Kam Lake Market Study

Final Report

March 2025

prepared by:

FBM

in partnership with Dillon Consulting

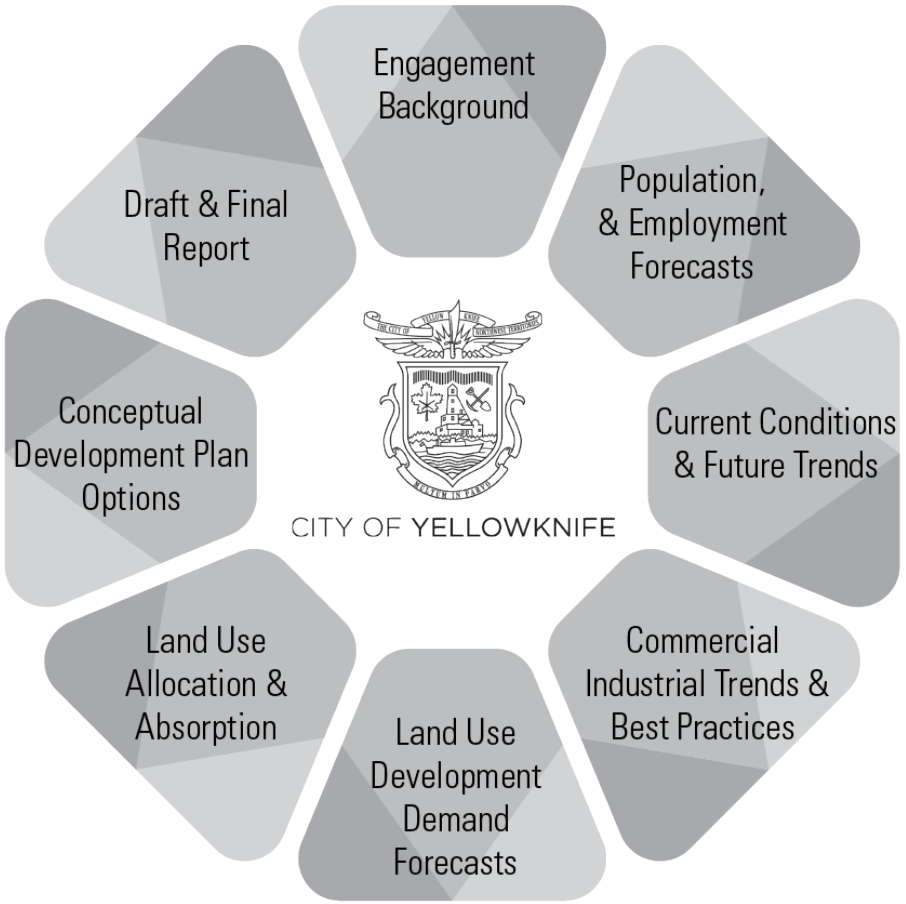
prepared for:

CITY OF YELLOWKNIFE

We recognize that The City of Yellowknife is located in Chief Drygeese territory. From time immemorial, it has been the traditional land of the Yellowknives Dene First Nation. We respect the histories, languages, and cultures of all other Indigenous Peoples including the North Slave Métis, and all First Nations, Métis, and Inuit whose presence continues to enrich our vibrant community. Our team is grounded in creating safe spaces that are respectful of the land and environment. We acknowledge the spirit and intent of the Treaties and traditional lands of Indigenous peoples.

Our Team is committed to advancing the Truth and Reconciliation commission of Canada Calls to Action. Through partnerships with orders of government, education systems, organizations, businesses, and individuals, we will collectively create a better place for all for many generations to come.

Report Contents



List of Figures

List of Tables

APPENDICES

Preface

FBM Planning Ltd. ("FBM") was commissioned by the City of Yellowknife in collaboration with Dillon Consulting Ltd. (Dillon) to prepare a Market Study for the Kam Lake Industrial Study Area. This study was carried out from November 2024 through February 2025. On-the-ground fieldwork, conducted in November, included a site visit and documentation of the existing industrial composition in the city.

FBM reviewed a range of statistical information including Statistics Canada Census, Population Estimates, and Labour Market Survey data; and various city background information as well as data from FBM's own extensive project research. Additional statistical data was obtained through FBM's third-party data service, Manifold Data Mining Inc.

To further support this analysis, Dillon Consulting out of their Yellowknife office provided market intelligence and Class-D level costing estimates for full option buildout (using current dollars). A "Class D" level civil engineering cost refers to a preliminary cost estimate, typically made during the Conceptual Design Phase, with a high degree of uncertainty and accuracy in the range of +/-20% - 30%. Due to the limited design details available at this stage, the cost estimates in this study are considered appropriate for high-level feasibility and initial budgeting.

Dillon also provided valuable insights into community engagement that took place in Spring/Summer 2024. Dillon was previously retained to compile and analyze community and business feedback during the first phase of public consultation for the development under consideration.

Forecast models used in this study are intended to provide a reference for planning purposes. Demand forecasts are based on "market-driven" methodologies that take into account historic patterns of growth, population growth, employment, and labour growth to project future conditions. Because they are based on past trends, even the most rigorous forecasts can be disrupted by unforeseen changes.

At the time of writing, there is significant uncertainty surrounding international trade between the United States and Canada. As with recessionary economics, the impacts of increased tariffs or a re-alignment of global trade are difficult to predict and therefore not factored into the market-driven demand forecast presented in this report. However, trade disputes are just one example of external factors that can affect forecasts. Government policy changes, technological innovation, and societal shifts can all create unpredictable outcomes which may positively or negatively impact demand. The projections in this report therefore represent a baseline scenario based on the best information available at the time of writing. Future users may wish to evaluate the potential impacts of emerging circumstances against this baseline.

It is noted that actual population and labour force numbers will vary over the course of the next 20 years. FBM and its partners do not warrant that any estimates contained within the study will be achieved over the identified time horizons but that they have been prepared conscientiously and objectively on the basis of information obtained during the course of this study.

This analysis was conducted by FBM and Dillon as objective and independent parties. As is customary in an assignment of this type, neither our name nor the material submitted may be included in a prospectus, or part of any printed material, or used in offerings or representations in connection with the sale of securities or participation interest to the public, without the expressed permission of the City of Yellowknife or FBM.

FBM | Dillon Consulting

2025

Executive Summary

Study Process

The study was informed by a public engagement exercise carried out in 2024, which identified prominent themes of public interest, including a desire among stakeholders for a thorough land demand assessment to help establish the need for, and potential character of, any potential future development in the Kam Lake area.

The City of Yellowknife subsequently commissioned FBM Planning and Dillon Consulting to carry out a market study and market demand and supply analysis. The Study Team examined data from third-party sources to gain an understanding of population, demographic, labour force, employment, and income characteristics.

The Study Team also performed desktop research to understand the City of Yellowknife's economic and community plans and general economic outlook, with reference to territorial, national, and international industrial trends.

In order to project market demand, three different forecasting methods were employed, from which a weighted average demand figure was derived. From this, the Study Team estimated the approximate additional floor area that the Kam Lake study area could absorb over the next 20 years, along with the associated land requirements (based on typical site coverage for this style of development).

Demand was forecasted for a selection of uses considered to be compatible with the Kam Lake study area, including a subset of light industrial, commercial, and agricultural uses (collectively, the "targeted uses"), and excluding heavy industry, which the Engle industrial area is intended to accommodate. Demand forecasts were then applied to a land allocation and absorption strategy which in turn informed the development of two conceptual layout plans.

Key Findings

Projections indicate that Yellowknife's population will continue to grow at a more conservative rate reaching an estimate of 26,339 by 2034, an increase of 2,710 at an average annual rate of growth of 1.1% per annum or a total growth of 11.5%. A growing population and workforce in Yellowknife, combined with higher-than-average household incomes, has several key implications for employment growth in the city and more specifically for the Kam Lake Study Area.

Economic Expansion and Job Creation – As Yellowknife grows, demand for goods and services will also rise. This drives economic growth, particularly in sectors like retail, healthcare, education, and construction. Higher household incomes mean residents have greater purchasing power, fueling local businesses and creating new opportunities for employment across various industries.

Labour Market Pressures – While job growth is positive, a rising population also intensifies demand for skilled and unskilled workers. Public administration, healthcare, and retail—already among the top employers in Yellowknife—may struggle to fill positions if workforce growth does not keep pace with job creation.

Infrastructure and Housing Demand – Higher household incomes suggest financial stability, but they can also drive up housing costs. If supply does not meet demand, affordability may become a concern, making it harder for lower-income workers to live in the city.

Potential for Diversification – While Yellowknife's economy has traditionally relied on public administration and resource-based industries, a growing, high-income population could foster diversification into new industries like agribusiness or cold climate research and technology.

Demand

As Yellowknife looks toward the next 10 to 25 years, its economic landscape will need to evolve with the growth of several key clusters. These clusters will not only support existing industries but also attract new downstream industries that can benefit from proximity to resources, infrastructure, and local expertise.

The Study Team sought to forecast demand for certain "targeted uses" deemed compatible with the Kam Lake study area given its

geographic context and present-day positioning. Through an evaluation of the current market and emerging trends, and results of past public engagement, Kam Lake is deemed compatible with the following broad North American Industry Classification System (NAICS) categories:

- Agriculture forestry, fishing & hunting (11)
- Retail Trade (44-45)
- Arts, entertainment and recreation (71)
- Accommodation and food services (72)
- Other Services (81)
- Construction (23)
- Professional, scientific and technical services (54)
- Manufacturing (31-33)
- Wholesale Trade (41)
- Transportation & Warehousing (48-49)

These targeted uses were grouped into clustered industry segments, with heavy industry intentionally excluded (refer to Table below). Using a weighted average of multiple methodologies for quantifying industrial demand, approximately 611,000 sf of new gross floor area for the target NAICS industries could be reasonably supported over the next 20 years in the Kam Lake Study Area. An additional 20,000 sf of floor area is forecasted for self storage bringing the total to approximately 631,600 sf. Based on a floor area ratio (FAR) or typical site coverage of 0.15 for the average of all land use typologies and reflecting the likelihood that future land in Kam Lake will likely mirror past patterns of development, demand could reasonably support 99.7 acres (38 ha) of net land (i.e. excluding roads and estimated wetlands).

CLUSTERED INDUSTRY SEGMENT	Total Floor Area Demand for Kam Lake (sf)	Estimated Kam Lake Land Needs (acres)
Agriculture	90,204	20.7
Heavy Industry	0	0.0
Commercial	29,973	2.3
Construction	334,741	38.4
Manufacturing & Warehousing	156,621	36.0
Self Storage	20,058	2.3
TOTAL	**631,598**	**99.7**

Accordingly, a refinement of the broad sector opportunities reveals that by 2044 Construction businesses would account for the largest share of demand allocation at just under 335,000 sf of building space on 38.4 ac (15.1 ha). Next, Manufacturing & Warehousing comprising a variety of sizes and formats would occupy over 156,600 sf of space on 36 ac (14.6 ha) plus an additional 20,000 sf for a self storage facility(ies). Agriculture, while in its infancy as an industry is considered a future growth segment for which an estimated 90,000 sf on almost 21 ac (8.5 ha) could be required. The final segment, commercial, would be comprised of supporting smaller businesses and is forecasted to require 2.3 ac (0.93 ha) and just under 30,000 sf for floor area.

Recommendations

Recommendations for moving forward on the Area Development Plan for the Study Area include the following:

- Conduct geotechnical studies to assess land suitability;
- Evaluate wildfire protection, environmental impacts, traffic impacts, and drainage to ensure comprehensive planning;
- Implement mitigation measures to adjacent properties, such as buffers to reduce nuisances (noise, dust, odours);
- Conduct additional engagement, particularly with the local business community to better understand their unique needs; and,
- Ensure ongoing, meaningful community involvement and transparency in planning.

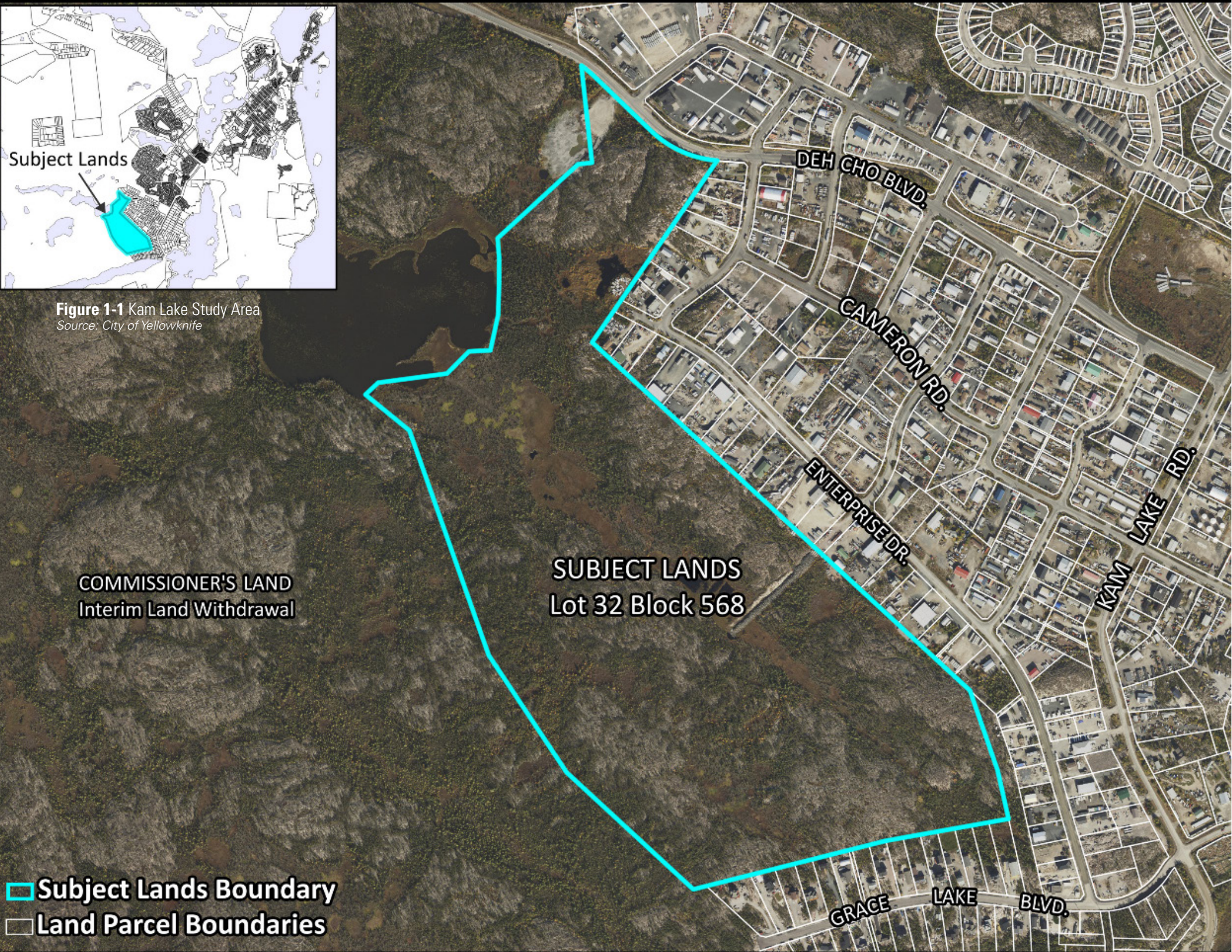


Figure 1-1 Kam Lake Study Area
Source: City of Yellowknife

Section 1.0

Introduction

CITY OF YELLOWKNIFE

1.1 Summary of Public Engagement Exercise

A preliminary public engagement exercise was held in 2024 to collect community feedback and recommend next steps for the development of the Subject Lands, identified for potential light industrial development. The engagement process resulted in prominent themes that inform this study, outlined in brief below.

Land Demand Analysis – Participants questioned the necessity of developing new light industrial areas, advocating instead for utilizing existing zones such as the Engle Business District. They called for thorough land demand assessments to provide documented evidence to support the need for more development in Kam Lake.

Transparency and Trust – A recurring theme was the need for transparency and trust. Past promises to preserve the area as greenspace were highlighted, with frustration expressed over broken commitments and mishandling of issues such as firebreaks and water management. Improved transparency in consultation and planning processes was strongly recommended.

Bylaw Enforcement – There was significant concern about the lack of enforcement of existing bylaws, which has undermined community trust. Examples of unchecked illegal activities were cited, emphasizing the need for stringent enforcement before pursuing new developments.

Community Engagement
Residents stressed the importance of meaningful community engagement and up-to-date studies on land demand, especially post-2018. The current survey was criticized by some individuals for bias toward light industrial uses, prompting suggestions to include more diverse land uses like residential and recreational in future planning.

This report provides recommendations for moving forward on the planning of the Subject Lands, including:

1. Conduct geotechnical and market studies to assess land suitability and market needs;
2. Evaluate wildfire protection, traffic impacts, and drainage to ensure comprehensive planning;
3. Implement mitigation measures like buffers to reduce nuisances (noise, dust, odours);
4. Improve bylaw enforcement to rebuild community trust;
5. Conduct additional engagement, particularly with the business community to better understand their land development needs;
6. Ensure ongoing, meaningful community involvement and transparency in planning; and,
7. Preserve environmental and recreational spaces, notably around the Kam Lake and Grace Lake areas.

Conclusion
The feedback highlights a strong desire for respect for previous commitments, maintaining environmental quality, and basing new developments on clear, documented demand to gain community support and trust.

1.2 Scope of Study

FBM Planning Ltd. ("FBM") and Dillon Consulting Limited ("Dillon") was commissioned by the City of Yellowknife to prepare a Market Study for the Kam Lake Industrial Study Area, as contextually shown in **Figure 1-1**. The Study Area is bounded by Enterprise Drive to the northeast, Grace Lake Boulevard to the south, and Commissioner's Land (part of the Interim land Withdrawal) to the west.

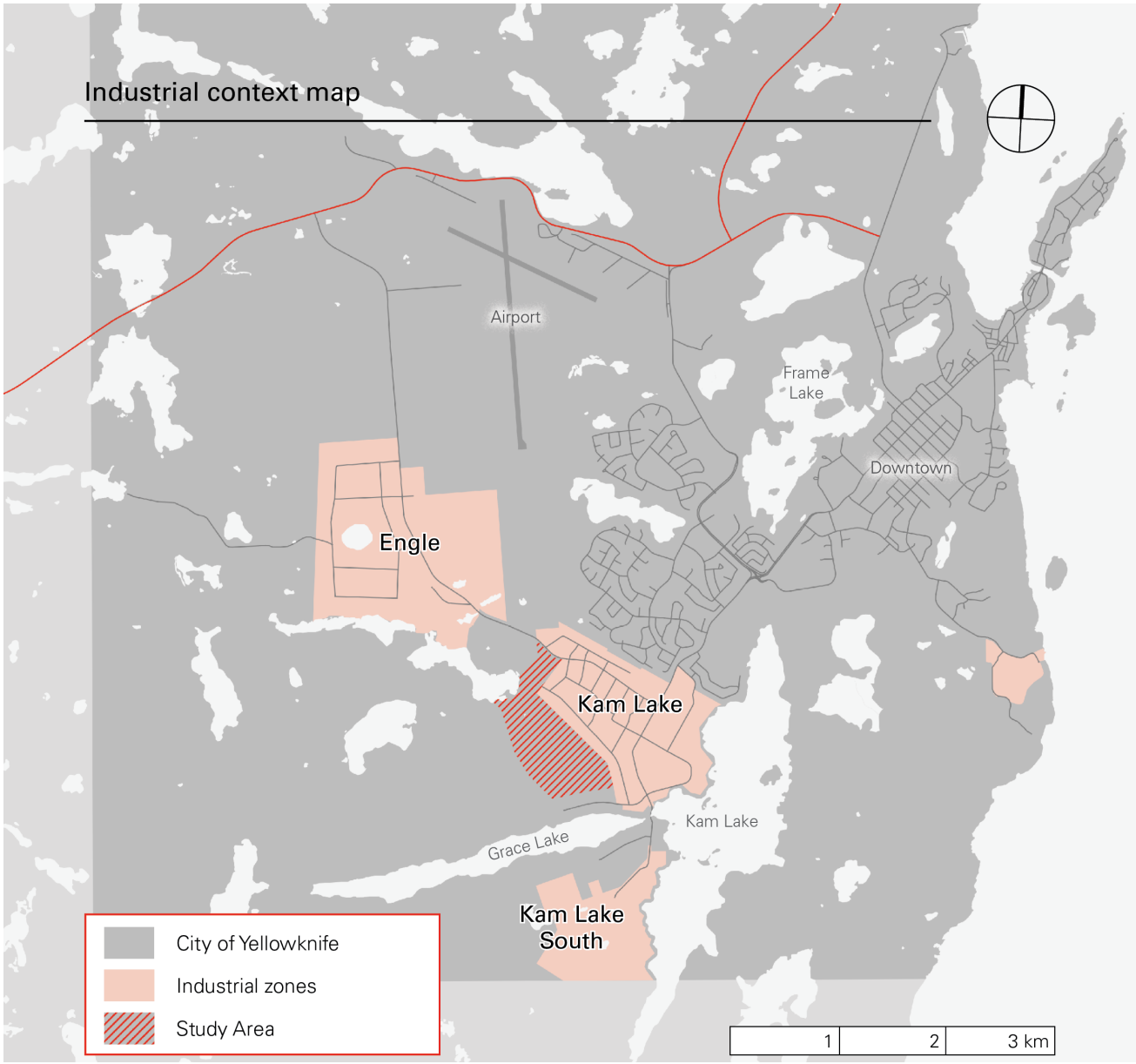
The Study Area largely falls within the "Kam Lake" designation,

although the northern portion of the site is part of the "Engle Business District" (City of Yellowknife Community Plan, 2020, p. 20). The City of Yellowknife's Community Plan By-law No. 5007(Community Plan) sets out planning and development objectives for each of the land use designations. The "Kam Lake" land use designation, applying to approximately 88 per cent of the Study Area, covers what had formerly been Yellowknife's main industrial area, but has now transitioned to primarily light industrial and "quasi-commercial" uses, as well as some accessory residential use.

According to the Community Plan, Kam Lake is intended for "larger-scale commercial and light industrial operations such as warehouses, large commercial show rooms, outdoor storage, and agriculture activities" but not new heavy industry land uses, which must locate in the Engle Business District or other areas designated for heavy industrial land use. "Residential uses as accessory to commercial operations" and "artisanal manufacturing activity" will also be accommodated in the area.

In Spring/Summer 2024, Dillon Consulting (Dillon) conducted public engagement to raise awareness and understanding about planning underway for the Kam Lake area and to provide meaningful engagement opportunities. A key insight from this exercise was the desire for a land demand assessment to understand the need for greater development in the Kam Lake Area.

Figure 1-1 Yellowknife Industrial Districts
Source: City of Yellowknife, FBM



In November 2024, FBM Planning Limited and Dillon were commissioned by the City of Yellowknife to carry out the Kam Lake Market Study. The study includes a market analysis of the local light industrial and commercial business environment and a market demand and supply analysis. Together the analysis informs a conceptual site planning exercise and preliminary cost analysis of potential development scenarios. Based on the above analyses, this study aims to propose strategic recommendations for further development of the Kam Lake Study Area. The study was carried out in late 2024 and early 2025.

1.3 Resources

As part of the Market Study, FBM reviewed a range of demographic and community information including Statistics Canada Census, Population Estimates, and Labour Market Survey data; Manifold Data Mining, and other pertinent City of Yellowknife policies and reports. Most notably, these include the City's Land Use Bylaw, Economic Development Strategy 2020 - 2024, GROW Yellowknife Food and Agriculture Strategy, Development & Design Standards Manual 2022 and the Kam Lake Engagement Report 2024.

From a commercial and industrial market perspective, the project team reviewed available real estate listings, as available from the following companies to understand current market inventories as part of the background research: Coldwell Banker, ReMax and Century 21.

1.4 Report Structure

This report contains the following sections:

Section 1 – Introduction: Introduces the study scope, methodology and resources.

Section 2 – Population & Employment Growth: Provides a summary of historical and future population and employment growth forecasts.

Section 3 – Current & Future Trends: Provides a market context for industrial inventory and supporting research of industrial and commercial development trends, to establish baseline empirical data for demand forecasting.

Section 4 – Demand Forecasts: Quantifies future light industrial demand for Kam Lake identifying future forecasts for floorspace and land requirements.

Section 5 – Land Use Allocation & Absorption Scenarios: Presents a visual representation and summary of future land use allocation and absorption to support growth within the Study Area. Presents two concept options for the development of Kam Lake along with supporting cost estimates for its potential development.

Section 2.0

Population & Employment Growth

CITY OF YELLOWKNIFE

2.1 Introduction

As part of the Market Study, the project team reviewed demographic and employment information for the Yellowknife Census Subdivision (CSD) as sourced to the following and presented in **Tables 2-1 and 2-2**:

- Statistics Canada Census Data from 2016 through to 2021
- Manifold Data Mining Inc. Demographic Data, Vintage 2024

2.2 Population Forecast

The 2016 Federal Census estimated Yellowknife's CSD population at 19,569. As documented in **Table 2-1**, the current estimated population for the Yellowknife CSD (2024) is 23,629, representing a 20.7% increase since 2016.

Forecasts over the next 10-years estimate that Yellowknife's population will continue to grow at a more conservative rate reaching an estimate of 26,339 by 2034, an increase of 2,710 at an average annual rate of growth of 1.1% per annum or a total growth of 11.5%.

2.3 Labour Force & Employment

In 2016 there were 12,546 people in the labour force in Yellowknife. This grew to 15,063 by 2024 according to Manifold Data Mining estimates as shown in **Table 2-2**.

Key sectors of Yellowknife's economy, accounting for approximately 50% of the jobs in the region, are:

- Public Administration: 30.3%
- Health Care and Social Assistance: 10.7%
- Retail Trade: 8.9%

Other notable sectors include:

- Transportation, Warehousing, and Utilities: 7.1%
- Professional, scientific, and technical services: 5.7
- Educational Service: 6.4%
- Mining Quarrying and Oil & Gas Extraction: 4.8%
  Construction: 4.5%

In terms of specific occupations, the distribution of employment in Yellowknife is highlighted by the following:

- Education, law and social, community and government services: 21.8%
- Sales and service occupations: 20.2%
- Business, finance, and administration occupations: 19.6%

2.4 Household Income

The current 2024 estimated average household income in Yellowknife is approximately $187,179 which is approximately 60% higher than the national average which sits at approximately $116,827.

2.5 Conclusion

A growing population and workforce in Yellowknife, combined with higher-than-average household incomes, has several key implications for employment growth in the city and more specifically for the Kam Lake Study Area.

Economic Expansion and Job Creation
As Yellowknife grows, albeit conservatively and the workforce expands into new areas, demand for goods and services will also rise. This drives economic growth, particularly in sectors like retail, healthcare, education, and construction. Higher household incomes mean residents have greater purchasing power, fueling local businesses and creating new opportunities for employment across various industries.

Labour Market Pressures
While job growth is positive, a rising population also intensifies demand for skilled and unskilled workers. Public administration, healthcare, and retail—already among the top employers in Yellowknife—may struggle to fill positions if workforce growth does not keep pace with job creation. Employers may need to offer higher wages, better benefits, and improved working conditions to attract and retain workers, potentially increasing operational costs.

Infrastructure and Housing Demand
Higher household incomes suggest financial stability, but they can also drive up housing costs. If supply does not meet demand, affordability may become a concern, making it harder for lower-income workers to live in the city. This could create recruitment challenges for industries reliant on lower-wage jobs, such as retail and service sectors. Conversely, there may be opportunities within Kam Lake to include some form of housing among light industrial uses by way of live-work industrial formats.

Potential for Diversification
While Yellowknife's economy has traditionally relied on public administration and resource-based industries, particularly mining, a growing, high-income population could foster diversification into new industries like agribusiness or cold climate research and technology. Increased disposable income may support sectors like tourism, technology, and professional services, creating opportunities for new businesses and further employment expansion into an area like Kam Lake that is more compatible with industries that have a "softer" land use impact.

Table 2-1 Yellowknife Demographic Attributes Summary 2024
Source: Manifold Data Mining Inc 2024 and Statistics Canada)

Demographic Attribute	CSD/CY (6106023): Yellowknife, NT	
	value	percent
SUMMARY		
Total population	23,629	
Total population age 15 and over	19,381	
Total number of private households	8,713	
Average number of persons in private households	2.65	
Total population in private households	23,083	
Total number of census families in private households	6,296	
Average number of persons per census family	2.99	
Total population in families	18,831	
Total number of labour force age 15 and over	15,219	
Land area (square km)	103.37	
Inhabited area (square km)	95.17	
POPULATION AGE		
Population age 0-14	4,248	17.98%
Population age 15-24	3,080	13.03%
Population age 25-34	4,001	16.93%
Population age 35-44	3,944	16.69%
Population age 45-54	3,308	14.00%
Population age 55-64	2,926	12.38%
Population age 65+	2,123	8.99%
EDUCATION		
Total population aged 15 years and over by highest certificate, diploma, or degree	19,388	
No certificate, diploma, or degree	2,740	14.13%
High school diploma or equivalent	5,247	27.06%
Post-secondary certificate, diploma, or degree	11,401	58.80%
Postsecondary certificate or diploma below bachelor level	5,137	26.50%
Apprenticeship or trades certificate or diploma	1,230	6.34%
College, CEGEP or other non-university certificate or diploma	3,279	16.91%
University certificate or diploma below bachelor level	627	3.23%
University certificate, diploma, or degree at bachelor level or above	6,264	32.31%
Bachelor's degree	4,094	21.12%
INCOME		
Average family income $	$210,063.00	
Average household income $	$187,179.00	
Average income population age 15 and over ($)	$88,969.00	
Population with income Under $10,000 (including loss)	1,101	5.68%
Population with income $10,000 to $19,999	1,176	6.07%
Population with income $20,000 to $29,999	1,373	7.08%
Population with income $30,000 to $39,999	1,457	7.52%
Population with income $40,000 to $49,999	1,371	7.07%
Population with income $50,000 to $59,999	1,319	6.80%
Population with income $60,000 to $69,999	1,187	6.12%
Population with income $70,000 to $79,999	1,220	6.29%
Population with income $80,000 to $89,999	1,213	6.26%
Population with income $90,000 to $99,999	1,209	6.24%
Population with income $100,000 and over	6,656	34.33%
Population with income $100,000 to $149,999	3,004	15.49%
Population with income $150,000 and over	3,652	18.84%

Table 2-1 Continued Yellowknife Demographic Attributes Summary 2024
Source: Manifold Data Mining Inc 2024 and Statistics Canada

Demographic Attribute	CSD/CY (6106023): Yellowknife, NT	
	value	percent
PROJECTIONS		
Annual population growth in the period: Next 3 years		1.20%
Annual household growth in the period: Next 3 years		1.30%
Annual family growth in the period: Next 3 years		1.21%
Annual population growth in the period: Next 5 years		1.18%
Annual household growth in the period: Next 5 years		1.29%
Annual family growth in the period: Next 5 years		1.19%
Annual population growth in the period: 5 to 10 years from current year		1.00%
Annual household growth in the period: 5 to 10 years from current year		1.12%
Annual family growth in the period: 5 to 10 years from current year		1.01%
POPULATION GROWTH		
Current year total population	23,629	
3-Year Projections - Total population	24,492	
5-Year Projections - Total population	25,062	
10-Year Projections - Total population	26,339	
HOUSEHOLD GROWTH		
Current year total number of households	8,713	
3-Year Projections - Total number of households	9,056	
5-Year Projections - Total number of households	9,288	
10-Year Projections - Total number of households	9,819	
FAMILY GROWTH		
Current year total number of census families	6,296	
3-Year Projections - Total number of census families	6,528	
5-Year Projections - Total number of census families	6,681	
10-Year Projections - Total number of census families	7,023	
HOUSEHOLD INCOME GROWTH		
Current year average household income	$187,179.00	
3-Year Projections - Average household income	$202,177.00	
5-Year Projections - Average household income	$222,982.00	
10-Year Projections - Average household income	$255,229.00	

Table 2-2 Yellowknife Labour Force & Occupations Summary 2024
Source: Manifold Data Mining Inc 2024 and Statistics Canada

Attribute	CSD/CY (6106023): Yellowknife, NT	
	value	percent
LABOUR FORCE ACTIVITY - TOTAL		
Total population 15+ years	19,388	
In the labour force	15,219	78.5%
Employed	14,735	76.0%
Unemployed	484	2.5%
Not in the labour force	4,169	21.5%
Participation rate (%)		78.5%
Employment rate (%)		76.0%
Unemployment rate (%)		3.2%
LABOUR FORCE INDUSTRY		
Total labour force population aged 15+ years - North American Industry Classification System (NAICS)	15,219	
Industry - not applicable	156	1.0%
All industries	15,062	99.0%
11 Agriculture, forestry, fishing, and hunting	33	0.2%
21 Mining, quarrying, and oil and gas extraction	723	4.8%
22 Utilities	78	0.5%
23 Construction	680	4.5%
31-33 Manufacturing	151	1.0%
41 Wholesale trade	218	1.4%
44-45 Retail trade	1,356	8.9%
48-49 Transportation and warehousing	1,077	7.1%
51 Information and cultural industries	314	2.1%
52 Finance and insurance	224	1.5%
53 Real estate and rental and leasing	112	0.7%
54 Professional, scientific, and technical services	868	5.7%
55 Management of companies and enterprises	0	0.0%
56 Administrative and support, waste management and remediation services	540	3.6%
61 Educational services	971	6.4%
62 Health care and social assistance	1,632	10.7%
71 Arts, entertainment, and recreation	191	1.3%
72 Accommodation and food services	871	5.7%
81 Other services (except public administration)	418	2.8%
91 Public administration	4,605	30.3%
OCCUPATION		
Total labour force 15 years and over by occupation	15,219	
Occupation - not applicable	156	1.0%
All occupations	15,062	99.0%
0 Management occupations	278	1.8%
1 Business, finance, and administration occupations	2,982	19.6%
2 Natural and applied sciences and related occupations	1,288	8.5%
3 Health occupations	940	6.2%
4 Occupations in education, law and social, community and government services	3,324	21.8%
5 Occupations in art, culture, recreation, and sport	374	2.5%
6 Sales and service occupations	3,068	20.2%
7 Trades, transport and equipment operators and related occupations	2,361	15.5%
8 Natural resources, agriculture, and related production occupations	300	2.0%
9 Occupations in manufacturing and utilities	148	1.0%

Source: https://www.statcan.gc.ca/o1/en/plus/2673-commuting-yellowknife-slice-efficiency-and-sustainability

Section 3.0

Current & Future Trends

CITY OF YELLOWKNIFE

3.1 Introduction

Yellowknife serves as a hub for a number of economic activities, including mining, government services, transportation, communications, education, health, tourism, and commerce. Historically, the city's economy was anchored in gold mining, with a subsequent shift towards diamond mining in the late 1990s. In recent years, public administration has become a significant employer, accounting for over a quarter of the workforce. Other notable sectors include retail trade, health care and social assistance, and transportation.

3.2 Economic Outlook

On February 6, 2025 the provincial government released its ***"Economic Review for 2025-2026"***. In this document it was observed that the NWT economy is experiencing a contraction due to the closure of its large-scale diamond mines, which have been the primary economic drivers for the past three decades. This decline is leading to reduced economic output, fewer exports, and decreased private-sector investment. Despite these challenges, household and consumer spending is projected to increase, supported by strong resident employment, rising wages, and falling inflation. The economy is transitioning away from large resource extraction projects, but smaller mining and exploration projects, a rebounding tourism sector, and a stable government sector are expected to provide continued economic opportunities for which Kam Lake could be a benefactor.

Although at least two of the territory's three diamond mines are slated to close by 2030, mining may find a new niche in ongoing research and exploration for gold and lithium. While these and other rare earth elements will take time, the economic outlook entails a shifting of priorities to other economic development opportunities and sectors such as agriculture and food processing (aka agribusinesses), renewable energy and environmental services and other supporting and downstream industries.

Agriculture & Food Processing: Initiatives such as the Yellowknife Food and Agriculture Strategy aim to enhance community and commercial opportunities in the urban food and agriculture system, promoting local food production and processing.

Renewable Energy and Environmental Services: With a global shift towards sustainability, there is potential for growth in renewable energy projects and environmental remediation services, particularly related to mining activities.

As Yellowknife looks toward the next 10 to 25 years, its economic landscape will need to evolve with the growth of several key clusters. These clusters will not only support existing industries but also attract new downstream industries that can benefit from proximity to resources, infrastructure, and local expertise. Below is a breakdown of these clusters and the types of businesses that could be drawn to the city and Kam Lake, along with their space and land requirements.

Examples of downstream industries include, but are not limited to:

- Mine remediation & environmental services
- Geosciences
- Wind Energy
- Battery Storage and microgrids
- Cold climate green building technology
- Extreme weather engineering & materials science
- Arctic vehicles research

- Climate change research
- Commercial fishing
- Tourism & motion pictures (i.e. small indoor film studios)

Yellowknife's economy is poised for diversification, with opportunities in mining, renewable energy, tourism, logistics, and arctic technology. By strategically allocating the Kam Lake future industrial lands and supporting emerging industries with the right infrastructure, zoning policies, and possibly investment incentives, the city may be able to attract new businesses and further promote its role as the northern "arctic" economic powerhouse.

3.3 Background Document Review

City of Yellowknife Community Plan (2020) By-law No.5007

Adopted in July 2020, the City of Yellowknife's Community Plan is intended to guide the growth and development of the city over a period of 20 years. Map 2 of the Community Plan outlines land use designations for all areas within the City's municipal boundary.

The Study Area for the purpose of this assignment largely falls within the "Kam Lake" designation, although the northern portion of the site is part of the "Engle Industrial Business District" (City of Yellowknife Community Plan, 2020, p. 20).

Kam Lake planning and development objectives

The Community Plan sets out planning and development objectives for each of the land use designations. The "Kam Lake" land use designation, applying to approximately 88 per cent of the Study Area, covers what was Yellowknife's main industrial area, now home mainly to light industrial and "quasi-commercial" uses, as well as some accessory residential use.

Land use – According to the Community Plan, Kam Lake is intended for "larger-scale commercial and light industrial operations such as warehouses, large commercial show rooms, outdoor storage, and agriculture activities" but not new heavy industry land uses, which must locate in the Engle Business District or other areas designated for heavy industrial land use. "Residential uses as accessory to commercial operations" and "artisanal manufacturing activity" will also be accommodated in the area.

Transportation – The transportation network in Kam Lake should accommodate large motor vehicles to support industrial activity. Site design should consider response times of emergency services.

Environmental design – Development should include stormwater and drainage management in accordance with the Zoning By-law. Landscaping and aesthetic quality should be improved through visual separation and buffering. Landscaping should be considered with Fire Smart principles in mind.

Engle Industrial Business District

The northernmost portion of the Study Area, amounting to around 12 per cent of the site, is part of the Engle Industrial Business District, which is intended for "a variety of general industrial and business industrial uses". However, it falls outside the area governed by the Engle Business District Phase 2 Area Development Plan.

The main difference between the planning objectives for Engle and those of Kam Lake is that heavy industrial uses are to be directed to Engle, while new heavy industry is not permitted in Kam Lake. Because the portion of the Study Area falling within the Engle district abuts the light industrial uses of Kam Lake, which contain accessory residential units, we recommend that heavy industry be directed to other areas of Engle.

Development and Design Standards Manual (2022)

The City of Yellowknife's Development and Design Standards manual explains development procedures and defines the minimum acceptable design standards for urban infrastructure such as roads and services. The consultants have referred to this document for high-level design guidance over the course of developing conceptual layout plans for the Kam Lake study area.

Roadway design standards are set out in Chapter 3. The minimum road right-of-way for industrial areas is 20 metres for local roads and 30

metres for arterial roads. Table 3-2 sets out geometric design standards for different types of roads including the maximum gradient (7% for local roads), minimum paved width (11 metres for local roads), and minimum intersection spacing (60 metres for local roads) (Development and Design Standards, 2022, p. 12).

No sidewalks are required in industrial areas (Development and Design Standards, 2022, p. 17), however the presence of some multi-use paths in the Kam Lake area made active transportation a consideration during the concept design stage of this assignment. According to page 19 of the Development and Design Standards, the City of Yellowknife encourages "bikeways, walking trails, and multi-use pathways" in all new developments.

Economic Development Strategy 2020–2024 (2020)

The City of Yellowknife's Economic Development Strategy (EDS) was adopted in 2020 and covered the five-year period from 2020 to 2024. The plan is created on the premise that the City of Yellowknife will "act with a sense of urgency in promoting economic development" in line with Council's aim to grow and diversify the local economy. The stated short-term goal of the strategy is to mitigate the impact of the impending closure of diamond mines, which are expected to lead to job losses. The longer-term aim of the strategy is to "create a more diversified and integrated economy in Yellowknife", for instance by growing the tourism and cultural sectors, promoting the city as a centre for education and research, and by further developing the city as a "supply hub for a wide range of products and services" (Economic Development Strategy 2020–2024, 2020, p. 15).

Of relevance to this assignment, the EDS aims to "increase access to lands for development" in order to help create a positive climate for business and investment. It identifies various "key economic sectors" that the EDS aims to support, including the mineral industry, the tourism sector, cold-weather testing, and agriculture/food. The EDS aims to capture benefits associated with the mineral industry in both the Northwest Territories and Nunavut and develop the agriculture and food sector by facilitating urban agriculture and encouraging the development of local markets and commercial producers (Economic Development Strategy 2020–2024, 2020, p. 18). The City of Yellowknife also aims to champion the establishment of a university capable of drawing students from around Canada and internationally.

The EDS identifies a scarcity of vacant, developable land in Yellowknife as a potential hindrance to economic development, and to that end, proposes to work with the territorial government to improve access to developable land. This scarcity of vacant, developable land means that the Study Area under this assignment, which is already owned by the municipal government, is comparatively well positioned to accommodate business growth in the near term.

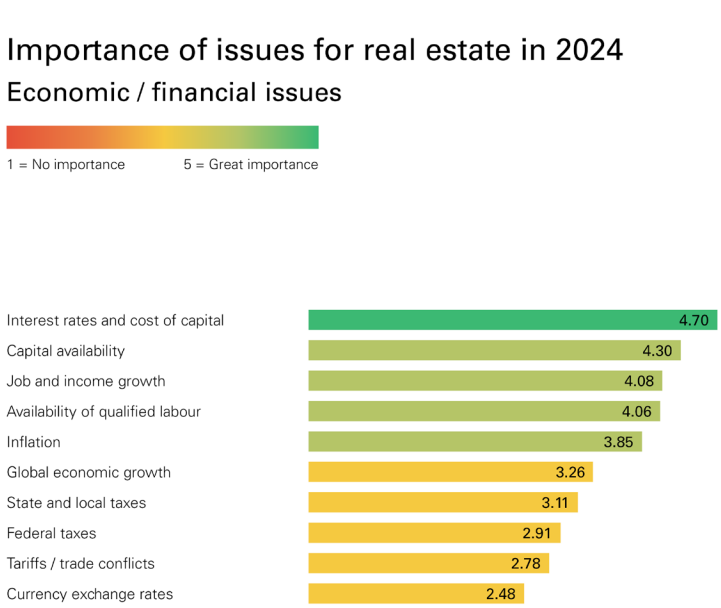
The current EDS timeline is now complete as of 2024. Therefore, while some strategies still maintain relevance, it is expected that a new EDS for the period 2025 to 2030 is likely underway and soon to be published and this document will likely emphasize further industrial diversification in response to the mine closures. This Kam Lake Market Study may contribute to the development or implementation actions in the updated EDS.

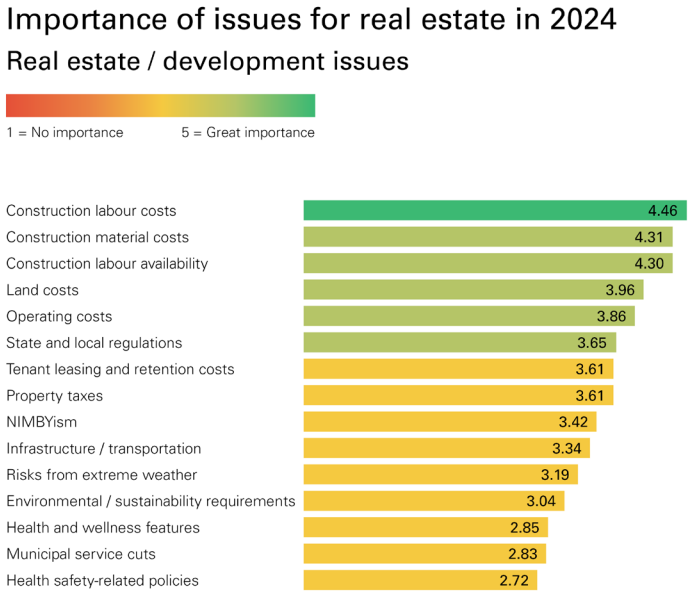
GROW: Yellowknife Food and Agriculture Strategy (2019)

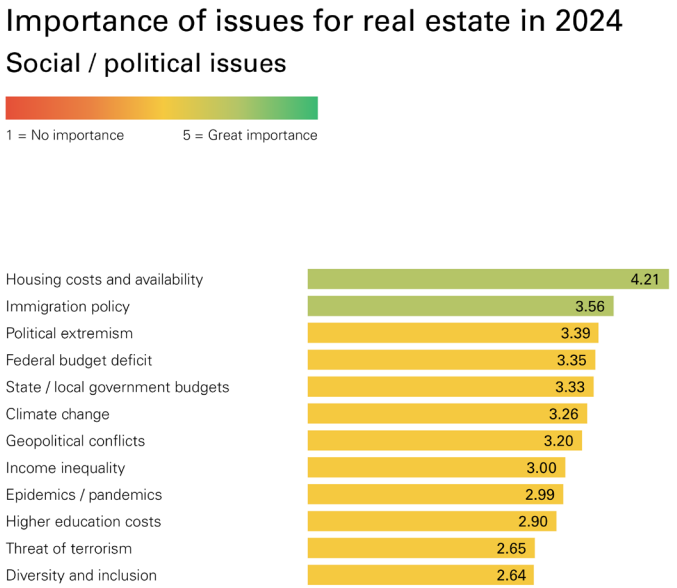
The Yellowknife Food and Agriculture Strategy, or GROW for short, aims to increase agriculture activity (both community and commercial) in the city by setting out a plan. The strategy aims to achieve the following vision: "A just and sustainable food system in Yellowknife is rooted in a healthy community, where everyone has access to adequate and affordable nutritious food; more food is grown and harvested locally; and food production policies and infrastructure are in place to support an economically viable, diverse, and ecologically sustainable local food system."

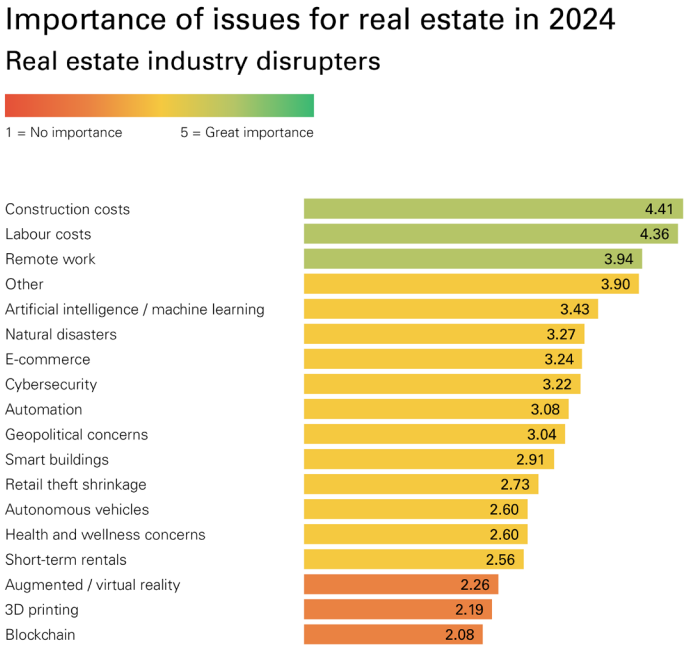
Of particular relevance to this assignment, the strategy aims to support urban agriculture and related activities in part by incorporating urban agriculture into the land-use bylaws, and by "increasing opportunities for commercial greenhouses and enclosed growing systems". There is opportunity for the Kam Lake area to accommodate the growth of both the agricultural sector and related industries, such as agricultural supply, food processing and distribution.

Figure 3-1 ULI & PwC Emerging Trends in Real Estate Survey Findings
Source: Urban Land Institute & Pricewaterhouse Coopers Emerging Trends in Real Estate, 2024)









Kam Lake Public Engagement (2024)

In 2024, public engagement was carried out to engage with residents and business owners about the future preferred land uses of the Study Area. The key groups engaged included residents of Grace Lake, business owners in Kam Lake and the Yellowknife Chamber of Commerce, the Yellowknives Dene First Nations, the North Slave Metis Nation and the general public. The recommendations from the engagement include: conducting market studies to assess demand, evaluate wildfire protection, traffic impact and drainage as part of the comprehensive planning, implement mitigations to reduce nuisances, improve bylaw enforcement, conduct additional community engagement, continue to involve the community and preserve environmental and recreational spaces in the area.

This assignment satisfies the request that a land demand analysis be completed to provide documented evidence to support the need for more development in Kam Lake. The overall engagement provided valuable insights on areas for focus when considering the analysis and proposed recommendations in the concept plans.

3.4 North American Real Estate Outlook (2024)

A recent publication by The Urban Land Institute (ULI) and PricewaterhouseCooper's (PwC) in 2023 titled *"Emerging Trends in Real Estate 2024"* provided a provided an outlook on real estate investment and development trends, real estate finance and capital markets, property sectors, metropolitan areas, and other real estate issues throughout the United States and Canada.

Although the content presented in **Figures 3-1** is from a US perspective, the trends nonetheless resonate with the Canadian market and to some degree Yellowknife. ULI and PwC researchers personally interviewed about 600 individuals, and survey responses were received from almost 1,260 individuals, whose company affiliations were broken down as follows:

- *Private property owner or commercial/multifamily real estate developer - 37%*
- *Real estate advisory, service firm, or asset manager - 19%*
- *Private equity real estate investor - 12%*
- *Homebuilder or residential land developer - 6%*
- *Bank or other lender - 5%*
- *Construction/construction services/architecture firm - 4%*
- *Investment manager - 4%*
- *REIT or publicly listed real estate property company - 2%*
- *Private REIT or non-traded real estate property company - 2%*
- *Other entity - 7%*

As it relates to the Kam Lake Market Study, the sentiments conveyed suggest a recovering market that is resilient, but must deal with specific challenges around housing affordability, immigration, interest rates, jobs and income growth and construction labour and costs. All of these factors can have impacts on forecasts.

Many of these factors are likely to persist over the near term, but as with most real estate and economic cycles they will normalize. Consequently, forecasts for population growth and resulting demand for housing as well as industrial and commercial development will follow and likely exhibit periods of peaks and valleys over the forecast horizon.

While Yellowknife differs from other metro or remote markets in North America, the overall sentiments ring true as it relates to the industry expectations and realities of the development industry.

3.5 Industrial Market Conditions

The role of the market conditions evaluation is not to examine current market data in great detail, but rather understand the general market baseline conditions a essential modeling inputs (i.e. labour, inventory, vacancy and absorption, if and as available).

Figure 3-2 Yellowknife Top 10 Industries by NAICS Code
Source: Statistics Canada

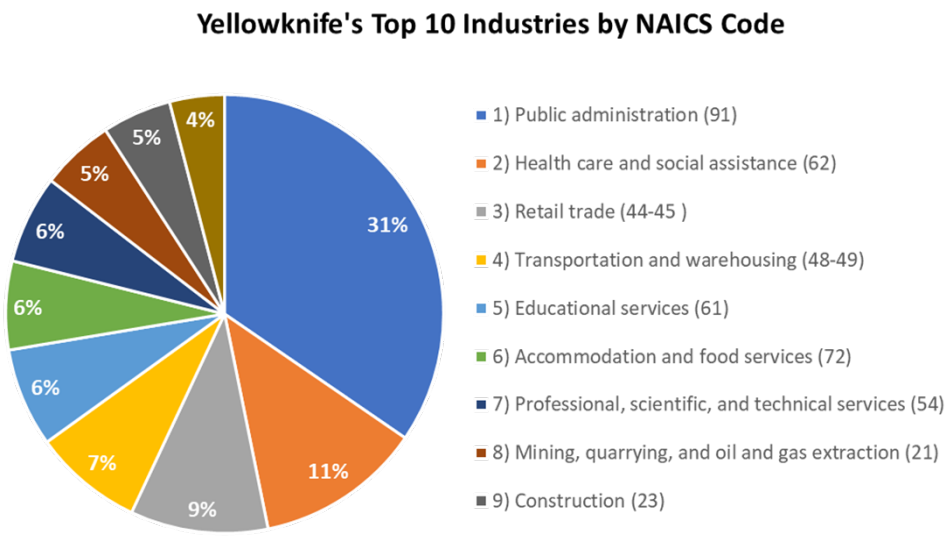
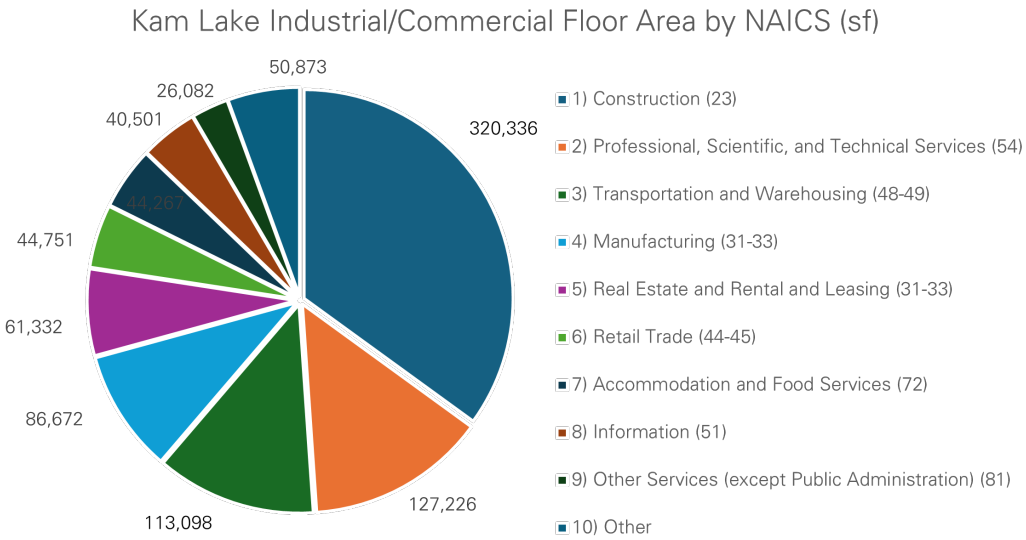


Figure 3-3 Kam Lake Industrial Floor Area (sf) by NAICS Code
Source: Statistics Canada



Labour Force

Areas of relative strengths for Yellowknife, where the labour force is of a higher concentration than the national average are Public Administration (30.26% vs 6.21% of the labour force), Mining, Quarrying, and Oil and Gas extraction (4.75% vs 1.17% of labour force), and Transportation and Warehousing (7.08% vs 5.08% of the labour force). These are unsurprising for a Territorial capital with a large mining industry and strong need for logistics for importing and exporting goods and materials and for delivery of goods to communities across the Territory.

With a planned closure of the Diavik diamond mine, the City of Yellowknife is focusing on ensuring continued economic prosperity – of which the Kam Lake Industrial Area expansion represents one component. Areas where Yellowknife is significantly underweight, implying an opportunity for import substitution include Agriculture, Forestry, Fishing, and Hunting (0.22% vs 2.26%) and Manufacturing (0.99% vs 8.05%). One quickly growing area is in greenhouse agriculture which grew by 54.8% between 2016-2021 in the Yukon and the Northwest Territories (Statistics Canada). Projecting the future growth of this industry is difficult due to small size of the nascent industry and the lack of detailed data.

Existing Kam Lake Industrial Area

The industrial economy of the Kam Lake Industrial Area is distinguished from the overall City of Yellowknife industrial economy by it's relatively higher concentration of construction industry and construction industry adjacent businesses. Contractor, Electricians, General Contractors, Glazier's, Heavy Equipment, Home & Garden, Insulators, Locksmiths, Manufacturers, Rental and Storage Services, and Trucking and Hauling, are found in a higher concentration in the Kam Lake Industrial Area. This points to an economic advantage referred to as a "localization economy" in which businesses benefit by

being located near other firms within their industry. Other industrial businesses that are found in higher concentrations in Kam Lake are Automotive and Autobody shops, Kennels, and Pet Care.

In total, an approximately 25% of the City of Yellowknife's industrial and industrial adjacent businesses are located within the Kam Lake Area, representing 198 Industrial and adjacent businesses and ~86,000 sq m of floor area. When grouped by their relevant NAICS code, the businesses show a clear construction industry cluster with 70% of businesses falling under NAICS Codes 23, 54, 48-49, and 31-33.

Lot sizes in Kam Lake typically range between 0.5 - 2 acres, as opposed to larger lot sizes of in Engels Business Park which are typically larger than 2.5 acres. Kam Lake therefore has a higher development density than Engels, a fact which is borne out by a significantly higher price per acre in Kam Lake. This may be in part explained by Kam Lake zoning which allows for residential dwellings which are accessory to an established industrial or commercial use. This has anecdotally driven the demand for land in Kam Lake by small business owners who wish take advantage of the economic benefits of locating their home on the same property as their business.

Engle Business District

In contrast to the Kam Lake Industrial Area, the Engle Business District specializes in heavier industrial uses including businesses such as Northtech Drilling, Midnight Petroleum, and Superior Propane. The Phase 2 expansion of this area began in 2017 and as of February 2025, 72/92 lots within the Engle Business District had been sold. Lot sizes in Engle Business District tend to be larger than those in Kam Lake with most lots greater than 2.5 acres in size with some lots over 15 acres in size.

Engle Business District is designed for heavier industrial uses due to its remoteness from residential uses, strong transportation access to the airport and Highway No.3. It is less suitable for agricultural and retail commercial uses do to the conflict with heavy industrial uses. Recognizing this potential, the City of Yellowknife offers a relocation incentive program under which relocated industrial businesses may receive a 5-year diminishing tax benefit.

Industrial Inventory Estimate

From FBM's on-the-ground fieldwork combined with supplemental desktop research investigating the various industrial and business park areas including an assessment of the current business types/industries, an approximate inventory for the city's inventory was developed as summarized in the following:

Kam Lake - 925,700 sf comprising 198 businesses

Other Nodes - 2,711,600 sf comprising 580 businesses

Total Inventory - 3.6 million sf (2024 est) comprising 778 businesses

Estimated Vacancy - 2.5% (2024 est)

In addition to the standard industrial inventory, a tabulation of the city's current self storage composition was also undertaken. **Table 3-1 and Figure 3-4** document the locations and composition of the various self storage facilities in Kam Lake. The current locations clearly shows that Kam Lake is a dominant location for self storage facilities and while other locations in the city may be desirable, the proximity to others in Kam Lake suggests a high degree of compatibility for expansion.

The resulting tabulation revealed an inventory estimate of 118,981 sf of self storage building floorspace and an average facility size of 10,816 sf. Overall this equates to a self storage space per capita ratio of 5.0.

By comparison, according to data from the 2023 Self Storage Almanac, the Canadian average self storage space per capita ratio is 2.5, though this covers larger urban markets. A comparison to comparable markets to Yellowknife, such as Montana (10.7), North Dakota (6.5) and Colorado (7.3) reveals an average of approximately 7 sf per capita, which is likely more contextually appropriate to Yellowknife.

Figure 3-4 Yellowknife Industrial Nodes
Source: FBM and City of Yellowknife, 2024)

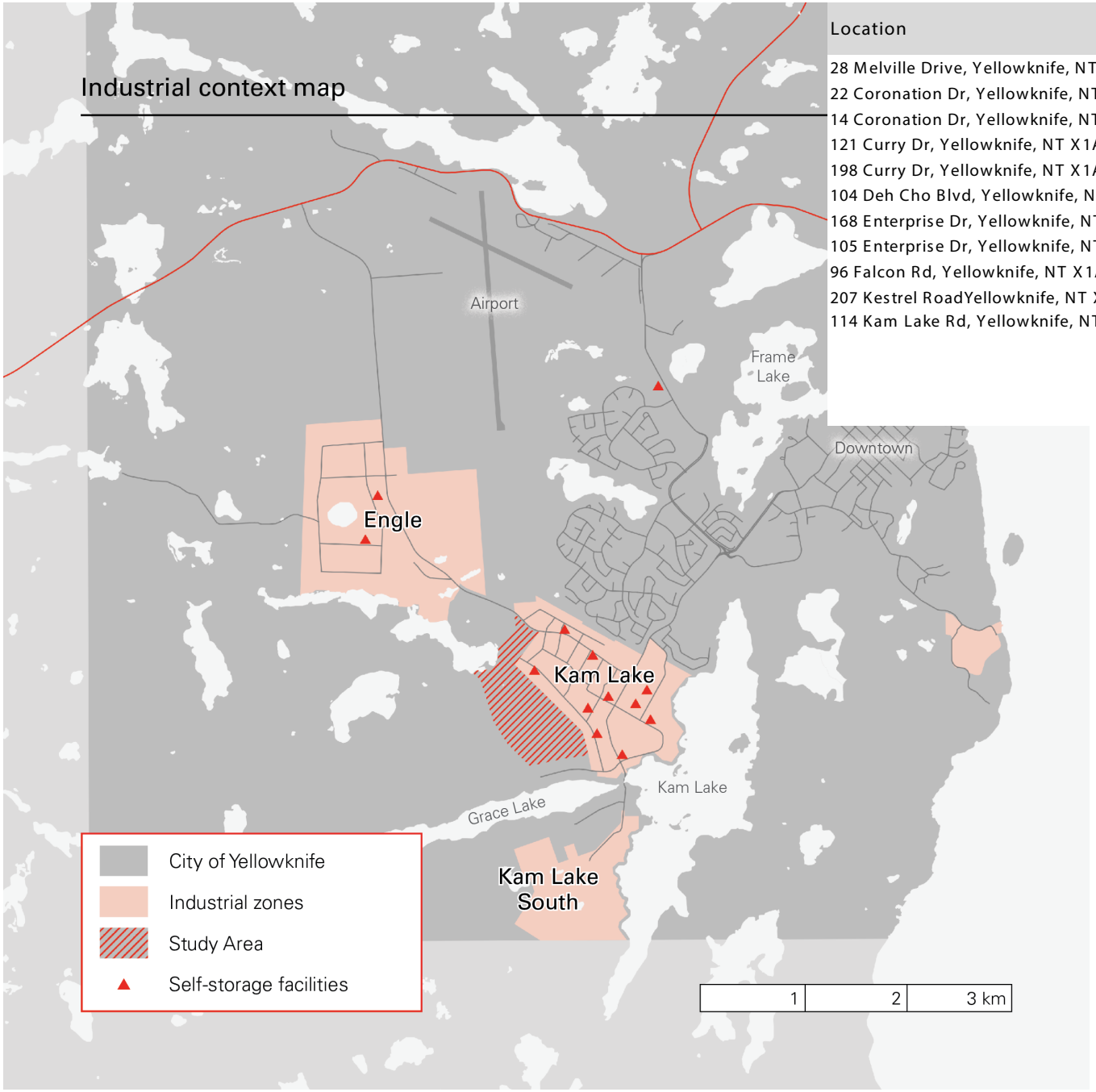


Table 3-1 Yellowknife Self Storage Facility Inventory
Source: FBM 2024 & Self Storage Almanac 2023

Location	Self Storage Facility	Building Area
28 Melville Drive, Yellowknife, NT X1A 2N8	Yellowknife Storage	6,888 sf
22 Coronation Dr, Yellowknife, NT X1A 2N6	Diamond Mini-Storage	12,109 sf
14 Coronation Dr, Yellowknife, NT X1A 3Y2	Container Mart	8,352 sf
121 Curry Dr, Yellowknife, NT X1A 0G4	AAA Self Storage	9,203 sf
198 Curry Dr, Yellowknife, NT X1A 2R2	Kam Lake Mini Storage	12,357 sf
104 Deh Cho Blvd, Yellowknife, NT X1A 2N2	Great Slave Storage	10,548 sf
168 Enterprise Dr, Yellowknife, NT X1A 0E9	Polar Bear Storage	6,242 sf
105 Enterprise Dr, Yellowknife, NT X1A 0G2	Polar Bear Storage	3,423 sf
96 Falcon Rd, Yellowknife, NT X1A 0G8	Polar Bear Storage	4,230 sf
207 Kestrel RoadYellowknife, NT X1A 0G8	Best Movers	8,815 sf
114 Kam Lake Rd, Yellowknife, NT	Pack Rat	36,814 sf
	AVERAGE	10,816 sf
	TOTAL	118,981 sf
	Population (City)	23,629
	Space per capita	5.0 sf

3.6 Industrial-Commercial Tends & Best Practices

The following is intended to provide some trends context for the future development formats and typologies that could evolve as part of Kam Lake's growth and the compatible land uses therein.

3.6.1 Industrial & Business Park Trends

Unlike retail trends which have a tendency to shift more frequently in response to evolving consumer patterns, industrial and business park trends have a greater propensity to stand the test of time, though there are advancements that result in more flexible use and reuse of buildings as well as a desire to become more efficient with their land use.

The average floor area ratio (FAR) or site coverage ratio for industrial land uses can vary significantly depending on factors such as local zoning regulations, land use policies, and the specific needs of the industrial activities in a given area. However, a common range for industrial FAR or site coverage ratio falls between 0.15 to 1.5 depending on the locational context and tenant use/industry.

In some cases, industrial developments might have a higher FAR or site coverage ratio, especially in areas where land is scarce or expensive, and there's a need to maximize space efficiency. Conversely, in areas where there are concerns about environmental impact, infrastructure limitations, or community preferences for open space, the FAR or site coverage ratio might be lower.

The following content represents a summary of FBM's research (in cooperation with Dalhousie University) on broader, prevailing industrial trends. The following synopsis explores some of the relevant trends to help illustrate the role of planning, community and economic developments in supporting sustainable and innovative developments in locales similar to the context of Yellowknife.

Built form has been changing in response to current industrial and commercial trends. One of the key shifts is the trend toward using innovative facilities as a tool to enhance the concept of sustainability. By taking advantage of the most innovative technology and integrating natural green features like natural trails and vegetation, these facilities become central locations for efficient and environmentally conscious manufacturing. These facilities also offer stable employment opportunities while acting as a hub for high-level academic research. These mega facilities also offer a sense of the continuous process of manufacturing. For example, one facility can be a place for food harvesting, production, and manufacturing.

Agritech & Agribusiness

Agribusiness is an emerging trend in recent industrial markets in Canada. Agribusiness is different from "agriculture" in the sense that it "comprises all of the steps through which a given commodity has to go in order to reach the consumer's plate" (FASKEN 2022). Agribusiness offers three key components: agricultural input, production and the processing-manufacturing sectors (Climate Smart Agriculture Youth Network). In other words, agribusiness oversees the entire process of agricultural practices, from harvesting to reaching out to consumers through shipping and manufacturing. Agribusiness is an important trend to watch as commercial and industrial developments have been expanding to suburban, rural, and urban fringe areas in response to rapid economic and population growth. Along with the wider range of roles, what differentiates agribusiness from agriculture is the reliance on advanced technology (Dentons, Agribusiness in Canada). Advanced technology and efficient data collection are critical in sustaining this rapidly growing industry. Artificial Intelligence (AI) has been playing a prominent role in expanding agribusiness. Agribusiness sectors have been taking advantage of AI for data analysis and modeling to "gather data on details from soil health to weather, disease, and pest mitigation" (Calgary Economic Development). This helps agribusiness owners to offer consistent and efficient food production. Alberta has been the leading province for agribusiness. One of the factors that encourage the growth of agribusiness is that Alberta is "the fastest-growing adopter of digital transformative technologies" (Calgary Economic Development).

The City's Community Plan highlighted opportunities to accommodate emerging industries including agriculture on larger lots in Kam Lake. Exploring opportunities for agribusiness aligns with the objective of the Yellowknife Food and Agriculture Opportunities Analysis, aimed at enhancing the City's local food security (Urban Food Strategies, 2019).

Sustainable Manufacturing: toward efficient & centralized land use

Sustainable manufacturing can be defined as "the creation of manufactured products through economically-sound processes that minimize negative environmental impacts while conserving energy and natural resources"(EPA 2023). Sustainable manufacturing can be applicable to all sizes of business and all sectors because it improves "operational efficiency by reducing costs and waste". By pursuing this vision of sustainable manufacturing, companies can also "protect and strengthen brand and reputation and build public trust"(EPA 2023). Collectively, sustainable manufacturing has been gaining popularity among companies that aim to convey a strong message to the public that they are committed to protecting natural resources.

Adding a sustainability lens to manufacturing is relevant in Kam Lake with an anticipated increase in manufacturing sector. There is a growing demand to be more conscious of the impacts of development on the environment, in response to customers' increased awareness of climate change and associated crises such as extreme weather, wildfires and drought.

There is a growing demand to be more conscious of the impacts of development on the environment, in response to customers' increased awareness of the environmental crisis such as extreme weather and sea level rise. The United States Environmental Protection Agency (EPA) defines "sustainable manufacturing" as "the creation of manufactured products through economically-sound processes that minimize negative environmental impacts while conserving energy and natural resources" (n.d.). Sustainable manufacturing is beneficial to all sizes of business and all sectors because it improves "operational efficiency by reducing costs and waste" (EPA, n.d.). Moreover, this article highlights that by pursuing this vision of sustainable manufacturing, companies can "protect and strengthen brand and reputation and build public trust" (EPA). Collectively, sustainable manufacturing has been gaining popularity among companies that aim to convey a strong message to the public that they are committed to protecting the natural resources and conscious to the surrounding community environment.

Both the agribusiness and sustainable manufacturing examples highlight the need to recognize the roles that advanced technology can play in supporting sustainable and innovative industrial activities.

Warehousing and Storage

Like many industrial sectors, attracting and retaining employees has been critical in the warehousing and distribution sector. Since the pandemic, there has been a growing interest towards enhancing designs of industrial warehousing and distribution facilities to support the health and wellbeing of employees (NAIOP Research Foundation). Given the proximity to Yellowknife Highway 3, the City of Yellowknife can further position itself as a hub for distribution and warehousing by offering an attractive workplace environment.

Distribution facilities are often located in remote communities due to the size of the facilities and zoning regulations, hindering workers from accessing restaurants and services during work hours. Locating distribution facilities near transportation corridors and existing amenities can contribute to supporting employees' health and well-being, which in turn can result in increased productivity of the industry.

Live-Work Units

Live-work units are an integrated mode of space design, which "combines your workspace with your living quarters so you essentially work from home but with a dedicated section for your office" (CHRON, 2020). In this type of workspace, "the living space may also be alongside the commercial space, behind it or above it" (CHRON, 2020). Live-work units are most prevalent and compatible with traditional commercial or residential zoning, but examples are becoming more applicable in light industrial contexts where compatibility of uses may exist, but it is not without challenges. These challenges include possible limitations for businesses in what would otherwise be compatible locations and the concept of creating less appealing and equitable residential areas for residents where affordability may be better, but the adjacencies and amenities may not be as beneficial. Industrial live-work options work best when there are communities with an abundance of industrial-zoned land so that issues of use, safety and occupant compatibility are mitigated.

Flex Facilities

Flex facilities are "flexible" for three major reasons: 1) the flexibility of uses, 2) flexibility of tenant agreements, and 3) the flexibility of spaces. Flex facilities have been gaining popularity among business owners who need to manage their budget due to the market's unpredictable nature. *"Canadian Flexible Workspace and Co-working"* by Colliers Canada (2019) demonstrated the growing demand for flex spaces especially in the context of "post-pandemic" market. Flex spaces can offer short-term contracts "ranging from one month to three years" (Demetree Real Estates, n.d.). The short-term contracts allow small business owners to rent a space at a low cost, offering a low-risk investment from their end. This is also beneficial for property owners because it will reduce the time when the space is vacant, meaning that property owners can gain more consistent profit from tenants.

Role of Industrial and Business Parks: Coexistence with Nearby Residential Areas

Industrial and business parks offer a vital role in enhancing a sense of community, creating spaces for outdoor activities and interactions among business workers and the general public. Business parks (also known as "office parks") have been a popular feature of a neighbourhood, especially in the suburban context (Market Business News, n.d.). Located near a series of office buildings, the general intent of business parks was to improve the quality of life for office workers by creating an outdoor space with green or passive elements. However, the article by Market Business News also demonstrates that business parks have also caused suburbanization because business parks typically require larger amounts of land, which makes them less feasible in urban centres. The distance from the urban core and a lack of public transit to these business parks have also caused issues including more auto-dependency and a lack of community integration (Market Business News, n.d.) Illustrating the importance of transit and connectivity.

However, business parks can be also beneficial for business owners because these parks can be central locations for local shops and cafes, creating a vibrant and competitive environment for business owners and researchers to "test and improve new technologies, services, and tomorrow's business concepts" (Siamesebox Consulting, n.d.).

Eco-Industrial Parks

An eco-industrial park (EIP) can be defined as: "an earmarked area for industrial use at a suitable site that ensures sustainability through the integration of social, economic and environmental quality aspects into its siting, planning, operations, management and decommissioning"(UNIDO Eco-Industrial Handbook, 2017). Eco-industrial parks often feature several ecological and innovative design features, namely green energy systems, on-site solar generators, and efficient ventilation systems. Another component of eco-industrial parks is the consideration for more efficient use of land and operation of costs. In more urban locations or in some areas, smaller geographically constrained communities where land is at a premium, such consideration could include vertical or multi-storey buildings with green roofs or living walls, while providing a format for multiple businesses to share overall building operational costs and property taxes.

Along with business parks, eco-industrial parks have also been an emerging feature. Unlike business parks, eco-industrial parks primarily offer spaces for industrial facilities, featuring green energy systems and efficient water management systems. Eco-Industrial Parks support the idea of connecting industrial parks and public lives so that the park can be part of the complex, integrated system of the community. Another component of eco-industrial parks is the consideration for more efficient use of land. In more urban locations or in some areas, smaller geographically constrained communities where land is at a premium, such consideration could include vertical or multi-storey buildings with green roofs or living walls, while providing a format for multiple businesses to share overall building operational costs and property taxes.

As Kam Lake looks toward innovative industrial development options, purpose built eco-industrial parks present a unique opportunity to balance economic development and environmental objectives.

Multi-Tenant Industrial Facilities

Multi-tenant buildings have been gaining attention in industrial markets across North America. In multi-tenant facilities, growing businesses can expand into an additional available unit within the same property or at the same industrial complex without the need to relocate. By serving as a shared hub for industrial activities, multi-tenant industrial facilities can also be affordable, cost-effective spaces for small and medium-sized enterprises. Multi-tenant industrial facilities can also support the growing interest toward economic diversification. Designed to house tenants across varying industries, multi-tenant facilities offer greater flexibility in response to the needs of the market.

Industrial Clustering

Industrial clusters are typically defined as "geographic areas that comprise co-located companies representing either a single or multiple industries" (Accenture, 2021). Industrial clustering offers both economic and environmental benefits. Research by Indiana University highlights that industry cluster is "a strategy to improve overall business environment conditions, by upgrading skills, access to finance and infrastructure, by streamlining government rules and regulations, by supporting local demand, and by being open to foreign investment and competition"(Indiana University, Industry Cluster and Economic Development, 2015). From an environmental perspective, industrial clustering can generate a more efficient energy network. Energy sources such as hydrogen can be co-located and shared among tenants, which helps to save investment for long-distance infrastructure (World Economic Forum, 2020).

The Community Plan for the City of Yellowknife highlighted the aim of "[improving] energy efficiency of land development" by "encouraging mixing of uses" . By exploring opportunities to develop multi-tenant facilities and/or industrial clusters, the City could strategically locate industrial uses and taking advantage of existing developable parcels and infrastructure.

3.6.2 Industrial & Business Park Formats & Typologies

While this section has highlighted some of more evolving trends, Kam Lake benefits from an opportunity to provide a range of development formats and typologies to meet demand forecasts over the next 15 to 20 years for a growing population and evolving labour force.

Based on the market overview, economic context, community engagement, and trends & best practices, optimal and compatible development typologies have been established for Kam Lake. The development formats and typologies do not give an exhaustive list of every development typology, but rather provides a framework of typical guidelines for trending industrial or business park development. These development typology guidelines include typical size, floor area ratio (FAR), and end-user tenants by sector. FARs exhibited in the development formats & typologies are based on the current conditions as well as industry trends and as such future recommended FARs follow standards of similar development contexts from end-user tenants.

Table 3-2 provides a detailed depiction of the wide array of light industrial development formats and typologies (in no particular order) that could be part of Yellowknife's overall growth strategy as well as specifically for Kam Lake. These include the following:

- Warehouse/Distribution Facilities & Fulfillment Centres
- Micro-fulfillment Centres (MFC)
- Manufacturing & Assembly Facilities
- Advanced Manufacturing
- Research & Development
- Flex Facilities and Office Showroom/Multi-Tenant
- Eco-Industrial Parks
- Agribusiness

Table 3-2 Industrial Development Formats & Typologies

Industrial Format	Typical Land Area Site Coverage (FAR) Number of Storeys Typical Lot Sizes	Typical Dimensions	Miscellaneous Building Requirements/Comments	Target Sector End Users & Miscellaneous Site Selection Considerations
Warehouse/Distribution Facilities & Fulfillment Centres	10 to 50 acres 0.4 to 0.7 (lower for freight forwarding) 1 Storey (with internal mezzanines) 5 to 10 acres	100,000 to 1,000,000 sf most between 100,000 to 500,000 sf up to 500 ft depths Rectangular configuration best **Avg building size by Category** Last Touch - 110,000 sf City - 150,000 sf Multi-Market - 325,000 sf Gateway - 370,000 sf	Screening required for loading docks and truck parking areas Security such as fencing, gates and guard facilities High land consumption along with needs for trailer storage Easy access and location critical attributes: rail access a plus for certain types of uses Loading Docks, truck space Address material handing for "just-in-time" storeage Rise of e-commerce means that outside the building there is more demand for truck and trailer parking, as well as dedicated areas for truck staging, parking and loading Even higher bays are becoming common in distribution centres for mezzanine and multilevel picking and packing Custom-built storage spaces	**Target Sector End Users** Logistics and Distribution Hubs Bulk Warehouses Freight Forwarding, Pacel Integrators and E-Fulfillment - Heavy Cargo & Remote Delivery Services: Expansion of trucking, air freight, and ice road logistics for northern communities. **Miscellaneous** Heated and Unheated General Warehouses - space for bulk, rack and bin storage, packing, shippir Refrigerated Warehouses - preserve quality of perishable goods. Includes freeze & chil space and Contolled Humidity Warehouses - constructed with vapor barriers to contain humidity Value-Added Food Processing IT Sectors, Business Centres
Micro-fulfillment Centres (MFC)	<10 acres 0.5 to 0.7 1 Storey (with internal mezzanines) 1 to 2 acres	3,000 to 20,000 sf up to 100 ft depths repurposing spaces within stores (e.g. Back-of-House)	Highly automated using Automated Storage & Retrieval System (ASRS) like a full distribution centre, but on a more targeted and smaller scale for efficiency and hyper-expedience Part of omni-channel system that depends on humans and robotics for supply chain MFCs have experienced 80% annual growth between 2018 and 2021, and globally are expected to grow sixfold in 2021.	**Target Sector End Users** Capable of serving multiple categories - grocery, drug stores and general merchandise Box format retailers **Miscellaneous** Key is to be located near the consumers, whether attached to an existing grocery store or other bu For urban sites, can reduce square footage needed for product by 25% because of proximity and Can be co-housed inside an existing store or placed in a smaller warehouse space in an urban loca Benefits of MFCs is lower overhead costs, enhanced agility and faster last-mile delivery
Manufacturing & Assembly Facilities	2 to 65 acres 0.3 to 0.4 1 Storey (with internal mezzanines) 2 to 4 acres	100,000 to 500,000 sf most between 100,000 to 250,000 sf up to 150 ft depths Rectangular configuration best	Emphasis on landscaping Typically 70% of building for warehousing and 30% for office functions on second level Large interior column spacing Smaller than typical single tenant and multi-tenant warehouse buildings Increasingly becoming "Smart Buildings" - AKA automated or intelligent buildings Can include sustainable design materials and elements (ex. solar panel, renewable energy)	**Target Sector End Users** Electric vehicle battery cell manufacturing facility Manufacturing industries which use plastics as an input Value-Added Food Processing Window and Door Manufacturing Pharmaceutical Manufacturing (can be single floor, two floor or mutiple floor facilities) Plastics Manufacturing Green Building Products Manufacturing Agri-Chemical Manufacturing Agricultural Equipment Assembly **Miscellaneous** Typically co-located with cluster specialization including suppliers Often owner-occupied
Advanced Manufacturing	2 to 25 acres 0.4 to 0.5 1 to 2 storey with either mezzanines or full second level	Small facilities- 10,000 to 50,000 sf (specialized products, niche markets or prototype production) Medium facilities; 50,000 to 200,000 sf (mass produced products requireing advanced automation and production lines) Large facilities: 200,000 sf to > 1m sf (high-volume production for industries such as automotive, aerospace and electronicis	Depending on segment, can be large water consumers, so servicing capacity with Municipal Water is critical In addition to square footage, advanced manufacturing facilities may vary in terms of ceiling height, specialized areas for different stages of production, and office space for research and development. Additionally, advanced manufacturing often involves the use of state-of-the-art technology such as robotics, IoT, and AI, which can influence the layout and design of the facility.	**Target Sector End Users** Cold climate research & Technology **Extreme Weather Engineering & Materials Science:** Companies specializing in cold-resistant infrastructure and materials. **Autonomous Vehicles & Drones for Arctic Operations:** Development and testing of self-driving vehicles and drones for remote deliveries and exploration. **Battery Storage & Microgrid Solutions** for companies specializing in grid stabilization for remote areas using innovative energy storage. **Cold Climate Green Building Technology** using research and production of energy-efficient housing suited for Arctic conditions.
Research & Development	5 to 40 acres 0.3 to 0.7+ 1 to 3 Storeys 5 to 20 acres	30,000 to 100,000 sf 100 to 200 ft depths Square configuration best Multiple buildings common	Greater open space and amenities on site Distinctive design features such as extensive use of glass Less truck access needed due to lower volume of truck traffic Proximity to University/Intellectural Capital as labour force is critical "Smart Buildings" - AKA automated or intelligent buildings	**Target Sector End Users** BioMedical, Pharmaceutical, Wet & Dry Labs, Medical Equipment & Technology Academic, Corporate or Government Labs Agritech Businesses Energy Generation/Storage Innovation Arctic Technology Prototyping and testing sites: Outdoor environments for cold-weather trials of new technologies. **Miscellaneous** Proximity to University/Intellectual Capital Accessibility for workers is critical (Example: Transit)

Table 3-2 (Continued) Industrial Development Formats & Typologies

Industrial Format	Typical Land Area Site Coverage (FAR) Number of Storeys Typical Lot Sizes	Typical Dimensions	Miscellaneous Building Requirements/Comments	Target Sector End Users & Miscellaneous Site Selection Considerations
Flex Facilities	5 to 40 acres 0.15 to 0.35 1 to 2 Storeys 2 to 10 acres	20,000 to 100,000 sf up to 125 ft depths Rectangular configuration best	Curb appeal through building design in a quasi campus-like setting Trades often need yard space Often speculative multi-tenant product with potential for end-user ownership	**Target Sector End Users** Manufacturing and Specialty Warehousing/Storage Wholesale and Textiles, Wood and Paper Products Contractors, light industrial fabricators, and mechanics Motor Vehicle Repair, Construction, Printing Gymnastics, Martial Arts, Fitness Centres, Climbing Walls, Children's Activity Centres Green Energy Generation/Storage Facilities Utility System Construction/Fulfillment Centres **Miscellaneous** Ratio of Office Space to Warehouse is changing in favour of more office space ("Flex Tech")
Office Showroom/Multi-Tenant	1 to 20 acres 0.25 to 0.50 1 to 2 Storeys 1 to 5 acres 1 with divisible space, with mezzanine	30,000 to 100,000 sf 60 to 100 ft depths up to 10 units Rectangular Configuration best L and U-Shaped also	Quasi-commercial and mixed land uses / "Industrial Retail Centre" Customer access in front and truck access in rear Traffic intermixed when units are back to back Comprehensive signage program and unifying entrance design	**Target Sector End Users** Building Trade Contractors & Construction, Cabinet Makers Specialty F&B Suppliers and Caterers Interrelated (e.g. Kitchen, Bath, Plumbing, Electrical, Mouldings, Doors) Restaurants/Cafés Contractors, light industrial fabricators, and mechanics offices **Miscellaneous** Increasing opportunity in urban areas to be included in vertical mixed-use developments
Eco-Industrial Park	5 acres to several hundred or thousand acres 0.10 to 0.50 typically 1 storey	Small facilities- 10,000 to 50,000 sf (light manufacturing, small R&D and service-oriented businesses) Medium to Large facilities; 50,000 to 200,000 sf (combination of manufacturing, warehousing) Very Large facilities: >200,000 sf (renewable energy generation, waste recycling, industrial greenhouses)	The design will need to encourage companies to **collaborate** and generate the flow of "physical exchange of materials, energy, water and by-products, thereby fostering inclusive and sustainable development" Strong emphasis on **connectivity** (implementing sidewalks, enhancing connections with the existing public transit systems)	**Target Sector End Users** Manufacturing / Processing Sectors Energy and Technology Industrial Greenhousees **Miscellaneous** Water needs Concerns for light pollution if near to urban residential areas
Agribusiness	Crop Farms 20 - 200 acres Commercial Farms 1,000 + acres Larger variability in land needs depending on the scale of the business and its specific focus within the agricultural sector 0.10 to 0.20 typically 1 storey	Food Processing - 10,000 - 50,000 sf Warehouse Storage - 10,000 to 100,000 sf Agrotech - 1,000 to 10,000 sf for startups to 10,000+ for larger operations Seed & Fertilizer Production - >100,000 sf	Superclusters: where companies, academic institutions, and non-profit organizations come together Example: Several floors of an office space in Calgary have been rented to create a vertical indoor farming space	**Target Sector End Users** Digital Technology (genomics, processing, and information technology) Food Retail and Services Wholesale Agro-technology - Precision agricultural technology, agri-tech startups Industrial greenhouses Equipment Manufacturers & Arctic Technology

Source: FBM

Section 4.0

Demand Forecasts

CITY OF YELLOWKNIFE

4.1 Introduction

This section provides an overview of forecasted demand for a targeted subset of light industrial, commercial, and agricultural uses (collectively, "targeted uses" outlined in Section 5.0) chosen for likely compatibility with the Study Area, and estimates the future supportable development in terms of floorspace and land.

Referring to **Figure 4-1**, three (3) different methods were used to forecast the demand for floorspace and land for the targeted uses in the Kam Lake Study Area. These include an examination of 1) total employable labour force or working age population, 2) employment by industry (NAICS) and 3) application of current space per capita ratio against future total population growth.

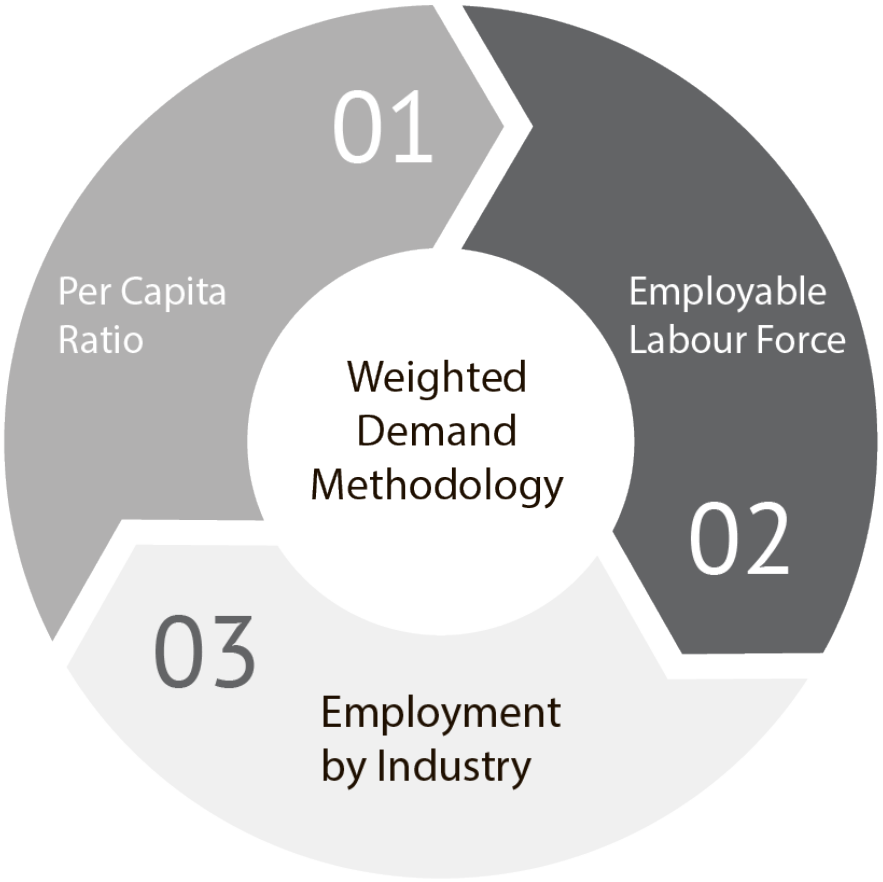
Each of these singular methods produces its own forecast, but to most accurately and realistically ensure sound market-driven forecasts, each methodology is blended together to determine a weighted average. It is important to acknowledge the role that labour and population growth play in attracting demand, since growth cannot occur if the requisite labour force, skilled or otherwise to support a business does not exist.

Upon quantifying future floorspace demand for the applicable land use, estimates of industry standard FAR are applied based on the target sectors and typologies likely to be developed over time. By applying an FAR, the amount of potential gross land area (i.e. excluding roads and infrastructure etc) needed over time is derived.

Note: For the anticipated FAR a factor of .15 has been used even though the overall average for similar uses typically falls in the range of .10 to .30. Given the nature of future development in the city, and looking at how other comparable markets have developed over recent

Figure 4-1 Demand Methodology Inputs

Source: FBM



years, a figure of 0.15 has been applied.

4.2 Targeted Uses Demand Forecast

1) Labour Force Approach

The first approach to forecasting demanded floorspace examines future population growth, particularly those people in the labour force (15+ years) cohorts.

This is particularly important given the young, aspirational demographic and the commensurate effect on the workforce and associated workplaces. **Appendix Table A** detail this analysis. Unlike office and retail, the targeted uses are almost always accommodated in physical form in dedicated and zoned formats and spaces, though there is a trend towards mixed-industrial and live-work industrial in urban centres in-transition.

Method 1 indicates cumulative support for just under 685,000 sf (683,089) of new floorspace for the targeted uses in the market over the next 20 years by 2044 assuming that Kam Lake garners a market share of 75% of citywide demand. (**Table 4-1**).

2) Employment by Sector Forecast Approach

A second approach examines a historic employment growth in industrial categories as sourced to Statistics Canada and forecast with assumptions based on the estimated growth of Yellowknife for the respective business sectors. In this approach, employment projections were made for specific NAICS sectors. These projections were then applied against typical space needs per employee, per business sector (measured as sf per employee). **Appendix Table B** details this analysis.

Method 2 indicates cumulative support for just under 537,000 sf (536,912) of new floorspace for the targeted uses in the market over the next 20 years by 2044 assuming that Kam Lake garners a market share of 75% of citywide demand. (**Table 4-1)**.

3) Per Capita Population Growth

A per capita ratio is yet another reasonable input that is statistically based on the Kam Lake Area's actual inventory measured against its actual population. Currently, this ratio is estimated to be 150 sf per capita. Since development in the Kam Lake Study Area over the next 20 years is likely, the same per capita figure was applied against the forecast population growth.

Method 3 indicates cumulative support for just under 615,000 sf (614,533 sf) of new floorspace for the targeted uses over the next 20 years (by 2044) assuming that Kam Lake garners a market share of 75% of citywide demand. (**Table 4-1**).

Summary Weighted Average

Since no one methodology is prudent and market economies can impact factors such as employment or labour, a weighted average of all three (3) methodologies was used to reasonably estimate future demand. On this basis, approximately 611,000 sf of new gross floor area for the targeted uses could be reasonably supported over the next 20 years in the Kam Lake Study Area. (**Table 4-1**).

Based on a floor area ratio (FAR) or typical site coverage of 0.15 for the average of all targeted typologies and reflecting the likelihood that future land in Kam Lake will likely mirror past patterns of development, demand could reasonably support 108 gross ac (44 ha) or 94 ac (38 ha) of net land (i.e. excluding roads and estimated wetlands).

Together, this weighted average approach was used to provide a baseline floor space and acreage demand for the NAICS industry segment based forecast described in Section 5.

Table 4-1 Weighted Average Demand Forecast for Targeted Uses

(Source: Manifold Data Mining Inc. & FBM)

Forecast Model	Projected Average Annual Growth	Projected Total Growth over next 20-yrs
Employment Growth Forecast (sf)	26,846	536,912
Labour Force Growth (sf)	34,154	683,089
Per Capita Population Growth	30,727	614,533
Blended Average (sf/yr) / Total	**30,576**	**611,511**
Current Avg Site Coverage Ratio		0.15
Avg Industry Standard Site Coverage Ratio		0.15
Gross Land Area Required (acres)		107.6
Gross Land Area Required (hectares)		43.6
Net Land Area Required (acres)		93.6
Net Land Area Required (hectares)		37.9

4.3 Self Storage Demand Opportunity

According to industry data, the self-storage market has doubled in the past 10-years in Canada. Many factors have all contributed to this growth. In fact, a CBC news article (April 2, 2018) highlighted that the demand for self-storage is being driven by "6-Ds":

- Downsizing;
- Death;
- Divorce;
- Displacement;
- Disaster; and
- Density.

Local inventory

Eleven (11) self-storage facilities were recorded within the city. Of these, a majority are located in the Kam Lake area. The self-storage facilities average 10,816 sf in size and total almost 119,000 sf resulting in an average per capita space ratio of 5.0.

Supportable square footage

Most residential users are homeowners including single-family, apartment, condo and mobile home dwellers which comprise 65% to 80% of self-storage tenants. Business and commercial tenants traditionally comprise 20% to 35% of the Canadian self-storage market and form an ever-increasing segment.

The overall self-storage supply per capita in Canada averages 2.5 sf while the US averages an estimated 8.3 sf of self-storage space per capita. Based on the current inventory identified in Yellowknife, the current self-storage supply is calculated as 5.0 sf.

To provide some comparable examples to Yellowknife, the following markets are documented as a precursor to testing future reasonable demand in Kam Lake:

- Montana (10.7 sf)
- Colorado (7.3 sf)
- North Dakota (6.5 sf)

In combination with population growth and the fact that many residents have storage needs for quads, snowmobiles, and other recreation vehicles, it is reasonable to opine that the supportable square footage per capita will continue.

By looking at the Canadian average as well as the former comparable benchmarks, a ratio of 7.0 sf was applied against the growing population to estimate a total supportable floorspace in the trade area of approximately 40,116 sf by the 2044.

Since this figure is the total supportable floorspace, a market share of 50% was applied that takes into account the possibility that Engle Business Park could attract some of this demand. However,specific to Kam Lake the market share recognizes the strong locational attributes of the site in estimating a realistic floorspace estimate at Kam Lake of 20,058 sf on an estimated 2.3 ac (0.93 ha) by 2044 (**Table 4-2**). This amount of floorspace could be achieved with two (2) self storage facilities if the current average size of 10,018 is maintained.

Table 4-2 Self Storage Demand Forecast

(Source: FBM & Self Storage Almanac)

Growth Using City of Yellowknife Population Growth Forecasts	**2024**	**2029**	**2034**	**2039**	**2044**
City population	23,629	25,062	26,339	27,808	29,360
Incremental New Population Growth		287	261	300	317
Cumulative New Population Growth		1,433	2,710	4,179	5,731
City population	23,629				
Canadian Average Self Storage Ratio sf/capita	*2.5*				
United States Average Self Storage Ratio sf/capita	*8.3*				
Comparables to Yellowknife:					
Montana (10.7 sf), Colorado (7.3 sf), North Dakota (6.5)					
Target Yellowknife Average Self Storage Space Ratio (Current) sf/capita	*7.0*				
SCENARIO 1: Using CANADIAN Self Storage Space Ratio					
Cumulative New Self Storage Facility Demand (sf)		**3,583**	**6,775**	**10,449**	**14,327**
Kam Lake Market Share of Cumulative New Demand		75%	75%	75%	75%
Kam Lake Cumulative Demand (sf)		**2,687**	**5,081**	**7,836**	**10,745**
Kam Lake Cumulative Demand (acres)		0.3	0.6	0.9	1.2
SCENARIO 2: Using TARGET Self Storage Space Ratio					
Cumulative New Self Storage Facility Demand (sf)		**10,031**	**18,970**	**29,256**	**40,116**
Kam Lake Market Share of Cumulative New Demand		50%	50%	50%	50%
Kam Lake Cumulative Demand (sf)		**5,016**	**9,485**	**14,628**	**20,058**
Kam Lake Cumulative Demand (acres)		0.6	1.1	1.7	2.3

Source: Erwan Hesry on Unsplash

Section 5.0

Land Use Allocation & Absorption Scenarios

CITY OF YELLOWKNIFE

5.1 Introduction

This final section of the Kam Lake Market Study applies the findings and forecasts developed to present a land allocation and absorption strategy to inform the optimal conceptual land use plan options and phasing program over the next 20 years.

5.2 Land Allocation Criteria

Through an evaluation of the current market and emerging trends, Kam Lake is compatible with the following future light industrial/commercial planning and land use consideration:

- Existing Industrial intensification
- Specialized manufacturing
- Eco-industrial
- Value-added agriculture/agri-tech/agribusiness
- Green businesses
- Circular economy
- Alternative energy production/ energy transition

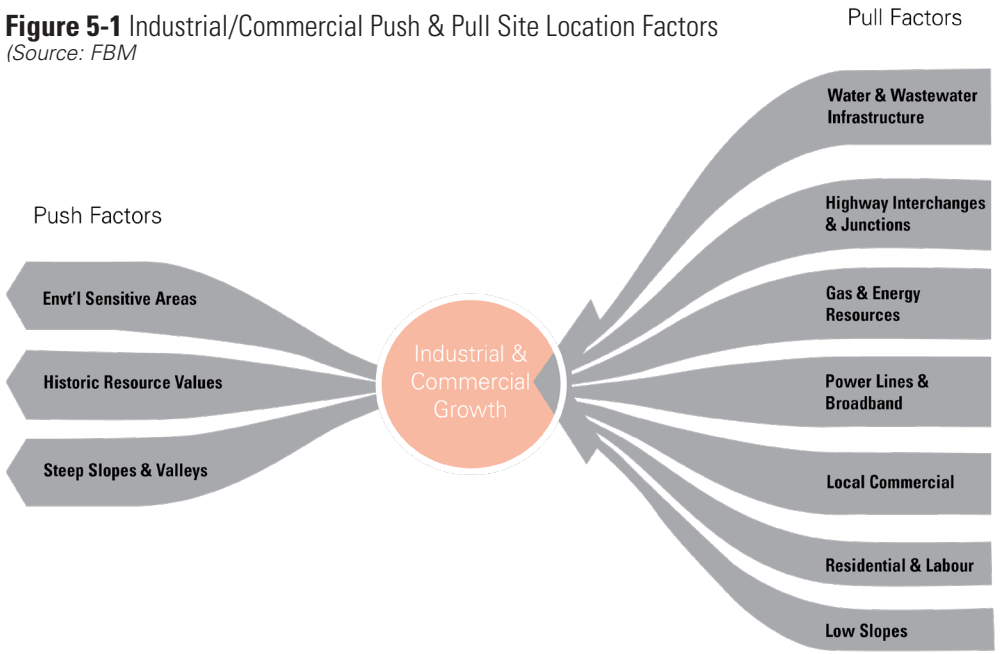
Each of these elements have been considered in the positioning and allocation of future demand. Additionally, and more specifically for light industrial land uses this study applied industry-recognized site location criteria that informed and added a further layer of analysis. These factors have been incorporated into the land use allocation and positioning, and include, but are not limited to:

- Servicing limitations of the area
- Local and regional road networks including future access/egress points
- Proximity to adjacent/surrounding industrial and residential uses
- Mixing of uses (commercial-live work-light industrial)
- Land availability and environment suitability

Figure 5-1 visually depicts the latter criteria by using typical push & pull considerations to illustrate those broad criteria that are most often front-and-centre for determining the optimal allocation of future land use demand.

With these as factors, compatible industry sectors premised around clustered growth have been identified as complementary wand realistic for future long-term growth and planning in the Kam Lake Study Area.

Figure 5-1 Industrial/Commercial Push & Pull Site Location Factors
(Source: FBM



5.3 Economic Clusters & Sector Target Opportunities

The next step in the Market Study process is to refine the overall demand forecast into potential target or compatible economic clusters and sector land use opportunities. To do this, the project team aggregated the twenty (20) major NAICS categories into five (5) industry-specific clusters as identified in **Tables 5-1 and 5-2** as ***Agriculture, Heavy Industry, Commercial, Construction & Technical Trades, and Manufacturing & Warehousing.*** To recognize public engagement and environmental sensitivities, the industry cluster comprising Heavy Industrial is excluded from any land use allocation at Kam Lake. A summary of the forecasted demand by clustered industry segment is provided in **Figure 5-1.**

Table 5-1 Kam Lake Industry Cluster Demand Summary at Buildout 2044
(Source: FBM)

CLUSTERED INDUSTRY SEGMENT	Total Floor Area Demand for Kam Lake (sf)	Estimated Kam Lake Land Needs (acres)
Agriculture	90,204	20.7
Heavy Industry	0	0.0
Commercial	29,973	2.3
Construction	334,741	38.4
Manufacturing & Warehousing	156,621	36.0
Self Storage	20,058	2.3
TOTAL	**631,598**	**99.7**

Table 5-2 outlines the detailed approach to the demand allocation whereby each industry segment has been given an estimated annual average employment growth forecast over the next 20 years. Using the forecasted employment growth, an industry average employment ratio (measured as sf per employee) was applied to the employment growth to yield an estimated future floorspace. The final step applied typical site coverage or FAR figures to the various sectors to determine the reasonable land requirements. It should be noted that this method relies on employment data and does not consider work accommodations or work camps incidental to said employment. Therefore workers accommodations are not included in the scope of this forecast.

5.4 Absorption Summary

To set the stage for the development and land use allocations in the concept plans, the previous clusters and target sector opportunities were further broken down into five (5) phases that could support a likely pattern of land absorption as summarized in **Table 5-2**.

In **Phase 1**, given the market need to diversify over the next 5 years, initial absorption would be focused on existing, proven market segments like Manufacturing & Warehousing and Construction & Technical Trades with a total absorption across all sectors for just over 117,000 sf requiring an estimated 18.1 ac (7.3 ha) or an average annual absorption of 3.6 ac (1.5 ha). This absorption would allow the Kam Lake development area to start small with one access road in and out, thereby keeping infrastructure costs lower.

Phase 2 would start to see the gradual introduction of Agriculture or Agribusiness uses with small to mid size facilities totalling just under 10,000 sf. Overall, Phase 2 would have an average land absorption of 5.0 ac (2 ha) per year.

Phase 3 which would have the largest phased area at 37.7 acres over years 9 to 14 of the development timeline. This phase could see almost 54,122 sf of building space for Agribusiness. Concurrently, Construction and Manufacturing sectors will continue to absorb a large share of growth where the overall average land absorption would be around 6.3 ac (2.6 ha) per year.

Phase 4 would be a smaller development area of only 11 acres, focused on smaller owner-occupier industries but no Agribusiness with an average land absorption of 3.9 acres per year.

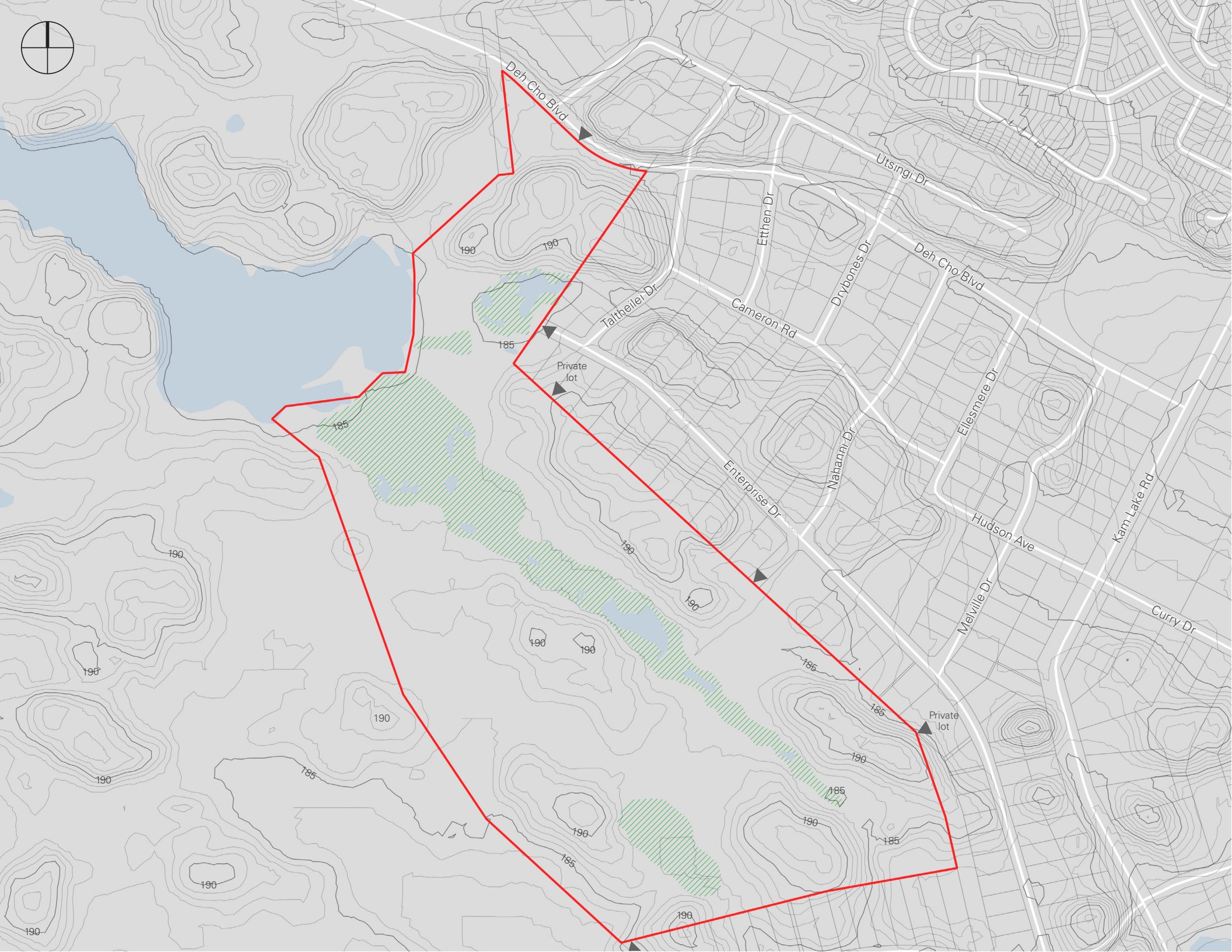
The final **Phase 5** of development and demand absorption would be in years 18 to 20 with a further growth accommodating Agribusinesses and other supporting light industrial businesses to round out and complete the Kam Lake Development Are for a total of 99.7 ac (40.3 ha) of net developable demand.

Table 5-2 Kam Lake Detailed Industry Cluster Segments at Buildout 2044
(Source: FBM)

BROAD NAICS CATEGORY	CLUSTERED INDUSTRY SEGMENT	2024 Employment	Growth Forecast	2044 Employment	2044 Forecasted Growth	Average Floorspace Employee to Floor Area Ratio	Total Floor Area Demand for Kam Lake	Estimated Site Coverage	Estimated Kam Lake Land Needs (acres)
Agriculture, forestry, fishing & hunting	Agriculture	33	2.0%	49	16	7,500	90,204	0.10	20.7
Mining and oil and gas extracton	Heavy Industry	723	0.5%	799	76	2,500	0	0.10	0.0
Utilities	Heavy Industry	78	1.0%	95	17	2,500	0	0.10	0.0
Administrative and support & waste	Heavy Industry	540	1.0%	659	119	2,500	0	0.10	0.0
Retail Trade	Commercial	1,356	1.0%	1,655	299	500	14,929	0.30	1.1
Information and cultural industries	Commercial	314	0.3%	330	16	250	0	0.30	0.0
Finance and insurance	Commercial	224	0.5%	247	23	250	0	0.30	0.0
Real estate and rental and leasing	Commercial	112	0.5%	124	12	250	0	0.30	0.0
Management of companies and enterprises	Commercial	1	1.0%	1	0	250	0	0.30	0.0
Arts, entertainment and recreation	Commercial	191	1.0%	233	42	750	3,154	0.30	0.2
Accommodation and food services	Commercial	871	1.0%	1,063	192	500	9,589	0.30	0.7
Other services	Commercial	418	1.0%	510	92	500	2,301	0.30	0.2
Construction	Construction & Technical Trades	680	1.0%	830	150	1,500	168,445	0.20	19.3
Professional, scientific and technical services	Construction & Technical Trades	868	2.5%	1,422	554	500	166,296	0.20	19.1
Educational services	Institutional	971	1.0%	1,185	214	250	0	0.20	0.0
Health care and social assistance	Institutional	1,632	1.0%	1,991	359	250	0	0.20	0.0
Public administration	Institutional	4,605	1.0%	5,619	1,014	250	0	0.20	0.0
Manufacturing	Manufacturing & Warehousing	151	1.0%	184	33	1,500	37,405	0.10	8.6
Wholesale Trade	Manufacturing & Warehousing	218	1.0%	266	48	1,500	54,002	0.10	12.4
Transportation and warehousing	Manufacturing & Warehousing	1,077	1.0%	1,314	237	1,375	65,215	0.10	15.0
Total / Average		**15,063**	**1.4%**	**18,577**	**3,514**	**664**	**611,540**	**0.14**	**97.4**

Table 5-3 Kam Lake Industry Clusters Absorption and Phasing Timeline
(Source: FBM)

			Phase 1 Years 1 to 5		Phase 2 Years 6 to 8		Phase 3 Years 9 to 14		Phase 4 Years 15 to 17		Phase 5 Years 18 to 20	
CLUSTERED INDUSTRY SEGMENT	Total Demand for Kam Lake (sf)	Estimated land needs (acres)	Forecast Floorspace (sf)	Forecast land needs (acres)	Forecast Floorspace (sf)	Forecast land needs (acres)	Forecast Floorspace (sf)	Forecast land needs (acres)	Forecast Floorspace (sf)	Forecast land needs (acres)	Forecast Floorspace (sf)	Forecast land needs (acres)
Agriculture	90,204	20.7	0	0.0	9,020	2.1	54,122	12.4	0	0.0	27,061	6.2
Commercial	29,973	2.3	5,995	0.5	4,496	0.3	8,992	0.7	5,995	0.5	4,496	0.3
Construction & Technical	334,741	38.4	63,601	7.3	56,906	6.5	107,117	12.3	53,559	6.1	53,559	6.1
Manufacturing & Warehousing	156,621	36.0	37,589	8.6	26,626	6.1	48,553	11.1	21,927	5.0	21,927	5.0
Self Storage Facilities	20,058	2.3	10,029	1.2			10,029	1.2				
TOTAL	**631,598**	**99.7**	**117,214**	**18.1**	**97,048**	**15.1**	**228,813**	**37.7**	**81,480**	**11.6**	**107,043**	**17.7**
	Avg Annual Absorption		23,443	3.6	32,349	5.0	38,136	6.3	27,160	3.9	35,681	5.9


Deh Cho Blvd
Utsingi Dr
Etthen Dr
Drybones Dr
Deh Cho Blvd
Taltheilei Dr
Cameron Rd
Private lot
Enterprise Dr
Nahanni Dr
Ellesmere Dr
Hudson Ave
Kam Lake Rd
Melville Dr
Curry Dr
Private lot
190
185

5.5 Conceptual Plans

Building upon the market demand for the various target sector land uses, three (3) preliminary conceptual site layout diagrams were developed showing preliminary road layouts, possible parcel configurations, access and egress arrangements, and overall connectivity and context with existing adjacent land uses. These were presented for discussion with city staff in January 2025. All three concepts aimed to provide adequate site access, a range of lot sizes, and flexibility in terms of phasing and relationship to wetlands and topography (refer to **Appendix Figure 1**). They differ in terms of road layout, number of road access points, proportion of lot sizes, environmental impact, and interface with surrounding developments (in particular, residential land use at Grace Lake North).

Concept 1 was a "lighter touch" concept with a relatively lower impact on wetland areas. Two road accesses would be provided, one an extension of Nahanni Drive, the other a new intersection with Deh Cho Boulevard. This concept incorporated a 30-metre undeveloped "buffer area" along the southern boundary of the Study Area, next to the residential lots of Grace Lake North. Concept 1 creates approximately 101 ac (40.9 ha) of industrial land.

Concept 2 introduced a third road access to the Study Area, taking the form of an extension of Enterprise Drive, while maintaining the two road accesses in Concept 1. Concept 2 increases the provision of industrial land to 116 ac (46.9 ha) by reducing the Grace Lake North buffer zone to 15 metres, and using low-lying/wetland area for development.

Concept 3 provided the most industrial land at approximately 123 ac (49.8 ha). However, it achieved this by proposing the use of around 5 to 6 acres outside the Study Area on government-owned land near Deh Cho Boulevard, mainly in order to improve the road design at the northern end of the site. Concept 3 includes three road access points, but the Enterprise Drive entrance included in Concept 2 was replaced by an extension of Taltheilei Drive through the large wetland area in the centre of the Study Area, resulting in the elimination of one cul-de-sac.

Each of the three preliminary concepts was evaluated across a range of site attributes as summarized in **Table 5-4**. Additional feedback from city staff enabled refinements to the conceptual layouts (Concepts 1-3), into two preferred Concept Layout Plans (Concepts A & B), outlined in **Appendix Figures 3 and 4**.

5.6 Districting Strategy

A guiding framework for developing the concept plans, was a high-level districting strategy as shown in **Appendix Figure 2** in which the broad land uses within the Study Area are identified based on their compatibility and sensitivity to adjacent land uses. For example, the concept of lower intensity live-work industrial would not only provide opportunities for additional housing opportunities, but the "residential" element would be more compatible with existing residential in the south/southeast portion of Kam Lake.

Similarly, larger uses may benefit from land on the west side of Kam Lake, leaving smaller owner-occupier and smaller lot uses to cluster with

Table 5-4 Preliminary Concept Options Evaluation Matrix
(Source: FBM)

Concept Options Evaluation Matrix	CONCEPT OPTION 1	CONCEPT OPTION 2	CONCEPT OPTION 3
Environmental Preservation/Protection	High	Medium	Low
Net Developable Area	Low	Medium	High
Trails & Mobility Connectivity	High	High	High
Taxable Revenue Potential	Medium	Medium	High
Development Cost Favourability	Medium	Medium	Low
Adjacent Properties Compatibility	High	High	High
Emergency Management Preparedness	Medium	Medium	Low
Vehicle Access & Circulation	Medium	Medium	High

existing businesses and promote economic synergies in the Kam Lake industrial area.

The overall "amenity" and preservation of wetlands and/or sensitive lands creates an opportunity for strong active transportation as well as seasonal ATV or snowmobile trails to and within Kam Lake.

The industry types that could be compatible with Kam Lake are detailed in **Appendix Table C** and are based on the 3 or 4 digit NAICS codes. The purpose of these tables is to illustrate the wide range of business opportunities that could be drawn to Kam Lake as it develops over the next 20 years.

5.7 Concept A

The Concept A presented in **Appendix Figure 3** is a combination of the preliminary Concepts 1 and 2. It includes a 15-metre buffer area adjacent to Grace Lake North, three road access points, and a relatively lighter impact on wetland areas. The three road accesses could be built on municipally owned land, avoiding the need for land acquisition.

Concept A results in approximately 110 ac (44.5 ha) of new industrial land.

5.8 Concept B

The Concept B as presented in **Appendix Figure 4** combines elements of preliminary Concepts 1, 2 and 3. It includes a 15-metre buffer area with Grace Lake North (like Concept 1), an extension of Taltheilei Drive across the central wetland area (like Concept 3), and "double-loading" of industrial lots along "Northern Street" (like Concept 2). The extension of Taltheilei Drive would result in improved access and a better road layout, but would require some acquisition of private property along Enterprise Drive.

Concept B results in approximately 113 ac (45.7 ha) of new industrial land.

Overall phasing for both concept options would likely require 5 phases premised on floorspace and land absorption as follows:

Years 1 to 5	*23,443 sf and 3.6 ac of annual absorption*
Years 6 to 8	*32,349 sf and 5.0 ac of annual absorption*
Years 9 to 14	*38,136 sf and 6.3 ac of annual absorption*
Years 15 to 17	*27,160 sf and 3.9 ac of annual absorption*
Years 18 to 20	*35,681 sf and 5.9 ac of annual absorption*

Any remaining acreage is assumed to be absorbed beyond the 20-year forecast.

5.9 Class D Cost Estimates

To provide a high level estimate for construction of the Concept Plans, Class D cost estimates were completed for Concept A and Concept B based on a Grading Plan shown in **Appendix Figures 5 and 6** and summarized in **Tables 5-5 and 5-6.** Class D Cost Estimates are rounded to the nearest thousand dollars, do not reflect phasing and assume a full buildout which is not likely. Further development of costing is recommended when development phasing is finalized. Note: All quantities and costs must be confirmed with a contractor and are subject to the following assumptions:

1. All cut material will require blasting
2. All fill material will be imported backfill
3. Right-of-way (ROW) width = 24 m (79 ft), road width = 11 m (36 ft)
4. The ROW/road crosses the wetland area for both options. Concept B will require additional wetland removal over the area of the lots. The wetland removal is assumed to be excavated up to 1.5m for both options.
5. Site mobilization and demobilization is an estimate
6. Lot blasting has not been included, however lot grading has been accounted for.
7. Sub-grade excavation of 0.6 m (2 ft) across the entire ROW area
8. The proposed sites need to be visually checked to confirm ground information (water bodies, marshes etc.).
9. A per lot cost estimate was used to calculate electrical costs. A quote from the local electrical utility is advised.

10. Tree clearing is assumed for the entire right-of-way. Assumed that the area is lightly forested
11. Culvert pricing was included however a drainage plan is required for a more accurate estimate
12. This is a Class D estimate - all quantities and cost will need to be confirmed with a contractor.
13. A land survey and geotechnical survey of the lands is required for a more accurate cost estimate.
14. 10% Engineering, 50% contingency, and 5% GST have been added to total costs for each Concept Option A and B
15. Asphalt, sidewalk, or curb and gutter have not been considered in either Concept Option A or B

Concept A

The analysis of Class D Cost Estimates reveal that Concept A could cost an estimated $10.5 million (in current dollars) to create the necessary road and services infrastructure to enable development as shown in **Appendix Figure 5**.

Concept B

The analysis of Class D Cost Estimates reveal that Concept B could cost an estimated $12.1 million (in current dollars) to create the necessary road and services infrastructure to enable development as shown in **Appendix Figure 6**. Development in Concept B includes an additional road and wetland removal to traverse the identified wetland and create a full internal loop road.

5.10 Phasing Strategy

The overall phasing strategy for Kam Lake summarized in **Table 5-7** shows the smallest development phase in the initial years 1 to 5. Doing so will allow the development to kick start with a smaller area and also only require one major access/egress point into the area, thereby keeping

Table 5-5 Kam Lake Class D Cost Estimate - Draft Final Concept Plan A
(Source: Dillon Consulting)

Concept Plan Option A - Kam Lake Estimate

Item	Total Cost
Site Preparation	$75,000
Roadway	$4,556,000
Wetland Removal	$470,000
Drainage	$356,000
Electrical Infrastructure	$790,000
Subtotal	$6,247,000
Engineering (10%)	$624,700
Contingency (50%)	$3,123,500
Sub-total with Engineering and Contingency	$9,995,200
GST (5%)	$499,760
Total	**$10,494,960**

Table 5-6 Kam Lake Class D Cost Estimate - Draft Final Concept Plan B
(Source: Dillon Consulting)

Concept Plan Option B - Kam Lake Estimate

Item	Total Cost
Site Preparation	$75,000
Roadway	$4,712,000
Wetland Removal	$1,240,000
Drainage	$378,000
Electrical Infrastructure	$770,000
Subtotal	$7,175,000
Engineering (10%)	$717,500
Contingency (50%)	$3,587,500
Sub-total with Engineering and Contingency	$11,480,000
GST (5%)	$574,000
Total	**$12,054,000**

development and infrastructure costs at a lower level.

With Phase 2 being an equally smaller development, the ongoing justification for a second access point would be supported by the growth of businesses along the initial main road through Kam Lake.

Phases 1 and 2 are intended to be the catalyst for future development where the project ramps up and can justify the costs necessary to add new roads and multiple access/egress points to ensure adequate vehicle mobility as well as protective services responses and public works maintenance. Phases 1 and 2 ultimately should support the introduction of the largest land development area in Phase 3 with supporting internal "loop" road configuration.

Table 5-7 Kam Lake Phasing Timeline
(Source: FBM)

	Phase 1 Years 1 to 5		Phase 2 Years 6 to 8	
	Forecast Floorspace (sf)	Forecast land (acres)	Forecast Floorspace (sf)	Forecast land (acres)
Agriculture	0	0.0	9,020	2.1
Commercial	5,995	0.5	4,496	0.3
Construction & Technical Trades	63,601	7.3	56,906	6.5
Manufacturing & Warehousing	37,589	8.6	26,626	6.1
Self Storage Facilities	10,029	1.2	0	0.0
TOTAL	**117,214**	**17.5**	**97,048**	**15.1**

	Phase 3 Years 9 to 11		Phase 4 Years 12 to 15	
	Forecast Floorspace (sf)	Forecast land (acres)	Forecast Floorspace (sf)	Forecast land (acres)
Agriculture	54,122	12.4	0	0.0
Commercial	8,992	0.7	5,995	0.5
Construction & Technical Trades	107,117	12.3	53,559	6.1
Manufacturing & Warehousing	48,553	11.1	21,927	5.0
Self Storage Facilities	10,029	1.2	0	0.0
TOTAL	**228,813**	**37.7**	**81,480**	**11.6**

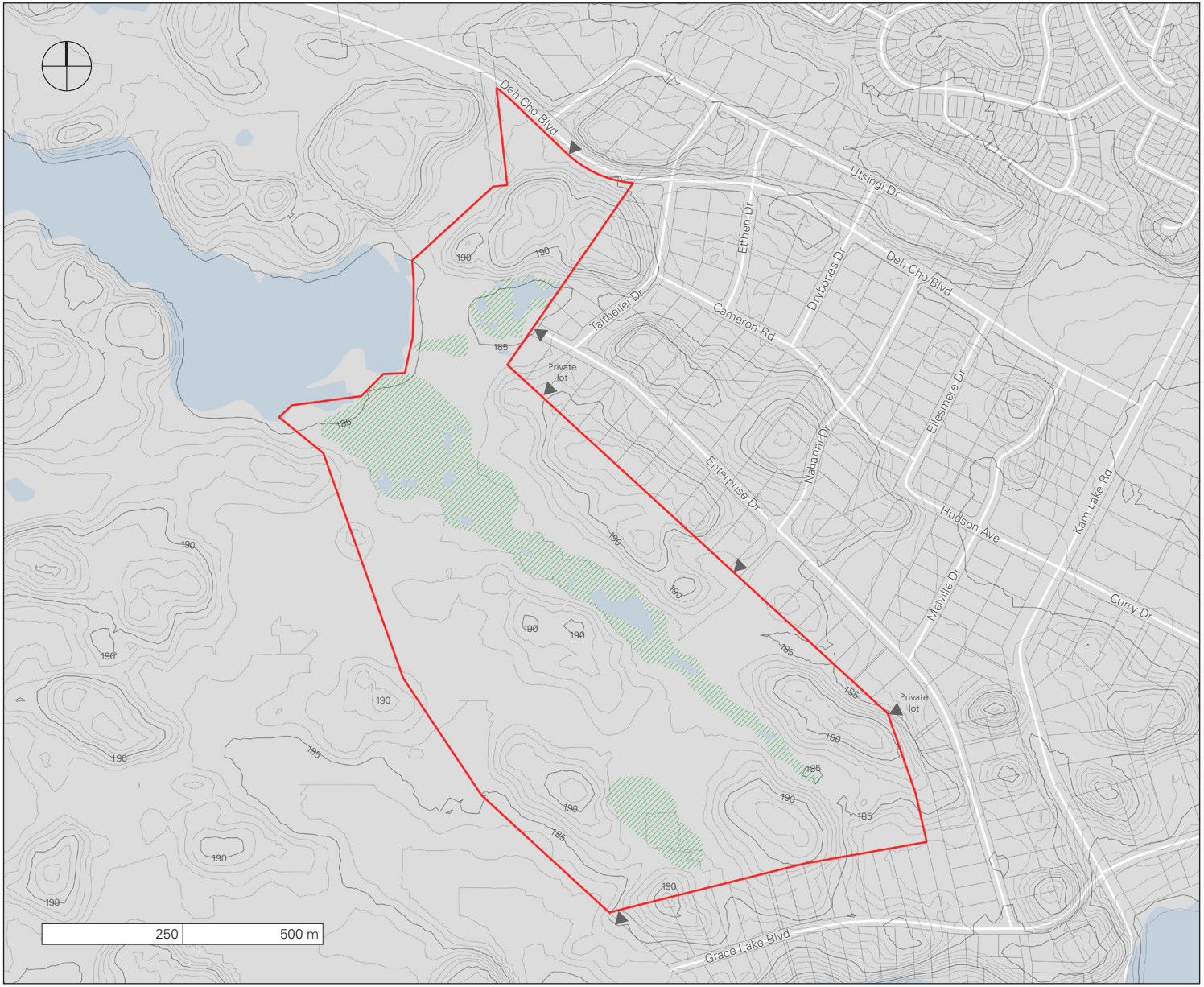
	Phase 5 Years 15 to 20	
	Forecast Floorspace (sf)	Forecast land (acres)
Agriculture	27,061	6.2
Commercial	4,496	0.3
Construction & Technical Trades	53,559	6.1
Manufacturing & Warehousing	21,927	5.0
Self Storage Facilities	0	0.0
TOTAL	**107,043**	**17.7**

Kam Lake

Market Study Final Report

Appendices

Appendix Figure 1 Kam Lake Study Area Topographic Base Map with Potential Access Points
(Source: FBM & Dillon Consulting)



Base map

KAM LAKE INDUSTRIAL AREA,
YELLOWKNIFE, N.W.T.

- Study area
- Potential access point (municipal ownership unless otherwise noted)
- Contour lines (1-m intervals)
- 190 Elevation in metres
- Lakes and ponds
- Approximate location of wetlands, swamps, low points

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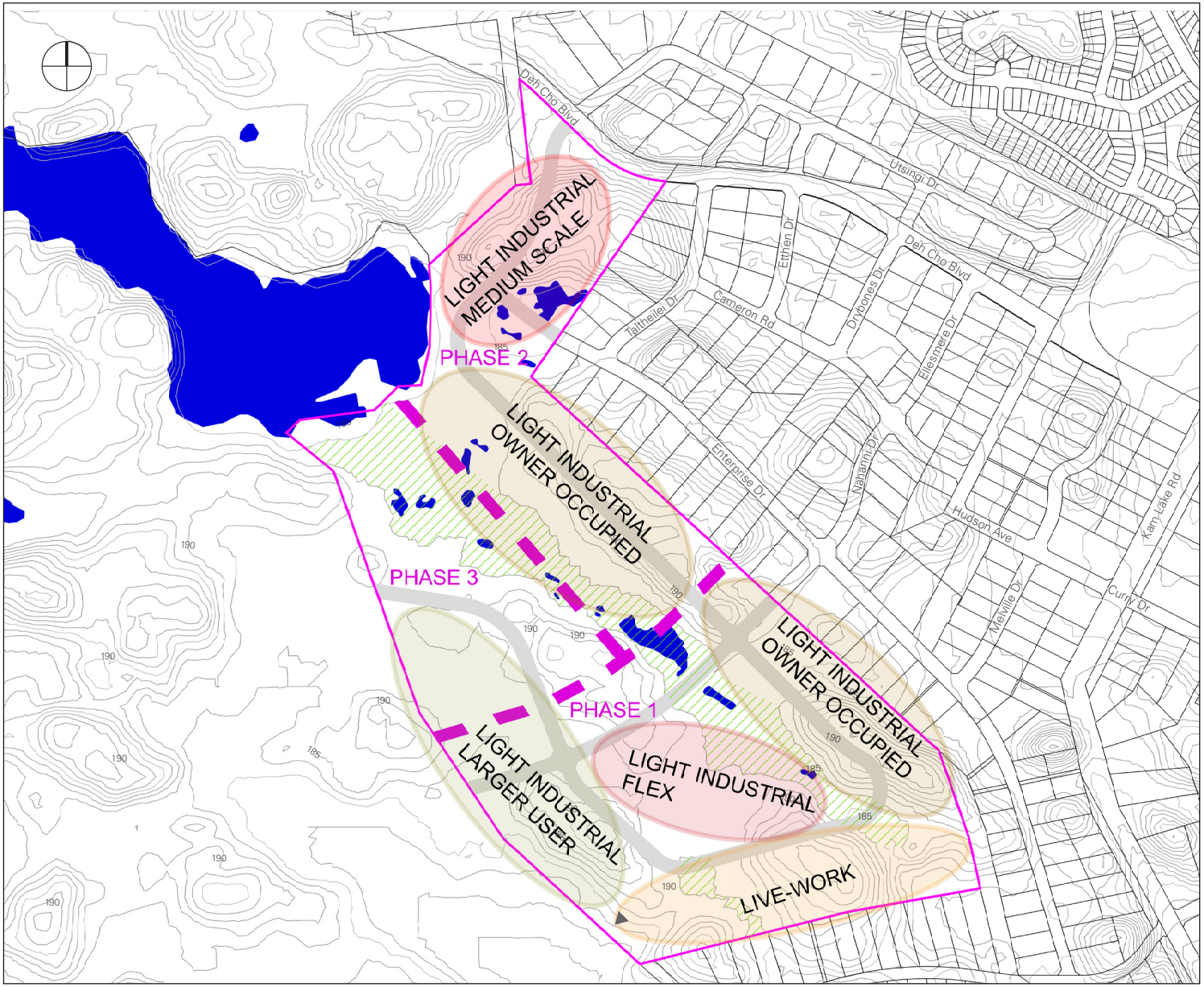
Appendix Figure 2 Kam Lake Study Area Potential Districting Strategy "Bubble Diagram"
(Source: FBM & Dillon Consulting)



Targeted uses

KAM LAKE INDUSTRIAL AREA,
YELLOWKNIFE, N.W.T.

- Study area
- Contour lines (1-m intervals)
- Lakes and ponds
- Approximate location of wetlands, swamps, low points

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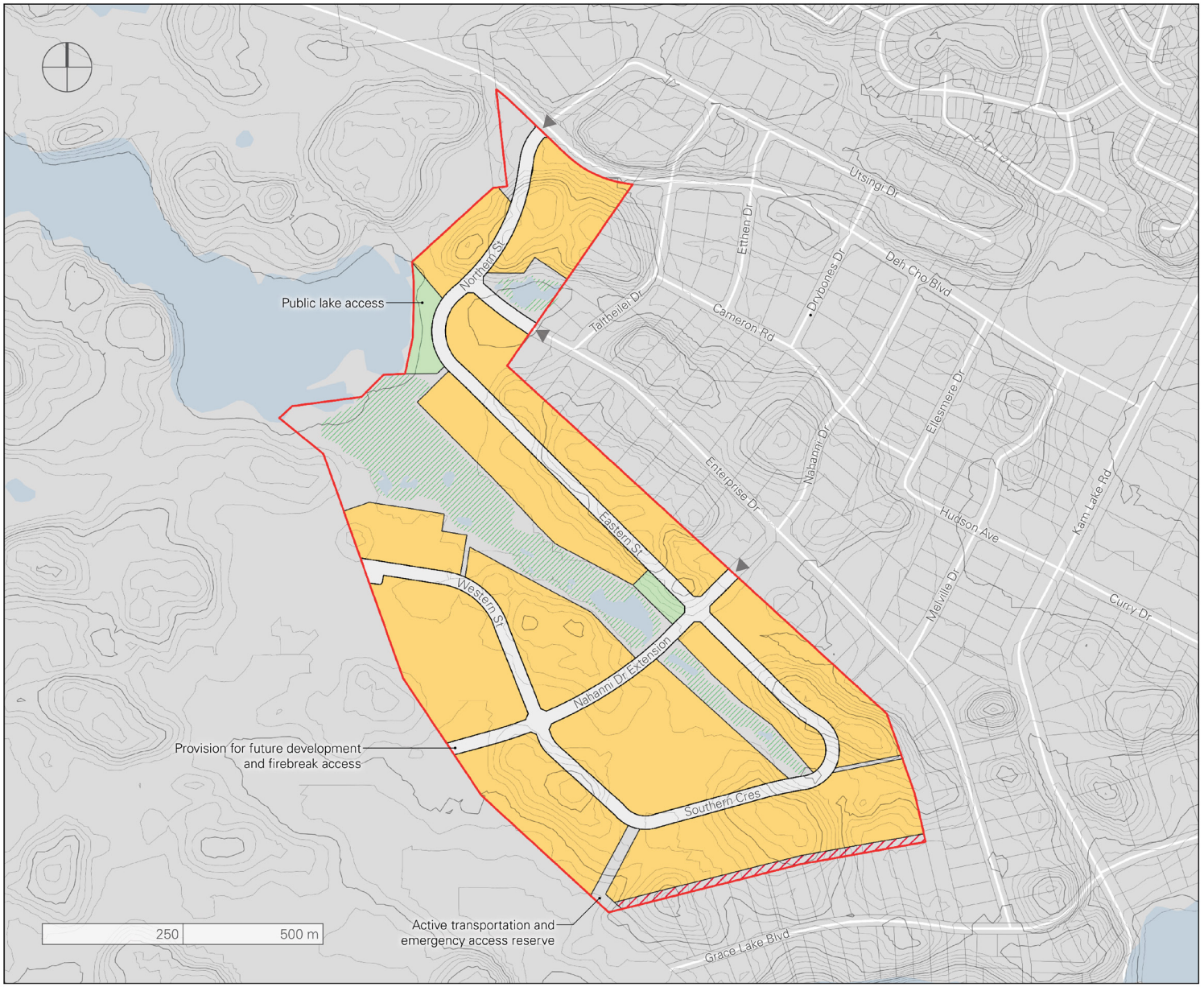
Appendix Figure 3 Kam Lake Study Area Concept A
(Source: FBM & Dillon Consulting)



Concept A

KAM LAKE INDUSTRIAL AREA,
YELLOWKNIFE, N.W.T.

110 acres of new industrial land

Three vehicular access points
(no property acquisition required)

Low-moderate wetland impact

Buffer area between industrial area and Grace Lake North (15 m)

- Study area
- Vehicular access
- Industrial land
- Amenity plot
- Contour lines (1-m intervals)
- Buffer area
- Lakes and ponds
- Approximate location of wetlands, swamps, low points

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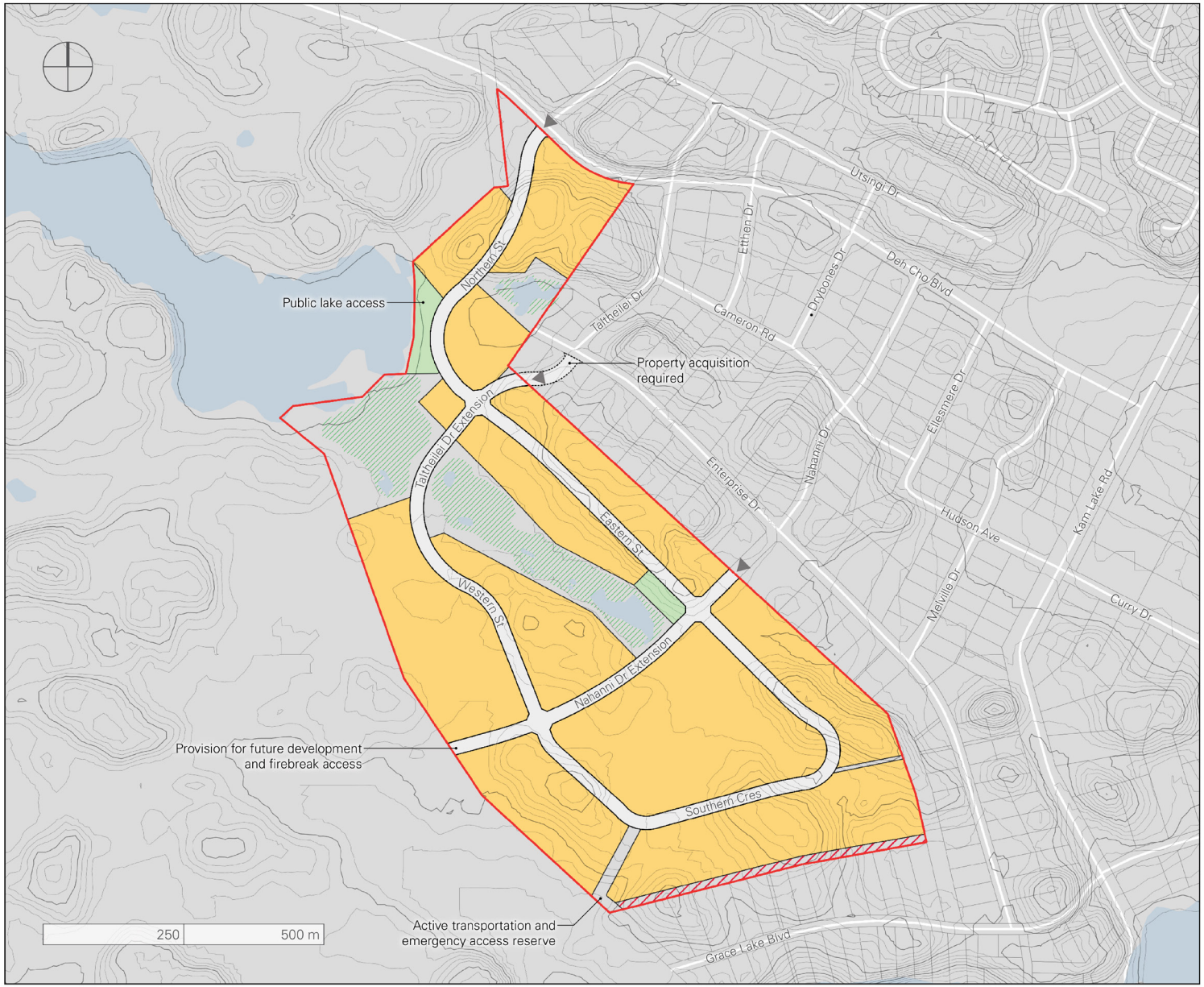
Appendix Figure 4 Kam Lake Study Area Concept B
(Source: FBM & Dillon Consulting)



Concept B

KAM LAKE INDUSTRIAL AREA,
YELLOWKNIFE, N.W.T.

113 acres of new industrial land

Three vehicular access points (property acquisition required)

Moderate wetland impact

Buffer area between industrial area and Grace Lake North (15 m)

- Study area
- Vehicular access
- Industrial land
- Amenity plot
- Contour lines (1-m intervals)
- Buffer area
- Lakes and ponds
- Approximate location of wetlands, swamps, low points

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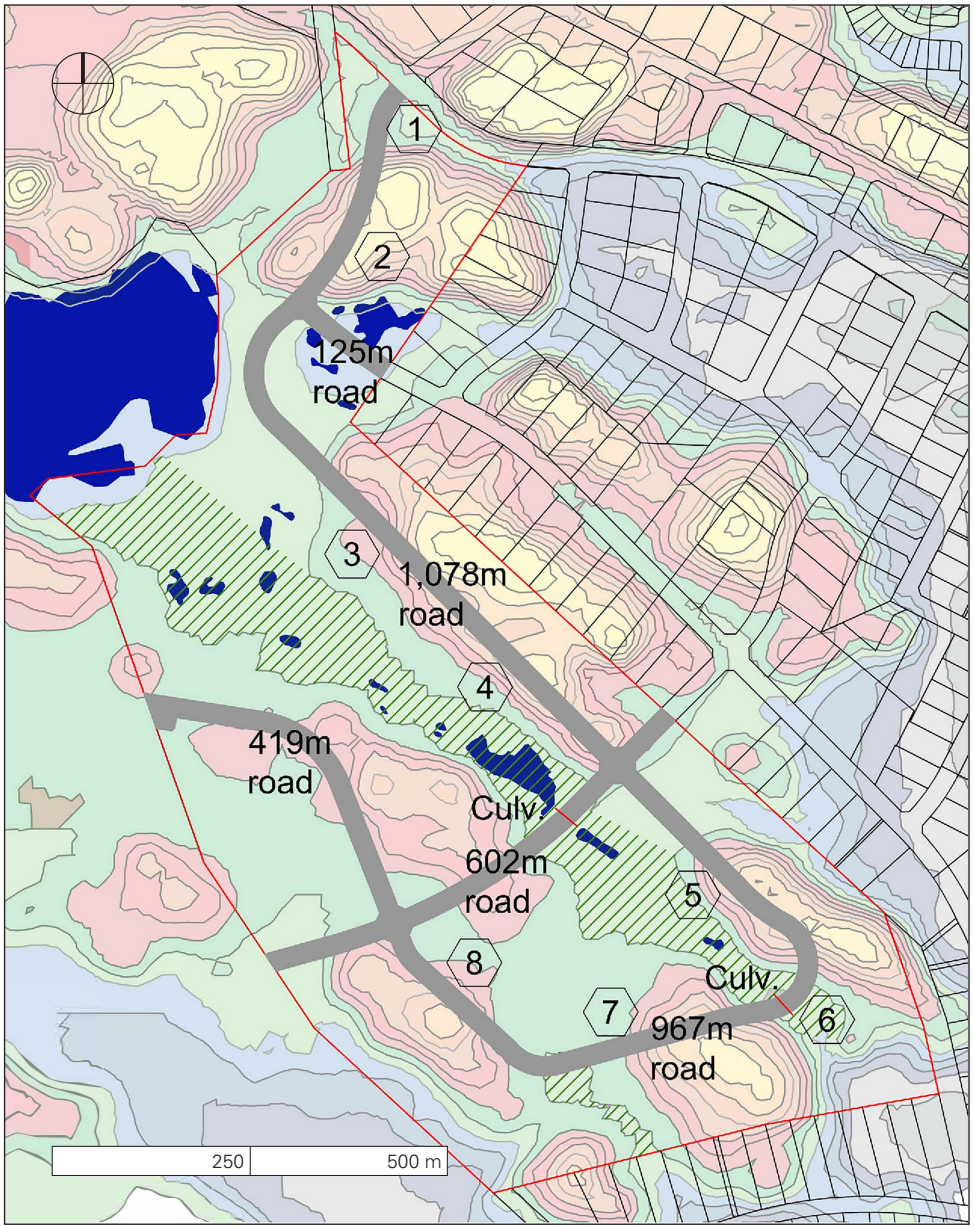
Appendix Figure 5 Kam Lake Study Area Grading Plan For Class D Cost Estimating - Concept A
(Source: FBM & Dillon Consulting)



Grading plan – Concept A

KAM LAKE INDUSTRIAL AREA, YELLOWKNIFE, N.W.T.

Notable slopes	
1	6 m rise, 120 m, net 6,336 m^3 of fill
2	6 m descent, 120 m, net 4,320 m^3 of fill
3	5 m rise, 295 m, no net cut or fill
4	4 m net rise, 295 m, net 3,770 m^3 of cut
5	5 m rise, 150 m, net 1,500 m^3 of fill
6	5 m dip and rise, 192 m, net 14,880 m^3 of fill (or bridge)
7	5 m descent, 100 m, net 2,700 m^3 of fill
8	2 m rise and dip, 150 m, no net cut or fill

Municipal right of way	
WIDTH	24 metres
AREA	78,580 m^2
Roadways	
WIDTH	11 metres
SURFACE AREA	36,358 m^2
Culverts	
NUMBER	2

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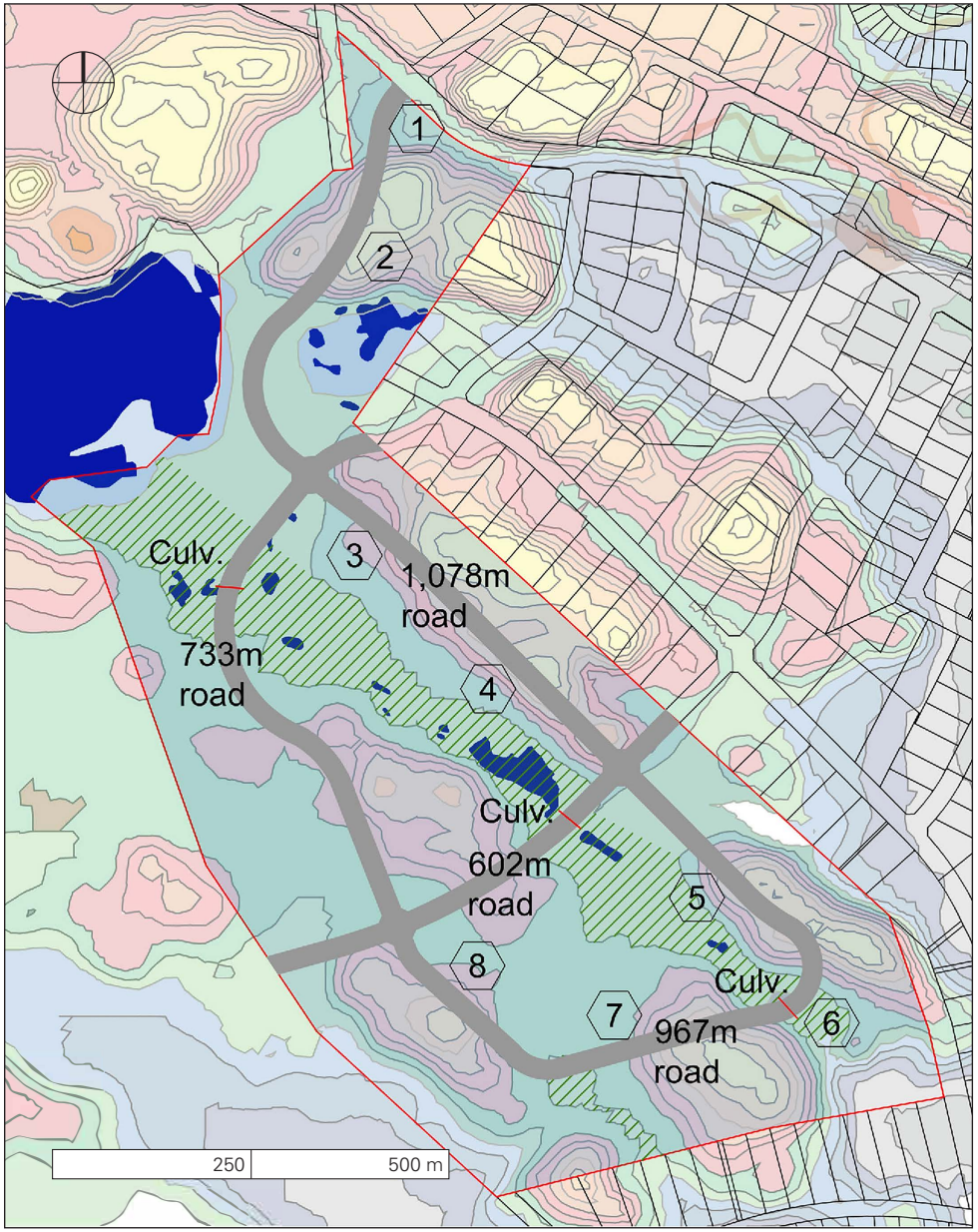
Appendix Figure 6 Kam Lake Study Area Grading Plan For Class D Cost Estimating – Concept B
(Source: FBM & Dillon Consulting)



Grading plan – Concept B

KAM LAKE INDUSTRIAL AREA, YELLOWKNIFE, N.W.T.

Notable slopes	
1	6 m rise, 120 m, net 6,336 m^3 of fill
2	6 m descent, 120 m, net 4,320 m^3 of fill
3	5 m rise, 295 m, no net cut or fill
4	4 m net rise, 295 m, net 3,770 m^3 of cut
5	5 m rise, 150 m, net 1,500 m^3 of fill
6	5 m dip and rise, 192 m, net 14,880 m^3 of fill (or bridge)
7	5 m descent, 100 m, net 2,700 m^3 of fill
8	2 m rise and dip, 150 m, no net cut or fill

Municipal right of way	
WIDTH	24 metres
AREA	81,900 m^2
Roadways	
WIDTH	11 metres
SURFACE AREA	38,502 m^2
Culverts	
NUMBER	3

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APPENDIX TABLE A Kam Lake Study Industrial Demand by Labour Force Growth
(Source: FBM & Manifold Data Mining Inc.)

Yellowknife CMA									
Scenario	2024	2025	2026	2027	2028	2029	2034	2039	2044
	23,629	23,913	24,201	24,492	24,775	25,062	26,339	27,681	29,092

Yellowknife CMA									
Scenario	2024	2025	2026	2027	2028	2029	2034	2039	2044
% aged 15+	82.1%	82.1%	82.1%	82.1%	82.1%	82.1%	82.1%	82.1%	82.1%

Yellowknife CMA									
Scenario	2024	2025	2026	2027	2028	2029	2034	2039	2044
	19,388	19,621	19,857	20,096	20,329	20,564	21,612	22,713	23,870

2024 Industrial Market Conditions Yellowknife CMA	
Current Industrial Inventory	3,637,332
Current Industrial Square Foot per capita	153.9
Current Industrial Vacancy Rate	2.5%
Occupied Industrial Inventory	3,546,398
Occupied Square Foot per Employable Resident	182.9
"Balanced" Industrial Vacancy Rate	5%
"Balanced" Industrial Occupied Inventory	3,455,465
Absorption Required to Support New Construction	-90,933

Projected Cumulative Occupied Industrial Space								
2024	2025	2026	2027	2028	2029	2034	2039	2044
	3,589,058	3,632,231	3,675,923	3,718,452	3,761,473	3,953,133	4,154,560	4,366,250

Cumulative New Industrial Space Demand								
2024	2025	2026	2027	2028	2029	2034	2039	2044
	133,593	176,766	220,458	262,987	306,008	497,668	699,095	910,785

Kam Lake Market Share of Cumulative New Industrial Space Demand								
2024	2025	2026	2027	2028	2029	2034	2039	2044
75%	100,195	132,574	165,344	197,240	229,506	373,251	524,321	683,089

Source: Statistics Canada, Manifold Data Mining Inc., and FBM Ltd.

APPENDIX TABLE B Kam Lake Study Area Industrial Demand by Employment Category
(Source: FBM, Statistics Canada & Manifold Data Mining Inc.)

EMPLOYMENT CATEGORY	Census Year	Manifold Data Mining	change per year 16-23	% of Employees in Industrial Related Uses	# of Employees in Industrial Related Uses	Forecasted Growth	Number of Employees in Industrial Related Spaces				
	2016	2024					2024	2029	2034	2039	2044
Agriculture, forestry, fishing & hunting	30	33	1.4%	95%	31	2.0%	32	35	39	43	48
Mining and oil and gas extraction	835	723	-2.0%	95%	687	0.5%	690	708	726	744	763
Utilities	65	78	2.6%	95%	74	1.0%	75	79	83	87	91
Construction	620	680	1.3%	95%	646	1.0%	652	686	721	757	796
Manufacturing	130	151	2.2%	95%	143	1.0%	145	152	160	168	177
Wholesale Trade	175	218	3.2%	95%	207	1.0%	209	220	231	243	255
Retail Trade	1,185	1,356	1.9%	5%	68	1.0%	68	72	76	80	84
Transportation and warehousing	920	1,077	2.3%	95%	1,023	1.0%	1,033	1,086	1,141	1,200	1,261
Information and cultural industries	370	314	-2.3%	25%	79	0.3%	79	80	81	82	83
Finance and insurance	280	224	-3.1%	0%	0	0.5%	0	0	0	0	0
Real estate and rental and leasing	190	112	-7.3%	10%	11	0.5%	11	12	12	12	12
Professional, scientific and technical services	720	868	2.7%	20%	174	2.5%	178	201	228	258	292
Management of companies and enterprises	1	1	0.0%	10%	0	1.0%	0	0	0	0	0
Administrative and support & waste management	440	540	3.0%	70%	378	1.0%	382	401	422	443	466
Educational services	760	971	3.6%	10%	97	1.0%	98	103	108	114	120
Health care and social assistance	1,130	1,632	5.4%	5%	82	1.0%	82	87	91	96	101
Arts, entertainment and recreation	155	191	3.0%	10%	19	1.0%	19	20	21	22	24
Accommodation and food services	730	871	2.6%	10%	87	1.0%	88	92	97	102	107
Other services	490	418	-2.2%	30%	125	1.0%	127	133	140	147	155
Public administration	3,320	4,605	4.8%	5%	230	1.0%	233	244	257	270	284
Total Workforce	12,546	15,063	2.6%								
Total Industrial-Related Workforce		4,162		28%	4,162	1.0%	4,202	4,411	4,633	4,868	5,116
Net New Industrial-Reated Workforce							40	43	45	48	51
Estimated Floorspace Ratio per Worker		750					750	750	750	750	750
Total Industrial Related Floorspace (sq.ft)		2,000,000					2,030,342	2,187,288	2,353,412	2,529,371	2,715,883
Annual New Industrial Space Demand (sq.ft)							30,342	32,103	33,990	36,012	38,183
Total New Industrial Space Demand (sq.ft)							30,342	187,288	353,412	529,371	715,883
Market Share of New Industrial Space Demand						**75%**	**75%**	**75%**	**75%**	**75%**	**75%**
Share of New Industrial Space (sq.ft)							**22,757**	**140,466**	**265,059**	**397,028**	**536,912**

Source: Statistics Canada, Manifold Data Mining Inc. and FBM Ltd.

APPENDIX TABLE C Kam Lake Study Area Compatible Target Industry Sectors
(Source: FBM)

2-Digit NAICS Code	3- or 4-Digit NAICS Code	NAICS Code Sector Description	Kam Lake Compatible Industry Sectors
11		Agriculture, forestry, fishing and hunting	
	1111	Oilseed and grain farming	
	1112	Vegetable and melon farming	
	1113	Fruit and tree nut farming	
	1113	Greenhouse, nursery and floriculture production	
	1119	Other crop farming	
	1121	Cattle ranching and farming	
	1122	Hog and pig farming	
	1123	Poultry and egg production	
	1124	Sheep and goat farming	
	1125	Aquaculture	
	1129	Other animal production	
	1141	Fishing	
	1142	Hunting and trapping	
	1151	Support activities for crop production	
	1152	Support activities for animal production	
	1153	Support activities for forestry	
21		Mining, quarrying, and oil and gas extraction	
22		Utilities	
23		Construction	
	2381	Foundation, structure, and building exterior contractors	
	2382	Building equipment contractors	
	2383	Building finishing contractors	
	2389	Other specialty trade contractors	

APPENDIX TABLE C Kam Lake Study Area Compatible Target Industry Sectors - Continued
(Source: FBM)

2-Digit NAICS Code	3- or 4-Digit NAICS Code	NAICS Code Sector Description — Kam Lake Compatible Industry Sectors
31-33		Manufacturing
	311	Food manufacturing
	312	Beverage and tobacco product manufacturing
	313	Textile mills
	314	Textile product mills
	315	Clothing manufacturing
	316	Leather and allied product manufacturing
	321	Wood product manufacturing
	322	Paper manufacturing
	323	Printing and related support activities
	324	Petroleum and coal product manufacturing
	325	Chemical manufacturing
	326	Plastics and rubber products manufacturing
	327	Non-metallic mineral product manufacturing
	331	Primary metal manufacturing
	332	Fabricated metal product manufacturing
	333	Machinery manufacturing
	334	Computer and electronic product manufacturing
	335	Electrical equipment, appliance and component manufacturing
	336	Transportation equipment manufacturing
	337	Furniture and related product manufacturing
	339	Miscellaneous manufacturing
41		Wholesale trade
	411	Farm product merchant wholesalers
	412	Petroleum and petroleum products merchant wholesalers
	413	Food, beverage and tobacco merchant wholesalers
	414	Personal and household goods merchant wholesalers
	415	Motor vehicle and motor vehicle parts and accessories merchant wholesalers
	416	Building material and supplies merchant wholesalers
	417	Machinery, equipment and supplies merchant wholesalers
	418	Miscellaneous merchant wholesalers (including recyclables)
	419	Business-to-business electronic markets, and agents and brokers

APPENDIX TABLE C Kam Lake Study Area Compatible Target Industry Sectors - Continued

(Source: FBM)

2-Digit NAICS Code	3- or 4-Digit NAICS Code	NAICS Code Sector Description — Kam Lake Compatible Industry Sectors
44-45		Retail trade
48-49		Transportation and warehousing
	4841	General freight trucking
	4842	Specialized freight trucking
	4884	Support activities for road transportation
	4885	Freight transportation arrangement
	4889	Other support activities for transportation
	4921	Couriers
	4922	Local messengers and local delivery
	4931	Warehousing & storage
51		Information and cultural industries
52		Finance and insurance
53		Real estate and rental and leasing
	5321	Automotive equipment rental and leasing
	5322	Consumer goods rental
	5323	General rental centres
	5324	Commercial and industrial machinery and equipment rental and leasing
54		Professional, scientific and technical services
	5411	Legal services
	5412	Accounting, tax preparation, bookkeeping and payroll services
	5413	Architectural, engineering and related services
	5414	Specialized design services
	5415	Computer systems design and related services
	5416	Management, scientific and technical consulting services
	5417	Scientific research and development services
	5418	Advertising, public relations, and related services
	5419	Other professional, scientific and technical services

APPENDIX TABLE C Kam Lake Study Area Compatible Target Industry Sectors - Continued
(Source: FBM)

2-Digit NAICS Code	3- or 4-Digit NAICS Code	NAICS Code Sector Description — Kam Lake Compatible Industry Sectors
55		Management of companies and enterprises
56		Administrative and support, waste management and remediation services
	5611	Office administrative services
	5612	Facilities support services
	5613	Employment services
	5614	Business support services
	5615	Travel arrangement and reservation services
	5616	Investigation and security services
	5617	Services to buildings and dwellings
	5619	Other support services
61		Educational services
62		Health care and social assistance
71		Arts, entertainment and recreation
72		Accommodation and food services
80		Other services (except public administration)
	8111	Automotive repair and maintenance
	8112	Electronic and precision equipment repair and maintenance
	8113	Commercial and industrial machinery and equipment (except automotive and electronic) repair and maintenance
	8114	Personal and household goods repair and maintenance
91		Public administration

FBM

CITY OF YELLOWKNIFE