

**MAYFIELD WEST PHASE TWO SECONDARY PLAN:
AGRICULTURAL IMPACT ASSESSMENT**

PART B

PREPARED FOR:



PLANNING & DEVELOPMENT DEPARTMENT
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1. INTRODUCTION

Colville Consulting Inc. was retained by the Town of Caledon (Caledon) to complete the Agricultural Impact Assessment technical study (Study) for the Mayfield West Phase 2 Secondary Plan. As required by the Town of Caledon's Detailed Terms of Reference (DTR), the Study has been prepared in two parts; Part A describes the existing agricultural characteristics within the study area and Part B addresses the potential impact of urban boundary expansion on the agricultural resources and farm operations associated with each of the development scenario. Part A has been completed and a report was submitted to the Town of Caledon in January 2010. Part B should be read in conjunction with the Part A report.

Part B of the study includes an assessment of three land use scenarios and the potential impacts on agriculture associated with each scenario. The impact assessment addresses the consumption of agricultural resources and farm related investments, the effect of the loss of these resources/investments on agricultural operations (e.g., the future viability of an impacted farm operation) and the potential negative impacts of new non-farm development abutting the agricultural area and farm operations. Mitigation measures designed to limit, to the extent possible, the impacts/effects of urban boundary expansion both within and outside of the preferred land use scenario are also provided.

After reviewing the various Part A technical studies and following consultation with the Study Team and the Town's planning staff, three land use scenarios for urban boundary expansion were developed by Urban Strategies Inc. (USI).

The three land use scenarios developed include lands within the Part A study area and lands located east of Hurontario Street which were not assessed in the Part A report. In order to adequately assess the agricultural impact of the land use scenarios, the Town of Caledon Council approved a limited work plan to expand the study area to include the eastern lands. To assess the expanded area, a desktop review of the existing information was completed. To supplement the existing information, field visits were also completed to document the land use and collect information to determine the minimum distance separation (MDS I) requirements.

The Town of Caledon and its consultants will consider the Study's conclusions and its recommendations along with those of the other technical studies being conducted as part of the comprehensive review for the Mayfield West Phase 2 Secondary Plan. The Study findings will assist with the identification of a preferred land use scenario.

1.1 Study Area

The Study Area for Part B includes two distinct areas; lands west of Highway 10 (Hurontario St.) and lands east of Highway 10. As per the DTR, the area described in the Part A report included an agricultural characterization of lands within a Primary and a Secondary study area. The Primary study area is located entirely on lands west of the Highway 10. The Secondary study area includes a one kilometre wide band of prime agricultural area designated lands within the Town's municipal boundaries and surrounding the Primary study area.

The lands east of Highway 10 were added following the development of the three land use scenarios. Those lands adjacent to the urban boundary and identified for potential development areas are considered to be part of the Primary study area. To be consistent with the Part A report, a secondary study area approximately one kilometre beyond the Primary study area was created. The boundaries of the Study Area are shown in Figure 1.

1.2 Study Scope

The Study as outlined in the Detailed Terms of Reference (DTR) includes a copy of Caledon's Draft Agricultural Impact Assessment Guidelines (2003). These guidelines outline the basic steps on which the Agricultural Impact Assessment (AIA) is to follow.

Part B will generally follow sections 2.5, 2.6 and 2.7 of the AIA Guidelines and includes:

- ◆ an assessment of the economic viability of farm operations directly and indirectly impacted by urban boundary expansion and an assessment of the flexibility of those lands not included in the urban boundary for continued agricultural uses;
- ◆ an assessment of the impacts on agriculture such as the direct loss of agricultural resources, the potential impacts/effects on adjacent agricultural operations and their practices, the impact that urban boundary expansion will have on the agricultural character of the broader area and the implications for agriculture in the future;
- ◆ mitigation measures and recommendations designed to eliminate or reduce the severity of impacts on agricultural operations in both the primary and secondary study areas; and
- ◆ assess the degree to which the impacts could be reduced by employing various mitigation measures or selecting one land use option over another.

Part B of the Study assesses the impacts on agricultural resources and farm operations/practices for each of the land use scenarios using the information gathered in Part A of the Study and information gathered subsequent to the completion of the Part A report which primarily deals with the lands east of Highway 10. This information includes a desktop review of existing published information sources, information contained in reports prepared for the Mayfield West Phase 1 Secondary Plan area, and a reconnaissance level land use survey completed in October 2009.

1.3 Land Use Scenarios

Each of the three land use scenarios prepared by USI are shown in Figures 2 through 4.

1.3.1 Land Use Scenario A

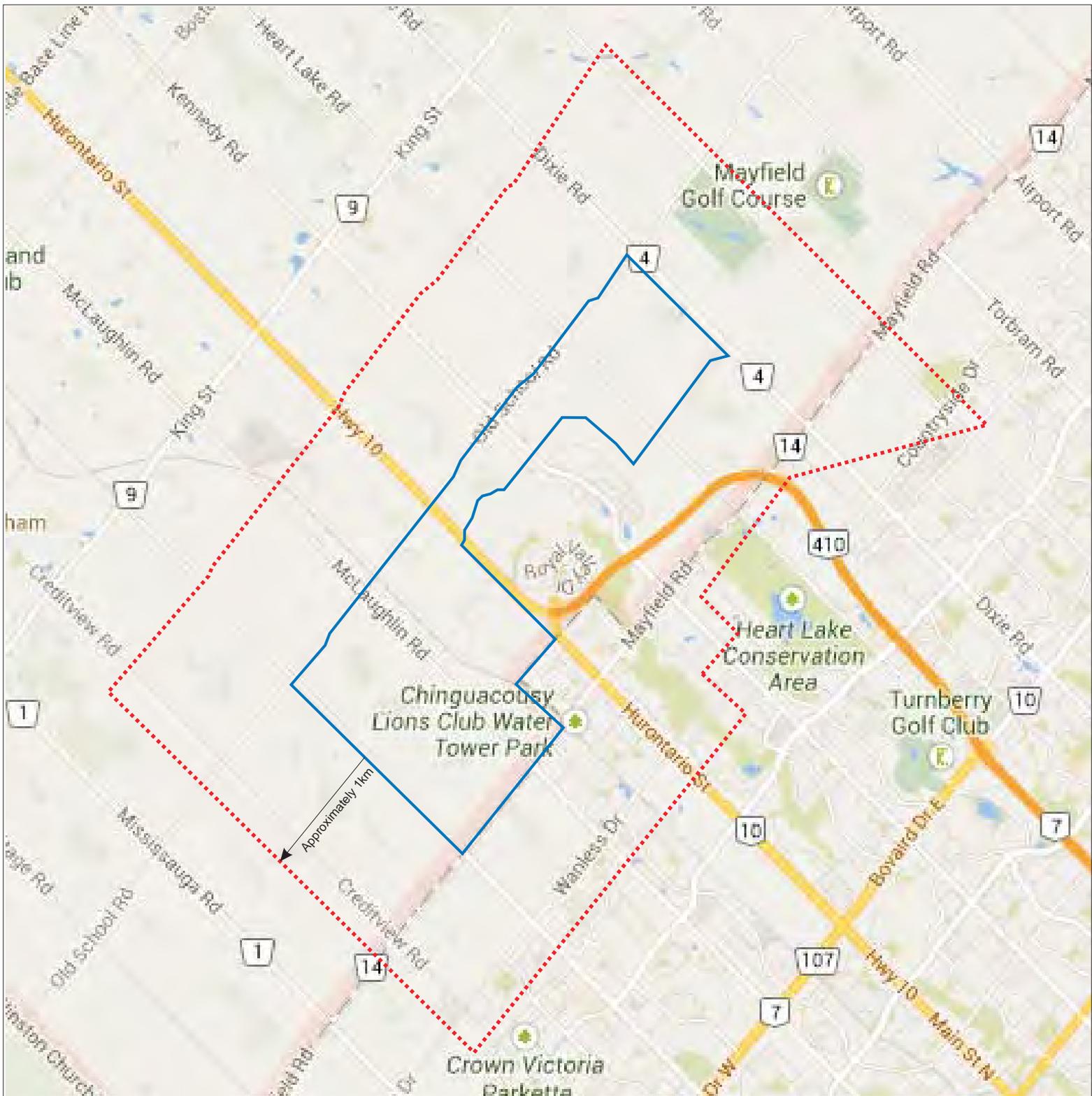
Land Use Scenario A consists of a mix of residential, employment, commercial, institutional and recreational land uses on the west of Hurontario Street and east of McLaughlin Road. The employment lands and a large recreational facility (Tournament Park) are situated north of Etobicoke Creek. This scenario also includes residential, commercial, community services lands and employment lands on the east side of Hurontario Street.

1.3.2 Land Use Scenario B

All of Land Use Scenario B is located west of Hurontario Street. This development scenario includes the lands south of Etobicoke Creek between Hurontario Street and Chinguacousy Road and the area north of Etobicoke Creek between Hurontario Street and McLaughlin Road. The residential lands will be situated west of the railway tracks and extend to Chinguacousy Road. The area east of the railway tracks will include a mix of employment, commercial, institutional and recreational lands. All of the area north of Etobicoke Creek is shown as employment lands.

1.3.3 Land Use Scenario C

Land Use Scenario C proposes to develop all of the lands south of Etobicoke Creek and between Hurontario Street and Chinguacousy for residential, commercial, institutional and recreational uses. Under this scenario, all of the employment lands will be located adjacent to existing employment lands east of Hurontario Street along Heart Lake Road and south of Old School Road.



Legend

- Primary Study Area Boundary
- ⋯ Secondary Study Area Boundary

Figure 1
Study Area Boundary

Agricultural Impact Assessment

Mayfield West Phase II Secondary Plan

Prepared for:



Prepared by:



MW2: Scenario A

Villages Nestled Around Mayfield West – Phase 1 in an Agricultural Setting

This scenario positions new neighbourhoods around Mayfield West – Phase 1, while conserving the best agricultural lands in the western portion of the study area for agricultural uses. Each neighbourhood has a mixed-use node at its heart with both commercial and amenity uses. Scenario A is the most integrated with Phase One, and conversely, the most distinct from Brampton.

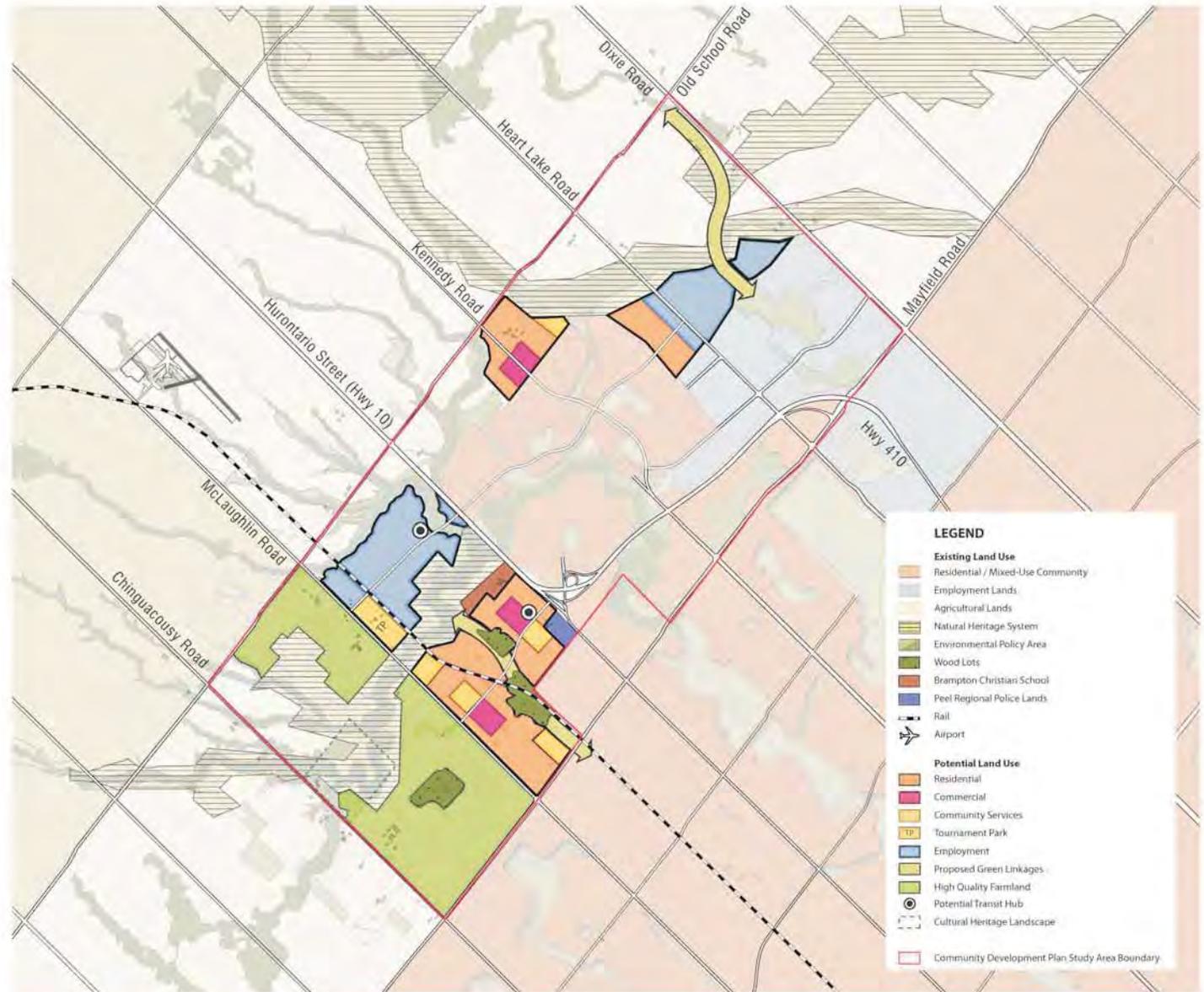
Proposed new development is planned around Mayfield West Phase 1 and Valleywood, and linked together by new east-west and north-south road connections. As development and commercial uses are evenly dispersed, improved access to Highway 410 is not proposed.

The Scenario also proposes two north-south green linkages, connecting existing woodlots and natural areas in Brampton to the Greenbelt to ensure their vitality as natural habitat.

The Scenario proposes two new centres of employment. The first, along the Heart Lake Road spine and north of existing designated employment lands. The second, located west of Highway 10 and north of the Etobicoke Creek, ringed on three sides by an exceptional natural setting and with good visibility from Highway 10, is envisioned as a prestige employment centre.

A tournament park is located along McLaughlin Road and tucked into the prestige office campus where sound and light can be insulated from residential neighbourhoods.

This scenario accommodates approximately 11,600 new residents and approximately 5,000 new jobs by 2031 within an expanded urban boundary.



Mayfield West Phase 2 - Town Of Caledon
MW2 SECONDARY PLAN

SCENARIO A

URBAN STRATEGIES INC

**FIGURE 2
SCENARIO A**

MW2: Scenario B

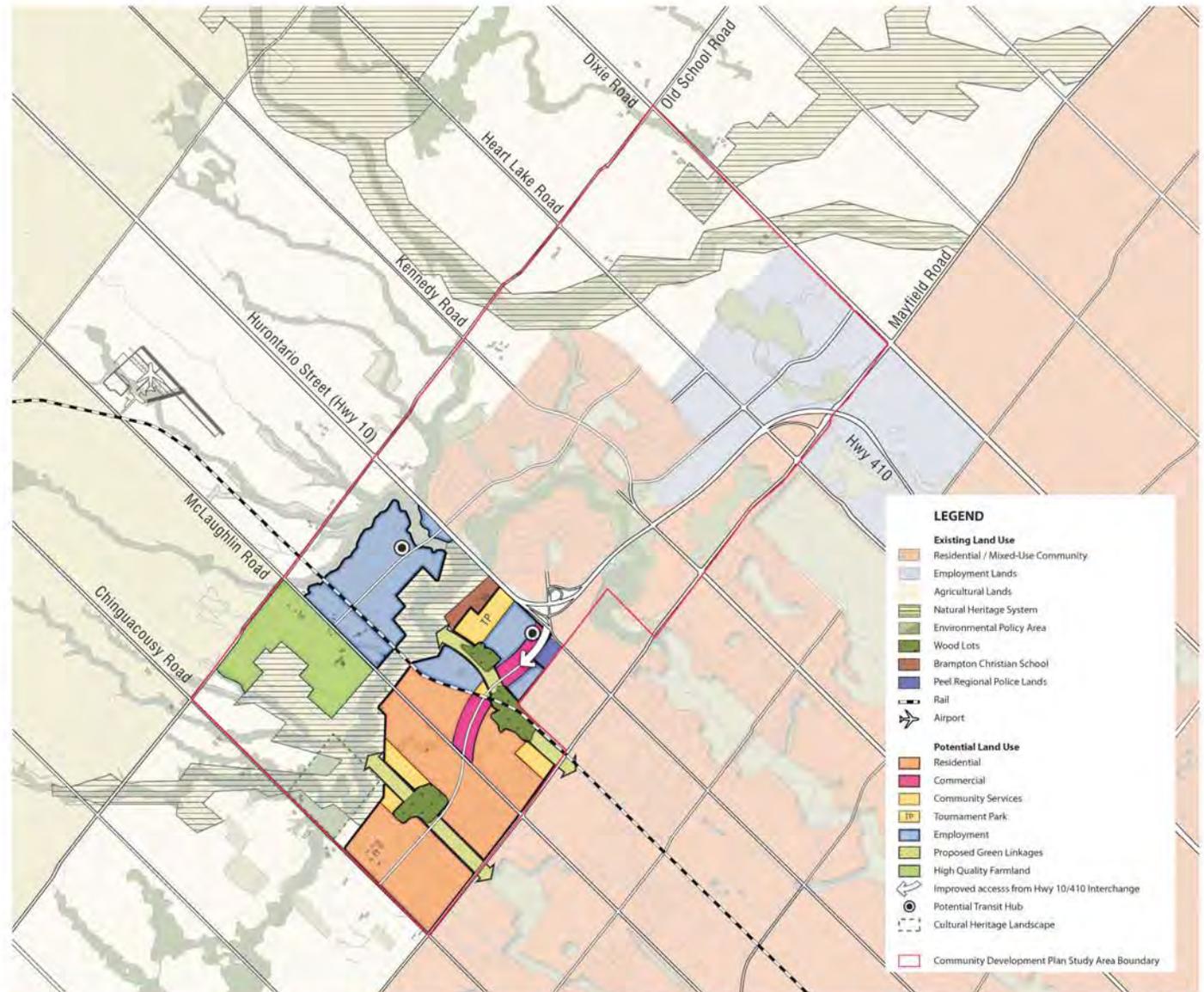
New Residential Neighbourhood Built Around a Main Street-type Commercial Corridor and a Substantive New Employment Area

This scenario locates a new residential neighbourhood as well as new employment uses, and new commercial uses west of Highway 10/410. A main street-type commercial corridor extending from Highway 10 to McLaughlin Road anchors MW2. Improved east-west connections at the 410/Valleywood interchange are included to ensure sufficient access. The Peel Region Police lands have been reconfigured to accommodate this access.

The scenario proposes two green linkages, both west of Highway 10, that connect existing woodlots and natural areas in Brampton to the Greenbelt, and provide valuable ecological services. New community assets, are proposed along the green linkages, including new park space and schools, as well as a tournament park south of the Brampton Christian School.

Significant employment lands are proposed west of and along Highway 10, including both north and south of the Etobicoke Creek, supporting MW1 to develop as a complete mixed-use community. New employment lands are envisioned as prestige employment to attract a higher density and higher quality of jobs appropriate for an integrated community.

This scenario accommodates approximately 11,600 new residents and approximately 5,000 new jobs by 2031 within an expanded urban boundary.



Mayfield West Phase 2 - Town Of Caledon
MW2 SECONDARY PLAN

SCENARIO B

URBAN STRATEGIES INC.

FIGURE 3
SCENARIO B

MW2: Scenario C

Regional Commercial Centre and Local Neighbourhood Centre along McLaughlin Road

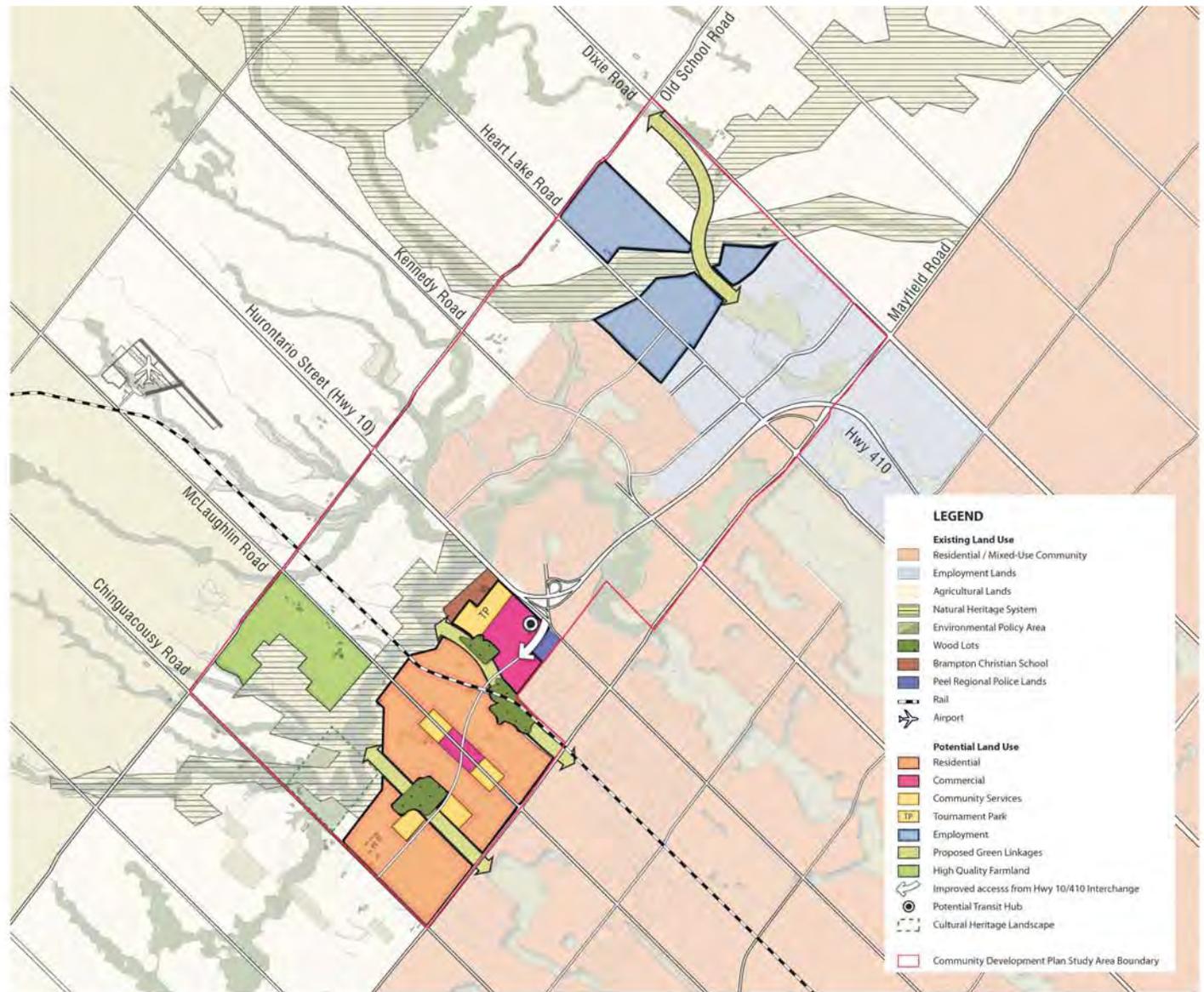
This scenario is anchored by a regional commercial centre along Highway 10. Improved east-west connections at the 410/Valleywood interchange are required to support the commercial centre, and the Peel Region Police lands have been reconfigured to accommodate this access. This scenario most segregates residential, commercial and employment uses in Mayfield West.

West of the regional commercial centre is a residential neighbourhood centred on a mixed residential-commercial neighbourhood node along McLaughlin Road. The full allocation of new residents to 2031 is located in this residential neighbourhood. Embedded within the residential neighbourhood are new community amenities as well as two green linkages that connect existing woodlots to the Greenbelt, and that make important connections to the ecosystems north and south of the study area.

The scenario also proposes a new tournament park east of a green linkage, north of the regional commercial centre and south of the Brampton Christian School.

New employment lands are located north of the currently designated Phase 1 employment lands, further utilizing the access from Highway 410 and Mayfield Road/Heart Lake Road, which would become the spine around which most of the additional employment lands would be built.

This scenario accommodates approximately 13,700 new residents – the full allocation of new residents to 2031, as well as approximately 5,000 new jobs by 2031 within an expanded urban boundary.



Mayfield West Phase 2 - Town Of Caledon
MW2 SECONDARY PLAN

SCENARIO C

URBAN STRATEGIES INC

FIGURE 4
 SCENARIO C

2. SUMMARY OF AGRICULTURAL CHARACTERISTICS

2.1 Part A Findings

Each of the three land use scenarios area will consume varying amounts of prime agricultural land in a designated prime agricultural area. A prime agricultural area (PAA) is characterized by a predominance of prime agricultural lands (PAL). PAL include specialty crop lands and areas classified as Canada Land Inventory (CLI) Class 1, 2 and 3 lands. The Provincial, Regional and local agricultural policies that apply to proposed urban boundary expansion in prime agricultural areas were reviewed in Part A of the study. These policies require that when prime agricultural areas cannot be avoided development should be directed to lower agricultural priority.

Although, neither the PPS nor the OMAFRA specifically define in policy “lower priority agricultural lands”, there are a number of considerations used by OMAFRA to determine the 'agricultural priority' of an area. These considerations include an assessment of:

- ♦ the agricultural capability of an area relative to other prime agricultural areas;
- ♦ the current land uses in an area and the proximity to incompatible land uses such as urban and rural settlement areas;
- ♦ the amount of land under active cultivation;
- ♦ the level of capital investment in agricultural infrastructure and land improvements;
- ♦ the degree of lot fragmentation of the agricultural land base;
- ♦ the interface between agricultural and non-agricultural land uses; and
- ♦ the ability of the site to comply with the requirements of MDS I.

Part A characterized the agricultural lands within both a primary and secondary study area for lands west of Hurontario Street. Part A determined that PAL's are predominant in the area and consist of a mix of CLI Class 1, 2 and 3 soils. In general, the lands north of Etobicoke Creek tended to consist of slightly higher capability lands compared to the heavier textured soils south of Etobicoke Creek.

There is a mix of land uses in the area, however agriculture is the predominant land use and the majority of the tablelands are in agricultural production. The intensity of agricultural use decreases the closer to the existing settlement boundary. Although the lands may still be used for cropping purposes, the farm operations immediately adjacent to the existing settlement boundary are no longer active and were determined to be retired farms.

There are a few large farm operations which are currently active and are expected to be directly or indirectly impacted by urban boundary expansion depending on the land use scenario. Some of these farms have recently made considerable investments in infrastructure and have made land improvements such as installation of tile drainage.

The minimum distance separation requirements were calculated for each of the livestock facilities and former livestock facilities. The new settlement area boundary will need to consider the MDS I requirements for those farm operations not located within the future settlement area boundary.

The amount of fragmentation of farm parcels by non-farm land uses (i.e., severance) is relatively small. However, Etobicoke Creek and other surficial drainage features have naturally fragmented some of the area. Also, the railway line east of McLaughlin Road has caused the fragmentation of some farm parcels. On the other hand, in some area, the railway line also acts as a good boundary between agricultural land uses and existing urban land uses. The natural features associated with Etobicoke Creek also provide a good buffer between agricultural uses and future and existing urban uses.

2.2 Expanded Study Area

2.2.1 Agricultural Capability

As shown in Figures 2 and 4, development Scenarios A and C include lands east of Hurontario Street and south of Old School Road. In both scenarios, the proposed development areas will consume prime agricultural lands which are located in a designated prime agricultural area. Scenario A is comprised of approximately 99.40% prime agricultural land of which nearly 66% (72.5 ha/ 179.15 acres) of the land is CLI Class 1. Scenario C is comprised of 98.71% prime agricultural land however nearly 85% (109 ha/269.34 acres) is CLI Class 1.

Under Land Use Scenario B, no prime agricultural lands east of Hurontario Street will be consumed.

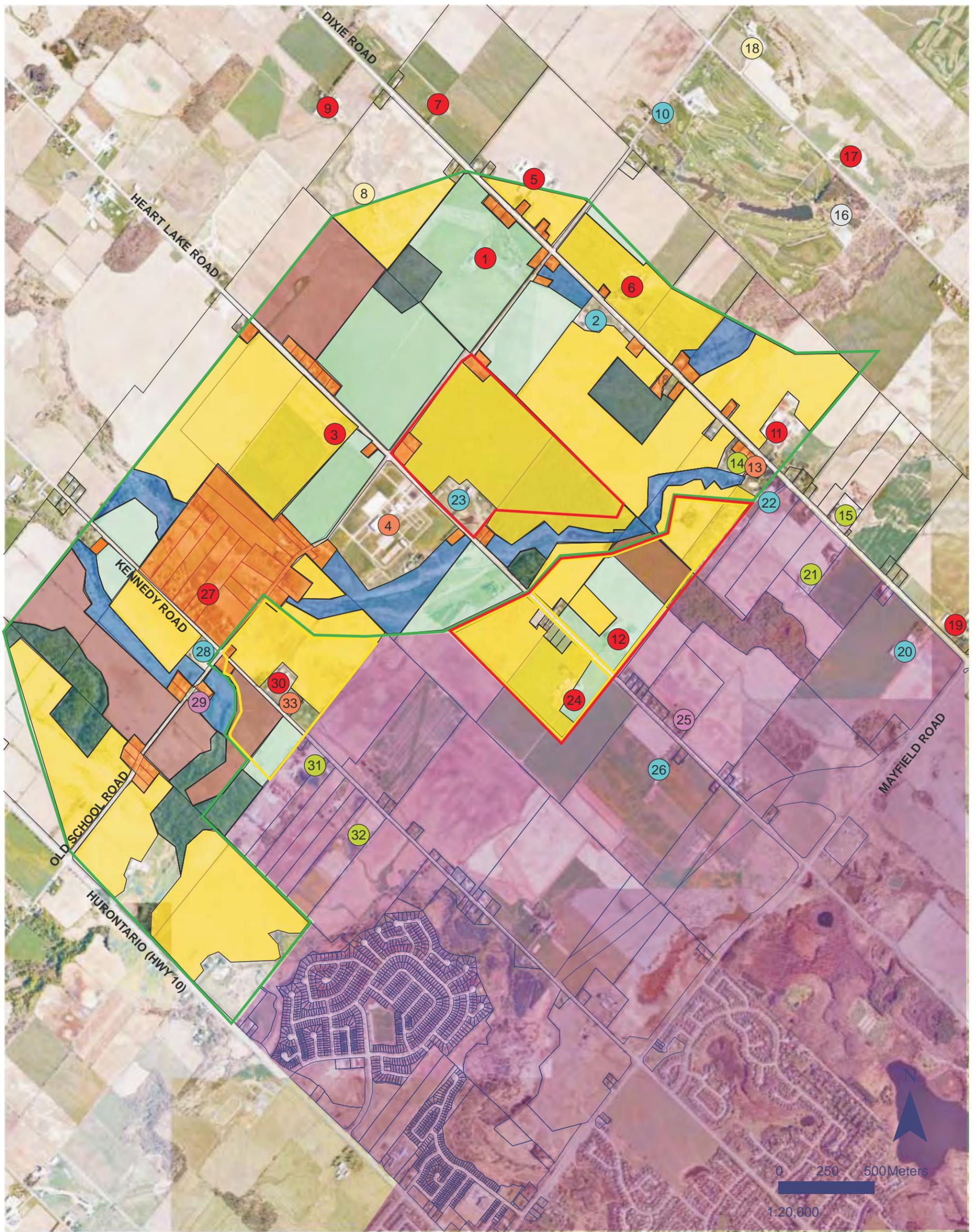
2.2.2 Land Use

A reconnaissance level land use survey was completed on October 16, 2009 for lands in Scenario A and C located east of Hurontario (Hwy 10). The mix of land uses and cropping patterns observed within the Primary and Secondary study areas were mapped and shown in Figure 5. Field boundaries and land uses were interpreted from the observations recorded during the reconnaissance level land use survey and from the aerial photography used for base mapping. In additions, aerial photography from Google Earth (2009), an on-line navigational mapping tool, was used to further assess land uses.

Farm types were noted and identified as livestock or cash crop operations. Livestock operations include poultry, dairy, beef, cow-calf and equestrian operations. In addition to the active farm operation, retired farms and hobby farms were also noted. Non-farm land uses include non-farm residences, residential subdivisions, and recreational, institutional, commercial and industrial development.

The cropping pattern within the study areas include row crops, such as corn, soybeans, and grains, and perennial forage crops such as grass and legume mixes used for hay, haylage and pasture. Areas that were obviously under cultivations but were ploughed at the time of the land use survey were identified as 'cultivated'. Areas not in agricultural production include scrub lands and natural areas (i.e. forested).

Figure 5 shows the land uses observed in the expanded study area. The figure shows that in both Land Use Scenarios A and C, the majority of the lands within the primary study area are being cultivated for common field crops. Common field crops are also predominantly being grown in the secondary study area.



LEGEND

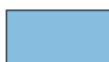
- | | | | |
|--|------------------------------------|---|---------------------------------|
|  | Row Crop |  | Livestock Operation |
|  | Cultivated |  | Cash Crop Operation |
|  | Forage |  | Retired Farm Operation |
|  | Forested |  | Remnant Livestock Operation |
|  | Scrubland |  | Commercial |
|  | Existing Urban Boundary |  | Institutional |
|  | Residential and Estate Residential |  | Recreational |
| | |  | Primary Study Area (Scenario A) |
| | |  | Primary Study Area (Scenario C) |
| | |  | Secondary Study Area |

Figure 5
Land Use
Expanded Study Area

Agricultural Impact Assessment
Mayfield West Phase II Secondary Plan

Prepared for:



Prepared by:



December 2009

C08015_04E

In Scenario A there are three active farm operations located within the Primary study area and no retired farm operations. There are two active farm operations located within the Primary study area and one retired farm operation in Scenario C. These farms are described below.

Operation #12

Operation # 12 is located within the boundaries of Scenario A and C. It is on the east side of Heart Lake Road approximately 1.5 kilometres south of Old School Road. It is an active dairy operation with significant investment in agricultural infrastructure. The majority of the surrounding lands are currently in perennial forage crops (hay & pasture).

Operation #24

Operation # 24 is located on the west side of Heart Lake Road, adjacent to Operation #12 and is found in both Scenario A and C. No livestock were observed during the land use survey but the infrastructure suggests that it may be an active beef operation. The farm also includes a small commercial operation (Broadway Farms Market). The majority of the surrounding lands are currently in row crop production.

Operation # 30 (Norrus Farm)

Norrus Farm is located on the east side of Kennedy Road approximately 250 metres south of Old School Road. This farm is located in Scenario A only. Views of this farm were partially obstructed and no livestock were observed during the land use survey. There is a significant amount of agricultural infrastructure on the property and it is likely that this is an active dairy or beef operation. The surrounding lands are currently in row crop production.

Operation # 23

Operation # 23 is located in Scenario C on the east side of Heart Lake Road and approximately 500 metre south of Old School Road. Views of the farm were obstructed during the land use survey, however, some of the farm infrastructure was visible. Aerial photography from Google Earth (2009) was used to interpret the farm type. It was determined that this is a retired operation and a former livestock facility. It does not appear that livestock are now being housed at this location. The barns appear to be in relatively good to fair condition and likely could still house livestock.

Development within Scenario A will retire three farm operations and two will be retired under land use Scenario C.

There are several non-farm residential and estate residential lots in the secondary study area. The Brampton Fairgrounds are located at the intersection of Heart Lake Road and Old School Road.

2.2.3 Minimum Distance Separation

The MDS I requirements were determined for each of the livestock and former livestock operations identified during the land use survey. Figure 6 shows the MDS arcs calculated for the three farm operations located closest to the development areas. The study did not identify any instances where the MDS I requirements encroach within the development scenarios.

The MDS I requirements for Operation #11 are shown for both Type A and Type B land uses because both land use types are being proposed in close proximity to this livestock operation. Type A land uses include lands to be designated industrial while Type B land uses include residential, recreational and



Scale 1:20,000

LEGEND

- MDS I from Barn (Type B)
- MDS I from Manure Storage Location (Type B)
- MDS I from Barn (Type A)
- MDS I from Manure Storage Location (Type A)
- Barn Location
- Manure Storage Location
- Primary Study Area (Scenario A)
- Primary Study Area (Scenario C)
- Secondary Study Area

205 m MDS I distance in meters from manure storage

224 m MDS I distance from nearest livestock building

Site #1 Associated Livestock Operation Identification Number (see Appendix XX for descriptions)



1:20,000



**Figure 6
MDS I Requirements**

**Agricultural Impact Assessment
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commercial land uses. The residential portion of this development area is located west of Heart Lake Road and industrial uses are proposed for the eastern side of the road. The MDS I arc for a Type B land use encroaches within the eastern portion of the development area. However, since industrial uses (Type A land use) are proposed for this area, the MDS I calculated for a Type A land use does not encroach within the development area. The MDS I arc for a Type B land use (residential) also does not encroach within the residential portion of the development area.

The MDS I requirements for Operations #3 and #6 do not encroach within the two development scenarios. The MDS I distances calculated for these farms used the Type B land use factor which provides the greatest setback for new development. In all these cases including Operation #11, an argument can be made that Guideline # 12 applies to all of these farm operations. Guideline #12 states that “MDS I is applied to new proposed development, even though there may be existing non-agricultural uses that do not conform to MDS I requirements. Where there are four, or more, existing non-farm uses closer to the subject livestock facility and in immediate proximity to the current application, MDS I will not be applied. The current application must not be located closer to the livestock facility than the four, or more, existing non-farm uses.” In each case there appears to be at least four non-farm land uses situated closer to the livestock facility than the proposed new development.

The MDS I is not calculated for farm operations located within the urban boundary or for farms which will be located within the urban boundary. As stated in Guideline #1, the MDS is only applied in Prime Agricultural Areas and Rural Areas as defined by the Provincial Policy Statement, 2005.

2.2.4 Land Improvements

Land improvements in the form of artificial tile drainage were identified from OMAFRA’s Agricultural Drainage Systems mapping (Caledon Southwest map sheet, 1998). According to this mapping, systematic and random tile drainage has been installed on some of the lands proposed to be included in the new urban boundary. There are approximately 38.8 ha (95.87 acres) of artificially drained lands in the primary study area. Approximately 26.1 ha (64.49 acres) of Scenario A are tile drained and 16.6 ha (41.02 acres) of Scenario C have been tile drained. In the Study Area for Scenario A (see Mayfield West Phase Two Secondary Plan: Agricultural Impact Assessment PART A), there are a total of 35.1 ha (86.73 acres) of systematic tile drainage.

2.2.5 Fragmentation & Ownership

Similar to the lands west of Hurontario Street, fragmentation of the agricultural land base due to severance, previous urban boundary expansion and natural heritage features (surficial drainage features) has occurred in both the primary and secondary study areas. This has reduced the viability of some of the farm operations.

The majority of the lands within the expanded study area are locally owned. The Primary study area includes both locally and non-locally owned lands.

3. ASSESSMENT OF POTENTIAL IMPACTS

The information obtained during the Part A characterization of the lands west of Hurontario Street and the assessment of the expanded study area east of Hurontario Street were used to identify the potential impacts resulting from development for each of the land use scenarios. Tables 1 and 2 show the combined results of the Part A analysis and the analysis completed for the expanded study area.

3.1 Consumption of Agricultural Resources

3.1.1 Prime Agricultural Land

Table 1 shows the agricultural resources within each land use scenario. It shows that Scenario C will consume the most prime agricultural land (409.98 ha/1013.08 acres). Choosing Scenario B will consume nearly the same amount (397.69 ha/982.71 acres) and Scenario A will consume the least amount of prime agricultural land (330.53 ha/816.76 acres).

The Hoffman Productivity Indices were used to determine the overall level of agricultural productivity for each Scenario. The Hoffman Productivity Indices, also referred to as the Soil Productivity Index, is a method used to assign a parcel of land a single value which represents the overall productivity of the parcel. This value is derived from the sum of the percentage of each CLI Soil Capability Class on the parcel multiplied by the productivity index corresponding to the Soil Capability Class. A more detailed description of the Hoffman Productivity Indices is provided in Appendix A. This exercise determined that all three land use scenarios have a high level of productivity, roughly equivalent to a CLI Class 2 soil. Scenario C has the highest level of productivity, followed by Scenario A and then B.

Another way to assess the land use scenarios is to use a method commonly used by municipalities to identify the prime agricultural areas within its boundaries. The method was developed by the Ontario Ministry of Agriculture Food and Rural Affairs and is referred to as the Land Evaluation and Area Review or LEAR. The LE (Land Evaluation) component of this methodology assigns a value for each CLI Class. The values commonly used for LEAR evaluations are as follows; 10 points for CLI Class 1 & 2, 8 points for CLI Class 3, 6 points for CLI Class 4 and 4 points for CLI Class 5). The percentage of each soil capability class within the land use scenario is multiplied by the CLI Class value. The products are then summed to determine the LE score. The higher the LE score the higher the agricultural priority of the parcel based only on soil capability.

Applying this method to the three land use scenarios resulted in Scenario A having the highest LE score (10.64). The LE score for land use Scenario C (7.98) is very close to the Scenario A results. Scenario B has the lowest LE score (5.32).

Both the Hoffman Productivity Indices and the LE evaluation demonstrate that the lands are predominantly comprised of high capability soils and that there is no significant difference between these land use scenarios other than the amount of land being consumed.

3.1.2 Consumption of Cultivated Lands

The cropping pattern was mapped during land use surveys completed for both areas (Part A and expanded study area). The areas actively cultivated were mapped as 'row crops', 'forage crops' or 'cultivated lands' (the latter consist mainly of recently ploughed lands). The area for each land use scenario being actively cultivated was determined and is shown in Table 1. Of the three development scenarios, Scenarios B and C will consume the highest amount of actively cultivated lands; 360.37 ha (890.49 acres) and 386.57 ha (955.24 acres), respectively. Scenario A will retire 313.77 ha (775.34 acres) of cultivated lands.

Table 1. Loss or Displacement of Agricultural Resources

Land Use Scenario	Prime Agricultural Lands (ha)	Level of Agricultural Productivity (HPI)	Land Evaluation Score	Area Cultivated (ha)	Active Farm Operations (No.)	Retired Farm Operations (No.)	Land Improvements (Ha)
Scenario A	330.53	0.84	10.64	313.77	4	3	54.25
Scenario B	397.69	0.83	5.32	360.37	2	5	50.06
Scenario C	409.98	0.88	7.98	368.57	3	4	38.80

Table 2. Assessment of Ownership, Fragmentation & Non-compatible Land Uses

Land Use Scenario	Land Tenure		Fragmentation			Potential for Conflict with Non-Compatible Land Uses			
	Locally Owned Lands (ha)	Non-Locally Owned Lands (ha)	Parcels <5 ha (No.)	Parcels 5-20 ha (No.)	Parcels > 20 ha (No.)	Length of Urban/Rural Interface (m)	Length of Urban/Rural Interface (% increase)	MDS Non-Conformity (No.)	Area Affected (Ha)
Scenario A	253.64	212.87	22	12	9	11,496	121%	3	11.6
Scenario B	138.92	239.04	20	13	7	12,330	129%	3	4.9
Scenario C	248.49	236.73	20	9	9	13,111	138%	0	0

3.1.3 Retirement of Agricultural Operations

The number of farm operations within each scenario was recorded. Table 1 shows that seven farm operations will be retired under each development scenario. The number included both active and retired farm operations. Scenario B will only retire two active farm operations; although both farms are substantial operations (dairy farms) with a significant amount of infrastructure.

Scenario A retires the most active farm operations (4) and development within Scenario C will retire three active farm operations.

3.1.4 Retirement of Agricultural Land Improvements

Installation of tile drainage is a significant investment for most farm operations and these lands will have a higher level of priority for preservation than lands of similar capability without drainage improvements. OMAFRA's Agricultural Drainage Systems mapping was used to identify areas where drainage improvements have been made. In addition to this mapping, landowners attending public open houses to review the information presented in Part A of the study provided more detailed information regarding the extent of tile drainage on their lands. Local landowner input was not obtained for the expanded study area.

The amount of land tile drained is shown in the last column in Table 1. It shows that Scenario C will retire the least amount of improved land (38.80 ha/95.87 acres). However, as we learned from our experience with the Agricultural Drainage Systems mapping in Part A study area, the extent of the lands artificially drained is often not accurately displayed. It was often under represented on the mapping. This is likely the case for Scenario C where the mapping only shows tile drainage within a narrow strip along Old School Road. The actual amount of lands tile drained is likely similar to the amount mapped in both Scenarios A and B which is 54.25 ha (134.05 acres) and 50.06 ha (123.7 acres), respectively.

3.2 Land Tenure

In general, farm parcels that are locally owned tend to receive more investment in agricultural improvements and they benefit from better agricultural practices and overall stewardship of agricultural and natural resources. Lands with a greater proportion of locally owned farm parcels have a higher agricultural priority than lands that have a higher percentage of non-locally owned lands. Table 2 shows the amount of locally and non-locally held lands in each land use scenario. It shows that Scenarios A and B have the highest amount of locally owned lands (256.64 ha/634.17 acres and 248.49 ha/614.03 acres, respectively). Scenario B has significantly less locally owned lands. Only 138.92 ha (343.27 acres) were determined to be locally owned.

3.3 Viability & Level of Fragmentation

The flexibility of the area to adjust to different forms of agriculture is generally dependent on the size of the parcel. Given similar soil capability and management inputs, in general, the larger the parcel the greater its flexibility to adjust to different forms of agriculture. Lot creation in agricultural areas results in smaller farm parcel sizes and lowers the agricultural viability of the area. Fragmentation of the study areas was assessed by sorting the number of lots into three categories. Non-farm lots include lots less than 5 ha (12.35 acres) which would be residential and estate lot residential lots. Marginal farm parcels include lands which are between 5 ha (12.35 acres) and 20 ha (49.42 acres) in size. These lands are not likely viable for traditional farming methods but do have some value as supplementary lands for farm operations in the surrounding area. The last category includes farm parcels over 20 ha (49.42 acres). The viability of farms located on these lots improves (the larger the better) and the more an area consists of larger contiguous farm parcels the higher the areas agricultural priority.

The results are displayed in Table 2. Each of the three land use scenarios has experienced a moderate level of fragmentation due to historical severance policies which permitted three lots per 100 acres (40.46 acres). This has resulted in the creation of at least 20 parcels less than 5 ha (12.35 acres) within each land use scenario. The number of marginal farm parcels ranges from nine (Scenario C) to thirteen (Scenario B). Scenarios A and C both have nine parcels greater than 20 ha (49.42 acres), while Scenario B has seven.

Each of the land use scenario will retire larger contiguous blocks of prime agricultural land. Scenario B retires the fewest number (7).

3.4 Potential for Conflict with Non-Compatible Land Uses

In the Mayfield area, the area which is likely to be the most negatively impacted by non-farm land uses is the area closest to the urban boundary. This area is often referred to as the 'urban shadow'. In general, an urban boundary which minimizes the urban-rural interface (URI) is preferred because a smaller area would be brought into the urban shadow and, as a result, there would be fewer impacts on adjacent farm operations.

One way to measure the potential for negative impacts to agricultural operations due to the close proximity to non-agricultural land uses is to determine the length of the urban-rural interface that will be created for each land use scenario. Table 2 shows that Scenario A will have the shortest URI. This scenario will increase the existing URI by 121% to approximately 11,496 m (12,572 yards) in length; an increase of approximately 1,995 m (1,307 yards). Scenario B will realize and increase of 129% or 12,330 m (13,484 yards) in the URI; an increase of approximately 2,800 m (3,062 yards). Scenario C will create the largest URI, increasing by 138% to 13,111 m (14,338 yards). This is an increase of approximately an additional 3,600 m (3,937 yards) in the URI.

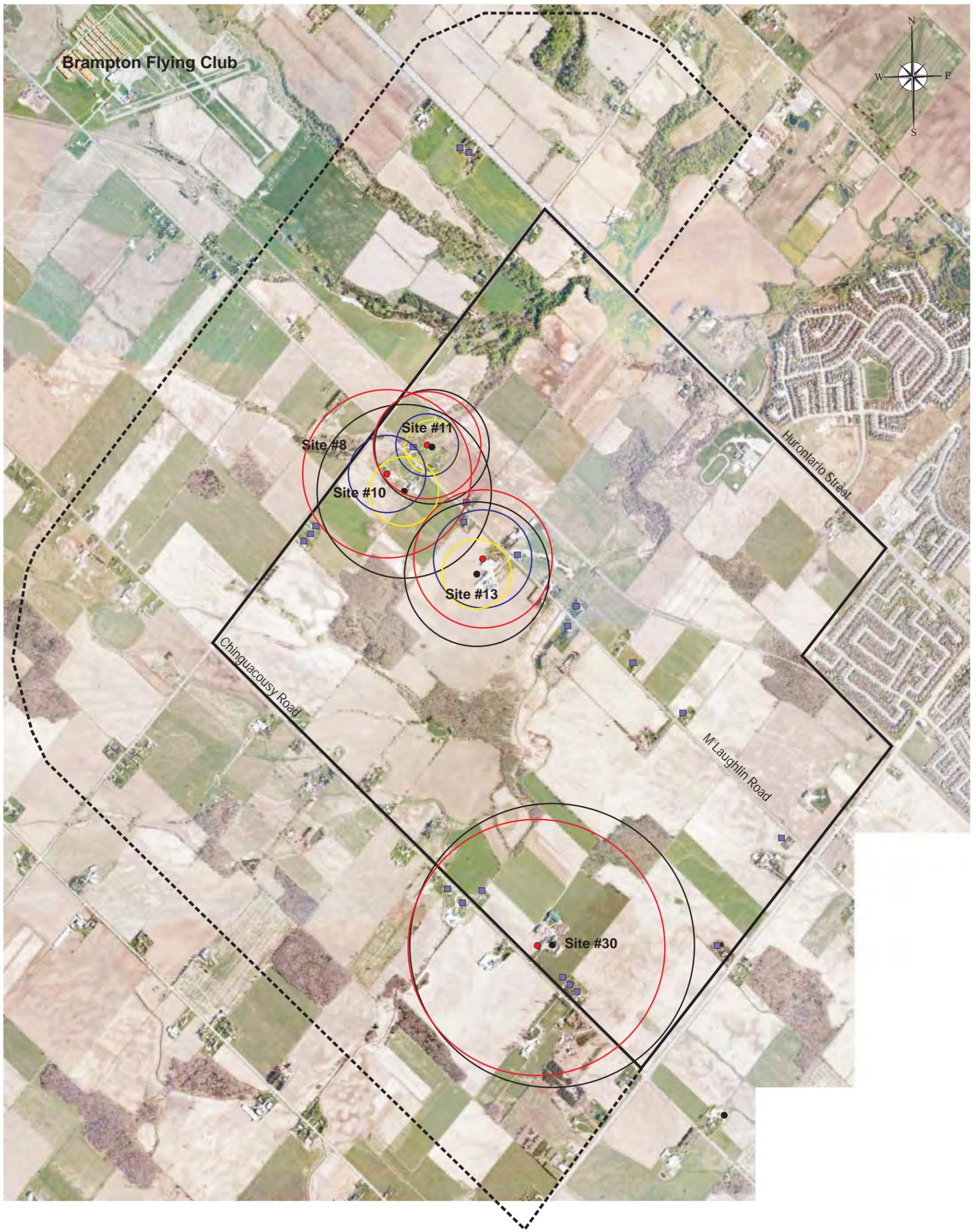
3.5 Conformity with MDS I

Each of the land use scenario developed by USI does a good job of minimizing the development area within the MDS I requirements calculated during Part A of the study. Table 2 shows that under Scenario's A and B there are three instances in which the proposed development area encroaches within the MDS I requirements. There are no instances in which the MDS I requirements cannot be met for Scenario C.

3.5.1 Scenario A

Figure 7 shows the refined MDS I requirements for the portion of the study area west of Hurontario Street. It shows the three livestock operations whose calculated MDS I requirements have an impact on the development scenarios. Approximately 11.6 ha (28.7 acres) are affected by these three farms.

The conceptual land use plan for Scenario A shows a Tournament Park located along McLaughlin Road. It is situated adjacent to a farm operation identified as a cash crop operation (Site #13). It appeared from our land use surveys that there were a small number of horses at this farm. Several unsuccessful attempts were made by telephone to contact the owners of this farm. The purpose of the calls was to obtain more detailed information about the ability of the barns to house livestock. Without more detailed information, and to be conservative, we considered this farm to be a beef operation and decided to apply the MDS I to one of the barns which appeared to be most suitable for housing livestock. The Tournament Park is a Type B land use and therefore the livestock facility casts a larger MDS I setback compared to a calculation using a Type A land use factor. The MDS I encroaches within the area shown as Tournament Park and therefore the concept plan does not conform to the MDS I requirements. Approximately 8.9 ha (22.0 acres) of the Scenario A lands are impacted by this operation. Locating the Tournament Park in another location would resolve this issue.



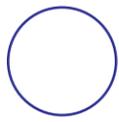
LEGEND

Type A Land Use Factor

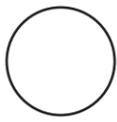
Type B Land Use Factor



MDS I from Barn



MDS I from Manure Storage Location



- Barn Location
- Manure Storage Location
- Non-farm Residence

Site #1 Associated Livestock Operation Identification Number (see Appendix C for list of factors used)



Primary Study Area



Secondary Study Area

FIGURE 7
MDS I REQUIREMENTS

**Agricultural Impact Assessment
for Mayfield West Secondary Plan**

Prepared for:



Prepared by:



December 2009

C08015_06PB

There are two other livestock facilities located along McLaughlin Road. They are shown in Figure 7 as Site #10 and #11. Two formulas were used to determine the MDS I requirement for these farms. The MDS formula uses a Type B Land Use factor for these farms because of their close proximity to the Tournament Park. A separate MDS I was also prepared using a Type A Land Use factor to determine the MDS I requirement for the proposed industrial area. The MDS I requirement for Site #11 does not encroach within the Tournament Park lands. The MDS I requirement for Site #10 does encroach into this area and affects 1.6 ha (4.0 acres) in the north west corner of the park.

As mentioned above, the second MDS calculation for these farms uses a Type A Land Use factor in the formula to determine the MDS I requirement for the industrial uses. The MDS I requirements for both farm operations extends into the industrial portion of Scenario A. If the Tournament Park was located in another area, approximately 2.8 ha (6.9 acres) of the area would be affected by these two farms.

To be consistent with the MDS I Guidelines, Provincial and Regional policy, lands within the identified MDS I setback requirements from the livestock operations and manure storage locations are discouraged from inclusion within the expanded settlement area boundary.

3.5.2 Scenario B

In Scenario B, all of the lands adjacent to these three farms are proposed for industrial uses therefore a Type A land use factor was used in the MDS I formula. A total of 4.9 ha (12.1 acres) of the development area will be affected by the MDS I requirements. The MDS I requirement for Sites #10 and #11 affects 2.8 ha (6.9 acres) and the MDS I requirement for Site #13 will affect 2.1 ha (5.2 acres) of industrial lands. Figure 7 shows the MDS I requirements for these farms in yellow and blue.

4.0 EVALUATION OF AGRICULTURAL PRIORITY

The goal of this study is to identify the land use scenario that has the least impact on agriculture. Where prime agricultural lands cannot be reasonably avoided, the PPS directs urban boundary expansion to areas having the lowest agricultural priority. Under each land use scenario, it is not possible to avoid prime agricultural lands and significant farm operations. The best that can be done is to try to minimize the impact by selecting the land use scenario which has the lowest agricultural priority. However, the characterization of the study area has not clearly demonstrated that one land use scenario has a higher or lower agricultural priority when compared to the others. All development scenarios have their pros and cons and each will have different levels of impact on various agricultural considerations. In an attempt to better identify one land use scenario which minimizes these impacts an evaluation model based on the concepts of the LEAR system was developed.

4.1 LEAR Evaluation

The LEAR system was developed by the Ontario Ministry of Agriculture, Food and Rural Affairs (McTavish, 1997. *A Guide to Land Evaluation and Area Review (LEAR) System for Agriculture*). The Provincial LEAR system was developed to provide municipalities with a methodology that can be used to identify its' prime agricultural areas in order to better protect the higher priority agricultural areas.

A LEAR system is comprised of two main components, Land Evaluation (LE) and Area Review (AR). The LE component must comprise at least 50% or more of the LEAR score. It reflects the agricultural capability of the parcel being analyzed and is based on the percentage of each CLI Capability Class mapped on the parcel. The AR component represents a maximum of 50% of the total LEAR score. The criteria used to assess the AR can include such things as land use, parcel size, fragmentation of agricultural lands and the presence of conflicting land uses.

The factors used in a LEAR system may vary, however, the themes are similar. For this study, the factors used to evaluate the LE component include:

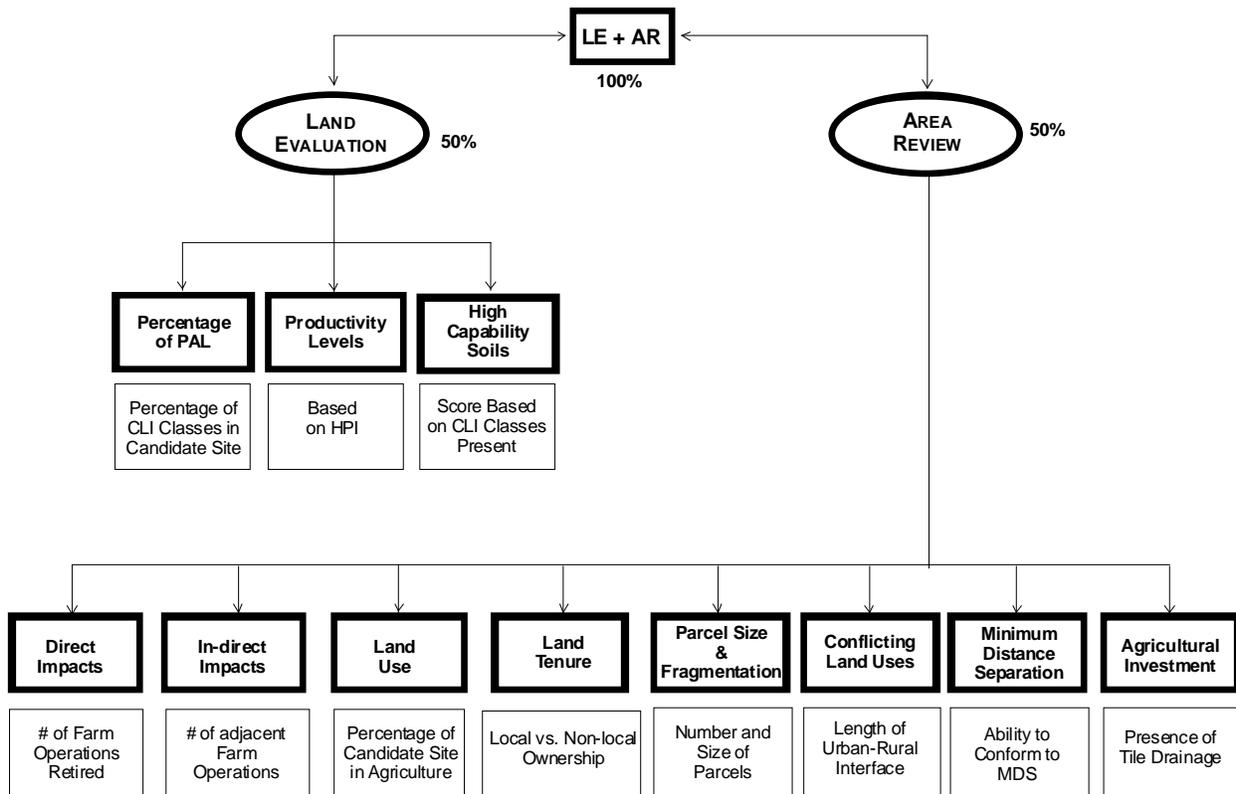
- ◆ the amount of prime agricultural land consumed
- ◆ the agricultural productivity of the soil; and
- ◆ the percentage of the various CLI Classes within each scenario.

Seven factors were evaluated to determine the AR value. These included:

- ◆ the number of farm operations directly impacted (active and retired);
- ◆ the number of farm operations indirectly impacted (adjacent active and retired);
- ◆ the amount of land currently being cultivated;
- ◆ land tenure (local vs. non-local ownership);
- ◆ the level of fragmentation;
- ◆ the length of the urban-rural interface (boundary); and
- ◆ the ability to conform to the MDS I requirements.

The evaluation model will allow for a more detailed analysis and comparison of the land use scenarios. It provides a quantifiable measure of the agricultural priority for each land use scenario. It provides a numerical score for each of the candidate sites. The relative scores can be used to rate the agricultural priority of each of the land use scenarios and identify the scenario with the lowest agricultural priority. The flow chart below illustrates the process used to determine the agricultural priority of the alternative land use scenarios.

FLOW CHART FOR DETERMINING AGRICULTURAL PRIORITY



4.2 Evaluation Results

Table 3 shows the results of the LEAR analysis. The Tables in Appendix B show how these results were achieved.

	LE Score	AR Score	LEAR Score
Scenario A	10.64	8.00	18.64
Scenario B	5.32	7.00	12.32
Scenario C	7.98	9.00	16.98

Scenario B has the lowest LE and AR scores and when combined it has the lowest LEAR score. This indicates that it has the lowest agricultural priority of the three scenarios. The difference in the numerical values does not indicate a relative difference. For example, it does not mean that the agricultural priority is 151% lower than Scenario A (18.64 ÷ 12.32 X 100). The LEAR score only indicates that, of the factors considered, Scenario B accumulated the fewest points and lowest score. It was therefore determined to have the lowest agricultural priority of the three land use scenarios.

5. MITIGATION MEASURES

Several recommendations designed to limit the impacts of development to the extent feasible are provided below.

5.1 Phasing of Development

The build out of the urban area will occur over a twenty year planning period. Agriculture will continue to be an important land use in this area and the Municipality should continue to support farmers in this area until the lands are needed for development. The phasing of development should be designed to reduce the "urban shadow effect" on the adjacent farmland. Lands adjacent to an urban area are often referred to as being in the urban shadow. In anticipation of future land use changes in the urban shadow, speculation by non-farm interests often leads to a change in land ownership patterns (i.e., more non-farm ownership) and the destabilization of the farm community. As the urban boundary expands, so will the urban shadow and its' negative impacts. It is therefore important to expand the urban boundary in a rational way in order to limit the impacts of expansion.

- ◆ The secondary plans to be developed should be phased so that agricultural lands can remain in production for as long as possible before they are retired for urban uses.
- ◆ For farm planning purposes, farmers should be provided with a development schedule to be updated annually. Farmers will then be in a better position when assessing the economic return on investments such as the purchase of fertilizers, equipment, infrastructure, land improvements, livestock, labour, etc..
- ◆ Encourage farmers in the urban shadow to consider changing the focus of their operation from the more traditional farm practices and market their produce directly to local consumers. Establishing and promoting local farm markets within the new urban area should also be considered.

5.2 Boundary

The majority of conflicts arising from urban boundary expansion occur at or near the urban-rural interface. Generally speaking, the larger the urban centre the greater the potential for conflict. Therefore it is important to minimize the extent of the urban-rural interface. Creating an area, through special policy or other means, which separates the future urban area from agricultural areas, will also help to reduce conflict. Land uses within this buffer should include agricultural uses and other uses compatible with agricultural activities. The width of the buffer should be kept to a minimum and generally not exceed the maximum separation distance as determined by the MDS I formula.

It is preferable to establish a clearly identifiable boundary between the proposed urban area and lands that will remain in the agricultural designation. In the Mayfield West area, the valley lands associated with Etobicoke Creek and other tributaries provide such an opportunity to create an effective buffer and clearly identifiable boundary.

- ◆ Establish an adequate and appropriate buffer between the new urban areas and agricultural lands.
- ◆ Minimize the length of the urban-rural interface to reduce 'edge' conflicts.

5.3 Traffic

The development plans should consider the impact of new traffic patterns. An increase in the volume and speed of non-farm traffic in areas traditionally used by local farmers can make the transportation of farm machinery and products between fields difficult and potentially dangerous.

- ◆ Transportation planning should consider the needs of local farmers and where ever possible restrict non-farm traffic to areas not being used by farmers. This will be especially important for farm operations located along McLaughlin and Chinguacousy Roads where several farms are located and will remain outside of the development area.
- ◆ The transportation plans for new development should be internalized as much as possible.
- ◆ Speed restrictions should be considered for roads adjacent to existing farm operations to avoid potential conflicts with farm operations and activities.
- ◆ Signs warning of slow moving farm machinery should be erected.

The creation of new transportation links (roads) and disruption of existing transportation routes can result in the loss of access to farm fields.

- ◆ The transportation plan should maintain the right-of-way for farmers.

5.4 Drainage

Site plan development should consider new grades planned and the potential for surface water runoff to increase or change existing drainage patterns. Changes may result in an increase in surface waters (potentially contaminated) on adjacent farm fields. Flooded fields (even temporary) can significantly reduce crop yields and management practices.

- ◆ Where possible, maintain existing surface water flows and volumes to adjacent farm fields.
- ◆ If negative impacts result, work with the land owner to ameliorate the impacts (e.g., construct perimeter drains that direct surface waters away from farm fields).

Tile drains can be damaged and/or drainage outlets cut off during construction activity associated with the development. This has the potential to have a negative impact on the productivity of the soils on adjacent lands.

- ◆ If development results in damage to the tile drainage system and negatively affects the drainage on a neighbouring farm operation(s) the developer should be responsible for correcting the drainage problem. A drainage contractor should be retained to assess the situation and recommend appropriate measures to correct the situation.

5.5 Vandalism, Theft & Trespass

Instances of vandalism, theft and trespass can increase in agricultural areas with the encroachment of urban land uses. Damage to fencing and crops and disruption of livestock are all concerns that need to be adequately addressed. To limit this potential impact:

- ◆ Establish and maintain suitable fencing along the property limits of farms adjacent to the urban boundary.

5.6 Restriction of Normal Farm Practices

The Farming and Food Production Protection Act protects “farmers from “nuisance” complaints by neighbours, provided they are following normal farm practices. It also forbids the application of municipal by-laws that restrict normal farm practices” (OMAFRA Factsheet Agdex 720, Gary McTavish, Publication date 01/05, Last modified January 27, 2009).

Despite the Act, introducing large numbers of people with urban attitudes into a farm area often creates conflict between the agricultural community and the newcomers. There is often a lack of understanding of what constitutes a normal farm practice. The most common sources of tension are unwarranted accusations and attempts to restrict normal farm practices.

- ◆ The Town of Caledon should ensure that its agricultural policies promote the right of farmers to continue normal farm practices on lands adjacent to the urban boundary. The rights of farmers to continue farming practices should be maintained and this includes the ability to change to other forms of agriculture as market conditions allow.
- ◆ Make residents aware that they are going to be living in close proximity to agricultural lands and the potential for nuisance as a result of normal farm practices.
- ◆ Promote agricultural awareness and understanding through educational workshops with the public.

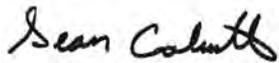
6. CONCLUSIONS

Part B of the Agricultural Impact Assessment for the Mayfield West Phase 2 Secondary Plan provides:

- ◆ a summary of the agricultural characteristics within the study areas;
- ◆ an evaluation of the agricultural priority of the three land use scenarios;
- ◆ an assessment of the potential impacts development may have on agriculture and agricultural practices in the Primary and Secondary study areas; and
- ◆ general mitigation measures which when implemented will reduce potential impacts resulting from the proposed developments.

Three land use scenarios have been prepared by USI. All of these areas are located on prime agricultural lands in a prime agricultural area. In such circumstances, the PPS directs urban boundary expansion to areas having the lowest agricultural priority. This study determined that while the agricultural priority of the lands within each of the three land use scenarios is of relatively high priority, Land Use Scenario B scored the lowest in a LEAR type evaluation and thus was determined to have the lowest agricultural priority of the three land use scenarios.

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APPENDIX A
Hoffman Productivity Indices

Hoffman Productivity Index

The Hoffman Productivity Index (HPI) was published in ARDA Report No. 4, "The Assessment of Soil Productivity for Agriculture," and is used to relate the productivity of land to the CLI Soil Capability (Hoffman, 1971).

The Hoffman Productivity Indices, also referred to as the Soil Productivity Index, is a method used to assign a parcel of land a single value which represents the overall productivity of the parcel. This value is derived from the sum of the percentage of each CLI Soil Capability Class on the parcel multiplied by the productivity index corresponding to the Soil Capability Class.

The HPI assumes that if the same level of management is applied to areas of different CLI classes, the productivity for each CLI class will differ. Hoffman determined the average yields produced for common field crops on CLI classes 1 through 4 lands across Ontario. He determined that a CLI Class 2 soil produced yields approximately 20% less than a CLI Class 1 soil and therefore has a value of 0.80 relative to a CLI Class 1 soil. The value for a CLI Class 3 soil is 0.64 and for a CLI Class 4 soil the value is 0.49. The values for lower capability soils (i.e., CLI Classes 5, 6, & 7) can be obtained by extrapolation of these results.

An area's HPI or Soil Productivity Index is calculated as follows:

$$\text{Soil Productivity Index} = (\text{proportion of area of Class 1 soils} \times 1.0) + (\text{proportion of area of Class 2 soils} \times 0.8) + (\text{proportion of area of Class 3 soils} \times 0.64) + (\text{proportion of area of Class 4 soils} \times 0.49) + (\text{proportion of area of Class 5 soils} \times 0.33) + (\text{proportion of area of Class 6 soils} \times 0.17) + (\text{proportion of area of Class 7 soils} \times 0.02)$$

Once a Soil Productivity Index is calculated we can then relate the value back to its CLI Class equivalent. The table below illustrates the range of values which can be directly correlated to the equivalent CLI Class.

Total Soil Productivity Index Rating	
CLI Class	Soil Productivity Index Range
1	0.90 – 1.00
2	0.73 – 0.89
3	0.58 - 0.72
4	0.43 - 0.57
5	0.28 - 0.42
6	0.10 - 0.27
7	0.00 – 0.09

APPENDIX B
Agricultural Priority Evaluation

Table 1. Land Evaluation Component

Prime Agricultural Lands (ha)	Score	Level of Agricultural Productivity (HPI)	Score	CLI Capability Score	Score	LE POINTS	X2.66 ^a	LE SCORE ^b
330.53	3	0.84	2	9.74	3	8	21.28	10.64
397.69	2	0.83	1	9.67	1	4	10.64	5.32
409.98	1	0.88	3	9.70	2	6	15.96	7.98

1 –indicates lower priority or least impact

3 the highest priority or has the greatest impact

a – LE Points multiplied by factor of 2.66 to rationalize with AR scores.

b – LE Score represents 50% of LE Points

Table 2. Area Review Components - Impacts to Farm Operations

	Direct Impact on Farm Operations					Adjacent Farm Operations						
	Active Farm Operations (No.)	Retired Farm Operations (No.)	Weighting	Factor Value	Score	Active Farm Operations (No.)	Retired Farm Operations (No.)	Weighting	Factor Value	Score		
			1.5	0.5				1	0.5			
Scenario A	4	3	6	1.5	7.5	3	4	3	4	1.5	5.5	1
Scenario B	2	5	3	2.5	5.5	1	8	1	8	0.5	8.5	2
Scenario C	3	4	4.5	2	6.5	2	9	1	9	0.5	9.5	3

1 –indicates lower priority or least impact

3 the highest priority or has the greatest impact

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Table 3. Area Review Components - Land under Cultivation, Land Tenure and Fragmentation

	Area Cultivated (ha)	Score	Locally Owned Lands (ha)	Score	Parcels <5 ha (No.)	Parcels 5-20 ha (No.)	Parcels > 20 ha (No.)	Weighting			Weighting Value	Score
								2	1	0.5		
Scenario A	313.77	1	253.64	3	22	12	9				60.5	1
Scenario B	360.37	2	138.92	1	20	13	7				56.5	2
Scenario C	368.57	3	248.49	2	20	9	9				53.5	3

1 –indicates lower priority or least impact
3 the highest priority or has the greatest impact

Table 4. Area Review Components - Urban-Rural Interface, MDS and Investments

	Length of Urban/Rural Interface (m)	Score	MDS Non-Conformity (No.)	Area Affected (Ha)	Score	Agricultural Investments (Ha)	Score
Scenario A	11,496	1	3	11.6	3	54.25	3
Scenario B	12,330	2	3	4.9	2	50.06	2
Scenario C	13,111	3	0	0	1	38.8	1

1 –indicates lower priority or least impact
3 the highest priority or has the greatest impact

Table 5. Total of Area Review Components

	AR Points	AR Score ^a
Scenario A	16	8
Scenario B	14	7
Scenario C	18	9

a – AR Score represents 50% of AR Points

Table 6. LEAR Evaluation Results

	LE Score ¹	AR Score ²	LEAR Score
Scenario A	10.64	8.00	18.64
Scenario B	5.32	7.00	12.32
Scenario C	7.98	9.00	16.98

1 – Data from Table 1

2 – Data from Table 5