The LESA system was designed to be based on existing knowledge. LESA uses soil survey information and interpretations that are widely available throughout the United States. It also uses planning concepts and principles understood and used by planners.

The purpose of the cooperative study between SCS and the three universities includes determining the following:

► How many state, metropolitan, county, and local units of government are using a

LESA system and what is their geographic distribution?

► The characteristics of the existing LESA systems and what factors and weights are employed.

► How LESA is used as part of the local county, regional, and state farmland protection programs?

► Strengths and weaknesses of existing LESA systems and the ways they are used.

► Ways that LESA systems could be improved so that they would be more reliable in classifying farmland and how they could be used more effectively in the process of implementing federal, state, and local policy for the protection of farmland.

If your agency has experience with LESA, please contact: Professor Frederick Steiner, Department of Planning, Arizona State University, Tempe, Arizona 85282-2005; (602) 965-7167; FAX (602) 965-1594.