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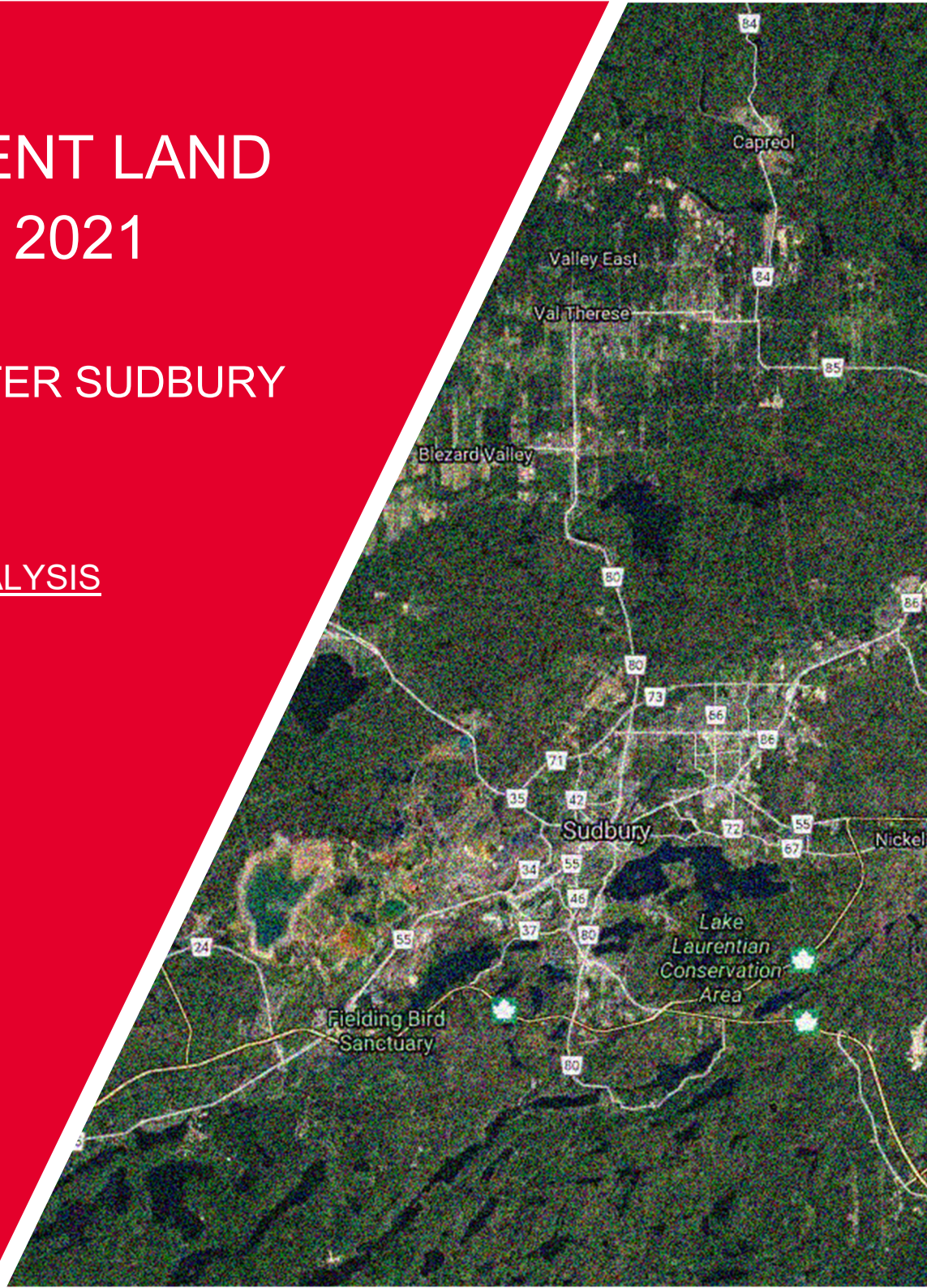


EMPLOYMENT LAND STRATEGY 2021

CITY OF GREATER SUDBURY

DELIVERABLE #5

LAND DEMAND ANALYSIS



5.0 LAND DEMAND ANALYSIS

5.1 Introduction

The metroeconomics projection presented above can be translated into a forecast of employment land needs by identifying the type of buildings that are required for each category of employment, and using an employment density figure for each building type to convert anticipated job growth into employment land demand. Of note, the following place of work status data has been considered:

- The 2016 Census indicated 65,150 residents in the City of Greater Sudbury's employed labour force had a "usual place of work", accounting for an 85% share of total jobs. This is higher than the provincial average of 81%. Of these 65,150 employees with a usual place of work, 97% commuted within the same Census Subdivision (CSD) of residence; in other words, most people within the labour force who live in Greater Sudbury also work in Greater Sudbury.
- In the City of Greater Sudbury in 2016, there were 8,280 jobs identified as "no fixed place of work." These are jobs in categories such as construction and transportation, accounting for an 11% share of all jobs (which is on par with the provincial average). As these jobs do not directly generate demand for employment land, they do not form part of our analysis. Our methodology only considers employment by place of work (EPOW), which by definition excludes jobs with "no fixed place of work".
- Approximately 4% of the employed labour force in the city is identified as having a place of work status of "worked at home". These 3,170 home-based jobs are likely those that would otherwise be accommodated in office spaces, or other mixed use/commercial settings. This figure is relatively lower than the provincial average of around 7%. Given this small share of overall jobs, we have not factored in home-based employment in our land demand projections (although these jobs are included within the EPOW total).
- In 2016, there were 110 employees whose place of work status was "worked outside Canada", representing just 0.1% of total jobs in the city. This negligible component of the labour market has not been factored into our land demand modeling.

5.2 Employment Categories

5.2.1 Overview

The following illustrates our approach to allocating employment by industry into real estate requirements, referencing Statistics Canada's descriptions of the industry sectors in the North American Industry Classification System (NAICS).

5.2.2 Industrial-Type Employment Categories

- **Manufacturing** – Establishments in the Manufacturing sector are often described as plants, factories, or mills, and characteristically use power-driven machines and materials-handling equipment. The materials, substances, or components transformed by manufacturing establishments are raw materials that are products of agriculture, forestry, fishing, mining, or quarrying, as well as products of other manufacturing establishments. **100%** of employment in this category has been identified as requiring industrial-type land and premises.

- **Wholesale trade** – The Wholesale Trade sector comprises establishments engaged in wholesaling merchandise, generally without transformation, and rendering services incidental to the sale of merchandise. The merchandise described in this sector includes the outputs of agriculture, mining, manufacturing, and certain information industries, such as publishing. Wholesalers sell merchandise to other businesses and normally operate from a warehouse or office. These warehouses and offices are characterized by having little or no display of merchandise. In addition, neither the design nor the location of the premises is intended to solicit walk-in traffic. Wholesalers do not normally use advertising directed to the general public. Based on the nature of this sector of employment, the Consultant Team has assigned **100%** of these jobs as being associated with industrial land need.
- **Transportation, warehousing** – The Transportation and Warehousing sector includes industries providing transportation of passengers and cargo, warehousing and storage for goods, scenic and sightseeing transportation, and support activities related to modes of transportation. Establishments in these industries use transportation equipment or transportation-related facilities as a productive asset. The type of equipment depends on the mode of transportation. The modes of transportation are air, rail, water, road, and pipeline. While jobs in the transportation industry are often associated with having “no fixed place of work”, the warehousing and storage-related jobs are linked with industrial-type buildings, along with the storage and maintenance of transportation equipment. As a sub-set of this category, warehousing and storage is not a significant component of Greater Sudbury’s employment base (it presently accounts for just 3% of all jobs in this sector) – although it is anticipated to expand. The Consultant Team has allocated growth in the freight trucking and warehousing and storage industry groups as generating industrial land demand, and these jobs account for a **45%** share of total transportation and warehousing job growth from 2021-2046.

5.2.3 Office-Type Employment Categories

- **Information, culture** – This sector comprises establishments engaged in the following processes: producing and distributing information and cultural products; providing the means to transmit or distribute these products as well as data or communications; and processing data. The main components of this sector are the publishing industries, including software publishing, and both traditional publishing and publishing exclusively on the Internet; the motion picture and sound recording industries; the broadcasting industries, including traditional broadcasting and those broadcasting exclusively over the Internet; the telecommunications industries; Web search portals; data processing industries; and the information services industries. The Consultant Team has assigned **100%** of jobs in this sector as being associated with office-type land need.
- **Finance, insurance, real estate, leasing** – The Finance and Insurance sector comprises establishments primarily engaged in financial transactions (transactions involving the creation, liquidation, or change in ownership of financial assets) and/or in facilitating financial transactions. Three principal types of activities are identified: (a) Raising funds by taking deposits and/or issuing securities and, in the process, incurring liabilities; (b) Pooling of risk by underwriting insurance and annuities. Establishments engaged in this activity collect fees, insurance premiums, or annuity considerations; build up reserves; invest those reserves; and make contractual payments. Fees are based on the expected incidence of the insured risk and the expected return on investment; and, (c) Providing specialized services facilitating or supporting financial intermediation, insurance, and employee benefit programs. The Real Estate and Rental and Leasing sector comprises establishments primarily engaged in renting, leasing, or otherwise allowing the use of tangible or intangible assets, and establishments providing related services. The Consultant Team has assigned **100%** of jobs in this sector as being associated with office-type land need.

- **Professional, scientific, technical** – Establishments in this sector specialize according to expertise, and provide these services to clients in a variety of industries and, in some cases, to households. Activities performed include the following: legal advice and representation; accounting, bookkeeping, and payroll services; architectural, engineering, and specialized design services; computer services; consulting services; research services; advertising services; photographic services; translation and interpretation services; veterinary services; and other professional, scientific, and technical services. Overwhelmingly, these enterprises are associated with office-type space needs, and accordingly, the Consultant Team has assigned **100%** of jobs in this sector as being associated with office-type land need.
- **Other business services** – Businesses in this sector perform essential activities that are often undertaken in-house by establishments in many sectors of the economy. Activities performed include the following: management of companies and enterprises; office administration; hiring and placing of personnel; document preparation and similar clerical services; solicitation, collection, security, and surveillance services; cleaning; and waste disposal services. While many of these enterprises are associated with office-type premises, job growth in these categories do not directly translate to an increase in occupied office space (as they are ancillary to the office use itself). The Consultant Team has assigned **30%** of jobs in this sector as generating office-type land need.

5.2.4 Institutional Employment Categories

- **Education** – The Educational Services sector comprises establishments that provide instruction and training in a wide variety of subjects. This instruction and training is provided by specialized establishments, such as schools, colleges, universities, and training centres. These establishments may be privately owned and operated for profit or not for profit, or they may be publicly owned and operated. In general, jobs in this sector are linked with institutional land needs. The Consultant Team's approach to generating institutional land demand is discussed in detail below.
- **Health, social services** – The Health Care and Social Assistance sector comprises establishments providing health care and social assistance for individuals (these are grouped together, since it is sometimes difficult to distinguish between the boundaries of these two activities). The majority of jobs in this sector are linked with demand for institutional-type facilities. The Consultant Team's approach to generating institutional land demand is discussed in detail below.
- **Government** – The Public Administration sector consists of establishments of federal, provincial, and local government agencies that administer, oversee, and manage public programs, and have executive, legislative, or judicial authority over other institutions within a given area. These agencies also set policy, create laws, adjudicate civil and criminal legal cases, and provide for public safety and for national defense. In general, government establishments oversee programs and activities that are not performed by private establishments. The Consultant Team has assigned all jobs in this category to the institutional land category, which is discussed in detail below.

5.2.5 Excluded Categories

- **Agriculture, forestry** – Jobs in this sector are largely associated with sites beyond the City of Greater Sudbury's Settlement Area boundaries, and accordingly, are not considered in our employment land need assessment.

- **Mining, oil and gas** – In Greater Sudbury, activities in this sector are largely associated with lands designated as Mining/Mineral Reserve, and accordingly, are not considered in our employment land need assessment. Business services related to these industries are addressed separately, based on their use. Of note, metal ore mining was the single largest sector of employment in Greater Sudbury in 2016, accounting for 4,750 jobs (almost 7% of total employment by place of work). It is anticipated to grow to nearly 5,550 jobs by 2046 (although it will be overtaken as the largest segment of employment by the full-service restaurants and limited service eating places category over the forecast horizon, which currently ranks second largest).
- **Utilities** – Jobs in this category are accommodated on lands identified for utilities purposes, and are therefore excluded from our employment land need assessment.
- **Construction** – The Construction sector comprises establishments primarily engaged in the construction of buildings or engineering projects (e.g., highways and utility systems). Establishments primarily engaged in the preparation of sites for new construction and establishments primarily engaged in subdividing land for sale as building sites also are included in this sector. Many of these types of jobs fall into the “no fixed place of work” segment, whereby they are associated primarily with work on project sites, as opposed to an everyday workplace setting.
- **Retail trade** – Jobs in the retail industry are not used as a gauge of employment land demand in our approach to modeling future land needs. Instead, our approach to identifying future retail-commercial land need is addressed in detail below, and is linked to anticipated population growth in the city, compared to the existing retail space inventory.
- **Arts, entertainment, recreation** – The Arts, Entertainment, and Recreation sector includes a wide range of establishments that operate facilities or provide services to meet varied cultural, entertainment, and recreational interests of their patrons. Jobs in this sector are generally not associated with employment land need, and have been excluded from our analysis.
- **Accommodation, food** – The Accommodation and Food Services sector comprises establishments providing customers with lodging and/or preparing meals, snacks, and beverages for immediate consumption. The sector includes both accommodation and food services establishments because the two activities are often combined at the same establishment. While the Consultant Team acknowledges that jobs in this sector are associated with demand for retail-commercial land, our approach to identifying this type of land need is addressed in detail below.
- **Other services** – The Other Services (except Public Administration) sector comprises establishments engaged in providing services not specifically accounted for elsewhere in the classification system. Establishments in this sector are primarily engaged in activities such as equipment and machinery repairing; promoting or administering religious activities; grantmaking; advocacy; providing dry cleaning and laundry services; personal care services; death care services; pet care services; photofinishing services; temporary parking services; and dating services. These types of enterprises are generally associated with some form of commercial space needs, and therefore are addressed in our retail-commercial land needs demand modeling described below.

5.3 Employment Density

5.3.1 Industrial Employment Density

Overview

A key input to our land demand modeling is assessing the employment density in the city’s industrial areas. Employment density means the number of employees per hectare, and is influenced by the building’s site coverage (the building footprint divided by the land area, as a percentage).

In higher cost land markets – such as the Greater Toronto Area – it is common for new industrial developments to occupy 35% to 40% of the net land area (when a large block of land is subdivided into development lots, a typical gross to net factor is 80%, to account for the inclusion of local roads and utilities). In markets where land costs are comparatively lower, or there may exist restrictions that encumber development (such as adverse soil conditions), the average industrial building site coverage is often found to be lower, in a range of 20% to 30%. Depending on the nature of the local industrial base, the average site coverage could be even lower – for example, when there is a considerable presence of outside storage of equipment, vehicles, and raw and finished goods. The exhibit below illustrates our observations of industrial building site coverage in Greater Sudbury, based on GIS data received from City staff.

INDUSTRIAL SITE COVERAGE		
Property Sample	Average Site Coverage (%)	Average Building Size (m ²)
All industrial buildings	13%	1,925
Industrial buildings on sites <2 ha	16%	970
Industrial buildings on sites <1 ha	17%	780

The overall average industrial building site coverage of just 13% is indicative of some very large sites with a low site coverage, featuring considerable excess land that may be suited to future development/intensification. The smaller sites (<2 hectares) are more comparable to our expectations, and align with our on-the-ground observations while touring the various employment areas.

In the 2019 Development Charge Background Study, Hemson Consulting Ltd. utilized a benchmark of 1,000 sf of floorspace per employee for Employment Land. While this is consistent with our experience in many large, urban municipalities, the Consultant Team's recent work in the City of Thunder Bay included a door-to-door survey of industrial employers⁵ that revealed an average of approximately 725 sf per employee. Although the typical site coverage in Thunder Bay was lower than many other markets we have observed, the relatively more dense floorspace per employee figure offset this somewhat in the overall calculation of employment density. In the following exhibit, we explore the impact of various inputs to the determination of industrial employment density.

⁵ A door-to-door survey of industrial employers was intended as part of the Consultant Team's approach to the City of Greater Sudbury's Employment Land Strategy, but was not feasible due to COVID-19 public health guidelines/restrictions in place at the time of our work.

INDUSTRIAL EMPLOYMENT DENSITY					
Metric	GTA (Low)	GTA (High)	Thunder Bay	Greater Sudbury (Low)	Greater Sudbury (High)
Square feet per acre	43,560	43,560	43,560	43,560	43,560
Site coverage (%)	35%	40%	18%	20%	20%
Building floorspace (sf) per net acre	15,246	17,424	7,841	8,712	8,712
Floorspace per employee (sf)	1,000	1,000	725	725	1,000
Employees per net acre	15.2	17.4	10.8	12.0	8.7
Acres per hectare	2.47	2.47	2.47	2.47	2.47
Employees per net hectare	37.7	43.0	26.7	29.7	21.5
<i>Note: This exhibit includes imperial and metric measurements. Floorspace per employee is often cited in terms of sf per employee, so acres are a common unit of land area. We have translated this into hectares for the purposes of this Employment Land Strategy, which principally uses metric units.</i>					

Conclusion

For the purposes of our land demand modeling, the Consultant Team will utilize an **industrial employment benchmark density of 25 jobs per net hectare** for Greater Sudbury (within a range of roughly 20-30 jobs per net hectare). This incorporates an assumption of a typical site coverage of 20% for new development.

While there may be some limited examples of employers adapting to physical distancing requirements within industrial workplaces, this is not anticipated to be a long-term trend in the post-COVID environment. Although increased rates of process automation and rising productivity may result in lower employment density over time, this has already been addressed in our land demand modeling, as we account for declining employment in certain industrial categories by not reducing demand within the existing industrial building stock (only the sectors that are seeing employment gains drive demand for future industrial floorspace).

5.3.2 Office Employment Density

Overview

The COVID-19 pandemic has profoundly impacted commercial real estate in a number of ways. One of the most widely discussed and fiercely debated topics is the future of office real estate, the role it will play, and how occupier strategies will evolve in a post-pandemic world. The lockdown orders associated with the COVID-19 health and economic crisis triggered a dramatic and sudden shift in office work. Office buildings shifted from being 87% occupied globally in February 2020, to virtually empty in April 2020 (leased, but without tenants). The office workforce endured an unexpected, forced transition to a work from home paradigm. The results have shown that flexible, remote work has benefits. Workers themselves report a preference for this kind of flexibility, despite also having a desire to be in the office at least some of the time. Further, executives report that they are planning on implementing more flexible work practices, including greater ability to work from home post-COVID-19. Cushman & Wakefield believes that the workplace ecosystem of the future is a mix of traditional office spaces, home offices, and semi-public spaces. We also believe that it is very unlikely for the pendulum to permanently swing so far in one direction – particularly for firms that rely on innovation, knowledge spillovers, and creativity, to generate value and revenue. Cities are the epicentre of these kinds of phenomena.

Over the past few decades, there had been an accelerating trend of office densification – a decline in the amount of office space per worker. Research conducted by Cushman & Wakefield and CoreNet Global confirmed that the trend in office space since the Global Financial Crisis/Great Recession had been towards greater employee density. In the US, square footage per employee decreased from 19.6 m² in 2009 to 18 m² at the end of 2017 – a decline of 1.6 m². More expensive markets tend to have less space per employee, but the rate of densification is more dependent on the amount of new office supply. Information from Cushman & Wakefield’s Strategic Occupancy Planning group indicates that for recent projects (pre-COVID) they had been involved with (generally in Downtown Toronto), the allocation of office space has been below 11.6 m² per person (excluding law firms, which have a higher utilization rate). The rapid expansion of the modern “co-working” model with tight densities in the 6-9.3 m² per employee range (half the space historically allocated in traditional offices) was also influencing density planning. The main reason for the declines in office space per worker was the huge increase in collaborative and team-oriented space inside a growing number of companies that are stressing “smaller but smarter” workplaces. Cost containment is another key element. Open floor plans and “hoteling” (non-assigned workstations) are other key trends that have taken hold over the past decade or more.

Cushman & Wakefield’s survey research indicates that for many workers, the ability to execute focused work is similar to pre-COVID-19, while teamwork has increased – all facilitated by technology. However, the bond between colleagues is hampered by exclusively working from home, as is the connection employees feel with their company’s culture. Many workers who are executing well with work from home policies by necessity will be glad to return to the office when it is safe to do so, and they again have the choice. Of most significance to this Employment Land Strategy are the questions “*what is the outlook for future office demand?*”, and “*will there be lasting impacts on office employment density?*”

There is a clear variance in how working from home is experienced by different departments/functions and generations of employees. Many Millennials and Gen Z employees are pleased to work remotely; however, their living situations – often in apartments or smaller homes in more dense parts of cities, and with childcare needs to be addressed – can make it more difficult to execute work comfortably. Approximately 70% of Gen Z and Millennials report challenges in working from home, compared to 55% of baby boomers. Going forward, businesses will need to create an environment that people will want to spend time in, as opposed to seeing it as a daily chore. This will impact space layouts, amenities, and location (given the pain of employee commutes across large, urban areas).

Cushman & Wakefield Research recently released a report titled *Global Office Impact Study & Recovery Timing*, which explores the cyclical and structural changes impacting the global office market, as well as the implications for the timing of a recovery. The pandemic has created several forces that directly affect the office sector’s fundamentals. Some of the impacts are cyclical – for example, the COVID-19 recession will result in office-using job losses, higher vacancy, and will place downward pressure on rental rates. Other impacts are structural, such as a greater share of employees who will regularly work from home. The research concludes that the structural impacts of work from home trends will be offset by factors such as economic growth, population growth, and office-using penetration, which means demand for office will continue to grow over the next 10 years. An increase in permanent work from home and agile workers (those who work away from the office on an occasional basis) is counter-balanced by increased office-type employment growth and a potential reversal of the office space densification trend (at a minimum, we believe that densification will stop).

In order to establish an office employment benchmark density figure for Greater Sudbury, it is necessary to consider two key metrics: office space per employee, and floor space index.

- **Office Space per Employee** – Guided by Cushman & Wakefield research, precedents in other Canadian markets, and our outlook for workplace trends, office space per employee in a range of 14-18.5 m² (roughly 150-200 sf of net rentable area) per employee is an appropriate benchmark for assessing future land demand in Greater Sudbury. This figure needs to be “grossed up” to account for the total building area (for common areas such as the lobby and corridors), and a factor of 0.85 reflects a typical gross to net space conversion for office construction. We have selected 16.5 m² of net rentable area per employee – grossed up to 19.4 m² per employee – in our modeling. This accounts for the prospect of a lasting impact on office density as a result of the changing office work ecosystem post-COVID.
- **Floor Space Index** – A Floor Space Index (FSI) is defined as a building’s floor area divided by the site area. For the purposes of this Employment Land Strategy, we will consider only suburban-style development (since a dense, Downtown office development needs comparatively limited land, and ensuring a suitable future office land supply city-wide is principally concerned with identifying the quantum of suburban-format development required). A suitable FSI for suburban office development (which includes surface parking) is in the range of 0.3. To the extent that future office space located in the Downtown, this would diminish the amount of overall lands required to accommodate anticipated office-type job growth, since the built form would presumably be at a greater density (hence, our approach should be viewed as conservative).

Conclusion

For the purposes of our land demand modeling, the Consultant Team will utilize an **office employment benchmark density of 155 jobs per net hectare** for new office construction that will be home to the growing number of future office workers through 2046. Implicit in this benchmark are two components:

- A measure of the amount of office space per employee – benchmarked at 19.4 m², for the purposes of our analysis, and guided by the market trends discussed above; and,
- A measure of the land area required to accommodate office development – benchmarked at an average floor space index (FSI) of 0.3, which reflects a suburban-style office built form.

OFFICE EMPLOYMENT DENSITY	
Metric	Value
Site Size (net hectares)	1
Floor Space Index	0.3
Floor Area (m ²)	3,000
Office Space per Employee (m ²)	19.4
Employees per Net Hectare	155

5.4 Industrial Land Need Projection

5.4.1 Reference Scenario

The exhibit below presents the Reference Scenario Industrial Land Need Projection. Some industry groups linked to industrial land demand will see employment growth, while others are anticipated to decline over the forecast horizon. The modeling illustrated below is only concerned with those growth sectors that will contribute to additional need for industrial lands going forward. We have considered all jobs in the manufacturing and wholesale trade sectors, as well as the freight trucking and warehousing and storage industry groups within the transportation and warehousing sector. Overall positive growth of nearly 1,050 industrial-type jobs translates to a need for 42 net hectares of land, at a density of 25 jobs per net hectare.

INDUSTRIAL LAND NEED PROJECTION – REFERENCE SCENARIO					
Industry Sector	Jobs (2021)	Jobs (2046)	Change (2021-2046) ¹	Jobs per Net Hectare	Required Net Hectares
Manufacturing	2,930	2,543	419		
Wholesale trade	2,017	1,419	157		
Transportation, warehousing	2,354	3,191	473		
TOTAL	10,381	10,685	1,049	25	42.0
<i>Note 1: "Change (2021-2046)" captures the industry groups within each sector that are anticipated to see employment growth from 2021-2046. While some industry groups expand and others decline, we are only identifying those growth sectors that will contribute to additional need for industrial lands going forward.</i>					

5.4.2 Low and High Scenarios

The scenarios presented below result in a range of land demand from a low approximately 35 net hectares to a high of approximately 50 net hectares.

INDUSTRIAL LAND NEED PROJECTION – LOW SCENARIO					
Industry Sector	Jobs (2021)	Jobs (2046)	Change (2021-2046) ¹	Jobs per Net Hectare	Required Net Hectares
Manufacturing	2,930	2,543	323		
Wholesale trade	2,017	1,419	135		
Transportation, warehousing	2,354	3,191	410		
TOTAL	10,381	10,685	868	25	34.7
<i>Note 1: "Change (2021-2046)" captures the industry groups within each sector that are anticipated to see employment growth from 2021-2046. While some industry groups expand and others decline, we are only identifying those growth sectors that will contribute to additional need for industrial lands going forward.</i>					

INDUSTRIAL LAND NEED PROJECTION – HIGH SCENARIO					
Industry Sector	Jobs (2021)	Jobs (2046)	Change (2021-2046) ¹	Jobs per Net Hectare	Required Net Hectares
Manufacturing	2,930	2,543	519		
Wholesale trade	2,017	1,419	179		
Transportation, warehousing	2,354	3,191	538		
TOTAL	10,381	10,685	1,236	25	49.4
<i>Note 1: "Change (2021-2046)" captures the industry groups within each sector that are anticipated to see employment growth from 2021-2046. While some industry groups expand and others decline, we are only identifying those growth sectors that will contribute to additional need for industrial lands going forward.</i>					

5.4.3 Summary

The preceding analysis utilized the three projections of employment by industry, and focused on those growth sectors associated with industrial space demand. The Consultant Team has concluded that **there is demand for roughly 35-50 net hectares of industrial land from 2021-2046** (the resulting range of the three projections). For the purposes of land use planning, the **Consultant Team advises ensuring a suitable supply of at least 100 net hectares of industrial land (essentially double the forecast need) to accommodate anticipated demand through 2046.** Ideally, the city's available land supply would be even greater, to ensure a broad range of options among prospective occupiers in terms of location, land pricing, servicing, and planning designation/permitted uses.

5.5 Office Land Need Projection

5.5.1 Reference Scenario

The exhibit below presents the Reference Scenario Office Land Need Projection. Employment in sectors that associated with office-type space demand is anticipated to increase by a net 465 jobs through 2046 (some sectors expand, while others contract). This excludes institutional-type office employment such as health care and government workers who might occupy office premises. To the extent that these functions require offices in private sector buildings, this has not been accounted for (other than jobs situated in retail-commercial environments, such as a medical clinic at a shopping centre). At 155 jobs per net hectare (suburban-style low or mid-rise office buildings), this results in a need for 3 net hectares of land.

OFFICE LAND NEED PROJECTION – REFERENCE SCENARIO						
Industry Sector	Jobs (2021)	Jobs (2046)	Change (2021-2046) ¹	Share of Jobs	Jobs per Net Hectare	Required Net Hectares
Information, culture	932	854	-78	100%		
Finance, insurance, real estate, leasing	3,192	3,127	-65	100%		
Professional, scientific, technical	3,474	3,999	525	100%		
Other business services	2,312	2,591	84	30%		
TOTAL	9,911	10,572	465		155	3.0
<i>Note 1: "Change (2021-2046)" captures the "Share of Jobs" by industry sector that generate demand for office-type premises.</i>						

5.5.2 Low and High Scenarios

The Low and High Scenarios presented below result in a range of office land demand for the 2021-2046 period from a low of 0.2 net hectares to a high of 6 net hectares of suburban-style office land.

OFFICE LAND NEED PROJECTION – LOW SCENARIO						
Industry Sector	Jobs (2021)	Jobs (2046)	Change (2021-2046) ¹	Share of Jobs	Jobs per Net Hectare	Required Net Hectares
Information, culture	929	809	-120	100%		
Finance, insurance, real estate, leasing	3,181	2,962	-219	100%		
Professional, scientific, technical	3,462	3,788	326	100%		
Other business services	2,304	2,455	45	30%		
TOTAL	9,876	10,014	33		155	0.2

Note 1: "Change (2021-2046)" captures the "Share of Jobs" by industry sector that generate demand for office-type premises.

OFFICE LAND NEED PROJECTION – HIGH SCENARIO

Industry Sector	Jobs (2021)	Jobs (2046)	Change (2021-2046) ¹	Share of Jobs	Jobs per Net Hectare	Required Net Hectares
Information, culture	937	901	-36	100%		
Finance, insurance, real estate, leasing	3,207	3,299	92	100%		
Professional, scientific, technical	3,490	4,219	728	100%		
Other business services	2,323	2,734	123	30%		
TOTAL	9,957	11,152	908		155	5.9

Note 1: "Change (2021-2046)" captures the "Share of Jobs" by industry sector that generate demand for office-type premises.

5.5.3 Summary

The preceding analysis utilized the three projections of employment by industry, focused on those sectors associated with office space demand. The Consultant Team has concluded that **there is demand for between roughly 0-6 net hectares of office land from 2021-2046** (the resulting range of the three projections). For the purposes of land use planning, the **Consultant Team advises ensuring a suitable supply of at least 10 net hectares of office land to accommodate anticipated demand through 2046**, in order to provide a range of site selection options, and to account for institutional-type office space demand not captured in our methodology.

Our forecast assumes suburban-style building forms. To the extent that future office employment is accommodated in the Downtown area in new development at higher densities, the quantum of overall land demand would decline accordingly. Depending on the prevalence of work from home arrangements going forward, excess supply in the exiting Downtown office market could absorb a share of future employment growth. Conservatively, our modeling does not account for this, and instead identifies the likely upper end of prospective office land requirements.

5.6 Institutional Land Need Projection

5.6.1 Introduction

The workplace setting of persons employed across the spectrum of industrial-type jobs is fairly uniform: spaces for raw materials storage; manufacturing and/or assembly process areas; storage of finished goods; areas for distribution/logistics; etc. This is common across a range of types of industrial jobs. Similarly, whether an office worker is involved in the finance industry, technology sector, or some other business services, the workplace environment is fairly homogenous, from a space utilization perspective. Accordingly, it is straight-forward to apply a benchmark of workspace per employee (generally translated to number of workers per unit of land area, for the purposes of land demand planning) as an input to a land demand model, as we have done above. In contrast, workers in jobs associated with the institutional sector have more varied workplace environments, which range from schools (education) to hospitals and medical office settings (health care) to residential care facilities (social services) to public administration offices (government).

It is a significant challenge to assign a benchmark employment density to institutional-type jobs. Rather, it is more appropriate to recognize the types of buildings/facilities that will be required to accommodate anticipated future jobs in the institutional sector, and their associated land need city-wide. Some of these facilities are found spread across a community (schools) and are planned for in new expansion areas. Others represent intensification on an existing institutional campus (such as

colleges and universities, and hospitals/health care/social services uses). Others may be found in retail-commercial settings (medical clinics, and some government functions – such as Service Canada/Service Ontario offices).

5.6.2 Reference Scenario

The Reference Scenario institutional employment projection identifies growth of some 4,320 jobs across industry sectors linked with demand for institutional space. Within the Education, Health and Social Services, and Government sectors, prominent sub-sectors driving job growth include the following:

- Education – Employment at elementary and secondary schools accounts for close to 90% of total anticipated employment growth in the Education sector through 2046. This is due to a growing population base in the city over that time horizon. New schools will be constructed on lands in residential growth areas, and existing school sites will be intensified as needed.
- Health and Social Services – Jobs in hospitals; offices of physicians, dentists, and other health practitioners; and individual and family services account for approximately 75% of total employment growth in this sector. While some of these jobs can be accommodated in the community in mixed use commercial areas (such as medical office buildings), a significant component will still be institutionally-based.
- Government – Jobs in public administration are forecast to decline in Greater Sudbury by 2046, compared to 2021. However, the picture is mixed; Municipal public administration will see growth, although this will likely be offset by declines in Federal and Provincial employment in the city, corresponding with the anticipated trend in Ontario and Canada.

INSTITUTIONAL JOB GROWTH – REFERENCE SCENARIO			
Industry Sector	Jobs (2021)	Jobs (2046)	Change (2021-2046)
Education	6,390	7,242	852
Health, social services	11,284	14,914	3,630
Government	5,841	5,682	-159
TOTAL	23,516	27,838	4,322

5.6.3 Low and High Scenarios

The outlook for institutional-type employment growth varies from a low of 3,150 jobs added through 2046 (Low Scenario), to a high of approximately 5,520 jobs (High Scenario). These types of jobs comprise a segment of employment that is referred to as “population-related employment”, since their increase/decrease is closely linked with population growth in a community.

INSTITUTIONAL JOB GROWTH – LOW SCENARIO			
Industry Sector	Jobs (2021)	Jobs (2046)	Change (2021-2046)
Education	6,368	6,861	493
Health, social services	11,261	14,296	3,035
Government	5,830	5,454	-376
TOTAL	23,459	26,611	3,152

INSTITUTIONAL JOB GROWTH – HIGH SCENARIO			
Industry Sector	Jobs (2021)	Jobs (2046)	Change (2021-2046)
Education	6,420	7,640	1,220
Health, social services	11,321	15,557	4,236
Government	5,859	5,920	60
TOTAL	23,601	29,117	5,516

5.6.4 Summary

Among Greater Sudbury's largest employers today are those linked to institutional land demand. While increased jobs in the health care and social services sector is anticipated to be a leading driver of employment growth over the forecast horizon, employment in the post-secondary education sector is more muted. A modest rise in university-related employment is offset by a decline in college-related employment during the 2021-2046 period, while most job growth in the education sector occurs in elementary and secondary schools.

As noted earlier, given the varied types of workplaces required for institutional sector jobs, it is a challenge to assign a benchmark employment density to these jobs. A component of this job growth can be accommodated through intensification on existing properties/campuses; another component will occur in new growth areas as the city's population increases; and a further component will need lands designated for employment uses. In discussion with major local institutional employers, the following perspective on anticipated growth and potential land requirements were identified:

- **Health Sciences North (HSN)** – In addition to its Ramsey Lake Health Centre – which is basically landlocked – HSN has 12 or 13 other sites across the city, and is seeking to reduce this number. HSN recently completed a 20-year Capital Master Plan. There are a number of factors influencing current/future space requirements (which HSN's facilities are challenged to address):
 - HSN is an academic teaching hospital, and this requires additional space.
 - There is a movement in the health care field towards an increasing share of private rooms with dedicated washrooms, so this requires more space.
 - In the pre-COVID environment, HSN was in need of additional beds. Going forward, there is a need for superior infection controls, which could affect space allocations.
 - The Walford Road access point is blocked off, which causes issues for on-site traffic movement.

At the Ramsey Lake site, there is a need to “build out and build up”, but structured parking is very expensive to construct. Ideally, this site would be expanded to make it easier for staff to move around among the various facilities on the site, rather than elsewhere in the city.

- **Laurentian University** – The University's main campus is located at 935 Ramsey Lake Road, and the McEwen School of Architecture (opened in 2016) is located in Downtown Sudbury. The University has a Master Plan in place, and has sufficient owned lands on the campus to accommodate future growth. While post-COVID space requirements are unknown, there is probably suitable facility space for the foreseeable future. The University is open to future partnerships – such as its existing relationships with the Northern Ontario School of Medicine and the Vale Living with Lakes Centre – which could bring future uses to the campus.

- **Cambrian College** – The College is located at 1400 Barrydowne Road, between Lasalle Boulevard and Maley Drive, in the north part of Sudbury. In addition to the on-campus facilities, the College has some leased space off campus in retail-commercial strip malls. While there are two satellite campuses – the Manitoulin Campus in Little Current, and the Espanola Campus – there is no interest in a new off-campus site in Sudbury. A challenge to considering off-campus programming is that the College would prefer to provide similar services to students whether on or off-campus, and this is challenging if sites are dispersed. The College does not have a current Master Plan. However, the Barrydowne Road property has considerable excess (undeveloped) land remaining, should future new development be required over time to accommodate growth.
- **Collège Boréal** – Located at 21 Lasalle Boulevard, north of Downtown Sudbury, the Collège Boréal campus has significant remaining undeveloped land to accommodate growth.

5.7 Retail-Commercial Land Need Projection

5.7.1 Introduction

The analysis of retail market trends, retail inventory, and retail space per capita in a prior section of this report are all key inputs to our land demand projection. Below, we utilize a forecast of future population, along with a site coverage benchmark, to anticipate future retail-commercial land needs.

5.7.2 Population Projection

A key input to the retail-commercial land demand projection is a forecast of population growth. The Consultant Team's guidance is based upon the Reference Scenario.

POPULATION PROJECTIONS				
Scenario	2016 (Census)	2021 (Forecast)	2046 (Forecast)	Change (2021-2046)
Reference Scenario	166,130	167,800	172,990	5,190
Low Scenario	166,130	167,130	165,090	-2,040
High Scenario	166,130	168,720	181,290	12,570

5.7.3 Site Coverage

A benchmark site coverage of 25% is utilized in our land demand projections. This recognizes the reality of parking ratio requirements for retail-commercial establishments. While parking may be accommodated in parking structures as part of mixed use development/redevelopment, increasing the extent of retail density is a challenge from a site design perspective (with the exception of regional-scale shopping centres, underground or structured parking is relatively uncommon, given the expense associated with its construction and maintenance).

5.7.4 Land Demand Scenarios

In the Baseline Retail-Commercial Land Demand Scenario illustrated below, space demand is projected to continue at the current ratio per capita in Greater Sudbury, (which is 1.95 m², for the purposes of this modeling). Based upon a population increase of 5,190 persons in the Reference Scenario, this translates to a need for land to accommodate 10,125 m² of new shopping centre space. When this space demand is translated to a land requirement at a benchmark site coverage of 25%, this equates to a need for 4.1 net hectares of land by 2046. The alternative population growth scenarios produce a range of land demand from -1.6 (or 0) to nearly 10 net hectares.

RETAIL-COMMERCIAL LAND DEMAND – BASELINE SCENARIO			
Variable	Reference Scenario	Low Scenario	High Scenario
Population Growth	5,190	-2,040	12,570
Retail Space per Capita (m ²)	1.95	1.95	1.95
Retail Demand (m ²)	10,125	-3,980	24,523
Site Coverage (%)	25%	25%	25%
Land Required (net hectares)	4.1	-1.6	9.8

A second set of scenarios has been developed that tests the impact of a reduction in retail space per capita in the future. This assumption is influenced by the secular trends apparent in the consumer market today towards online shopping, mobile commerce, same-day/next day delivery of goods, and declining store sizes among certain retail categories, as discussed previously. The current shopping centre inventory in Greater Sudbury is approximately 312,265 m² (based on CSCA data). In these Reduced Space per Capita scenarios, retail space demand per capita is reduced from the current rate of 1.95 m² to 1.76 m² per person (a 10% reduction) and 1.56 m² per person (a 20% reduction).

A population increase of 5,190 persons in the Reference Scenario – on its own – would translate to a requirement for land to accommodate new retail-commercial space. However, this does not take into account the fact that the reduced amount of retail space per capita demand also impacts the existing retail-commercial environment; this must also be taken into consideration.

- 10% Reduction in Demand per Capita** – If retail space demand declines by 10% as a result of retail and consumer market dynamics (represented by the reduced demand factor of 0.90 in the exhibit below), then there is an excess inventory of approximately 32,450 m² of retail-commercial space in the Reference Scenario. This exceeds the Reference Scenario new retail demand growth figure of approximately 9,100 m², meaning that not only is no new retail supply required by 2046, but that the existing inventory would represent an over-supply of space of around 23,300 m². The alternative population growth scenarios generate a range of retail demand outcomes, from an excess supply of 36,000 m² in the Low Scenario, compared to 10,400 m² in the High Scenario. All cases result in no new land being required for shopping centre development.
- 20% Reduction in Demand per Capita** – If future demand for retail space declines by 20% (represented by the reduced demand factor of 0.80 in the exhibit below), then there is an excess inventory of approximately 64,900 m² of retail-commercial space in the Reference Scenario. This exceeds the Reference Scenario new retail demand growth figure of 8,100 m², meaning that not only is no new retail supply required by 2046, but that the existing inventory would represent an over-supply of space of 56,800 m². The alternative scenarios generate a range of demand outcomes, from an excess supply of 68,100 m² in the Low Scenario, to 45,300 m² in the High Scenario. Again, all cases result in no new land being required for future shopping centre development.

RETAIL-COMMERCIAL LAND DEMAND – REDUCED SPACE PER CAPITA SCENARIO (10% REDUCED DEMAND)				
Variable	Reference Scenario	Low Scenario	High Scenario	
Population Growth	5,190	-2,040	12,570	
Retail Space per Capita (m ²)	1.76	1.76	1.76	
Population Growth-Driven New Retail Demand (m ²)	9,113	-3,582	22,071	
Current Inventory (m ²)	324,500	324,500	324,500	
Reduced Demand Factor	0.90	0.90	0.90	
Future Required Inventory (m ²)	292,050	292,050	292,050	
Excess Retail Space – Future Required Inventory Less Current Inventory (m ²)	32,450	32,450	32,450	
Population-Growth Driven New Retail Demand Less Excess Retail Space (m ²)	-23,337	-36,032	-10,379	
Site Coverage (%)	25%	25%	25%	
Land Required (net hectares)	-9.3	-14.4	-4.2	
Land Required – Adjusted (net hectares)	0	0	0	

RETAIL-COMMERCIAL LAND DEMAND – REDUCED SPACE PER CAPITA SCENARIO (20% REDUCED DEMAND)				
Variable	Reference Scenario	Low Scenario	High Scenario	
Population Growth	5,190	-2,040	12,570	
Retail Space per Capita (m ²)	1.56	1.56	1.56	
Population Growth-Driven New Retail Demand (m ²)	8,100	-3,184	19,619	
Current Inventory (m ²)	324,500	324,500	324,500	
Reduced Demand Factor	0.80	0.80	0.80	
Future Required Inventory (m ²)	259,600	259,600	259,600	
Excess Retail Space – Future Required Inventory Less Current Inventory (m ²)	64,900	64,900	64,900	
Population-Growth Driven New Retail Demand Less Excess Retail Space (m ²)	-56,800	-68,084	-45,281	
Site Coverage (%)	25%	25%	25%	
Land Required (net hectares)	-22.7	-27.2	-18.1	
Land Required – Adjusted (net hectares)	0	0	0	

5.7.5 Summary

The retail-commercial land demand scenarios presented above are guided by the same population forecasts, but different assumptions about the future amount of retail space demanded per capita. The Baseline Retail-Commercial Land Demand Scenario assumes that the current rate of retail space per capita is held constant over time (1.95 m² per capita in Greater Sudbury). This results in a range of land demand from 0-10 net hectares, with the Reference Scenario indicating a need for approximately 4 net hectares to satisfy future demand. In contrast, the Reduced Space per Capita scenarios (10% and 20% reduction in demand) indicate that an assumed decline in demand would result in an actual excess of retail inventory, despite future population growth occurring through 2046.

It is the view of the Consultant Team that new retail-commercial uses will continue to emerge, notwithstanding the downward pressure on retail space per capita. It is highly likely that some buildings within the existing inventory will become obsolete (due to their format, orientation, age, or other factors), and repurposed to a mixed use or other form of redevelopment, which would reduce the present space inventory. As well, small-scale projects, and lands for freestanding properties, will be demanded. Accordingly, lands must continue to be planned for and designated to meet requirements for new developments. **The Consultant Team recommends planning for 20 net hectares of retail-commercial land through 2046.** This will provide sufficient flexibility for site selection, and will include lands in new growth areas to accommodate neighbourhood-scale and convenience retail-commercial demand as the city's population expands, while at the same time centrally-situated infill sites will still be sought-after by prospective retail-commercial developers.

5.8 Land Demand Summary

The Reference Scenario population and employment growth projections guide the Consultant Team's recommended employment land demand conclusions and recommendations. The Low and High Scenarios allow us to identify a broader range of land requirements that could occur, should growth lag or surpass the Reference Scenario. Together, the scenarios inform our ultimate planning policy and strategic guidance.

LAND DEMAND CONCLUSIONS				
Employment Land Type	Reference Scenario (Net Hectares)	Low Scenario (Net Hectares)	High Scenario (Net Hectares)	Consultant Team Recommendation (Net Hectares)
Industrial	42.0	34.7	49.4	100
Office	3.0	0.2	5.9	10
Institutional	Land needs to be monitored over time			
Retail-Commercial – Baseline	4.1	-1.6	9.8	20
Retail-Commercial – 10% Reduced Space per Capita	-9.3	-14.4	-4.2	
Retail-Commercial – 20% Reduced Space per Capita	-22.7	-27.2	-18.1	
Note: Where negative land need is indicated, this means that no additional lands are required based on population/employment growth – although planning for employment lands must also consider the provision of suitable sites to satisfy site selection criteria such as location, accessibility, visibility, land price, lot size and orientation, servicing, and other economic/market factors.				

It is important to note that while this land *demand* analysis is expressed in *net* hectares (the developable land area), the preceding land *supply* analysis is discussed in *gross* hectare terms (total land area). It is not possible within the scope of this project to identify the gross to net factor for individual employment land parcels (which in the case of parcels in the built-up area of the city may be nil), since there is a vast supply of vacant lands with development constraints such as natural features (waterways, wetlands, forests, etc.), potential issues related to site grading (un-level sites), site configuration (irregular shapes that may limit developability), and in the case of undeveloped areas, a requirement to provide for roads and stormwater management before the actual developable lands can be created. We have assumed that the majority of new industrial lands will require some adjustment to account for undevelopable lands, while new office and retail-commercial properties will develop across the existing urban areas of the city, and require no adjustment from gross to net land area.

The following summarizes the Consultant Team's recommended employment land allocation by type, for the 2021-2046 horizon.

- **Industrial land – 100 net hectares/125 gross hectares.**
- **Office land – 10 net hectares.**
- **Retail-Commercial land – 20 net hectares.**
- **Institutional land – ongoing land needs are to be monitored in collaboration with major local institutional employers.**