

Appendix 6: LESA Score

In 2004, the County Planning & Resources Department worked with a private consultant, EarthTech, to develop an individualized Land Evaluation-Site Assessment Tool for farmland in Sheboygan County. The LESA was developed by the Natural Resources Conservation Service (previously known as the Soil Conservation Service) in the 1980s as a tool for local governments to rate the agricultural lands in their community for use when making land use decisions. Sheboygan County used the model developed by the NRCS and the results from a similar exercise conducted by Saint Croix County to develop its own LESA.

The LESA has two components, a Land Evaluation component and a Site Assessment component. Only the Land Evaluation component is in a form that can easily be used; the Site Assessment tool needs additional modification before its usefulness can truly be utilized. The Land Evaluation component was developed for *Sheboygan County's Farmland Preservation Plan-2005*.

The Land Evaluation (LE) component uses three criteria for developing a score for the land in relation to its agricultural use. The score is parcel-based and uses the NRCS soil data that Sheboygan County has in digital format. Because of the digital nature of the datasets that were used in this process, it was easy to filter the information through a Geographic Information System (GIS) to conduct the analysis. The three criteria that were used for the LE scores were Prime Farmland Class Index, Land Capability Class Index-Improved Condition Index, and the Productivity Index.

The Prime Farmland Class Index is developed from the NRCS soil ratings. These criteria include:

- Not too dry (at least four inches of Available Water Capacity in the upper 40 inches)
- Not too acid or alkaline (pH between 4.8 and 8.4 in the upper 40 inches)
- Not too wet (not frequently flooded and water table generally deeper than one foot during the growing season)
- No serious erosion problems ($K \text{ factor} \times \text{slope} < 2$)
- Permeability not restricted (at least 0.06 in/hour in the upper 20 inches)
- Not too rocky (less than 10% rock fragments larger than three inches in the surface layer)
- Not too cold or too salty (generally does not apply in Wisconsin)

Based on these criteria, each soil unit is given a capability class. For the LE, each class is given a score as follows:

<u>Index</u>	<u>Score</u>
Prime Farmland	100
Prime Where Drained	70
Prime Where Not Flooded	40
Prime Where Drained and Not Flooded	30
Not Prime	0

It is important to remember that crop yields are not a criterion for the prime soils classification and some non-prime soils will have much higher yields than soils classified as prime soils. It is also important to understand that present land use is not factored into the classification, so some

of the soils designated as Prime Farmland may be currently situated underneath a structure or other non-agricultural use. Finally, location is not a factor in the classification; only the physical and chemical soil properties are considered in the classification system. Because of these limitations of the Prime Farmland Class Index cannot be used as the sole indicator of good, productive farmland and is one of the purposes of the LE tool.

The second factor that goes into the LE score is Land Capability Class. This factor rates the risk of environmental damage, the degree of management concerns for the soil group, and the limitations of the soil for agricultural use. Some examples of this include soil erosion, nutrient and pesticide runoff or leaching potential, and off-site damage from sediment. The Land Capability Class identifies 8 classes as follows:

Class 1- Slight Limitations

Class 2- Moderate Limitations

Class 3- Severe Limitations

Class 4- Severe Limitations- Restrictions of Choice of Plants and/or Very Careful Management

Class 5- Little or No Erosion Hazards, Other Limitations That are Impractical to Remove, Limited Mainly to Pasture, Range, Forestland, or Wildlife

Class 6- Severe Limitations, Generally Unsuitable for Cultivation, Limited Mainly to Pasture, Range, Forestland or Wildlife

Class 7- Very Severe Limitations, Unsuitable for Cultivation, Restricted Mainly to Pasture, Range, Forestland or Wildlife

Class 8- Limitations that Preclude Use for Commercial Plant Production, use Limited to Recreation, Wildlife, Water Supply, or Esthetic Purposes

The LE assigns points to each of the classes as follows:

Class 1- 100

Class 2- 90

Class 3- 70

Class 4- 50

Class 5- 20

Class 6- 25

Class 7- 10

Class 8- 0

The third factor that is included in the LE is the Productivity Index. The Soil Productivity Index (PI) rates the potential crop productivity of each Sheboygan County soil in relation to all other soils in the State of Wisconsin. When the PI is equal to 100, the soils are the most productive. A lower PI value represents a proportionately lower productivity for common crops. The PI is based on the yield of corn and other row crops. If no row crop yields are listed, the PI is based on hay crops or pasture crop yields, and is reduced by an adjustment factor to reflect that only less valuable or desirable crops can be grown.

Included in the LE score is a weighting factor that is applied to each of the three criteria to reflect their importance in the overall score as follows:

- Prime Farmland- 15%
- Capability Class- 30%
- Productivity Index- 55%

To calculate the LE score, the three criteria are weighted for the soils on a parcel. For example, a farm has soils that are considered Prime Farmland in the Prime Farmland Class Index, has a Land Capability Class of Class 2, and has a Productivity Index of 82. The LE score for this parcel would be calculated as follows:

<u>Soil Data Element</u>	<u>Score</u>	x	<u>Weight</u>	=	<u>LE Rating</u>
Prime Farmland	100		0.15		15.0
Class 2	90		0.30		27.0
Productivity Index	82		0.55		45.1
Total LE Rating for the Map Unit (Parcel)					87.1

On parcels that include more than one soil grouping, the average for that parcel is used.

The second component of the LESA is the Site Assessment (SA) tool. The SA factors take into account socio-economic factors such as contiguous ownership, adjacent land use, land use policy, distance to public sewer, and the proximity to roads and the classification of the nearest road. This component is much more subjective and requires significant input from the local communities and stakeholder groups to assign values and weighting factors to each of the criteria. The SA for Sheboygan County is still preliminary and a technical committee will need to be formed to finalize the scores.