Employment Land Employment (ELE) Intensification Study

Town of Markham

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1.0 INTRODUCTION

1.1 STUDY PURPOSE

The overall intent of the project is to determine how many of the additional Employment Land Employment (ELE) jobs allocated to the Town of Markham by the Region of York could reliably be forecast to be accommodated on already developed properties through intensification within the current settlement area before 2031.

In this study, the ELE jobs of primary interest are those typically associated with manufacturing and warehousing, not jobs that typically occur within office buildings.

Vacant parcels of land are not included in the analysis because the potential employment growth on these vacant parcels has already been accounted for by the May 2009 Town-initiated Employment Land Strategy (ELS). In addition, parcels of land that are considered to be potential candidates for redevelopment (which involves the demolition of existing buildings and the development of a new use) are also not included in the analysis because these parcels were also already counted for by the 2009 ELS report.

The Provincial Policy Statement defines intensification as,

> *"the development of a property, site or area at a higher density than currently exists through:*
> *a) redevelopment, including the reuse of brownfield sites;*
> *b) the development of vacant and/or underutilized lots within previously developed areas;*
> *c) infill development; and*
> *d) the expansion or conversion of existing buildings."*

With residential intensification, the number of new people that could be accommodated through development and redevelopment is relatively easy to calculate, based on a number of assumptions regarding household size and the type of housing unit. As a consequence, quantifying the amount of residential intensification that can occur is a relatively straight forward exercise, although the timing of the intensification itself may not be known.

In employment areas, there is no easy way to measure intensification if the unit of measurement is the number of jobs. For example, an increase in floor space in a single use building may not generate any additional employment, since the floor space could be used for storage, manufacturing or utility purposes. In addition, while assumptions can be made generally about how many employees occupy every square metre of floor space on average across a wide geographic area, there are extreme variations in this ratio, with these variations being very much dependant on the nature of the employment use, the type of product that is being manufactured and/or processed, stored and/or distributed at any given time and the particular characteristics of individual companies.

Understanding the nature of the existing employment areas and the potential for job growth over time allows the Town to consider the implications of this understanding on future land requirements and the actions required to support further intensification. On this basis, this study also reviews the tools that may be available to the Town that could have a positive impact on intensification potential. It is noted that, while the potential on a limited basis does exist for additional intensification in employment areas, that potential does not necessarily translate into reality in most cases, because of the individual decisions that business owners make with respect to their businesses and their needs from a floor space perspective.

In this regard, there are many cases where a building occupied by a single use is on a parcel that is large enough to support an expansion. However, if the business owner is able to carry out his business without expanding, the expansion simply does not occur. On this basis, it has to be recognized that making assumptions on the amount of intensification potential that will actually take place in these areas is very difficult, given that the ultimate decision to expand rests primarily with individual business owners and is dependant upon a number of factors that are beyond the control of the Town of Markham.

In considering the intensification potential of developed ELE properties, this study takes four primary factors into consideration. These factors are the:

1. Physical capacity of existing lots to support additional floor space on the ground floor;

2. Potential for the vertical expansion of existing buildings (adding additional floors);

3. Potential of existing developed lots to be severed to create new development opportunities; and,

4. Economic viability of intensifying existing buildings either vertically or horizontally.

1.2 BASIS FOR THIS STUDY

The Town initiated May 2009 Employment Land Strategy (2009 ELS) assessed employment land needs to 2031 and 2051, which were based on the Region of York employment allocation and an assessment of land supply within the current Town of Markham urban boundary for employment uses. The assessment of land needs was based on assumptions respecting the type of employment expected to 2031 in the Town of Markham. The type of employment studied was Major Office Employment (MOE), Employment Land Employment (ELE) and Population Related Employment (PRE).

The Growth Plan for the Greater Golden Horseshoe defines MOE as freestanding buildings that have in excess of 10,000 square metres of floor space, or where 500 jobs are located. The Growth Plan also indicates that MOE buildings and uses should be located in urban growth centres, major transit station areas, or areas with frequent

transit service, or existing or planned higher order transit service. Finance, insurance and real estate activities and business services are typical examples of the types of uses that locate in major office buildings. These buildings are typically located at the edges of Markham's business parks, and close to major roads.

The ELE category is intended to apply to manufacturing, processing, warehousing and distribution related uses that typically occur within traditional industrial areas, and are usually sited away from major roads and other high profile locations. Service employment uses also fit into this category with these uses including coffee shops, restaurants, banquet halls, hotels, convention centres and other like supporting uses. These supporting uses are more likely located on arterial roads where they can serve employees in the general area and potentially nearby residential uses (depending on location). In addition, there are a number of smaller free-standing office buildings. **Figures 1** and **2** below are examples of the types of development that were considered in this study.

Figure 1: Example of Industrial/Warehouse ELE

Figure 2: Example of Office

The PRE category includes uses that clearly serve the population along with the needs of the travelling public. Examples of these uses include supermarkets, grocery stores, banks, automotive sales and service, residential real estate offices, insurance brokers, pharmacies, medical clinics, restaurants, dry cleaners, daycare centres, convenience stores, appliance centres, large retail warehouses as well as large regional shopping centres.

With respect to the amount of new ELE expected in the Town by 2031, it was concluded in the 2009 ELS report that there would be a shortage of land within the current settlement area for primarily ELE development prior to 2031. On the basis of a number of assumptions, it was then recommended that additional employment land be added to the urban area for use and absorption by 2031

In determining how much additional land was required outside of the current settlement area for expected employment, the 2009 ELS report assumed that all of the vacant parcels of land that were designated for employment uses in 2008 would all be developed prior to 2031. This assumption was made even though a typical employment area is considered to be fully built out when it reaches an 85 to 90 percent occupancy level. The reality is that there will always be certain lands within any large employment area that remain vacant and will not develop for a number of reasons, many of which relate to the individual business decisions made by property owners.

The one possible source of employment that was not considered in the context of the 2009 ELS report was the possibility of expanding existing ELE buildings through the addition of floor space by the expansion of the existing building footprint or through the addition of mezzanines and/or additional floors. The potential for existing developed sites to be severed into two or more lots was also not considered.

As this study indicates, many of the already built upon parcels have developed to their full potential in accordance with current zoning or as a result of the physical constraints to further development on the lot, such as the need to provide for parking, loading and landscaping. There are a few parcels however on which additional development could occur either through the process of creating new lots, expanding the existing building or by utilizing more of the land for new buildings. This study is intended to identify these opportunities and how the Town of Markham might assist property owners with the realization of these opportunities.

2.0 DEFINING THE STUDY AREA

2.1 LOCATION

The area that is the subject of this study includes all developed parcels that are within the Industrial designation established by the Town of Markham Official Plan. Within this Industrial designation are three sub-designations – Business Park Area (BPA), Business Corridor Area (BCA) and General Industrial Area (GIA). The total of number of developed parcels in each category is shown on **Table 1**:

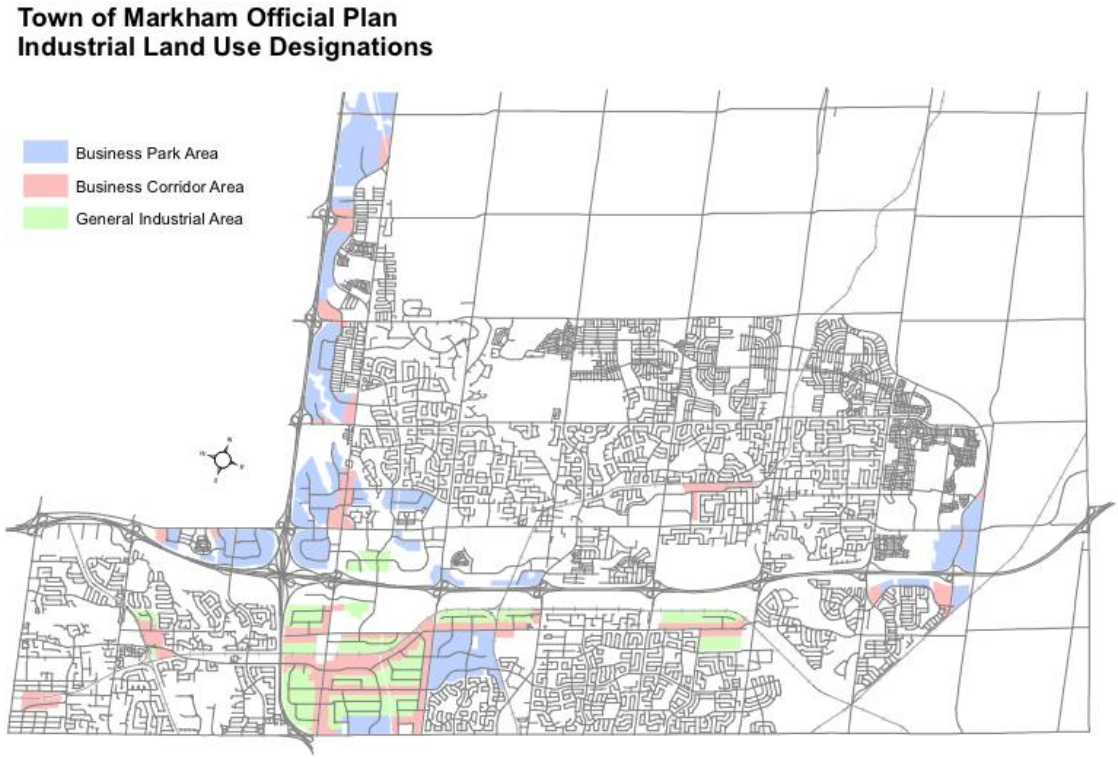
Table 1: Location of Developed Industrial Properties by Land Use Designation

CATEGORY	NUMBER OF DEVELOPED PARCELS
Business Park Area	196
Business Corridor Area	357
General Industrial Area	368
TOTAL	**921**

Source: Town of Markham (2008)

Map 1 shows the location of the three land use designations (which includes both developed and undeveloped lands) as per the Town of Markham Official Plan.

Map 1: Town of Markham Official Plan Industrial Land Use Designations



Source: Town of Markham Official Plan

The 921 developed properties identified by the Town and located within the three land use designations shown on **Map 1** contain a range of uses. Given that the focus of this study is on ELE, a process was undertaken by the Town to determine which of the 921 developed parcels were the site of an ELE use. For the purposes of this analysis, an Industrial/warehouse ELE use is exemplified by industrial activities such as manufacturing, research and development, distribution, wholesale trade and warehousing. These uses are typically located in the interior of business parks. In addition, office buildings that have a floor area of 10,000 square metres or less were included use even though the type of employment is office as opposed to

manufacturing/industrial/warehousing. These properties were examined for potential to intensify for office uses, not ELE uses.

On the basis of a review of Municipal Property Assessment Corporation (MPAC) data, those properties that were categorized by MPAC as being the site of an ELE use were first identified. In addition, air photo interpretation, site visits to selected areas and local knowledge contributed to the establishment of a data base that included 593 developed properties that were the site of an industrial/warehouse ELE use. An additional 75 properties were identified as being the site of an office use. The following properties were not included within the analysis:

1. **PRE uses in a stand-alone building, or a number of PRE uses clustered in a multi-unit building.** These PRE uses do change over time in response to market demand and many of these uses also serve the travelling public and nearby residential areas. While the potential does exist for a building containing a PRE use to be redeveloped into an ELE use, that potential is quite low because of the location of these uses primarily on arterial roads and the historic use of the building for non-ELE purposes.

2. **Parcels of land that are the site of registered Plans of Condominium.** These parcels were also excluded from the analysis since the potential for physically expanding these buildings is very low. This is primarily because of the nature of the multiple ownerships and the very low likelihood that multiple individual owners would agree on how the building should be expanded and the legal issues associated with modifying an existing Plan of Condominium. In addition, ELE buildings that are within Plans of Condominium have generally been purpose built for the specific types of uses that occupy them and very little land is left over for additional floor space.

3. MOE properties with a gross floor area in excess of 10,000 square metres.

As a result of the above, 668 properties were identified. It is our opinion that the ELE parcels identified by the study will continue to be primarily the site of ELE uses into the foreseeable future. In this regard, office buildings are expected to remain as office buildings since they are typically purpose built for offices and the expectation is that these buildings will continue to function as office buildings into the foreseeable future. While industrial and warehousing buildings are also expected to remain primarily as industrial or warehousing buildings into the foreseeable future, some potential does exist for these latter buildings to be subdivided internally with portions thereof being used for offices in the future, provided such office development is permitted by the Town by-laws.

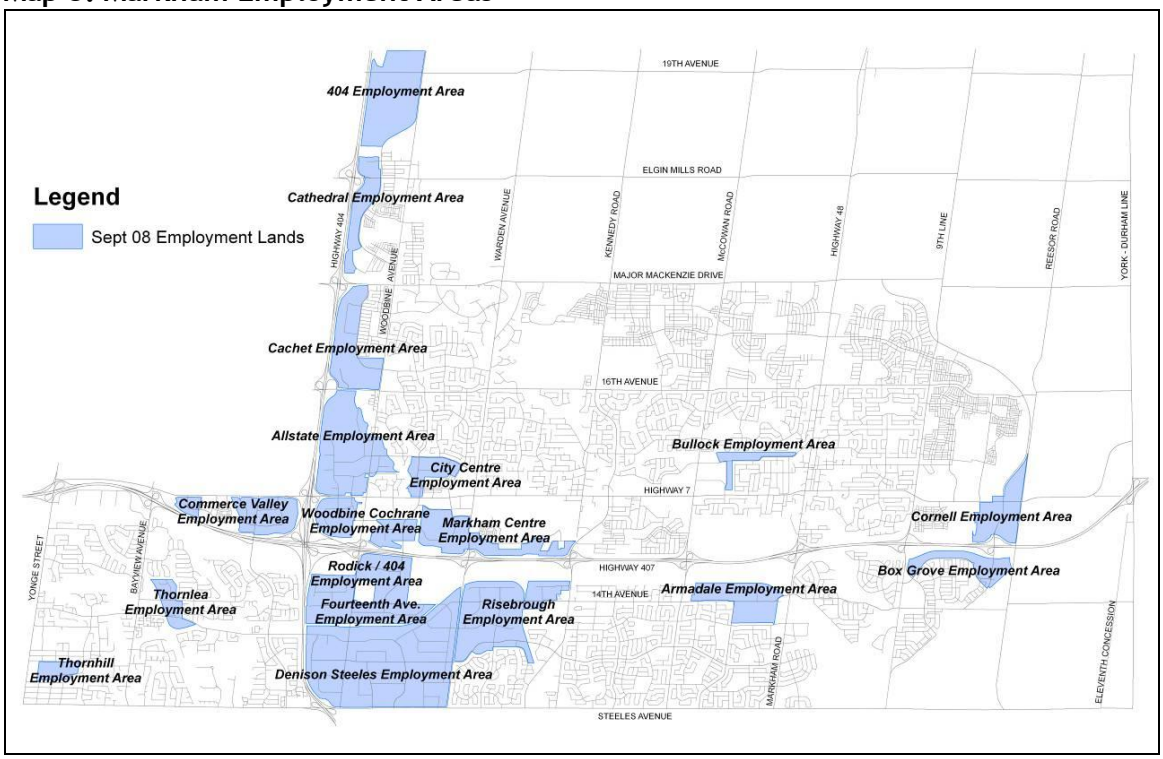
Map 2 identifies the location of the 668 properties in the study area in relation to the three industrial land use designations.

Map 2: Location of the 668 Properties in the Study Area

On the basis of a review of **Map 2**, the majority of the properties that are the site of an industrial/warehouse ELE use are located within the interior of industrial areas or business parks. In contrast, properties on the edges of industrial areas and fronting on arterial roads are more frequently the site of primarily office uses. Many of the properties accommodating office uses are also within the BCA and BPA designations and are clustered together with other office buildings.

The oldest and highest concentration of industrial and warehouse ELE land uses are found in the Denison/Steeles Employment Area, the 14th Avenue Employment Area, the Riseborough Employment Area, the Armadale Employment Area, the Bullock Employment Area, the Rodick/404 Employment Area, the Thornlea Employment area and Thornhill Employment Area. The location of these employment areas is shown on **Map 3**.

Map 3: Markham Employment Areas



These older employment areas are generally characterized by warehouses and manufacturing operations that typically do not require large parcel sizes or large staging areas for high volumes of truck traffic. As a result, building coverages in these areas are generally developed to maximum limits while maintaining the ability on site to accommodate employee parking and truck movement requirements. It is noted that there are a few exceptions that as a result of the specific nature of a use and/or its location. **Figures 3, 4** and **5** are examples of industrial and warehouse uses in these older employment areas.

Figure 3: Doncaster Avenue – Thornhill Employment Area

Figure 4: John Street – Thornlea Employment Area

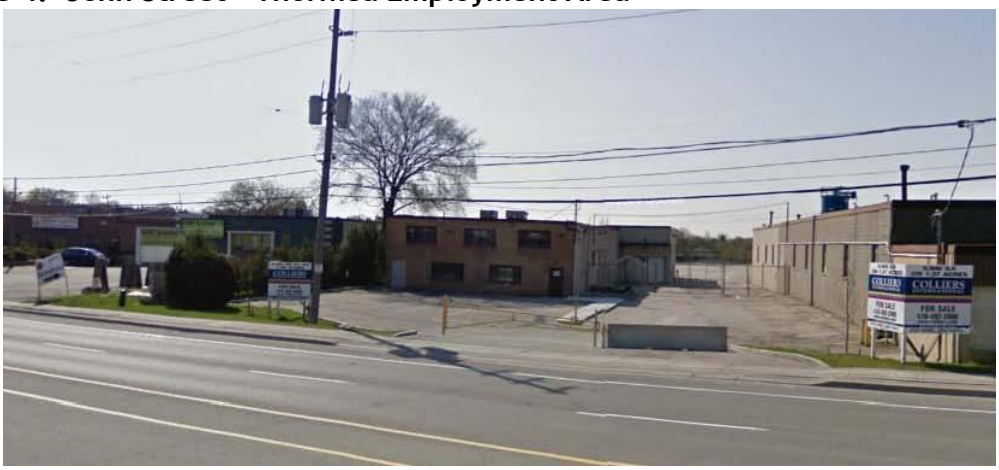


Figure 5: Denison Street - Denison Employment Area

In contrast to the older employment areas, the newer employment areas located along the 404 Corridor which include the Commerce Valley, Allstate, Cachet, Cathedral and 404 employment areas generally contain larger lot sizes. These employment areas generally contain a higher concentration of office uses. These areas are also generally characterised by single owner buildings that require considerable floor space and lot sizes to conduct business operations. Building coverages in these areas generally appear to be developed to maximum requirements, while maintaining the ability to accommodate employee parking and truck movement requirements on site. **Figure 6** below is an example of a newer employment area with a range of ELE uses in the Cachet Employment Area.

Figure 6: Hillmount Road – Cachet Employment Area

As mentioned previously, the three categories of employment (MOE, ELE and PRE) were developed by the Province in 1995 and they form the basis for the categorization of employment in all municipalities in Ontario. However, while the type of employment in each category is relatively distinct, there is a considerable amount of blurring between employment types. For example, an ELE use may have an office component which employs a greater number of employees than a related manufacturing or warehousing component and it may also contain a PRE component in which products are offered for sale to the public and surrounding residential areas. As a consequence, while the majority of the jobs within the study area are ELE jobs, there are also a number of PRE jobs as well.

It is on this basis that it is recognized that land use and building tenancy is continually changing within employment areas and will continue to do so into the future. This reflects the fact that the Town has no control over private business decisions that have an impact on the nature, type and amount of employment in conjunction with any permitted use.

It is also noted that ELE may also occur within buildings on lands within other land use designations (such as Major Commercial Area for example) and in addition, could be accessory to an office or retail use in another designation as well, meaning that not all ELE jobs in Markham are being captured in the analysis.

2.2 CURRENT LOT COVERAGE OF ELE DEVELOPMENT IN MARKHAM

2.2.1 Industrial and Warehouse ELE

Based on MPAC data, the total land area of each industrial and warehouse ELE parcel and the floor area within the first storey of all buildings was established. On the basis of this information, the floor area of the industrial and warehouse buildings in the study area is about 2,613,626 square metres. Given that the total land area is

6,980,565 square metres, about 37.44% of the available land on these parcels is occupied by buildings. In addition, about 85% of the properties have lot coverage's of between 30 percent and 50 percent. **Table 2** below describes what the lot coverages are of the industrial and warehouse ELE buildings in the study area.

Table 2 – Lot Coverages of Buildings in Study Area (Industrial/Warehouse ELE)

Lot Coverage	No. of Parcels	Total GFA	Lot Area (m2)	Avg. Lot Coverage
Less than 10%	6	6,021	76,117	7.91%
10 - 19.9%	22	80,796	412,808	15.94%
20 - 29.9%	42	160,118	550,303	25.34%
30 - 34.9%	73	288,280	786,719	32.88%
35 - 39.9%	138	604,483	1,497,204	37.48%
40 - 44.9%	191	928,242	2,067,174	42.54%
45 - 49.9%	96	410,783	836,610	47.27%
50 - 59.9%	24	164,014	289,380	52.26%
60+%	1	14,950	22,126	64.35%
Total	593	2,657,689	6,538,445	37.80%

The industrial and warehouse ELE property with the highest building coverage in the study area is located at 10 Canfield Drive and has a coverage of 64% as shown on **Figure 7**.

Figure 7: 10 Canfield Drive – 64% Lot Coverage

In this instance, 64% lot coverage is only achievable because the building at 10 Canfield Drive shares operational space including loading areas, parking areas and traffic movement areas with neighbouring properties. In addition, it is assumed that because the use is a warehouse use, a minimal number of employee parking spaces are required.

Figures 8, 9 and 10 compare ELE properties in the study area that have been developed to 50% coverage, 45% coverage and 40% coverage.

Figure 8: 390 Steelcase – 50% Lot Coverage

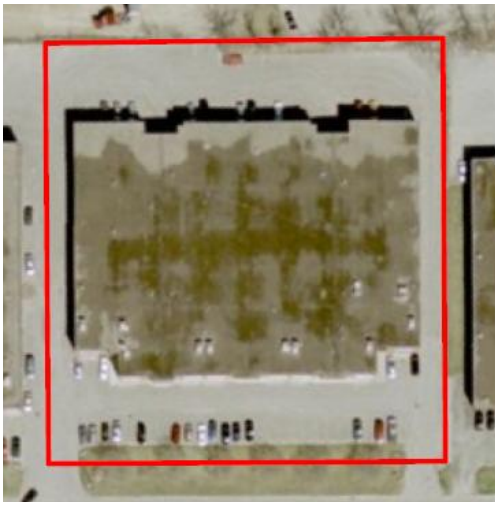
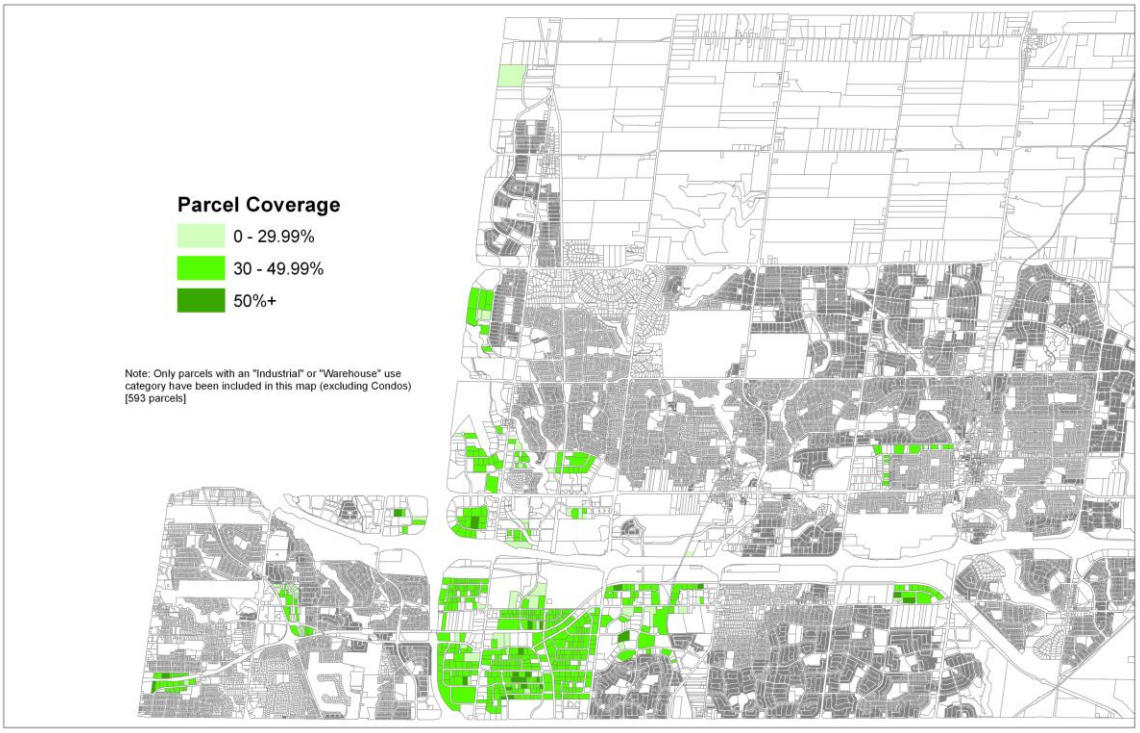


Figure 9: 256 Steelcase – 45% Lot Coverage

Figure 10: 110 Denison – 40% Lot Coverage

As noted previously, the majority of the industrial and warehouse ELE properties in the study area are developed to a lot coverage of between 30% and 50%. This is clearly illustrated by **Map 4** which outlines the coverage of properties within the study area.

Map 4: Lot Coverages on Industrial and Warehouse ELE Properties



Generally properties are not developed to a coverage of less than 30% because property owners wish to maximize the economic return on their use of the property and the revenue it generates by covering as much of the lot area as reasonably possible with building area. However, due to the nature of specific industries and businesses, there are situations where lot coverages are lower.

Properties are generally not developed to coverages that are higher than 50% because of the limiting factors are identified in Section 3.0 of this report including employee parking areas, traffic movement areas and loading areas. On lots with coverages above 50%, the outdoor parking and loading requirements associated with the business are generally lower which enables increased building coverages to be sustained.

2.2.2 Office Properties

As noted previously, there are 75 office properties in the study area. The majority of these properties are the site of one storey buildings, although there are a number of properties with buildings that have two or more storeys, as shown on **Table 3** below. For the purposes of our analysis, condominium buildings were included (there are a total of 8), because there were so few of them and because it was already known at the initiation of the study process that the greatest potential for intensification on office properties would be as a result of new building development on lots that were large enough to support an additional building.

Table 3: Height of and Number of Office Buildings

Number of Storeys	Number of Buildings
1	29
2	23
3	12
4	5
5	4
6	2

Based on an analysis of these buildings, it has been determined that there is a clear relationship between lot coverage and the amount of floor area in the building, as shown on **Table 4** below.

Table 4: Relationship Between Lot Coverage and FSI Based on Number of Storeys

Number of Storeys	Lot Coverage	FSI
1	28%	39%
2	21%	43%
3	21%	63%
4	16%	64%
5	12%	58%
6	10%	62%

Table 4 clearly indicates that the greater the number of floors in an office building, the lower the amount of lot coverage because of the need to provide parking for employees. Examples of this are shown in the figures below.

Figure 11 is of a property that is the site of a two storey building that has a lot coverage of 20% and an FSI of 41%. **Figure 12** is of a property that is the site of a three storey building that has a lot coverage of 33% and an FSI of 98%.

Figure 11: 25 Centurian Drive

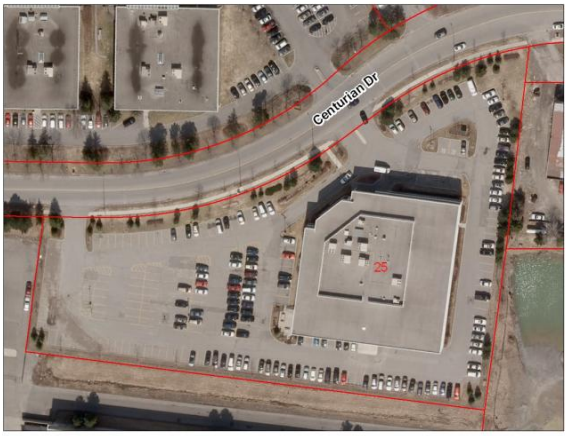
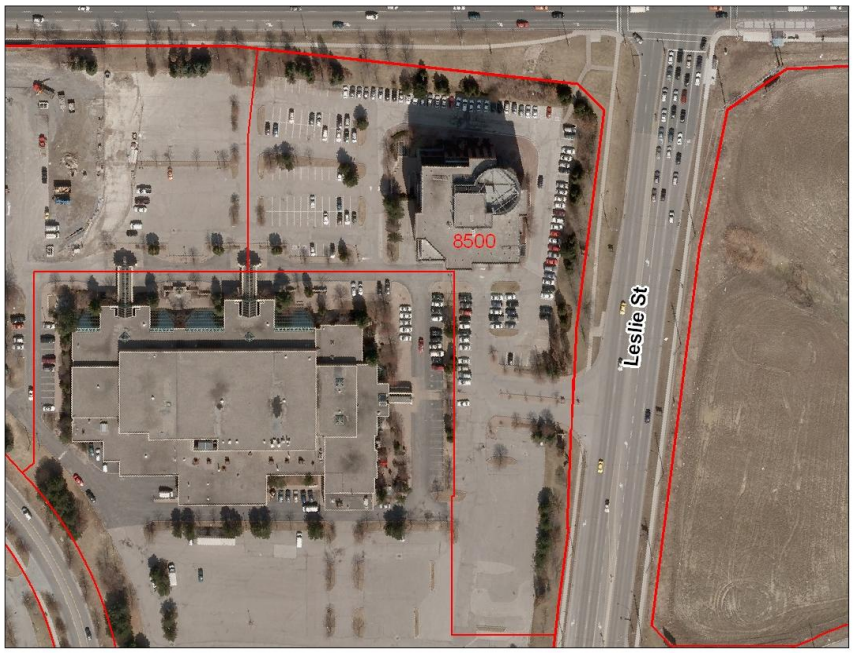


Figure 12: 80 Acadia Avenue

Figure 13 is of a property that is the site of 6 storey building that has a lot coverage of 9% and an FSI of 54%.

Figure 13: 8500 Woodbine Avenue



It is noted that the amount of a lot covered by an office building is generally less than the amount of lot covered by an industrial and warehousing building because of the higher employment density and the resulting need to reserve space for employee parking.

2.3 RECENT HISTORY OF ELE BUILDING EXPANSION IN MARKHAM

Since 1999 there have been 23 ELE buildings that are the site of an industrial and/or warehouse use in the Town of Markham that have undergone an expansion. In total, the 23 buildings were expanded by 46,930 square metres (average of 2,040 square metres). This amount of floor space represents about 1.8% of the industrial and warehouse ELE floor area that exists in 2009.

The largest expansion was at 35 Minthorn, which underwent an addition of 6,142 square metres. In contrast, the smallest addition was to 41 Guardsman at 60 square metres. **Table 5** below indicates that the lot coverage on the 23 properties increased from about 30.7% to 41.8% as a consequence of the expansion. **Table 5** below also indicates that of the additional 46,930 square metres, 43,682 square metres were added to the ground floor and 3,249 square metres were added in upper storeys. It is noted that for the purposes of this analysis, upper storeys also include mezzanines, which are floors that are built approximately half way between the floor and ceiling of the first storey of existing buildings. These mezzanines are typically used for office purposes.

Table 5 – Details of Expansions to Industrial and/or Warehouse Buildings in Study Area in Between 1999-2009

All 23 Properties	Total Average Lot Coverage (equal to Building footprint)	GFA in first storey (m^2)	GFA in upper storeys (m^2)	Total GFA in first storey and upper storeys (m^2)
1998/99	30.70%	120,037	15,573	135,610
2009	41.87%	163,719	18,822	182,541
Change		43,682	3,249	46,930

Table 5 above indicates that the properties that were the site of expansions in the last ten years were generally under developed, because the average lot coverage pre-expansion was just under 31%, which is below the overall average of 38% in the Study Area. The average lot coverage post expansion increased to just under 42% and this is slightly higher than the overall average that exists in the Town of Markham at the present time.

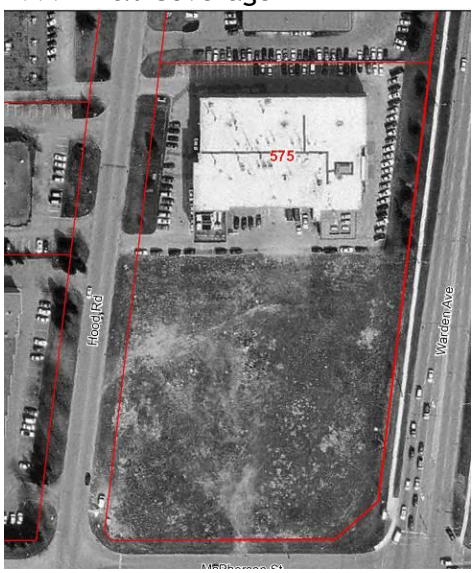
2.3.1 Examples of Expansions

Figures 14 to 16 provide examples of the industrial and warehouse ELE expansions that have occurred since 1999. From these images, the operational and amenity space that existed pre expansion and post expansion can be seen.

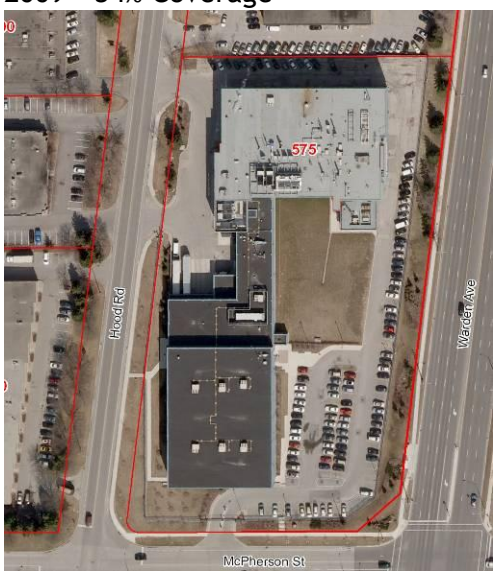
Based on these images, it is clear that the site operational requirements are key to determining the limits of building expansion for additional site development because employee parking areas, traffic movement areas and loading areas must be adequate to support both existing employees and the increased number of employees that are intended to be accommodated by the building expansion.

Figure 14: 575 Hood Road

1999 - 16% Coverage



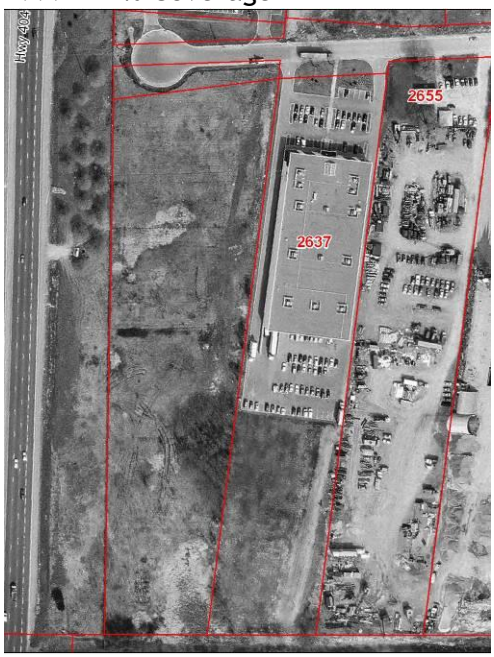
2009 – 34% Coverage



At 34% coverage, the industrial property at 575 Hood Road appears to have limited additional opportunities available to add more building coverage and provide sufficient parking for employees.

Figure 15: 2634 14th Avenue

1999 - 24% Coverage



2009 – 49% Coverage

The property 2634 14th Avenue appears to have maximized building coverage while providing sufficient space for operational site requirements such as parking and truck movements. Landscaped open space is limited and the landscaping strip adjacent to 14th Avenue has been reduced to accommodate additional parking for the building expansion. Parking areas appear to be maximized.

Figure 16: 90 Royal Crest Court

1999 – 36% Coverage

2009 – 51% Coverage

The warehouse property at 90 Royal Crest Court has been developed to 51% coverage and the expansion has consumed all interior landscaped open space. In comparison to industrial uses, warehouses typically have lower employment densities and as a result there is less demand for site parking in comparison to the previous examples. At 51% coverage, site development appears to have been maximized while still providing sufficient space for parking and traffic movements for a warehouse property.

With respect to office expansions, only two expansions of about 125 square metres each occurred in the last ten years. This is primarily because office buildings are typically purpose built for the initial size of the building. It is much more likely for new buildings to be developed instead, as will be discussed later in this report.

2.3.2 Analysis (Industrial and Warehouse ELE)

As noted in previous sections, the average coverage of industrial and warehouse ELE buildings is 38 percent. The median coverage is 40 percent, which reflects the wide range in the size of properties that are within the study area. It is long been a standard in the development industry that between 30 and 35% of an industrial property would be the site of building with the remaining area being devoted to landscaping, parking and loading. This *"rule of thumb"* appears to be reflected in the analysis for Markham.

Between 1999 and 2009, the Town of Markham experienced periods of strong economic growth. During this time of economic growth, existing ELE building expansion was limited as only 23 of the 593 ELE properties in the study area (or 3.6%) of the properties). Based on 46,930 square metres of expansion space, about 700 employees (the number of employees is based on employees per hectare with these employees occupying space in a one storey building that has a lot coverage of 40% - 4,000 sqm/60 = 66.6 sq m per employee) were theoretically added through building expansion during this 10-year period. It is noted that this number of employees is only an estimate, with this estimate being very much dependent on the nature of the business and the use of the new floor space.

Given the current unpredictable economic climate, it is difficult to assume whether the historic levels of ELE building expansion will continue over the next 10 years. Even if the historic rates of ELE building expansion remain the same, the number of employees generated by building expansion represents a very small percentage of Markham's expected ELE job growth in the next 20 years.

Based on a review of the ELE building expansions that have occurred, the majority of the properties that experienced building expansions now have lot coverages of between 40 percent and 50 percent. Based on this information, the current situation with respect to lot coverage on the 593 parcels and the limiting factors to intensification identified in this report, it is our opinion that the majority of ELE buildings in Markham will not exceed a lot coverage of 40% to 45%. However, and notwithstanding the above, this does not automatically mean that buildings that occupy less than 40% of the lot will be expanded, since business owners consider a number of factors in determining whether to expand or not. Section 3.0 details the physical capacity constraints that combine to support this observation.

3.0 PHYSICAL CAPACITY ANALYSIS

3.1 PURPOSE OF THE PHYSICAL CAPACITY ANALYSIS

The purpose of the physical capacity analysis is to consider the potential for increasing the amount of floor area in existing industrial and warehouse ELE buildings. At the present time, these buildings range in size from 1,000 square metres to upwards of 30,000 square metres. Over time, the design and functionality of ELE buildings has undergone change along with the changing needs of industrial, warehousing and manufacturing industries as they modernize. However, this physical capacity analysis considers current operation and site requirements of ELE businesses and reviews the expansion potential for the different ELE building types based on our understanding of current needs.

The expansion of industrial/warehouse ELE businesses generally occurs in one of two ways.

The first is a circumstance where a successful industrial/warehouse use on a property requires more floor space and seeks to expand the existing building to accommodate that floor space. In circumstances such as these, the property is the site of only that use and the owner has control over the entire property. To a very large extent, the economic viability of expanding a building to accommodate the expansion of an existing use is very much dependant upon the economic viability of the company itself. In other words, the more successful and profitable a business is, the less sensitive the business is to the cost of expanding. In other cases, the need to expand quickly to meet demand and hold onto market share will make the expansion of an existing building more attractive than finding a new premises. However, if a new location is required, another location for a distinct component of the business may be established in vacant floor space in a nearby building.

The economic viability of expanding a single use building to accommodate additional floor space also depends on what the floor space is needed for and the size of the additional floor space in relation to the size of the existing building. For example, in a large manufacturing facility that has a floor area of 20,000 square metres, adding 500 square metres to the building would not be significant from any perspective. However, adding 5,000 square metres to a 10,000 square metre building would be a much more significant undertaking. As a result, there are a number of factors that combine to have an impact on the decision-making process leading to a possible expansion.

The second way industrial/warehouse businesses expand in ELE buildings is in a multiple unit building context. In cases such as these, where there is a single owner with a number of tenants, a tenant wishing to expand negotiates with the owner and adjacent tenants on the reconfiguration of space to provide for the expansion. Owners are typically motivated to enter into these kinds of negotiations because in exchange, they obtain a commitment in the form of a lease that guarantees rental income into the future. In circumstances where an existing tenant is displaced as a consequence of expanding a use, the owner than finds a way to accommodate that

displaced tenant in the same building, again in exchange for a lease commitment and perhaps with a reduction in the rental rate to make the deal attractive.

The internal reorganization of multiple unit buildings is very common, since it is within these buildings that many new businesses are started. Given that start up businesses do not typically have the funds to occupy more space than they need initially, it is very common for successful businesses to require more space often as their business grows. It is noted however that expansions may not generate more employees, since the additional space may be required for warehousing for example.

With respect to office buildings, the internal reorganization of space in a single owner building with multiple tenants is also very common, as it would be for multiple unit buildings that are designed for industrial and warehouse type uses. The physical expansion of a purpose built office building through the addition of new floors or by expanding the footprint is not common since office buildings are generally built in a manner that does not provide for its expansion.

In some cases, office buildings may be developed in phases and the parcel size is large enough to accommodate a second building in the future as market demand dictates. The most significant potential for expansion can, in most cases only be realized if the number of parking spaces also available on the site increases or if there is already space on the lot for additional surface parking. In circumstances where all of the parcel is used for building, parking and landscaping, the only way to achieve greater parking is by building a structured parking garage or developing new parking underground. Both are very expensive and would require a significant amount of additional floor space to make this viable from an economic perspective. In a circumstance where a structured parking was being added to a property, the likelihood is that the additional floor space will be developed on top of the structured parking, as opposed to the addition of floor space on to an existing building.

3.2 LIMITING FACTORS TO INTENSIFICATION

Limiting factors to intensification are not mathematically based. In contrast, limiting factors are based on a combination of circumstances derived from primarily the operational site requirements and the design of buildings associated with ELE uses.

Operational site requirements are features that are necessary in order for a site and a business to function. In the case of industrial/warehouse ELE businesses, operational requirements include areas for staff and visitor parking, loading areas in order to load products and off-load materials, traffic areas which convey vehicular movement within the site and to abutting roadways, fire access routes and drainage requirements. Some businesses also rely upon outside areas for material storage, truck parking and waste management, fuel storage, energy systems and telecommunications equipment. Operational requirements are often dictated by the type of industry, but Town regulations encompassed in zoning by-laws also establish minimum standards for operational site requirements.

The following sections discuss these operational site requirements as they apply to industrial and warehouse ELE uses and other site design considerations which have an

impact on the amount of floor area that could be located on a lot. A discussion of the constraints associated with office parcels is contained within Section 3.3.

3.2.1 Parking Space Requirements

Parking Area By-law 28-97 generally applies common parking requirements for ELE uses throughout the Town. **Table 6** outlines the common parking standards that are applied to Industrial uses in the Town of Markham.

Table 6 – Town of Markham Parking Space Requirements (By-law 28-97 as amended by By-law 234-97)

Building Size	Parking Requirement
1. <1200m^2	one space per 40m^2 of net floor area
2. 1200m^2 -6000m^2	one space per 100m^2 of net floor area
3. >6001m^2	one space per 200m2 of net floor area

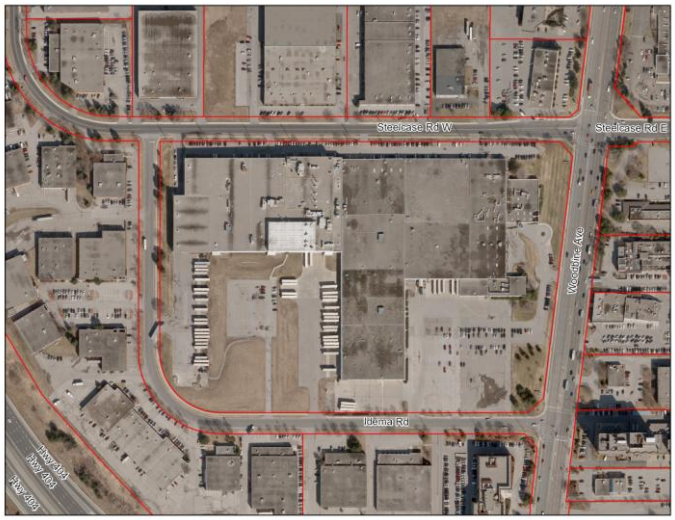
It is noted that the standards above are cumulative. This means that one space per 40 square metres of net floor area is required for the first 1,200 square metres of floor space in a building. One space per 100 square metres of net floor area is required for that portion of the building that has a floor area of between 1,200 square metres and 6,000 square metres. Based on a review of parking standards in other municipalities, Markham's requirements are lower than average.

The demands of building occupants in some instances will necessitate additional parking beyond the minimum standards outlined in zoning by-laws. This reality was confirmed though the business stakeholder sessions as a number of owner operators indicated that they supplied parking in excess of by-law requirements in order to accommodate their employee's needs.

Figures 17 and 18 provide examples of parking needs industrial and warehouse uses. **Figure 17** is of a large office and warehousing operation on Hillmount Road. In this case, the parking area is focused on the office component of the use and landscaped islands have been created for aesthetic purposes. In addition, a generous landscaping strip has been provided along the Hillmount Road frontage, with that landscaping strip being applied to all of the lands between the warehouse component and Hillmount Road. **Figure 18** is of a large industrial operation at the intersection of Woodbine Avenue and Steelcase Road West. In this case, a very large parking area has been located on the site for employees, however the configuration of the lot and the building means that the amount of land potentially available for parking is not utilized and is used instead for landscaping purposes.

Figure 17: Parking Space Requirements – Hillmount Road

Figure 18: Parking Space Requirements - Woodbine and Steelcase



Based on the Town of Markham parking requirements set out above in **Table 6,** a 4,000 square metre building would require 58 parking spaces. Each parking space and half of the aisle in front of the space would occupy about 27 square metres. This means that about 1,566 square metres of land area would be required for the 58 parking spaces, with this land area not taking driveways and inefficiencies in terms of site design and landscaping into account nor accounting for the land required to accommodate truck movements, parking or loading.

On a one hectare property, the 1,566 square metres would occupy 15.66% percent of the lot. A typical standard applied in the development industry in employment areas is that about 35 percent of any lot is required for surface parking, loading areas and truck movement areas and access driveways. Based on the calculations carried out above and the variation in parking requirements required by different companies, it is

reasonable to assume that parking areas would occupy between 20 and up to 35 percent of a typical lot.

While reducing parking standards is one option for the Town to consider to support further intensification, any reduction in the parking standard does not automatically translate into a higher potential for the development of additional floor space. To a very large extent, the need for parking spaces on a lot by lot basis is determined by the business owner depending on the nature of the business. While improvements to transit can have an impact on the number of people driving to work, the improvements would need to be significant to reduce the overall parking demand and again, even if the parking demand was reduced, there is no relationship between reduced parking demand and increased floor area that can be relied upon to occur in any predictable way.

3.2.2 Loading Space Requirements

Loading space requirements are an operational requirement for ELE properties and are necessary to allow for the loading and off-loading of goods and materials. Similar to parking, minimum standards for loading spaces are regulated by zoning by-laws. In many instances, industrial and warehouse type uses require more loading spaces than the minimums that are regulated by by-laws. As a result, it is the building's function that typically determines the number of loading spaces that are required for these type of businesses. **Figures 19 and 20** provide examples of similar sized ELE buildings that have different loading space needs.

Figure 19: Loading Space Requirements – East Side of Shields Court

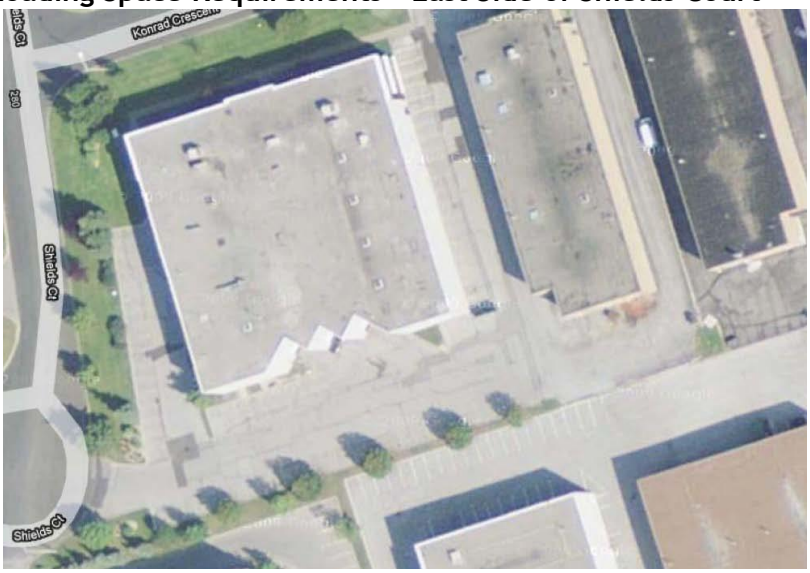


Figure 20: Loading Space Requirements - West Side of Shields Court

The minimum loading space requirements that are established by the various Markham zoning by-laws are outlined in **Table 7**.

Table 7 – Town of Markham Loading Space Requirements (In selected by-laws)

By-law #	Building Size	Loading Space Requirements
28-82	for first 1860m^2 for buildings greater than 1860m^2	one space two spaces
2284-68	5,000ft^2 to 25,000ft^2 25,000ft^2 or more of industrial floor space	one space two spaces
119-73	<20,000ft^2 >20,000ft^2	one space two space
108-81	for first 1860m^2 for buildings greater than 1860m^2	one space two spaces
165-80	for first 1860m^2 for buildings greater than 1860m^2	one space two spaces

Loading spaces generally have an area of 54 square metres to 72 square metres. The area of driveway required for the movement of larger trucks is significant and will add to the amount of land required for loading purposes. In many cases, loading areas are sited as far away from residential areas to minimize impacts or to be out of view of the adjacent street and as a consequence, a significant amount of paved area is required to facilitate truck movements.

3.2.3 Traffic Movement Areas

Traffic movement areas allow for vehicular movement on a lot. Traffic movement requirements are generally not regulated through zoning by-laws but rather enforced though the site plan control process based on tenant requirements. The area of land required for traffic movements very much depends on a number of other factors, including the nature of the use, the number of parking and loading spaces required, the location of the building in relation to lot lines and streets and the configuration of the lot and location of access driveways and the location of waste storage areas and their access routes for larger waste haulage vehicles.

The most significant factor is the need for loading areas and the amount of land required for the moving of large trucks and trailers and in some cases, the need to store these vehicles on site. Many of these factors combine to create areas on a lot where development in the form of buildings cannot occur. In some cases landscaping requirements, either corporate or municipal have an impact on the siting of parking, loading and traffic movement areas.

3.2.4 Landscaping Strip Requirements

Landscaping strip requirements are regulated through zoning by-laws to improve community design and sense of place. **Table 8** outlines the landscaping strip requirements contained within applicable Town of Markham by-laws.

Table 8 – Town of Markham Landscaping Strip Requirements

	Landscaping Strip Requirements (metres)	
By-law #	Arterial Roads	Standard Streets
90-81	N/A	N/A
28-82	9	6
2284-68	N/A	N/A
2237	N/A	N/A
2053	N/A	N/A
2004-19	N/A	N/A
193-81	N/A	N/A
177-93	N/A	N/A
127-76	N/A	N/A
1229	N/A	N/A
119-73	9	6
108-81	9	6
165-80	9	6

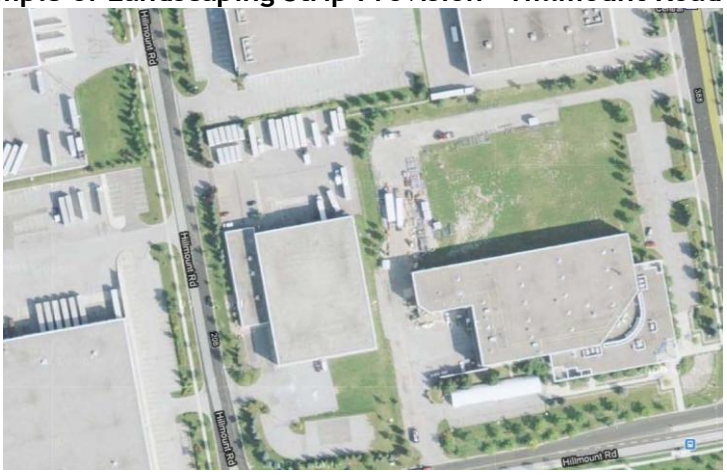
While it would appear that many of the Town's employment by-laws do not include landscaping strip standards, the majority of the parcels of land in the study area are subject to By-laws 28-82, 108-81 and 165-80 and it is within these by-laws that a 6.0 metre wide landscaping strip is required adjacent to all streets, with this landscaping strip requirement increasing to 9.0 metres along the street line of an arterial road. A typical 0.5 ha lot in the Denison Employment Area on an Arterial Road with 60 metres

frontage would have a landscaping strip of 540 square metres. It is noted that parking and loading areas are not permitted within the required landscaping strip. **Figure 21** below shows how landscaping strip requirements contribute to the aesthetics of the street.

Figure 21: Landscaping on Bentley Street

Figure 22 is an example of how landscaping areas have been added on the street frontages of an ELE property.

Figure 22: Example of Landscaping Strip Provision – Hillmount Road



While the Town's by-laws do establish minimum requirements for landscaping strips, many business owners decide to provide additional landscaping on their properties to enhance the aesthetics of the property and/or to reflect an overall corporate vision. As with parking standards, the decision to provide additional landscaping for any reason is entirely at the discretion of the business owner and the Town does not have any control over its provision. It is also noted that these landscaping areas also

typically function as snow storage areas in the winter, and that they provide opportunities for the infiltration of stormwater flowing from paved surfaces on a property.

3.2.5 Yard Requirements in Zoning By-laws

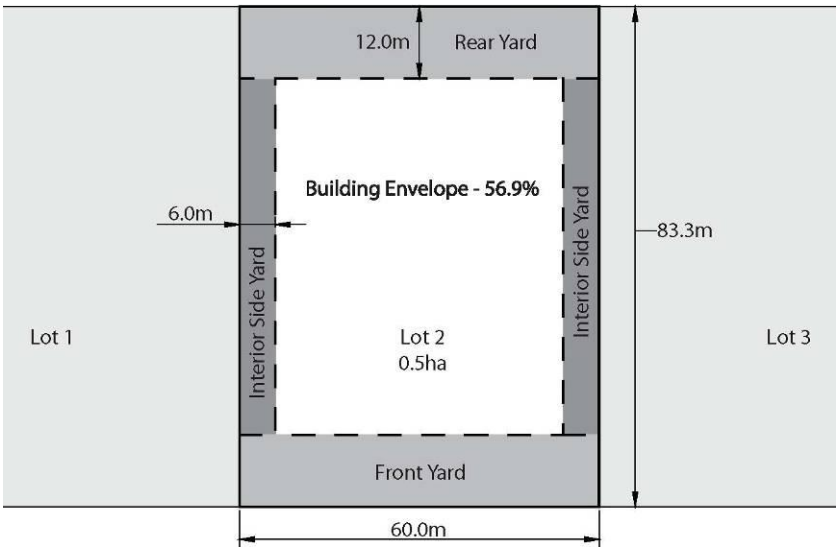
Yard requirements exist in zoning by-laws to ensure that buildings are adequately setback from streets as well as buildings on adjacent properties. Yard requirements also assist to ensure a consistent streetscape throughout industrial areas. Yard requirements also serve to provide the lands required to support landscaping features and design elements associated with industrial properties. **Table 9** outlines the current yard requirements of select employment by-laws within the Town of Markham.

Table 9 – Town of Markham Yard Requirements (In select by-laws)

By-Law #	Front Yard	Rear Yard	Side Yard
2284-68	4.5 metres	3.0 metres	4.5 metres
28-82	12 metres	12 metres	6 metres
119-73	12 metres	12 metres	6 metres if less than 14 metres, if greater than 14 metres 6 metres plus 0.25 of building height
108-81	12 metres	12 metres	6 metres if less than 14 metres, if greater than 14 metres 6 metres plus 0.25 of building height
165-80	12 metres	12 metres	6 metres if less than 14 metres, if greater than 14 metres 6 metres plus 0.25 of building height

Based solely on the performance standards outlined in **Table 9**, a typical 0.5 hectare lot in the Denison Employment Area that is regulated by By-law 108-81 could have a maximum lot coverage of 56.9 percent based on current By-law standards. The above means that over 33% of the lot is not permitted to be the site of a building. While landscaping, parking and loading areas can occupy this 33% of the lot area, observations of actual development indicate that these operational requirements require much more than 33% of the lot area, and based on the finding in this study that the average lot coverage on the 593 industrial and/or warehouse ELE properties is 38%, the observation is supported by the analysis carried out in the context of this study. **Figure 23** provides a visual representation of how yard requirements limit building coverage on ELE properties that are subject to By-laws 28-82, 119-73, 108-81 and 105-80.

Figure 23: Standard ELE Yard Requirements and Impacts on Maximum Lot Coverage (By-laws 28-82, 119-73, 108-81 and 105-80)



3.2.6 Environmental Features

Site design is also impacted by the location of woodlots, and natural features such as watercourses. These features and their associated buffers can decrease the developable area of a property. While many of these features are not identified as being significant from an environmental protection perspective, these wooded areas over time sometimes become important components of the character of a property and area.

In some cases, landowners will not remove a woodlot because it enhances the value of the property and/or it provides an appropriate buffer between the business and adjacent non-employment uses. Some employers may also retain a woodlot on their property to provide amenity areas for their staff. While this is not common in the Town of Markham, there are a number of small woodlots on ELE properties in the study area. In some cases, woodlot areas are dedicated to the Town of Markham as parkland, such as the Clark Young Woods on Birchmount Road as shown on **Figure 24**.

With respect to watercourses, the lands associated with watercourses are regulated by the Conservation Authority and their regulations often require that buildings and parking areas be set back a certain distance from the top-of-bank of watercourses and other drainage courses.

Figure 24: Example of Environmental Feature/Woodlot used as a Town Park – Birchmount Woodlot

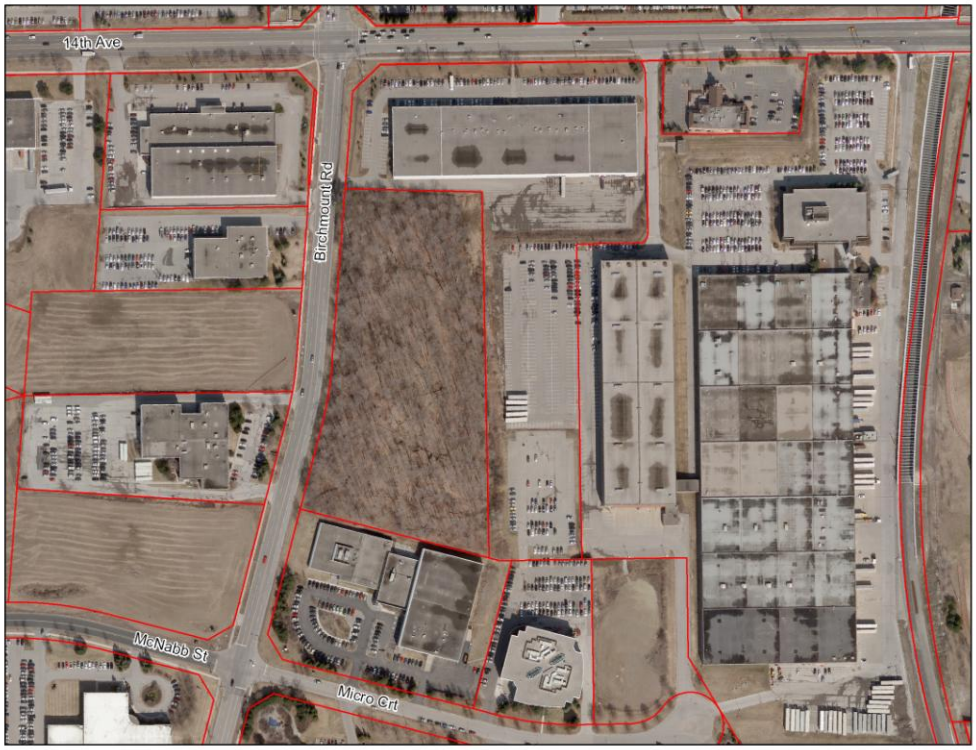
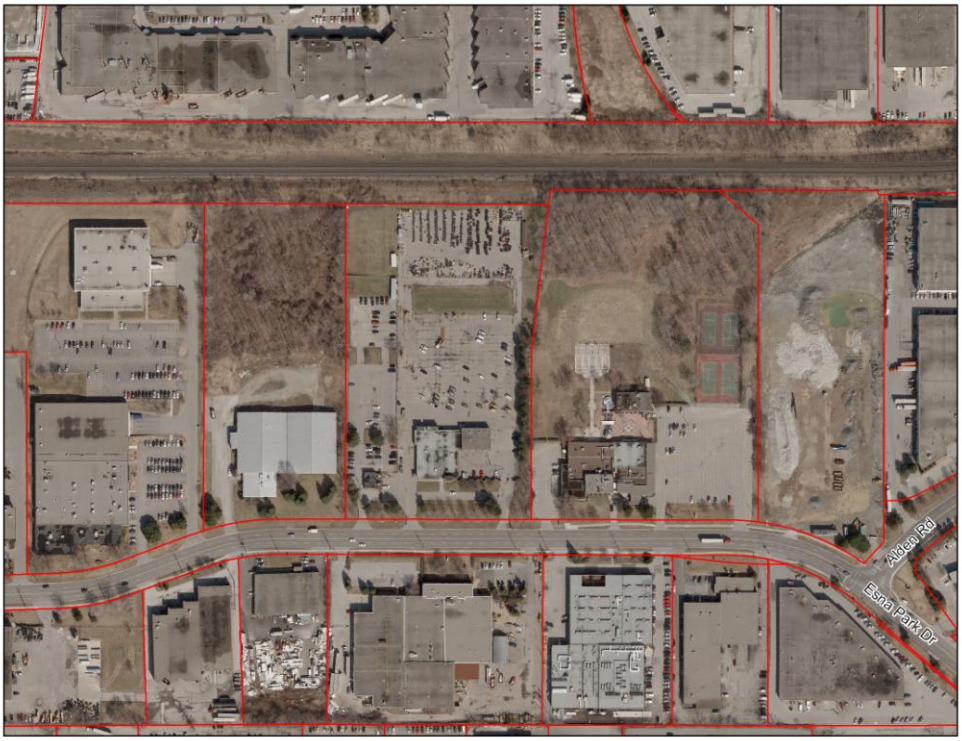


Figure 25: Example of Woodlots on Private Properties – Esna Park Drive



3.2.7 Stormwater Management

Most of the industrial and warehouse properties in the study area do not have dedicated stormwater management ponds that are designed to both treat stormwater run-off and hold stormwater during heavy rain events. However, many properties are graded in a manner that is intended to convey drainage to public streets and adjacent lands and as a result, the grading of the land will have an impact on building siting, particularly if grade changes in an area are common.

With more recent developments, there is now a requirement to establish and locate centralized stormwater management facilities that are primarily designed to improve the quality of stormwater and hold water during rain events to minimize flooding impacts.

On some larger properties that are newly created and/or proposed for redevelopment, there may be a need to establish such a private facility on the property, with the size of the facility being directly related to the amount of impervious surfaces on the property. In other words, the larger the building in relation to the lot and the more parking that is required, again in relation to the size of the lot, the larger the stormwater management facility generally becomes. While this is not a significant issue for the vast majority of the already developed properties, any property going through a major redevelopment and any new lot created in an ELE area is potentially subject to modern stormwater management requirements. **Figure 26** is an example of a Town-owned stormwater management pond in a relatively new employment area on Hillmount Road.

Figure 26: Example of Stormwater Management Pond – Hillmount Road

3.2.8 Fuel Storage Requirements

For any ELE business that has bulk fuel tanks on site to enable truck operators to refuel, the setback required for these facilities will have an impact on building location as shown below. The setbacks associated with fuel storage, propane storage or other bulk chemical storage facilities are items limiting factors to intensification.

3.2.9 Need for Fire Access Routes

Fire Access Routes are an essential component of site design and their requirement and presence limits the intensification potential of ELE properties. In many instances, Fire Access Routes are sited within the required yards or other traffic movement areas. The typical width of a fire access route is 6.0 metres and it is typically required on one side of the lot to access the rear. The land devoted to the fire access route must be exclusive of lands used for the parking of cars and trucks.

3.2.10 Parcel and Building Configuration

Site design and building placement can be impacted by the configuration of parcels and the location of buildings on adjacent parcels. Two examples are provided in the form of **Figures 27** and **28**.

Figure 27: Example of Parcel Located on Curve – Steelcase Road

Figure 27 shows how the configuration of the lot influences the development potential of the property because the curve of the front lot line increases the percentage of the lot that is dedicated to landscaping and the required front yard.

Figure 28: Example of Lot that allows for higher Lot Coverage – Steelcase Road

Figure 28 shows how the buildings have been sited in a manner that allows for neighbouring businesses to share operational space such as truck movement areas. The sharing of operational space can allow for increased lot coverage in some instances.

3.2.11 Land Use Compatibility

In addition to the constraints identified in previous sections of the report, there is also a need for the Town to consider a potential constraint to additional industrial and warehouse ELE development in the study area that relates to the presence of incompatible land uses today and the development of such uses in the future. At the present time, there are a number of manufacturing uses in Markham that operate 24 hours a day and on weekends. Other uses require the outdoor storage of goods; materials or equipment and others may emit noise, dust and/or odour that may have adverse effects on other uses. Many of these uses are required to be sited near other like uses to ensure that there are no land use conflicts. However, land use conflicts do occur if uses that are considered to be sensitive are located nearby. Examples of sensitive uses potentially include:

1. Daycare centres;
2. Private schools and places of worship;
3. Offices that are not associated with a manufacturing or warehousing use;
4. Restaurants (particularly those with outdoor patios);
5. Banks and other financial institutions; and
6. Medical clinics.

It is noted that some of the above uses are typically found in employment areas throughout the Greater Toronto Area. However, the determination of whether a land use is sensitive is very much dependant on the nature of the other uses which exist in the area now, and in the future, in accordance with current zoning. The definition of

sensitive land uses from the 2005 Provincial Policy Statement makes it clear that virtually any land use could be considered sensitive depending on the surrounding land use context.

> *"**Sensitive land uses**: means buildings, amenity areas, or outdoor spaces where routine or normal activities occurring at reasonably expected times would experience one or more adverse effects from contaminant discharges generated by a nearby major facility. Sensitive land uses may be a part of the natural or built environment. Examples may include, but are not limited to: residences, day care centres, and educational and health facilities."*

While sensitive land uses are not often permitted as of right in the Town's zoning by-laws in the study area, they are sometimes permitted on a case-by-case basis through a rezoning or minor variance process. In cases such as these, a comprehensive review of the surrounding areas is required to determine whether such a use is appropriate in the area. However, this does not always occur since the nature of the surrounding uses in terms of their potential impacts are not known, and do change over time.

While adding these types of uses may seem appropriate at the time of application, it is only when an industrial or warehouse use requires an approval from the Ministry of Environment (MOE) pursuant to the Environmental Protection Act that the implications of adding such a use on an existing use become clear. During our discussions with stakeholders, one business owner with a viable manufacturing operation indicated that the possibility of him obtaining the approvals he required to expand his business was very unlikely, given the existence of a nearby daycare centre. In this case, the landowner indicated that he would have no choice but to find another property on which to grow his business, with that property most likely being in Markham, however such a property could also be in an adjacent municipality. In this case and in others, when an application for a Certificate of Approval for noise, dust or odour emissions is submitted, the MOE requires the submission of a study which reviews the location of sensitive land uses in the area and once that location has been submitted, the nearest sensitive land use becomes a sensitive receptor and it has to be demonstrated that the proposed noise, dust or odour emission will not have an adverse effect on that sensitive land use.

There are a number of policies in the 2005 PPS that have a bearing on land use compatibility in general and on whether it would be appropriate to permit potentially sensitive uses in employment areas. These policies are included within **Appendix 1.** In order to ensure that potentially sensitive land uses are not permitted as of right in ELE areas, the Town's Zoning By-laws should be reviewed and any uses that are deemed to be sensitive should be deleted as permitted uses.

It is recognized that even if the by-laws applying to ELE areas were amended in this manner, there still may be uses on adjoining non-ELE (and on non-employment) properties that have a similar impact. As a consequence, it is also recommended that the by-law provisions applying to lands adjacent to ELE areas be reviewed and that sensitive land uses be deleted as permitted uses in these areas as required, and if appropriate.

3.2.12 Summary

As noted at the beginning of this section, the buildings on the 593 industrial and warehouse ELE parcels within the study area occupy about 38% of the available land area. The remaining 62% of the available land area is typically occupied by parking and loading areas, environmental features, drainage features, landscaping (required and non-required), traffic movement areas and lands that are not available for building as a consequence of zoning by-law setbacks or required yards. Other lands are not utilized because of the configuration of the property (most noticeably on curves) and the configuration of the buildings themselves.

While there are a number of instances where buildings occupy more than 38% of the lot, higher lot coverages are generally enabled by the nature of the use, the ability to share parking and loading areas with parking and loading areas on adjacent properties and the absence of a need for large areas devoted to truck movements. To a large extent, the more of a property a building occupies, the less desirable it becomes for those uses which require parking for employees and loading areas for the shipment of goods and materials. This means that options for ELE uses may actually be further limited if these attributes (parking and loading areas) are not available on a property. This issue is explored later in this report.

3.3 OFFICE BUILDINGS

As mentioned previously, there are 75 office buildings in the study area. These office buildings have been purpose built as offices and it is not expected that these buildings will be converted to industrial or warehousing uses in the future.

Most office buildings have a lower lot coverage than industrial and warehouse buildings, primarily because office buildings generally are multi-storey and have a greater number of employees than a similar sized industrial or warehouse use. As a consequence, the need to provide for surface parking for employees is a key determinant in the amount of a lot that is covered by an office building. In the case of the Town of Markham, the Town's parking requirements indicate that one parking space is required for every 30 square metres of net floor area. While a 4,000 square metre industrial use would require 58 parking spaces, this same amount of office space would require about 120 to 133 parking spaces depending on how much floor area is being utilized.

A review of the potential for intensification on the 75 office properties has been carried out. On the basis of this review, it is clear that the majority of the properties studied are built to their maximum potential, given the use of literally all parts of the properties for building, parking and landscaping. Examples of this are shown on **Figure 29** below, which is a three storey office building on All State Parkway.

Figure 30 below is of a one-storey building at the north-west corner of Woodbine Avenue and John Street. The size of the lot in this case is 0.86 hectares, the lot coverage is 30% and the FSI is 44%.

Figure 29: All State Parkway

Figure 30: Woodbine Ave and John Street

Figure 31 below shows a four-storey building on Town Centre Boulevard, which also has a lot area of about .85 hectares, but it has a much lower coverage (16%) and an FSI of 64%. In the case of this property, all of the available land, except for a landscaping area on Town Centre Boulevard is utilized for parking and building. **Figure 32** below is of a five-storey building on Cochrane Drive. In this case, the lot coverage is very low (11%). The FSI is 57% and the lot area is 1.71 hectares. In this case, all available land is used for building and parking.

Figure 31: Town Centre Boulevard

Figure 32: Cochrane Drive

Notwithstanding the above, our review did determine that there is some office intensification potential on a limited number of office properties in the study area. In some cases, that potential may be very limited as shown on **Figure 33** below or significant as shown on **Figure 34** below.

Figure 33: 25 Centurian Drive – Limited Intensification Potential

Figure 34: All State Parkway - Significant Intensification Potential

Figures 35 and **36** show other properties that have significant intensification potential.

Figure 35: 25 7271 Warden – Significant Intensification Potential

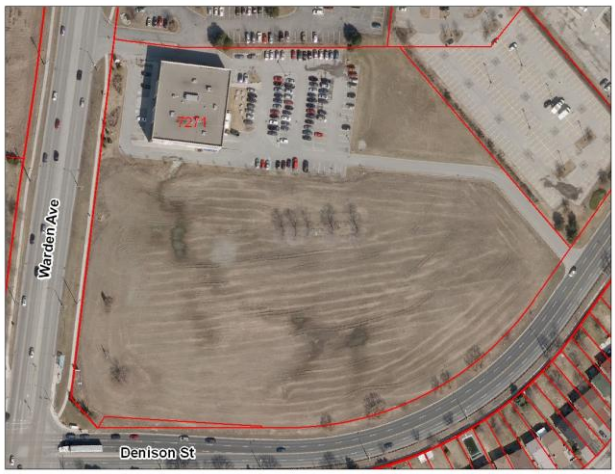


Figure 36: 7225 Woodbine - Significant Intensification Potential

Based on our review of these properties, approximately 34,000 square metres of additional floor space is possible on eleven properties, without requiring any form of structured parking. In most cases this is achievable because the original developer anticipated developing another building on the same site in the future. This amount of floor space could generate about 1,363 new jobs.

4.0 SEVERANCE POTENTIAL

Severable properties have the potential to increase employment by creating the opportunity to establish new businesses.

In the last ten years, 12 new lots have been created through the severance process. All of these now lots were large enough to support the development of new ELE buildings.

Not all ELE properties have the potential to be severed. For the purposes of this study, in order for a property to be considered to have severance potential, there must be an area on the lot that on its own would meet the minimum lot frontage and lot area requirements of the zoning by-law. The said area must also be free and clear of buildings and structures and not used for a purpose that is integral to the operation of the business (i.e. open storage). While the minimums set out in the zoning by-law can be varied, it would be speculative to assume what this reduction would be on a case-by-case basis as part of this study.

Based on these requirements, about 18 to 23 properties have been identified through aerial photography and visual inspection as having the potential to be severed. Some of these properties have been in existence for some time and the potential to sever these parcels has been available in some cases for many years. Specific reasons for not applying are not known. In our experience potential reasons could potentially have included:

1. The desire to keep options open for expansion in the future;
2. The focus of business owners on running their businesses – as opposed to land development; and
3. Lack of knowledge regarding potential.

While the potential as identified does exist, there may be circumstances where an application is refused because of traffic, environmental, engineering and/or land use compatibility concerns. On the basis of the above, it would be premature to speculate on how many (if any at all) of the parcels identified would be severed in the next 10 years.

The potential to gain additional employment intensification as a result of the severance of existing employment properties is therefore limited due to the small number properties with severance potential and the likelihood of a severance actually occurring. In many instances where severance potential has been identified, it is most often unlikely that a severance will actually take place, because it is common for existing growing businesses locate on lots with lower lot coverage in order to allow the business the ability and flexibility to expand buildings and supporting site infrastructure as the business grows.

5.0 STRUCTURAL CAPACITY ANALYSIS

5.1 PURPOSE OF THE STRUCTURE CAPACITY ANALYSIS

The purpose of the structural capacity analysis is to consider the potential for the existing industrial building stock within the Town to develop additional floor space through the vertical expansion of the existing industrial buildings within the Town. As part of the structural capacity analysis, consideration has been given to the different types of industrial building stock that are found in the Town of Markham and the structural related limiting factors to vertical expansion.

5.2 DESCRIPTION OF BUILDING STOCK IN THE STUDY AREA

Constructed largely between the 1970's and 1990's, the building stock of Markham's existing Employment Areas shares many characteristics with other suburban, post-war Employment Areas developed across the GTA, Ontario and North America. Designed primarily around the requirements of the tractor-trailer based transportation system, these buildings are almost exclusively single storey structures, surrounded by ample staging areas, and organized around wide ROW's.

These buildings fall into two major categories; sheds (commonly warehouses) and offices. Based not only on their use, these categories are each characterized by distinct structural systems; floor-to-ceiling heights; mechanical and electrical systems; as well as approaches to programming, site design, fenestration (windows), massing and circulation. Generally, shed buildings are low-rise, single storey structures with high ceilings and large spans (small office components are commonly located at the front of the buildings). Offices, on the other hand, vary in height, have lower ceilings and smaller spans. Given that almost all of the ELE buildings in the study area are sheds, the focus of our analysis is on the sheds.

The shed building typologies generally share the following characteristics;

- *Steel Structure* – Most commonly, structural systems consist of steel W-section columns, open web steel joist, and corrugated metal roofs decks. Column spans vary, however 9-12m (30-40 feet) column spacings are common. Floors are generally concrete slab-on-grade construction, with limited, or no, basements. Cladding systems vary widely, but commonly include insulated metal panels systems, pre-cast panels or concrete block or brick wall assemblies.

- *Floor-to-Ceiling Heights* – Ceilings are generally left exposed, with a clear height of 4.2 to 4.8m (14-16 feet). Newer, or specialized warehouses tend to have taller clear heights. Within older employment areas, such as the Denison, Thornhill, and Thornlea employment areas, building heights range between 4.2 to 4.8 metres. In these areas, industrial and manufacturing uses generally have similar building heights throughout except where additional height is required for specific manufacturing processes. Newer ELE buildings within employment areas focused around the 404 Corridor generally have higher building heights that typically range

from 6.0 to 9.0 metres. **Figure** 37 below is of an older ELE building with low ceilings and **Figure** 38 is of a newer ELE building with higher ceilings

Figure 37: Example of Older ELE Building with Low Ceiling Height

Figure 38: Example of Modern ELE Building with High Ceilings

- *Mechanical and Electrical Systems* – Mechanical and electrical systems in shed buildings are commonly left exposed. HVAC systems are typically sized for the low occupant loads common in warehouse uses. Office areas, commonly located at the fronts of these buildings will have specialized HVAC, lighting, power and data distribution.

- *Programming* – Most shed structures include a purpose-built office component at the front of the structure. These offices a generally one storey, but are sometimes two storeys with the second storey sharing a common roof with the main structure. The office areas tend to be more highly articulated with elements such as canopies or signage, contain large full-height windows, and are often treated with different cladding from the rest of the building.

- *Site Design* – Most common shed buildings are set back from the street and include a dedicated parking area at the front of the building. This area is commonly separated from the street by a landscaped berm or open space area which often features signage. Loading docks, commonly located at the rear of the buildings, are accessed by driveways in the side yards.

- *Fenestration (Windows)*– Other than the windows at office areas (described above), most shed buildings have very few windows within their exterior walls in order to maximize interior flexibility. Natural light is brought into the buildings through the use of skylights or windows.

- *Massing* – The massing of most shed structures is rectangular in form, based on the consistent column grid of the structural systems (described above). The interiors are generally left completely open without any partitions.

- *Systems Approach to Design + Construction* – Typical construction techniques for modern shed type buildings are built around a systems approach to design and construction. Specifically, individual elements are constructed by different trades for specific tasks such as the structural, cladding or heating and ventilation systems. Generally, structural systems have a longer lifespan (50-100 years) than most other systems (most roofing systems for example have warrantees for 20 years). For this reason, many buildings require significant capital investments on a 20-year cycle. These investments are significant factors when considering the viability of re-purposing, re-using, or re-developing existing building stock.

- *Ground floor level* – As described above, the floors in shed buildings are generally concrete slab-on-grade assemblies. Depending on the particular use, these will be set flush with the adjacent exterior grade, or approximately 1.2 m (4 feet) above the adjacent exterior grade to accommodate tractor-trailer loading dock facilities. This is an important consideration when identifying potential adaptive re-use or intensification options.

While most shed buildings share many of the characteristics described above, it is important to note several key exceptions including;

- *Specialized Manufacturing Facilities* – While sharing many characteristics noted above, many manufacturing facilities are custom designed for a particular process. Often the massing, floor-to-ceiling height, programming and site design will be tailored to suit this process.

- *Sub-divided (condo-style) structures* – A significant number of existing shed-type buildings in Markham have been purpose-built with concrete block partition walls which sub-divide the interiors into smaller units as shown on **Figure 39** below. In cases such as these, each unit is serviced by dedicated, sub-metered mechanical and electrical systems.

Figure 39: Example of Modern ELE Multi-unit Building

5.3 LIMITING FACTORS TO VERTICAL EXPANSION

The following factors have an impact on the feasibility of adding additional storeys to shed buildings (office buildings are discussed in Section 5.4).

- ***Nature of Structural Framing Systems*** - The structural systems for most shed-type buildings are designed to minimum standards (with safety factors). Specifically, structural framing systems for roofs are designed to only hold the dead loads associated with the roof itself, and live loads associated with snow and wind.

  Typical live loads for new floors above the first storey would far exceed the strength to which these roofs are designed, and would require major structural upgrades to make them possible. This approach is extremely capital intensive and very rare. Furthermore, access to upper floors would need to be accommodated through the use of extensive ramping or freight type elevators which would consume space and reduce the overall efficiencies of the buildings. (For example: a 5% ramp would need to be 80m long in order to rise 4m.)

  In contrast, traditional, pre-war warehouses were able to function as multiple storey structures for a number of reasons including; 1) structural systems were purpose-designed to support occupancies on many levels, 2) calculations were less sophisticated and safety factors higher which allowed for a wide range of alternate adaptive re-use strategies, and 3) most were designed to house heavy machinery, but have been repurposed as offices or residences with significantly lower live-loads. Notwithstanding the above, a mezzanine for low load space (primarily offices) could be developed within the shell of a shed building.

- ***Updates to the Building Code*** – Changes in use, or infill developments attached to existing structures, may trigger upgrades to existing structures due to updates in the Ontario Building Code (OBC). Part 11 of the OBC governs renovations to existing structures and makes the distinction between "Basic" and "Extensive" renovations in paragraph 11.3.3. Generally, if an existing use is maintained, and the existing interior walls, ceilings, floor and roof assemblies are substantially maintained, then the renovations are considered "Basic" and Part 11 of the OBC applies. Otherwise, the other Parts of the latest OBC apply. (Due to the wide range of individual buildings and applications, it is important to make a complete assessment of the particular structure before making this determination.)

  Generally, the shed-type structures located in Markham are of relatively recent construction, and would conform to most sections of the latest OBC. However, adding additional storeys would have an impact on the roof assembly and the walls since in most cases, shed buildings in Markham were not designed for additional storeys.

5.4 OFFICE BUILDINGS

In contrast to the shed buildings described above, purpose built office typologies found in Markham tend to share many of the following characteristics: concrete structures, lower floor to ceiling heights (2.4 to 3.0m, or 8 to 10 feet), HVAC systems sized to accommodate higher occupant loads, parking dedicated to employees with minor accommodation for loading and garbage collection, continuous perimeter windows, and multiple storey massings.

Assuming a steel structural system, the issues with respect to adding additional floors are two-fold;

1. Most roofs are not designed to support an occupancy. They are designed for snow and dead loads only, which are lower than the live loads associated with an office use. Adding additional floors would involve re-enforcing the existing roof structure to handle the higher loads.
2. Most structures are designed for the minimum loads (with a margin for safety). This means that any additional floors would require re-enforcing of the existing columns (and potentially footings below).

For these reasons, the practice of adding additional floors to an office building is very rare. No examples of such additions have been identified to Markham office buildings.

5.5 CURRENT HEIGHT REQUIREMENTS IN TOWN BY-LAWS

A review of the Town's Zoning By-laws indicate that buildings of up to 14 metres high are typically permitted in the Town's employment areas. Given that older ELE buildings are between 4.2 metres and 4.8 metres in height, the potential exists to increase building heights in older employment areas without requiring a zoning approval. With newer ELE buildings that have a height of between 6.0 metres and 9.0 metres, the 14 metre height maximum may potentially restrict the development of additional storeys. All office buildings that are greater than two to three storeys have obtained height permissions through an amendment to the applicable zoning by-law or a minor variance. It is expected that this practice will continue in the future as new buildings are proposed.

5.6 FLOOR AREA RESTRICTIONS IN TOWN BY-LAWS

A number of the Town's by-laws (most notably By-laws 2284-68, 28-82, 119-73, 108-81, and 165-80) include a maximum Floor Area Ratio (FAR) restriction. The intent of such a provision is to control the mass and bulk of a building. It is noted that the FAR calculation is based on floor area and not volume, which means that only the amount of floor area is counted. FAR restrictions are often included in by-laws to ensure that the massing of buildings is compatible with the surrounding built environment. In some cases, FAR restrictions also serve to relate the amount of development (and to indirectly influence the resulting employment density) to the amount of traffic that could reasonably be accommodated on area roads.

The FAR restrictions in Markham are not consistently applied to ELE properties and they range from 40% to 100%. If the FAR restriction is 100%, this means that the maximum amount of floor area permitted on a lot cannot exceed 100% of the lot area.

As has been noted in this report, most of the industrial and warehouse ELE properties in the Study Area are one storey in height, and 80% of the buildings have a lot coverage of less than 45% and the average lot coverage is 38%. This means that the FAR on 80% of the ELE properties in the Study Area is also less than 45% and the average FAR is also 38%. As a result, in a circumstance where the current FAR restriction is 40%, a landowner wishing to construct an addition that goes beyond the 40% would require an amendment to the by-law or a minor variance.

Given that the Town's by-laws already contain standards with respect to height, yards and landscaping, and given that almost all industrial and warehouse ELE buildings are one storey, including a FAR restriction in the Town's by-laws is not generally necessary unless there is a specific circumstance that necessitates a floor area restriction. In addition, such a restriction may be interpreted by building owners as an impediment even before they come in and talk to the Town. On this basis, the Town could consider, as part of a future zoning by-law update process whether the restriction should be eliminated from the by-laws that apply to the ELE properties in the study area.

The FAR restrictions in the Town's by-laws potentially have a more significant impact on office buildings, since many office buildings are multi storey. While most office buildings comply with the FAR restrictions in the Town's by-laws today, the development of additional floor area may require amendments to the Town's by-laws in the future. In addition, some of the Town's site-specific by-laws currently do not include any floor area associated with a parking garage in the calculation of the FAR restriction. Ensuring that this is the case in all of the Town's Employment Areas would be appropriate.

5.7 SUMMARY OF STRUCTURAL CAPACITY ANALYSIS

- ELE areas in Markham are characterized by warehouse and industrial buildings that are commonly referred to as "shed" building construction.
- Older shed buildings are primarily comprised of steel and generally have ceiling heights of 4.2 to 4.8 metres. Newer shed buildings have ceiling heights of between 6.0 and 9.0 metres.
- The primary limiting factor to developing additional storeys is the nature of the structural framing system which has not been typically designed for additional storeys.
- On the basis of the above, the potential for vertical expansion is very low and it would be very speculative to assume that any such expansion would occur in the next 10 years. However, and based on past experiences, mezzanines may be constructed as the need arises to provide for additional floor space.

6.0 ECONOMIC ANALYSIS

6.1 INTRODUCTION

As the previous sections in this report have noted, the likelihood of additional floor space being developed on ELE properties in the Town of Markham is very limited for a number of reasons. These reasons include the need to provide for parking, loading and other operational requirements and landscaping. In addition, the 23 industrial and/or warehouse ELE uses that expanded were located on properties which are considered to be under-developed, since the average lot coverage on these properties was 32% pre-expansion and 42% post-expansion. This means that the greatest likelihood for expansion exists on those properties that are currently under-developed.

As a result, the focus of this section of the report is to review whether there are any economic factors that would affect decision-making when it comes to adding additional floor space on ELE properties over and above the physical constraint factors discussed in Sections 4 and 5 of this report. It is noted that while the economics of expanding is always a consideration for business owners, most business owners will consider expansion before starting fresh with another property and will pay a premium to expand for convenience purposes and to minimize disruptions. In effect, there is a premium paid for staying at the existing location, unless the existing location itself does not support the long-term plans of the business. The potential for the ELE building stock to be used by new and emerging industries in the Town is also reviewed, because the potential does exist for the employment density to increase or decrease as a consequence, depending on the nature of the industry and the technology.

6.2 PROSPECTS FOR ELE GROWTH IN MARKHAM

Table 10 indicates that the Town of Markham has successfully achieved a very well balanced distribution of jobs across all three major categories of employment - each representing about one third of the total employment base.

Table 10: Estimated Employment in Markham by Major Category (July 2006)

Employment Category	Total	Share
Employment Land Employment	49,900	34%
Major Office Employment	47,400	33%
Population Related Employment	47,500	33%
Total	144,800	100%

Source: York Region

According to the May 2009 ELS, fundamental to the success of Markham's economy has been its ability to attract a diverse pool of major office users. Compared to all other leading employment centres in the GTA, Markham maintains the second highest share of MOE jobs. The only municipality to outperform Markham in this regard was the City of Toronto, which, in addition to having a downtown core that rivals most global

centres of international finance, is also made up of more than a half dozen major office sub-areas spread out across the city.

Markham's prominence as a major office node is attributed to two key factors. First, is Markham's development history. Markham was an attractive location for speculative office construction in the late 1980s - much of this activity was concentrated in the Highway 404 corridor between Steeles and 16th Avenue. Following the recession of the late 1980s/early 1990s, a high vacancy rate provided the right market and business conditions needed to support fast-growth companies, especially in the burgeoning area of technology and heath sciences.

Second, is Markham's aggressive approach to economic development and promotion. Efforts in branding Markham as the Canada's High-Tech Capital of Canada have been very successful. These efforts have helped to significantly advance the business community's perception and confidence of the Town as an innovative, business-friendly community. In effect, Markham is now held up as Canada's equivalent to "Silicon Valley" in San Jose or "Route 128" in Boston. Today, most companies considering a new business location in the Toronto market, are very likely consider Markham as one of their prime candidate options as a business address.

On a go-forward basis, the sectors which are anticipated to see significant job growth are those related to healthcare and education, followed by retail and wholesale trade, financial services and the very broadly defined business service sector. These trends suggest that real growth in the economy will, to a large extent, be dictated by commercial and service based occupations as opposed to those in the traditional manufacturing and wholesale trade sectors.

On the ground, this will translate into more development emphasis on major and smaller scale office buildings, industrial multiples, mixed use projects, research and development facilities and expanded institutional facilities. It is important to recognize that while much of this growth will be attributed to "white-collar" occupations, it would be inaccurate to assume that all jobs can simply be accommodated within new high-rise office towers. Much of the activity will still be low-rise, ground-oriented development, which continues to be both a popular and favoured form of development across a wide spectrum of industries – regardless of whether they are goods or service producing companies.

As further noted in the May 2009 ELS, office buildings today encompass more than simply desk jobs. The technology and life sciences sector, for example utilizes office space much differently than, an accounting firm or a law practice. In the case of technology firms (a major source of employment in Markham), flexibility and expandability both with respect to buildings and land area, are considered key attributes. Demand has been growing for new types of space often referred to as: *flex space, tech space*, or *hybrid space*, which can easily accommodate varying degrees of manufacturing, laboratory R&D and conventional office functions all within the same building. The environment is easiest to implement in single or two storey buildings on large sites in suburban business parks which is a common approach in the Town, but Markham also has a growing number of examples such as IBM, AMD (formerly ATI) and Lucent Technologies, where low rise (+/- four storeys), larger floor-plate buildings are

preferred, and the outward appearance of the building is that of an office building. Diversity in business operations requires diversity in accommodation, reflecting a range of building sizes and forms.

Notwithstanding the above, it continues to be expected that ELE job growth will continue to occur as well in the Town, as shown on **Table 11** below:

Table 11: Employment Forecast in Markham 2006-2031

	Population-Related Employment (PRE)		Major Office Employment (MOE)		Employment Land Employment (ELE)		
	Employees	% share	Employees	% share	Employees	% share	Total
2006	47,500	33%	47,400	33%	49,900	34%	144,800
2011	54,600	31%	61,550	35%	62,050	35%	178,200
2016	61,600	30%	73,000	35%	71,700	35%	206,300
2021	67,500	30%	80,600	36%	78,700	35%	226,800
2026	70,500	30%	84,700	36%	82,800	35%	238,000
2031	73,300	29%	88,700	36%	86,500	35%	248,500

Source: York Region, June 2008

The two major components of ELE are manufacturing and wholesale trade. The manufacturing sector comprises establishments primarily engaged in the physical or chemical transformation of materials or substances into new products. These products may be finished, in the sense that they are ready to be used or consumed, or semi-finished, in the sense of becoming a raw material for an establishment to use in further manufacturing. Related activities, such as the assembly of the component parts of manufactured goods; the blending of materials; and the finishing of manufactured products by dyeing, heat-treating, plating and similar operations are also treated as manufacturing activities. Manufacturing establishments are known by a variety of trade designations, such as plants, factories or mills.

The wholesale trade sector comprises establishments primarily engaged in wholesaling merchandise and providing related logistics, marketing and support services. The wholesaling process is generally an intermediate step in the distribution of merchandise; many wholesalers are therefore organized to sell merchandise in large quantities to retailers, and business and institutional clients. However, some wholesalers, in particular those that supply non-consumer capital goods, sell merchandise in single units to final users. This sector recognizes two main types of wholesalers, that is, wholesale merchants and wholesale agents and brokers.

It was reported in the Economics Sector Analysis prepared by Urbanmetrics for the Town in 2007 that in 2001, Markham's concentration of manufacturing activity (over 700 firms) combined a broad range of businesses involved in food product manufacturing, clothing and textile manufacturing, furniture manufacturing and

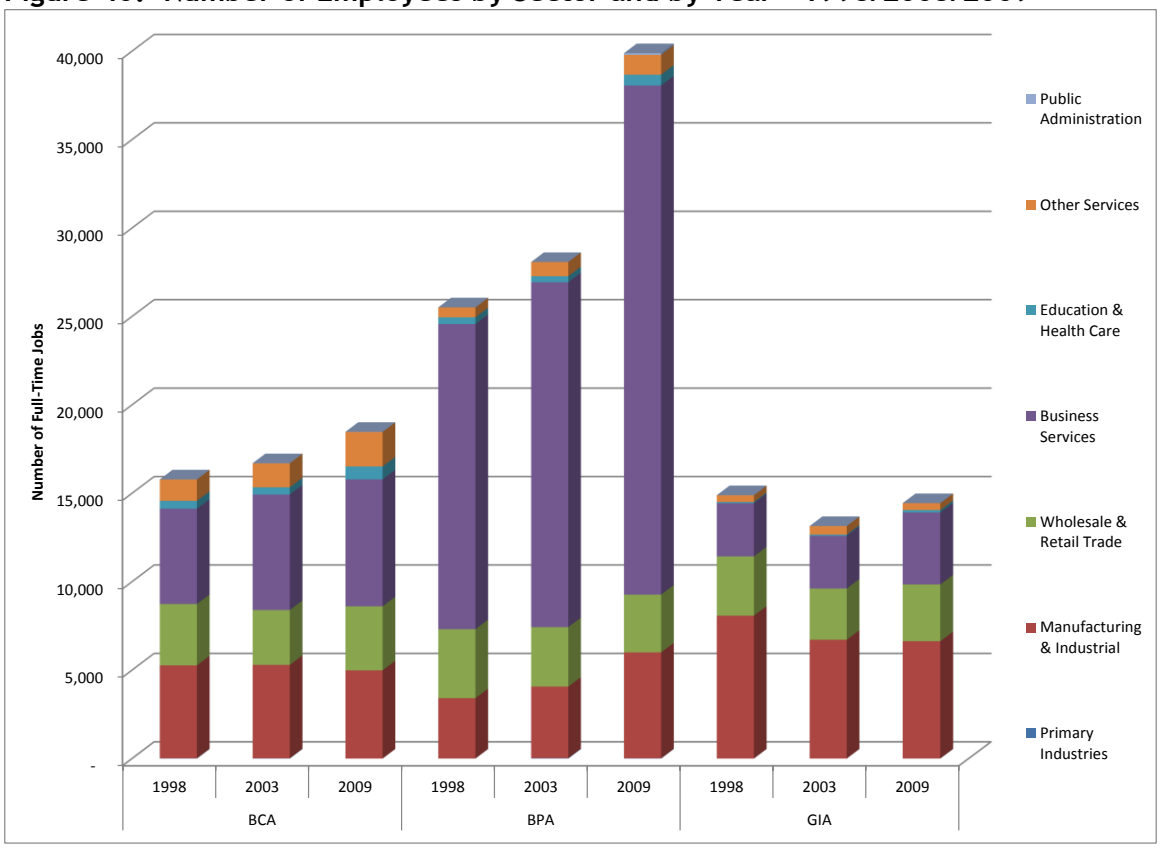
household and consumer goods manufacturing. What should be noted however is the degree to which the manufacturing sector is comprised of advanced manufacturing activity particularly as it relates to the broader Toronto region. When consideration is given to this element of the manufacturing sector, activity is more particularly focused on:

- Life Science/Bio Sciences – e.g. Pharmaceutical and Medicine Manufacturing, Medical Equipment and Supplies Manufacturing, Navigational, Measuring, Medical and Control Instruments Manufacturing

- Information Communication & Technology – e.g. Computer and Peripheral Equipment Manufacturing, Communications Equipment Manufacturing, Audio and Video Equipment Manufacturing, Semiconductor and Other Electronic Equipment Manufacturing, Hardware Manufacturing and Manufacturing and Reproducing Magnetic and Optical Media

According to the Region's 1998 employment survey, more than 56,000 individuals worked full-time on employment lands including, Business Corridor Area (BCA), Business Park Area (BPA) and General Industrial Area (GIA)). In 2003, the number of employees working in employment land areas increased to approximately 58,000 – an increase of 3% over five years. Employment on employment lands increased significantly to nearly 73,000 by 2009 – a growth of more than 25% over six years. However as demonstrated on **Figure** 40 below, the proportion of manufacturing and industrial employment on employment lands has grown at a considerably slower pace than business services (which include Finance and Insurance; Real Estate and Rental and Leasing; and Professional, Scientific and Technical Services). Employment in the manufacturing and industrial sectors decreased from almost 30% of total employment in 1998 to less than 25% of all the employment on employment lands in Markham in 2009.

Figure 40: Number of Employees by Sector and by Year – 1998/2003/2009



The level of employment growth over the 11 year analysis period was found mainly in the Business Park Areas, where employment jumped by 56% or on average annual growth of over 5%. On the other hand, employment in the General Industrial Areas actually saw a decline by 3% over the same 11-year period. As shown in the chart above, the loss of employment was mostly experienced by the manufacturing and in industrial sectors.

6.3 INDUSTRIAL LAND DEVELOPMENT TRENDS

The most significant structural change for industrial-based employment land in the Greater Toronto Area over the past decade has been the extent to which warehousing functions have emerged as the single dominant form of new development, and how the "goods movement" sector has quickly become a critical underpinning of the economy. However, despite the continued growth and prevalence of this activity, the Town of Markham, by virtue of its high land values and its relatively tight land supply has not generally been considered for this type of new development activity. Moreover, such uses have and will continue to be concentrated around major transportation hubs such as airports and rail terminals. For these reasons, Markham will not likely experience the same degree of development pressure for such activities.

The majority of Markham's employment sites are currently occupied by single-storey industrial structures. In newer applications, industrial buildings are also accompanied

with corporate/administrative office components located at the front of the buildings. Often the corporate offices attached to these buildings are two to three-storeys high. This type of development is commonly characterized as prestige-industrial, and is commonplace throughout much of the business park areas of the Town. This pattern of development is expected to be the prevailing format for future industrial type growth in Markham.

Although job losses in manufacturing have been significant over the past five years, there does appear to be some bright spots within the sector, especially as they related to emerging fields. Manufacturing in Canada has seen developments in several niche technology areas such as: nanotechnology, advanced materials, micro-electrical systems, robotics, semiconductors, and energy and environment. In the future, growth in the manufacturing sector is expected to be more closely focused on four broad types of activities:

- Design and engineering work;
- Fabrication of higher value-added, knowledge-intensive goods;
- Fabrication of goods that are not easily/economically shipped long distances; and
- Fabrication of semi-processed, resource-based goods exported for further processing in low-cost jurisdictions such as China.

Markham's industrial base is in fact very well positioned to meet these changes in the manufacturing sector.

6.4 POTENTIAL ECONOMIC FACTORS IMPACTING INTENSIFICATION

There are a number of factors that may impact on whether a developer chooses to intensify and how. As noted previously in this report the expansion of industrial and warehouse ELE businesses generally occurs in one of two ways. The first is a circumstance where a successful use on a property requires more floor space and looks to expand the existing building to accommodate that floor space. In circumstances such as these, the property is the site of only that use and the owner has control over the entire property. The economic viability of expanding a single use building to accommodate additional floor space also depends on what the floor space is needed for and the size of the additional floor space in relation to the size of the existing building.

The second way businesses expand in ELE buildings is in a multiple unit building context. In cases such as these, where there is a single owner with a number of tenants, a tenant wishing to expand negotiates with the owner and adjacent tenants on the reconfiguration of space to provide for the expansion. The internal reorganization of multiple unit buildings is very common, since it is within these buildings that many new businesses are started. Given that start up businesses do not typically have the funds to occupy more space than they need initially, it is very common for successful businesses to require more space often as their business grows.

New office floor space is most often established in new buildings. However, new floor space can be created by the conversion of existing industrial/warehouse space into offices. In most cases, this is accomplished by subdividing the industrial/warehouse space into smaller units. The amount of office space created this way will ebb and flow and once the space is created, it has the potential for being used for many purposes since the smaller spaces are attractive for a wide variety of uses. It is noted that in this scenario, no new floor space is being created, however, the employment density may be increasing or decreasing depending on the nature of the use.

Given that most ELE properties are developed to their maximum potential as a consequence of the need to reserve adequate land area for surface parking, additional floor space can be developed if additional parking in a structure or underground is also provided. The new parking area would be located in the surface parking area, and the new floor space would be most likely developed on top of the new parking, as opposed to by adding additional storeys onto the existing office building that may already exist on the site.

Notwithstanding the practical considerations above, there are economic factors to consider as set out below:

- The attractiveness of establishing prestige office development within industrial areas;
- Whether the existing tenants are accommodated in the new development;
- Possibility of providing additional access during construction for uninterrupted use of the existing buildings; and
- Availability of adequate parking to accommodate more employees and visitors (e.g., enabling parking bylaws may be necessary).

This section discusses a number of specific issues that may be facing developers as they consider the possibility of intensification.

6.4.1 Single-use vs Multi-Unit Buildings

Multi-unit buildings have the greatest potential for accommodating new or expanding ELE uses since they are inherently more flexible in terms of accommodating different types of businesses. In the case of the Town of Markham, 343 of the 593 industrial/warehouse ELE buildings in the study area have more than one use.

However, not all uses may be feasible in multi-unit buildings, because of the nature of the other uses in the building and the compatibility issues that may arise and the special needs of any anchor tenants that may be written into a lease or agreement with the building owner. In this regard, the building owner has to consider the needs of existing tenants when considering new tenants.

For example, a high-technology manufacturer would first locate a building for manufacturing purpose and may set aside a small section of the building for office uses. On the other hand, a scientific or technical services firm may have its employees working mostly in offices with a small area for research and development functions such as laboratories. The multi-use would entirely depend on the specific activities to be carried out by the tenants. The requirements of the anchor tenants in this case would likely determine what types of uses could occur in the building. As a consequence, the nature of the existing uses in a building have a significant impact on the establishment of new uses in a multi-unit building.

6.4.2 Surface vs. Structured Parking

Surface parking is the least expensive option; however, it may take up valuable space that may be rentable for revenue maximization. Structured parking becomes a necessity when the site does not provide sufficient space for surface parking for the expected number of employees and visitors. The availability of public transit services may reduce the number of parking spaces required to accommodate everyone.

Using the costs for surface parking as the base (which is approximately $6,000 per space), structured parking is about 2.5 times more expensive and underground parking about 5 times more expensive. Considering the number of parking spaces in a typical office ELE building is in the range of 100 spaces, the cost differences could be in the millions among these options.

In a project in the range of $15-20 million, these different parking options remain a significant decision. The feasibility of building additional office space by replacing surface parking with structured would entirely depend on incremental revenue expected to be generated from the "freed up" space to cover for the additional expenses. It is noted that structured parking is not typically provided in conjunction with industrial/warehouse ELE uses and on this basis the above discussion relates only to office uses. On the basis of the above, a significant increase in office space is required to justify structured parking. If such an increase is not feasible, the need for surface parking then becomes a significant limiting factor.

6.4.3 Condominium Ownership

The advantage of condominium ownership is for the developer to transfer the ownership risks to the individual unit owners by selling the units instead of leasing. The developer would no longer need to be responsible for facility management and marketing for leasing.

When a building remains under a single management, the benefits include (1) the market obligations to maintain a well operated building to attract and retain tenants; (2) the consistent approach in negotiating leasing rates in response to market; (3) the interest in minimizing overall vacancy; and (4) the experience and understanding of what the market needs and how to meet the demands.

One of the approaches to employment intensification is renovate or rebuild brownfield or existing buildings. If a building is owned by a large number of condominium owners, it would be very difficult for any new developers to negotiate and reach agreements with all of them in a timely fashion to proceed with a project. It is typically unlikely for the condominium owners to initiate an overhaul of their building for intensification particularly if the space they occupy for themselves is deemed as adequate or the rent generated provides no financial incentive. Whether employment buildings should be converted to condominium ownership should be carefully examined on a case-by-case basis. The above means that there is more flexibility in terms of organizing space for new users in a single-owner building as opposed to a condominium building. This means that the Town should be very cautious when considering applications to convert a single-owner building into a Plan of Condominium.

6.4.4 Land Use Conversions

Conversion to large-scale retail uses is considered a significant issue in the Growth Plan for the GGH and reflected in emerging policy at the municipal level (primarily through inclusion of a requirement for a comprehensive review prior to conversion of designated employment lands in municipal official planning documents, as enabled by the Growth Plan.)

In recent years other North American jurisdictions including Metro Portland (and the various lower-tier municipalities falling within this region) have introduced more stringent limitations on the size and type of retail facilities permitted in employment areas. Restrictive measures on retail development in areas intended for employment development have included policy measures as well as restrictive zoning. In large part, they have been spurred by a noted trend towards large-scale conversion of employment land to retail space, including in Ottawa where the municipality has lost 35% or its employment land since 2001 to residential and retail conversion and in Toronto where a 2006 study projected that approximately 75 ha of employment lands (and an associated 4,000 jobs that could be potentially accommodated on them) were under threat of conversion. An overall cost disadvantage has been recognized by these jurisdictions for employment development and in particular industrial land uses) at locations where employment uses compete with retail uses, especially in suburban locations where non-retail employment typically commands lower land prices.

In part the trend towards conversion is also due to the recent and high growth of the retail sector, wherein land needs are evolving. Overall, the need is recognized for a suitable balance between protection of employment areas to support long-term economic activity (and employment intensification) and the incorporation of a variety of ancillary retain and service uses in a manner that does not have an impact on the primary function of the employment area. However, when conversions do occur, the impact is felt on nearby employment areas since it increases, in some cases, the attractiveness of these areas for conversion as well because of the higher returns that may be available from commercial development.

6.5 AN ECONOMIC REALITY CHECK

Land owners/developers will always (with some exceptions) maximize the return on their investment by developing as much floor space as feasible and for economic reasons, business owners will generally consider expansion before starting fresh (i.e., eliminating business interruption, move and relocation costs) and will pay a premium to expand for convenience purposes and to minimize disruption. To some extent, this has been borne out in Markham, where only 23 industrial/warehouse ELE expansions occurred - with all of them being on under-developed properties, in the period between 1999 and 2009. Further analysis (through the physical capacity exercise carried out as part of this engagement) however demonstrated that most industrial/warehouse ELE buildings have been constructed to optimize the site and are therefore not able to expand further.

On the basis of the above, the greatest potential for intensification (which in this context means more employees per hectare) exists on the 'very' under-developed properties. These properties were already captured in the 2009 ELS. The next highest intensification potential lies in the conversion of former industrial/warehouse space into offices through the process of creating multiple units in an existing building. The amount of office space created this way will ebb and flow and once the space is created, it has the potential for being used for many purposes since the smaller spaces are attractive for a wide variety of uses. While no new floor space is being created, however, the employment density is increasing through this form of intensification. In some cases, ELE is being replaced by PRE particularly along the Business Corridors like Denison.

The third is a circumstance where structured parking for new office development is established on an office property in a surface parking lot. The development of structured parking then allows for more floor space to be developed, with this space more likely being established on top of the structured parking as opposed to by adding additional storeys onto the existing office building that may already exist on the site.

On the basis of the work carried out in support of this study and our experience, there is no evidence to demonstrate that ELE expansion can provide for a material contribution to the amount of employment within the study area.

6.6 FINANCIAL INCENTIVES FOR INVESTMENTS

While the expectations for additional intensification are limited, the Town could consider implementing a series of financial incentives for the private landowners and developers. However, given the many constraints that exist at the present time, it is doubtful that there will be many benefits in terms of additional floor space as a result.

Several municipalities (usually with older employment areas) have offered significant support to encourage the uptake and absorption of employment areas, although they differ significantly in terms of the direct and indirect nature of incentives. Pre-serviced and pre-zoned sites have been used to attract tenants in areas including research-oriented business parks established in Waterloo and Edmonton (i.e., the University of Waterloo Research and Technology Park and Edmonton Research Park

respectively). Direct financial incentives have been offered in the case of Consumer's Road through the City of Toronto's broader support program for business retention and expansion.

6.6.1 Community Improvement Plans

The Town's decision to provide any financial incentives through a Community Improvement Plan (CIP) should be rooted in an understanding of how the financial support is likely to be considered valuable by developers in order to facilitate the desired development. For instance, financial incentives offered by the Town could be tied to density requirements to ensure that such incentives support specific developments and are not used simply for land banking investment by developers. Tax increment based incentives also achieve this by linking performance to financial benefit. At the same time, it will be necessary to ensure that the additional financial burden for the Town that results from the introduction of such incentives is retrievable or minimal.

If the Town chooses to support financial incentive programs, detailed eligibility criteria will be required. Incentives should only be granted to the types of projects that are consistent with the objectives of the community improvement plan, such as contributing to a cohesive, attractive built form. Eligibility criteria may include, for example, specific minimum density, height, compatibility (as may be established through Urban Design Guidelines accompanying the CIP), the provision of community services, open space and other requirements, in order to maximize the potential public benefits of the CIP and ensure that projects which receive funding are in the public interest.

Examples of CIPs that apply to employment include the CIP that applies to the New Toronto area in south Etobicoke. This CIP is designed to stimulate reinvestment and redevelopment for employment uses. Another CIP area has been established by the City of Vaughan for lands bounded by Steeles Avenue to the south, Jane Street to the west, Keele Street to the east and the Hydro Corridor to the north. A portion of these lands was formally the site of the United Parcel Canada warehouse. The City of Windsor as of January 2011 is also actively reviewing the idea of establishing a community improvement plan for the entire City, with a particular focus on employment areas. More review of past and current initiatives is required.

Tax increment based grants are the most widely used tax-based incentive programs provided under the CIP provision of the *Planning Act* in Ontario today, and have been introduced by municipalities including Ottawa, Toronto, Kitchener, Sault Ste. Marie, Thunder Bay and many other jurisdictions. As seen in the cases of Toronto and Kitchener, municipalities have used the CIP provision to provide tax rebates on an area-specific and time-bound basis to encourage a specific type of development. Kitchener, for example, provides a three-year tax rebate equivalent to 50% of the property tax increase attributable to improvements resulting from the development. Similarly, Toronto recently introduced a pilot Tax Increment Equivalent Grant (TIEG) program in Etobicoke and the City's employment lands strategy proposes a range of incentives (including tax-based incentives, reduction in development charges and reduction in municipal fees) under CIPs in each employment district.

Under the provisions of a CIP, the Town could also provide other financial incentives to support intensification in selected locations. These could range from grants for the costs of redeveloping existing properties, grants specific to heritage properties, and reductions or eliminations in other municipal fees (e.g., building permit fees, development application fees), reductions in parkland dedication requirements or parkland levies, etc. As examples, Toronto and Kitchener currently provide such financial assistance through the CIP provision of the *Planning Act* extensively to encourage downtown development and intensification.

6.6.2 Development Charge Incentives

The *Development Charges Act* 1997 allows municipalities to levy DCs on new developments to recover the capital costs of servicing and developing new areas (e.g., roads, sewers, municipal services). According to Section 2(7) of the Act, municipalities can establish municipal-wide or area-specific DCs; the latter allows them to charge higher DCs in greenfield areas associated with new infrastructure provision and can have the indirect effect of encouraging intensification in areas where infrastructure is already in place. Section 5(1)10 also enables municipalities to provide exemptions, reductions and phasing in of DCs. However, it is noted that Section 4(2) of the Act specifically prohibits the collection of a DC if the gross floor area of an industrial building is being increased by 50 percent or less. Ontario Regulation 82/98 under the Development Charges Act, 1997 defines an existing industrial building as follows:

> *"An existing industrial building means a building used for or in connection with:*
> *a) manufacturing, producing, processing, storing or distributing something,*
> *b) research or development in connection with manufacturing, producing or processing something,*
> *c) retail sales by a manufacturer, producer or processor of something being manufactured, produced or processed, if the retail sales are at the site where the manufacturing, production or processing takes place,*
> *d) office or administrative purposes, if they are,*
> *i) carried out with respect to manufacturing, producing, processing, storage or distributing of something, and*
> *ii) in or attached to building or structure used for that manufacturing, producing, processing, storage or distribution."*

The above exemption is carried through into Town of Markham By-law 2009-120. Since developers typically bear the initial one-time costs of development, it is possible that a further reduction beyond the reduction provided for in the Act or the elimination of DCs on an area-specific basis could have the impact of promoting development in areas where development is preferred by the Town. However, given that the physical capacity analysis indicates that expansions beyond 50% are very unlikely, considering a further reduction is not warranted for industrial/warehouse ELE uses. However,

consideration could be given to consider exemptions and/or reductions for office development.

Several jurisdictions in Ontario provide DC reductions or exemptions on an area-specific basis through the DC by-law and CIPs. This one-time reduction would likely result in a lower contribution to infrastructure funds in the short-term; however, in the longer term, new development that could be encouraged through this measure would help recover the lost revenue through the generation of additional property tax revenue as well as employment generation and increases in income tax associated with these new jobs. The feasibility of providing development charge relief also needs to be viewed in the broader context of associated costs and potential benefits.

7.0 STAKEHOLDER CONSULTATION SESSION COMMENTS

As part of carrying out this study, stakeholders were consulted to determine what their views were on the potential for intensification in the Town of Markham.

Stakeholder sessions were held on November 9th, 2010 at the newly developed Convergence Centre on Warden Avenue. The participants were divided into three groups comprised of individuals from various fields related to land development. The first session was comprised primarily of real estate professionals with a focus on industrial properties. The second session was comprised of industrial real estate developers and buildings owners that lease space to various industrial businesses. The third session was comprised of business owners and the owners of businesses that expanded in the last 10 years. A general summary of the comments made is included in **Appendix 2.**

Throughout all of the stakeholder sessions there was a considerable amount of discussion related to the economics associated with intensifying existing ELE properties. Based on the industry comments and the analysis completed as part of this report, it is apparent to the stakeholders that the market conditions within Markham and the GTA in general are not conducive to supporting the intensification of existing ELE properties because of the supply of relatively inexpensive greenfield lands that exist throughout the GTA.

The concept of mixed-use development within ELE areas was raised in each of the stakeholder sessions. However, each group of stakeholders had a different opinion on the appropriateness of mixed-use developments within ELE areas. The real estate and development stakeholders viewed mixed-use development as the answer to bringing increased densities and more vibrant spaces into existing ELE areas. In comparison, the business owners expressed concerns related to potential land use conflicts if with mixed-use developments are permitted within existing ELE areas.

While creating mixed-use developments within existing ELE areas may increase employment or residential densities within the area, the impacts of increasing land values on the viability of existing businesses cannot be understated. These ELE uses require relatively lower valued real estate in order to be competitive in the marketplace. In addition, the nature of ELE business processes is often not compatible with other types of land uses, most notably residential uses and certain types of

commercial and institutional uses. In addition to the above, introducing non ELE uses into employment areas also has the potential to create incompatible use relationships between such uses and certain industrial and commercial uses.

8.0 ANALYSIS AND CONCLUSIONS

8.1 ANALYSIS

The overall intent of this study was to determine whether it was possible to predict with any degree of certainty how many additional jobs could be created on ELE properties in the Study Area. In our opinion, the potential is very limited and is related primarily to the physical constraints that characterize industrial and warehouse ELE parcels listed below:

- The need to locate adequate parking areas for employees and visitors, with the amount of parking provided sometimes exceeding zoning by-law requirements depending on the nature of the use;
- The need to provide for loading facilities, again with the number of loading docks being dependant on the nature of the use;
- The need to provide for driveways to access both parking and loading areas;
- The need to provide for landscaping to meet the Town's zoning by-laws and for aesthetic reasons (with this landscaping sometimes exceeding by-law requirements);
- The need to maintain setbacks from adjacent properties and provide for fire routes in these setback areas; and,
- The need to provide for drainage and storm water management.

In addition to the above physical constraints, there are environmental constraints that need to be taken into account as well, which have to do with maintaining setbacks from watercourses and in some cases the protection of woodlots. The need for outdoor storage in some circumstances, the need for outdoor fueling facilities and the required setbacks from them, and the configuration of a property, in terms of its shape and the location of a building on a property, all combine to also affect the amount of floor space that can be developed.

In addition, there are land use compatibility issues to consider and in some cases, the presence of a sensitive land use in the vicinity of an existing use has an impact on its expansion, primarily if that expansion requires an amendment to a Certificate of Approval or the issuance of a new Certificate of Approval from the Ministry of Environment. The number of existing uses that may be affected by the location of a sensitive land use is not known, however these circumstances do exist and often are not brought to the attention of the Town of Markham since the Town is not the approval authority for Certificates of Approval. Instead, the Town is responsible for approving the location of the sensitive land use and even when such a use is proposed, adjacent land uses often do not participate in the planning process and/or may not believe there is an issue at the time.

All of the above combine to establish a form of development on industrial and warehouse ELE properties that provides for a lot coverage that on average is no more than 38% of the lot. Where there are exceptions, these exceptions are on both ends of the spectrum and reflect in most cases a unique set of circumstances and/or the nature of the use. It is on this basis that it is concluded that it would not be realistic to expect that many industrial/warehouse ELE parcels will be the site of building expansions. Exceptions might exist in specific circumstances such as:

- The building is occupied by a single use and there was a clear and compelling need to add additional floor space for any number of business reasons, including for additional storage, manufacturing or office purposes; and,
- There is opportunity to add more space - which means that the lot coverage is less than 35%, (this reflects the finding that all of the buildings that were expanded in the last 10 years had a pre-expansion lot coverage of 32%); and,
- Other physical constraints, such as the configuration of the parcel, the need for employee parking, the need for loading spaces and landscaping and other site operational requirements are able to be overcome.

The track record in the Town of Markham in the last 10 years is in our opinion, significant in anticipating what may be likely in the future. This track record indicates that only 23 buildings containing industrial/warehouse ELE uses were expanded in the last 10 years, with the total amount of new floor space being 46,930 square metres. While we cannot indicate with any degree of accuracy how many additional jobs were created in reality, this additional floor space would theoretically have provided for 700 additional jobs. It is noted that the last 10 years saw rapid economic growth and even though the economy was growing rapidly, only 23 buildings were expanded during the time period. This is further proof that the likelihood of there being significant building expansions in the future is remote.

To determine the feasibility of expanding existing buildings upwards, the nature of the existing building stock was reviewed (at a high level) and it was determined that in most cases, industrial, warehouse and office buildings does not lend themselves to the establishment of additional floors, except perhaps for office purposes only on a mezzanine that is built part way between the floor and the ceiling. In the last 10 years, there have been no examples of additional storeys being added to buildings, even though the Town's by-laws provide for building heights that exceed the current heights of most buildings in the Study Area.

It is our opinion that, if the amount of actual intensification that has occurred in the last ten years is limited, even though the economy had some of its best years in recent history, the likelihood of increasing amounts of intensification within the ELE study area is also very unlikely. While expansions to existing businesses are always a possibility, improvements to technology and increased mechanization of industrial processes means that many expansions get carried out without there being any additional employment created. In addition, decisions to expand a building are very much dependant upon the nature of the land use and the aspirations of the business owner.

With respect to office parcels, the potential does exist for new office buildings to be developed on larger parcels and it is estimated that about 34,000 square metres (which translates into about 1,400 jobs) could be built on these larger sites. However, the timing of their development is unknown.

On this basis, it would be speculative to pre-determine with any degree of accuracy how many additional jobs could be accommodated or already developed properties through intensification within the current settlement area before 2031.

While the Town of Markham can consider changes to its regulatory regime and offer incentives as discussed later in this section, the extent to which these changes will have an impact on the decisions of individual business owners and landowners is unknown. Given that the current regulatory climate does not provide much in the way of an impediment to additional development, we are not convinced that making significant changes will result in a significant amount of additional floor space being created.

8.2 MOVING FORWARD

Notwithstanding the above assessment, there are actions the Town could take to encourage intensification of ELE uses. Below is a list of those possible actions, along with our opinion on the relative value and timing of the implementation of these recommendations.

1. **A review of the Town's development standards, as set out in the many zoning by-laws that apply in Markham's employment areas could be undertaken** - the intent would be to determine if any should be updated or potentially eliminated.

2. **Remove permissions for sensitive land uses in ELE areas** - some of the by-laws that apply in ELE areas permit uses that could be considered as sensitive in circumstances where manufacturing operations require Certificates of Approval. Pre-identifying where these areas are is not possible. However, each of the by-laws that do apply to employment areas should be reviewed and any uses that are deemed sensitive should be deleted as a permitted use. If any of the uses to be deleted are currently in an employment area, the use would be made a legal non-conforming use in terms of the by-law. If this was to occur, applications to establish new sensitive land uses should be reviewed in accordance with the MOE guidelines on land use compatibility and a determination should be made on a case-by-case basis on whether the proposed use should be permitted.

The timing of both of the above actions would be when the Town carries out a review and update of its many zoning by-laws.

APPENDIX 1

APPLICABLE PROVINCIAL POLICY (PPS)	COMMENTS
Section 1.1.1 – *"healthy liveable and safe communities are sustained by:* *a) promoting efficient development and land use patterns which sustain the financial well-being of the Province and municipalities over the long term;* *b) accommodating an appropriate range and mix of residential, employment (including industrial, commercial and institutional uses), recreational and open space uses to meet long-term needs;* *c) avoiding development and land use patterns which may cause environmental or public health and safety concerns;* *d) avoiding development and land use patterns that would prevent the efficient expansion of settlement areas in those areas which are adjacent or close to settlement areas;* *e) promoting cost-effective development standards to minimize land consumption and servicing costs;* *f) ensuring that necessary infrastructure and public service facilities are or will be available to meet current and projected needs.*	This section summarizes the intent of the Province with respect to the maintenance of healthy, liveable and safe communities. This section is premised on the view that additional growth and development is beneficial to the Province, provided it is appropriately planned. This section also indicates that healthy, liveable and safe communities are sustained by accommodating an appropriate mix of employment (including industrial, commercial and institutional uses) to meet long-term needs. This means that a variety of employment opportunities and employment types should be provided for, much like a range of housing and housing types is also required. Sub-section c) indicates that development and land use patterns which may cause environmental or public health and safety concerns should be avoided and this policy test must be considered in determining where new land uses are located in relation to existing land uses.
Section 1.3.1 - *Planning authorities shall promote economic development and competitiveness by:* *a) providing for an appropriate mix and range of employment (including industrial, commercial and institutional uses) to meet long-term needs;* *b) providing opportunities for a diversified economic base, including maintaining a range and choice of suitable sites for employment uses which support a wide range of economic activities and ancillary uses, and take into account the needs of existing and future businesses;* *c) planning for, protecting and preserving employment areas for*	Section 1.3.1 indicates that planning authorities 'shall' promote economic development and competiveness by doing certain things, which are set out in sub-sections a) to d). The use of the word 'shall' means that the policy is mandatory and is required to be met to the greatest extent possible by every planning authority. Section 1.3.1 a) indicates that the Town shall promote economic development and competiveness by providing for a mix and range of employment uses to meet long term needs. Employment uses come in many forms and include both 'heavy' and 'light' industrial uses. Section 1.3.1 b) indicates that the Town shall promote economic development

current and future uses; and *d) ensuring the necessary infrastructure is provided to support current and projected needs.*	and competiveness by providing for a range of suitable sites that support a wide range of economic activities that support a diversified economic base. These include both 'heavy' and 'light' industrial uses. In addition, Section 1.3.1 b) clearly indicates that one of the ways to promote economic development and competitiveness in Ontario is to take the needs of existing and future businesses into account. These needs may be affected if incompatible uses are sited nearby. Section 1.3.1.c) also indicates that the Town shall promote economic development and competiveness by planning for, protecting and preserving employment areas for current and future uses. This intent may be affected if incompatible uses are sited nearby.
Section 1.7.1 *Long-term economic prosperity should be supported by:* *a) optimizing the long-term availability and use of land, resources, infrastructure and public service facilities;* *e) planning so that major facilities (such as airports, transportation /transit/rail infrastructure and corridors, intermodal facilities, sewage treatment facilities, waste management systems, oil and gas pipelines, industries and resource extraction activities) and sensitive land uses are appropriately designed, buffered and/or separated from each other to prevent adverse effects from odour, noise and other contaminants, and minimize risk to public health and safety.*	Subsection (a) makes it clear that the long-term availability of land and resources should be optimized to support long-term economic prosperity. Sub-section (e) clearly indicates that industries are 'major facilities' and that they should be 'designed, buffered and/or separated' from sensitive land uses to <u>prevent</u> adverse effects. Adverse effects are defined as set out below: *"as defined in the Environmental Protection Act, means one or more of:* *a) impairment of the quality of the natural environment for any use that can be made of it;* *b) injury or damage to property or plant or animal life;* *c) harm or material discomfort to any person;* *d) an adverse effect on the health of any person;* *e) impairment of the safety of any person;* *f) rendering any property or plant or animal life unfit for human use;* *g) loss of enjoyment of normal use of property; and* *h) interference with normal conduct of business."* Sensitive land uses are defined as *"means buildings, amenity areas, or outdoor spaces where routine or normal activities occurring at reasonably*

	expected times would experience one or more adverse effects from contaminant discharges generated by a nearby major facility. Sensitive land uses may be a part of the natural or built environment. Examples may include, but are not limited to: residences, day care centres and educational and health facilities." The range of uses that would be considered sensitive as per this definition is extensive since <u>any</u> building, amenity area or outdoor space in sensitive if <u>routine</u> or <u>normal</u> activities occurring at reasonably expected times would experience adverse effects.
Section 4.6 *The policies of this Provincial Policy Statement represent minimum standards. This Provincial Policy Statement does not prevent planning authorities and decision-makers from going beyond the minimum standards established in specific policies, unless doing so would conflict with any policy of this Provincial Policy Statement.*	This policy makes it clear that the PPS represent 'minimum standards'. In my opinion, this permits planning authorities to go beyond these minimum standards if there is a clear public interest to do so. The determination of what is in the public interest in this regard is very much related to the policies contained within Section 1.3.1 and 1.7.1 of the PPS.

APPENDIX 2

A GENERAL SUMMARY OF STAKEHOLDER SESSION #1 – REAL ESTATE PROFESSIONALS

The general summary comments include only those comments that relate to intensification of ELE properties.

1. Tenants are looking for properties with adequate truck turning radius.
2. Tenants are looking for properties with clear heights.
3. Tenants are looking for properties with adequate parking.
4. 16 to 18 feet ceilings are not appropriate – 24 feet is required.
5. As long there is choice there will be an increased tendency to go to new buildings that can accommodate parking, truck traffic and height requirements as opposed to using existing buildings.
6. Old buildings are generally built out to full coverage.
7. Even if there is a demand or opportunities to increase the height of existing employment buildings there is still a requirement for sufficient parking and truck turning opportunities.
8. There was a general consensus amongst the group that the amount of additional floor space that could be generated through intensification would be marginal.
9. It was agreed throughout by the group that there was a low potential to intensify existing industrial properties. Some felt as land becomes valuable and there is less greenfield land to develop there could be potential to demolish and rebuild existing buildings with more than one storey, provided truck movement and parking areas are provided.
9. In order to facilitate intensification, improvements must be made to the transportation network to reduce car dependency and to allow for employees to travel to work. This would also decrease the amount of on-site parking that is required for businesses.
10. The group felt that there would be more demand in the future to convert existing buildings into condominiums since there is a strong desire for ownership is Markham.
11. Those that have had experience with expansions indicate that they were quite easy to complete and that the Town staff was easy to deal with.
12. Some business owners have built buildings with the necessary infrastructure to support expansion.
13. Many felt that the only opportunity to increase employment in an area is to allow for a mixed-use of development types. Mixed-use towers may be an

option to provide increased employment uses and residential uses in an area that is bringing more people to Markham thus making more efficient use of existing services.

B GENERAL SUMMARY OF STAKEHOLDER SESSION #2 – DEVELOPERS AND LAND OWNERS

The general summary comments include only those comments that relate to intensification of ELE properties.

1. Development Charges are considered to be a significant deterrent to development within Markham.
2. It was agreed that very little growth could occur through ELE intensification within the existing developed area.
3. The initial start-up cost including the up-front cost of land and the up-front cost of development charges makes it very difficult to develop land in Markham and the GTA in general. This comments applies to the redevelopment of existing properties as well as Greenfield development.
4. Parking and vehicle/transportation movements make expansion of existing buildings difficult.
5. A comment was that organic growth would be the only type of growth seen on existing industrial properties. Organic growth is considered to be the growth of existing businesses and the expansion of uses to satisfy their own additional land needs.
6. Incentives need to be offered to bolster intensification. Incentives could include property tax incentives, rezoning to permit increased densities and development charge credits. Environmental or LEED related incentives could also be offered.
7. Industrial properties will only intensify if there is no other option but to intensify. There are other options in Markham and throughout the GTA to develop Greenfield which is more cost efficient than intensifying/redeveloping an existing ELE property.
8. Industrial expansion is only possible for buildings that are owner-operated. Expansion is unlikely to occur for tenant buildings.
9. Condominiums work well for start-up businesses. There is a certain demographic that is attracted to condominiums. This demographic wants to own the space that they use for their business.
10. Need to maintain opportunities to attract large employers.
11. Mixed-use developments are the answer to increasing employment density on existing properties.

12. The Official Plan does not allow mixed-use developments in industrial areas which is a deterrent to intensification of industrial properties involving residential uses.
13. People do not want to be in stagnant areas. Attractive areas are lively with a variety of restaurants and amenity activities.
14. There was a concern amongst participants that lengthy approval processes inhibit entrepreneurial spirit. It was felt that an opportunity for intensification within employment areas would be to allow mixed-use development with a residential component on condition that employment uses are maintained.
15. Successful employment areas in the future require a balance of jobs and amenities.
16. Zoning should be used to facilitate change of land uses.
17. Some participants felt that all regulations should be lifted and that buildings should be permitted to be developed anywhere and everywhere at any scale.

C GENERAL SUMMARY OF STAKEHOLDER SESSION #3 – BUSINESS OWNERS

The general summary comments include only those comments that relate to intensification of ELE properties.

1. There was a general consensus among the group that intensification is possible on existing under-developed properties within the Employment Area.
2. There was a general feeling that there is some reluctance from new companies to come to Markham because of inflexible rules and a lengthy bureaucratic process for the amendment of rules. These were seen as barriers to intensification of existing developed areas.
3. From the business owner perspective the lengthy process was a key stumbling block to expansion and it was felt that expansion of existing buildings may be more prevalent if a fast-track process for the review and approval of development applications was implemented by the Town where appropriate.
4. Existing businesses were generally not looking for grants or tax rights-offs but were looking for a quick approvals process.
5. Those that have expanded their existing businesses, encountered delays when multiple levels of government became involved in the approval process (i.e. Region and Town).
6. Issues affecting expansion identified in the session, included parking for employees, transportation for employees to work, proximity of health care and hospital facilities to employment areas.
7. There was a concern that adding additional employment density to a developed area will cause additional impacts on existing transportation infrastructure.

8. Limiting factors to the expansion of existing businesses within employment areas that are near a residential developments include: noise and fumes (VOCs).
9. The Town's landscaping requirements were found to be excessive by the majority of business owners that have undergone expansions.
10. Ways to promote intensification identified by the group include: tax incentives and the potential for lower hydro and utility rates for the first few years of operation. The primary concern was the length of the approvals process and a faster approvals process could increase the potential for intensification.
11. In terms of considering expansion of existing businesses or the movement to new locations the major considerations included: economics of expanding an existing building, the parking considerations for employees, the availability of utilities and infrastructure to support the growing business, the physical limitations of existing sites and finally the time required to navigate and administer the approvals process.
12. The common theme throughout the discussion was that the focus of the intensification study needs to be on small to medium sized businesses as opposed to large scale businesses.
13. All building owners when considering the amount of parking needed for employees base their parking requirements on the square footage of their buildings.
14. It was agreed that expansion of existing employment buildings would generally occur only by owner-operated buildings.
15. The major barrier to new businesses and expansions to existing businesses was the time required to obtain approvals.