

LAND EVALUATION AND AREA REVIEW (LEAR) FOR AGRICULTURE

VOLUME 1



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BACKGROUND

This Report recommends a new Land Evaluation and Area Review (LEAR) system for the City of Ottawa.

The Province of Ontario through the Provincial Policy Statement (PPS) requires municipalities to identify and protect prime agricultural areas for long-term use for agriculture. The PPS also provides for the use of an alternative system to identify these prime areas and the Province of Ontario has issued a draft guideline for the development of these systems referred to as a Land Evaluation and Area Review or LEAR. This guideline provides an example of how these systems can be developed and used but acknowledges that individual LEAR systems can be tailored to address local agricultural conditions.

The LEAR system is a high level decision making tool that enables every agricultural property to be evaluated quantitatively to assess the capability of the soils on the land, the use of the land and other surrounding influences that might determine the suitability of the property for ongoing agricultural use or not. The LEAR system's primary purpose is to identify those broad areas of a municipality that should be protected for long-term agricultural purposes. LEAR systems have been developed and used by a number of municipalities and the Province of Ontario to assist in the identification of prime agricultural areas.

The Agricultural Resource Area in the City of Ottawa Official Plan was originally identified in 1997 using the Ottawa-Carleton Land Evaluation and Area Review for Agriculture (LEAR). The Ottawa – Carleton (O-C) LEAR was developed by the former Regional Municipality of Ottawa-Carleton in co-operation with an Agricultural Advisory Committee and the Ministry of Agriculture, Food and Rural Affairs.

Over the 20 years since the O-C LEAR was produced, a number of factors have changed that warrant the review of that LEAR system. These factors include: changing farm demographics; fewer but larger farm operations; growth in the market for a range of locally grown food; clearing of land for new farm operations, and expansions of the urban and village boundaries into agricultural land. In 2009, the City resolved to review the former O-C LEAR. This resolution responded to feedback from the rural community that the O-C LEAR did not appear to adequately protect agricultural land.

In 2010, City staff obtained updated Canada Land Inventory (CLI) mapping from the Ministry of Agriculture Food and Rural Affairs. The CLI mapping provides the basis of a LEAR system because it ranks soils in order of their potential productivity for crops. This ranking forms the basis for identification of prime agricultural land in the PPS. The new soil mapping includes changes derived from additional field work and as a result of the standardization of the scale of mapping across the city.

The City also completes city-wide land-use surveys approximately every five years and this provides a current view of what lands are being used for agriculture.

Work on the update of the LEAR system was commenced in 2010 but halted in 2012, in order to obtain some clarification of changes in the soils mapping from the Ministry of Agriculture, Food and Rural Affairs. The LEAR review resumed in 2015.

PROVINCIAL AND CITY POLICIES

The PPS includes policies to ensure that municipalities identify and protect “*prime agricultural areas*” for ongoing agriculture use. The protection extends to avoiding fragmentation of agricultural land by severance and subdivision and to the prohibition of new uses that may conflict with viable farm operations now, and in the future. The PPS only allows land prime agricultural areas to be considered for other purposes when:

- the land is not a specialty crop area;
- there is a need to accommodate the proposed use, and
- there are no other reasonable alternative locations outside of a prime agricultural area and there are no reasonable alternative locations with lower priority agricultural lands.

The Province identifies prime agricultural areas as follows:

“Prime agricultural areas are areas where prime agricultural lands predominate. Specialty crop areas shall be given the highest priority for protection, followed by Canada Land Inventory Class 1, 2, and 3 lands, and any associated Class 4 through 7 lands within the prime agricultural area, in this order of priority.”

The PPS provides for the use of a LEAR system to aid the identification of these prime agricultural areas. For clarity, the PPS defines “*prime agricultural land*” as:

“specialty crop areas and/or Canada Land Inventory Class 1, 2, and 3 lands, as amended from time to time, in this order of priority for protection.”

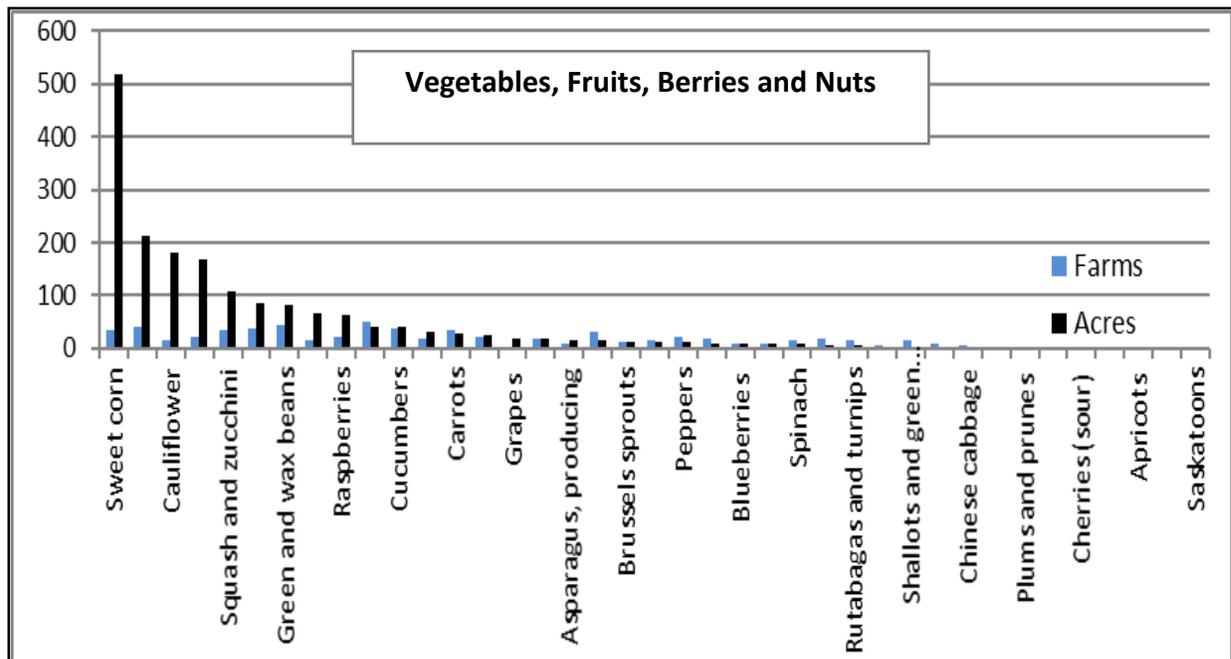
As stated earlier the Agricultural Resource Area designation in the City’s Official Plan was originally identified by the O-C LEAR. This designation protects those areas that contain Ottawa’s best farmland and ongoing farming operations for the long term. It does this by restricting non-agricultural development and the fragmentation of the land base to avoid conflicts with agricultural operations. It is also intended that agricultural land and food sources remain available to feed current and future generations.

AGRICULTURE IN OTTAWA

The Provincial interest is in the protection of Speciality Crop Areas and areas predominantly comprised of CLI Class 1, 2 and 3 Soils. At the time the O-C LEAR was developed no specialty crop areas were identified. The O-C LEAR concentrated on general agriculture and the identification of areas primarily comprised of Class 1, 2 and 3 soils.

As part of the review of the O-C LEAR information on crop production from the 2011 Census of Agriculture was evaluated. The Census of Agriculture identified the number of farms in Ottawa that reported growing specialty crops (see Figure 1). Despite the fact that some specialty crops are grown in Ottawa, there is no evidence that fruit and vegetable production is or has been concentrated in specific areas due to soils, climate or other factors. The Province has not declared any area of Ottawa as a specialty crop area. While the City does not need to protect for these crops now, specialty crop areas may emerge over time due to the popularity of local food production and changing growing conditions.

Figure 1 - Specialty Crops in Ottawa



Source: Statistics Canada; 2011 Census of Agriculture.

Other trends in the agricultural industry in Ottawa are also captured in the 2011 Census of Agriculture (see Figure 2).

Figure 2 - 2011 Farm and Farmland Statistics 2001-2011

Number of Farms, Farm Land Area and Average Farm Size for Ontario, Eastern Ontario and City of Ottawa, 2001-11									
Location	2001	2006	2011	% Change 2001-2006	% Change 2006-2011	% Change 2001-2011	2001	2006	2011
	Total # of Farms						Total # of Farms with Sales of \$10,000 or more		
Ontario	59,728	57,211	51,950	-4.2%	-9.2%	-13.0%	44,358	42,711	39,687
Eastern Ontario	9,333	8,864	8,007	-5.0%	-9.7%	-14.2%	5,904	5,596	5,205
City of Ottawa	1,318	1,267	1,128	-3.9%	-11.0%	-14.4%	879	825	794

Location	2001	2006	2011	% Change 2001-2006	% Change 2006-2011	% Change 2001-2011	2001	2006	2011
	Total Farmland (ha)						Average Farm Size (ha)		
Ontario	5,466,233	5,386,453	5,126,653	-1.5%	-4.8%	-6.2%	92	94	99
Eastern Ontario	1,002,046	973,568	913,832	-2.8%	-6.1%	-8.8%	107	110	114
City of Ottawa	120,452	114,674	108,587	-4.8%	-5.3%	-9.9%	91	91	96

Source: Statistics Canada - 2011 Census of Agriculture

The statistics show the general decline in the number of reporting farms together with the decline in the amount of land in agricultural production. At the same time the average size of farms is increasing. These trends are common to eastern Ontario and the Province as a whole. Parcel size was a factor in the O-C LEAR and the relationship between parcel size and farm sizes is discussed in more detail later in this report.

LEAR REVIEW

At the basis of the identification of prime agricultural areas is the evaluation of the land base and the soil capability for agriculture. The PPS references the Canada Land Inventory (CLI) soil classification system. However, soil capability is not the sole determinant of the long term economics and desirability of the land for agriculture. Agricultural improvements to the land can enhance productivity of the soil and surrounding land uses can generate conflicts that make normal farming operations difficult.

The Land Evaluation and Area Review (LEAR) system provides a mechanism to consider both a land's capability to support agriculture and the local conditions and influences on farm operations. The Ministry of Agriculture, Food and Rural Affairs' "*Guide to the Land Evaluation and Area Review (LEAR) System for Agriculture*" was revised in 2002. While still a draft, this Guide is intended to assist municipalities in developing their own municipal LEAR systems. Municipalities may modify the LEAR from that demonstrated in the Guideline to reflect the local circumstances. Ministry involvement in the development or review of the municipal LEAR system is required.

A LEAR system has two basic components:

1. Land Evaluation (LE) focuses on the physical capability of the soil to support crops. The key source of this information is the Canada Land Inventory (CLI) mapping provided by the Province. The Canada Land Inventory ranks soil capability into seven classes with the highest, Class 1, having the highest suitability for agricultural use and no limitations for common field crop production. Each subsequent class has a progressively greater degree of hazard or limitation for field crop production. Where available, CLI mapping may be supported by more detailed soil capability information obtained through site specific agricultural assessments of the land. The LE score for a parcel is based upon the average capability of the soils on the parcel (see Soil Capability page 8).
2. Area Review (AR) is intended to identify and evaluate other factors that either support or restrict ongoing agriculture on the parcel. These can be parcel size, the current use of the parcel or the uses surrounding the parcel. The AR component is determined as the combined impact of these separate elements.

The relative weight given to the two components can vary, however the Ministry's Guide requires that the Land Evaluation (LE) component be not less than 50% of the combined score for the parcel being evaluated. The total of the parcel LE and AR scores are used to determine if the parcel is a candidate for protection as part of the City's Agricultural Resource Area.

The O-C LEAR used the Canada Land Inventory mapping available in 1997 and established that the soil capability (LE) component comprise 70% of the LEAR score for the parcel. The three other factors (AR) were lot size, the proportion of the site used for agriculture and the impact of surrounding conflicting uses.

LEAR Working Group

As required by the Ministry's Guide, the review of the O-C LEAR was undertaken in conjunction with the participation of the LEAR Working Group. The Working Group was comprised of representatives of the farming industry including members of the two branches of the Ontario Federation of Agriculture, representatives of the development industry, two rural Councillors, and City staff. The Working Group was also assisted by a consultant agrologist and representatives of both the Ministry of Agriculture Food and Rural Affairs and the Ministry of Municipal Affairs.

Study Area

When determining the study area for the updated LEAR, the Working Group relied upon the Provincial Guideline which provides some flexibility in choosing what lands may be considered and allows the focussing of the study to efficiently use resources and optimize analysis. The Guide requires that when determining the study area that:

“Those lands that have been committed for non-farm uses within an approved Official Plan or Zoning By-law and which consist of a substantial size should be excluded (e.g. urban areas).

Smaller sites that may have been committed to non-farm uses but are located within the larger agricultural area should be included within the LEAR Study Area. In addition physical features such as wetlands, watercourses (e.g. lakes and rivers), forests should be included.”

All settlement areas (the urban area and villages) together with the National Capital Greenbelt were excluded from the Study Area. The Greenbelt was not included as part of the Study Area because the agricultural areas within the NCC Greenbelt have been determined through the National Capital Greenbelt Plan.

A number of mineral aggregate areas, wetlands and lands committed to other uses such as employment areas, commercial and residential subdivisions are also found in the rural area. While these lands were assessed in the LEAR review and analysis they were not scored in the final mapping.

The LEAR analysis focused only on lands within the City of Ottawa boundaries and did not compare results with LEAR or other studies in neighbouring municipalities. However, when analyzing the candidate lands for inclusion into the Agricultural Resource Area, the proximity of agricultural lands designated in neighbouring municipalities was considered.

Evaluation Units (EU)

The area or parcel of land that will be used as the basis of the LEAR system is known as the Evaluation Unit (EU). In many other LEAR systems for farming communities' concession lots seem to be preferred as the basis for the LEAR systems. Concession lots are often chosen in these communities because the original lot fabric is relatively intact or because the necessary information needed for a LEAR is only available at a lot and concession scale. In municipalities like Ottawa, where the rural lot fabric is very fragmented, ownership parcels

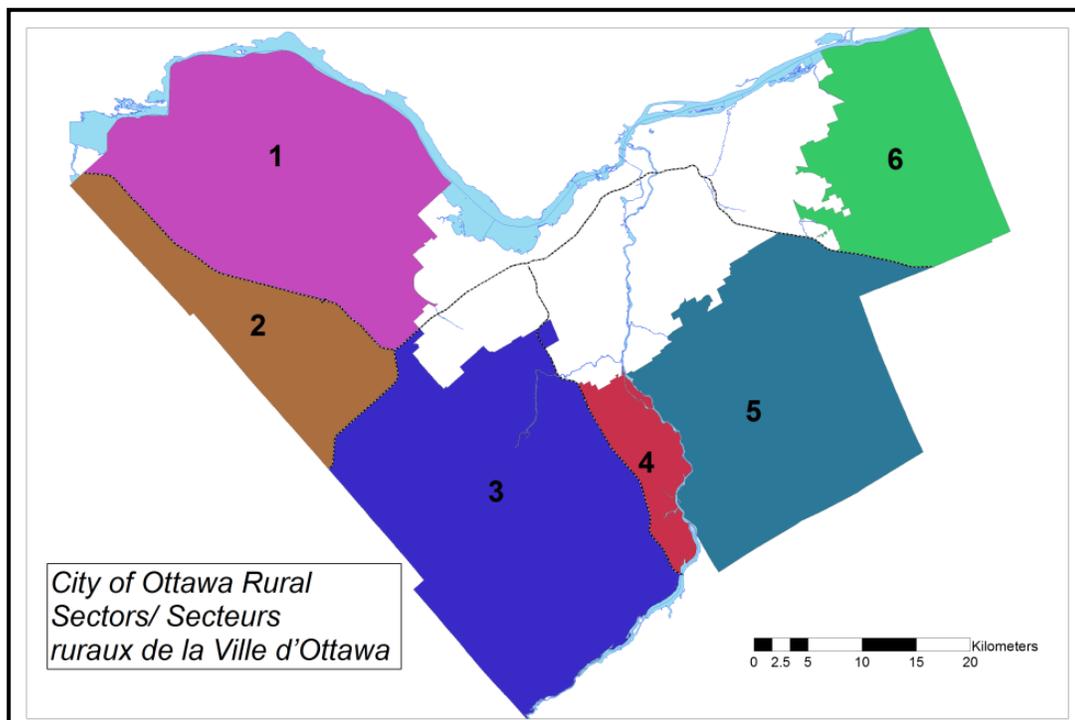
have been used as the basis of LEAR models. In these cases information at the scale of ownership parcels must also be available.

The City of Ottawa maintains and updates detailed property information at the individual parcel scale. The review of the City's LEAR continues to use the property parcel as the Evaluation Unit (EU) and basis for analysis.

Information was compiled for each EU and analysed using Geographic Information System (GIS) software linked to the City's property information system. Each property was assigned a unique LEAR Identification Number (LIN).

To simplify analysis of many of the LEAR criteria, the rural area was also divided into discrete sectors shown in Figure 3. These areas are generally bounded by major watercourses and 400 series highways. Due to the size of these roads and watercourses land use impacts were not considered to cross these boundaries. The LEAR Identification Number (LIN) also incorporates the sector number.

Figure 3 - LEAR Sectors



There are also over 20,000 small lots 1 ha or less in area in rural Ottawa. These parcels include residential lots, parts of road and railway rights of way and other remnant parcels, such as one foot reserves. These small parcels were also excluded from the LEAR scoring in order to expedite analysis. These parcels were used in the assessment of the relevant Area Review (AR) components of the LEAR but were not scored in the final mapping.

Land Evaluation and Area Review

LAND EVALUATION (LE)

Soil Mapping

The Land Evaluation LE component of the O-C LEAR relied upon the original Canada Land Inventory (CLI) mapping which ranks soils into seven classes based upon their relative capability to support crop production. The CLI soil mapping for the O-C LEAR was produced by the Ontario Institute of Pedology, which was disbanded in the late 1990s. The Ministry of Agriculture, Food and Rural Affairs (OMAFRA) is now responsible for the CLI mapping and its periodic update.

The digital CLI mapping, obtained by the City from the Ministry of Agriculture, Food and Rural Affairs in 2010, included a number of modifications that impact the LEAR review. The general scale of mapping was standardized across the city and differences between the maps for the near urban lands and other rural wards were resolved. These modifications also appear to include some updates to soil types and the soil capability classes. In some areas, the agricultural capability increased and in others it decreased. In some instances, the new soil data also identifies soil complexes. These complexes are areas characterized by a predominant and a subordinate soil which may have different qualities and capability. In these cases the new soil data includes the proportion and capability of the subordinate soil. This additional information allows for a more accurate assessment of the overall soil capability of the parcels where these complexes have been identified.

Together these changes in the soil mapping have an impact on the LEAR results for individual properties.

Productivity and Soil Capability

The classes in the CLI rating of soils and the scoring system used in LEAR systems is based upon the observed relative productivity of each class of soil compared to Class 1 soils. This relative ranking is referred to as a Productivity Index. A number of published soil productivity indices are available and generally they are based upon common field or forage crop yields or economic characteristics. Four published Productivity Indices are summarized in Figure 4 together with the Provincial Field Crop Points and the Soil Capability Points in the O-C LEAR in 1997. The productivity indices included here are all different but have similar relationships between the class 1, 2 and 3 soils. The Provincial Guide has a similar relationship in the field crop scoring system but unlike the productivity indices the basis for that scoring is not identified in the guide or other literature.

Figure 4 - Productivity Indices, Provincial and Ottawa-Carleton Soil Capability Points

Soil Capability Class (CLI)	Published Productivity Indices				LEAR LE Scores	
	Hoffman	Noble	Anderson	Market Value	Provincial Field Crop points	O-C LEAR Soil Capability points*
1	1	1	1	1	1	1
2	0.8	0.87	0.8	0.92	0.80	1
3	0.64	0.75	0.66	0.72	0.65	0.8
4	0.49	0.33	0.58	0.30	0.55	0.5
5	0.33	0.25	0.53	0.15	0.5	0.3
6	0.17	0.2	0.44	0.10	0.4	0.2
7	0.02	0.18	0.37	0.07	0	0

Source: Data compiled by AgPlan – M. Hoffman

** Points adjusted to the same scale as Provincial field crop points. The maximum O-C LEAR soil capability points for Class 1 soils was 10 points.*

The interesting aspect of this table is how different the O-C LEAR soil capability scoring was compared to the productivity indices and minimum Field Crop Points in the Provincial Guide. The anecdotal reason for the 1997 scoring in the O-C LEAR was the limited amount of CLI Class 1 soil (approx. 850 ha) present in Ottawa. Due to their prominence, Class 2 and Class 3 soils were deliberately rated higher by the O-C LEAR than the generally recognized productivity indices would suggest.

When reviewing the soil capability scoring in the O-C LEAR the LEAR Working Group agreed that the revised LEAR should no longer exaggerate the productivity of the Class 2 and Class 3 soils. There was no scientific basis for the O-C LEAR scoring in 1997. Similarly the Province does not provide evidence to support the Provincial Field Crop Points in the Provincial Guide. However, the Provincial Field Crop scoring system more closely models the relative productivity reflected in the published productivity indices. The Working Group chose to replace the existing O-C LEAR Soil Capability Points with a scoring system that uses the Provincial Field Crop points scale.

The Revised Land Evaluation (LE) Scoring

The scoring of the revised Land Evaluation (LE) factor for a property is based upon the percentage of the property in each soil class or classes where soil complexes are identified.

Points are allocated for the percentage of each soil class on the property and the total represents the property soil points for the parcel. As discussed above the points score selected for the revised LEAR follows the Provincial field crop scoring and is adjusted to the O-C LEAR max score of 10 points as shown in Figure 5 below. Since the O-C LEAR scoring is out of a total of 200 points a weighting will be added to the LE component as part of the final parcel score.

Figure 5 - Land Evaluation (LE) Scoring

Soil Capability Ranking (CLI)	% of Property	Soil Capability Points	Property Soil Points % x SCP
1		10	
2		8	
3		6.5	
4		5.5	
5		5	
6		4	
7 & Organic		0	
	100%		Total

AREA REVIEW (AR)

Area Review (AR) looks at the factors that contributed to the stability of the property to support agricultural activities. The O-C LEAR identified three factors that were measurable and, at the time, were considered to influence the long term potential for agriculture. The factors were:

- The amount of the parcel that is currently being used for agriculture
- The size of the parcel and
- Whether or not there were conflicting uses (Urban and Village Communities and Rural residential subdivisions) within 305 m (1000ft) of the parcel.

Each of these criteria was reconsidered as part of the review and some were modified as described in the following sections.

LAND USE (AR-1)

The O-C LEAR considered that the degree to which the land was currently used for agriculture was an indication that the property has the ability to sustain that use. An agricultural use was defined in the O-C LEAR as follows:

“Agricultural uses include areas that have been under active cultivation (i.e. the land has not regenerated into scrub and forest), pasture, fences, streams, hedgerows, woodlots under 2ha in size, and buildings.”

The use of the land remains a good indicator of the agricultural potential of the land and this AR factor and the scoring was unchanged by the LEAR Working Group. The 2010, City of Ottawa Land Use Survey was the primary source of land use information. This Survey information distinguishes between agricultural lands and idle or shrub land. The land use information was then updated where more recent assessment information was available, and through the review of the City’s 2014 and 2015 aerial photography and field inspections.

The percentage of the parcel that meets the definition of agricultural uses identified above was calculated and the parcel was scored using the ranges and points shown in Figure 6 below.

Figure 6 - Land Use (AR-1) Scoring

AR 1 - % of Property in Agriculture	Agricultural Use Points	AR-1 Score
85 - 100%	10	
70 - <85%	9	
55 - <70%	8	
40 - <55%	7	
25 - <40%	4	
10 - <25%	2	
0 - <10%	1	
		Points

SURROUNDING LAND USE (AR-2)

The O-C LEAR assessed the impact of conflicting uses adjacent to the parcel being evaluated on the assumption that the proximity of these uses may have a negative impact on existing farm operations or may limit expansion of farm operations in the future. At the time, these surrounding land uses were defined as land designated in the City's Official Plan as village or urban area (settlement area) or land in a registered or draft registered residential plan of subdivision (commonly referred to as a country lot subdivision). Farm dwellings and non-farm residential severances were not considered conflicting uses. In O-C LEAR the impact of the settlement areas and residential subdivisions was determined by assessing the proportion of the parcel that was within 305m (1000ft) of the these uses.

The Provincial Guide recommends that large areas dedicated to other uses such as settlement areas (urban and village areas) should not be included in the LEAR analysis. Though discussed a number of times through the review, the decision was made to not include urban and village settlement areas as part of the study area. This means that these areas would not be factored into the assessment of surrounding uses. The surrounding use factor from the O-C LEAR was replaced as a result of this decision.

The Provincial Guide suggests a surrounding use factor that ranks the parcel based upon the percentage of the land within 1km that is also in an agricultural use. A surrounding use factor based upon this model was rejected by the Working Group because it assumes that any non-agricultural use would represent a conflict. For example, surrounding forests, wetlands and any agriculturally-related commercial or industrial uses would be considered conflicting and lower the LEAR value of the parcel being evaluated.

The factor was finally modified to measure the percentage of surrounding land that is non-conflicting with agriculture. All uses identified in the city's land use survey, with the exception of vacant and developed residential lots (severance or subdivision) were considered to be non-conflicting with agriculture. Dwellings on land being used for agriculture were considered as farm dwellings and therefore also non-conflicting uses.

This factor was tested with influence distances of 300m, 500m and 1km using a point scoring system similar to the O-C LEAR. The 1 km influence distance was rejected because it had little to no influence on the LEAR scores. The 300m distance had the greatest impact but was rejected and the 500m distance was finally selected. This area of influence was preferred as it was similar to the other standard influence distances recognised in the rural area for animal barns and quarry operations.

The second AR factor was therefore modified to be a measure of the proportion of land within 500m of the parcel that is in a non-conflicting land use. The land use categories were based upon the City's 2010 Land Use Survey as updated. A parcel with 100% non-conflicting uses within 500m receives a top score of 10 points.

The scoring system for this factor is shown in Figure 7 below.

Figure 7 - Non-conflicting Land use (AR-2) Scoring

AR 2 - % of a Non-conflicting uses within 500 m of parcel	Non-Conflicting Points	AR-2 Score
100%	10	
85 - 99%	8	
50 - <85%	4	
0 - <50%	0	
		Points

PARCEL SIZE (AR-3)

The O-C LEAR considered that parcel size influenced the potential for agriculture and stated:

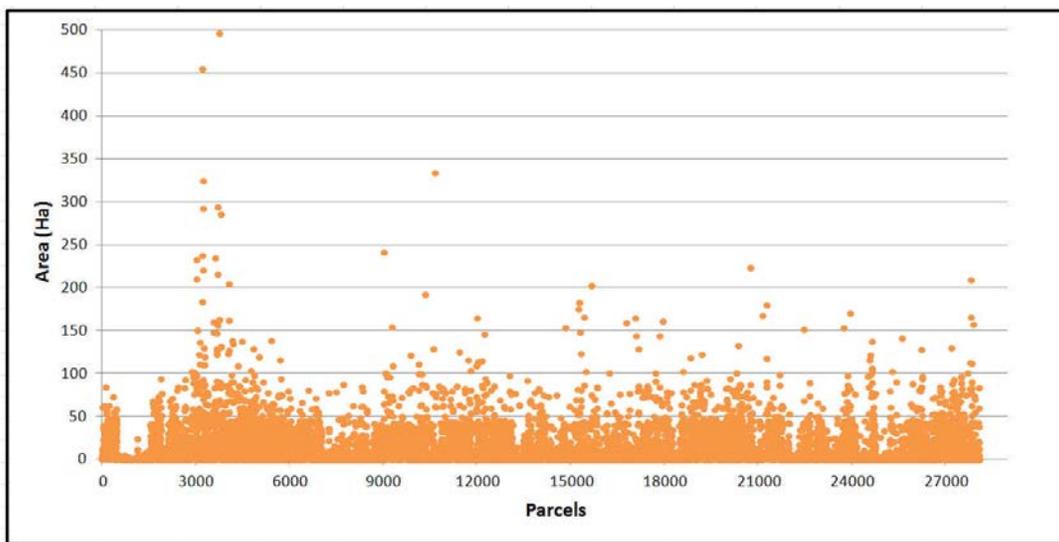
“Larger farm Parcel sizes assist in maintaining the flexibility to accommodate a range of agricultural activities and ensure long term viability. Conversely smaller parcels are less attractive for long term agriculture”.

The O-C LEAR scoring for this factor gave the highest score to parcels 36.4ha (90 acres) in area and greater and zero points to parcels of land 4.5ha (10 acres) and less in area.

The rural consultation that formed part of the Official Plan review undertaken in 2007-2009 generated considerable discussion about the changes occurring in agriculture, not only the types of agriculture emerging but also the need to promote a range of lot sizes to accommodate different types of farm products. The **Rural Discussion Paper – Vision for Agriculture in Ottawa**, produced as part of that Official Plan review in 2008, considered that the O-C LEAR was biased against smaller lots. The Discussion Paper was a community produced document that recommended an aggressive restructuring of the O-C LEAR to ensure lots greater than 4.5ha (10 acres) were assigned maximum points and that conversion of agricultural land to other uses could not happen.

The lot fabric in rural Ottawa is highly fragmented compared to many other large rural municipalities. Figure 8 below, illustrates the distribution of parcel sizes in Ottawa. The average parcel size is approximately 15ha (37 acres). This includes parcels not being farmed. When the focus is narrowed to consider only parcels that have at least 50% of their area in agricultural use, the average parcel size only increases to 23ha (56 acres). Many parcels do not include agriculture, the biggest parcels generally being natural areas. Only 45 parcels that include some agricultural land exceed 100 ha in size. Of those only two parcels exceed 200 ha in size.

Figure 8 - Parcel Size Distribution

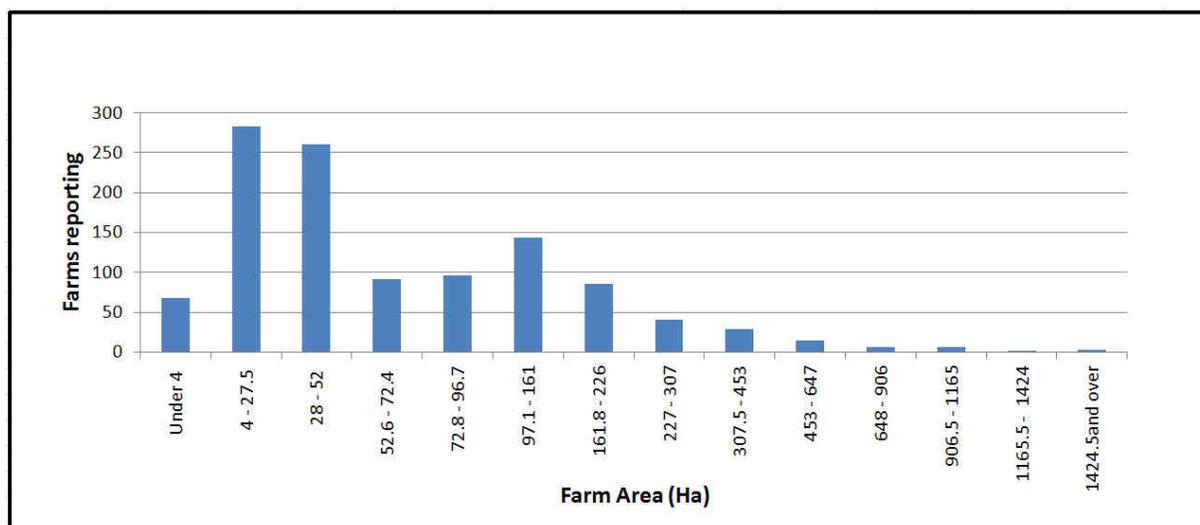


Source: City of Ottawa

Despite the small proportion of large agricultural lots in Ottawa over 100 farms reported a farm operation size of over 200ha in the 2011 Census of Agriculture (See Figure 9). This supports the general observation that farmers are purchasing or leasing multiple parcels of land to increase the size of farm operations. These acquired parcels can vary in size and may not necessarily be contiguous with the principal farm.

Smaller parcels have the advantage of being more affordable to farmers wishing to expand their business. The recognition and protection of smaller parcels therefore remains an important consideration in terms of how smaller lots are scored in the LEAR Review.

Figure 9 - Distribution of Ottawa Farms Operations by Size



Source: Statistics Canada 2011 Census of Agriculture

The LEAR working group recognized the importance of protecting smaller lot sizes and proposed changes to the point scores for the revised LEAR but did not decrease the size of lot that would be assigned a maximum score. Each lot size category below 36.4ha (90acres) was increased as shown in Figure 10 below to give more points to the average parcels above 20ha and to be consistent with the Provincial Guideline scoring for parcels smaller than 20ha.

Figure 10 - Parcel Size (AR-3) Scores

AR-3 - Parcel Size	Points	AR-3 Score
36.4 +ha	10	
20.2 - <36.4 ha	9	
10.1 - <20.2 ha	6	
4.5 - <10.1 ha	4	
<4.5 ha	1	
		Points

LEAR SCORING

In the O-C LEAR the weight given to the LE and AR factors was 70:30 respectively. The validity of this LEAR ratio was assessed through the review by comparison with the Provincial LEAR model which weights the LE and AR factors equally (50:50). Each version of the revised LEAR that was mapped and tested included both models to allow an ongoing comparison of the results. Generally, the Provincial model (50:50) identified more land with higher LEAR values but at the same time included more soils that are Class 4 and below. This is due to the greater influence of the non-soil factors.

After comparing the results of both models, the Working Group confirmed their preference to continue with the 70:30 model of the O-C LEAR. This model places greater emphasis on two important factors: the soil capability, which forms the basis of the Provincial definition of prime agricultural land, and current agricultural use.

The O-C LEAR ranked each parcel out of a total potential score of 200 points. The Working Group found no basis to change this current scoring system for the new LEAR. Using a similar scoring system also allows direct comparison between the old and new LEAR.

In order for the Land Evaluation (LE) factor to represent 70% of the total LEAR score, the property soil points are given a weight of 14 in the total score. This means that a parcel with a perfect soil score of 10 points would be given 140 points out of 200 points in the final LEAR score.

The three Area Review (AR) factors combined were also weighted to represent 30% or 60 out of 200 points in the final LEAR Score. However, the three components of the AR factor were weighted the same as the O-C LEAR as follows;

- Agricultural use (AR-1) was considered the most important single AR factor and was given a weight of 3 so that a perfect AR-1 score was 30 points out of 200.
- Surrounding use (AR-2) was given a weight of 1 so that a perfect AR-2 score was 10 points out of 200.
- Lot size (AR-3) was given a weight of 2 so that a perfect AR -3 score was 20 points out of 200.

The LEAR scores for all properties in the rural area were calculated using the City's geographical information system (GIS) and using the above scoring and weighting system. The results have been displayed thematically in the LEAR Map attached to this report.

The individual LE and AR scores for each property are provided in LAND EVALUATION AND AREA REVIEW FOR AGRICULTURE (LEAR) Volume 2

The results are sorted by LEAR Index Number (LIN) and provide the calculated "LE" and "AR" scores as well as the final LEAR score for each scored property. Generally properties smaller than 1ha were not scored.

AGRICULTURAL POTENTIAL

Criteria for Designation

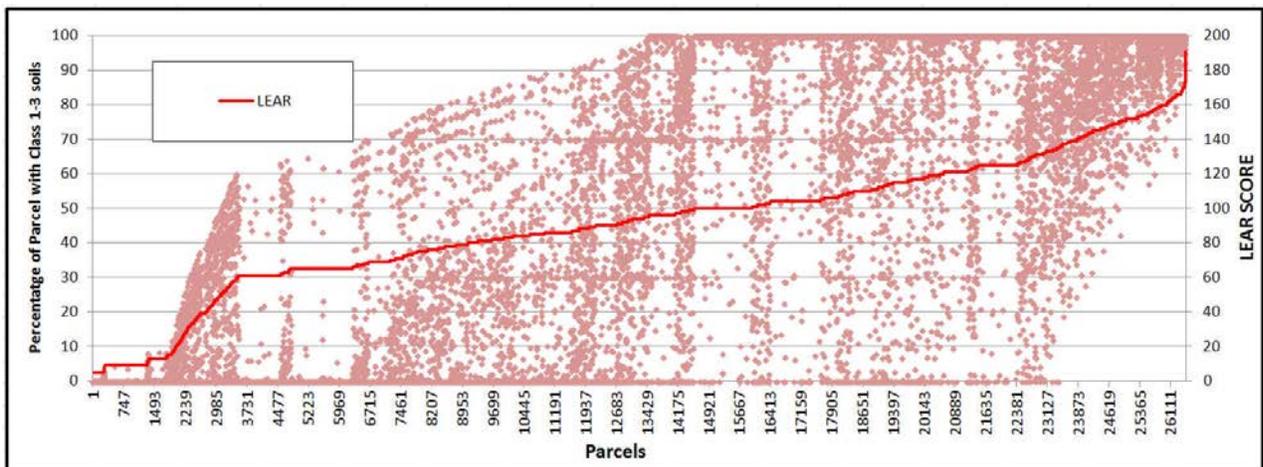
The LEAR score is designed to form the basis of the decision about what parcels of land should be considered as candidates for inclusion in the City’s Agricultural Resource Area. The LEAR score that determines whether a parcel is a candidate for designation is called the threshold score. The threshold score used by the O-C LEAR was 130 points. No documentation from the O-C LEAR is available to explain the basis for the 130 threshold.

It was recognized other LEAR systems use a range of thresholds ranging from approx 48% to 82% of the maximum LEAR score with a number at the average threshold of 65% of the maximum LEAR score. It has been suggested that a threshold score that is 65% of the maximum LEAR reflects the Provincial Field Crop Points for the Class 3 soil group. This may have been the basis for the 130 threshold used in the O-C LEAR in 1997. Because this review has resulted in changes to some of the factors, the threshold score was reviewed by City staff compared the new LEAR data with the principles established in the Provincial Policy Statement.

The Provincial Policy Statement requires municipalities to protect prime agricultural areas for long-term use for agriculture. A prime agricultural area can be generally defined to be an area that is predominantly comprised of Class 1, 2 and 3 soils but may include land with lower quality soils and areas where there is a local concentration of farms currently supporting ongoing agricultural use.

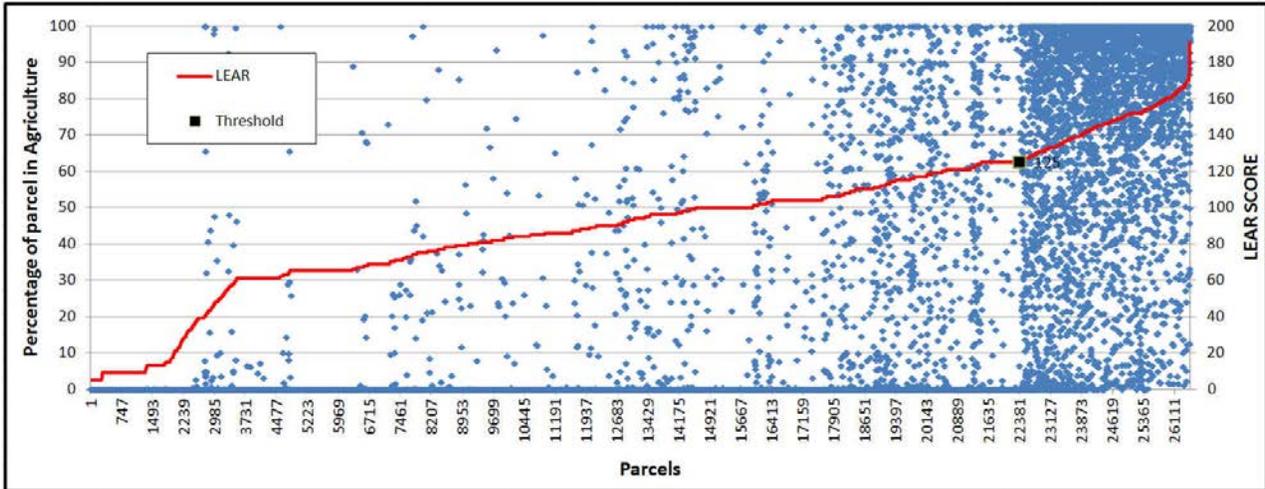
Using LEAR ranking as the common element, the data on soil class and agricultural use were graphed for each property as shown in Figures 11– 14 below. Figure 11 graphs the proportion of Class 1, 2 & 3 soils on each parcel. It is obvious that these classes of soil are quite common and at varying proportions on most parcels and across a wide range of LEAR scores. The soils tend to be concentrated in lower proportions at lower LEAR values and in higher proportions at higher LEAR values.

Figure 11 – Soil capability classes 1, 2 & 3 as a percentage of the land parcel sorted by LEAR score



The distribution of ongoing agricultural use (see Figure 12 below) is similar but is more clearly concentrated than the distribution of the soils. While agriculture is present in varying proportions across most of the range of LEAR scores it is more concentrated in parcels with LEAR values above 125. At this threshold, the steady presence of class 1, 2 & 3 soils is also obvious. This threshold point just over a LEAR score of 125 is identified in Figure 12.

Figure 12 – Ongoing Agriculture as a percentage of the land parcel sorted by LEAR score



Both Figures 11 and 12 record the percentage of each lot that contains Class 1, 2 and 3 soils and land used for agriculture. While Figures 7 and 8 reflect the presence of good soils and agriculture they do not reveal the actual amount of land captured by the higher LEAR scores. Figures 13 and 14 record the hectares of CLI class 1-3 soils and land in agricultural use as the LEAR score increases.

Figure 13 – Cumulative area of soil classes 1, 2 and 3 sorted by LEAR Score

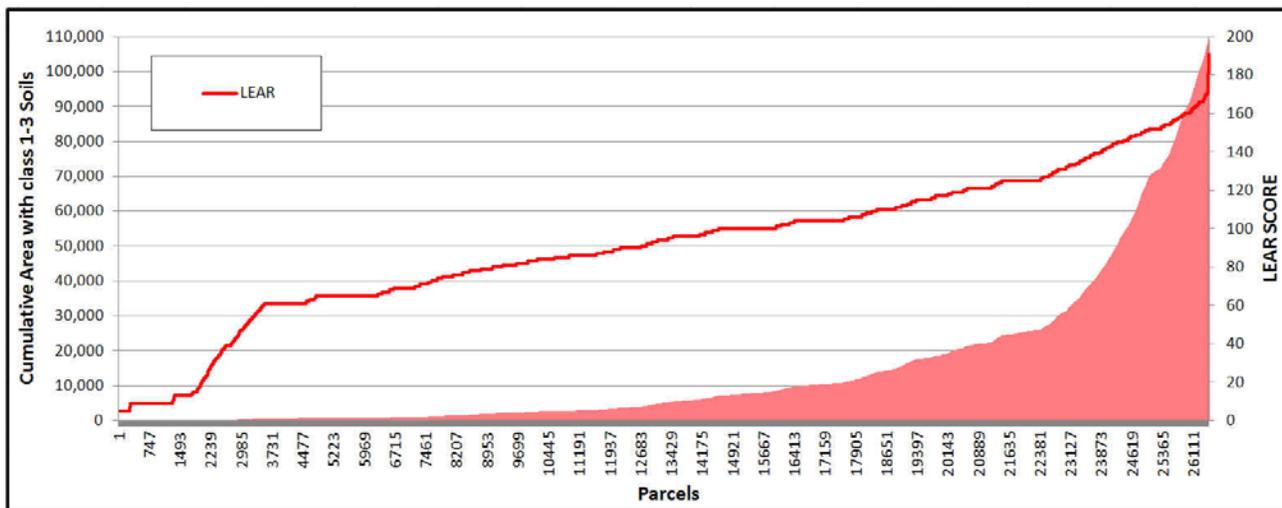
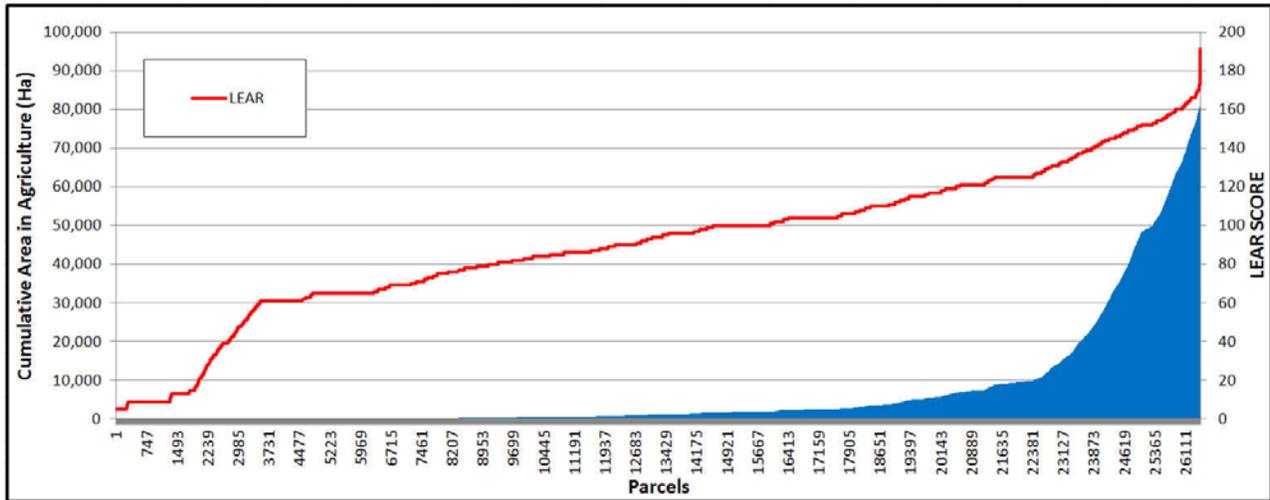


Figure 13 illustrates how quickly the area of land containing Class 1, 2 and 3 soils increases as LEAR scores increase above a score of 125. In a similar manner the amount of land in agricultural use (see Figure 14) also increases rapidly for properties with a LEAR score above 125.

The general conclusion is that the bulk of the land comprised of the prime soil classes and ongoing agriculture is found on the lots with LEAR scores above the threshold of 125.

Figure 14 - Cumulative area in ongoing Agriculture sorted by LEAR score



For these reasons properties with LEAR scores greater 125 were reviewed as potential candidates for inclusion as part of the City’s Agricultural Resource Area. A threshold of 125 represents 62.5% of the total potential LEAR Score.

Criteria for Agricultural Areas

The Provincial Guide for the development of LEAR systems also suggests that prime agricultural areas should generally be 250ha or more in area. This template area was used as the basis for determining the City’s Agricultural Resource Area following the development of the O-C LEAR.

This figure of 250ha area is not an absolute size and smaller areas may in fact be considered, however, a smaller template size needs to be justified as part of the LEAR review. This size is also a guide for designating a new Agricultural Resource Area, or for the removal of land from within an existing designated Area. Within new areas the majority of land should exceed the threshold LEAR value adopted by the municipality and should be predominately comprised of soil classes 1, 2 and 3.

The LEAR Working Group did not consider that a different template area was necessary as part of the revision of the City’s LEAR.

HOW THIS LEAR WILL BE USED

Defining the Agricultural designation

The LEAR System is intended to be used by the City to identify and confirm those parcels of rural agricultural land that will comprise the City's Agricultural Resource Area following the requirements of Section 2.3 the Provincial Policy Statement (PPS, 2014). This is a high level planning review that is dependent upon available information much of which is at a very large scale. While it is valid for policy purposes LEAR results should not be solely relied upon for the purposes of detailed planning.

The PPS and the City's Official Plan require the long term protection of the land in the Agricultural Resource Area to protect the land from fragmentation and loss to other uses. For this reason agricultural uses, agriculturally related uses and on-farm diversified uses, as defined in the PPS, are permitted. Lot creation is restricted to avoid fragmentation of farm operations. LEAR is sufficiently accurate for the purpose of the identification of the policy area where these protections are to be provided.

Dealing with non-agricultural uses

The PPS recognizes that other non-agricultural uses may be considered in agricultural resource areas from time to time and that in limited circumstances land may be removed from an Agricultural Resource Area designation. In these cases, LEAR may provide some guidance but should not be solely relied upon to confirm the agricultural priority of the land.

Applications for new non-agricultural uses must be supported by a detailed Agricultural Impact Assessment Study of the land and its surroundings and that assessment must address the tests required in the PPS. The City will also ensure that any future consideration of the expansion of a settlement area boundary, as part of a Comprehensive Review of the Official Plan, and that involves land within an Agricultural Resource Area designation will be guided by an Agricultural Impact Assessment Study that confirms the priority of the land.
