

# Appendix G

## LESA Analysis

The Land Evaluation and Site Assessment (LESA) system was developed by the Natural Resources Conservation Service as a quantitative tool to help prioritize farmland for protection. The purpose of the LESA system is to rate and rank agricultural parcels using a series of soil quality factors, such as crop yield data, and non-soil factors, such as development pressure, to assist decision makers in prioritizing and protecting lands for long-term agricultural use.

The LESA system is a two-part evaluation tool that focuses on both soil productivity and land development factors:

- *Land Evaluation (LE) factors*: Land Evaluation factors are used to rank the soil's agricultural quality in a given area from the best to the worst. Relative scores are applied to each soil type, with higher scores typically indicating higher quality soils. Depending on the scale at which the evaluation is being conducted, LE factors can include soil potential ratings, soil productivity ratings, land capability classifications or important farmlands classifications. All of this data is provided by the NRCS in the soil surveys produced for each county.
- *Site Assessment (SA) factors*: Site Assessment factors identify how conditions other than soil productivity influence the quality of a site for agricultural use. Each factor selected based on local conditions and in accordance with local needs and objectives. Like the LE factors, a range of scores is applied to each factor to indicated higher or lower quality. Data sources can include land use and land cover data, road frontage information, zoning classifications or proximity to urban development, just to name a few.

The LESA tool was developed to be flexible and adaptable to local conditions. The specific combination of LE and SA factors depends on both the level of government (e.g., towns, counties and states ) at which the analysis is being formed and the quality of locally available data. To identify the specific evaluation factors appropriate for Steuben County, the type of data available consistently across the entire county was considered.

In total, one LE Factor and six SA Factors were included in the LESA evaluation for Steuben County, including:

- *Land Capability Class (LCC)*: The Land Capability Classification (LCC) system identifies the relative degree of limitations for agricultural use inherent in the soils of a given area. Based on soil characteristics, the LCC categorizes soils into one of eight classes, with classes 1 through 4 typically providing the highest productivity. [LE Factor]
- *Farm Size (FS)*: It is often more profitable to operate a large-scale farming operation than a small one as larger farms often realize better financial returns than do smaller farms (although not always). While agricultural land uses in Steuben County include 4,458 parcels covering 253,659 acres, many of these parcels are under the same ownership. Given that parcels under the same ownership are typically part of one farming operation, it was important to identify and evaluate

the size of the farm that each parcel is associated with, and not the size of the individual parcel. [SA Factor]

- *Availability of Agricultural Support Services (AAS)*: One of the primary factors influencing the continuation of farming in a given area is the close proximity of convenient and adequate agricultural support services, including equipment supply and repair, feed suppliers, veterinarian services, farm supply stores and cold storage facilities. [SA Factor]
- *Proximity to Adjacent Farmland (PAF)*: The types of land uses adjacent to active farmlands can impact the ability of a farmer to conduct normal farming operations or to change crops and practices so as to remain in agricultural use. Generally, it is more likely that farms in close proximity to other farms will be offered the most flexibility in conducting farming operations and are more likely to remain as farms. [SA Factor]
- *Land Use Policy Designation (ZD)*: The purpose of this factor is to provide a general measure of a given parcel’s potential to remain in agriculture by identifying each parcel’s general zoning designation (parcels located in agricultural zoning districts are more likely to remain in agriculture). [SA Factor]
- *Agricultural District Designation (ADD)*: The Agricultural District Program provides a combination of landowner incentives and protections developed to prevent the conversion of agriculture to non-agricultural uses, including preferential real property tax treatment and protections against overly restrictive local laws. Although voluntary, participation in this program provides additional protections above and beyond those afforded by zoning alone. [SA Factor]
- *Distance to Urban Center (UC)*: One of the most prominent factors influencing the conversion of agriculture to non-agricultural uses is development pressure from urbanized areas – parcels in close proximity to developed lands are more likely to be developed themselves. [SA Factor]

#### 4.1 Methodology

As noted above, the LESA tool is a quantitative tool that combines LE factors and SA factors to provide an overall ranking of each agricultural parcel in a particular area. In other words:

$$\text{LESA} = \text{LE (Land Evaluation)} + \text{SA (Site Assessment)}$$

Where,

$$\text{LE} = \text{LEF}_1 + \text{LEF}_2 + \dots + \text{LEF}_n \quad (\text{LEF} = \text{Land Evaluation factor})$$

$$\text{SA} = \text{SAF}_1 + \text{SAF}_2 + \dots + \text{SAF}_n \quad (\text{SAF} = \text{Site Assessment factor})$$

Using the factors identified above, the LESA equation for Steuben County can be written as:

$$\text{LE} = (\text{LCC}) + (\text{FS} + \text{AAS} + \text{PAF} + \text{ZD} + \text{ADD} + \text{UC})$$

A breakdown of the individual scoring systems used for each factor is provided below.

##### Land Capability Classes (LCC)

To calculate the total LCC score for each agricultural parcel, the percent of each parcel in each land capability class was calculated and then multiplied by the LCC score for each class (see Table 26). Scores of “0” were applied to classes 5 through 8 as these soils have limited value for commercial plant production.

The resulting scores for each class were summed to determine the total score for each parcel:

$$\text{LCC score per parcel} = [(\text{percent Class 1}) \times (\text{Score Class 1})] + [(\text{percent Class 2}) \times (\text{Score Class 2})] + \dots + [(\text{percent Class 8}) \times (\text{Score Class 8})]$$

**Table 26: Land Capability Class Scores**

| Land Capability Class | LCC Score |
|-----------------------|-----------|
| Class 1               | 60        |
| Class 2               | 48        |
| Class 3               | 36        |
| Class 4               | 12        |
| Class 5               | 0         |
| Class 6               | 0         |
| Class 7               | 0         |
| Class 8               | 0         |
| Unclassified          | 0         |

*Farm Size (FS)*

To determine the FS score for each agricultural parcel, it was first necessary to merge together all parcels under the same ownership. Once merged, the total size of each resulting “farm” was calculated and extrapolated to each of the original, individual agricultural parcels. These extrapolated values were then used to assign the appropriate score from Table 27.

**Table 27: Farm Size Scores**

| Size Classification    | FS Score |
|------------------------|----------|
| Less than 100 acres    | 4        |
| 100 to 250 acres       | 7        |
| 250 to 500 acres       | 8        |
| Greater than 500 acres | 10       |

*Availability of Agricultural Support Services (AAS)*

The first step in determining the parcel-by-parcel scores for this factor was to identify the locations of agricultural support services in relation to Steuben County. These locations were identified using the following land uses were identified using the county’s parcel database:

- 443 - Grain and Feed Elevators, Mixers, Sales Outlets
- 444 - Lumber Yards, Sawmills
- 446 - Cold Storage Facilities
- 447 - Trucking Terminals
- 449 - Other Storage, Warehouse and Distribution Facilities

- 472 - Dog Kennels, Veterinary Clinics

To further identify support services locations, yellowbook.com was queried for “farm equipment dealers and supplies,” which identified an additional 57 service locations in Steuben County. All of these locations were mapped and the distance from each agricultural parcel was calculated. The appropriate scores from Table 28 were then applied.

**Table 28: Availability of Agricultural Support Services Scores**

| Proximity Class       | AAS Score |
|-----------------------|-----------|
| Less than 5 miles     | 10        |
| 5 miles to 10 miles   | 8         |
| Greater than 10 miles | 4         |

*Proximity to Adjacent Farmland (PAF)*

To determine the PAF score for each parcel, the distance from each parcel to the closest agricultural parcel was calculated and the appropriate scores were applied (see Table 29).

**Table 29: Proximity to Adjacent Farmland Scores**

| Proximity Class      | PAF Score |
|----------------------|-----------|
| Adjacent             | 10        |
| Less than 0.5 mile   | 8         |
| 0.5 mile to 1 mile   | 6         |
| 1 mile to 3 miles    | 4         |
| Greater than 3 miles | 0         |

*Land Use Policy Designation (ZD)*

To determine the ZD score for each agricultural parcel, all zoning districts in Steuben County were first assigned to one of three classes – Non-Agricultural or No Zoning District, Agricultural-Residential Zoning District or Agricultural District. The class of zoning district was then identified for each agricultural parcel and the appropriate score applied (see Table 30).

**Table 30: Land Use Policy Designation Scores**

| Zoning District Class      | ZD Score |
|----------------------------|----------|
| Non-agricultural/No Zoning | 0        |
| Ag/Res Zoning              | 5        |
| Ag Zoning                  | 10       |

*Agricultural District Designation (ADD)*

To determine the ADD score, each agricultural parcel was identified as either participating or not participating in the Agricultural District Program and the appropriate score from Table 31 was applied.

**Table 31: Agricultural District Designation Scores**

| Agricultural District Designation | ADD Score |
|-----------------------------------|-----------|
| Yes                               | 10        |
| No                                | 0         |

*Distance to Urban Center (UC)*

To determine the proximity of agricultural parcels from urbanized areas, 2010 land cover data from the Coastal Change Analysis Program (C-CAP) was used (this is the most recent land cover data for Steuben County). All developed land cover classifications (i.e., High Intensity Developed, Medium Intensity Developed, Low Intensity Developed and Open Space Developed) were merged and the distance from each agricultural parcel was calculated.

**Table 32: Distance to Urban Center Scores**

| Proximity Class      | UC Score |
|----------------------|----------|
| Less than 0.5 mile   | 0        |
| 0.5 mile to 1 mile   | 3        |
| 1 mile to 3 miles    | 6        |
| Greater than 3 miles | 10       |

## 4.2 LESA Results

Based on the total range of possible factor scores (identified in Tables 29 through 32), the lowest possible score that an agricultural parcel can receive is 8, while the highest possible score is 120. In other words, a parcel that receives a score of 8 would indicate that it contains low quality soils for agricultural production and that it is more likely to be converted to non-agricultural uses due to the lack of support services, small overall farm size, no regulatory protections and close proximity to non-agricultural land uses and urban centers. An agricultural parcel that receives a score of 120, however, would be characterized by high quality soils and a lower likelihood of being converted to non-agricultural uses.

Based on the actual results of the analysis, final total scores ranged from a low of 25.2 to a high of 114.3. A more detailed summary of the results are provided in Map 9.

- High Score: 114.3
- Low Score: 25.2
- Average Score: 70.5
- Standard Deviation: 13.6
- Only 6 percent of agricultural parcels score in the highest point range and thus have the highest quality farmland with the lowest potential for conversion to non-agricultural uses.
- 22 percent of parcels score below 60 points and thus represent those parcels with the lowest quality farmland with the highest potential for conversion to non-agricultural uses.
- 72 percent of agricultural parcels score between 60 and 90 points. These parcels could be characterized in one of three ways, depending on the specific parcel and the scores it received:
  - High quality farmland and a high potential for conversion;
  - Low quality farmland with a low potential for conversion; or
  - Moderate quality farmland with a moderate potential for conversion.

Based on the location of these parcels, the highest concentration of high-scoring agricultural parcels can be found in the northern portion of the county, in the Towns of Cohocton and Pulteney (see Map 9).

As noted above, the purpose of the LESA system is to rate and rank agricultural parcels so as to assist decision makers in prioritizing and protecting lands for long-term agricultural use. As such, there are several possible uses for the LESA system developed for Steuben County, including:

- Assisting municipalities in identifying agricultural lands for long-term continuation in a comprehensive or land use plan;
- Identifying which parcels should be given highest priority for purchase of development rights; or
- Determining how town-wide or site-specific rezoning may impact the long-term viability of neighboring farms.