

# Metro Vancouver

## Industrial Intensification Analysis

FINAL REPORT | March 10, 2021

Prepared for: Metro Vancouver

Prepared by: Colliers Strategy and Consulting Group

Authors: Russell Whitehead   Christopher Kuno   Amin Wu  
Project Manager   Planning Consultant   Financial Analyst





# Table of Contents

---

TABLE OF CONTENTS .....	2
EXECUTIVE SUMMARY .....	4
<b>1. INTRODUCTION .....</b>	<b>15</b>
1.1 Scope of Work and Methodology .....	15
1.2 Limitations .....	15
1.3 List of Documents Reviewed .....	16
1.4 List of Interviewees .....	17
1.5 Definition, Measures, and Benefits of Industrial Intensification .....	18
<b>2. METRO VANCOUVER INDUSTRIAL MARKET .....</b>	<b>19</b>
2.1 Overview .....	19
2.2 Market Outlook and Impact of COVID-19 .....	19
2.3 Market Statistics .....	20
2.4 Land Values .....	24
2.5 Construction Costs .....	25
2.6 Industrial Land Inventory and Capacity .....	26
<b>3. INDUSTRIAL INTENSIFICATION CONSIDERATIONS .....</b>	<b>28</b>
3.1 Key Drivers of Industrial Intensification .....	28
3.2 Multi-Level Development Formats .....	33
3.3 Industrial Subsectors Suitable for Intensified Developments .....	38
3.4 Geographical and Locational Considerations .....	44
3.5 Design and Development Considerations .....	50
<b>4 PLANNING POLICY REVIEW .....</b>	<b>58</b>
4.1 Metro Vancouver Regional Growth Strategy .....	58
4.2 Metro Vancouver Regional Industrial Lands Strategy .....	60
4.3 City of Vancouver .....	61
4.4 City of Burnaby .....	62
4.5 City of North Vancouver .....	63
4.6 City of Richmond .....	64
4.7 City of Surrey .....	65
4.8 Township of Langley .....	66
4.9 Fraser Valley Regional Growth Strategy – Fraser Valley Future 2050 Draft .....	67
4.10 Zoning Comparison .....	67
4.11 Permitted and Allowable Uses .....	69
4.12 NAIOP Cost of Business Survey – 2019 Industrial Case Study .....	70
<b>5. CASE STUDIES .....</b>	<b>73</b>
5.1 Overview .....	73
5.2 Riverbend 5, Oxford Properties   Big Bend, City of Burnaby .....	74
5.3 3733 192 Street, Eagle Builders   Campbell Heights, City of Surrey .....	76
5.4 Riverworks, Conwest   Marine Drive, City of Vancouver .....	77
5.5 IntraUrban Evolution, PC Urban   Clarke, City of Vancouver .....	78

5.6 Archetype, Hungerford Properties   Mount Pleasant, City of Vancouver .....	80
5.7 The Yukon, Chard Developments   Mount Pleasant, City of Vancouver .....	81
5.8 The Manitoba, Wesbild   Marine Drive, City of Vancouver .....	82
5.9 The Gateway, PortLiving   Powell Street, City of Vancouver .....	83
5.10 Alliance on Vanguard, Alliance Partners   Cambie, City of Richmond .....	84
5.11 Georgetown, Prologis   Crossroads, City of Seattle.....	85
5.12 Track Six, Avenue 55   Sodo Business Park, City of Seattle .....	87
5.13 2505 Bruckner Blvd, Innovo Property Group   The Bronx, New York.....	88
5.14 Terminal Logistics Centre, Triangle Equities   Queens, New York .....	90
5.15 Sunset Industrial Park, Dov Hertz   Brooklyn, New York .....	91
<b>6. FINANCIAL ANALYSIS .....</b>	<b>92</b>
6.1 Introduction .....	92
6.2 Hypothetical Building Location and Form.....	92
6.3 Key Assumptions.....	93
6.4 Baseline Scenario   10-acre site, single floor with surface parking .....	96
6.5 Scenario 1a   10-acre site, single floor with rooftop parking.....	96
6.6 Scenario 1b   10-acre site, two-floors with ramp access .....	97
6.7 Scenario 1c   10-acre site, three floors with ramp access and freight elevators .....	98
6.8 Scenario 2a   0.7-acre site, 2 FAR industrial and 1 FAR office .....	98
6.9 Scenario 2b   0.7-acre site, 2 FAR industrial and 4 FAR office .....	99
<b>7. SUMMARY OF CHALLENGES AND RECOMMENDATIONS.....</b>	<b>101</b>
7.1 Permitted Uses.....	101
7.2 Density and Site Constraints.....	103
7.3 Height Restrictions.....	103
7.4 Parking/Loading .....	104
7.5 Building Design.....	105
7.6 Municipal Fees and Approvals .....	105
7.7 Site Size Requirements .....	106
7.8 Geotechnical Considerations.....	107
7.9 Proximity to Transportation and Employees .....	107
7.10 Market Pressure .....	108
7.11 Land Values.....	108
7.12 Land Banking.....	109
7.13 Inefficient Uses .....	109
7.14 Summary .....	110
<b>APPENDICES .....</b>	<b>112</b>
Appendix I   Policy Review .....	112
Appendix II   Baseline Scenario Proforma .....	129
Appendix III   Scenario 1a Proforma .....	131
Appendix IV   Scenario 1b Proforma.....	133
Appendix V   Scenario 1c Proforma.....	135
Appendix VI   Scenario 2a Proforma.....	137
Appendix VII   Scenario 2b Proforma.....	139

# Executive Summary

---

The intensification of industrial development can be measured in a variety of ways related to the optimized utilization of industrial land appropriate for each subsector. Generally, this can be broken down to intensity (amount of activity) and density (amount of building area). This report seeks to provide a better understanding of the most up-to-date market viability of mixed-use, multi-storey, and intensified industrial development within Metro Vancouver.

## Summary of Challenges and Recommendations

1. **Challenge:** The relatively static nature of zoning bylaws mean that new industrial uses may not be able to be accommodated without a lengthy amendment process.

### Recommendations:

- Recognize the importance of flexibility in allowing new industrial uses in industrial zones, keeping in mind the intent of higher-level policies and objectives.
- Limiting non-industrial and accessory uses in industrial zones may prevent other users from occupying industrial space and ensure the greatest supply of industrial space.
- Recognize that some accessory uses in industrial projects may support industrial activities and encourage the infill and intensification of industrial development by improving overall financial and operational viability.
- In addition, expanding the scope of allowable industrial or industrial supportive uses in an intensified industrial development can create land efficiencies, increase overall employment levels per square foot of land, and support increased transit ridership.

2. **Challenge:** Prescribed limitations in land use plans and zoning bylaws may prevent the intensification of industrial land that a proponent would otherwise wish to develop.

### Recommendations:

- Consider the intent of existing industrial and economic policy and remain flexible in site design allowing industrial developments to meet higher level objectives.
- When adjacent industrial sites are compatible uses, reduce the required building setbacks to encourage the maximum industrial square footage achievable.
- If building setbacks, parking, loading, and other requirements can be fully satisfied while providing the maximum building site coverage of a specific lot, then there should not be an artificial cap on the amount of permissible building site coverage nor densities of industrial usage.



3. Challenge: Regulating the maximum building heights achievable have an impact on the likelihood of industrial intensification in stacked formats along with high ceiling clear facilities.

Recommendations:

- Where appropriate, particularly in areas without conflicting adjacent uses or view concerns, increase or remove maximum height limitations from zoning bylaws to allow flexibility and encourage proponents to maximize the industrial productivity of each site.
- Consider building minimum height requirements for strategic industrial areas to encourage intensification of industrial sites.

4. Challenge: Minimum parking requirements may be oversupplying parking, particularly on industrial sites accessible by transit or where usage requirements demand less on-site presence and employment.

Recommendations:

- Reducing minimum parking requirements will allow greater lot utility and disincentivize private vehicle use for commuting.
- Consider allowing for structured parking to be excluded from FAR and site coverage calculations.
- Allow for flexibility in parking requirements. Explore parking that is calculated by user demand and user requirements.
- Allow and support the parking of light employee vehicles on the roof of an industrial development to encourage greater site utilization.
- Allow and support surface storage on the roof of an industrial development to encourage greater site utilization.
- Parking regulations should be reviewed by municipalities, particularly in transit-oriented industrial/mixed employment areas, to ensure that they are not too excessive based on current and expected industrial trends.
- Minimize surface parking and encourage the design of parking areas that are adaptable for future uses and users.
- Consider that certain parking areas could be used to accommodate employees during the day and fleet vehicles overnight.
- Consider that certain portions of the lot can be used for parking and storage at certain times of the day and can also be used for loading at other times.

5. Challenge: Zoning bylaws and design guidelines may prohibit the necessary design features required for an intensified industrial project.

Recommendation:

- Municipalities should comprehensively review the requirements and intent of design guidelines in order to remove potentially limiting elements that discourage the development of intensified industrial

buildings. These may include a review of elements such as vehicle ramps, exterior walkways, outdoor elevators, excessive landscaping, screening, and other potentially outdated building design requirements.

- Consider reduced engineering requirements, particularly in the public right-of-way. For example, by allowing truck turning and other measures in the right-of-way, there could be more flexibility for the built form to accommodate a more intensified development.

## 6. Challenge: Municipal fees and lengthy approval timelines can represent a significant portion of the cost to develop an industrial development.

### Recommendations:

- Consider reducing municipal fees for new intensified industrial developments which meet higher level policy objectives regarding economic growth and job creation.
- Consider calculating the payment of municipal fees such as development cost charges on economic production space as opposed to gross square footage of an intensified industrial development.
- Municipalities should undertake a review of the municipal approvals timeline in order to identify efficiencies that can be adopted. This may include elements such as concurrent development permit and rezoning processes, a more streamlined review process, or a certified builder process.
- Municipalities should consider expediting the approval process for intensified industrial projects that meet a number of municipal goals and objectives similar to the process and policies frequently adopted for the approval of affordable rental housing.
- Consider waiving Development Cost Charges (DCCs) for industrial floor area on additional storeys to financially incentivize development.
- Consider waiving Community Amenity Contributions (CACs) in the approvals process when rezoning to higher intensity industrial zones.
- Consider a transition to the Development Permit tool in industrial areas. This tool could control use and density by way of design, which would allow for the use and density to be more permissive in the zoning bylaw, which would reduce overall timelines and create a more flexible system.

## 7. Challenge: Small industrial lots are less conducive to intensified industrial developments than larger industrial parcels.

### Recommendations:

- Where possible, prevent and discourage the subdivision of large industrial parcels and consider requiring minimum site sizes for certain industrially zoned properties in key strategic areas.
- In greenfield industrial areas, encourage the development and retention of larger industrial parcels.
- Encourage infill industrial projects, particularly on older properties that are not utilizing significant portions of the site.



- Encourage the redevelopment and consolidation of small industrial land parcels.
- Consider the impact of industrial stratification on the parceling of small industrial sites which may result in complications when consolidating larger parcels in the future.
- Smaller industrial parcels, particularly in more valuable urban areas, may be conducive to mixed-use industrial projects in formats that mix accessory office space above with industrial at grade.

#### 8. Challenge: Some soils are not conducive to intensified industrial projects.

##### Recommendations:

- Encourage high lot coverage on sites with poor soil conditions and stacked industrial projects on sites with suitable soil.
- Support multi-storey industrial projects where the site's topography results in the ability to provide direct truck access to upper floors without a costly ramp.

#### 9. Challenge: Intensified industrial projects are most suitable in areas that are highly accessible to alternative and single occupant transportation modes.

##### Recommendations:

- Encourage industrial intensification in areas accessible to large residential populations and in areas well serviced by alternative transportation modes.
- Support and encourage intensification of well-located industrial sites through rezoning and policy.
- Explore the creation of intensified industrial, and in particular light / mixed-use industrial, in areas close to residential land uses and transit.

#### 10. Challenge: Allowing too many non-industrial uses in industrial zones may place pressure on industrial sites from higher value uses.

##### Recommendation:

- Consider some select limited higher value accessory uses in some industrial zones or at select sites such as local workforce serving small scale retail, food services, and health facilities that can have functional or economic links to industrial uses, industrial users, and employees. Municipalities should review the intent of industrial plans and recognize the potential value for complementary uses while recognizing that high value uses may also drive away essential uses of lower value.

#### 11. Challenge: Land values are a key determinant in the feasibility of an intensified industrial development.

##### Recommendations:

- Municipalities should be proactive and have supportive policies in place for when land values reach the required levels for more intensified industrial projects.

- Up zoning sites and increasing the allowable uses permitted on industrial sites will increase land values. Municipalities should review their goals and objectives to ensure that the resulting increase in land value does not prohibit other industrial users or encourage land banking.
- Explore the impact of industrial strata units being sold to foreign investors for investment holding purposes.
- Explore measures to ensure industrial units are being utilized for industrial uses as opposed to remaining vacant as a long-term investment hold.

**12. Challenge: Lengthy holding periods of industrial land parcels may artificially limit the supply of developable industrial land.**

**Recommendations:**

- Presently, municipalities do not have the right to force landowners to develop their property. Municipalities should focus on “Bring-to-Market-Strategies” to encourage reinvestment, utilization, and more intensive use.
- Reduce barriers associated with development to encourage more immediate action on industrials sites.

**13. Challenge: Higher value uses may be pushing out industrial users from suitable industrial sites.**

**Recommendations:**

- Municipalities should review the permitted use of new self-storage facilities, particularly on industrial sites well suited for intensification or in key employment areas.
- Consider the creative adaptive reuse and infill of underutilized parking facilities, particularly in urban areas for industrial uses. New uses may include innovative approaches to using underutilized space including infill self-storage, ghost kitchens, and maker spaces.

Intensification Factor	Relative Degree of Importance		
	High	Medium	Low
Permitted Uses	High		
Density and Site Constraints		Medium	
Height Restrictions		Medium	
Parking/Loading	High		
Building Design			Low
Municipal Fees and Approvals	High		
Site Size Requirements <sup>1</sup>		Medium	
Geotechnical Considerations	High		
Proximity to Transportation and Employees	High		
Market Pressure	High		
Land Values	High		

<sup>1</sup> Intensified industrial developments, specifically Format A, require site sizes that facilitate functional, financially feasible design.



## Market Trends

Growing demand, decreasing vacancy rates, and a scarcity of vacant land have pushed the region to a point where there is a critical need for more industrial supply. The shortage of supply has resulted in rapidly increasing land values which are now higher than many other cities in North America. The interplay between industrial land values, construction costs, lease/strata rates, among other related variables influence the market feasibility of multi-storey industrial development. Without a consistent influx of new supply, Metro Vancouver may risk losing a significant amount of potential employment from businesses that may instead choose another market with more availability. As a result of a limited and decreasing amount of vacant and appropriate supply to meet the demands of a wide range of industrial users, average lease rates and industrial land values have grown significantly throughout Metro Vancouver over the past decade.

## Construction Costs

Through discussions with numerous developers, brokers, architects, and other stakeholders in the region, it is understood that the cost of intensified, multi-storey industrial development is significantly higher than traditional development. Factors such as ramping and loading requirements, additional services/utilities, freight elevators, geotechnical conditions, parking requirements, lengthy approvals, and higher lending costs can push total construction costs up to 2.5 times higher than traditional single floor development. For the most challenging multi-level projects, these costs could potentially exceed \$250 per square foot. Aside from site specific factors such as geotechnical conditions or uncommon municipal development standards, construction costs do not vary much by region. As such, they do not have a huge impact on the intensification potential between industrial areas unless they are increased by factors such as outdated/surplus minimum parking requirements for particular user types.

## Industrial Land Inventory and Capacity

Metro Vancouver has a finite amount of remaining suitable vacant industrial land to accommodate medium-term demand. This supply is further constrained by geographic limitations such as accessibility, lot size, slopes, and soil quality. Additionally, the existing restrictions of the ALR, along with occasional rezonings of industrial land to other land uses such as residential have further limited the availability of existing supply. Colliers has estimated the current inventory of vacant industrial land based on an absorption of 235 acres per year between 2018-2020. Based on this absorption level since 2018, the current inventory of vacant industrial land is estimated at 4,030 acres. The most recent employment-based industrial demand forecasts estimate the potential need for between 200 and 275 acres of land per year between 2020 and 2050. This would result in the full absorption of vacant land between approximately 2037 and 2045. More likely, before this land is completely absorbed the remaining vacant supply would be small, scattered parcels unsuitable for most industrial users. Therefore, the complete absorption of the most suitable supply could occur in the early 2030s.

As a result, without additional land supply or the intensification of existing land, future economic growth could be hindered.

## Key Drivers of Industrial Intensification

While intensified industrial development is not entirely new to Metro Vancouver, there has been a recent wave of higher-density projects being built in the region resulting from market pressure and demand drivers. Developers consider these factors along with the economics of intensified/multi-storey development which is ultimately related to whether the increased land and construction costs of building up can be compensated by high enough industrial lease / strata rates and additional revenue generating accessory space. The need for industrial intensification is driven by several factors including limited land supply and strong demand, population growth and density, international trade, the growth of ecommerce, agglomeration economics, municipal regulations, automation, land values, and speculation.

## Multi-Level Development Formats

There are a few general forms of multi-level industrial developments that have recently started to become more popular throughout North America, each of which have specific land/lot requirements, suitable tenant types, and scales of accessory uses. These include large scale stacked industrial (Format A), flex industrial with office above (Format B) and flex industrial with office/residential above (Format C).

Large stacked industrial formats are suitable for users who need large, contiguous space such as e-commerce, food production, heavy manufacturing, distribution, and last-mile fulfillment. Conversely, these formats would be less suitable for businesses with significant outdoor storage and trailer parking requirements or light industrial users with smaller floorplate requirements. The most well-known multi-storey industrial development of this format is Prologis Georgetown Crossroads in Seattle which includes two stacked levels of large-format industrial space with truck access and loading provided to the second floor through a ramp wrapping around the building. This is the most expensive type of multi-level industrial development due to significant costs and efficiency issues resulting from a ramp large enough to accommodate North American sized trucks.

Modestly sized multi-level projects (Format B) are the most common form of multistorey industrial development in Metro Vancouver, primarily consisting of small-to-medium bay flex industrial and mezzanine space with multiple floors of office space above. These developments are particularly attractive to tenants such as light manufacturing, engineering, hub-and-spoke distribution centres, breweries, and creative economy firms such as digital content creators and software designers. The viability of such development is driven by premium lease and strata rates achievable in areas of Metro Vancouver that are in high demand from such users, along with the higher values associated with office floorspace. While second floor flex industrial space is costly to develop and less desirable to tenants, the office space above helps make the projects viable while introducing



more industrial supply to the market. This is particularly evident in dense urban locations that are highly accessible by vehicle and public transit.

Format C is similar to Format B, with the addition of residential floorspace on top of both industrial and office uses. Wall Financial's Strathcona Village is one of the first of such developments in North America, including 280 condos, 70 social housing units, 14,000 sf of office space, and 46,000 sf of flex industrial space. These projects would be well suited for the same industrial tenants as Format B.

## Industrial Subsectors Suitable for Intensified Developments

The demand for industrial floorspace within Metro Vancouver is driven more and more by service-oriented industrial uses that are generally less land-intensive than traditional heavy industries. Many of these are emerging industry subsectors which may have modern business models that do not directly fit under current municipal definitions of light or heavy industrial. Growing industrial sectors include logistics / last-mile distribution, niche manufacturing (food, coffee roasting, breweries, etc.), ecommerce/technology, creative industries, artisanal craftsmanship, film production, research and development, storage, equipment maintenance, and building supplies. Many of these businesses desire well-located, accessible urban locations and would be suitable for intensified/densified industrial developments. This demonstrates the importance of a clear municipal understanding regarding which uses to permit within specific industrial or mixed-employment areas.

Emerging flex-industrial companies are increasingly demanding integrated, multi-purpose facilities that accommodate design, manufacturing, distribution, and showrooms/retail activities. These companies generally prefer the benefit of being closer to the consumer within desirable neighbourhoods compared to the challenges and costs associated with small/constrained inner urban sites. There is also a growing demand from both employers and employees for locations within complete communities, resulting in the additional demand for accessory uses on top of what could be defined as industrial. This could include nearby amenities and services such as restaurants, coffee shops, gyms, medical services, and personal services.

## Geographical and Locational Considerations

The locational characteristics impacting both the viability of multi-level industrial development and potential tenant demand include a variety of factors. Some industries and development formats are suitable for a wide range of locations, whereas others have more specific requirements. Important considerations regarding the feasibility of intensified industrial development include geotechnical conditions, development format and lot size, population density and growth, and accessibility and amenities. Ground conditions vary throughout Metro Vancouver and many industrially zoned sites are located on soil that makes multi-level development cost prohibitive. The likelihood of multi-storey development is also directly related to the availability of suitably sized lots. Large-scale multi-storey developments like Oxford Riverbend or Prologis Georgetown (both Format A),

require lot sizes large enough to accommodate the construction of a ramp to provide second floor truck access while also including enough leasable space to make the projects work financially. In addition to finding a suitably skilled workforce, the tenant types most likely to occupy multi-storey industrial developments are generally focused on serving the local/regional population, ranging from the distribution of goods from large fulfillment centres to the provision of services or manufactured goods to a localized population. Finally, accessibility and amenities are key factors that potential employees consider when deciding where to work and that potential consumers consider when deciding where to spend their money.

## Design and Development Considerations

The design and development of intensified industrial projects, particularly multi-storey, include numerous considerations such as site coverage and floor area ratios, lot size requirements, tenant space requirements, loading/access/parking, integration/scale of accessory uses, and physical site features. These considerations vary based on scale and format of development and target tenant types, and in some cases may hinder or facilitate the development of multi-storey projects.

If building setbacks, parking, loading, and other requirements can be fully satisfied while providing the maximum building site coverage of a specific lot, then there should not be an artificial cap on the amount of permissible building site coverage nor densities of industrial usage. For larger developments, the requirement of a ramp that wraps around usable building space results in a less efficient design than a single storey building that could utilize more of the site area. Building height requirements are also important to consider. Industrial ceiling height requirements are constantly growing due to technological advancements, reaching over 40 feet in some of the newest, most advanced warehouses. As such, when these types of facilities are stacked on top of one another, the height of the total development can be significant. When municipalities have building height regulations based on older industrial formats with lower ceiling heights, the viability of multi-storey developments can be hindered.

The design of industrial buildings must meet the requirements of target tenant types while providing flexibility to adapt as user needs change. Office and retail uses can be supportive of industrial tenancies to a limit before established industrial areas can potentially become destabilized due to land speculation, taxes, and land use conflicts. The redevelopment of some sites to include an additional floor of light industrial space may not be feasible without the allowance for the inclusion of office space above which is of higher value in the market. It is also important to ensure that the design and interface between different uses within mixed-use projects minimize any potential conflicts. Municipal bylaws could be written to best reflect this balance, providing reasonable flexibility for accessory uses while requiring the inclusion of industrial uses.

Finally, the physical features of the site itself are important considerations. While industry has traditionally sought the flattest land in the region given the nature of most forms of production, storage, and distribution activity, the cost of providing ramping/truck access to second floor units has shifted more awareness to the



potential benefits of sloped sites. This is evident in the Ironworks development, which utilized a sloped site to provide direct truck access to its first and second floors without the need of a costly ramp.

## Planning and Policy Review

Regional policies as well as those of six municipalities (City of Vancouver, City of Burnaby, City of North Vancouver, City of Richmond, City of Surrey, and the Township of Langley) were examined to identify efforts currently being undertaken to support intensified industrial development. These municipalities have significant industrial land areas and are key markets where demand and high land values for industrial floor area will instigate further densification and intensification where allowable. These municipalities were compared to identify policy items of concern that may limit or prohibit future industrial intensification. In addition, interviews were conducted with municipal planning staff to identify key action items for future implementation and areas of concern regarding industrial intensification.

While all municipalities reviewed have policies and statements in place noting the importance of the industrial sector, a number of policies and Official Community Plans require updating from an intensified industrial perspective to meet current market conditions. Most municipalities could include more prescriptive language as to how intensified development can occur. Additionally, in a number of municipalities, while there are goals and policies in place, zonings bylaw do not fully align with the objectives outlined in higher level policy documents.

## Case Studies

Colliers reviewed examples of multi-storey developments with industrial components that are either recently constructed, currently under construction, or proposed. The analysis primarily focused on nine projects within Metro Vancouver to identify development trends, successes, challenges, and lessons learned. An additional five case studies within the United States were also reviewed to provide an understanding of industrial development trends occurring throughout North America.

Generally, the case studies indicate that the most common form of multi-level, mixed-use industrial development within Metro Vancouver is light industrial at grade with office space above. While there are a few examples with above ground light industrial floorspace, they are currently under development and have not attracted as much interest as ground floor units. Large-format, multi-level developments are only just becoming viable, however only within areas of Metro Vancouver north of the Fraser River on land that was purchased more than a few years ago due to the rapid recent increase of industrial land values. Within the Fraser Valley, it appears that the market is not there yet when it comes to multi-level development.

## Financial Analysis

In order to understand how the market dynamics examined in this report impact the feasibility of multi-storey industrial development, Colliers assessed the preliminary feasibility of the following six hypothetical scenarios. The details of the key assumptions used in the financial analysis and a written commentary of the conclusions and implications can be found in Chapter 6.

- › **Baseline Scenario:** Single-floor industrial development with surface parking (10-acre site)
- › **Scenario 1a:** Single-floor industrial development with rooftop parking (10-acre site)
- › **Scenario 1b:** Two-floor industrial development with ramp access (10-acre site)
- › **Scenario 1c:** Three-floor industrial development with ramp access/freight elevator (10-acre site)
- › **Scenario 2a:** Vertical development at 3 FAR, including 2 FAR industrial, 1 FAR office (0.7-acre site)
- › **Scenario 2b:** Vertical development at 6 FAR, including 2 FAR industrial, 4 FAR office (0.7-acre site)

Financial Analysis Results Summary							
Key Parameters	Baseline	Scenario 1a	Scenario 1b FORMAT A	Scenario 1c FORMAT A	Scenario 2a FORMAT B	Scenario 2b FORMAT B	
Total GFA	217,800 sf	261,360 sf	435,600 sf	653,400 sf	91,480 sf	182,950 sf	
Total project cost	35,371,312	59,423,805	127,336,725	208,088,213	37,050,042	75,450,445	
Est. revenue after commission	95,239,094	114,286,913	178,626,118	260,153,993	53,841,295	114,430,574	
Developer profit	10,956,710	13,148,052	20,549,907	29,929,220	7,022,778	14,925,727	
Total residual land value	48,911,071	41,715,056	30,739,485	22,136,560	9,768,475	24,054,402	
Residual price per acre	4,891,107	4,171,506	3,073,949	2,213,656	N/A	N/A	
Comparables: Land value/ac	6,161,115	6,161,115	6,161,115	6,161,115	N/A	N/A	
Residual price per buildable sf	N/A	N/A	N/A	N/A	107	131	
Comparables: Value/buildable sf	N/A	N/A	N/A	N/A	170	170	
Financial Viability	Almost viable, if the land is purchased 3-4 years ago	Almost viable, if the land is purchased 3-4 years ago	Almost viable, if the land is purchased 3-4 years ago	Not viable, unless the third floor can be converted into office space and the subject location is close to transit and urban amenities	Not viable, unless the site was purchased a few years ago or the developer waits a number of years until the threshold strata/lease rates can be met.	Not viable, unless the site was purchased a few years ago or the developer waits a number of years until the threshold strata/lease rates can be met.	

# 1. Introduction

---

## 1.1 Scope of Work and Methodology

Colliers Strategy and Consulting Group (Colliers) was engaged by Metro Vancouver in late 2020 to conduct a study reviewing the issues and opportunities regarding industrial densification along with the potential for mixed-use developments featuring industrial and commercial components. The purpose of this study is to assist Metro Vancouver with its objective to increase the capacity and utility of its limited industrial land base, and to identify specific recommendations that could help inform municipal planning processes. Colliers completed the following scope items to produce this report:

- › Literature review and information analysis
- › Stakeholder interviews
- › Industrial market analysis
- › Industrial intensification overview
- › Case studies of multi-storey industrial developments
- › Financial analysis of hypothetical multi-storey development formats
- › Assessment of key constraints and potential solutions to incentivize intensified development
- › Key recommendations consistent with regional and municipal planning objectives

## 1.2 Limitations

This report was prepared by Colliers exclusively for Metro Vancouver. The information contained within has been obtained from sources deemed reliable. While every effort has been made to ensure its accuracy, Colliers cannot guarantee it. Colliers assumes no responsibility for any inaccuracies in this information. All findings related to potential future market conditions are made based on currently available information, and actual future market conditions may be materially different than projected, particularly due to the uncertainties arising from COVID-19. This document is only intended for Metro Vancouver.

### 1.3 List of Documents Reviewed

Intensified industrial development within Metro Vancouver is not a new topic with numerous related studies being conducted over the past 10 years. To provide a foundational understanding of industrial intensification while informing the analyses conducted within this report, Colliers reviewed the following reports, presentations, and articles. While additional websites, articles, and planning documents were also examined, the list below represents the key content that was reviewed.

- › Regional Growth Strategy: Metro Vancouver 2040 Shaping Our Future (Metro Vancouver, 2011)
- › Industrial Lands Intensification Analysis (Eric Vance & Associates, 2011)
- › Best Practices for the Intensive Use of Industrial Land (Metro Vancouver, 2012)
- › Higher Density Multi-Level Industrial Building Feasibility Study (Wozny, 2013)
- › Metro Vancouver Industrial Land Redevelopment and Intensification (Stantec, 2013)
- › Opportunities for the Intensive Use of Industrial Land (Metro Vancouver, 2013)
- › Industrial Intensification Implementation Guidelines (Metro Vancouver, 2014)
- › Industrial Lands Inventory (Metro Vancouver, 2015)
- › Stratification of Industrial Land in Metro Vancouver (Aderneck, 2018)
- › Agri-Industrial Activities in Metro Vancouver (EcoPlan International, 2018)
- › Defining Industrial for the Regional Industrial Lands Strategy (Metro Vancouver, 2018)
- › Industrial Edges – Compatibility and Interface Issues in Metro Vancouver (Bokeh Urban Design, 2018)
- › Changing Nature of Industry and Industrial Land Demand in Metro Vancouver (Wollenberg, 2019)
- › Study on Industrial Intensification Feasibility in Metro Vancouver (NAIOP, 2019)
- › Is it Time to Go Vertical in Vancouver (Colliers, 2019)
- › Multi-Storey Future – What We Know and Where We Are Going (Nelson, 2019)
- › From Horizontal to Vertical – Building the Future of Industry (Aderneck, 2020)
- › From Horizontal to Vertical: Industrial Intensification Grows Up (Aderneck, 2020)
- › Industrial Lands Webinar (Aderneck and Beth Berry, 2020)
- › Planning Considerations for Multi-Level Industrial Development in Vancouver (Aderneck, 2020)
- › Regional Industrial Lands Strategy (Metro Vancouver, 2020)



## 1.4 List of Interviewees

To build upon the information gathered during the literature review, Colliers conducted informative interviews with a range of professionals including developers, architects, brokers, and planners. The list of individuals outlined below provided critical feedback towards the understanding of constraints, solutions, and recommendations regarding multi-storey industrial development. Additional information was also gathered through webinars and informal discussions with industry peers. We thank all who participated in these informational interviews for their critical contribution to the project in informing the next steps for intensified industrial development in Metro Vancouver.

- › Chris Morrison (Executive Vice President, Colliers International)
- › Matt Smith (Vice President, Colliers International)
- › Roy Pat (Vice President, Colliers International)
- › Pat Phillips (Vice President, Colliers International)
- › Sean Bagan (Vice President, Colliers International)
- › Dan Cupa (Director of Development, PC Urban)
- › Beth Berry (VP Industrial Development, Beedie)
- › Blake Asselstine (Leasing Director, Beedie)
- › Jeff Miller (Head of Industrial, Oxford Properties)
- › Drew Gilbertson (Director of Vancouver Industrial Leasing, Oxford Properties)
- › Ben Taddei (COO, Conwest)
- › Michael Hungerford (Partner, Hungerford)
- › Joshua Gaglardi (Principal, Orion Construction)
- › Craig Taylor (President, TKA+D Architecture)
- › Alan Boniface (Principal, Alan Boniface Architecture)
- › Chris Gowing (Partner, Mallen Gowing Berzens Architects)
- › Matthew Bourke (Planner III, City of Vancouver)
- › Jason Chu (Manager of Long-Range Planning, Township of Langley)
- › Patrick Klassen (Community Planning Manager, City of Surrey)
- › John Hopkins (Senior Planner, City of Richmond)

## 1.5 Definition, Measures, and Benefits of Industrial Intensification

The intensification of industrial development can be measured in a variety of ways related to the optimized utilization of industrial land appropriate for each subsector. Generally, this can be broken down to intensity (amount of activity) and density (amount of building area), as outlined below.

### Industrial Intensity/Intensification (amount of activity)

- › Labour intensity – employment per acre or building floor area
- › Value generated – business revenue/profit per unit
- › Production and volume of throughput – per building area, land area, or total employment
- › Vehicular movement – per hour (trucks, loading, cranes, etc.)
- › Quality and pay of jobs – education and pay levels
- › Multiplier job impacts of different business types
- › Value of lands and improvements

### Industrial Density/Densification (amount of building)

- › Building floor area ratio – building floorspace / lot area
- › Building site coverage – building floorplate / lot area
- › Number of floors – upper floors potentially used for other uses
- › Building height – volume/cubic area of building

These measures range based on subsector, however underutilized lots typically include surplus outdoor storage, loading, parking, sheds, and other similar low-value improvements. Underutilized buildings generally include underused or empty areas resulting from inefficient design, a trend particularly evident in older structures. Numerous studies indicate that industrial productivity is correlated to factors associated with proximity to suppliers, customers, competitors, and workers, which allows for increased value output per unit. Industrial intensification can lead to higher business output per both worker and area of land, generating positive benefits for both industry and the community, as outlined below. This report seeks to provide a better understanding of the most up-to-date market viability of mixed-use, multi-storey industrial development within Metro Vancouver.

### Key Benefits

- › More efficient use of land with increased industrial space and capacity for businesses to grow
- › Accommodate employment growth, economic growth, and a higher tax base
- › Reduced pressure to rezone other lands such as the Agricultural Land Reserve (ALR)
- › Increased efficiencies through co-located operations, collaboration, and shared resources
- › Reduced environmental impact

## 2. Metro Vancouver Industrial Market

---

### 2.1 Overview

Industrial lands play an important role in Metro Vancouver's economy, consisting of only 4% of the region's land base yet 27% of total jobs while offering wages that are approximately 10% higher than the average job. As of 2016, activities on industrial lands generated \$27 billion in direct Gross Domestic Product (GDP), representing 30% of Metro Vancouver's total GDP. Industrial activity on these lands also provided an additional \$30 billion in indirect and induced GDP, \$16 billion of which was retained within the region. The necessity for and feasibility of intensified industrial development is driven by the economic importance of industrial lands along with a wide variety of market factors as outlined below.

Growing demand, decreasing vacancy rates, and a scarcity of vacant land have pushed the region to a point where there is a critical need for more industrial supply. The shortage of supply has resulted in rapidly increasing land values which are now higher than many other cities in North America. The interplay between industrial land values, construction costs, lease/strata rates, among other related variables influence the market feasibility of multi-storey industrial development. Without a consistent influx of new supply, Metro Vancouver may risk losing a significant amount of potential employment and economic activity from businesses that may instead choose another market with more availability. The following section of this report seeks to provide a clear understanding of the key market dynamics impacting the feasibility of multi-storey industrial development.

### 2.2 Market Outlook and Impact of COVID-19

The Metro Vancouver industrial market has been relatively resilient to the economic downturn caused by COVID-19. Vacancy rates have continually decreased quarter over quarter and are near record lows. At the end of 2020, the vacancy rate was 1.2%. The only increase in total vacant inventory within the past year have been in mid-bay (5,000-10,000 square feet) industrial units, experiencing only a modest total increase of 42,148 square feet. Demand is strongest for bulk/logistics space exceeding 100,000 square feet yet there are currently no vacancies in this size segment. Although some smaller bay industrial businesses such as those related to automotive, retail, or textiles have been facing some difficulties due to COVID-19, overall demand has remained strong due to the acceleration of e-commerce, diversified manufacturing operations, and certain industries looking to solidify their presence close to areas of high population density.

Moving forward, industrial real estate is expected to continue flourishing within Metro Vancouver resulting from consistently growing urban populations, diversifying employment opportunities, e-commerce, supply chain logistics, international trade, and emerging light industrial subsectors. The key challenge facing the region is the confluence of expected continual demand for industrial space with limited supply, some of which is further constrained by locational, physical, geographical, and regulatory measures. In recent years, Metro Vancouver

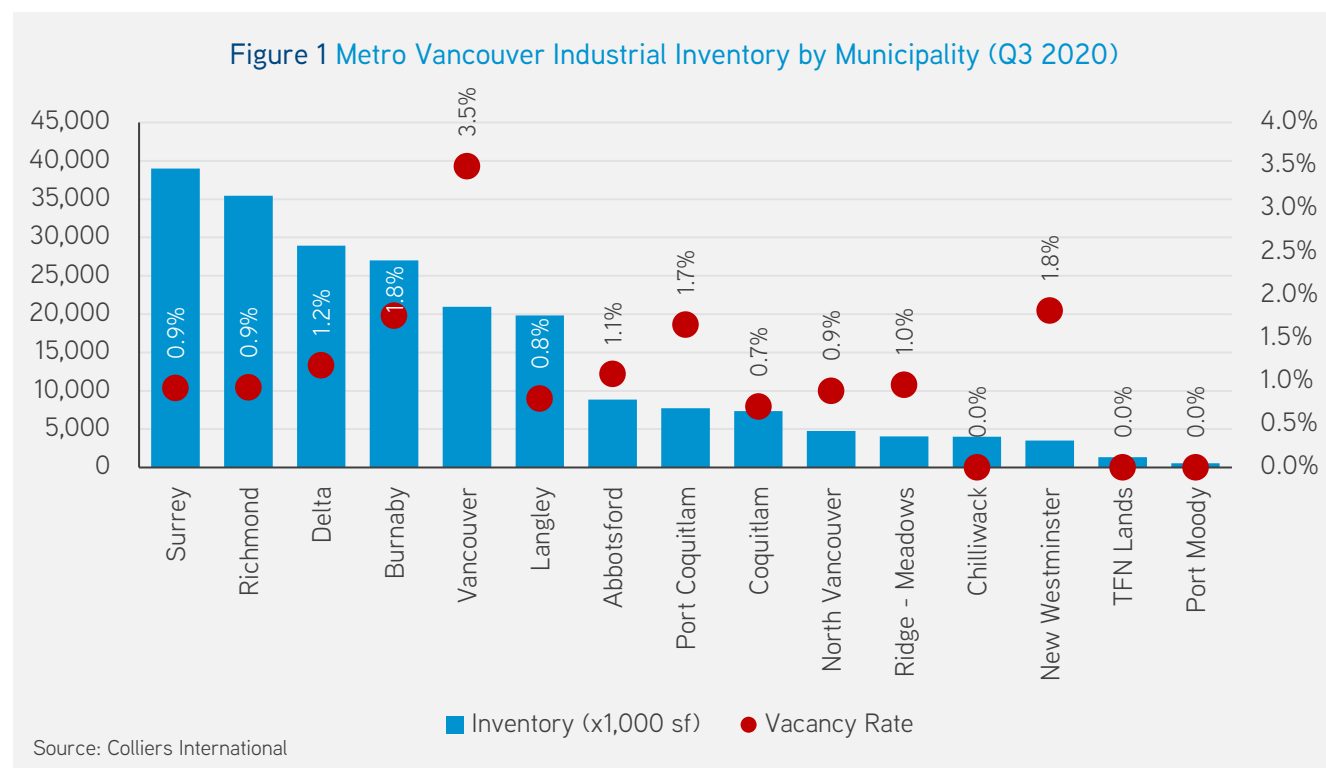
has absorbed approximately 250 acres of new industrial land per year with minimal redevelopment of older industrial buildings, a trend that is not expected to slow down anytime soon. The needs, desires, and types of industrial tenant types, particularly those suitable for multi-storey projects, are expected to continue evolving and contributing to the regional economy.

## 2.3 Market Statistics

### Metro Vancouver Industrial Inventory by Municipality (Q3 2020)

Figure 1 displays Metro Vancouver’s Q3 2020 industrial floorspace inventory, broken down by municipality (excluding Abbotsford). The total inventory has grown by an annual average of only 1.3% between 2010 and Q3 2020. This is just over half the rate of growth experienced during the previous ten years (2.3%). The slowing growth in total floorspace is due to a variety of factors deterring development including the lack of available land. Conversely, this does not indicate a reduction of demand for industrial floorspace, which is evident by consistently decreasing vacancy rates and increasing lease rates throughout the region. As of Q3 2020, the regional average vacancy rate was 1.3%, shrinking to 1.2% in Q4 2020.

The City of Surrey currently has the largest inventory of industrial floorspace (39 million square feet), followed by the Cities of Richmond (35 million square feet), Delta (29 million square feet), Burnaby (27 million square feet), and Vancouver (21 million square feet). Over the past 10 years, annual average growth in total supply has been largest in Maple Ridge – Pitt Meadows (8.3%), Surrey (3.9%), and Delta (3.5%). Conversely, annual





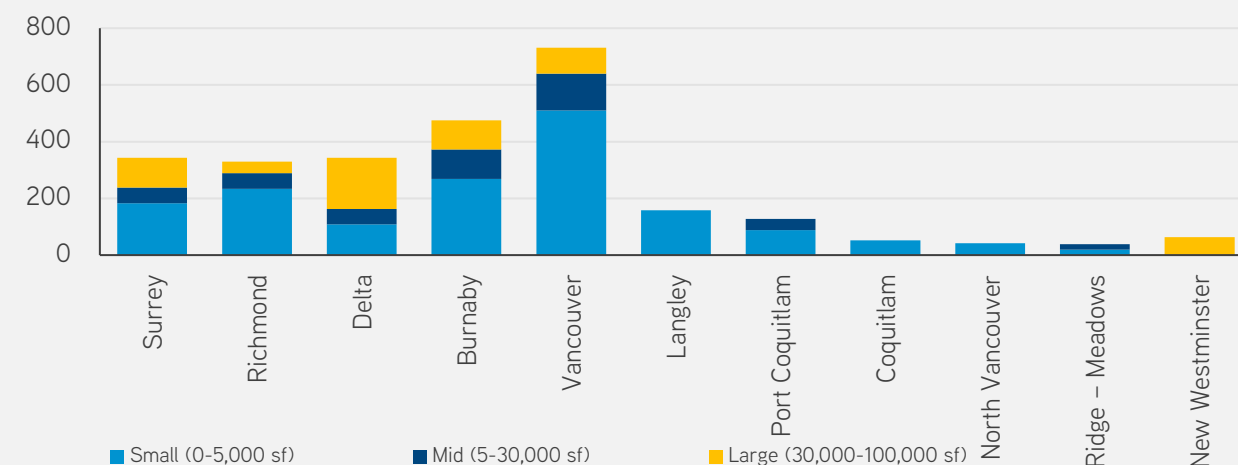
floorspace growth has been much slower in denser submarkets such as Vancouver (0.1%), North Vancouver (0.2%), and Burnaby (0.3%). This is not a result of a lack of demand in these markets, but rather a lack of available land suitable for industrial development along with constrained redevelopment opportunities.

Submarket	2010	Q3 2020	Annual Change	Annual Growth	Vacancy Rate
Surrey	26,543,676	39,005,767	1,246,209	3.9%	0.9%
Richmond	32,946,884	35,451,031	250,415	0.7%	0.9%
Delta	20,563,857	28,928,443	836,459	3.5%	1.2%
Burnaby	26,342,885	27,033,900	69,102	0.3%	1.8%
Vancouver	20,798,246	20,953,116	15,487	0.1%	3.5%
Langley	17,146,379	19,846,604	270,023	1.5%	0.8%
Port Coquitlam	7,482,408	7,730,544	24,814	0.3%	1.7%
Coquitlam	7,592,575	7,342,770	-24,981	-0.3%	0.7%
North Vancouver	4,636,146	4,747,391	11,125	0.2%	0.9%
Ridge-Meadows	1,810,984	4,035,798	222,481	8.3%	1.0%
New West	2,989,400	3,499,038	50,964	1.6%	1.8%
<b>Total</b>	<b>169,750,740</b>	<b>213,339,382</b>	<b>4,358,864</b>	<b>2.3%</b>	<b>1.3%</b>

Source: Colliers International

As outlined in Figure 2, Colliers has examined the total inventory of vacant industrial space by unit size. In total, there is a disproportionate amount of vacant space among smaller unit sizes (0-5,000 sf), representing 62% of total vacancies. Vancouver and Burnaby have the largest number of vacancies in this size group. Only 22% of current vacancies are larger properties (30,000-100,000 sf), and there are currently no vacancies for larger bulk/logistics facilities exceeding 100,000 square feet. This is one of the key challenges within Metro Vancouver. Based on discussions with key stakeholders, there is a notable amount of demand for larger units, resulting in some companies locating in other regions that can better accommodate their needs.

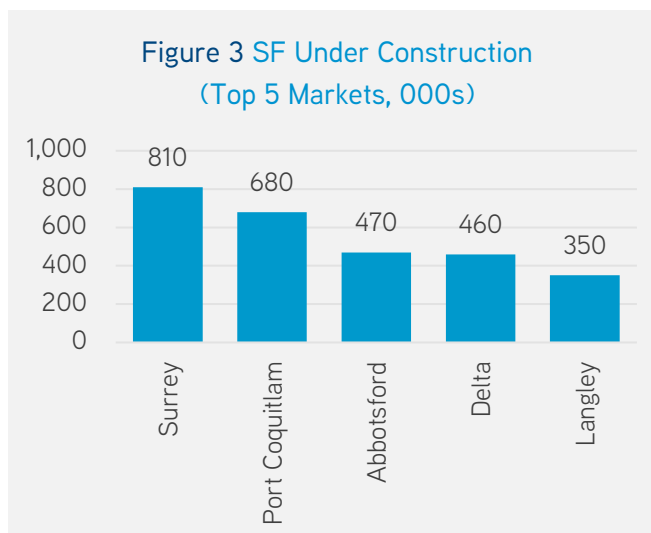
Figure 2 Metro Vancouver Industrial Vacancies by Unit Size (square feet, 000s)



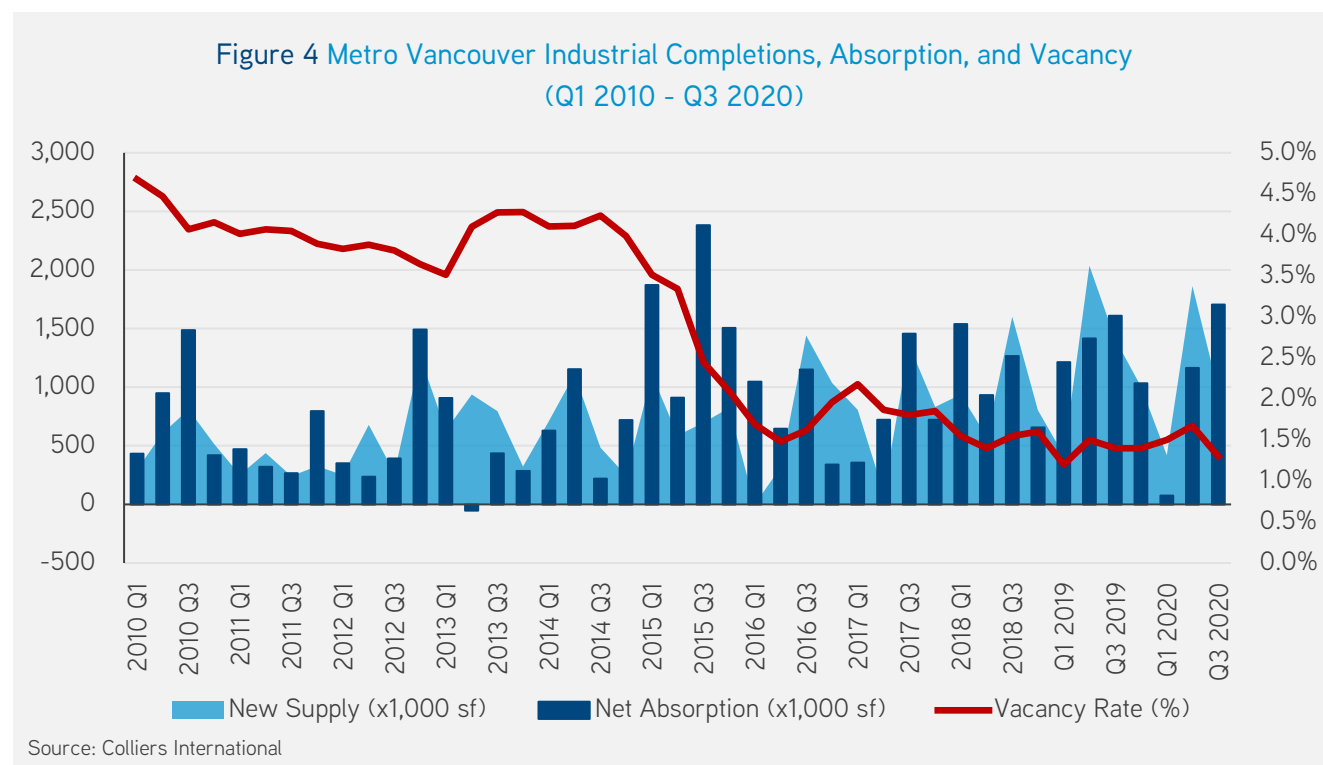
Source: Colliers International

## Historical Completions, Absorption, and Vacancy Rates (Q1 2010 – Q3 2020)

As outlined in Figure 4, the average Metro Vancouver industrial vacancy rate consistently declined from over 4.5% in 2010 down to 1.3% as of Q3 2020. The 10-year average annual absorption rate during this period was approximately 3.5 million square feet growing to 4.1 million square feet over the last 5 years. Since 2015, an annual average of 3.6 million square feet of floorspace was added to the region, indicating that demand has been outpacing supply by an average of approximately 500,000 square feet per year. This has resulted in decreasing available supply throughout an already constrained region.



There is currently a regional record of 3.5 million square feet of industrial floorspace under construction in Metro Vancouver, approximately 66% of which is in Surrey, Port Coquitlam, Delta, and Langley. Although this is a significant influx of supply, it is still lower than the annual absorption experienced in recent years indicating continued ongoing pressure on the regional market. The recent trends of decreasing vacancy rates, increasing lease rates, increasing land values, and strong absorption levels are expected to continue for years to come, particularly in denser parts of the region.

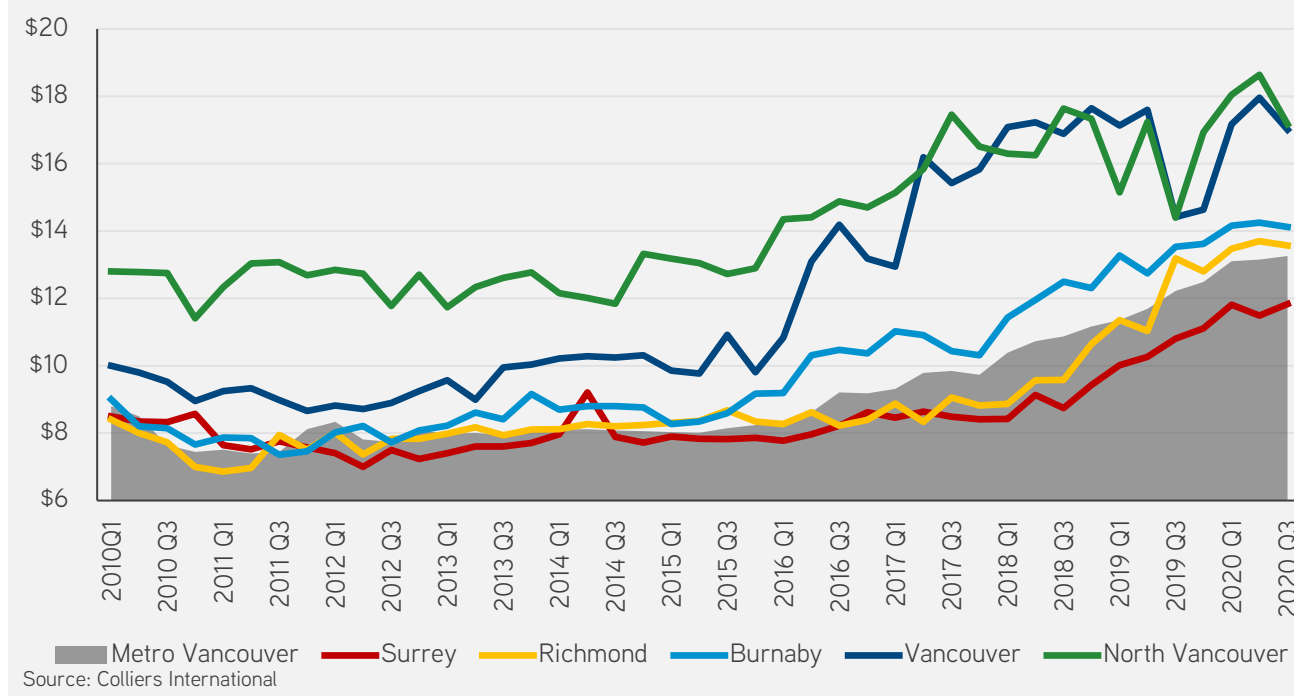


## Historical Average Industrial Lease Rates (Q1 2008 – Q3 2020)

As a result of a limited and decreasing amount of vacant and appropriate supply to meet the demands of a wide range of industrial users, average lease rates have grown significantly throughout Metro Vancouver. This trend has become even more evident since the beginning of Q1 2015. Over the past 5 years, lease rates have grown at an annual average of 12.3% which is more than double the 10-year average of 5.9% and even higher than the 10-year average inflation rate of 1.8%. It can be expected that rates will continue to grow at a similar or potentially higher level moving forward without a consistent and significant influx of new supply.

The annual average lease rate growth for new leases over the past 5 years has been highest in Port Coquitlam (16.1%), Richmond (14.2%), Vancouver (13.7%), Coquitlam (13.4%), and Burnaby (13.1%). The highest average lease rates can be found in North Vancouver (\$17.17/sf), Vancouver (\$17.01/sf), and Burnaby (\$14.12/sf). The lowest rates are currently found in Delta (\$11.74/sf) and Langley (\$11.95/sf). Lease rates are generally higher in the most desirable inner-city locations such as Mount Pleasant, sometimes exceeding \$20/sf, yet there is still a discount in terms of what tenants would be willing to pay for an above ground unit. As explored in more detail within the following sections of this report, the viability of intensified industrial development is impacted by how close these rates (or strata rates) are to a certain threshold, land values, construction costs, municipal regulations and fees, and other associated aspects of the development process.

Figure 5 Metro Vancouver Avg. Industrial Lease Rates (Q1 2010 - Q3 2020)



Submarket	2010	2012	2014	2016	2018	2020	Average Annual Growth	
							5-Year Avg.	10-Year Avg.
Surrey	\$8.57	\$7.23	\$7.72	\$8.62	\$9.43	\$11.83	6.7%	3.3%
Richmond	\$7.00	\$7.83	\$8.24	\$8.39	\$10.65	\$13.57	14.2%	6.8%
Delta	\$6.52	\$7.52	\$7.71	\$8.14	\$10.22	\$11.74	12.5%	6.1%
Burnaby	\$7.66	\$8.08	\$8.76	\$10.37	\$12.31	\$14.12	13.1%	6.3%
Vancouver	\$8.95	\$9.25	\$10.31	\$9.18	\$17.65	\$17.01	13.7%	6.6%
Langley	\$7.13	\$7.39	\$8.20	\$9.25	\$11.39	\$11.95	10.9%	5.3%
Port Coquitlam	\$6.43	\$6.51	\$7.24	\$8.38	\$12.66	\$13.54	16.1%	7.7%
Coquitlam	\$7.45	\$7.26	\$8.16	\$9.88	\$13.37	\$13.98	13.4%	6.5%
North Van	\$11.41	\$12.71	\$13.32	\$14.70	\$17.33	\$17.17	8.5%	4.2%
Ridge-Meadows	\$8.51	\$6.93	\$7.00	\$7.83	\$9.26	\$12.51	8.0%	3.9%
<b>Regional Average</b>	<b>\$7.44</b>	<b>\$8.08</b>	<b>\$8.06</b>	<b>\$9.18</b>	<b>\$11.17</b>	<b>\$13.26</b>	<b>12.3%</b>	<b>5.9%</b>

Source: Colliers International

## 2.4 Land Values

Although many factors influence the price of industrial land such as zoning, lot size, servicing, access, and soil quality, Colliers provides a range of market achievable prices based on recent sales activity. These are high level estimates and should therefore only be used for comparative purposes. Of the municipalities listed below, the average price of serviced and developable land ranges from as low as \$2.5 million/acre in Surrey up to \$9.5 million/acre in Vancouver. Prices have grown at a rapid rate, accelerating in recent years. Between 2005 and 2010, average price per acre within Metro Vancouver grew by approximately 12.8% per year. Comparatively, over the last five years the average price has grown by approximately 29.6% per year. Skyrocketing land values are one of the major considerations regarding intensified redevelopment of key sites, as construction of traditional single-storey industrial on expensive sites may no longer be financially viable.

Submarket	2010			2020			Annual Growth	
	Min	Mid	Max	Min	Mid	Max	2005-10	2015-20
Surrey	\$650,000	\$875,000	\$1,100,000	\$2,500,000	\$2,750,000	\$3,000,000	6.9%	21.4%
Richmond	\$950,000	\$1,175,000	\$1,400,000	\$4,500,000	\$4,750,000	\$5,000,000	14.8%	30.4%
Delta	\$800,000	\$900,000	\$1,000,000	\$2,750,000	\$3,250,000	\$3,500,000	13.5%	26.1%
Burnaby	\$1,100,000	\$1,250,000	\$1,400,000	\$4,250,000	\$5,750,000	\$7,500,000	15.7%	36.0%
Vancouver	\$900,000	\$2,100,000	\$3,300,000	\$8,000,000	\$8,750,000	\$9,500,000	1.0%	31.7%
Port Coquitlam	\$850,000	\$975,000	\$1,100,000	\$3,500,000	\$4,000,000	\$4,500,000	21.1%	31.0%
Coquitlam	\$900,000	\$1,050,000	\$1,200,000	\$3,750,000	\$4,250,000	\$4,750,000	16.5%	30.5%

Source: Colliers International



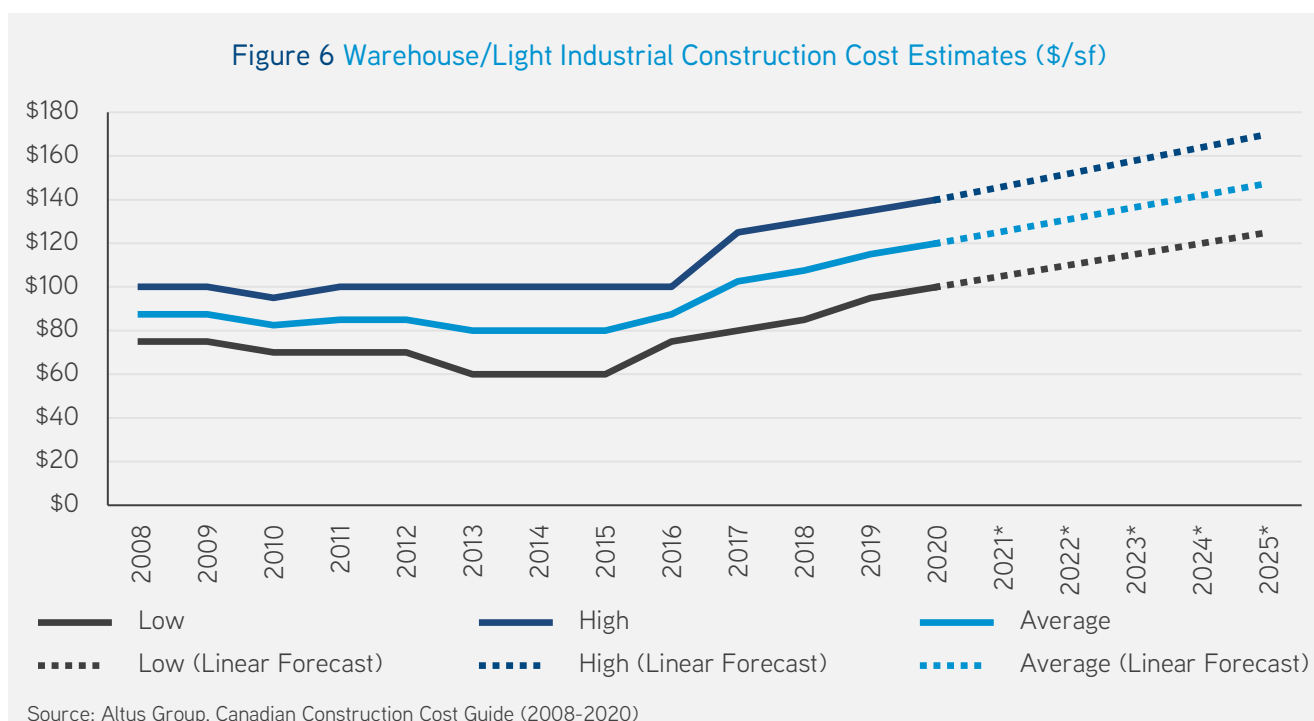
## 2.5 Construction Costs

Construction costs range based on design and use, most of which have been increasing in recent years among both industrial and non-industrial development formats. Based on the Altus Group Canadian Development Cost Guide, the average construction cost for a typical warehouse in Metro Vancouver with 10%-20% office space currently ranges from \$100 to \$140 per square foot. This is approximately 50% higher than five years ago. Based on a similar rate of growth moving forward, Colliers estimates that these costs could potentially rise to approximately \$125 to \$170 per square foot by 2025.

Through discussions with numerous developers, brokers, architects, and other stakeholders in the region, it is understood that the cost of intensified, multi-storey industrial development is significantly higher than traditional development. Factors such as ramping and loading requirements, additional services/utilities, freight elevators, geotechnical conditions, parking requirements, lengthy approvals, and higher lending costs can push total costs up to 2.5 times higher than traditional single floor development. For the most challenging multi-level projects, these costs could potentially exceed \$250 per square foot.

Aside from site specific factors such as geotechnical conditions or uncommon municipal development standards, construction costs do not vary much within the region. As such, they do not have a huge impact on the intensification potential between industrial areas unless they are increased by factors such as surplus minimum parking requirements for particular user types. The key determining factors behind businesses' locational decisions along with the impact of construction costs on the viability of multi-storey industrial developments are examined in more detail within the following sections of this report.

Figure 6 Warehouse/Light Industrial Construction Cost Estimates (\$/sf)



## 2.6 Industrial Land Inventory and Capacity

The 2015 Metro Vancouver Industrial Lands Inventory calculated a regional total of 28,000 acres of industrial land at the time, 20% of which was vacant while some of the occupied land was used for non-industrial uses. The development potential of this vacant land was further reduced by factors such as lot size, slope, location, accessibility, and soil conditions. Specifically, there was a very limited inventory of vacant sites large enough for trade enabling logistics uses, with only 20% of vacant land on sites larger than 50 acres. It is estimated that the region’s inventory of vacant industrial supply shrank to 4,500 acres as of 2018. This is the most currently available data at the time of this study; however, it should be noted that the 2020 Metro Vancouver Industrial Lands Inventory will be completed later in 2021. In the interim, Colliers has estimated the current inventory of vacant industrial land based on an assumed absorption of 235 acres per year between 2018-2020. Based on this assumption, the current inventory of vacant industrial land is estimated at 4,030 acres.

The most recent employment-based industrial demand forecasts estimate the potential need for between 200 and 275 acres of land per year between 2020 and 2050. This would result in the full absorption of vacant land between approximately 2037 and 2045. More likely, before this land is completely absorbed the remaining vacant supply would be small, scattered parcels unsuitable for most industrial users. Therefore, the complete absorption of the most suitable supply could occur in the early 2030s. As a result, without additional land supply or the intensification of existing land, future economic growth could be hindered. This is indicated by the dotted red line on the graph below, which represents potential businesses (and jobs) choosing to locate in other markets with more readily available industrial land. Theoretically, the gap between the employment related demand forecasts and the constrained reality would represent lost employment/industrial output potential.

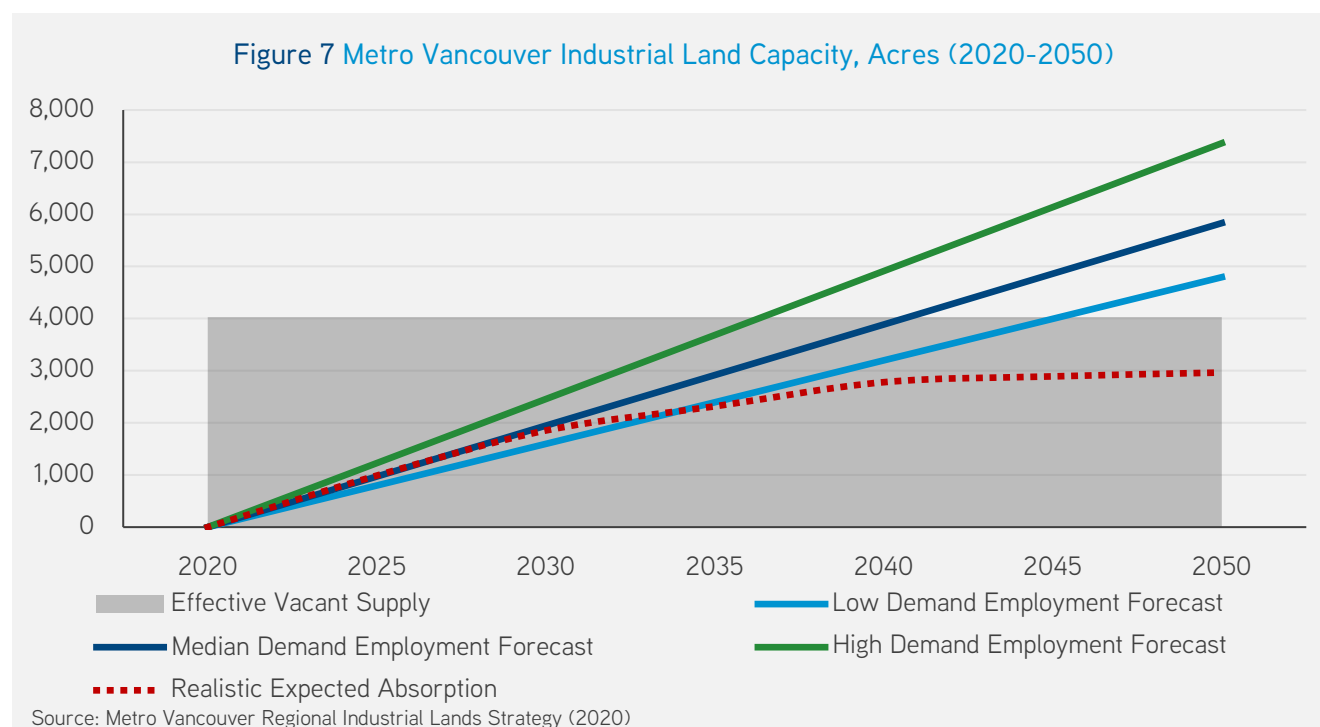
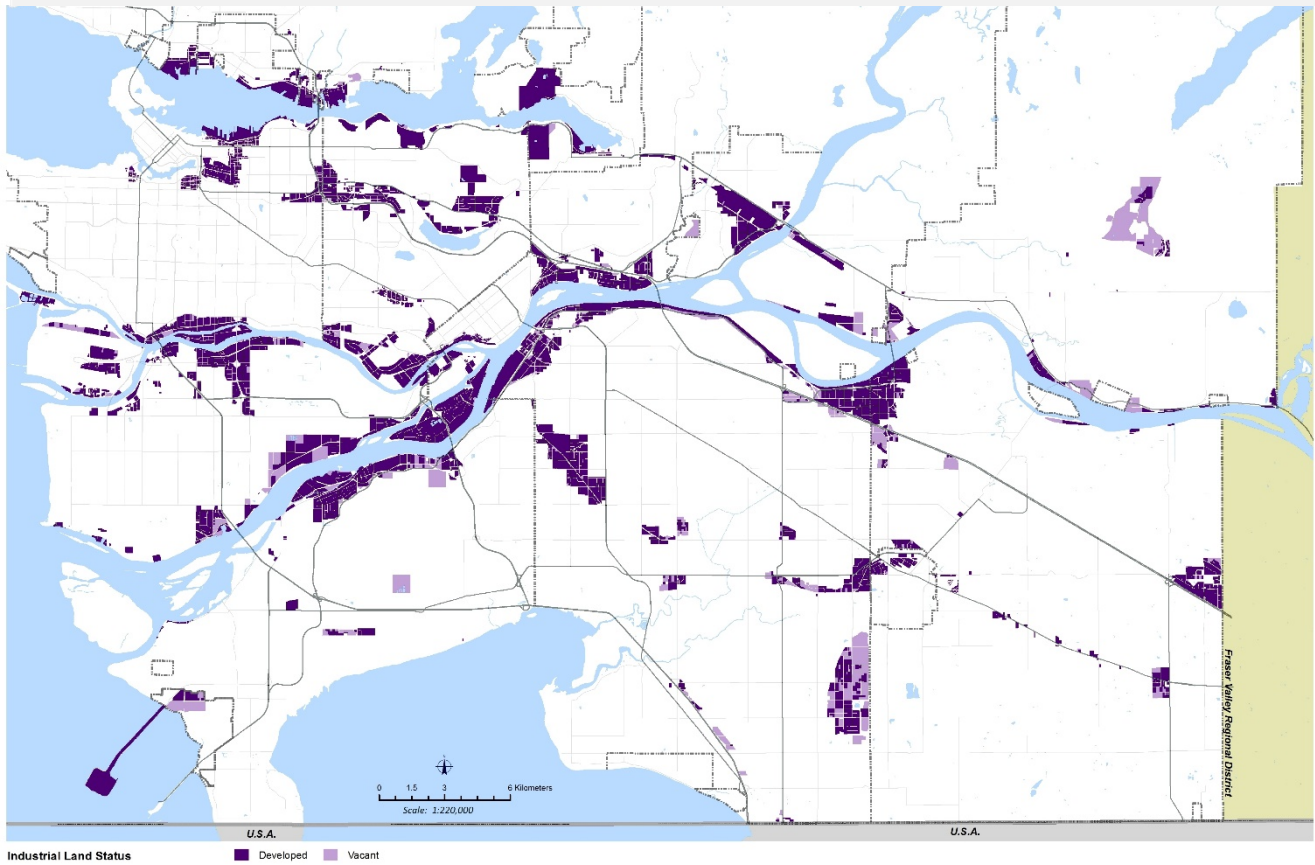


Figure 8 Inventory of Developed and Vacant Industrial Lands (2020)



Source: Metro Vancouver Industrial Lands Inventory (2020)

# 3. Industrial Intensification Considerations

## 3.1 Key Drivers of Industrial Intensification

While intensified industrial development is not entirely new to Metro Vancouver, there has been a recent wave of higher-density projects being built in the region resulting from market pressure and demand drivers, as outlined below. Developers consider these factors along with the economics of intensified/multi-storey development which is ultimately related to whether the increased land and construction costs of building up can be compensated by high enough industrial lease / strata rates and additional revenue generating accessory space within functional buildings.

The need for industrial intensification is driven by several factors, including:

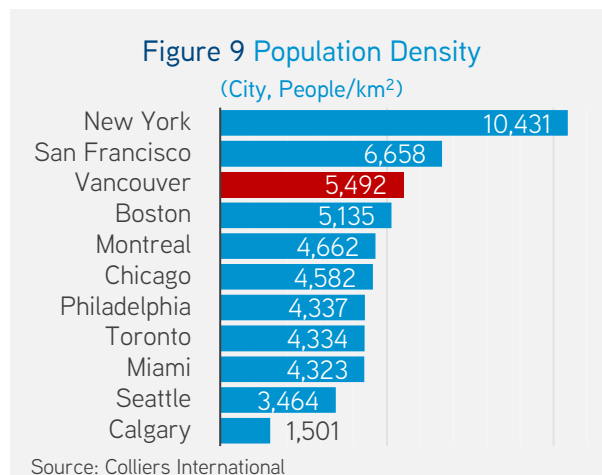
- > Limited land supply and strong demand
- > Population growth and density
- > International trade
- > Growth of ecommerce
- > Agglomeration economics
- > Municipal regulations
- > Automation
- > Land values and speculation

### Limited Land Supply and Strong Demand

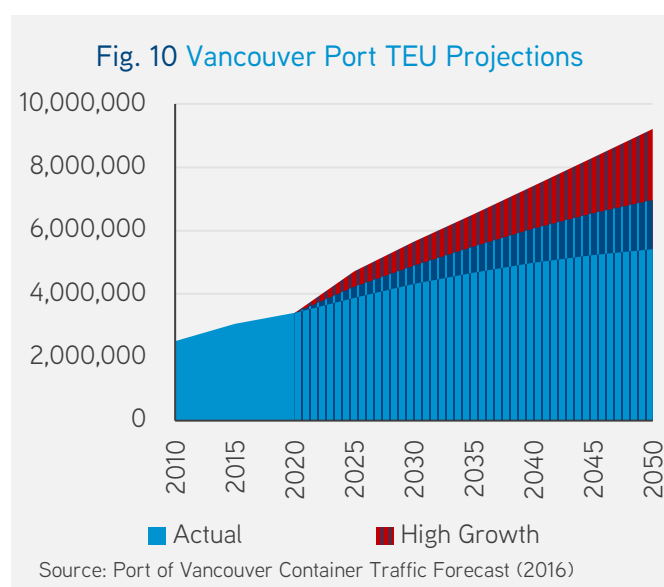
Metro Vancouver has a finite amount of remaining suitable vacant industrial land to accommodate medium-term demand. This supply is further constrained by geographic limitations such as accessibility, lot size, slopes, and soil quality. Additionally, the existing restrictions of the ALR, along with occasional rezonings of industrial land to other land uses such as residential have further limited the availability of existing supply. For example, between 2010 and 2015 approximately 330 acres of industrial land was removed from the total Metro Vancouver inventory. The remaining suitable vacant industrial lands are expected to be absorbed by the early 2030s or potentially even sooner if market demand trends experienced since 2016 continue. This is one of the key factors contributing to the necessity for more intensified forms of industrial development.

### Population Growth and Density

There is a strong relationship between population growth, density, and the economic viability of multi-storey industrial developments. Many of the tenant types likely to pay the higher lease rates associated with inner city locations justify the decision based on the benefits of reduced transportation times to a larger pool of potential consumers in a smaller geographic area. The denser the population, the greater the tenant demand for central locations as to have quicker access to customers and a larger labour pool.



The population of Metro Vancouver is projected to grow by approximately 14% over the next 10 years. With its constrained land base, this is likely to result in the continued densification of municipalities throughout the region. The first North American city to have a multi-storey distribution warehouse with ramps to the second floor was Seattle, with an estimated density of 3,244 people/km<sup>2</sup>. The City of Vancouver has a density of 5,493 people/km<sup>2</sup>, suggesting a greater trade area potential when compared to Seattle. However, the entire region of Metro Vancouver (including non-developable land) has a population density of 2,090 people/km<sup>2</sup> which is notably lower than the City of Vancouver and likely below the threshold to support intensified development in certain peripheral locations. Municipal-specific density levels and population projections are some of the key factors influencing the viability of multi-level industrial development in specific areas of Metro Vancouver, examined in more detail within *Section 3.4 Geographical and Locational Considerations*.



## International Trade

The Port of Vancouver continues to experience record total cargo volumes, a trend that is occurring despite COVID-19 and expected to continue, as displayed in Figure 10. By 2030, the Port is expected to handle between 4.32 million and 5.65 million TEUs<sup>1</sup> annually, an annual increase of between 2.7% and 6.6%. Vancouver's port has one of the most diversified ranges of cargo in terms of both imports and exports of goods in North America and the forecasted growth of port activity will continually contribute to the demand for industrial space required to store goods being transported through the port.

## Growth of E-Commerce

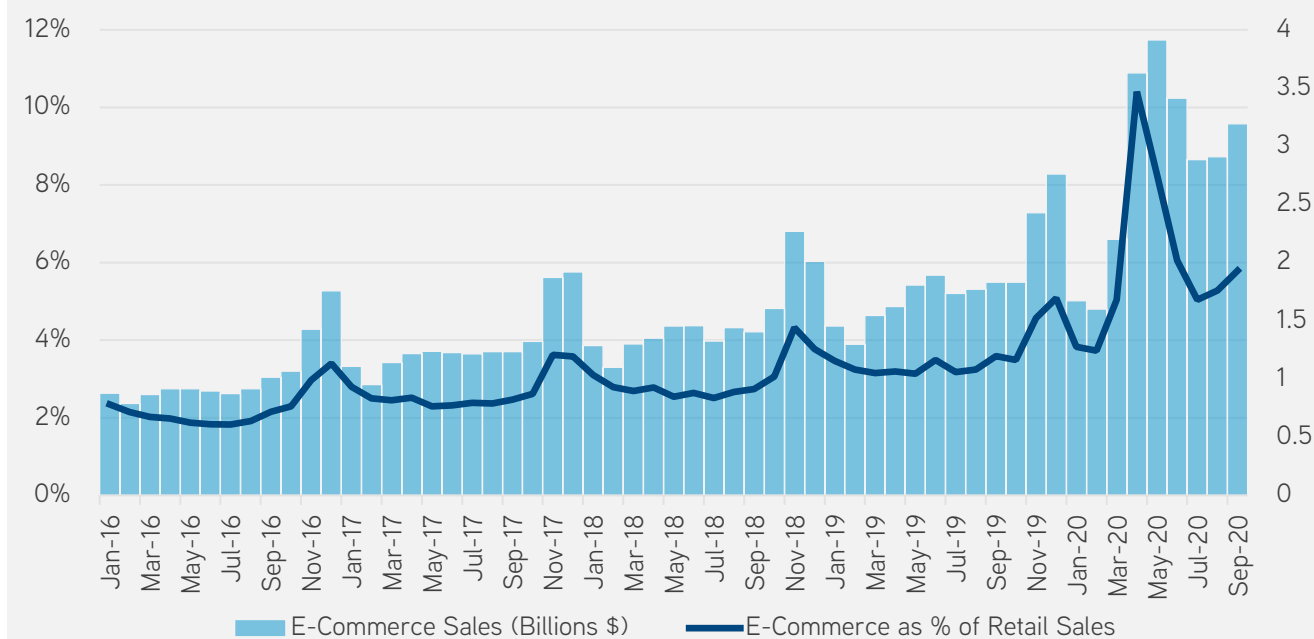
Studies have shown that every additional billion dollars of e-commerce sales requires an additional 1.25 million square feet of supportive industrial floorspace<sup>2</sup>. As displayed on the following page in Figure 11, Statistics Canada reports that e-commerce is continuing to capture a larger share of Canada's total retail market and is expected to rise by up to 40% over the next 10 years. This trend increased dramatically during the initial months of the pandemic as retailers were forced to close, reaching a record of \$4 billion in April 2020 accounting for 10.3% of total retail sales. In more recent months, online sales have shifted back towards the gradual increase experienced over the past few years. These figures, as tracked by Statistics Canada, only include sales from Canadian e-commerce companies and do not account for items bought from international markets such as the US, representing approximately 20% in additional online sales.

<sup>1</sup> TEUs refer to twenty-foot equivalent units, which is a cargo capacity metric often used to describe the capacity of container terminals.

<sup>2</sup> Source: CBRE US Market Flash (2018), Warehouse Demand to Grow with Rising E-Commerce Sales



Figure 11 Canadian E-Commerce as a % of Total Retail Sales (2016-2020)



Source: Statistics Canada

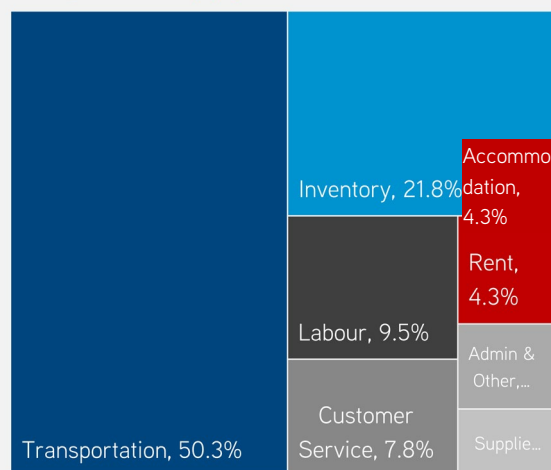
As a result of e-commerce, demand has been growing for logistics and ‘last mile’ fulfillment centres required to meet customer expectations regarding delivery times. An indicator of such demand in Metro Vancouver is the Amazon lease in Q2 2018 for 450,000 square feet of distribution space in phase 1 of the Delta iPort development. Following this trend, numerous 3<sup>rd</sup> party logistics companies are now occupying large blocks of space in Metro Vancouver which has further reduced the industrial supply of vacant floorspace and land.

### Supply Chain Costs and the Desire for Urban Locations

Accommodation costs (which include triple net costs – base rent, plus property taxes, and building operating costs) generally account for less than 5% of total supply chain costs. Transportation costs are significantly higher, in many cases exceeding 50% of total costs. This further accentuates the tenant desire for consumer proximity, with many businesses choosing to pay higher rates in buildings closer to major centres of population. The benefits of faster delivery times to a larger population at lower costs in many cases outweigh the premium price for an inner-city location.

Every business has its own unique mix of suppliers, target markets, transportation needs, and labour force

Figure 12 Supply Chain Cost Breakdown



requirements that influence location decisions. The businesses that are highly reliant on population proximity will likely desire an inner-city location, whereas businesses that are less labour intensive and more cost sensitive may move out to more affordable suburban properties. Relocation costs are also important to consider, with most businesses preferring locations with surplus space for future growth to minimize the future need for relocation. Emerging industrial tenant types most suitable for multi-storey developments are examined further in *Section 3.3 Industrial Subsectors Suitable for Intensified Developments*.

## Locational Economies

Another benefit of densified industrial development is the clustering of similar companies together within a relatively small geographic area, allowing for a high degree of competition, innovation, and specialization. This can create spillover of technological innovations resulting from the competition between firms within the same industry, greater return of scale for intermediate inputs resulting in lower costs, and a larger potential pool of skilled labour. This clustering can also benefit both the consumer and business through the creation of destination nodes with a variety of similar products and/or services, such as the breweries of Mount Pleasant.

## Municipal Regulations

The definition of an industrial land use is broad, constantly evolving, and includes hundreds of different businesses, many of which may not have been well-known at the time when the latest planning regulations were developed. It is essential that planning frameworks applied to industrial land are frequently examined and refined to consider emerging industries expected to seek industrial space in different parts of Metro Vancouver. Regulations such as maximum density levels or heights can also have a strong impact on the likelihood of industrial densification. Zoning amendments that permit either higher total densities or a higher proportion of accessory uses such as office or residential can spur a wave of development due to the demand and value of higher density mixed-use formats. More specific examples of the constraints and best practices regarding the impact of planning policy on industrial development are examined in *Chapter 4. Planning Policy Review*.

## Automation

The automation of industrial businesses continues to impact numerous manufacturing and logistics operations as technological innovations expand capabilities at declining costs. The need for automation is ultimately driven by labour availability/costs, size of business, and the rapid growth of operations such as e-commerce companies which can be up to 3x more labour intensive than traditional logistics operators. Smaller businesses more likely to occupy small multi-level urban industrial units are less likely to automate than larger operators.



Mobile automation innovations such as robotic forklifts are reducing the labour requirements of certain industries.



The concept of fully automated 'micro-factories' supported by local supply chains has been growing in popularity.

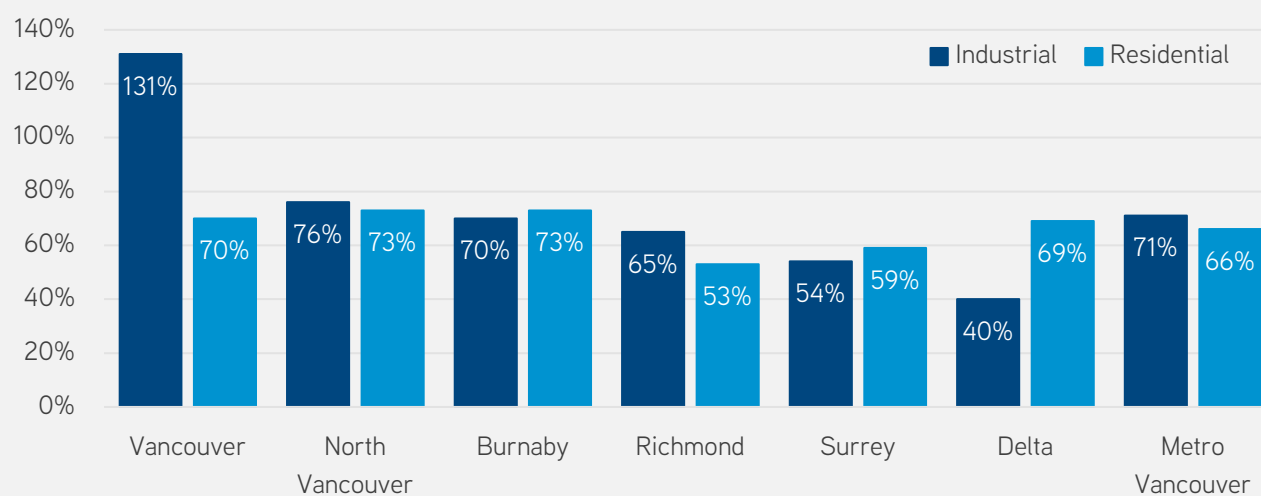
The key differentiator between automation technologies and other types of equipment is autonomy from human control. This can be grouped into two categories: fixed automation and mobile automation. Fixed automation refers to expansive installations such as conveyor belts and sorters which have been used for years. Mobile automation refers to robotics solutions that work in diverse environments and offer a large amount of flexibility for scaling up/down as needed. This includes automated guided vehicles such as forklifts and robots. Automation innovations will continue rapidly advancing and

impacting labour requirements. Approximately 40% of the Canadian labour force could be at high risk of being impacted by automation in the next 10-20 years. However, the demand for industrial space itself is less likely to decrease anytime soon, as large sites will always be required for the production and warehousing of goods.

### Land Speculation and Property Taxes

The rising industrial land values within Metro Vancouver have, in some instances, resulted in landlords/owners seeking rents that may be higher than those supported by potential tenants. Additionally, if land has redevelopment potential, long-term leases may not be offered or there may be demolition clauses. In this scenario, landlords/owners may be less likely to invest in building upkeep, further detracting from potential tenant interest. Additionally, as land values rise due to market demand and a broader mix of densities and uses, assessed values can rapidly increase based on the highest and best use of the land. This results in higher property taxes that, in most cases, are passed on to the tenants through the agreed upon lease terms.

Figure 13 Assessment Value Increase by Municipality (2012-2017)



Source: Metro Vancouver RILS (2020)



### 3.2 Multi-Level Development Formats

There are a few general forms of multi-level industrial developments that have recently started to become more popular throughout North America, each of which have specific land/lot requirements, suitable tenant types, and scales of accessory uses.

There are three broad formats of multi-level industrial development occurring throughout North America:

- A. Large scale stacked industrial
- B. Flex industrial with office above
- C. Flex industrial with office/residential above

#### Format A – Large Scale Stacked Industrial



Prologis Georgetown Crossroads in Seattle was the first multi-storey industrial development of its kind in North America.

One of the most well-known multi-storey industrial developments is Prologis Georgetown Crossroads in Seattle, the first of its kind in North America. This project includes two stacked levels of large-format industrial space with truck access and loading provided to the second floor through a ramp wrapping around the building. There is an additional third floor accessible by freight elevator catered towards light manufacturing, office, and research & development uses. Key tenants include Amazon (~500,000 sf) and Home Depot (~100,000 sf). This is the most expensive type of multi-level industrial development due to the significant costs and site efficiency issues resulting from a ramp large enough to accommodate American sized trucks (~53 feet). These development formats



3030 Beta Avenue in Burnaby benefited from a sloped site to provide two levels of truck access without building a ramp.

are suitable for users who need large, contiguous space such as e-commerce, food production, heavy manufacturing, distribution, and last-mile fulfillment. Conversely, these formats would be less suitable for businesses with significant outdoor storage and trailer parking requirements or light industrial users with smaller floorplate requirements.

Within Metro Vancouver, while this format of development is not technically new, it has not been attempted at a large scale since the development of 3030 Beta Avenue in Burnaby in the 1970s. This project benefited from a sloped site which provides truck access to both floors without the requirement of a costly ramp. Currently, Oxford Properties is constructing a similar project within its Riverbend Business Park in South Burnaby. As examined in more detail within *Section 5 Industrial Intensification Case Studies*, this project is on a flat site with challenging soil conditions and requires a ramp wrapping around the building to provide second floor truck access.

Another less costly, moderately intensive format of large-scale industrial developments include one level of occupied space with rooftop stalls for light vehicle / employment parking. This has already occurred throughout Metro Vancouver on sites such as 6440 Beresford Street (Burnaby) and is being planned within upcoming developments such as 3733 192 Street (Surrey). While these developments do not offer a second floor of leasable space, they are able to provide site coverage ratios higher than the typical 40-50% of traditional single-storey developments. This is a simpler form of intensified development, and the rationale of building such a format in comparison to two or more floors depends on factors such as land values and achievable lease rates.



The upcoming industrial development at 3733 Street in Surrey will provide employee rooftop parking resulting in the ability to construct on a larger proportion of the total site area than a typical single-storey development with surface parking.



## Format B – Flex Industrial with Office Space Above

Modestly sized multi-level projects are the most common form of multistorey industrial development in Metro Vancouver, primarily consisting of small-to-medium bay flex industrial and mezzanine space with multiple floors of office space above. Most of these developments only have one storey of industrial floorspace (with mezzanine), while others such as PC Urban’s IntraUrban Evolution has two levels of industrial floorspace with 2<sup>nd</sup> floor loading available by freight elevator. This is primarily occurring within the City of Vancouver’s Mount Pleasant and Railtown neighbourhoods, facilitated by the proximity to a large population and recent zoning changes allowing densities of up to 6 FSR in some areas and a broad range of permitted uses. Upcoming examples of this type of development include Conwest’s Houss (displayed below), Mondivan Group’s The Workshop, and Westbank’s Main Alley, to name a few.

These developments are particularly attractive to tenants such as light manufacturing, engineering, hub-and-spoke distribution centres, breweries, and creative economy firms such as digital content creators and software designers. The viability of such development is driven by premium lease and strata rates achievable in areas of Metro Vancouver that are in high demand from such users, along with the higher values associated with office floorspace. While second floor flex industrial space is costly to develop and less desirable to tenants, the office space above helps make the projects financially viable while introducing more industrial supply to the market. This is particularly evident in dense urban locations that are highly accessible by vehicle and public transit.



Conwest’s Houss at 67 West 6<sup>th</sup> Avenue in Mount Pleasant, Vancouver is a 52,000 square foot mixed-use development featuring first level industrial space (with mezzanine above), a restaurant, and 3 floors of office space above.



## Format C – Flex Industrial with Office Space and Residential Above



Format C is similar to Format B, with the addition of residential floorspace on top of both industrial and office uses. Wall Financial’s Strathcona Village is one of the first of such developments in North America, including 280 condos, 70 social housing units, 14,000 sf of office space, and 46,000 sf of flex industrial space. As detailed within the case studies in the latter sections of this report, Hungerford Properties and QuadReal Group are in the early stages of Archetype at 220 East 1<sup>st</sup> Avenue, a mixed-use project that will feature 150,000 sf (3.5 FSR) of rental residential, 83,000 sf (2.0 FSR) of office space, and 40,000 sf (1.0 FSR) of industrial space combining for a total density of 6.5 FSR. These projects would be well suited for the same industrial tenants as Model B.

### Higher Densities Abroad

Multi-level industrial development has been more commonly occurring in other parts of the world for years, justified by high urban densities and smaller truck sizes in countries such as China and Japan. For example, total truck lengths are generally 39 feet long in Japan compared to 53 feet long in North America. The shorter required turning radii of such trucks results in the ability to create spiraled ramps which occupy a significantly smaller total site area and can more efficiently accommodate more than two floors.

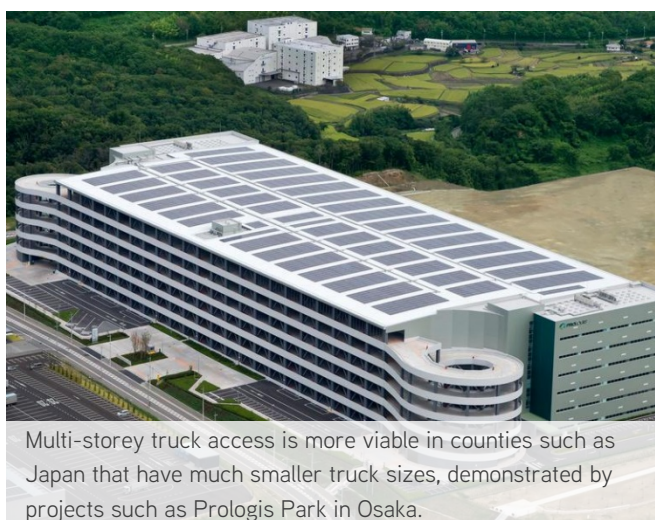


Table 4 Multi-Level Industrial Development Formats					
Format	Lot Size	Tenant Size	Uses	Access	Upper Floor Tenants
Format A – Large Scale Stacked Industrial	10+ ac	100,000+ sf	Industrial Light Industrial	Ramp to upper floors	Distribution, Food Production, Last Mile Fulfillment, Manufacturing
Format B – Flex Industrial with Office Space Above	0.5+ ac	2,000+ sf	Light Industrial Office	Freight elevator to upper floors	Smaller last mile fulfillment, niche manufacturing, creative economy, film industry, accessory uses
Format C – Flex Industrial with Office and Residential Above	0.5+ ac	2,000+ sf	Light Industrial Office Residential	Freight elevator to upper floors. Separated access to residential.	Smaller last mile fulfillment, niche manufacturing, creative economy, film industry, accessory uses

### Warehouse Innovation

As a result of persistent demand for faster delivery times, constrained supply, rising occupancy and labour costs, and technological innovations, warehouses themselves are continually evolving due to the growing need for spaces less than 100,000 square feet close to major population centres. While this has encouraged the aforementioned multi-storey development formats, it is also resulting in the innovation of warehouses themselves. This can include micro-distribution centres, darkstore distribution centres, and nano-distribution nodes, as outlined below.

The rise of e-commerce and its impact on bricks-and-mortar retail has resulted in growing retail vacancies. This provides the opportunity for the repurposing of such units for distribution/fulfillment purposes. For example, Walmart is exploring the use of portions of retail stores for warehousing and distribution and has even filed a patent for an automated system that could store inventory above drop ceilings in their superstores with a fleet of robotic vehicles that transport inventory to and from this attic space. Further, Simon Property Group is considering turning vacant anchor department stores into major distribution hubs with a small experiential retail store in front of an automated fulfillment centre. Meanwhile, the Millennium Parking Garage in Chicago was recently transformed into an urban fulfillment centre.



Vacant anchor tenants are beginning to be repurposed by companies such as Amazon for fulfillment centres.

## Dark Stores / Nano Distribution Nodes

There has also been a rise in “dark stores” and “ghost kitchens”. Ghost kitchens, for example, are suitable for industrial lands and enable restaurants to outsource all aspects of food delivery to large, centralized locations used by numerous restaurant brands to create economies of scale. Dark stores are an opportunity for persistently vacant retail units, which could become storerooms and delivery depots for businesses that have moved online. This is already occurring, with New York City-based startup Bond expanding its network of their street front facilities that are typically between 600 and 1,000 square feet and easily accessible by local delivery crews.



Vacant storefront retailers ranging from 600 – 1,000 sf are beginning to be repurposed as nano fulfillment centres.

## 3.3 Industrial Subsectors Suitable for Intensified Developments

The demand for industrial floorspace within Metro Vancouver is driven more and more by service-oriented industrial uses that are generally less land-intensive than traditional heavy industries. Many of these are emerging industries subsectors which may have modern business models that do not directly fit under current municipal definitions of light or heavy industrial.

Intensified industrial developments are generally located in urban locations, with small units, upper floors, freight elevator access, high ratios of mezzanine space, limited surface parking, and limited space for tracks. As such, and outlined in more detail below, growing industrial sectors suitable for such space include logistics / last-mile distribution, niche manufacturing (food, coffee roasting, breweries, etc.), e-commerce/technology, creative industries, artisanal craftsmanship, film production, research and development, storage, equipment maintenance, and building supplies. Many of these businesses desire well-located, accessible urban locations. This demonstrates the importance of a clear municipal understanding regarding which uses to permit within specific industrial or mixed-employment areas. These businesses generally occupy units ranging from 5,000 to 20,000 square feet and have a notable impact on the provincial economy through the employment of 1.1 million people and the generation of 35% of provincial GDP.

The following tenant types are driving demand and most likely to occupy intensified mixed-use industrial buildings:

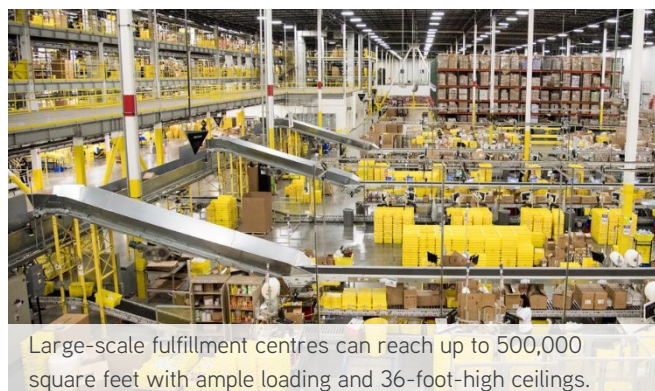
- › Logistics/Last-Mile Distribution
- › Manufacturing
- › Ecommerce/Technology
- › Creative Economy
- › Film Industry
- › Cold Food Storage/Agri-Industrial
- › Accessory Uses (office, retail, recreation)



Emerging flex-industrial companies are increasingly demanding integrated, multi-purpose facilities that accommodate design, manufacturing, distribution, and showrooms/retail activities. These companies generally prefer the benefit of being closer to the consumer within desirable neighbourhoods compared to the challenges and costs associated with small/constrained inner urban sites. There is also a growing demand from both employers and employees for locations within complete communities, resulting in the additional demand for accessory uses on top of what could be defined as industrial. This could include nearby amenities and services such as restaurants, coffee shops, gyms, medical services, and personal services.

## Logistics

Logistics operators are one of the largest industrial sectors within Metro Vancouver, facilitating the import and distribution of goods throughout the region along with the export of Canadian made products. Distribution fulfillment centres are commonly large-format warehouses up to 500,000 square feet in size with ample loading access and 36-foot ceilings.



Large-scale fulfillment centres can reach up to 500,000 square feet with ample loading and 36-foot-high ceilings.

These users typically require large sites exceeding 15 acres and utilize technology such as automated vehicles, conveyer systems, robotics, and other advancements to optimize efficiency. Businesses that provide last-mile distribution of goods purchased online prefer to be located close to major centres of population due the transportation costs associated with deliveries and increasingly lofty consumer expectations regarding delivery times. The constrained industrial land base within Metro Vancouver, particularly for lots of suitable size to accommodate such uses, is driving the need for large-scale, multi-level developments similar to Prologis Georgetown Crossroads (Seattle) or Oxford Properties Riverbend (Burnaby). Tenant types most likely to occupy such developments include Amazon, Home Depot, Best Buy, Walmart, couriers (FedEx, UPS, DHL), and similar companies.



Amazon utilizes its fleet of delivery vehicles and mini urban fulfillment centres to provide same-day delivery.

## Last Mile / Smaller Urban Facilities

Evolving market conditions, consumer demand, and increased competition have also resulted in some businesses moving towards a hub and spoke model with several smaller distribution centres even closer to the consumer. For example, while Amazon is still in the market for large format fulfillment centres on the fringes of metro regions, as evidenced by their recent leasing of 450,000 sf of space at Delta iPort, they are also planning to open over 1,000 smaller delivery hubs

in cities and suburbs across North America. These are referred to as “delivery stations” or “micro fulfillment centres”, where a local delivery fleet can pick up and transport packages to the customer as fast as possible. With this strategy, Amazon is targeting consumers who need products now but would prefer to avoid going to a retail store for a variety of reasons. Tenants utilizing this sort of strategy could occupy the smaller industrial floorplates more commonly found in densified developments (Format B or C). One of the key challenges associated with this strategy, particularly for constrained inner-city developments, is the parking requirements for the overnight storage of sprinter vans in-between delivery periods.

## Manufacturing

Although manufacturing has been experiencing a reduction in employment on an overall basis within British Columbia (-2% annual growth since 2010), this has primarily been caused by automation innovations that increase employment productivity and reduce labour requirements. However, smaller manufacturing industries, many of which still have relatively high labour requirements, are some of the fastest growing employment sectors within the province. This is demonstrated on the following page in Figure 14. Manufacturing is a broad term that includes several subcategories ranging from lighter industrial businesses such as food manufacturing (bakeries, coffee roasters, etc.), beverage manufacturing (breweries, distilleries, etc.), and clothing manufacturing to heavier industries such as wood product, paper, and machinery manufacturing.

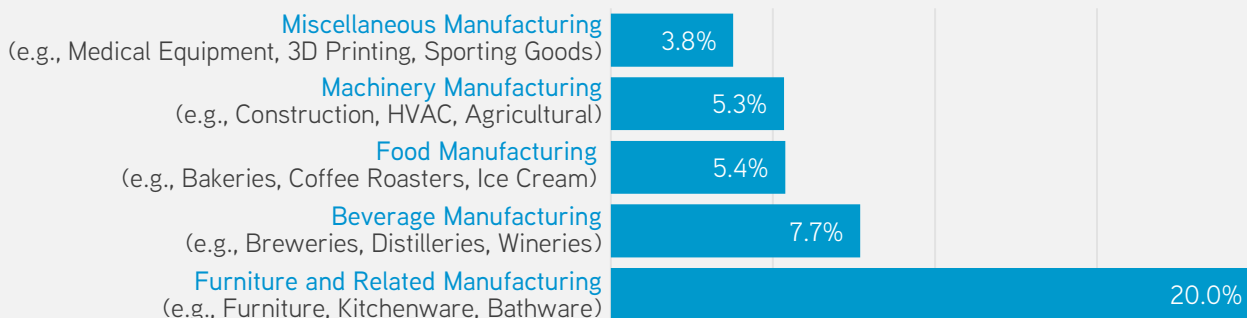


Brassneck Brewery is one of many popular breweries located within Mount Pleasant, Vancouver.

Many of the lighter industries benefit from proximity to a large consumer source and are suited for Formats B and C of industrial densification. For example, food and beverage manufacturers have large population-serving components, and as the regional population grows, so does the demand for such goods from the consumer. This is becoming even more evident due to the rising desire to shop-local among younger demographic cohorts aging into their prime consumption years (35 – 54), contributing to the popularity of tenant types such as breweries, coffee roasters, and distilleries. These types of tenants provide jobs and goods for the local economy and many of the amenities that potential tenants may desire nearby when deciding where to locate.

Creative manufacturing uses such as clothing design, furniture design, medical technologies, and software manufacturing are also rapidly growing industries within Metro Vancouver, many of which prefer the format of flex-industrial units compared to typical office space. The classification of these tenant types is challenging and has frequently resulted in issues regarding whether they should be defined as office or light industrial. Ultimately, these tenants provide both jobs and goods to the local economy, and their inclusion within constrained areas of Metro Vancouver suited for intensified forms of development should be strongly encouraged at the municipal level.

Figure 14 Annual Job Growth among Key Manufacturing Subsectors (BC, 2010-19)



Source: BC Statistics

### Emerging Technology

There has also been consistent employment and production growth driven by emerging technology companies such as biotech, virtual reality, augmented reality, video gaming, 3D printing, and data storage. These business types often require high ceilings, complex labs, storage, and power, accommodating research and development, packaging, and distribution on one site. These types of industries benefit from the clustering or colocation of related operations in densified industrial areas, which can foster collaboration and innovation through shared resources (peer-to-peer lending) and the usage of each other’s by-products (material loops), increasing overall efficiencies. Industrial units that were previously used for more traditional industrial uses are consistently being examined and repurposed for these tenant types, many of which have less loading requirements than traditional industries and are suitable for second floor units with access through a freight elevator. These are modern, adaptive uses of industrial spaces; however, they are currently restricted in some industrial zones.



The research and development of technology such as virtual and augmented reality is suitable for light-industrial zones.



Architectural firms often desire the unit formats provided within newer flex-industrial developments.

### Creative Economy

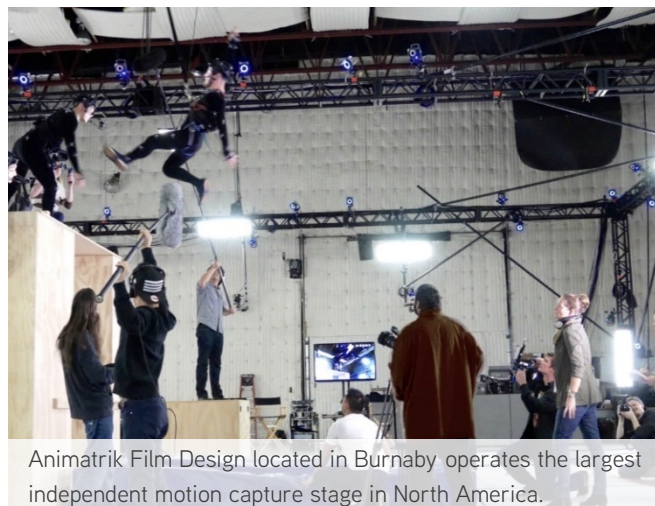
The creative economy refers to a broad range of industries that are related to the use of human creativity to generate knowledge, information, and products. While some of these industries are manufacturers or emerging technologies, as outlined above, others include artisan businesses such as custom craftsmanship, art galleries, graphic designers, architects, marketing firms, and similar uses.



The expanding range and intensity of such uses are consistently adding interest, energy, and jobs to areas of Metro Vancouver where they choose to locate. The space needs of these businesses vary and can generally be accommodated within the unit formats and contexts typical of multi-storey developments through the provision of production space, office space, logistics facilities, and freight elevators close to local consumers/customers. Despite the suitability of these tenant types for industrial developments, many of them are still classified by municipalities as office rather than industrial, leading to challenges regarding the tenancing of the second-floor units of multi-level, flex industrial developments.

## Film and Television Industry

Another rapidly growing sector within Metro Vancouver is the film and television industry, led by the region’s continued establishment as “Hollywood North” due to the relatively close proximity to Los Angeles, competitive tax incentives and government support, and a community that natures creativity. Within BC, employment related to the motion picture industries has grown at an annual average of approximately 10%, one of the fastest growing employers in the region.



Animatrik Film Design located in Burnaby operates the largest independent motion capture stage in North America.

The film and television sector is typically not considered an industrial real estate user, however it occupies a significant portion of industrial space within Metro Vancouver. In recent years, the industry has been looking for warehouse sites to convert into large production studios exceeding 15,000 sf such as Animatrik Film Design in Burnaby. There has also been a significant amount of leasing activity related to the production of animation and other creative services related to the industry. Such users are typically suitable for industrial areas, and production and post-production studios should therefore be permitted within certain zones as they have motion capture spaces and viewing/sound rooms to record in.

## Food Production / Cold Food Storage / Delivery Services

Consumers are increasingly making informed decisions about their daily eating habits which, along with the rise of grocery delivery services, is encouraging innovation across the food supply chain. This is leading to the growth of businesses related to urban and indoor farming, precision agriculture, alternative proteins, and cold food storage, in many cases relatively close to urban populations. For example, SPUD.ca, one of British Columbia’s first sustainable grocery delivery services, recently launched its Food-X urban delivery system. Food X provides other grocery retailers access to SPUD’s industry leading technology, warehousing, home delivery, and food preparation platform, with the goal of enhancing grocery delivery to more residents throughout the region. Walmart was the first retailer within Metro Vancouver to partner with Food-X, which is housed within a 74,000 square foot facility in Burnaby.

## Supportive Accessory Uses

Industrial districts of Metro Vancouver that are consistently densifying are resulting in growing daytime populations that generally create demand for supportive accessory uses such as office, healthcare, personal services, restaurants, coffee shops, and fitness studios. For example, medical and dental uses are important to permit in specific areas, especially those such as Mount Pleasant which have a diversity of uses and strong population base. Additionally, fitness studios are traditionally non-conforming uses in industrial zones but are in high demand and could serve as much desired amenities to nearby workers.



Fitness studios are growing in demand within Metro Vancouver and suitable for industrial unit formats.

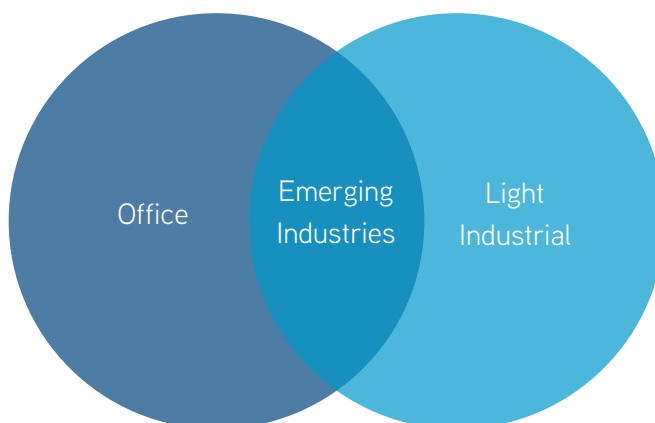


Tacofino in Mount Pleasant added a much-needed influx of food & beverage floorspace serving nearby employees.

The financial viability of many multi-storey industrial developments is also driven by the higher values for office floorspace in the upper levels of the development when compared to the industrial rates of the lower levels. In addition to medical services, other office-type tenants suitable to such projects include developers, engineers, consultants, and other professional services firms. However, the allowance of too much additional office space could have the unintended consequence of pushing up land values, property taxes, and lease rates passed on to industrial users, destabilizing the area for industrial users. This also applies to recreational uses. The appropriate scale of such uses is important to understand and is examined in further sections of this report.

## Summary

There are a wide range of rapidly growing business types in Metro Vancouver that may not have been around when zoning bylaws were being written in certain municipalities. Additionally, many of the users outlined above fall in between the traditional definitions of “office” or “industrial”. As such, it is essential that municipalities focus on examining the lists of permitted uses within industrial or mixed-employment lands to ensure they are not being too restrictive.





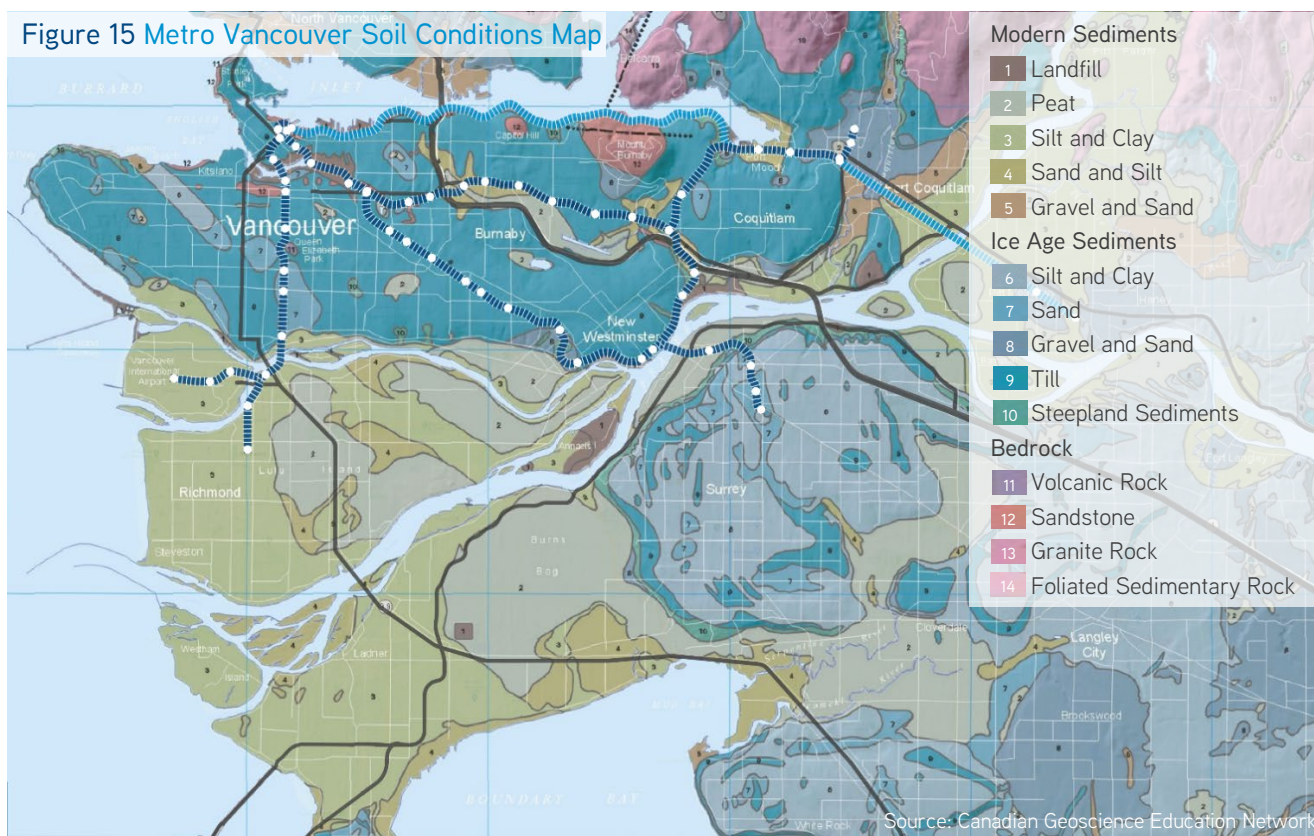
### 3.4 Geographical and Locational Considerations

The locational characteristics impacting both the viability of multi-level industrial development and potential tenant demand include a variety of factors, as outlined below. Some industries and development formats are suitable for a wide range of locations, whereas others have more specific requirements.

- Considerations regarding where intensified development is most feasible include:
- > Geotechnical conditions
  - > Development format and lot size
  - > Population density and growth
  - > Accessibility and amenities

#### Geotechnical Conditions

Ground conditions vary throughout Metro Vancouver and many industrial zoned sites are located on soil that makes multi-level development more expensive, and in many cases cost prohibitive. When examining the locational suitability for such development throughout Metro Vancouver, it is therefore important to consider

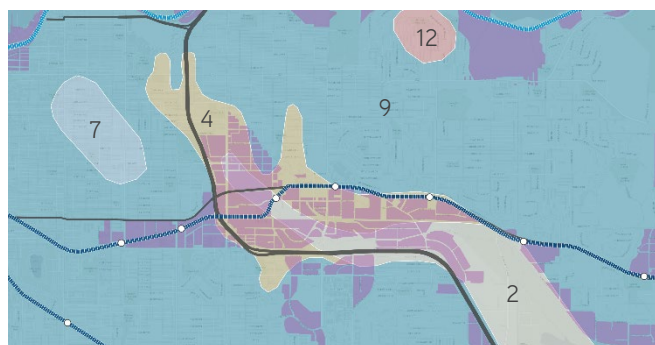


soil conditions of industrial lands.

Challenging soil conditions are generally loose, water-saturated sediments less than 10,000 years old such as the Fraser River floodplain, including clay, peat, silt, and landfill. Clay is tricky due to its tendency to shift around

as it dries or moistens, requiring deep foundation depths to increase stability. Peat consists of decaying organic matter. It holds a large amount of water and therefore has a low bearing capacity and a tendency to shift around.

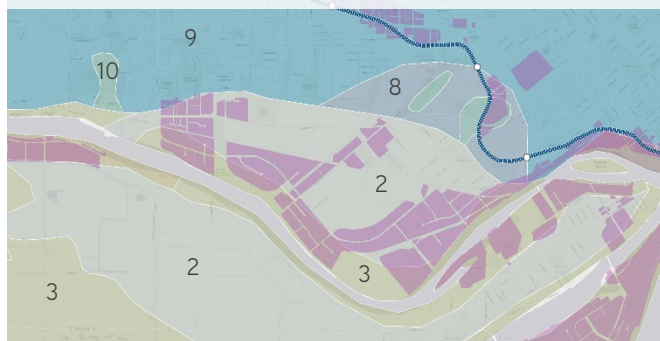
Similar to peat, silt is problematic due to its ability to retain water. Poorly designed and compacted landfills are also poor foundations and more likely to liquify during a strong earthquake. The soil quality of Richmond, Delta, and smaller areas of land throughout Metro Vancouver are therefore less likely to be suitable for multi-storey industrial development.



The peat (2) and sand/silt (4) of Still Creek, Burnaby may result in higher costs associated with earthquake stabilization.

Ice Age sediments provide much more suitable foundations when compared to modern sediments, underlying the rolling uplands (15 to 250 metres in elevation) of the Fraser Valley dating back to the last glaciation of the area (11,000 to 25,000 years ago). Till is one of the best soil types for construction due to its combination of silt, sand, clay, and stones. It combines the best of all their qualities into the ideal balancing support for a foundation. It generally does not shift, expand, or shrink and handles the presence of water well. Mixtures of compacted sand and gravel are also suitable, allowing soil to drain water quickly which reducing the risk of the building shifting around. Rock and bedrock such as sandstone and limestone are also excellent options due to their high bearing capacity.

The peat (2) and silt/clay (3) of Big Bend result in significant costs associated with the creation of a solid foundation.



The majority of industrial land within Vancouver and Burnaby has soil well suited for multi-storey development, aside from the Still Creek and Big Bend industrial lands. Burnaby's new multi-storey development was only feasible because Oxford purchased the land years ago at less than half its current market value. Some areas of Surrey also have soil well suited for development, including the Newton and Campbell Heights industrial lands. Still Creek lands (near Highway 1 and the SkyTrain) are built on a

mixture of sand and silt. While these lands have moderate to high bearing capacity and generally are decent foundation materials, they are slightly more prone to damage during earthquakes and may result in higher construction costs. The Big Bend industrial lands are a mixture of peat, silt, and clay which make multi-storey development less feasible. For example, Oxford Properties' Riverbend project is currently being constructed on a site consisting of modern sediments (peat, silt, and clay). This added significant costs (over 2.5x traditional construction costs) associated with densifying the soil and providing stone columns for additional support.



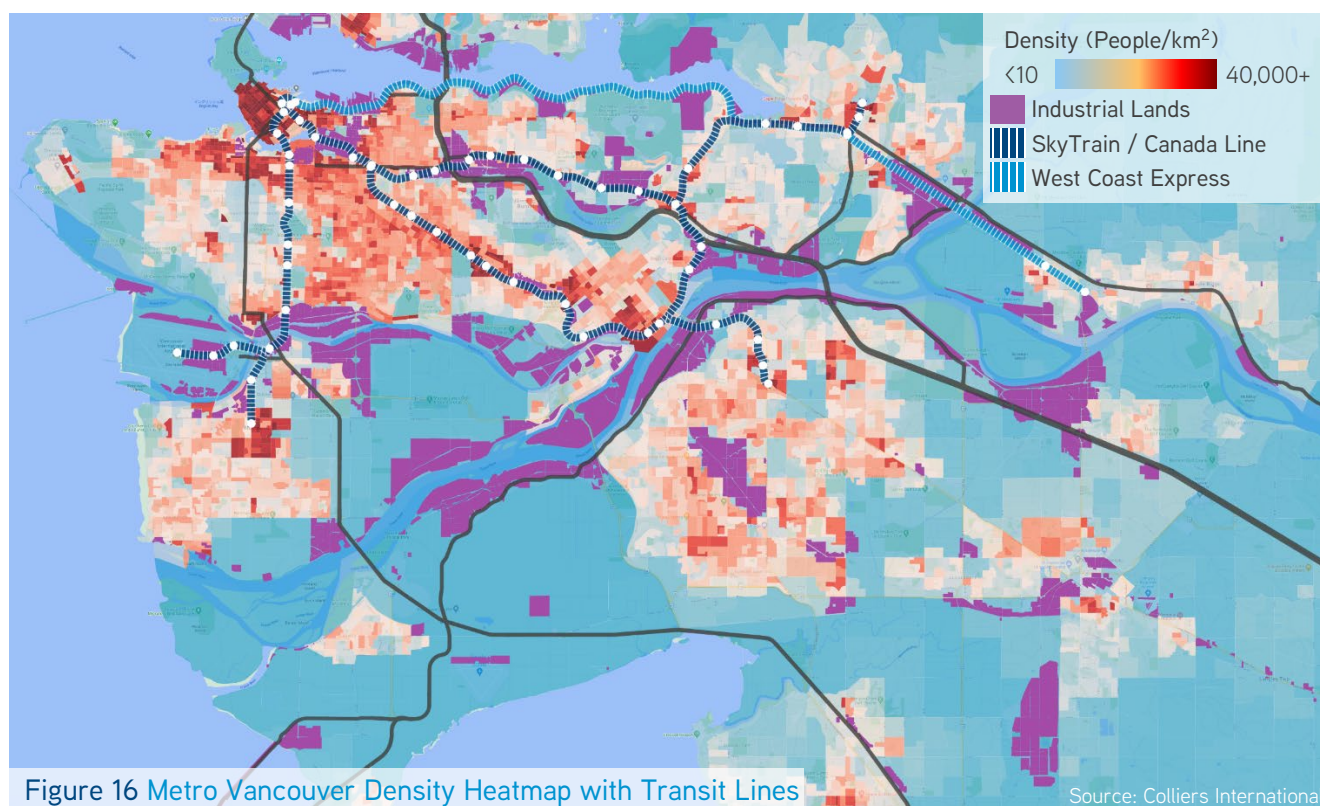
## Development Format and Lot Size Requirement

The likelihood of multi-storey development is also directly related to the availability of suitably sized lots. Large-scale multi-storey developments like Riverbend or Prologis Georgetown (Format A), require lot sizes large enough to accommodate the construction of a ramp to provide second floor truck access while also including enough leasable space to make the projects work financially. These projects typically require sites larger than 10 acres with suitable soil quality, which are scarcely available in the region.

On the other hand, smaller multi-level development typologies with freight elevators (Formats B and C) can be built on much smaller sites, as demonstrated by the amount of development activity occurring in denser industrial areas of Metro Vancouver such as Mount Pleasant on sites smaller than 1 acre. Although unique and hard to find, sites with a grade can be advantageous for two-level industrial buildings, providing loading from two sides/levels while removing the need for a ramp.

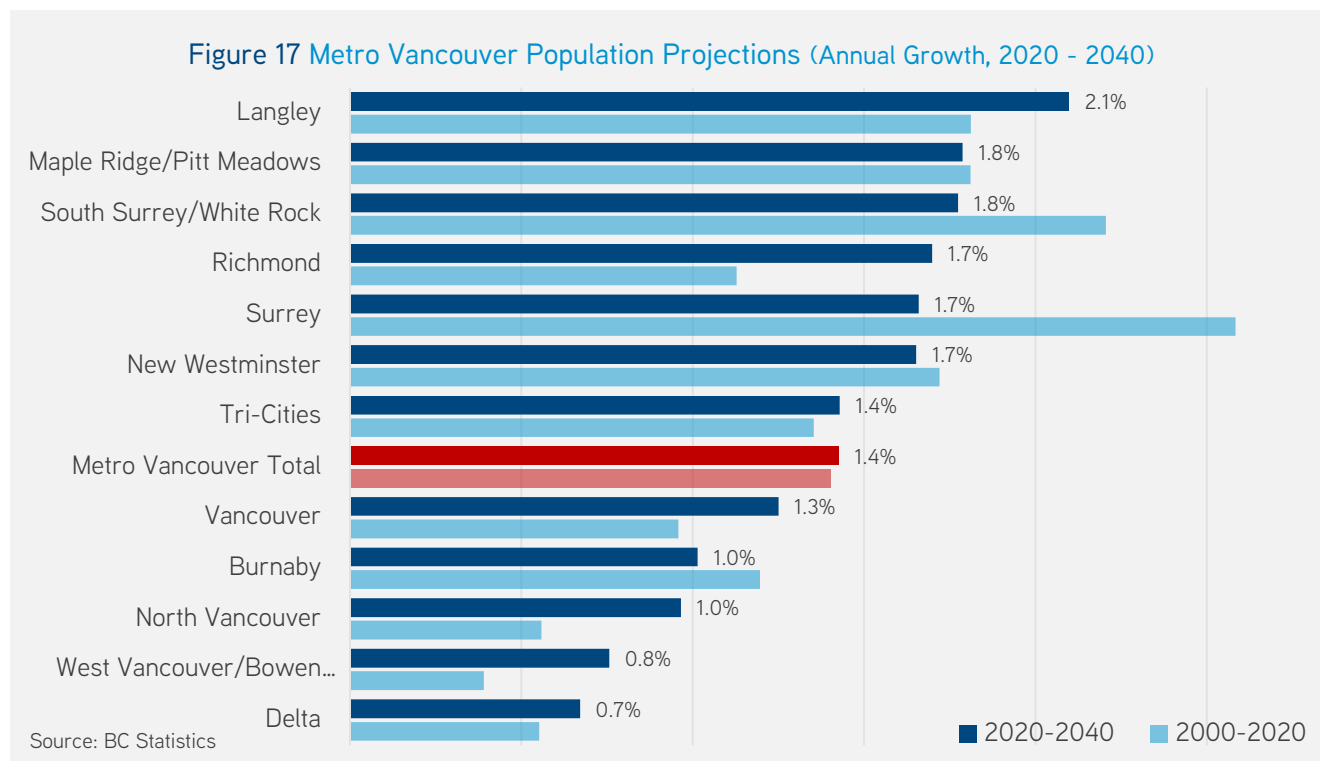
## Population Density and Growth Projections

The tenant types most likely to occupy multi-storey industrial developments are generally focused on serving the local/regional population, ranging from the distribution of goods from large fulfillment centres to the



provision of services or manufactured goods to a localized population. As such, the majority of these industries utilize a business model similar to a retailer, which considers trade area size and the expenditure potential

generated from the population within. Additionally, one of the biggest challenges facing many industrial employers is finding suitable employees. In many cases, highly educated and skilled employees may have choices regarding where they work, and as such, could decide to work in a location that is conveniently accessible or more desirable based on factors such as available amenities. As such, population density, growth projections, accessibility, and accessory amenities are important to consider.



As outlined in Figure 16, density levels are highest the closer Downtown Vancouver, decreasing towards the Fraser Valley. Density generally provides a strong source of consumers, labour, and amenities, leading to the strong industrial activity in inner-city regions such as Mount Pleasant and Railtown. Mount Pleasant in particular has proven to be highly sought after based on the proximity to a dense population along with desirability as a place to work from employees which favour the accessibility and nearby amenities of the neighbourhood over suburban industrial developments.

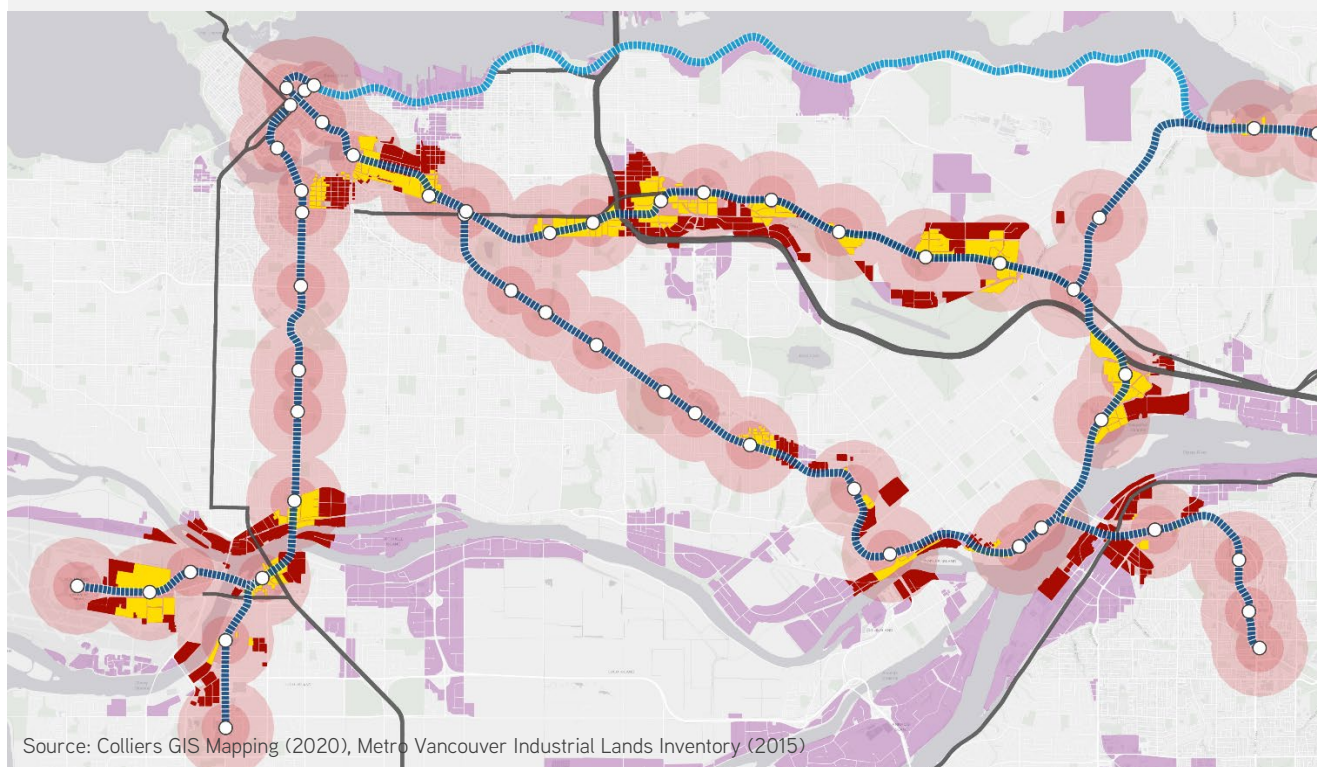
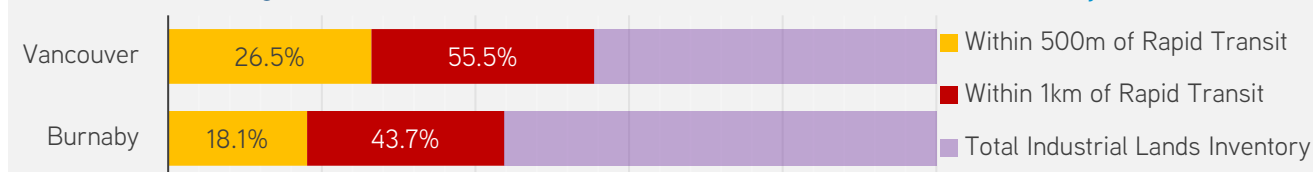
Population growth projections are also important to examine. For example, while Surrey and Langley are currently less dense than Vancouver and Burnaby, their populations are projected to increase at higher annual rates over the next 20 years. This will bring large amounts of additional consumers and potential employees, increasing the potential of the area for intensified development in the long term. As such, industrial lands that are still relatively close to Vancouver and Burnaby yet centrally located to serve this growing population, such as Big Bend in Burnaby or River Road in Delta, could also be suitable locations for multi-storey development in the future.



## Accessibility and Amenities

As mentioned above, accessibility and amenities are key factors that potential employees consider when deciding where to work and that potential consumers consider when deciding where to spend their money. This is also a consideration for logistics companies that increasingly require strong vehicular accessibility to consumers to ship their goods at fast times. Therefore, the smaller, more labour intensive and consumer facing tenant types suitable for multi-storey industrial developments are optimally located in areas that can be accessed easily by rapid transit, highway, local arterial streets, and, in some cases, by foot. Transit proximity also can reduce the parking requirements of on-site employees, which in turn results in potentially lower construction costs and more feasible development.

Figure 18 Metro Vancouver Transit Oriented Industrial Lands Inventory



These smaller format developments often have tenants and customers that also desire nearby amenities such as restaurants and personal services. As such, areas of Metro Vancouver that fill these characteristics are highlighted in Figure 18. For example, approximately 27% of industrial/mixed-employment lands within Vancouver and 18% within Burnaby are within 500 metres of a transit station. Aside from the potential soil

issues mentioned above, Still Creek is an example of a strong location due to its proximity to numerous SkyTrain stations, Highway 1, and rail. Larger occupiers are less focused on proximity and accessibility by labour and consumers, and more focused on the efficient distribution of goods to consumers. As such, these types of businesses are less reliant on public transit and the availability of amenities and more so on the availability of a strong road network relatively close to consumers.

## Summary

Industrial businesses are generally more profitable if their market potential is greater. With the expansion of the industrial subsectors identified in *Section 3.3 Industrial Subsectors Suitable for Intensified Developments*, demand for industrial/light-industrial/flex space in proximity to dense, growing populations with nearby amenities will continue to be in high demand moving forward. Inner city locations are in many cases worth the premium in terms of tenancy costs, particularly as these costs are generally much lower than other factors such as transportation costs. The value-add sectors tend to prefer high profile, inner urban locations and have the most potential in urban, transit-oriented locations like Vancouver and Burnaby. Smaller scale, light-industrial developments with offices above are the most suitable for these areas.

The larger-format model of Riverbend or Prologis is more suitable for highway-oriented and/or port-serving locations. Rail access is also desirable, but not as important as vehicle access. These types of developments still require relatively close proximity to the population, specifically where delivery times are essential. These development formats are also more impacted by the additional costs associated with strengthening the foundation on sites with poor soil quality. As such, the most suitable areas of Metro Vancouver for such development are somewhat limited until the population of the Fraser Valley densifies, as well as due to the lack of available vacant land.

### 3.5 Design and Development Considerations

The design and development of intensified industrial projects, particularly multi-storey, include numerous considerations as outlined below. These considerations vary based on scale and format of development and target tenant types, and in some cases may hinder or facilitate the development of multi-storey projects.

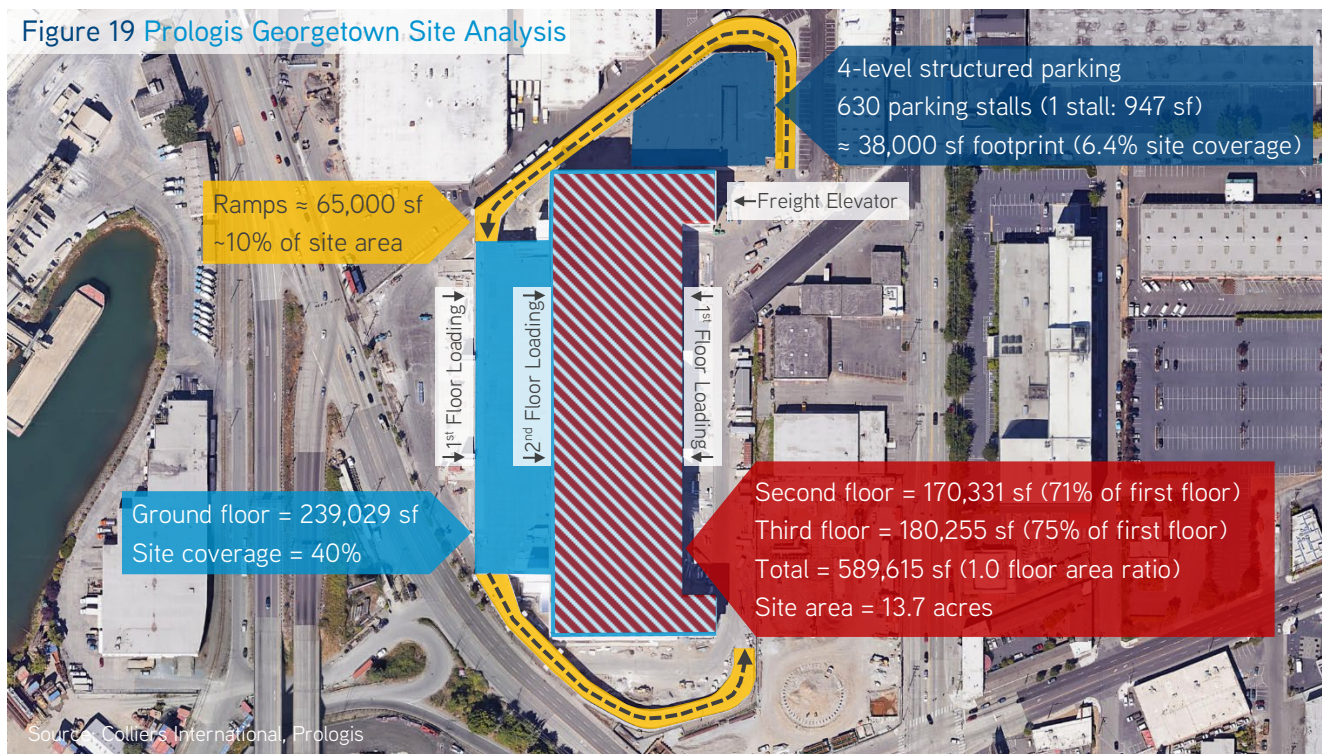
Key design and development considerations regarding regrading multi-storey projects include:

- > Site coverage and floor area ratios
- > Lot size requirements
- > Tenant space requirements
- > Loading/access/parking
- > Integration/scale of accessory uses
- > Physical site features

#### Site Coverage and Floor Area Ratios

Building site coverages and floor area ratios vary depending on development format. Large-scale, multi-storey developments (Format A) such as Prologis Georgetown typically require a ramp to provide loading access to second floor tenants. This development provides a good example of maxed out site dimensions of this format. Based on the turning radius required by the US truck sizes that will be utilizing the ramp, it takes up approximately 10% of total site area with an additional 6% of total site area taken up by a 4-level structured parkade providing 630 parking stalls (1 stall per 947 square feet).

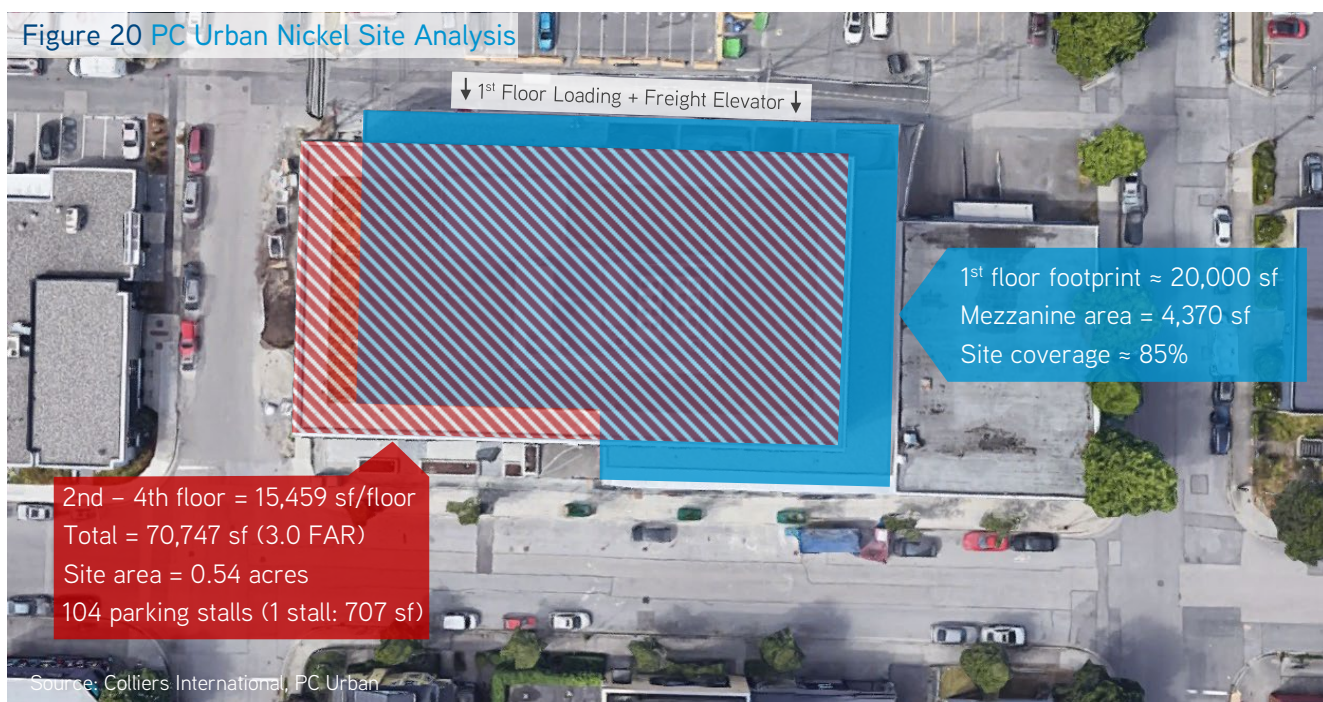
Due to additional circulation/access/egress requirements and an irregularly shaped lot, the development was able to achieve 40% site coverage. This is lower than the typical site coverage for this development format which can reach over 50% as demonstrated in projects such as Riverbend. Due to the space required for 2<sup>nd</sup> floor truck loading, the second and third floors are just over 70% the size of the ground floor, resulting in a floor











area ratio of 1.0 on the 13.7-acre site. This is typically the density range viable on such a development with three floors. Two storey developments of the same format would typically have a maximum floor area ratio of approximately 0.70-0.80.

On the other end of the spectrum, smaller scale light industrial mixed-use developments with ground floor and mezzanine industrial space, underground parking, and three floors of office space above (Format B) have the ability to occupy a much larger proportion of total site area. This is particularly evident within lands with minimal building setback and site coverage restrictions, as demonstrated by PC Urban’s Nickel project at 285 West 5<sup>th</sup> Street. This development has a ground floor footprint of approximately 20,000 square feet, representing approximately 85% of the 0.54-acre parcel. This is possible as the development does not require ramp access to the upper floors, which also allows the 2<sup>nd</sup> – 4<sup>th</sup> floors, which are presently used by a software company for office space, to have a significantly larger footprint relative to the first floor when compared to Format A. As such, this project was able to achieve the maximum permitted density of 3.0. Despite higher achievable densities, these developments proportionally have a larger amount of common space when compared to larger format industrial developments.



If building setbacks, parking, loading, and other requirements can be fully satisfied while providing the maximum building site coverage of a specific lot, then there should not be an artificial cap on the amount of permissible building site coverage nor densities of industrial usage. Generally, FAR maximums are a factor of consideration at the municipal level, however the land economics of developing industrial floorspace on lots less than 1 acre often rely on the ability to also include a significant component of office space in multi-storey projects. For example, up until recently, the density limited in Mount Pleasant I-1 was 3.0 (1 FAR light industrial + 2 FAR office/service/retail). This zoning resulted in numerous developments with only one floor of light industrial with

additional mezzanine industrial floorspace, and 3 floors of office above. More recently, the Mount Pleasant I-1 zone was amended to allow up to 6.0 FAR (2.0 FAR light industrial + 4 FAR office/service/retail). Due to the size of most parcels within this area, the only way to achieve a 2.0 minimum light industrial FAR is to build a second floor of industrial floorspace which is expected to bring more total supply to the market when compared to the older density cap of 3.0.

Table 5 Multi-Level Industrial Development Statistics						
Development	Lot	Floors	Total SF	FAR	Floor Heights	Loading
 Prologis Georgetown	13.7 ac	Level 1 – Fulfillment Level 2 - Fulfillment Level 3 – Flex/office <i> (“Makers Space”)</i>	589,615 <i>40% Site Coverage</i>	1.0 <i>(2.5 max)</i>	Level 1 – 28’ Level 2 – 24’ Level 3 – 16’	Ramps to second floor and freight elevators to third floor
 Oxford Riverbend 5	20.0 ac	Level 1 – Industrial Level 2 - Industrial	707,056 <i>50% Site Coverage</i>	0.8	Level 1 – 32’ Level 2 – 28’	Truck access provided by ramp to second floor
 Conwest Ironworks	2.4 ac	Level 1 – Industrial Level 2 – Flex/Office Level 3 – Office	191,387	1.9 <i>(3.0 max)</i>	22’ for industrial users down to 11’ for office	Sloped site provides loading access without a ramp
 Chard 34 W7	0.4 ac	Level 1 – Light Ind. Level 2 – Office Level 3 – Office Level 4 – Office	48,000	2.8 <i>(3.0 max)</i>	Level 1 – 17’ Level 2 – 11’ Level 3 – 11’ Level 4 – 11’	3 ground level docks with freight elevator to upper levels
 IntraUrban Evolution	0.8 ac	Level 1 – Light Ind. Level 2 – Light Ind. Level 3 – Ind./Office Level 4 – Office	102,600	2.9 <i>(3.0 max)</i>	25’ for industrial down to 13’6” for office	4 freight elevators and 3 oversized dock doors at ground level
 PC Urban Nickel	0.5 ac	Level 1 – Light Ind. Level 2 – Office Level 3 – Office Level 4 – Office	70,747 <i>85% Site Coverage</i>	3.0 <i>(3.0 max)</i>	19’7” for industrial down to 9’7” for office	1 freight elevator with 3 oversized dock doors at ground level



## Lot Size and Building Heights

As demonstrated in Table 4 and Figures 19/20, the required lot size for multi-storey industrial development varies significantly based on development format. For larger developments, the requirement of a ramp that wraps around usable building space results in a less efficient design than a single storey building that could utilize more of the site area. In addition to the requirement for higher-than-average lease/strata rates, the size of sites for such development need to be large enough to create financially viable developments regardless of the less efficient use of land per storey. The larger developments (Format A) typically require sites exceeding 10 acres in size, which are hard to find in Metro Vancouver.

On the other hand, smaller format developments with light industrial at grade, or on the first two floors, office above, with freight elevator loading rather than ramp loading can be developed on much smaller sites less than 1 acre. Once again, the ability for these developments to make sense financially in some cases depend on the permitted density of office uses on top the industrial floor(s) due to the growing construction costs and land values of inner-city locations suitable for such development.

Ceiling heights requirements are consistently increasing due to technological advancements, reaching over 40 feet in some of the newest advanced warehouses. This enhances efficiency and productivity.



Building height requirements are also important to consider. Industrial ceiling height requirements are constantly growing due to technological advancements, reaching over 40 feet in some of the newest, most advanced warehouses. As such, when these types of facilities are stacked on top of one another, the height of the total development can be significant. When municipalities have building height regulations based on older industrial formats with lower ceiling heights, the viability of multi-storey developments can be hindered.



For example, large-scale multi-level developments (Format A), especially on sites with soil conditions require exceedingly expensive foundations. However, the incremental expense of strengthening the foundation for a third floor would be less than the first two floors. Theoretically, the development of additional floors may make the development feasible where a two-storey development may not be financially feasible. As mentioned, each floor of these developments is quite high, and the addition of a third floor could easily result in a total height exceeding 100 feet. In this situation, if the municipality had a height cap it could unintentionally be restricting this format of multi-storey development. In most cases, there is no need for maximum heights on sites suitable for large scale developments as they are generally located away from areas where views, aesthetics, or shading may be of concern.

## Parking Requirements

Minimum parking requirements are also important to examine, as costs of over \$30,000 per structured parking stall add significant additional expense to multi-level developments. Parking regulations vary among municipality, and there is rarely much consideration regarding the location and the impact of factors such as transit proximity. Parking is therefore sometimes overbuilt, particularly for lighter industrial developments close to transit. For example, Chard Development's The Yukon (6<sup>th</sup> and Yukon) is approximately 90% sold out, yet there is still a full floor of leftover parking that was not desired by any of the tenants for themselves or their visitors. This additional parking therefore added significant additional expenses to the development that may have not been required based on its locational context. On the other hand, developments positioned to target tenants that utilize sprinter vans and other delivery vehicles may demand more parking to store these vehicles overnight although vehicle storage can sometimes be accommodated with on-street parking.

Parking regulations should be reviewed by municipalities, particularly in transit served industrial/mixed-employment areas, to ensure that they are not too excessive based on current and expected industrial market trends. In addition to transit, the automation of certain industries and efforts to encourage carpools and car share programs may reduce the necessary amount of on-site parking compared to when the zoning bylaws were written. Additionally, creative solutions may be possible, for example by using employee parking spaces to store sprinter vans overnight when they are not in use, although such vans may require higher clear heights.

## Loading and Access

Many of the industrial tenant types that could be interested in multi-level developments, particularly above ground units, are concerned with the efficiency of loading and truck access. For example, although there is the desire for direct truck access on second floor units among larger-scale tenants, the perception of lack of efficiency using a freight elevator system instead could potentially dissuade potential tenants from choosing a site. There is often also a requirement for curb space / access for drop off and pick up of deliveries such as couriers.



Above ground loading via freight elevators is often perceived as undesirable even though it can be quite efficient.

While the perceived operational nuisance associated with multi-level buildings and freight elevators can be significant for businesses focused on efficiencies, in reality they can still be fairly effective. However, another hybrid option could be the provision of upper-level loading access only to smaller sprinter vans, with loading for larger trucks remaining on the ground floor. This would require much smaller and more affordable ramping systems when compared to those in Prologis' Georgetown Crossroads or Oxford Properties' Riverbend.

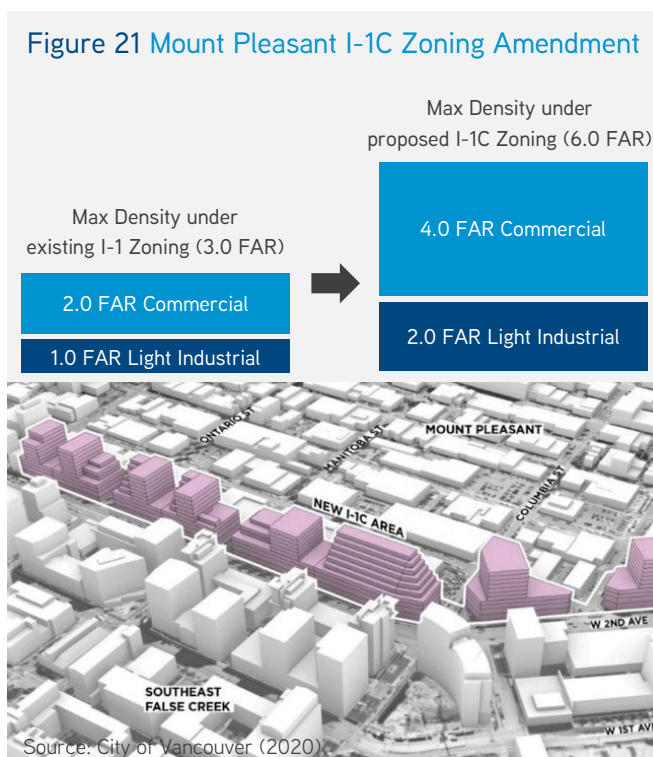
## Tenant Space Requirements

The design of industrial buildings must meet the requirements of target tenant types while providing flexibility to adapt as user needs change. For the smaller tenant types more suitable for inner city, mixed-employment lands, unit size requirements are generally less than 10,000 square feet. Typically, these are light industrial units with a loading bay and mezzanine space for office and/or retail/wholesale components. These types of units are suitable for multi-level developments with additional building features such as freight elevators, wide corridors, high ceilings, adequate column spacing, and floors with load-bearing capacity.

Larger occupiers such as fulfillment centres generally require spaces exceeding 100,000 square feet with direct truck loading access, 300-500 pounds/sf loading capacity, and open efficient layouts ideally with efficient column spacing. These developments occupy larger floorplates such as Prologis Georgetown Crossroads, which has a main floor footprint of 240,000 square feet divisible down to 75,000 square foot units. It is therefore essential to provide developments with flexibility, particularly in terms of potential partitioning or consolidating of internal units, so potential tenants can either occupy the entire floor or a smaller section of the same floor.

## Integration and Scale of Accessory Uses

Limited office and retail uses can support of industrial activities, however, can also potentially cause destabilizing due to land speculation, taxes, and land use conflicts. However, the redevelopment of some sites to include an additional floor of light industrial space may not be feasible without the allowance for the inclusion of office space above which is of higher value in the market. For example, to encourage the development of more job supporting floorspace within Mount Pleasant, the City is proposing a zoning amendment which will allow up to 4.0 FAR of office space if a minimum of 2.0 FAR of industrial is constructed. This is expected to increase the overall density of light industrial space within multi-level developments in the area, which recently has hovered around 1.0 FAR.



Limited retail uses are also required to service the daily needs of the local workforce; however, this demand is very limited, namely to coffee and lunch restaurants. Any retail uses should not be designed to attract significant customer traffic from beyond the immediate industrial area in order to minimize conflicts with industrial users. For example, a general rule of thumb, is that 5,000 full time employees generate demand for approximately 10,000-15,000 square feet of food and convenience-oriented retail floorspace and an additional 5,000 square feet of service commercial. Allowing other retail uses which are not directly associated with the industrial operations may introduce other issues which could detract from the industrial potential of the area, such as increased traffic, higher expectations about area amenities and transit service, while driving up land prices.

It is also important to ensure that the use, design, and interface between different uses within mixed-use projects minimize any potential conflicts. Some types of industrial tenants can be more readily mixed/integrated with other forms of development such as office space. The provision of a separate elevator for office tenants could be beneficial, while the location of retail floorspace (if any) should also be considered. While many light industrial zones could support the inclusion of supportive retailers such as a restaurant with a patio, it is important to position such a retail unit away from the noisier truck access routes of the site in order to facilitate a more inviting dining experience. Municipal bylaws could be written to best reflect this balance, providing reasonable flexibility for accessory uses while requiring the inclusion of industrial uses.

## Physical Site Features

The physical features of the site itself are important considerations. While industry has traditionally sought the flattest land in the region given the nature of most forms of production, storage, and distribution activity, the cost of providing ramping/truck access to second floor units has shifted more awareness to the potential benefits of sloped sites. This is demonstrated by Conwest’s Ironworks located in East Vancouver, as displayed below. This project benefited from a sloped site that resulted in the ability to provide truck access to two levels of the development without a costly ramp and utilized an entire city block (and closed middle lane), which benefits design options. The site’s topography was highlighted by Conwest staff as being critical in the feasibility of the design decision. Following the development of this project, the City changed how they calculate FAR, in terms of including exterior building corridors which were previously excluded.





## 4 Planning Policy Review

---

The planning policy review compares and analyzes the various policies in place at the regional and municipal scale that encourage the intensification of industrial lands. The review begins with an analysis of regional policies as they are the guiding framework for municipal policy and decision making. The following section reviews the current policies of six municipalities in the region (City of Vancouver, City of Burnaby, City of North Vancouver, City of Richmond, City of Surrey, and the Township of Langley). These municipalities have significant industrial land areas and are key markets where demand and high land values for industrial floor area will instigate further densification and intensification where allowable.

While all municipalities reviewed have policies and statements in place noting the importance of the industrial sector, a number of policies and Official Community Plans require updating from an intensified industrial perspective to meet current market conditions. Notably, the City of Burnaby's Official Community Plan and Economic Development Strategy require updates to align with the modern industrial climate. Further, most municipalities could include more prescriptive language as to how intensified development can occur. Finally, in a number of municipalities, while there are goals and policies in place, the zoning bylaw does not fully align with the objectives outlined in higher level policy documents.

Some municipal zoning bylaws allow for a wide range of uses within their 'industrial' zones, in some cases, to recognize the various uses that did not fit the old definition of industrial uses that were already in place. In the case of the City of Vancouver, some industrial zones allow office and in I-4 'creative products manufacturing', encourage the redevelopment of older industrial buildings to higher densities developments with greater and higher level uses. This has led to the change, or loss, of traditional industrial activities in certain areas as redevelopment and higher values take hold. It is crucial that in addressing the regional shortage in industrial land, that steps be taken to intensify suitable sites to create more industrial floor area.

### 4.1 Metro Vancouver Regional Growth Strategy

The Metro Vancouver Regional Growth Strategy was adopted in 2011 and is one plan among a set of interconnected plans developed around Metro Vancouver's Sustainability Framework to focus on land use policies and guide the future development of the region and support the efficient provision of transportation, regional infrastructure, and community services. As a response to the six key challenges the region faces, five goals were arranged to achieve desired outcomes.

#### Supporting Policies for Intensifying Industrial Development

- › Goal Number 2: Support a Sustainable Economy

- This goal recognizes that the “land base and transportation systems required to nurture a healthy business sector are protected and supported. This includes supporting regional employment and economic growth. Industrial and agricultural land is protected and commerce flourishes in Urban Centres throughout the region”.

## › Strategy 2.2: Protect the supply of Industrial Land

- Metro Vancouver’s role is to:
  - 2.2.2 Work with the province, municipalities, and other agencies to investigate industrial taxation rates and policies that support industrial activities.
  - 2.2.3 Accept Regional Context Statements that project and support the ongoing economic viability of industrial activities that meet or work towards Action 2.2.4
  - 2.2.4 The role of municipalities is to adopt Regional Context Statements, which:
    - bi) Support and protect industrial uses;
    - bii) Support appropriate accessory uses, including commercial space and caretaker units;
    - biii) Exclude uses which are inconsistent with the intent of industrial areas, such as medium and large format retail, residential uses (other than industrial caretaker units where necessary), and stand-alone office uses that are not supportive of industrial activities;
    - biv) Encourage better utilization and intensification of industrial areas for industrial activities;
    - di) Support a mix of industrial, commercial, office, and other related employment uses, while maintaining support for established industrial areas, including potential intensification policies for industrial activities, where appropriate;
    - diii) Support the regional objective of concentrating commercial and other major trip-generating uses in Urban Centres and Frequent Transit Development Areas;
    - dv) Allow low density infill / expansion based on currently accepted local plans and policies in Mixed Employment areas and support increases in density only where the Mixed Employment area has transit service or where an expansion of transit service has been identified in TransLink’s strategic transportation plans for the planned densities;

## 4.2 Metro Vancouver Regional Industrial Lands Strategy

### Supporting Policies for Intensification

The Metro Vancouver Regional Industrial Lands Strategy was a coordinated effort by Metro Vancouver to establish a vision for the future of industrial lands across the Metro Vancouver region to the year 2050 and outlines the challenges the region faces. In response to these challenges, 34 recommendations are proposed along with 10 priority actions which inform the four big moves established to protect and ensure the economic viability and longevity of industrial land. This study, examining the intensification of industrial land in the Metro Vancouver region, was established as a result of “Big Move #2 – Intensify and Optimize Industrial Lands”.

While not a “one size fits all” approach to long term industrial strategies for every municipality in the Metro Vancouver region, the policies and recommendations made in the Regional Industrial Lands Strategy should be undertaken by municipalities to balance regional objectives with municipal goals and ensure a sufficient supply of industrial land can remain consistent with demand and catalyze future economic growth and stability.

### Big Moves

1. Protect Remaining Industrial Lands
2. Intensify and Optimize Industrial Lands
3. Bring the Existing Land Supply to Market & Address Site Issues
4. Ensure a coordinated approach

### Priority Actions

1. Define Trade Oriented Lands
2. Undertake a Regional Land Use Assessment
3. Strengthen Regional Policy
4. Seek Greater Consistency in Local Government Zoning Definitions and Permitted Uses
5. Facilitate the Intensification / Densification of Industrial Forms Where Possible
6. Prepare Bring-to-Market Strategies for Vacant or Underdeveloped Industrial Lands
7. Ensure Transportation Connectivity
8. Coordinate Strategies for Economic Growth and Investment
9. Improve Data and Monitoring
10. Develop a Framework for Coordination

Of the 34 recommendations made, the following pertain to the intensification of industrial lands.

- › Recommendation 7: That municipalities facilitate the intensification/densification of industrial forms where possible through actions including:





## Summary

Regarding industrial intensification in the City of Vancouver, Staff note that the goal of policy is to allow for market drivers to align with development requirements and to ensure the intent of policy is clear. As a direction from the Employment Lands and Economy Review, Staff are recommending the doubling of permitted density from the existing 3.0 FSR permitted under I-1 zoning to 6.0 FSR under a proposed I-1C zoning designation. The proposal increases the minimum industrial density required and allows accessory uses above to supplement the additional costs associated with developing upper floor industrial spaces. This is a concentrated attempt to make overall projects more economically feasible recognizing that upper floors of industrial generally command less rent per square foot and that upper floors of office are able to receive higher per square foot rents than lower floors of industrial space.

In addition, the City of Vancouver recently amended the I-1 District Schedule to add an additional high value use and created a new I-1C District Schedule as a result of the Emerging Directions for Consideration Through Vancouver Plan (ELER Phase 2). The new District Schedule introduces new bylaw, policies, and guidelines for the south side of 2<sup>nd</sup> Avenue, between Yukon and Quebec Streets, to support employment-intensive stacked light industrial and limited retail uses on lower levels with compatible office and service uses above. The intent is to increase the City's land use capacity for industrial space and introduce new employment space in the form of modernized stacked light industrial with intensified office space above. Notably, the new I-1C District allows twice the density permitted in I-1 (from 3.0 FSR to 6.0 FSR) and maintains the area's industrial land use designation by maintaining that a minimum of 33% of the overall floor area of each site is secured for industrial uses.

These policy directions represent attempts for the City of Vancouver to be proactive in supplying vital industrial space while understanding the economic drivers behind development decision making. City of Vancouver Staff recognize that there are greater costs and higher levels of uncertainty related to upper floors of industrial space and hope that over time, the market will adapt to and recognize the utility of these floors. Staff also note that they are cautious in updating additional uses as to not displace lower value uses that are still essential for a diverse economy yet less critical in servicing the local population. The aim is to deflect and discourage speculation while landowners wait for higher and more valuable uses on industrial sites.

## 4.4 City of Burnaby

### Policy Reviewed

1. City of Burnaby Official Community Plan (1998)
2. Burnaby Economic Development Strategy 2020 (2007)
3. City of Burnaby Zoning Bylaw

## Summary

Both the City of Burnaby's Official Community Plan and Economic Development Strategy are in need of updates in alignment with current industrial market conditions and demand. While policy directions in the Official Community Plan support industrial intensification, notably "Amend the Burnaby Zoning Bylaw to encourage intensification of the use of industrial lands, meet contemporary needs and promote higher employment levels", language and policy should be implemented to explicitly support intensified development. Although Burnaby has recently approved a multi-storey industrial development, it is understood that regulatory restrictions and contradictory planning policy created conflict with the approval of the intensified project. In interviews with Oxford Properties, the applicant wished to develop an additional floor of industrial floor area, however, Staff were concerned about the additional height and built form that would result despite the fact that a further intensified project aligns with numerous municipal and regional policies and objectives.

It is important to note that no maximum floor area ratio limit in Burnaby's Industrial Zoning Bylaw (outside of the M8 District), allows for a degree of flexibility in what is developable on industrial sites. However, both the relatively low allowable lot coverage and heights achievable on most industrially zoned sites inhibit the ability to develop more intensified projects.

## 4.5 City of North Vancouver

### Policy Reviewed

1. City of North Vancouver Official Community Plan (2014)
2. City of North Vancouver Economic Development Strategy (2008)
3. City of North Vancouver Zoning Bylaw

### Summary

The City of North Vancouver recently amended the M4 Industrial Zoning bylaw to permit provincially licensed lounges accessory to industrial brewing and distilling uses without the need for site-by-site rezoning. In recognizing the M4 lands primarily between the 200-300 blocks of East Esplanade and East 1<sup>st</sup> Avenue as important employment areas, the City aspires to create a more favorable environment for industrial uses focused on small-scale and customer focused production. This flexibility in allowing additional uses without required regulatory approvals and associated time and cost, seeks to improve the utility and increases the value of these industrial lands. It should be noted that this flexibility in allowing additional uses is likely to increase land values and demand for M4 zoned industrial sites and may put pressure on lower value industrial uses to displace in favor of more valuable uses. While it is important to maximize the value of industrial land, it is also important to recognize the utility and value of uses that are generally considered lesser in economic value.

The City of North Vancouver's Official Community Plan encourages the continued support for industrial spaces recognizing that industrial lands are vital for continued economic growth and employment. Notably Policy 7.2.8, which encourages the intensification of employment floor area, will be a guide in encouraging future industrial intensification in key areas, particularly areas accessible to workers. It should be noted that Council's Strategic Plan 2018-2022 makes no reference to economic development in the industrial sector of the city.

## 4.6 City of Richmond

### Policy Reviewed

1. City of Richmond Official Community Plan (2012)
2. City of Richmond Resilient Economy Strategy Action Plan (2014)
3. Industrial Lands Intensification Initiative (ILLI)– Summary of Findings and Proposed Amendments to Richmond Official Community Plan (2021)
4. Interview with City of Richmond Planning Staff
5. City of Richmond Zoning Bylaw

### Summary

The City of Richmond's Resilient Economy Strategic Action Plan builds on the economic policies of the Official Community Plan and reiterates the importance of industrial land on the local and regional economy in supporting economic development and employment. Notably policy 5.1.2.4 explores the possibility of higher site coverage on industrial land to better utilize valuable industrial lands. The policy places emphasis on flexibility to allow users to achieve higher density forms of industrial development if it is suitable for operational goals instead of limiting use from the onset of a development project. In general, the City of Richmond is being proactive in supporting additional industrial floor area through intensification and redevelopment. In particular, policy 6.1c recognizes the financial constraints associated with multi-storey industrial floor area and seeks to encourage industrial intensification through lower fees on square footage above. Further, Policy 6.11 – the periodic review of allowable uses and bylaw regulations will ensure that Richmond's industrial zoning bylaw is current with industrial demand.

Despite the proactive approach to encouraging more intensified industrial projects through high site coverage, the City of Richmond's industrial zoning bylaw could be less restrictive in allowing for more dense industrial forms through an increase in allowable heights and densities achievable. High site coverages allow for high lot utilization, however, there are often still substantial loading and parking requirements for industrial uses and height restrictions may prohibit more creative developments.

The updates to the City of Richmond Official Community Plan and Zoning Bylaw through the Industrial Lands Intensification Initiative (ILLI) will encourage more efficient and intensive industrial development in the City of

Richmond. Notable recommendations include increasing the maximum building height to accommodate taller industrial buildings driven by technological advances, increasing density achievable on large industrial sites, expanding the list of allowable industrial uses, and reducing parking requirements to support shifts in industrial user types.

While the City has traditionally experienced more standard format industrial development, high density projects, particularly ones on large parcels that support multiple levels of policy, will be supported even if zoning bylaws currently do not permit them through the creation of comprehensive development district. Staff note that the ILLI is the first step in a multidepartment strategy addressing economic development and industrial intensification in the City of Richmond. Future work will be conducted to understand the impact of new and emerging industrial sectors, evaluate the appropriateness of some non-industrial uses in industrial zones and analyze the impact of industrial stratification on the overall industrial market.

## 4.7 City of Surrey

### Policy Reviewed

1. City of Surrey Official Community Plan (2013)
2. Building the Next Metropolitan Centre: Realizing Surrey's Economic Opportunities – The City of Surrey Economic Strategy 2017 to 2027 (2017)
3. Interview with City of Surrey Planning Staff
4. City of Surrey Zoning Bylaw

### Summary

A number of policies and objectives in the City of Surrey reaffirm the importance of industrial land and recognize the importance of these lands for future economic development and growth. While the Official Community Plan was adopted in 2014, the City of Surrey recognized the importance of being flexible with regulations such as parking standards and zoning restrictions to allow for more optimized use of industrial lands. Policies in place supporting industrial intensification include, Policy E1.5 encouraging full and efficient utilization of industrial lands to create the most amount of economic activity per hectare, Policy E1.6 supporting the infill and redevelopment of underutilized properties, and Policy E1.7 recognizing the importance of flexibility.

Discussion with City of Surrey Staff suggest that market feasibility has been the predominately limiting factor for intensified industrial projects in Surrey. While industrial projects have intensified through higher ceiling clears and taller overall buildings, proponents have indicated that high lot coverage, multi-storey and high FAR industrial buildings are not yet financially feasible. Staff suggested that while a review of Zoning Bylaw was to be undertaken in the short-medium term future to accommodate more intense industrial projects, if a proponent made an application for an intensified project that did not conform to an industrial zone, the City could



accommodate a proposal with a comprehensive development zone assuming the project is contextually appropriate and meets policy objectives. The City of Surrey noted that ideal locations for intensified industrial sites would likely be in Newton or Bridgeview due to the proximity to urban markets and alternative transportation modes, and while land use plans are not yet updated for intensified industrial uses, flexibility can be provided when required. While this may encourage interim intensified industrial development, necessitating a Comprehensive Development zone or Development Variance Permit results in additional processing time, cost, and risk.

## 4.8 Township of Langley

### Policy Reviewed

1. Township of Langley Official Community Plan (2013)
2. Economic Development Strategy (2012)
3. Interview with Township of Langley Planning Staff
4. Township of Langley Zoning Bylaw

### Summary

The Township of Langley has a significant number of policies pertaining to industrial development both within the Official Community Plan and the Economic Development Strategy. Notably in 2012, the Township of Langley identified that the densification of developable lands relieves pressure on agricultural lands and allows for a greater mix of uses. A notable policy in the Official Community Plan is Policy 2.4.12 which directly encourages the efficient utilization of industrial lands and intensification of industrial development. Echoed and recognized by most actors in the public and private sector, land values were identified by municipal staff as a key determinant in the feasibility of stacked industrial projects being developed in the Township of Langley. While there has been a trend to intensify industrial buildings through increased building heights and gradually increasing floor area ratios to accommodate modern warehousing technologies, the market has not yet required industrial developments to have high floor area ratios and high lot coverages.

Similar to the City of Burnaby, not having a limited maximum floor area ratio in the industrial zoning bylaw on industrial zones lends itself to allowing higher and more stacked forms of industrial development. However, the limiting factor on intensifying these sites is heavily tied to the heights achievable on most industrially zoned land. While it is positive that the Township of Langley desires a high ratio of employment on industrial sites and a long-term supply of these lands, more can be done to explicitly encourage more advanced forms of industrial development. Work should be undertaken within the industrial zoning bylaw to further encourage intensified industrial development such as modifying the permitted maximum heights to allow users to dictate space as per their operation requirements and market conditions.

## 4.9 Fraser Valley Regional Growth Strategy – Fraser Valley Future 2050 Draft

### Policy Reviewed

1. Fraser Valley Regional Growth Strategy – Fraser Valley Future 2050 Draft

### Summary

The Fraser Valley region has a similar set of goals and objectives as the Metro Vancouver region in terms of its commitment to economic development and resiliency. The Fraser Valley region, similar to Metro Vancouver, recognizes the importance of industrial land on the local and regional economy and protects industrial land through a number of policies to ensure an adequate supply is maintained. A key differentiation of industrial land in this region is the significantly lower land values experienced in the market. Relatively lower land values place less pressure on industrial land conversion to other uses and although construction costs are similar to municipalities in Metro Vancouver, the per square foot rent/sale rates achievable are not at the point where significant industrial intensification is occurring.

## 4.10 Zoning Comparison

A review of the industrial zoning bylaws of major municipalities in the Metro Vancouver region was conducted to identify gaps in the zoning districts that limit the ability to intensify industrial development. Most notably, the City of Vancouver has been the most proactive in modifying the zoning districts to allow for higher density buildings and larger built forms. The City of Vancouver also recognizes that regulating lot coverage is less important in these more urban industrial developments and allows developers to build based on context and end use as opposed to more conforming site restrictions (outside of required adjacencies, setbacks, etc.). Further, the City of Vancouver is taking an approach more based on land economics and development feasibility recognizing that intensified uses are vital to continued city growth, but also in understanding the additional costs and risks associated with such developments.

A number of municipalities, despite commitments to protect and intensify industrial lands, have not yet fully adopted zoning bylaws which encourage and promote more intensified uses regardless of economic climate. Notably, the City of North Vancouver's relatively low maximum height achievable limit the ability for intensified stacked industrial uses despite there not being maximum site coverages and densities achievable. A similar trend is observed in the City of Burnaby where, despite there being no prescribed maximum densities, built form and industrial floor area achievable is highly limited by height and lot coverage. Flexibility in built form, where contextually sensitive, can allow industrial developers, when market conditions are right, to maximize the creation of industrial floor area.

Table 6 Zoning Comparison Analysis

City of Vancouver			
Zone	Maximum Achievable FAR	Height (m)	Lot Coverage
I-1	3.0	18.3	-
I-1A	3.0	33.5	-
I-1B	3.0	38.0	-
I-2	3.0	30.5	-
I-3	3.0	30.5	-
I-4	5.0	30.5	-
IC-1	3.0	18.3	-
IC-2	3.0	18.3	-
IC-3	4.0	18.3	-
M-1	5.0	30.5	-
M-1A	5.0	18.3	-
M-1B	2.0	12.2	-
M-2	5.0	30.5	-
MC-1	2.5	13.8	-
MC-2	2.5	13.8	-
City of Burnaby			
Zone	Maximum Achievable FAR	Height (m)	Lot Coverage
M1	-	12.0	50%
M2	-	4 storeys	60%
M3	-	4 storeys	-
M4	-	10.5	50%
M5	-	12.0	50%
M6	-	12.0	25%
M7	-	12.0	25%
M8	1.2	18.0	40%
City of North Vancouver			
Zone	Maximum Achievable FAR	Height (m)	Lot Coverage
M-1	-	12.192	-
M-2	-	12.192	-
M-2A	-	12.192	-
M-3	-	12.192	-
M-4	-	12.192	-
M-5	-	9.144	50%
City of Richmond			
Zone	Maximum Achievable FAR	Height (m)	Lot Coverage
I	1.1	12.0	60%
IL	1.2	25.0	60%
IB1	1.0	12.0	60%
IB2	1.2	36.0	90%
IR1	1.0	12.0	60%

IR2	1.2	35.0	90%
IS	1.0	12.0	50%
IS1	0.1	12.0	8%

#### City of Surrey

Zone	Maximum Achievable FAR	Height (m)	Lot Coverage
IB	1.0	12.0	60%
IB1	1.0	14.0	60%
IB2	1.0	14.0	60%
IB3	1.0	14.0	60%
IL	1.0	18.0	60%
IL-1	1.0	18.0	60%
IH	1.0	18.0	60%
IA	1.0	12.0	60%

#### Township of Langley

Zone	Maximum Achievable FAR	Height (m)	Lot Coverage
M1A	-	12.0	60%
M1B	-	12.0	60%
M2	-	12.0	60%
M2A	-	-	60%
M2B	-	-	60%
M3	-	-	-
M4	-	-	-
M5	-	12.0	35%
M5A	-	12.0	35%
M6	-	12.0	60%
M7	-	12.0	-
M8	-	12.0	40%
M10	-	12.0	-
M11	-	12.0	75%
M12	-	12.0	60%

## 4.11 Permitted and Allowable Uses

Many industrial zones in Metro Vancouver were created prior to the emerging popularity of many industrial uses and tenant types as outlined in previous sections of this report. For example, recent economic trends have created strong demand for last mile distribution along with more advanced forms of industrial uses that have not existed in the past such as stacked urban aquaponics<sup>1</sup>. It is important to reassess permitted uses to incentivize multi-storey industrial developments as to not prohibit potential users who may occupy these industrial developments, particularly users that can maximize the utility of upper floors.

<sup>1</sup> Aquaponics refers to a food production system that couples aquaculture with hydroponics.



In analyzing the complexity of allowable uses in various municipalities' zoning district schedules, repetition of uses, very specific uses, outdated uses and uses that are not yet available in the current Metro Vancouver market were found. The limitation and specificity of allowable uses may limit the ability for industrial tenants to use physically and economically suitable space. The Township of Langley's multiple industrial zones have over 70 unique uses, which further restricts the space users can utilize. Flexibility in use in various industrial zoning bylaws, when contextually sensitive, will allow greater opportunity for industrial users to utilize already spaces in a market where vacancy is at an unprecedented low. It is recognized that many municipalities are cognizant of introducing too much flexibility in allowable uses with justifiable fears of displacing industrial users that are essential for a diverse economy, while recognizing that some uses may not be as economically profitable as higher value uses.

## 4.12 NAIOP Cost of Business Survey – 2019 Industrial Case Study

The NAIOP Cost of Business Survey (COBS) is published annually and quantifies the costs and processing times associated with a typical development project within Metro Vancouver. In 2019, the most recent industrial study was conducted which highlighted that the City of Vancouver was the most improved municipality in terms of receiving building permits and also noted that the City of Surrey and City of Burnaby were making significant strides in reducing and simplifying permit processing for industrial projects. The premise of the 2019 industrial study compared the cost of developing a 100,000 square foot concrete distribution warehouse with a 15,000 square foot office component. It is assumed that every hypothetical project would require DCC and DCL payment along with a rezoning and development permit.

It should be noted that municipal fees to develop a "standard" industrial building across almost every Metro Vancouver municipality increased since the previous study was completed in 2017 with decreases in fees being reported in the City of New Westminster, City of Delta, and the Township of Langley. In regard to regional fees for sewer & drainage, fees have remained consistent between 2017 and 2019. Consistency in municipal fees is beneficial to the development community, not only in the overall bottom line of a development's finances, but also in projecting a development pro-forma for future development projects. The greater the consistency in costs for a development project, the less risky a project.

Further, when examining the timeline for an industrial project to be approved, the majority of municipalities in Metro Vancouver took the same amount of time or longer than previously reported in 2017 with the City of Maple Ridge, the City of Delta, and the City of North Vancouver being exceptions to this. Significant increases in approval timelines were observed in the City of Port Coquitlam, City of Burnaby, and City of Surrey where timelines increased by 100%, 100%, 133% and 203% respectively. Long approval timelines are unfavorable to development projects as it lengthens the amount of time before a project can come to market. Further, long timelines increase the carrying cost associated with holding the land. In general, mitigating and minimizing approval process time, costs, and risks is favorable for development, particularly higher risk developments such as multi-storey industrial projects.

Table 7 NAIOP COBS Municipal Fees (2019)

2017 Rank	2019 Rank	Municipality	Rezoning & Subdivision Application Fees	Development Permit & Building Permit Fees	Administration, Processing & Sprinkler Inspection Fees	DCC/DCL Fee	Sewer & Water Connection Fees	Regional Sewer & Drainage Fees	Taxes	2019 Total	2017-2019 % Change
2	1	Burnaby	\$28,596	\$206,772	\$2,047	n/a	\$47,123	\$267,000	\$154,844	\$237,415	6.6%
7	2	New West	\$11,607	\$149,294	\$31,987	\$125,461	N/A	\$307,050	\$245,973	\$318,349	-15.0%
3	3	Port Moody	\$29,274	\$159,909	\$32,281	\$117,000	N/A	\$307,050	\$203,253	\$338,464	14.7%
1	5	Maple Ridge	\$8,012	\$97,280	\$30,861	\$212,091	\$31,000	\$267,000	\$134,051	\$348,243	110.9%
9	6	Delta	\$4,777	\$112,297	\$31,644	\$228,003	\$82,000	\$267,000	\$178,191	\$376,721	-25%
8	8	Langley	\$9,528	\$17,629	\$35,011	\$303,330	\$31,000	\$267,000	\$104,562	\$347,869	-27.5%
11	10	Port Coquitlam	\$14,077	\$123,535	\$29,537	\$359,598	\$28,000	\$267,000	\$154,844	\$526,747	0.4%
15	11	North Van	\$5,700	\$125,506	\$47,336	\$359,523	\$50,000	\$120,000	\$130,947	\$538,065	0.5%
14	12	Langley Township	\$20,668	\$82,505	\$35,227	\$445,423	N/A	\$267,000	\$118,731	\$583,823	0.8%
16	13	City of Surrey	\$9,531	\$140,816	\$39,052	\$459,035	\$21,309	\$267,000	\$69,417	\$648,434	-7.0%
12	14	City of Coquitlam	\$9,886	\$144,585	\$33,246	\$516,098	N/A	\$307,050	\$120,579	\$703,814	31.9%
17	15	City of Vancouver	\$91,378	\$117,306	\$3,334	\$825,000	\$72,385	\$93,000	\$64,067	\$1,037,018	33.0%
13	16	District of NV	\$10,425	\$187,997	\$35,513	\$964,155	\$66,577	\$120,000	\$106,413	\$1,198,089	78.1%
18	17	City of Richmond	\$3,243	\$139,489	\$30,000	\$1,158,000	\$26,500	\$105,000	\$75,453	\$1,330,732	28.6%

\*Note the exclusion of municipalities in the Fraser Valley

Table 8 NAIOP Municipal Timing Review (2019)

2019 Rank	Municipality	Pre-Application Design Review	Rezoning Process (days)	Development Permit Process (days)	Subdivision Approval (Days)	Building Permit (Days)	2019 Approval Timing (Days)	2017 Approval Timing (Days)	Percentage Change
1	Richmond	43895	60-120	Concurrent	Concurrent	Concurrent	120	120	0%
2	Langley Township	30	60-120	Concurrent	Concurrent	Concurrent	120	120	0%
4	City of Langley	N/A	60-123	Concurrent	Concurrent	<60	180	180	0%
5	Maple Ridge	N/A	60-124	Concurrent	Concurrent	Concurrent	120	180	0%
6	New Westminster	<42	120-180	Concurrent	Concurrent	Concurrent	180	180	0%
7	Delta	Request	120-180	Concurrent	Concurrent	<60	240	360	-33%
8	North Vancouver	14-21	180-240	Concurrent	Concurrent	<60	300	360	-17%
10	Port Coquitlam	N/A	120-180	Concurrent	Concurrent	120-180	360	180	100%
11	City of Coquitlam	56-84	180-240	Concurrent	Concurrent	60-120	360	425	-15%
12	District of NV	150	120-180	Concurrent	Concurrent	120-180	360	360	0%
14	City of Vancouver	Varies	240-365	Concurrent	Concurrent	Concurrent	365	365	0%
15	City of Burnaby	N/A	120-1280	Concurrent	Concurrent	180-240	420	180	133%
16	Port Moody	60-90	240-365	Concurrent	Concurrent	60-120	485	365	33%
17	City of Surrey	0	240-365	Concurrent	Concurrent	120-180	545	180	203%

## 5. Case Studies

---

### 5.1 Overview

As outlined on the following pages, Colliers has reviewed examples of multi-storey developments with industrial components that are either recently constructed, currently under construction, or proposed. This analysis primarily focuses on projects within Metro Vancouver to identify development trends, successes, challenges, and lessons learned. An additional five case studies within the United States were also reviewed to provide an understanding of industrial development trends occurring throughout North America. The following projects were examined as part of this analysis:

1. Riverbend 5, Oxford Properties   Big Bend, City of Burnaby <i>(under construction)</i>	FORMAT A
2. 3733 192 Street, Eagle Builders   City of Surrey <i>(proposed)</i>	FORMAT A
3. Riverworks, Conwest   Marine Drive, City of Vancouver <i>(proposed)</i>	FORMAT B
4. IntraUrban Evolution, PC Urban   Clarke, City of Vancouver <i>(under construction)</i>	FORMAT B
5. Archetype, Hungerford Properties   Mount Pleasant, City of Vancouver <i>(proposed)</i>	FORMAT C
6. The Yukon, Chard Developments   Mount Pleasant, City of Vancouver <i>(under construction)</i>	FORMAT B
7. The Manitoba, Wesbild   Marine Drive, City of Vancouver <i>(proposed)</i>	FORMAT B
8. The Gateway, PortLiving   Powell Street, City of Vancouver <i>(under construction)</i>	FORMAT B
9. Alliance on Vanguard, Alliance Partners   Cambie, City of Richmond <i>(pre-construction)</i>	FORMAT B
10. Georgetown, Prologis   Crossroads, City of Seattle <i>(completed)</i>	FORMAT A
11. Track Six, Avenue 55   SODO Business Park, City of Seattle <i>(proposed)</i>	FORMAT B
12. 2505 Bruckner Boulevard, Innovo Property Group   The Bronx, New York City <i>(proposed)</i>	FORMAT A
13. Terminal Logistics Centre, Triangle Equities   Queens, New York City <i>(proposed)</i>	FORMAT A
14. Sunset Industrial Park, Dov Hertz   Brooklyn, New York City <i>(proposed)</i>	FORMAT A

Generally, the case studies indicate that the most common form of multi-level, mixed-use industrial development within Metro Vancouver is light industrial at grade with office space above. While there are a few examples with above ground light industrial floorspace, they are currently under development and have not attracted as much interest as ground floor units. Large-format, multi-level developments are just becoming viable, however only within areas of Metro Vancouver north of the Fraser River on land that was purchased more than a few years ago due to the rapid recent increase of industrial land values or in areas that allow for high value accessory uses such as Mount Pleasant. The challenge with this form of development is the costs associated with building ramp access to the second floor, along with the lack of suitably sized lots in locations that would support such development. Within the Fraser Valley, it appears that the market is not there yet when it comes to multi-level industrial development, however larger sites with favourable geotechnical conditions such as Campbell Heights are beginning to experience modest intensification in the form of rooftop parking. These market dynamics are examined further in *Section 6. Financial Analysis*.



## 5.2 Riverbend 5, Oxford Properties | Big Bend, City of Burnaby



Oxford Properties' Riverbend 5 is the first large-format, multi-level industrial development to be built in Canada that includes ramp access to second floor units suitable for full-sized trucks.

### Summary

Riverbend 5 is the first multi-storey industrial development within Metro Vancouver designed to suit large-scale tenants that desire a dense trade area such as last-mile fulfillment centres. The project is currently under construction, featuring a 437,239 sf ground floor and 269,817 sf second floor accessible to full size trucks via a heated ramp. Each floor can be further demised to accommodate multiple tenants as small as 70,000 sf.

### Lessons Learned

The development planning of this project included numerous challenges, beginning with the poor soil quality of the site. This resulted in significantly higher construction costs to create a stable foundation. In conjunction with additional costs regarding the required structural features to support the loading requirements of the second floor, it was estimated that total construction costs exceeded 2.5x on a per square foot basis than that of a traditional single-storey industrial development on a site with suitable soil quality. Additional challenges were related to the municipal regulations of this development format. The developer initially proposed the

Building Statistics	
Tenure	Lease
Address	8225 Wiggins Street
Completion Date	2022
User Types	Large-format industrial
Total SF	707,056 sf
Floor Breakdown	1 <sup>st</sup> Floor: 437,239 sf 2 <sup>nd</sup> Floor: 269,817 sf (62%)
Site Size	~20 ac
Site Coverage	~50%
Clear Height	1 <sup>st</sup> Floor: 32 ft 2 <sup>nd</sup> Floor: 28 ft
Total Height	60 ft
Loading	Heated ramp to 2 <sup>nd</sup> floor
Onsite Parking	739 stalls
Zoning	CD – M2 & M5
Max FAR/Height	40 ft / 60% coverage
Achieved FAR	0.8



inclusion of a third floor, which would have required a rezoning, however the City of Burnaby did not support the additional height and design of the ramp. As a result, the third floor was not included, resulting in less leasable floor area than desired. Due to the size of the ramp required to accommodate large-format trucks, along with the 2<sup>nd</sup> floor parking and loading requirements, the total footprint of the second floor is approximately 62% of the first floor. The forecasted financial return from this development is expected to only barely exceed the costs associated with its construction. This is largely because the land was purchased years ago at approximately 40% of its current market value, and the market demand, lack of supply, and population density north of the Fraser River justify expected achievable lease rates exceeding \$20/sf.



The riverside trails adjacent to Riverbend 5 are being marketed as some of the health and wellness amenities of the site.

### 5.3 3733 192 Street, Eagle Builders | Campbell Heights, City of Surrey



Eagle Builders' upcoming development at 3733 192 Street will be the first large-format project in Campbell Heights to include rooftop parking as an effort to create more leasable floor area than a traditional development.

#### Summary

3733 192 Street is an upcoming development located within Campbell Heights in the City of Surrey, featuring a 60% site coverage facilitated by the inclusion of 193 rooftop parking stalls for light employee vehicles (not truck access). This is a single-storey, 403,409 sf development, with the inclusion of rooftop parking being the first of its kind within Surrey.

#### Lessons Learned

While the costs of constructing developments such as this with rooftop parking are slightly higher than traditional developments with surface parking, they are less costly to build than projects with a full second floor of floorspace with ramp access. As such, the upcoming development of this project likely indicates that the industrial market metrics such as achievable lease rates and large-format tenant demand can support a modest amount of intensification, however that Campbell Heights is not there yet in regards to the support for a second floor of such development. This is likely due to the relatively lower density levels in the surrounding region and distance to the City of Vancouver in comparison to Oxford Properties' Riverbend 5.

Building Statistics	
Tenure	Lease
Address	3733 192 Street, Surrey
Completion Date	n/a
User Types	Large-scale industrial
Total SF	403,409 sf
Floor Breakdown	Single floor with rooftop parking
Site Size	15.3 ac
Site Coverage	60% (60% max)
Loading	59 grade level doors
Onsite Parking	369 stalls including 193 on the rooftop for personal vehicles
Zoning	CD
Max FAR/Height	1.0 / 45 ft
Achieved FAR	0.6



## 5.4 Riverworks, Conwest | Marine Drive, City of Vancouver



Riverworks is one of a handful of new multi-storey, mixed-use light industrial developments occurring in the Marine Drive industrial area of South Vancouver, indicating the market viability for this development format in this region of the City.

### Summary

Conwest Developments recently submitted a development application for a mixed-use light industrial project on a vacant site east of TransLink’s bus depot in South Vancouver (Marine Drive). This 80,000 sf project is proposed to include two buildings. The first building will be three-storeys, with double-height ground floor light industrial space and two floors of above ground office. The second building will include two-storeys of light industrial space. Ground floor truck access will be provided via a central mews, and above ground access will be provided via freight elevators.

### Lessons Learned

Multi-storey developments catering to light-industrial users are becoming more popular in industrial regions within Vancouver with strong vehicular and rapid transit access. The Marine Drive industrial area in Southern Vancouver has been demonstrated as one of the next regions of the City likely to experience an influx of vertical supply. Smaller scale projects such as this on sites smaller than 5 acres generally are only able to accommodate freight elevator loading as the lot size requirement for providing ramp access is closer to 10 acres.

Building Statistics	
Tenure	Strata
Address	1550 West 75 <sup>th</sup> Avenue
Completion Date	n/a
User Types	Light Industrial / Office
Total SF	80,000 sf
Floor Breakdown	Building 1: 3 Floors Building 2: 2 Floors
Site Size	2.8 ac
Loading	Central mews for ground floor access with freight elevator to upper floors
Onsite Parking	Underground
Zoning	M-2
Max FAR/Height	1.0 / 100 ft
Achieved FAR	0.65

## 5.5 IntraUrban Evolution, PC Urban | Clarke, City of Vancouver



IntraUrban Evolution is one of the first multi-storey industrial developments to include a 2<sup>nd</sup> floor of light industrial floorspace with loading access provided by freight elevators.

### Summary

IntraUrban Evolution is one of the first multi-storey, light industrial projects within the City of Vancouver to include 2 floors of industrial floorspace in comparison to the single floor seen in most of these buildings. This 102,600 sf project will include 12-18 ft ceilings, extensive glazing providing a variety of views, and common rooftop patio amenities. Ground floor access will be provided via 3 oversized dock doors, with second floor access provided via 2 freight elevators.

### Lessons Learned

While this project has attracted significant tenant interest due to its convenient location close to transit and Downtown Vancouver, the biggest challenge has been the demand for second floor industrial space without direct loading access. Due to a single shared loading area, there has been a common perception that the 2<sup>nd</sup> floor units would result in inefficiencies. This perception has been hard to change as there

Building Statistics	
Tenure	Strata
Address	1055 Vernon Drive
Completion Date	2021
User Types	Light industrial and office
Tenants	No. 1 Collision Centre
Total SF	102,600 sf
Floor Breakdown	1 <sup>st</sup> Floor: Light Industrial 2 <sup>nd</sup> Floor: Light Industrial 3 <sup>rd</sup> Floor: Flex/Office 4 <sup>th</sup> Floor: Office
Site Size	0.8 ac
Site Coverage	85%
Clear Height	18 ft ground floor down to 12 ft for 4 <sup>th</sup> floor office space
Total Height	42 ft 6 in
Loading	2 freight elevators and 3 ground level oversized dock doors
Onsite Parking	60 stalls
Zoning	I-2
Max FAR/Height	3.0 / 100 ft
Achieved FAR	2.9



currently are not any comparable 2<sup>nd</sup> floor units in the City to serve as case studies demonstrating that 2<sup>nd</sup> floor access via freight elevator can be as efficient as direct ground floor access. The asking strata rates for the 2<sup>nd</sup> floor units are only a slight discount from ground floor units, and potential tenants have expressed no concern with price, but rather the inefficiencies of second floor access. Additionally, based on the lack of demand for the 2<sup>nd</sup> floor units, and the requirement of their inclusion due to the I-2 zoning, the ratio of required presales (40-50%) to get the project off the ground in the first place was challenging. Developers have indicated that the inclusion of more office space, for example with the upcoming amendment permitting 6.0. FSR in Mount Pleasant, is an effective way to bypass this initial hurdle.



## 5.6 Archetype, Hungerford Properties | Mount Pleasant, City of Vancouver



Archetype is the first mixed-use project in Vancouver to include strata commercial/industrial space with rental residential.

### Summary

Archetype is an upcoming mixed-use development that will include rental residential units in addition to ground floor flex industrial floorspace, ground floor retail, and above ground office space. This is the first project in Vancouver to combine strata commercial, strata industrial, and rental residential.

### Lessons Learned

This success of the development program was based on the size of the site and the commercial components that subsidized the development of rental residential. Due to the strong transit-oriented location, this development was attracting interest for office strata rates exceeding \$1,000/sf prior to COVID-19. The goal of the development is to fulfill two major needs within the City of Vancouver, the creation of more light industrial supply along with new rental residential supply. To avoid interface issues between the industrial/office and residential uses, two buildings are being constructed. The first building will have retail at grade with residential above, and the second building will have light industrial at grade with office space above.

Building Statistics	
Tenure	Strata / Rental Residential
Address	220 East 1 <sup>st</sup> Avenue
Completion Date	2022
User Types	Industrial / Office / Residential
Tenants	Targeted for creative designers and manufacturers
Total SF	274,300 sf
Floor Breakdown	32,000 sf strata flex industrial 67,000 sf strata office space 200 units rental residential Ground floor retail
Site Size	1.0 acre
Loading	Ground level dock access
Zoning	FC-2
Max FAR/Height	7.0 / 75 feet
Achieved FAR	6.5 (1.0 Ind / 2.0 Off / 3.5 Res)



## 5.7 The Yukon, Chard Developments | Mount Pleasant, City of Vancouver



### Summary

The Yukon is a 45,000 square foot, 4-floor strata light industrial and office development currently being constructed in Mount Pleasant. This development includes a single floor of light industrial and three floors of office above, the most common format occurring in this part of Vancouver.

### Lessons Learned

This project further demonstrates the strong demand for strata office and light industrial units within the City of Vancouver as it is over 90% sold out. However, its transit-oriented location resulted in less parking demand than anticipated/required by current zoning bylaws. Brokers active in the area have indicated that although the development is nearly sold out, there is still a full floor of parking that tenants do not need for either employees or visitors. This indicates the importance of reviewing parking standards within close proximity to rapid transit, as the inclusion of surplus parking adds significant additional construction costs.

Building Statistics	
Tenure	Strata
Address	2238 Yukon Street
Completion Date	2021
User Types	Light Industrial / Office
Tenants	n/a
Total SF	45,124 sf
Floor Breakdown	1 <sup>st</sup> Floor: Light Industrial 2 <sup>nd</sup> – 4 <sup>th</sup> Floors: Office
Site Size	0.4 ac
Clear Height	1 <sup>st</sup> Floor: 17 ft 2 <sup>nd</sup> –4 <sup>th</sup> Floors: 11 ft
Loading	1 freight elevator and 3 ground floor dock doors
Onsite Parking	83
Zoning	I-1
Max FAR/Height	3.0 / 110 ft
Achieved FAR	3.0

## 5.8 The Manitoba, Wesbild | Marine Drive, City of Vancouver



Manitoba will follow in the footsteps of PC Urban’s IntraUrban Evolution by introducing multiple floors of above ground light industrial floorspace with loading access provided by numerous freight elevators.

### Summary

The Manitoba will be one of few multi-storey developments in Vancouver to include above ground industrial floorspace with loading provided by numerous freight elevators. This 340,000 sf project will include 230,000 sf of light industrial floorspace within its first 4 floors, and office space on the 5<sup>th</sup> and 6<sup>th</sup> floors. Ground floor access will be provided through a central loading spine.

### Lessons Learned

This project is aiming to attract tenant interest for the above ground light industrial units based on the momentum generated by similar projects that will be completed and tenanted earlier, along with its location close to rapid transit and provision of numerous amenities including a running track on the roof, dog daycare, end of trip facilities, and covered patio space. The completion of projects such as this with multiple levels of light industrial floorspace will serve as effective case studies regarding the tenant types most likely to occupy above ground units, along with the efficiencies of freight elevator loading in comparison to direct truck loading.

Building Statistics	
Tenure	Strata
Address	8188 Manitoba Street
Completion Date	n/a
User Types	1 <sup>st</sup> – 4 <sup>th</sup> Floors: Light Industrial 5 <sup>th</sup> –6 <sup>th</sup> Floors: Office
Total SF	340,000 sf
Floor Breakdown	230,000 sf light ind. (1 <sup>st</sup> – 4 floors) 110,000 sf office (5 <sup>th</sup> – 6 <sup>th</sup> floors)
Site Size	2.5 acres
Loading	Loading spine providing ground floor dock access with freight elevators for upper loading.
Onsite Parking	439 (359 underground)
Zoning	I-2
Max FAR/Height	3.0 / 100 ft
Achieved FAR	3.0



## 5.9 The Gateway, PortLiving | Powell Street, City of Vancouver



The Gateway will be a unique development due to the inclusion of 3 floors of self storage units that will be retained and operated by PortLiving, along with a top floor of production space rather than office space.

### Summary

The Gateway is a 110,000 sf mixed-use project currently under construction. It will include ground floor strata light industrial floorspace with direct truck loading access, and its top level is being marketed as production space. Its 2<sup>nd</sup> – 5<sup>th</sup> floors will be retained and operated by PortLiving as self-storage units.

### Lessons Learned

The expected programming of this development is relatively unique when it comes to multi-storey, mixed-use light industrial developments within Metro Vancouver. Rather than selling off the entire building, PortLiving is retaining the 2<sup>nd</sup> – 5<sup>th</sup> floors for self-storage units, indicating the continued demand for such uses relatively close to major centres of population. While the detailed design of the storage facilities is unavailable, it is reasonable to assume they could potentially be converted for other uses in the future. Additionally, the 6<sup>th</sup> floor units are being marketed as production space, targeting the film industry, artists, and other creative industries. Amenities such as end-of-trip facilities and rooftop patio space with scenic views are expected to appeal to the target tenant types.

Building Statistics	
Tenure	Strata
Address	3333 Bridgeway Street
Completion Date	2021
User Types	Industrial / Office / Production
Tenants	Self-storage, creative industry
Total SF	110,000 sf
Floor Breakdown	1 <sup>st</sup> Floor: Light Industrial 2 <sup>nd</sup> -5 <sup>th</sup> Floor: Self Storage 6 <sup>th</sup> Floor: Production Space
Site Size	0.8 ac
Clear Height	10 ft to 13 ft ceiling heights
Loading	Ground floor dock loading with freight elevators
Onsite Parking	49 parking stalls
Zoning	I-2
Max FAR/Height	3.0 / 100 ft
Achieved FAR	3.0

## 5.10 Alliance on Vanguard, Alliance Partners | Cambie, City of Richmond



Alliance on Vanguard will become the first multi-level light industrial development within the City of Richmond.

### Summary

Alliance on Vanguard is the first multi-storey, light industrial development to occur within the City of Richmond, conveniently located adjacent to Highway 99. This 2-storey development will feature units ranging from 1,966 sf to 6,045 sf, with 22 ft ceiling heights. Ground floor access will be provided via a central loading mews, and above ground access will be provided by 6 freight elevators.

### Lessons Learned

This development has drawn a notable amount of initial market interest as it is already over 60% sold out, although 75% of purchasers have been international investors. The tenant demand for such as development format within Richmond, particularly for the 2<sup>nd</sup> floor units, will therefore become clearer once the building is completed and occupied. The City of Richmond’s flexibility regarding permitted uses and municipal constraints regarding intensified industrial development were some of the factors leading to the feasibility of this project.

Building Statistics	
Tenure	Strata
Address	4899 Vanguard Road
Completion Date	2022
User Types	Light Industrial
Total SF	200,000 sf
Floor Breakdown	2-floors of light industrial units ranging from 1,966 to 6,045 sf
Site Size	4.8 ac
Clear Height	22 ft ceiling heights
Total Height	56 ft
Loading	Ground floor dock access with 6 freight elevators
Onsite Parking	240 parking stalls
Zoning	IR1
Max FAR/Height	1.0 / 40 ft / 60% coverage
Achieved FAR	1.0



## 5.11 Georgetown, Prologis | Crossroads, City of Seattle



Prologis' Georgetown development in the City of Seattle was North America's first modern multi-storey industrial development.

### Summary

Prologis' Georgetown development in the City of Seattle was North America's first modern multi-storey industrial development. The building features truck ramps which lead to loading docks on the second level, significantly increasing the warehousing capacity of the project as goods can be directly loaded into trucks on multiple floors. Tenants are Amazon and Home Depot, who occupy the entire facility and take advantage of the close proximity to the Seattle market.

### Lessons Learned

From a construction logistics and cost perspective, building a multi-storey warehouse is more difficult than a single-storey traditional warehouse. High land values in the urban Seattle market justified the higher construction costs associated with this development. Only sites that are well located in regions that can demand sufficient rents or strata rates to justify elevated construction costs can accommodate additional floors. These costly projects are still only achievable in a limited number of North American markets.

Building Statistics	
Tenure	Lease
Address	6050 East Marginal Way
Completion Date	Q4 2018
User Types	Level 1 and 2: Fulfillment, Level 3: Maker's Space
Tenants	Amazon, Home Depot
Total SF	590,000 sf
Floor Breakdown	Level 1: 239,029 sf
Site Size	596,772 sf
Site Coverage	40%
Clear Height	28', 24', 16'
Total Height	68' total clear
Loading	Level 1: 66 dock high doors and 4 drive in doors, Level 2: 38 dock doors and 2 drive in doors
Onsite Parking	635 Stalls
Zoning	IG2/U85
Max FAR	2.5 FAR
Achieved FAR	1.0 FAR



Employee parking is provided via a 4-floor structured parkade. The entire site includes a total of 635 parking stalls.



The construction of a ramp suited to accommodate large North American sized trucks added significant costs to the development.



## 5.12 Track Six, Avenue 55 | Sodo Business Park, City of Seattle



Avenue 55 resembles a similar multi-level light industrial development format that is currently trending in Metro Vancouver.

### Summary

Track Six will be a 4-storey light industrial building located in the middle of Seattle’s SODO neighbourhood. The multi-storey facility will accommodate light industrial users targeting industrial flex companies with warehousing or distribution needs. Floors 2-4 will be serviced by forklift rated freight elevators with dock loading at grade.

### Lessons Learned

While the project is for industrial users, the limited ceiling heights on the second to fourth floors may limit the type of tenants interested in the space. Larger scale distribution and logistics users may find the urban location suitable, however, space constraints and lack of loading ability from upper floors will be restrictive. The well-lit modern facility is anticipated to be attractive to creative industries.

Building Statistics	
Tenure	Lease
Address	3847 1st Ave S
Completion Date	Q4 2022
User Types	Light industrial and office.
Tenants	N/A
Total SF	212,516
Floor Breakdown	Floor 1: 51,975 sf, Floor 2: 54,601 sf, Floor 3: 54,601 sf, Floor 4: 54,000 sf
Site Size	104,401 sf
Site Coverage	49.78%
Clear Height	Floor 1: 24’, Floor 2 and 3: 16’, Floor 4: 14’
Total Height	4-storey (83 feet)
Loading	5 surface loading berths.
Onsite Parking	109 stalls.
Zoning	IG1-U/85
Max FAR	2.5 FAR
Achieved FAR	2.06 FAR

## 5.13 2505 Bruckner Blvd, Innovo Property Group | The Bronx, New York



2505 Bruckner Boulevard will feature 2 levels of large-format industrial space with direct 2<sup>nd</sup> floor truck access through a ramp.

### Summary

2505 Bruckner Boulevard will be a multi-storey urban logistics facility that will give tenants access to over 9.4 million people in a 15-mile radius. The facility has high ceilings that can accommodate modern vertical racking systems up to 32 feet in height. From a location perspective, the development is at the apex of 3 major highways linking the site to customers in the tri-state area. It is speculated that Amazon is seeking to acquire the entirety of the project for a large last-mile logistics facility. Sufficient parking is provided to accommodate employees along with fleet parking and electric vehicle charging.

### Lessons Learned

The high land values and proximity to end consumers justify the high construction costs associated with the large and modern multi-storey development. A large logistics tenant will capitalize on the advantageous location and proximity to consumers.

Building Statistics	
Tenure	Lease
Address	2505 Bruckner Boulevard
Completion Date	Q1 2022
User Types	Logistics and Distribution
Tenants	Amazon speculated
Total SF	968,000 SF (including parking and vehicle storage)
Floor Breakdown	Level 1: 238,000 SF, Level 2: 285,000 SF
Site Size	871,200 SF
Site Coverage	Approx. 34%
Clear Height	Level 1: 32', Level 2: 28'
Total Height	60'
Loading	Level 1: 74 dock doors and 2 drive-in doors. Level 2: 37 dock doors and 2 drive-in doors.
Onsite Parking	133 stalls for trailers and trucks and 664 vehicle stalls.
Zoning	C8-1
Max FAR	1.0 FAR
Achieved FAR	0.95 including parking structure





The site is strategically located within an extremely dense trade area providing a population of 9.4 million within 15 miles.



Truck loading on the second floor ensures the efficiencies associated with ground level access.

## 5.14 Terminal Logistics Centre, Triangle Equities | Queens, New York



The Terminal Logistics Centre adds office space on top of 2 large-format industrial floors with direct ramp access.

### Summary

The Terminal Logistics Centre will become the first vertical Air Cargo development on the Eastern Seaboard and will provide tenants with Class-A industrial space. The primary tenant(s) will be the air cargo industry from the JFK Airport market. The building is designed to allow tractor trailer access to both the first and second floors through an external ramp system. The site's proximity to the JFK Airport along with key markets in Queens, Brooklyn and Greater New York City mean this project will be a key multi-modal centre for logistics, distribution, and air support operations.

### Lessons Learned

Similar to other multi-storey developments in North America, high land values and proximity to key transportation infrastructure and consumers justify the higher cost associated with building additional storeys of industrial floor area. High ceilings allow for modern racking storage systems, generally seen as a requirement in modern logistics facilities.

Building Statistics	
Tenure	Lease
Address	130-02 S Conduit Ave
Completion Date	Q1 2022
User Types	Logistics
Tenants	To be determined.
Total SF	Approx. 242,000
Floor Breakdown	Lower Level: 50,000 SF Level 1: 57,000 SF, Level 2: 75,000 SF, Level 3: 60,000 SF
Site Size	130,680 SF
Site Coverage	Approx. 43%
Clear Height	Level 1, 2 and 3: 26'
Total Height	Approx. 78'
Loading	Level 1: 13 docks, Level 2: 13 docks, Level 3: 2 docks
Onsite Parking	100 vehicle stalls
Zoning	M1-2
Max FAR	2.0 FAR
Achieved FAR	Approx. 1.85 FAR



## 5.15 Sunset Industrial Park, Dov Hertz | Brooklyn, New York



The four-floor Sunset Industrial Park will be the largest multi-storey, large-format industrial development in North America.

### Summary

The Sunset Industrial Park will be the largest multi-storey industrial development in North America. Built on an 18-acre site which was acquired for \$225 million, its proximity to end users and a large workforce justify the high costs associated with the project. An intricate ramp system will allow each of the floors to be cross-docked and directly serviceable by full size tractor trailers. In addition, high ceiling heights can accommodate tall racking systems.

### Lessons Learned

Bridge Development Partners and DH Property Holdings identified high earning millennials and the continued desire for last-mile/just-in-time deliveries as the target market for the Sunset Industrial Park which will focus primarily on logistics. Potential clients identified have been typical large e-commerce companies such as Amazon along with logistics companies. Floors can be demised into 30 to 40,000 square foot spaces which can handle smaller users if required. Upon completion, Bridge Development Partners anticipate rents to be in the mid-\$30s per square foot.

Building Statistics	
Tenure	Lease
Address	50 W 21 <sup>st</sup> Street
Completion Date	TBD, demolition in Q2 2020
User Types	Distribution
Tenants	To be announced
Total SF	1,300,000 SF
Floor Breakdown	N/A
Site Size	784,040 SF
Site Coverage	Approx. 25%
Clear Height	Level 1-2: 32', Level 3-4: 28'
Total Height	120'
Loading	Ramps to each floor for full size tractor trailers.
Onsite Parking	TBD
Zoning	M3-1
Max FAR	Max 2.0 FAR
Achieved FAR	Approx. 1.66 FAR

## 6. Financial Analysis

### 6.1 Introduction

In order to understand how the market dynamics examined in this report impact the feasibility of multi-storey industrial development, Colliers assessed the preliminary feasibility of the hypothetical scenarios outlined below:

- › **Baseline Scenario:** Single-floor industrial development with surface parking (10-acre site)
- › **Scenario 1a:** Single-floor industrial development with rooftop parking (10-acre site)
- › **Scenario 1b:** Two-floor industrial development with ramp access (10-acre site)
- › **Scenario 1c:** Three-floor industrial development with ramp access/freight elevator (10-acre site)
- › **Scenario 2a:** Vertical development at 3 FAR, including 2 FAR industrial, 1 FAR office (0.7-acre site)
- › **Scenario 2b:** Vertical development at 6 FAR, including 2 FAR industrial, 4 FAR office (0.7-acre site)

### 6.2 Hypothetical Building Location and Form

	Baseline Scenario	Scenario 1a	Scenario 1b FORMAT A	Scenario 1c FORMAT A	Scenario 2a FORMAT B	Scenario 2b FORMAT B
Location	South Vancouver/ South Burnaby	South Vancouver/ South Burnaby	South Vancouver/ South Burnaby	South Vancouver/ South Burnaby	South Vancouver (not Mount Pleasant) /South Burnaby	South Vancouver (not Mount Pleasant) /South Burnaby
Building Form	Single floor with surface parking	Single floor with rooftop parking	2 floors, with ramp access/freight elevator to second floor	3 floors, with ramp access/freight elevator to second and third floor	Vertical industrial development with 3 FAR (2 FAR industrial, 1 FAR office)	Vertical industrial development with 6 FAR (2 FAR industrial, 4 FAR office)
Land Area	10-Acre	10-Acre	10-Acre	10-Acre	0.7-Acre	0.7-Acre
Coverage Ratio	50%	60%	50%	50%	95%	95%
FAR	0.50	0.60	1.00	1.50	3.00	6.00
Total GFA	217,801 sf	261,361 sf	435,602 sf	653,403 sf	91,476 sf	182,953 sf
Industrial Area	217,801 sf	261,361 sf	435,602 sf	653,403 sf	60,984 sf	60,984 sf
Office Area	0 sf	0 sf	0 sf	0 sf	30,492 sf	121,968 sf

#### Key Locational Considerations

The locational characteristics outlined in the previous sections of this report impact the viability of multi-level industrial development. For the purposes of this analysis, it is assumed that the hypothetical sites for the proposed development scenarios are close to dense populations and accessible by multiple forms of transit.

Based on market research and discussions with developers and other stakeholders in the area, it is commonly believed that such development would be viable in cities such as Vancouver and Burnaby, but that the market is still a number of years away from supporting these development formats further out in municipalities such as Surrey and Langley.

## Lot Size and Site Coverage Ratio

The assumptions listed below regarding lot size and site coverage ratios are based on hypothetical sites that are assumed to be regular shaped with no other physical encumbrances or issues (i.e., environmental, soil quality, terrain, slopes, etc.):

- › **Baseline Scenario / 1a / 1b/ 1c:** The lot size is assumed to be 10 acres, which is the typical minimum threshold required for this format of intensive development.
- › **Scenario 1a:** The site coverage is assumed to be 60%, as it minimizes the space required for surface parking through the introduction of rooftop, light vehicle employee parking.
- › **Baseline Scenario / 1b / 1c:** The site coverage ratio is assumed to be 50%.
- › **Scenario 2a / 2b:** These vertical projects are assumed to be built on 0.7-acre sites in areas of relatively high population density. The site coverage ratio for these scenarios is assumed to be 95% as they would not require the development of an exterior ramping system.

## 6.3 Key Assumptions

### Strata Price

According to interviews with developers and brokers and an assessment of the market context in South Vancouver and South Burnaby, it is reasonable to assume the following strata prices:

	Baseline Scenario	Scenario 1a	Scenario 1b	Scenario 1c	Scenario 2a	Scenario 2b
Industrial	1 <sup>st</sup> Floor: \$460/sf	1 <sup>st</sup> Floor: \$460/sf	1 <sup>st</sup> Floor: \$460/sf 2 <sup>nd</sup> Floor: \$430/sf	1 <sup>st</sup> Floor: \$460/sf 2 <sup>nd</sup> Floor: \$430/sf 3 <sup>rd</sup> Floor: \$420/sf	Ground Floor: \$580/sf Second Floor: \$560/sf	Ground Floor: \$580/sf Second Floor: \$560/sf
Office	n/a	n/a	n/a	n/a	Blended: \$750/sf	Blended: \$750/sf

While the development scenarios assume that the units will be sold as strata, if they were leasehold, the property value could be roughly determined by dividing the estimated achievable lease rates by the market cap rate. This should result in similar revenue creation when compared to strata sales.

## Industrial Land Market Values

For any development site, one of the most important figures to understand is the land market value. The land market value is a fair benchmark for land pricing. If the residual land value, as explained below, is lower than the market benchmark, it is reasonable to say the proposed development scenario is not financially viable or other development levers may be required (partnerships, lower development profit, etc.).

The residual land value (RLV) is calculated by assessing the total created value, after total project costs and development profits, while excluding land values. This measure is widely used for comparisons with benchmark land values, which is based on the price per acre for medium to low-density large parcel development (referring to Scenarios 1a/1b/1c in this study) or price per buildable square foot for high-density small parcel development (referring to Scenarios 2a/2b in this study). It is also a fair financial parameter to assess how much a developer would likely pay for a site.

Based on recent transactions of industrial land in South Vancouver and South Burnaby, it is estimated that the market value for medium to low-density large industrial land is approximately \$6.17 million per acre, while the market value of high-density small industrial land is approximately \$170 per buildable square foot. The following sections of this Chapter compare the land residual value per acre and the benchmark land value per acre for Scenarios 1a/1b/1c and discuss the land residual value and benchmark land value for Scenarios 2a/2b on a price per buildable square foot basis.

## Parking Requirements

For the purposes of this research, it is assumed 1 parking stall per 1,000 sf gross floor area for industrial and 1 parking stall per 495 SF GFA for office, per the City of Burnaby parking bylaw. Table 10 displays the parking stalls required, and the parking stalls provided in each scenario.

	Baseline Scenario	Scenario 1a	Scenario 1b	Scenario 1c	Scenario 2a	Scenario 2b
Building Form	Single floor with surface parking	Single floor with rooftop parking	2 floors, with ramp access/freight elevator to second floor	3 floors, with ramp access/freight elevator to second and third floor	Vertical industrial development with 3 FAR (2 FAR industrial, 1 FAR office)	Vertical industrial development with 6 FAR (2 FAR industrial, 4 FAR office)
Required Stalls	218	261	435	653	123	307
Provided Stalls	218	261	435	622 (max achievable on site)	123	174 (max achievable on-site)

For the vertical industrial development scenarios (2a/2b), it is assumed that the building provides up to 2 level of underground parking, considering the significant additional expense to develop multiple levels of underground parking. It is assumed that the proposed parking area of each scenario could provide adequate surface parking for truck loading and maneuvering. Building setback requirements and restrictions are also considered.



## Parking Stall Revenue

For Scenarios 1a/1b/1c, parking stalls are treated as limited property in the strata. The strata purchasers have parking stalls assigned but do not own them or pay for their use. Therefore, there is no revenue generated from the parking stalls. For Scenarios 2a/2b, it is assumed that 50% of parking stalls are assigned to strata purchasers and the other half are selling at \$50,000 per stall. This is based on observed patterns within new developments occurring recently.

## Hard and Soft Costs

Informed from interviews with developers, it is reasonable to assume hard and soft costs for the proposed hypothetical development scenarios to be as follows. The blended hard costs include the costs associated with parking, while the soft costs are represented as a percentage of hard costs.

Table 12 Assumed Hard and Soft Costs						
	Baseline Scenario	Scenario 1a	Scenario 1b	Scenario 1c	Scenario 2a	Scenario 2b
Hard Costs	\$125/sf	\$175/sf	\$225/sf	\$240/sf	\$300/sf	\$305/sf
Architect & Consultants	4%	4%	4%	5%	5%	5%
Development Management	4%	4%	4%	5%	5%	5%
Permits and DCCs	5%	5%	5%	5%	5%	5%
Property Taxes	1.5%	1.5%	1.5%	1.5%	2%	2%
Financing Costs	4.5%	4.5%	4.5%	4.5%	5.5%	5.5%

## Contingency Costs, Commission Rate, Developers Profit Rate, and Building Efficiency Rate

It is reasonable to assume that contingency costs will be approximately 6.5% of total hard and soft costs, while the commission rate is estimated to be 3% based on interviews with Colliers' brokerage team. The developers' profit rate for Scenarios 1a/1b/1c is expected to be 13% of total investment, rising to 15% for Scenarios 2a/2b due to the complexities and risk involved.

Table 13 Assumed Building Efficiency Rate						
	Baseline Scenario	Scenario 1a	Scenario 1b	Scenario 1c	Scenario 2a	Scenario 2b
Building Efficiency Rate (Salable Area/Gross Floor Area)	98%	98%	95%	94%	91%	90%

## 6.4 Baseline Scenario | 10-acre site, single floor with surface parking

The detailed proforma used to assess the viability of the baseline development format is included in Appendix II, with the key findings and conclusions summarized below.

### Summary

- › **The total project cost** of the proposed hypothetical development is approximately \$35.37 million.
- › **The estimated revenue after commission** from a strata sale is approximately \$95.24 million.
- › **The developer profit** of this scenario is approximately \$10.96 million.
- › **The total residual land value** of the whole development is approximately \$4.89 million per acre, which is lower than the market benchmark (\$6.16 million per acre).
- › **The sensitivity study shows** that when the industrial strata price increases from \$460/sf to \$530/sf, the residual land value of this scenario would meet the market benchmark.

### Conclusion

Based on the financial analysis, the residual land value of the hypothetical baseline development scenario would be lower than the market benchmark. This is not surprising given the rapid rise in industrial land values in South Vancouver and South Burnaby, along with constrained supply. The developers of currently active construction projects of this format may have already acquired the land years ago at a lower price, making this development format feasible. For example, this proposed scenario would result in a residual land value notably higher than the market land price 3 or 4 years ago.

## 6.5 Scenario 1a | 10-acre site, single floor with rooftop parking

The detailed proforma used to assess the viability of Scenario 1a is included in Appendix III, with the key findings and conclusions summarized below.

### Summary

- › **The total project cost** of the proposed hypothetical development is approximately \$59.42 million.
- › **The estimated revenue after commission** from a strata sale is approximately \$114.29 million.
- › **The developer profit** of this scenario is approximately \$13.15 million.
- › **The total residual land value** of the whole development is approximately \$4.17 million per acre, which is lower than the market benchmark (\$6.16 million per acre).

- › **The sensitivity study shows** that when the industrial strata price increases from \$460/sf to \$551/sf, the residual land value of this scenario would meet the market benchmark.

## Conclusion

Based on the financial analysis, the residual land value of Scenario 1a would also be lower than the market benchmark. This follows similar logic to the findings of the baseline scenario. Due to the industrial land values within South Vancouver and South Burnaby, it is unlikely that a developer will choose to build this format, unless they have held the land for numerous years. Conversely, the comparatively lower land values in areas such as Surrey and Langley may make this form more viable, as demonstrated by the proposed developed of 3733 192 Street in Campbell Heights outlined in the case studies within this report.

## 6.6 Scenario 1b | 10-acre site, two-floors with ramp access

The detailed proforma used to assess the viability of Scenario 1b is included in Appendix IV, with the key findings and conclusions summarized below.

### Summary

- › **The total project cost** of the proposed hypothetical development is approximately \$127.34 million.
- › **The estimated revenue after commission** from a strata sale is approximately \$178.63 million.
- › **The developer profit** of this scenario is approximately \$20.55 million.
- › **The total residual land value** of the whole development is approximately \$3.07 million per acre, which is lower than the market benchmark (\$6.16 million per acre).
- › **The sensitivity study shows** that when the blended industrial strata price reaches \$532/sf, the residual land value of Scenario 1b would meet the market benchmark.

## Conclusion

This analysis shows that the residual land value of Scenario 1b would be lower than the market benchmark, which is an interesting finding based on the fact that this format is currently being constructed by Oxford Properties with their Riverbend project. This is not surprising, however. Interviews with developers have indicated that this format is currently only achievable if the land was purchased approximately 3 or more years ago at a price of approximately 50% the current value. It follows that the market is almost there when it comes to this format of development, and it is likely to eventually occur again once strata/lease rates increase a little more. This is only a matter of time based on the market dynamics outlined in this report, however the biggest challenge will be finding suitable sites for such development that are relatively close to urban nodes.

## 6.7 Scenario 1c | 10-acre site, three floors with ramp access and freight elevators

The detailed proforma used to assess the viability of Scenario 1c is included in Appendix V, with the key findings and conclusions summarized below. For this scenario, the number of provided surface parking stalls is less than the requirement, based on the site coverage ratio of 50% and an average required space per stall of approximately 350 square feet. This scenario would require a parking variance of 31 stalls.

### Summary

- › **The total project cost** of the proposed hypothetical development is approximately \$208.09 million.
- › **The estimated revenue after commission** from a strata sale is approximately \$260.15 million.
- › **The developer profit** of this scenario is approximately \$29.93 million.
- › **The total residual land value** of the whole development is approximately \$2.21 million per acre, which is the lowest value compared to Scenario 1a and 1b, representing 36% of the market benchmark price.
- › **The sensitivity study shows** that when the blended industrial strata price reaches \$512/sf, the residual land value of Scenario 1c would meet the market benchmark. Another sensitivity study was conducted to test the potential for converting the 3rd level of industrial space to office space. When the office strata price reaches \$540/sf and the office space is 100% sold out, the project would be financially viable.

### Conclusion

While this development format resulted in the lowest land residual when compared to Scenarios 1a and 1b, it also has the lowest threshold strata price to make it viable. As such, this format could be the most viable when comparing scenarios 1a, 1b, and 1c. If the third floor were to be used for office space rather than industrial, this format would be even more achievable, however it may be difficult to garner significant office demand on large sites suitable for such development unless they are close to transit and the amenities of urban living. One of the challenges associated with this format, if the third floor were used for industrial, is the heights associated with such a building. For example, the City of Burnaby did not support Oxford's Riverbend proposal to add a third floor due to concerns regarding the total building height.

## 6.8 Scenario 2a | 0.7-acre site, 2 FAR industrial and 1 FAR office

The detailed proforma used to assess the viability of Scenario 2a is included in Appendix VI, with the key findings and conclusions summarized below.

### Summary

- › **The total project cost** of the proposed hypothetical development is approximately \$37.05 million.



- › **The estimated revenue after commission** from a strata sale is approximately \$53.84 million.
- › **The developer profit** of this scenario is approximately \$7.02 million.
- › **The total residual land value** of the whole development is approximately \$107 per buildable sf, which is lower than the market benchmark (\$170 per buildable sf).
- › **The sensitivity study shows** that when the blended industrial strata price and office strata price reach \$646/sf and 846/sf respectively, the residual land value of Scenario 2a will meet the market benchmark.

## Conclusion

While this development format is currently occurring throughout Vancouver, the financial analysis indicates a residual land value lower than the market benchmark. This could be due to factors such as the rapid growth of industrial land values, the significant costs associated with underground parking, and the fact that many developers of recent/current projects would have purchased the land a few years ago at a lower price. This pattern is likely to repeat itself. For example, if a developer were to purchase an inner urban industrial site today, they might wait a few years until the threshold strata/lease rates could be met, or even sell the land again once its value increases even more. Current rents are unable to support the proposed development scenario. When the blended industrial strata price and office strata price reach \$646/sf and \$846/sf respectively, the residual land value of Scenario 2a will meet the market benchmark.

## 6.9 Scenario 2b | 0.7-acre site, 2 FAR industrial and 4 FAR office

The detailed proforma used to assess the viability of Scenario 2b is included in Appendix VII, with the key findings and conclusions summarized below.

### Summary

- › **The total project cost** of the proposed hypothetical development is approximately \$75.45 million.
- › **The estimated revenue after commission** from a strata sale is approximately \$114.43 million.
- › **The developer profit** of this scenario is approximately \$14.93 million.
- › **The total residual land value** of the whole development is approximately \$131 per buildable sf, which is lower than the market benchmark (\$170 per buildable sf).
- › **The sensitivity study shows** that when the blended industrial strata price and office strata price reach \$608/sf and 808/sf respectively, the residual land value of Scenario 2b will meet the market benchmark.

## Conclusion

The analysis shows that this development format would be closest to matching the market benchmark, indicating that the allowance of more office floorspace (4 FAR instead of 1 FAR) could make the introduction of more

industrial supply (2 FAR instead of 1 FAR) much more viable. It will be interesting to see the result of the recent rezoning in Mount Pleasant allowing for such a development format, which is likely to result in an influx of additional supply being built in this area over the next decade. However, one challenge associated with the allowance of more office space is the potential resulting increase of land values. For example, if land values rise too much, the split between the theoretical achievable residual land value and the market benchmark may be too high to make development viable. This is a tricky balance; however, it is expected that the allowance of up to 4 FAR of office in inner urban areas may be a suitable amount to balance the needs to the market.

Parking requirements are also important to reassess. In this hypothetical scenario, the amount of underground parking provided (174) is less than the zoning requirement (307). Any additional parking stalls would require a third level of underground parking, adding significant additional expenses to the project (~\$175/sf), plus associated maintenance costs. In transit-oriented locations, current parking regulations may lead to overbuilt parking supply in densified developments such as this, and these requirements should therefore be reviewed by municipalities on a locational-specific basis with a focus on transit-oriented, mixed-employment areas.

Table 14 Financial Analysis Results Summary

Key Parameters	Baseline Scenario	Scenario 1a	Scenario 1b	Scenario 1c	Scenario 2a	Scenario 2b
Total project cost	35,371,312	59,423,805	127,336,725	208,088,213	37,050,042	75,450,445
Est. revenue after commission	95,239,094	114,286,913	178,626,118	260,153,993	53,841,295	114,430,574
Developer profit	10,956,710	13,148,052	20,549,907	29,929,220	7,022,778	14,925,727
Total residual land value	48,911,071	41,715,056	30,739,485	22,136,560	9,768,475	24,054,402
Residual price per acre	4,891,107	4,171,506	3,073,949	2,213,656	N/A	N/A
Comparables: Land value/ac	6,161,115	6,161,115	6,161,115	6,161,115	N/A	N/A
Residual price per buildable sf	N/A	N/A	N/A	N/A	107	131
Comparables: Value/buildable sf	N/A	N/A	N/A	N/A	170	170
Financial Viability	Almost viable, if the land is purchased 3-4 years ago	Almost viable, if the land is purchased 3-4 years ago	Almost viable, if the land is purchased 3-4 years ago	Not viable, unless the third floor can be converted into office space and the subject location is close to transit and urban amenities	Not Viable, unless the site was purchased many years ago or the developer waits a number of years until the threshold strata/lease rates can be met.	Not Viable, unless the site was purchased many years ago or the developer waits a number of years until the threshold strata/lease rates can be met.

## 7. Summary of Challenges and Recommendations

---

The need for industrial intensification is driven by several factors, including limited industrial land supply and strong demand, population growth and density, international trade, the growth of ecommerce, agglomeration economics, municipal regulations, automation, land values, and speculation. Intensifying industrial development can be a means of addressing the industrial land shortage in the Metro Vancouver region. This may take the form of more intensified new developments or through infill projects on existing industrial sites. Nonetheless, more efficient use of the constrained industrial land supply will continue to support a diversified Metro Vancouver economy and support continued economic growth moving forward. It is critical that municipal policies and goals align with market drivers in response to the needs of the industrial sector to encourage more efficient industrial land usage when market drivers align. The following challenges and recommendations have been summarized following extensive research of best practices, both locally and abroad, and outline supporting policies, goals, and objectives that will ensure industrial development continues to meet regional demand.

### 7.1 Permitted Uses

#### Challenge

Municipal zoning bylaws outline and stipulate the specific industrial (and other) uses that are permitted to occur in each industrially zoned parcel of land. The relatively static nature of zoning bylaws mean that emerging industrial and light industrial uses may not be able to be accommodated without a rezoning process. Ultimately, these tenants provide both jobs and goods to the local economy, and their inclusion within constrained areas of Metro Vancouver suited for intensified forms of development should be strongly encouraged at the municipal level. However, the allowance of too much additional non-industrial space, for example, could have the unintended consequence of pushing up land values, property taxes, and lease rates passed on to industrial users, reducing the amount of available space for industrial users, and destabilizing the area for industrial users.

#### Recommendations

- › Recognize the importance of flexibility in allowing new industrial uses in industrial zones, keeping in mind the intent of higher-level policies and objectives.
- › Limiting non-industrial and accessory uses in industrial zones may prevent other users from occupying industrial space and ensure the greatest supply of industrial space.
- › Recognize that some accessory uses in industrial projects may support industrial activities and encourage the infill and intensification of industrial development by improving overall financial and operational viability. In addition, expanding the scope of allowable industrial or industrial supportive uses in an intensified industrial development can create land efficiencies, increase overall employment levels per square foot of

land, and support increased transit ridership. For example, the I-2 industrial zoning along 2nd Ave in Vancouver supports office development above minimum industrial floor area requirements to supplement the costs of building intensified industrial projects. Further, the newly enacted I-1C zoning allows twice the density permitted in normal I-1 zoning (from 3.0 FSR to 6.0 FSR) as long as a full 2.0 FSR is dedicated to light industrial uses and generally maintains the same use provisions as the I-1 industrial zone.

**Table 15 Potential Industrial Uses to Consider Based on the City of Vancouver’s New Industrial Zone Bylaw**

Outright	Conditional
<b>Manufacturing</b> <ul style="list-style-type: none"> <li>› Bakery Products Manufacturing</li> <li>› Batteries Manufacturing</li> <li>› Clothing Manufacturing</li> <li>› Dairy Products Manufacturing</li> <li>› Electrical Products or Appliances Manufacturing</li> <li>› Food or Beverage Products Manufacturing (Class B)</li> <li>› Furniture or Fixtures Manufacturing</li> <li>› Ice Manufacturing</li> <li>› Information Communication Technology Manufacturing</li> <li>› Jewellery Manufacturing</li> <li>› Leather Products Manufacturing</li> <li>› Miscellaneous Products Manufacturing (Class B)</li> <li>› Paper Products Manufacturing</li> <li>› Plastic Products Manufacturing</li> <li>› Printing or Publishing</li> <li>› Rubber Products Manufacturing</li> <li>› Shoes or Boots Manufacturing</li> <li>› Wood Products Manufacturing (Class B)</li> </ul>	<b>Manufacturing</b> <ul style="list-style-type: none"> <li>› Brewing or Distilling.</li> <li>› Food or Beverage Products Manufacturing (Class A)</li> <li>› Linoleum or Coated Fabrics Manufacturing</li> <li>› Machinery or Equipment Manufacturing</li> <li>› Metal Products Manufacturing</li> <li>› Miscellaneous Products Manufacturing (Class A)</li> <li>› Motor Vehicle Parts Manufacturing</li> <li>› Nonmetallic Mineral Products Manufacturing</li> <li>› Rubber Manufacturing</li> <li>› Textiles or Knit Goods Manufacturing</li> <li>› Transportation Equipment Manufacturing</li> <li>› Vegetable Oil Manufacturing</li> </ul>
<b>Transportation and Storage</b> <ul style="list-style-type: none"> <li>› Cold Storage Plant</li> <li>› Packaging Plant</li> <li>› Storage Warehouse</li> </ul>	<b>Transportation and Storage</b> <ul style="list-style-type: none"> <li>› Aircraft Landing Place</li> <li>› Bulk Data Storage</li> <li>› Taxicab or Limousine Station</li> <li>› Truck Terminal or Courier Depot</li> </ul>
<b>Utility and Communication</b> <ul style="list-style-type: none"> <li>› Radiocommunication Station</li> </ul>	<b>Utility and Communication</b> <ul style="list-style-type: none"> <li>› Public utility</li> <li>› Recycling depot</li> </ul>
<b>Wholesale</b> <ul style="list-style-type: none"> <li>› Lumber and Building Materials Establishment.</li> <li>› Wholesaling - Class A</li> <li>› Wholesaling - Class B, provided that floor area does not exceed 1,000 m<sup>2</sup></li> </ul>	<b>Wholesale</b> <ul style="list-style-type: none"> <li>› Wholesaling - Class B, floor areas exceeding 1,000 m<sup>2</sup></li> </ul>



## 7.2 Density and Site Constraints

### Challenge

Maximum densities prescribed in land use plans and zoning bylaws may prevent the intensification of industrial land. Maximum lot coverage guidelines may reduce achievable buildable area, and large setback requirements can further reduce the development potential of specific sites.

### Recommendations

- › Consider the intent of existing industrial and economic policy and remain flexible in site design allowing industrial developments to meet higher level objectives. For example, City of Surrey Staff indicated that if a proposal had an intensified development format beyond the stipulations of zoning bylaw, Staff would support the creation of a comprehensive development district to support it (assuming other policies and objectives are met).
- › When adjacent industrial sites are compatible uses, reduce the required building setbacks to encourage the maximum industrial square footage achievable.
- › If building setbacks, parking, loading, and other requirements can be fully satisfied while providing the maximum building site coverage of a specific lot, then there should not be an artificial cap on the amount of permissible building site coverage nor densities of industrial usage.

## 7.3 Height Restrictions

### Challenge

Regulations such as maximum building heights have an impact on the likelihood of industrial densification, particularly for stacked industrial formats. Industrial ceiling height requirements are constantly growing due to technological advancements, reaching over 40 feet in some of the newest, most advanced warehouses. Building height regulations in industrial zones may be based on older format industrial users with lower ceiling heights, hindering the viability of a multi-storey industrial development or an intensified development with tall, advanced racking systems. In order to achieve higher ceiling clear heights in an industrial project, the overall height allowable for an industrial development must be increased as this is the factor controlled by industrial zoning bylaw.

### Recommendations

- › Where appropriate, particularly in areas without conflicting adjacent uses or view concerns, increase or remove maximum height limitations from zoning bylaws to allow flexibility and encourage proponents to maximize the industrial productivity of each site.
- › Allowing higher building heights will allow new industrial developments to utilize technological advancements (For example, automated racking systems).
- › Consider minimum height requirements for strategic industrial areas to encourage intensification of industrial sites.

## 7.4 Parking/Loading

### Challenge

The construction costs associated with the development of an intensified industrial project, particularly for a stacked industrial building are higher than that of a traditional industrial development. Parking, particularly underground or in structured parkades, is very costly and providing parking stalls beyond what is required by industrial users unnecessarily increases overall project costs. In many municipalities, parking on industrial sites, as a result of parking requirements outlined in zoning bylaws, occupy a significant portion of the usable site area. Minimum on-site parking requirements may be oversupplying parking, particularly on industrial sites accessible by transit or where usage requirements demand less on-site presence and employment.

### Recommendations

- › Reducing minimum parking requirements will allow greater lot utility and disincentivize private vehicle use for commuting.
- › Consider allowing for structure parking to be excluded from FAR and site coverage calculations.
- › Allow for flexibility in parking requirements. Explore parking that is calculated by user demand and user requirements.
- › Allow and support the parking of light employee vehicles on the roof of an industrial development to encourage greater site utilization.
- › Allow and support surface storage on the roof of an industrial development to encourage greater site utilization.
- › Staff at the Township of Langley note that Amazon provides shuttling services for employees to the site from transit. This is reducing the parking required, even at a large Amazon distribution centre with high levels of employment. Consider the impact shuttling services have on parking requirements.
- › Consider flexibility for site drive aisles and access requirements when a proponent can demonstrate utility through other means.

- › Parking regulations should be reviewed by municipalities, particularly in transit-oriented industrial/mixed employment areas, to ensure that they are not too excessive based on current and expected industrial trends.
- › Minimize surface parking and encourage the design of parking areas that are adaptable for future uses and users.
- › Consider that certain parking areas could be used to accommodate employees during the day and fleet vehicles overnight.
- › Consider that certain portions of the lot can be used for parking and storage at certain times of the day and can also be used for loading at other times.

## 7.5 Building Design

### Challenge

Current zoning bylaws and design guidelines may prohibit the necessary design features, such as exterior ramps and outdoor elevators, required for an intensified industrial development.

### Recommendation

- › Municipalities should comprehensively review the requirements and intent of design guidelines in order to remove potentially limiting elements that discourage the development of intensified industrial buildings. These may include a review of elements such as vehicle ramps, exterior walkways, outdoor elevators, excessive landscaping, screening, and other potentially outdated building design requirements.
- › Consider reduced engineering requirements, particularly in the public right-of-way. For example, by allowing truck turning and other measures in the right-of-way, there could be more flexibility for the built form to accommodate a more intensified development.

## 7.6 Municipal Fees and Approvals

### Challenge

Municipal fees and lengthy approval timelines can represent a significant portion of the cost to develop an industrial development, including the holding costs associated with complex industrial projects which add a higher level of risk for the proponent. In addition, lengthy timelines limit the supply of industrial land that is available to come to the market in any given year.

## Recommendations

- › Consider reducing municipal fees for new intensified industrial developments which meet higher level policy objectives regarding economic growth and job creation.
- › Consider calculating the payment of municipal fees such as development cost charges on economic production space as opposed to gross square footage of an intensified industrial development.
- › Municipalities should undertake a review of the municipal approvals timeline in order to identify efficiencies that can be adopted. This may include elements such as concurrent development permit and rezoning processes, a more streamlined review process, or a certified builder process.
- › Municipalities consider expediting the approval process for intensified industrial projects that meet a number of municipal goals and objectives similar to the process and policies frequently adopted for the approval of affordable rental housing.
- › Consider waiving Development Cost Charges (DCCs) for industrial floor area on additional storeys to financially incentivize development.
- › Consider waiving Community Amenity Contributions (CACs) in the approvals process when rezoning to higher intensity industrial zones.
- › Consider a transition to the Development Permit tool in industrial areas. This tool could control use and density by way of design, which would allow for the use and density to be more permissive in the zoning bylaw, which would reduce overall timelines and create a more flexible system.

## 7.7 Site Size Requirements

### Challenge

Several private and public sector stakeholders, including developers and municipal staff, recognize that small industrial lots are not conducive to intensified industrial developments due to ramp requirements or freight elevator access, both of which have their respective issues. Multi-storey stacked formats are particularly challenging and expensive to construct where external ramps would be required to reach upper floors.

### Recommendations

- › Where possible, prevent and discourage the subdivision of large industrial parcels and consider requiring minimum site sizes for certain industrially zoned properties in key strategic areas.
- › In greenfield industrial areas, encourage the development and retention of larger industrial parcels.
- › Encourage infill industrial projects, particularly on older properties that are not utilizing significant portions of the site.



- › Encourage the redevelopment and consolidation of small industrial land parcels.
- › Consider the impact of industrial stratification on the parceling of small industrial sites which may result in complications when consolidating larger parcels in the future.
- › Smaller industrial parcels, particularly in more valuable urban areas, may be conducive to mixed-use industrial projects in formats that mix accessory office space above with industrial at grade.

## 7.8 Geotechnical Considerations

### Challenge

Due to the engineering requirements of intensified industrial projects, particularly those that are multi-storey, some soil is not conducive to intensified industrial projects due to costly preloading and site preparation requirements. In particular, soil conditions are particularly an issue for lands in close proximity to the Fraser River.

### Recommendations

- › Encourage high lot coverage on sites with poor soil conditions and stacked industrial projects on sites with suitable soil.
- › Support multi-storey industrial projects where the site's topography results in the ability to provide direct truck access to upper floors without a costly ramp.

## 7.9 Proximity to Transportation and Employees

### Challenge

Intensified industrial sites, particularly those with higher levels of employment, are most suitable in areas accessible by alternative and single occupant driving modes of transportation. Traditional industrial developments have been located away from urban areas as to not have conflicts arise from industrial uses. With modern manufacturing technology and different uses allowable on industrial sites, there is the potential for some types of industrial development to be significantly less likely to create land use conflicts and detrimental to the health and wellbeing of nearby residents.

### Recommendations

- › Encourage industrial intensification in areas accessible to large residential populations and in areas well serviced by alternative transportation modes.
- › Support and encourage intensification of well-located industrial sites through rezoning and policy.

- › Explore the creation of intensified industrial, and in particular light / mixed-use industrial, in areas close to residential land uses and transit.

## 7.10 Market Pressure

### Challenge

Flexibility in allowing a broad range of industrial and non-industrial uses in industrial zones may place pressure on industrial sites from higher value uses. Notable non-industrial uses which outcompete traditional industrial users include office, retail, fitness facilities, martial arts studios, and recreation facilities such as badminton and go-kart tracks.

### Recommendation

- › Consider some select limited higher value accessory uses in some industrial zones or at select sites such as local workforce serving small scale retail, food services, and healthcare facilities that can have functional or economic links to industrial uses, industrial users, and employees. Municipalities should review the intent of industrial plans and recognize the potential value for complementary uses while recognizing that high value uses may also drive away essential uses of lower value.

## 7.11 Land Values

### Challenge

As mentioned by both the private and public sector stakeholders, land values are a key determinant in the feasibility of an intensified industrial development, particularly for stacked multi-level formats.

### Recommendations

- › Municipalities should be proactive and have supportive policies in place for when land values reach the required levels for more intensified industrial projects.
- › Up zoning sites and increasing the allowable uses permitted on industrial sites will increase land values. Municipalities should review their goals and objectives to ensure that the resulting increase in land value does not prohibit other industrial users or encourage land banking.
- › Explore the impact of industrial strata units being sold to foreign investors for investment holding purposes. This has been identified as a matter of potential concern by a number of municipalities as the provincial foreign-buyers tax does not apply to industrial sites.

- › Explore measures to ensure industrial units are being utilized for industrial uses as opposed to remaining vacant as a long-term investment hold.

## 7.12 Land Banking

### Challenge

Several municipal staff identified large industrial land holdings by private landowners as a factor that is artificially limiting industrial development in Metro Vancouver. In some instances, holding industrial land parcels, particularly in areas of high demand, and transacting them may be more profitable than improving land with industrial developments.

### Recommendations

- › Presently, municipalities do not have the right to force landowners to develop their property. Municipalities should focus on “Bring-to-Market-Strategies” to encourage reinvestment, utilization, and more intensive use.
- › Reduce barriers associated with development to encourage more immediate action on industrials sites.

## 7.13 Inefficient Uses

### Challenge

Several municipal staff identified self-storage facilities as challenging to the region’s industrial lands strategy. While permitted uses in many industrial zones, self-storage facilities employ few people per square foot and often occupy valuable industrial land close to transit and urban areas. Staff at the Township of Langley identified that higher value per square foot uses such as fitness facilities may be utilizing industrial land in areas well suited for industrial intensification. While these uses are permitted in the zoning bylaws of many municipalities, these high rent tenants may be preventing intensification and redevelopment of industrial sites, particularly in business parks. Staff at the City of Vancouver note that many industrial spaces, particularly ones in valuable urban areas, are utilized by high value users such as medical or advanced manufacturing tenants. The City recognizes however, that lower value industrial uses are also essential to the function of a healthy and diverse economy. Some private sector stakeholders identified restrictions in allowable uses in the zoning bylaw that prevent future industrial intensification by limiting the higher value users that are able to occupy industrial space such as the film industry or other creative light industrial tenants that blur the line between office and industrial.

## Recommendations

- › Municipalities should review the permitted use of new self-storage facilities, particularly on industrial sites well suited for intensification, to ensure there is a balance between suitable square footage of a valuable and required service and productive employment land close to residential areas.
- › Consider the creative adaptive reuse and infill of underutilized parking facilities, particularly in urban areas for industrial uses. New uses may include innovative approaches to using underutilized space including infill self-storage, ghost kitchens, and maker spaces.
- › Municipalities should review and keep up to date the allowable uses in the industrial zoning bylaws to ensure they reflect industrial trends and demand.

## 7.14 Summary

The table below summarizes the factors discussed in this chapter based on a low, medium, and high rating in terms of the relative degree of importance to industrial land intensification in Metro Vancouver.

Table 16 Factors Affecting Industrial Intensification in Metro Vancouver			
Intensification Factor	Relative Degree of Importance		
	High	Medium	Low
Permitted Uses	High		
Density and Site Constraints		Medium	
Height Restrictions		Medium	
Parking/Loading	High		
Building Design			Low
Municipal Fees and Approvals	High		
Site Size Requirements <sup>1</sup>		Medium	
Geotechnical Considerations	High		
Proximity to Transportation and Employees	High		
Market Pressure	High		
Land Values	High		

<sup>1</sup> Intensified industrial developments, specifically Format A, require site sizes that facilitate functional, financially feasible design.





# Appendices

---

## Appendix I | Policy Review

### 1. City of Vancouver Industrial Intensification Policy

#### City of Vancouver Employment Lands and Economic Review (ELER) Part 2: Emerging Directions for Consideration Through Vancouver Plan (October 2020)

The Employment Lands and Economy Review is a major research and stakeholder engagement initiative conducted by Staff at the City of Vancouver to inform the economic foundations of the Vancouver Plan planning process. Employment land is critical to the continued economic longevity of the City of Vancouver recognizing that industrial jobs are generally higher paying and support vital sectors of a diversified and healthy economy. The following outlines the report's immediate actionable recommendations for Council pertaining to industrial space.

- › **ELER Priority Action #4: Intensify job space along the south side of 2nd Avenue between Yukon and Quebec Street**
  - Findings demonstrate the need for municipalities like Vancouver to consider ways to encourage multi-storey industrial spaces in key locations to meet needs.
  - Stakeholder and public engagement for both the Employment Lands and Economy Review and the Broadway Plan identified Mount Pleasant as a key location for intensification of industrial and employment uses.
  - Staff is recommending that additional industrial and office capacity be enabled for a small portion of the Mount Pleasant area along the south side of 2nd Avenue between Yukon and Quebec Streets to encourage multi-storey industrial space and additional office employment.
  - A new I-1C District Schedule and an associated Mount Pleasant Employment Intensive Light Industrial Rezoning Policy and Guidelines (I-1C) will be created and brought to Council for referral to Public Hearing. This will provide the policy upon which Council may consider developer-initiated rezonings to I-1C (not a site-specific CD-1).

#### City of Vancouver Employment Lands and Economic Review Part 2 (ELER) Industrial Areas

Emerging ELER Directions (Section 3) for Vancouver Plan for Industrial Areas, of which Metro Vancouver is supportive of, include the following:

### › 3.1. Protect Industrial Lands for Employment Use

- City of Vancouver response: The City of Vancouver should take action to protect the remaining industrial land base and ensure the ongoing viability of industrial operations in the City for the next 30 years.
  - 3.1.1 Endorse the Metro Vancouver Regional Industrial Lands Strategy.
  - 3.1.5 Citywide, no overall net loss of industrial space.
  - 3.1.6 Support industrial goods movement and viability of logistical lands and infrastructure.

### › 3.2. Enable balanced industrial intensification.

- City of Vancouver response: The City should support actions that balance the intensification of industrial lands while considering the impact on surrounding communities and the displacement of existing businesses. The directions identified in the ELER encourage the development of multi-storey, employment intensive industrial forms that provide additional space for valuable and essential uses.
  - 3.2.1 Modernize zoning to encourage multi-storey industrial.
  - 3.2.4 Consider Broadway Plan short-term recovery action including a new I-1C district schedule and rezoning policy.
  - 3.2.5 Support employment intensification in key areas.
  - 3.2.6 Consider increasing industrial intensification in the Eastern Core

### › 3.3 Facilitate the right users in the right spaces.

- City of Vancouver response: In tandem with balanced intensification, a thoughtful approach to broadening allowable uses and modernizing zoning regulations is needed to link industrial users to the right spaces.
  - 3.3.1 Consider flexibility in industrial uses.
  - 3.3.2 Review Mount Pleasant and Burrard Slopes industrial zones.
  - 3.3.5 Review I-4 Zones.
  - 3.3.7 Seek to balance the need for self-storage with maintaining industrial spaces for other city-serving uses and employment.
  - 3.3.8 Continue to encourage Production Distribution and Repair spaces at-grade.

### › 3.4 Monitor, report and coordinate industrial change.

- City of Vancouver response: Staff should expand and improve coordination across departments and stakeholders to monitor the supply of industrial space in Vancouver.
  - 3.4.1 Monitor supply and market effects of increased flexibility.
  - 3.4.2 Seek to bring unused industrial spaces to market.

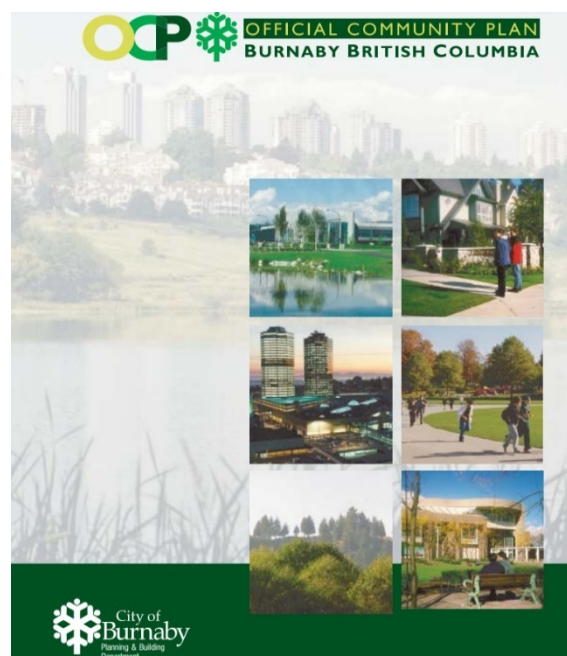
## 2. City of Burnaby Industrial Intensification Policy

The City of Burnaby’s Official Community Plan was adopted by Council in 1998 and was updated and revised in 2014. The purpose of the OCP is about defining directions that guide Burnaby’s development to meet its anticipated needs over the coming decades. It should be noted that Burnaby’s Official Community Plan is substantially older than the OCP of most other major Metro Vancouver municipalities.

### OCP Section 6: Industrial

- › **Industrial Goal: To provide for and facilitate a diverse range of development opportunities within designated industrial areas, adopting approaches that collectively:**

- “Meet changing needs that are responsive to Burnaby’s strategic advantages within the region, ensure an adequate supply of industrial land is available to meet anticipated needs over the next two decades, make effective and efficient use of available industrial lands, seeking to attract and accommodate high quality employment intensive industries and overall increases in floor space densities, contribute to the overall growth of the tax base and employment in the City, appropriately integrate industrial development with the surrounding, encourage the continued operation and enhancement of existing industries that are viable and in locations that are to remain designated for industrial use, encourage and guide the transition of identified industrial sites that are no longer conducive to continued industrial use and that offer compelling community benefits through their more intensive redevelopment for other purposes.”



- › **Policy Directions pertaining to industrial developments**

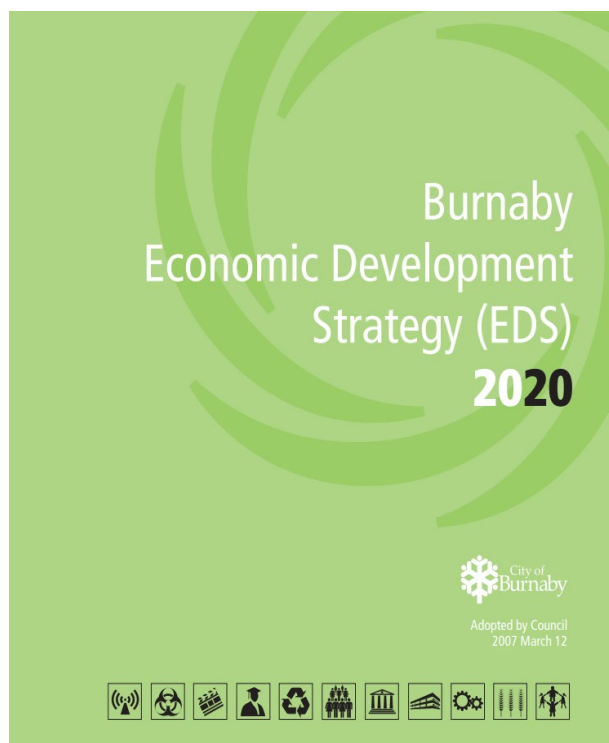


- Ensure an adequate supply of land.
- Make effective and efficient use of available lands.
- Integrate with surrounding environment.
- Encourage the continued operation and enhancement of existing industries.
- Guide transition of identified industrial sites.
- In industrial areas, encourage industrial uses that achieve relatively high employment densities and tax base benefits through intensification of use in developing and redeveloping areas.
- Add to the inventory of land available for business centres that incorporates a mix of research, light manufacturing and business office uses.
- Amend the Burnaby Zoning Bylaw to encourage intensification of the use of industrial lands, meet contemporary needs and promote higher employment levels.

### Burnaby Economic Development Strategy (EDS 2020)

The City of Burnaby’s Economic Development Strategy was adopted by Council in 2007 with the goal of providing a clear strategy for improving the local economy. In 2007, it was already recognized that the City of Burnaby’s supply of vacant land for commercial and industrial development was rapidly dwindling. The report emphasizes the potential for redevelopment of lower intensity land uses as a requirement to maintaining industrial users in the City. As a result, the Official Community Plan was updated to encourage more efficient use of industrial land through the following actions:

- › Look for opportunities to refine policies and regulations to encourage infill and redevelopment at higher minimum densities, particularly in industrial parks, business parks and other industrial sites.
- › In addition, the Economic Development Strategy seeks to examine regulations related to site coverage, setbacks, parking requirements and maximum density to ensure that efficient employment density can be achieved.
- › Further, it is suggested that Burnaby continue removing any allowable uses that have unacceptably low density of employment.



### 3. City of North Vancouver Industrial Intensification Policy

The City of North Vancouver adopted a new Official Community Plan in 2014. The community’s long-term vision is by 2031, the City of North Vancouver will be a vibrant, diverse and highly livable community that is resilient to climate or other changes, and sustainable in its ability to prosper without sacrifice to future generations.

#### OCP Density, Height and Development in the City of North Vancouver’s Land Use Designations

##### › Mixed Employment

- To allow for light industrial and automotive uses characterized by research and development activities, business parks, storage, assembly of semi-finished products from previously prepared materials, automotive uses, automobile sales or other light industrial and service commercial uses with limited smoke, noise, soot, dirt, vibration or odor. A limited amount of complementary commercial use could be supported—commercial uses with high trip-generating uses should be directed to mixed-use and commercial areas.



##### › Industrial

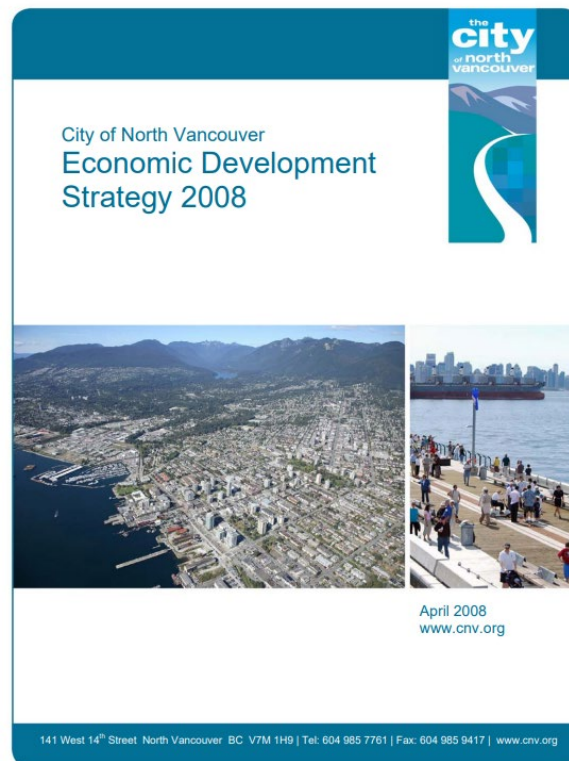
- To allow for light and heavy industrial uses characterized by port activities, goods production, manufacturing, distribution, storage or fabrication and a range of marine-related uses including boat repair, ship chandlery, and boat building.

#### Chapter 7 of the Official Community Plan: Economic Development Goals and Objectives

- › **7.1.2:** Seek a strong balance of employment to resident labour force as generating more jobs close to home makes for shorter average commutes.
- › **7.2.3:** Support an increase in the intensity of use in the City’s business parks through the Zoning Bylaw, supporting these areas as innovation zones.
- › **7.2.7:** Maintain the City’s mixed employment areas which provide light industrial and service commercial uses in the City.

- › 7.2.8: Encourage an increase in the floor area devoted to employment generating uses to meet demand.
- › 7.2.9: Provide a high level of public services and infrastructure for commercial and industrial lands.
- › 7.1.12: Ensure that permitted use on designated industrial lands are most appropriate for an industrial location (as opposed to being better suited to a commercial location), allow for intensification of industrial lands and prohibit residential as a principal use.

### City of North Vancouver Economic Development Strategy (2008)



While there are a number of higher-level economic development policies in the 2014 Official Community Plan, in the 2008 Economic Development Strategy, Goal C-3 recognized the importance of industrial development as being critical to the city’s economy both in terms of economic diversification and also through linkages to other local business sectors. In addition, Strategy 30 of this goal recommended not only maintaining the existing supply of industrial land, but also supported more intensive uses of the land. This commitment informed current OCP policies recognizing the importance of the industrial land base and encouraged higher permitted densities to allow for significant intensification.



## 4. City of Richmond Industrial Intensification Policy

The City of Richmond Official Community Plan (OCP) is the City’s statement for the long-term future of community planning in which the city wishes to evolve. The plan adopted by Council in 2012 guides growth and development till 2041.

### OCP Objective 2: Mitigate noise from the Canada Line in nearby residential uses, and between industrial and commercial uses on nearby residential uses and vice versa.

- › For new Commercial, Industrial and Mixed Uses (rezonings and development permits) within 30m of any residential use:

- To mitigate unwanted noise on residential properties, all new developments shall demonstrate that the building envelope is designed to avoid noise generated by the internal use and that noise generated from rooftop HVAC units with comply with current Noise Bylaw.

### City of Richmond Employment Lands Strategy in the Official Community Plan

- › The 2041 Employment Land Strategy determines the City of Richmond's employment land use needs for the next 30 years. The study concluded that Richmond has enough employment lands to meet demand in all sectors to 2041, including any employment lands currently planned for redevelopment to other uses.

### Multiple-Objective Employment Land Policies

- › The objective of this policy is to support the development of community-wide employment lands to achieve a resilient economy.
  - **6.1c)** Review DCC rates and programs, to encourage employment land development (ex. Light industrial DCCs based on level of use and lower DCCs on upper storeys to encourage employment land densification).
  - **6.1i)** Periodically review the Zoning Bylaw to simplify the list of permitted uses on employment lands and re-examine FARs, lot coverage and building heights to enable densification and multi-use.
  - **6.1j)** Enable multi-use, rather than singular use, of employment lands.
  - **6.1l)** Increase density (greater FAR, higher lot coverage, increased building heights) for employment uses.
  - **6.1n)** Explore the potential for shared parking between sites of different uses where parking demand occurs at different times of day.

### Objective Specific Employment Lands Policies | Asia-Pacific Gateway.

- › Encourage higher density industrial employment uses and maintain adequate flexibility in industrial land designations within the urban footprint to meet future land use needs.
  - **6.2a)** Protect the Industrial Land Base.
    - Integrate YVR and PMV long-term economic development plans with Richmond's long-term plans to recognize the potential unavailability of traditional manufacturing uses.
    - Monitor the availability of industrial lands in Richmond.



- Wherever possible, aim to accommodate traditional manufacturing displaced by higher-priced development within the City.
- 6.2h) Investigate the feasibility of establishing minimum floor area ratios in industrial zones.
- 6.2i) Consider increasing the maximum building height in industrial zones or removing it altogether.
- 6.2j) Consider increasing maximum lot coverage in industrial zones, provided that parking and loading requirements are met.
- 6.2l) Consider reducing surface parking requirements in areas of low employment-to-build area ratios.
- 6.2p) Consider area specific DCC reductions or eliminations in areas of redevelopment with already established infrastructure.
- 6.2q) Consider creating a DCC incentive of lower DCCs on upper storeys in multi-storey industrial developments.

### City of Richmond Resilient Economy Strategy Action Plan (2014)

The City of Richmond adopted the municipality's first Economic Development Strategy (EDS) in 2002 which was intended as a comprehensive framework for economic development and growth. The latest update of the EDS evaluates outstanding action items and develops new ones based on current economic prospects and priorities for the City of Richmond. The Resilient Economy Strategy follows the adoption of the 2012 City of Richmond OCP guiding growth and development to 2041. The goal of this strategy is to retain the economic sectors that are fundamental to Richmond's economic wellbeing and character, in order to grow the sectors which Richmond is best suited to tap opportunities taking into account local and regional natural, social, and economic assets and to make the local economy more resilient.

The action plan, intended to contain actionable items achievable in 3-5 years includes strategies to increase Richmond's capacity to accommodate light industrial business, strengthen Richmond's role as a gateway for goods import and export, and to support economic diversity, small business opportunity, and localization. The four economic goals for Richmond's Resilient Economy Strategy are:

1. Maintain and increase Richmond's attractiveness for, and ability to accommodate, businesses across a wide range of sectors. Rather than focus on picking winners, the strategy aims to make sure Richmond has a broad ability to maintain a diverse and growing industrial and commercial base.
2. Reinforce the sectors that are extremely important to Richmond's local economy and that have substantial potential for growth in employment and tax base.
3. In quantitative terms, aim to at least maintain Richmond's share of total regional employment, which has been about 10% over the last twenty years.

4. Aim to continue having a larger share of regional employment than regional population, as this enables Richmond to maintain a reasonable allocation of property tax burden and to provide a full range of services to residents.

In achieving these goals, of the 9 main strategies adopted, two pertain to industrial development and intensification in the City of Richmond.

#### › 5.1 Increase Richmond's Capacity to Accommodate Industrial Business.

- In recognizing that the City of Richmond has a small inventory of vacant, available, serviced, zoned, developable land to accommodate new light industrial uses, the Employment Lands Study, completed as part of the 2041 OCP update, indicates that a large proportion of industrial land is not readily available for industrial users. In addressing this, the City of Richmond has a number of high priority action items.
- **5.1.2.1** Develop a much more comprehensive understanding of industrial land and supply in Richmond.
- **5.1.2.2** Work with owners of large tracts of vacant industrial land to see where it is possible to create subdivided, serviced industrial lands available in the short term.
- **5.1.2.3** Convene a team of City planning and economic development staff to examine lands that are not in the ALR, currently zoned agricultural and designated industrial in the OCP.
- **5.1.2.4** Examine the potential to achieve higher site coverage on industrial land.
  - Current zoning regulations allow 60% site coverage. This forces lower intensity land use because most industrial users must be on the ground floor. Users should be given the flexibility to achieve higher intensity use if it works for them.
- **5.1.2.5** Evaluate older industrial areas that are un-intensively developed to see if there are realistic opportunities for densification using zoning, infill, re-subdivision or other development tools.
- **5.1.2.6** Review regulatory processes to look for ways to make permitting and licensing for industrial and commercial businesses and developments more cost effective, efficient and supportive while complying with City policies, bylaws and regulations.
- **5.1.2.7** Explore creative ways to allow or encourage a wider range of uses in the large inventory of vacant office space in low density business park projects. Much of this space was built in anticipation of growth in technology firms that did not materialize.
- **5.1.2.8** Continue to maintain an on-line inventory of lands/buildings available for sale.
- **5.1.2.9** Continue to maintain DCC rates for industry competitiveness to major Metro municipalities.

## › 5.4 Retain and Support Businesses Already in Richmond.

- **5.4.2.1** Continue the outreach to businesses located in parts of the City Centre designated for high density redevelopment.
- **5.4.2.2** Continue to monitor commercial and industrial property tax rates to ensure they are reasonable relative to competing municipalities and continue to identify ways to ease property taxes on employers in redevelopment areas.

## Industrial Lands Intensification Initiative – Summary of Findings and Proposed Amendments to Richmond Official Community Plan (2021)

The 2014 Resilient Economy Strategy identified using industrial land more intensively as a key opportunity to increase the City of Richmond’s capacity for industrial activity. The Industrial Lands Intensification Initiative was endorsed by Council in 2017 and presents a number of policy directions that could be implemented in order to further protect and encourage the intensification of industrial lands through amendments to the Official Community Plan and Zoning Bylaws. In a Council meeting held on January 11<sup>th</sup>, 2021, the motion was carried.

### › Summary of Proposed Changes

- **Zoning Bylaw:** Recognize/regulate ancillary office space for defined industrial uses.
  - Rationale: Industrial users require some office space to support their primary facilities and operations. This provides clarity for business users and City staff.
- **OCP and Zoning Bylaw:** Do not encourage retail sales in the I and IL zones, but allow limited retail uses in the IB and IR zones as an accessory use for manufacturing businesses only, including microbreweries.
  - Rationale: Evolving business models require integrated space where design, manufacturing, distribution, and showroom/retail activities can occur within a single building.
- **Zoning Bylaw:** Introduce new industrial uses to reflect emerging industries such as e-commerce logistics and retail showrooms.
  - Rationale: To recognize and help track emerging industrial uses and reduce parking requirements for specific uses that have demonstrated reduced parking demand.
- **Zoning Bylaw:** Reduce parking regulations for selected defined industrial uses. Include a further reduction for selected defined industrial uses in the City Centre.
  - Rationale: Flexible parking standards will help support the shifts in the type of industrial users that may occupy an industrial property and optimize the use of rapid transit infrastructure.

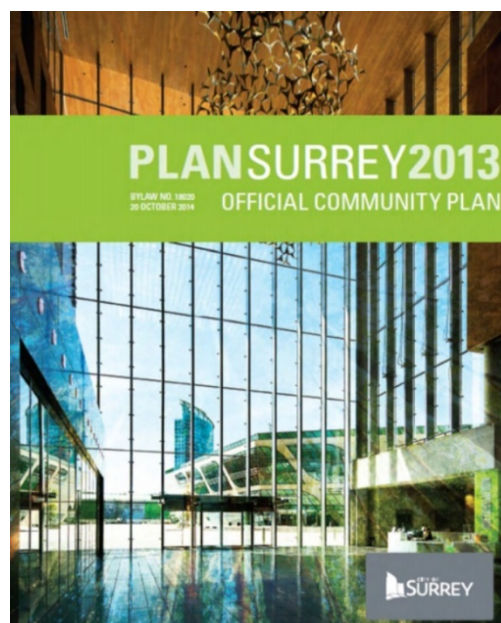
- **Zoning Bylaw:** Increase the building site coverage from 60% to 75% for sites outside the City Centre.
  - Rationale: To remove barriers to more intense forms of industrial development when other site requirements can be achieved.
- **Zoning Bylaw:** Increase the maximum building height from 12m to 16m for sites outside of the City Centre, but maintain the 12m maximum building height for industrial sites within 50m of a residentially zoned lot.
  - Rationale: The need for taller industrial buildings is driven by new forms of storage racking systems that allow vertical warehousing and increased warehouse efficiency.
- **OCP:** Allow consideration of increasing the maximum density from 1.0 floor area ratio to 1.5 FAR outside of the City Centre, subject to a rezoning process, provided the site is a minimum 2.5 ha in area, is close to major transportation infrastructure, is not adjacent to residential uses, and has satisfied transportation and servicing issues.
  - Rationale: To remove barriers to more intense forms of industrial development, for example multi-level warehouses, in appropriate locations.
- **OCP:** Introduce Development Permit guidelines for industrial buildings that are multi-storey and have an external access.
  - Rationale: To address visual, scale and massing issues associated with large, multi-storey industrial developments.

## 5 City of Surrey Industrial Intensification Policy

The PlanSurrey 2013 Official Community Plan was adopted by Council in October 2014 and is comprised of objectives and policies that set out the City of Surrey’s long-term plan for community development.

### Theme E: The Economy – Support a Diversified, Vibrant, High-Quality Economy. Section E1: Employment Lands.

The goal of this policy is to ensure sufficient supply and efficient use of employment lands. “Due to a limited industrial land base within the region, Surrey faces an ever-increasing demand for its employment lands. It is imperative that the City uses its employment reserves strategically and efficiently. In addition to newly developed employment areas, redevelopment and





intensification of existing industrial sites will become necessary in order to meet the growing demand for new employment lands in the future.”

- › **E1.1:** Ensure a sufficient supply of employment lands in Surrey, including designated industrial lands, to meet the current and future needs of the local and regional economy.
- › **E1.2:** Monitor the utilization and availability of industrial lands in conjunction with Metro Vancouver.
- › **E1.3:** Identify lands that may be suitable for future employment uses and that are located in areas that provide suitable access to major transportation corridors. Consider employment land needs in the preparation of all secondary plans.
- › **E1.4:** Locate, site and design employment areas to be accessible, compatible, have access to high quality, frequent public transportation, and be well integrated into surrounding communities and neighbourhoods. Design employment districts to provide services to workers employed in those areas.
- › **E1.5:** Encourage the full utilization and efficient use of industrial and other employment lands in order to maximize jobs and economic activity per hectare.
- › **E1.6:** Support the infill and redevelopment of underutilized properties within Commercial, Mixed Employment and Industrial land designations and remove regulatory or other barriers to achieving the full development capacity in these locations.
- › **E1.7:** Develop flexible zoning regulations and bylaws to support more intensive uses of existing employment lands.
- › **E1.10:** Ensure sufficient, convenient, and appropriate access to employment lands including supply and goods movement routes and access to employment opportunities for Surrey’s workforce.
- › **E1.11:** Protect industrially designated land specifically for industrial purposes, particularly industrial land accessible by water and railways.
- › **E1.12:** Support proposals that use industrially designated land for commercial purposes only where: Commercial and retail uses are accessory uses supporting the principal industrial use and retail uses are limited to serving the needs of industrial employees and commercial and retail uses do not pose short- or long-term conflicts or threaten the conversion of industrial lands to commercial uses.
- › **E1.13:** Prohibit the conversion of industrial, business park or mixed-employment lands to residential or other non-employment uses.
- › **E1.32:** Review parking standards to identify ways in which parking can be provided more efficiently and sustainability within Industrial and Mixed Employment development areas.

## Building the Next Metropolitan Centre: Realizing Surrey’s Economic Opportunities – The City of Surrey Economic Strategy 2017 to 2027

The City of Surrey highlights that building an economy that will transform Surrey into Metro Vancouver’s next metropolitan centre requires investment attraction, the creation of an innovation economy, distinct and competitive business communities, and job creation & workforce development. With this goal in mind, Surrey has maintained a competitive industrial tax policy to support business growth, making it the second lowest in the region for the past 10 years. It is noted that while the region has a strained industrial land base, Surrey remains a municipality that still has a sizable inventory allowing for industrial growth and expansion. Of Surrey’s industrial land base, 38% of land has been categorized as underdeveloped or vacant which poses as a significant opportunity for growth.



## Building the Next Metropolitan Centre

Realizing Surrey's Economic Opportunities  
The City of Surrey Economic Strategy  
2017 - 2027



## 6 Township of Langley Industrial Intensification Policy

### OCP Overview

The Township of Langley is described as a “community of communities” with a rural and urban mix. The Township of Langley’s Official Community Plan was adopted in 2013 and guides development and growth in the Township for the next 30 years till 2043. Given many physical constraints (water, topography, Agricultural Land Reserve, and the Canada-USA border), much of the Township of Langley is difficult for urban development. The Township of Langley’s Official Community Plan outlines a number of goals pertaining to economic development of the industrial sector.



- › **OCP Goal 2. Promote Agriculture and Enhance Farm Viability**
  - Non-farm uses of agricultural land may be supported for sound reasons leading to improved overall sustainability of the community in a manner that minimizes impacts to agriculture, subject to the approval of the Agricultural Land Commission.
  
- › **OCP Goal 4. Maintain a balance between local job opportunities and labour force growth.**
  - The Township of Langley has been able to meet its longstanding objective to provide one job for every resident in the labour force. There is sufficient employment land in the community to continue to create good jobs close to home.

Further, the Township of Langley has a number of policies in place that encourage employment generating industrial development.

- › **2.1.1:** Locate urban development, including industrial uses, within the urban development area.
- › **2.1.2:** Discourage urban development outside the urban development area to preserve agricultural land, the rural landscape, and the environment.
- › **2.1.5:** Recognize the impact of major transportation corridors on the community and give consideration to appropriate development options on major east-west transportation corridors, including along the Fraser Highway.

- › **2.2.5:** Consider development agro-industrial areas in appropriate locations to accommodate industrial uses directly related to agriculture. Existing industrial uses are identified on “Map 1”. Direct new agro-industrial uses to industrial areas within the urban development area.
- › **2.3.12:** Support existing industrial activities and new Urban areas in the Regional Centre and Frequent Transit Development Areas by minimizing impacts on existing industrial areas through appropriate buffering, landscaping, and building design.
- › **2.3.13:** Encourage transit improvements in all centres and Frequent Transit Development Areas. As transit service improves in these areas, consider reducing parking requirements for residential and commercial uses based on a review of parking needs.
- › **2.4.11:** Areas designated as Industrial are intended for manufacturing and warehousing activities, and in some cases office use, subject to policies in community plans. Retail activities directly related and accessory to industrial uses, and limited commercial activities supporting industrial activities, may be considered subject to policies in community plans. Residential uses are limited to one dwelling unit per lot for use by an owner, manager, or caretaker. Other commercial or residential uses are not permitted.
- › **2.4.12:** Encourage efficient utilization of industrial lands and intensification of industrial development.
- › **2.4.13:** Areas designated as Mixed Employment are intended primarily for industrial uses. Efficient utilization of land and intensification of industrial development is encouraged.
- › **2.4.16:** Encourage industrial and business park development in the Willowbrook area in conformity with the Willowbrook Community Plan
- › **2.4.17:** Complete and or update detailed plans for the Gloucester and Northwest Langley areas to ensure that they continue to provide employment lands for the Township.
- › **3.7.2:** Ensure a long-term supply of employment lands is maintained, with a match between available land and the requirements of future market demand.
- › **3.7.4:** Encourage industrial development that has a high employment ratio.
- › **3.7.5:** Preserve industrial designated lands for industrial uses and uses accessory to industry.
- › **3.7.6:** Consider designation of new employment lands where appropriate.
- › **3.7.7:** Encourage buffering between employment and non-employment land.

## Economic Development Strategy (2012)

The Township of Langley’s Economic Development Strategy was initially endorsed by Council in 2002 and has been most recently updated in 2012. The strategy guides an articulate mission statement, a realizable set of objectives, and devises a supporting action plan to meet these objectives. The mission of the Township of Langley is for the Township to be the “premier place to live, work, and invest. Diverse communities should thrive in a harmonious urban-rural setting, where balanced land use recognizes heritage while meeting the needs of a growing employment base. The Township of Langley economy generates more jobs than required



by our working residents by leveraging our traditional industries and diversifying into emerging sectors. Increased development densities have created a major town centre, fostered by quality transit and transportation infrastructure, high quality community amenities, and exceptional recreation features”.

› Initiative 10: Promoting the Densification of Developable Lands.

- Densification of developable lands allows for a greater mix of uses. This densification should also relieve pressure on agricultural lands.

## 7 Fraser Valley Regional Growth Strategy – Fraser Valley Future 2050 Draft

### Chapter 2: Economic Strength and Resiliency

› Goal: To realize the region’s economic potential by providing opportunities in employment and education that will grow the economy by building on the region’s strengths.

- Building complete communities that provide residents with jobs and services close to where they live can improve employment opportunities and contribute to local self-sufficiency.
- Ensuring a strong economy also requires anticipating future demand.
- Manufacturing will continue to grow in the region and with population growth, there will be increased opportunities for employment in such areas as technology, health care, sales and services, business services and others.

› Section 2.1 Create Opportunities for employment and education.

- Promote the development of a strong employment base and favorable investment climate by recognizing economic drivers and being flexible enough to take advantage of changing markets and new opportunities.
- Support initiatives that contribute to growth of a diversified economy.
- Develop and maintain a skilled labor force.
- Provide educational and employment opportunities in fields that will enable and encourage younger generations to remain in the Fraser Valley.
- Support initiatives that provide employment opportunities in rural communities and electoral areas, including indigenous communities.
- Encourage mixed-use development and development that locates employment centres near residential areas to increase accessibility and minimize commuting.

- Improve the viability of smaller communities, including Indigenous communities, and help them adapt to economic change by advocating for improvements to internet access and other basic services that encourage innovative entrepreneurship in remote locations.
- Support equal access to employment or educational programs and initiatives for Indigenous Peoples.
- Work with local governments, Indigenous communities, senior governments, the private sector and the public to implement the recommendations of the Clean Economy in the Fraser Valley study.

## › 2.2 Protect Employment Lands

- Expand economic growth and productivity by exploring opportunities for clustering industrial development in a manner that will create competitive advantages and foster collaboration between Indigenous communities, businesses, organizations, and government agencies.
- In collaboration with local governments, develop and maintain an employment lands inventory to ensure an adequate supply of industrial, agricultural, and commercial lands.
- Protect the supply of industrial lands from non- industrial conversion to ensure future needs can be met.
- Work with Indigenous governments and the Province to ensure sustainable management of natural resources by using an integrated management approach, developing natural resource plans for the region, and acknowledging cumulative impacts on the environment and culturally sensitive sites.
- Work with the Agricultural Land Commission and other stakeholders to develop innovative approaches to address urban land requirements without compromising the intent of the Agricultural Land Reserve.

## Appendix II | Baseline Scenario Proforma

Development Assumptions		
Land Area (Acre)	(Acre)	10.00
Land Area (sf)	(sf)	435,602
Site Coverage Ratio	(%)	50%
FAR	(#)	0.50
Number of Floors	(#)	1
Building footprint	(sf)	217,801
<b>Gross Floor Area</b>	<b>(sf)</b>	<b>217,801</b>
Gross Floor Area - industrial	(sf)	217,801
Industrial Area FAR	(#)	0.50
<b>Net Salable Area</b>	<b>(sf)</b>	<b>213,445</b>
Net Salable Industrial Area	(sf)	213,445
Efficiency	(%)	98%
Parking Stalls Required	(#)	218
Surface Parking Stalls Provided	(#)	218
Revenue		
Industrial Space Strata Price per SF - Blended		460.00
Industrial Space Strata Price per SF-1st Floor	(\$/sf)	460.00
Sales Revenue from Industrial Space	(\$)	98,184,633
Gross Revenue	(\$)	98,184,633
Commissions Rate	(%)	3.00%
Commissions	(\$)	(2,945,539)
<b>Revenue after Commissions</b>	<b>(\$)</b>	<b>95,239,094</b>

Development		
Hard Cost Rate	(\$/sf)	125
<b>Hard Costs</b>	(\$)	27,225,109
Soft Cost Rate (of Hard Costs)	(%)	22%
<b>Soft Costs</b>	(\$)	5,987,391
Architect & Consultants Rate (of Hard Costs)	(%)	4.0%
Architect & Consultants Cost	(\$)	1,089,004
Development Management Fee Rate (% of Total Project C	(%)	4.0%
Development Management Fee	(\$)	1,414,852
Permits and Development Charges Rate(of Hard Costs)	(%)	5.0%
Permits and Development Charges Costs	(\$)	1,361,255
Property Taxes Rate (of Total Project Costs)	(%)	1.5%
Property Taxes During Construction	(\$)	530,570
Financing Costs Rate	(%)	4.5%
Financing Costs	(\$)	1,591,709
Contingency (% of Total Hard Costs and Soft Costs)	(%)	6.50%
<b>Contingency Costs</b>	(\$)	2,158,812
Total Capital Costs	(\$)	35,371,312
Total Capital Costs per Building Square Foot	(\$/sf)	162

Valuation		
Revenue after Commissions	(\$)	95,239,094
Total Project Costs (Excl.Land)	(\$)	(35,371,312)
Developer's Profit Rate	(%)	13%
Developer's Profit	(\$)	(10,956,710)
<b>Residual Land Value</b>	<b>(\$)</b>	<b>48,911,071</b>
<b>Residual Price Per Acre</b>	<b>(\$)</b>	<b>4,891,107</b>
<b>Comparables Land Value per Acre</b>	<b>(\$)</b>	<b>6,161,115</b>

Market Requirement		
Required Industrial Space Strata Price per SF-Blanded	(\$/sf)	530.00
Gross Revenue	(\$)	113,125,773
Commission	(\$)	(3,393,773)
Revenue after Commissions	(\$)	109,731,999
Created Value per Square Foot	(\$/sf)	504
Revenue after Commissions	(\$)	109,731,999
Total Project Costs (Excl.Land)	(\$)	(35,371,312)
Developer's Profit Rate	(%)	13%
Developer's Profit	(\$)	(12,624,035)
<b>Residual Land Value</b>	<b>(\$)</b>	<b>61,736,652</b>
<b>Residual Price Per Buildable Per Acre</b>	<b>(\$)</b>	<b>6,173,665</b>
<b>Comparables Land Value per Acre</b>	<b>(\$)</b>	<b>6,161,115</b>



## Appendix III | Scenario 1a Proforma

Development Assumptions		
Land Area (Acre)	(Acre)	10.00
Land Area (sf)	(sf)	435,602
Site Coverage Ratio	(%)	60%
FAR	(#)	0.60
Number of Floors	(#)	1
Building footprint	(sf)	261,361
<b>Gross Floor Area</b>	<b>(sf)</b>	<b>261,361</b>
Gross Floor Area - industrial	(sf)	261,361
Industrial Area FAR	(#)	0.60
<b>Net Salable Area</b>	<b>(sf)</b>	<b>256,134</b>
Net Salable Industrial Area	(sf)	256,134
Efficiency	(%)	98%
Parking Stalls Required	(#)	261
Roof Parking Stalls Provided	(#)	261
Revenue		
Industrial Space Strata Price per SF - Blended		460.00
Industrial Space Strata Price per SF-1st Floor	(\$/sf)	460.00
Sales Revenue from Industrial Space	(\$)	117,821,559
Gross Revenue	(\$)	117,821,559
Commissions Rate	(%)	3.00%
Commissions	(\$)	(3,534,647)
<b>Revenue after Commissions</b>	<b>(\$)</b>	<b>114,286,913</b>

### Development

Hard Cost Rate	(\$/sf)	175
<b>Hard Costs</b>	(\$)	45,738,183
Soft Cost Rate (of Hard Costs)	(%)	22%
<b>Soft Costs</b>	(\$)	10,058,817
Architect & Consultants Rate (of Hard Costs)	(%)	4.0%
Architect & Consultants Cost	(\$)	1,829,527
Development Management Fee Rate (% of Total Project C	(%)	4.0%
Development Management Fee	(\$)	2,376,952
Permits and Development Charges Rate(of Hard Costs)	(%)	5.0%
Permits and Development Charges Costs	(\$)	2,286,909
Property Taxes Rate (of Total Project Costs)	(%)	1.5%
Property Taxes During Construction	(\$)	891,357
Financing Costs Rate	(%)	4.5%
Financing Costs	(\$)	2,674,071
Contingency (% of Total Hard Costs and Soft Costs)	(%)	6.50%
<b>Contingency Costs</b>	(\$)	3,626,805
Total Capital Costs	(\$)	59,423,805
Total Capital Costs per Building Square Foot	(\$/sf)	227

### Valuation

Revenue after Commissions	(\$)	114,286,913
Total Project Costs (Excl.Land)	(\$)	(59,423,805)
Developer's Profit Rate	(%)	13%
Developer's Profit	(\$)	(13,148,052)
<b>Residual Land Value</b>	<b>(\$)</b>	<b>41,715,056</b>
<b>Residual Price Per Acre</b>	<b>(\$)</b>	<b>4,171,506</b>
<b>Comparables Land Value per Acre</b>	<b>(\$)</b>	<b>6,161,115</b>

### Market Requirement

Required Industrial Space Strata Price per SF-Blanded	(\$/sf)	551.00
Gross Revenue	(\$)	141,129,737
Commission	(\$)	(4,233,892)
Revenue after Commissions	(\$)	136,895,845
Created Value per Square Foot	(\$/sf)	524
Revenue after Commissions	(\$)	136,895,845
Total Project Costs (Excl.Land)	(\$)	(59,423,805)
Developer's Profit Rate	(%)	13%
Developer's Profit	(\$)	(15,749,080)
<b>Residual Land Value</b>	<b>(\$)</b>	<b>61,722,961</b>
<b>Residual Price Per Buildable Per Acre</b>	<b>(\$)</b>	<b>6,172,296</b>
<b>Comparables Land Value per Acre</b>	<b>(\$)</b>	<b>6,161,115</b>

## Appendix IV | Scenario 1b Proforma

Development Assumptions		
Land Area (Acre)	(Acre)	10.00
Land Area (sf)	(sf)	435,602
Site Coverage Ratio	(%)	50%
FAR	(#)	1.00
Number of Floors	(#)	2
Building footprint	(sf)	217,801
<b>Gross Floor Area</b>	<b>(sf)</b>	<b>435,602</b>
Gross Floor Area - industrial	(sf)	435,602
Industrial Area FAR	(#)	1.00
<b>Net Salable Area</b>	<b>(sf)</b>	<b>413,822</b>
Net Salable Industrial Area	(sf)	413,822
Efficiency	(%)	95%
Parking Stalls Required	(#)	435
Surface Parking Stalls Provided	(#)	435
Revenue		
Industrial Space Strata Price per SF - Blended		445.00
Industrial Space Strata Price per SF-1st Floor	(\$/sf)	460.00
Industrial Space Strata Price per SF-2st Floor	(\$/sf)	430.00
Sales Revenue from Industrial Space	(\$)	184,150,637
Gross Revenue	(\$)	184,150,637
Commissions Rate	(%)	3.00%
Commissions	(\$)	(5,524,519)
<b>Revenue after Commissions</b>	<b>(\$)</b>	<b>178,626,118</b>

### Development

Hard Cost Rate	(\$/sf)	225
<b>Hard Costs</b>	(\$)	98,010,392
Soft Cost Rate (of Hard Costs)	(%)	22%
<b>Soft Costs</b>	(\$)	21,554,608
Architect & Consultants Rate (of Hard Costs)	(%)	4.0%
Architect & Consultants Cost	(\$)	3,920,416
Development Management Fee Rate (% of Total Project C	(%)	4.0%
Development Management Fee	(\$)	5,093,469
Permits and Development Charges Rate(of Hard Costs)	(%)	5.0%
Permits and Development Charges Costs	(\$)	4,900,520
Property Taxes Rate (of Total Project Costs)	(%)	1.5%
Property Taxes During Construction	(\$)	1,910,051
Financing Costs Rate	(%)	4.5%
Financing Costs	(\$)	5,730,153
Contingency (% of Total Hard Costs and Soft Costs)	(%)	6.50%
<b>Contingency Costs</b>	(\$)	7,771,725
Total Capital Costs	(\$)	127,336,725
Total Capital Costs per Building Square Foot	(\$/sf)	292

### Valuation

Revenue after Commissions	(\$)	178,626,118
Total Project Costs (Excl.Land)	(\$)	(127,336,725)
Developer's Profit Rate	(%)	13%
Developer's Profit	(\$)	(20,549,907)
<b>Residual Land Value</b>	<b>(\$)</b>	<b>30,739,485</b>
<b>Residual Price Per Acre</b>	<b>(\$)</b>	<b>3,073,949</b>
<b>Comparables Land Value per Acre</b>	<b>(\$)</b>	<b>6,161,115</b>

### Market Requirement

Required Industrial Space Strata Price per SF-Blanded	(\$/sf)	532.00
Gross Revenue	(\$)	220,153,121
Commission	(\$)	(6,604,594)
Revenue after Commissions	(\$)	213,548,527
Created Value per Square Foot	(\$/sf)	490
Revenue after Commissions	(\$)	213,548,527
Total Project Costs (Excl.Land)	(\$)	(127,336,725)
Developer's Profit Rate	(%)	13%
Developer's Profit	(\$)	(24,567,530)
<b>Residual Land Value</b>	<b>(\$)</b>	<b>61,644,273</b>
<b>Residual Price Per Buildable Per Acre</b>	<b>(\$)</b>	<b>6,164,427</b>
<b>Comparables Land Value per Acre</b>	<b>(\$)</b>	<b>6,161,115</b>

## Appendix V | Scenario 1c Proforma

Development Assumptions		
Land Area (Acre)	(Acre)	10.00
Land Area (sf)	(sf)	435,602
Site Coverage Ratio	(%)	50%
FAR	(#)	1.50
Number of Floors	(#)	3
Building footprint	(sf)	217,801
<b>Gross Floor Area</b>	<b>(sf)</b>	<b>653,403</b>
Gross Floor Area - industrial	(sf)	653,403
Industrial Area FAR	(#)	1.50
<b>Net Salable Area</b>	<b>(sf)</b>	<b>614,198</b>
Net Salable Industrial Area	(sf)	614,198
Efficiency	(%)	94%
Parking Stalls Required	(#)	653
Surface Parking Stalls Provided	(#)	622
Revenue		
Industrial Space Strata Price per SF - Blended		436.67
Industrial Space Strata Price per SF-1st Floor	(\$/sf)	460.00
Industrial Space Strata Price per SF-2st Floor	(\$/sf)	430.00
Industrial Space Strata Price per SF-3st Floor	(\$/sf)	420.00
Sales Revenue from Industrial Space	(\$)	268,199,993
Gross Revenue	(\$)	268,199,993
Commissions Rate	(%)	3.00%
Commissions	(\$)	(8,046,000)
<b>Revenue after Commissions</b>	<b>(\$)</b>	<b>260,153,993</b>



Development		
Hard Cost Rate	(\$/sf)	240
<b>Hard Costs</b>	(\$)	156,816,627
Soft Cost Rate (of Hard Costs)	(%)	25%
<b>Soft Costs</b>	(\$)	38,571,366
Architect & Consultants Rate (of Hard Costs)	(%)	5.0%
Architect & Consultants Cost	(\$)	7,840,831
Development Management Fee Rate (% of Total Project C	(%)	5.0%
Development Management Fee	(\$)	10,404,411
Permits and Development Charges Rate(of Hard Costs)	(%)	5.0%
Permits and Development Charges Costs	(\$)	7,840,831
Property Taxes Rate (of Total Project Costs)	(%)	1.5%
Property Taxes During Construction	(\$)	3,121,323
Financing Costs Rate	(%)	4.5%
Financing Costs	(\$)	9,363,970
Contingency (% of Total Hard Costs and Soft Costs)	(%)	6.50%
<b>Contingency Costs</b>	(\$)	12,700,220
Total Capital Costs	(\$)	208,088,213
Total Capital Costs per Building Square Foot	(\$/sf)	318

Valuation		
Revenue after Commissions	(\$)	260,153,993
Total Project Costs (Excl.Land)	(\$)	(208,088,213)
Developer's Profit Rate	(%)	13%
Developer's Profit	(\$)	(29,929,220)
<b>Residual Land Value</b>	<b>(\$)</b>	<b>22,136,560</b>
<b>Residual Price Per Acre</b>	<b>(\$)</b>	<b>2,213,656</b>
<b>Comparables Land Value per Acre</b>	<b>(\$)</b>	<b>6,161,115</b>

Market Requirement		
Required Industrial Space Strata Price per SF-Blanded	(\$/sf)	512.00
Gross Revenue	(\$)	314,469,610
Commission	(\$)	(9,434,088)
Revenue after Commissions	(\$)	305,035,522
Created Value per Square Foot	(\$/sf)	467
Revenue after Commissions	(\$)	305,035,522
Total Project Costs (Excl.Land)	(\$)	(208,088,213)
Developer's Profit Rate	(%)	13%
Developer's Profit	(\$)	(35,092,582)
<b>Residual Land Value</b>	<b>(\$)</b>	<b>61,854,726</b>
<b>Residual Price Per Buildable Per Acre</b>	<b>(\$)</b>	<b>6,185,473</b>
<b>Comparables Land Value per Acre</b>	<b>(\$)</b>	<b>6,161,115</b>

## Appendix VI | Scenario 2a Proforma

Development Assumptions		
Land Area (Acre)	(Acre)	0.70
Land Area (sf)	(sf)	30,492
Site Coverage Ratio	(%)	95%
FAR	(#)	3.00
Number of Floors	(#)	3
Building footprint	(sf)	28,968
<b>Gross Floor Area</b>	<b>(sf)</b>	<b>91,476</b>
Gross Floor Area - industrial	(sf)	60,984
Industrial Area FAR	(#)	2.00
Gross Floor Area - Office	(sf)	30,492
Office Area FAR	(#)	1.00
<b>Net Salable Area</b>	<b>(sf)</b>	<b>83,243</b>
Net Salable Industrial Area	(sf)	55,496
Efficiency	(%)	91%
Net Salable Office Area	(sf)	27,748
Efficiency	(%)	91%
Parking Stalls Required	(#)	123
Underground Parking Stalls Provided	(#)	123
Revenue		
Industrial Space Strata Price per SF - Blended		570.00
Industrial Space Strata Price per SF-1st Floor	(\$/sf)	580.00
Industrial Space Strata Price per SF-2st Floor	(\$/sf)	560.00
Sales Revenue from Industrial Space	(\$)	31,632,527
Office Space Strata Price per SF-Blended	(\$/sf)	750.00
Sales Revenue from Office Space	(\$)	20,810,873
Price per Parking Stall	(\$/stall)	50,000.00
% of Parking Stalls for Sale	(%)	50%
Sales Revenue from Parking Space	(\$)	3,063,089.18
Gross Revenue	(\$)	55,506,490
Commissions Rate	(%)	3.00%
Commissions	(\$)	(1,665,195)
<b>Revenue after Commissions</b>	<b>(\$)</b>	<b>53,841,295</b>

Development		
Hard Cost Rate	(\$/sf)	300
<b>Hard Costs</b>	(\$)	27,415,924
Soft Cost Rate (of Hard Costs)	(%)	27%
<b>Soft Costs</b>	(\$)	7,372,848
Architect & Consultants Rate (of Hard Costs)	(%)	5.0%
Architect & Consultants Cost	(\$)	1,370,796
Development Management Fee Rate (% of Total Project C	(%)	5.0%
Development Management Fee	(\$)	1,852,502
Permits and Development Charges Rate(of Hard Costs)	(%)	5.0%
Permits and Development Charges Costs	(\$)	1,370,796
Property Taxes Rate (of Total Project Costs)	(%)	2.0%
Property Taxes During Construction	(\$)	741,001
Financing Costs Rate	(%)	5.5%
Financing Costs	(\$)	2,037,752
Contingency (% of Total Hard Costs and Soft Costs)	(%)	6.50%
<b>Contingency Costs</b>	(\$)	2,261,270
Total Capital Costs	(\$)	37,050,042
Total Capital Costs per Building Square Foot	(\$/sf)	405

Valuation		
Revenue after Commissions	(\$)	53,841,295
Total Project Costs (Excl.Land)	(\$)	(37,050,042)
Developer's Profit Rate	(%)	15%
Developer's Profit	(\$)	(7,022,778)
<b>Residual Land Value</b>	<b>(\$)</b>	<b>9,768,475</b>
<b>Residual Price Per Buildable Per SF (PPBSF)</b>	<b>(\$)</b>	<b>107</b>
<b>Comparables Land Value per Buildable SF</b>		<b>170</b>

Market Requirement		
Required Industrial Space Strata Price per SF-Blanded	(\$/sf)	646.00
Required Office Space Strata Price per SF-Blanded	(\$/sf)	846.00
Gross Revenue	(\$)	62,387,952
Commission	(\$)	(1,871,639)
Revenue after Commissions	(\$)	60,516,313
Created Value per Square Foot	(\$/sf)	662
Revenue after Commissions	(\$)	60,516,313
Total Project Costs (Excl.Land)	(\$)	(37,050,042)
Developer's Profit Rate	(%)	15%
Developer's Profit	(\$)	(7,893,432)
<b>Residual Land Value</b>	<b>(\$)</b>	<b>15,572,839</b>
<b>Residual Price Per Buildable Per SF (PPBSF)</b>	<b>(\$)</b>	<b>170</b>
<b>Comparables Land Value per SF</b>	<b>(\$)</b>	<b>170</b>

## Appendix VII | Scenario 2b Proforma

Development Assumptions		
Land Area (Acre)	(Acre)	0.70
Land Area (sf)	(sf)	30,492
Site Coverage Ratio	(%)	95%
FAR	(#)	6.00
Number of Floors	(#)	6
Building footprint	(sf)	28,968
<b>Gross Floor Area</b>	<b>(sf)</b>	<b>182,953</b>
Gross Floor Area - industrial	(sf)	60,984
Industrial Area FAR	(#)	2.00
Gross Floor Area - Office	(sf)	121,968
Office Area FAR	(#)	4.00
<b>Net Salable Area</b>	<b>(sf)</b>	<b>164,657</b>
Net Salable Industrial Area	(sf)	54,886
Efficiency	(%)	90%
Net Salable Office Area	(sf)	109,772
Efficiency	(%)	90%
Parking Stalls Required	(#)	307
Underground Parking Stalls Provided	(#)	174
Revenue		
Industrial Space Strata Price per SF - Blended		570.00
Industrial Space Strata Price per SF-1st Floor	(\$/sf)	580.00
Industrial Space Strata Price per SF-2st Floor	(\$/sf)	560.00
Sales Revenue from Industrial Space	(\$)	31,284,917
Office Space Strata Price per SF-Blended	(\$/sf)	750.00
Sales Revenue from Office Space	(\$)	82,328,729
Price per Parking Stall	(\$/stall)	50,000.00
% of Parking Stalls for Sale	(%)	50%
Sales Revenue from Parking Space	(\$)	4,356,017.42
Gross Revenue	(\$)	117,969,664
Commissions Rate	(%)	3.00%
Commissions	(\$)	(3,539,090)
<b>Revenue after Commissions</b>	<b>(\$)</b>	<b>114,430,574</b>

### Development

Hard Cost Rate	(\$/sf)	305
<b>Hard Costs</b>	(\$)	55,831,075
Soft Cost Rate (of Hard Costs)	(%)	27%
<b>Soft Costs</b>	(\$)	15,014,413
Architect & Consultants Rate (of Hard Costs)	(%)	5.0%
Architect & Consultants Cost	(\$)	2,791,554
Development Management Fee Rate (% of Total Project C	(%)	5.0%
Development Management Fee	(\$)	3,772,522
Permits and Development Charges Rate(of Hard Costs)	(%)	5.0%
Permits and Development Charges Costs	(\$)	2,791,554
Property Taxes Rate (of Total Project Costs)	(%)	2.0%
Property Taxes During Construction	(\$)	1,509,009
Financing Costs Rate	(%)	5.5%
Financing Costs	(\$)	4,149,774
Contingency (% of Total Hard Costs and Soft Costs)	(%)	6.50%
<b>Contingency Costs</b>	(\$)	4,604,957
Total Capital Costs	(\$)	75,450,445
Total Capital Costs per Building Square Foot	(\$/sf)	412

### Valuation

Revenue after Commissions	(\$)	114,430,574
Total Project Costs (Excl.Land)	(\$)	(75,450,445)
Developer's Profit Rate	(%)	15%
Developer's Profit	(\$)	(14,925,727)
<b>Residual Land Value</b>	<b>(\$)</b>	<b>24,054,402</b>
<b>Residual Price Per Buildable Per SF (PPBSF)</b>	<b>(\$)</b>	<b>131</b>
<b>Comparables Land Value per Buildable SF</b>		<b>170</b>

### Market Requirement

Required Industrial Space Strata Price per SF-Blanded	(\$/sf)	608.00
Required Office Space Strata Price per SF-Blanded	(\$/sf)	808.00
Gross Revenue	(\$)	126,422,080
Commission	(\$)	(3,792,662)
Revenue after Commissions	(\$)	122,629,418
Created Value per Square Foot	(\$/sf)	670
Revenue after Commissions	(\$)	122,629,418
Total Project Costs (Excl.Land)	(\$)	(75,450,445)
Developer's Profit Rate	(%)	15%
Developer's Profit	(\$)	(15,995,141)
<b>Residual Land Value</b>	<b>(\$)</b>	<b>31,183,831</b>
<b>Residual Price Per Buildable Per SF (PPBSF)</b>	<b>(\$)</b>	<b>170</b>
<b>Comparables Land Value per SF</b>	<b>(\$)</b>	<b>170</b>