FINAL REPORT

PREPARED BY HEMSON FOR THE CITY OF VANCOUVER

EMPLOYMENT LANDS AND ECONOMY REVIEW: COVID-19 FORECAST UPDATE

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EXECUTIVE SUMMARY

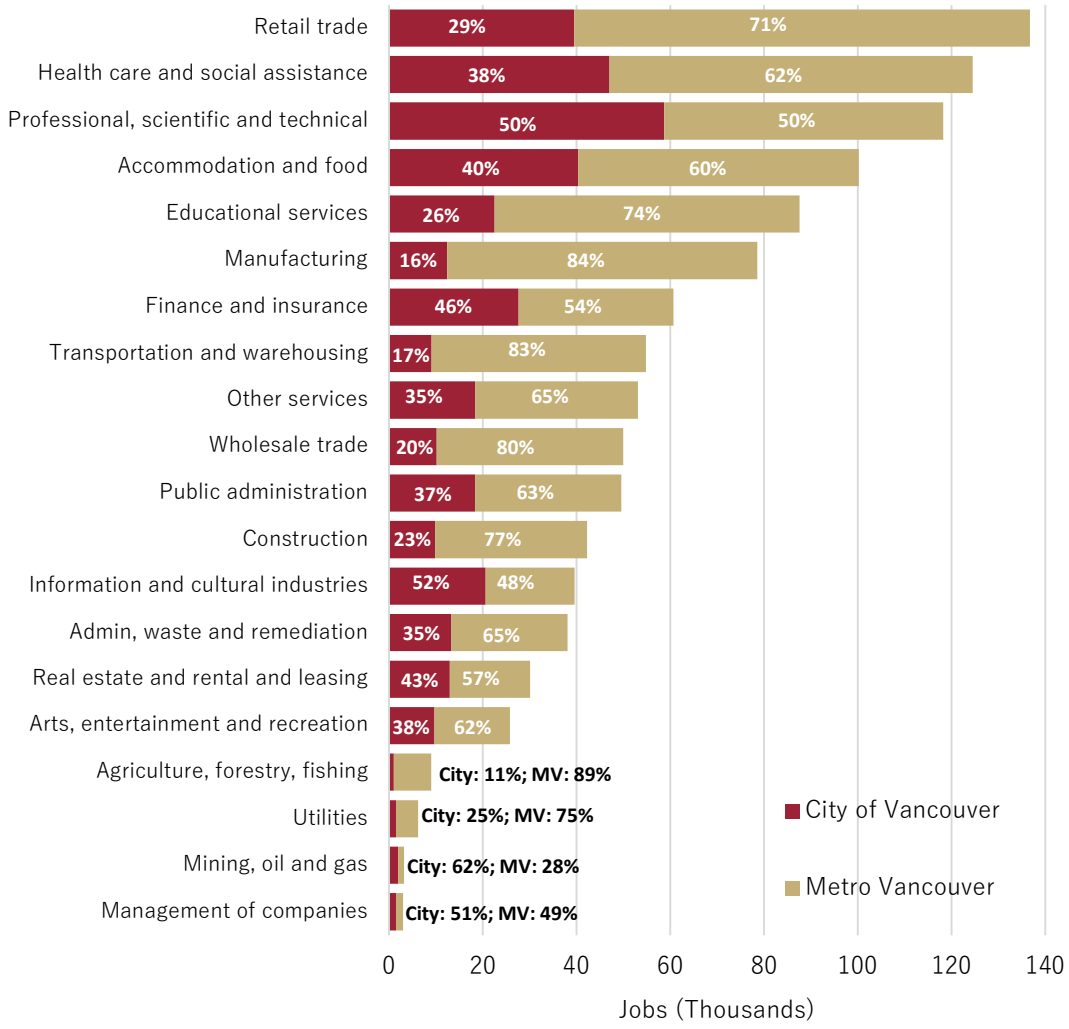
This report presents long-term employment forecasts and development capacity analysis for the City of Vancouver that had been prepared 1½ years into the ongoing *Employment Lands & Economy Review* (EL&ER) planning process. Within a few weeks of presenting the forecast conclusions to Vancouver City Council, the COVID-19 pandemic began. Given the initial economic consequences of the pandemic and the new uncertainty about the future, the City of Vancouver asked Hemson Consulting to update the forecasts to account for the dramatic change in circumstances. Since history is unchanged, this report provides the background context and initial data as it was to early 2020 and then provides alternative forecast scenarios based on the altered economic conditions and a revised view of the future of economic change, employment growth and built space demand. These updated forecasts will continue to support the City's efforts towards encouraging economic recovery and pro-active land use planning as part of the ongoing EL&ER work.

A. THE DIVERSITY OF VANCOUVER'S ECONOMY IS KEY TO ITS RESILIENCY

Vancouver's economic history is one of growth and transformation. From its roots as a place of community and economic importance to the Indigenous peoples of the area, to its establishment as a hub for the forestry industry and later a key gateway between the Pacific Ocean and the rest of Canada, to its more recent emergence as a globally-recognized destination for tourism and technology, Vancouver's economy has evolved and diversified over time.

As the central city to the Metro Vancouver region, Vancouver plays an integral role in the broader economic ecosystem, accounting for 33% of all jobs in the region across a range of businesses and services. These include trade-enabling and city-serving industrial uses, clusters of innovation and creativity, local and regional serving institutions and retail businesses, and the not-for-profit sector and other purpose-based organizations. While certain uses are more concentrated in Vancouver than other parts of the region, each plays an important role in supporting both local and regional economic activity, providing goods, services and employment opportunities across the broad spectrum of the economic continuum.

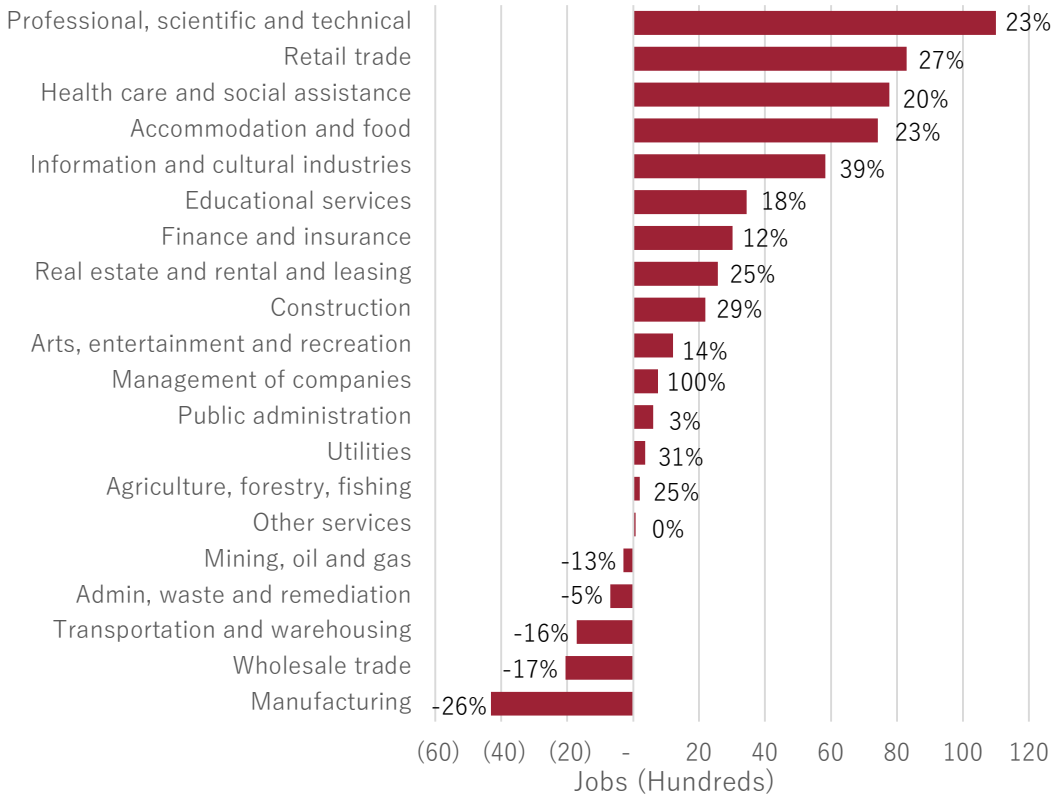
Distribution of Jobs between City of Vancouver and Metro Vancouver Region, by Sector, 2016



Source: Statistics Canada 2016 Census: Jobs by NAICS (2 digit).
Note: Does not include jobs "with no fixed workplace address".

Only 10% of the City's total land base permits "jobs only", yet nearly half of all jobs within the City of Vancouver are located within these areas. In many cases, these are the only locations that certain business activities are able to locate due to factors such as site size, infrastructure access, buffering from sensitive uses, zoning permission and other economic considerations. With the city almost fully built out and few feasible options to expand this land base, there is increasing competition amongst those businesses that are unable to locate elsewhere. These are reflected in the recent rates of growth amongst different employment sectors.

Job Increases and Decreases by Sector, City of Vancouver, 2006-2016



Source: Statistics Canada 2006 and 2016 Census: Jobs by NAICS (2 digit).

Note: Does not include jobs "with no fixed workplace address".

In the 10 years between 2006 and 2016, employment in Vancouver grew by over 45,000 jobs, or approximately 14%. This is quite rapid growth for a developed central city over a ten-year period. Sectors, such as professional services, retail, health care, and accommodation and food experienced strong growth, while others, such as manufacturing, wholesale trade, and transportation and warehousing experienced declines.

Though growth prospects for more traditional industrial employment land uses may be more limited in a central city like Vancouver, it is important to recognize the role many of these businesses continue to play in supporting other aspects of the City's economic system. Planning for and encouraging a diverse range of employment activities is also beneficial to create economic resiliency and protect the local economy from sector specific disruptions and market shocks. Economic disruptions, including the COVID-19 pandemic, occur through forces largely beyond local municipal control, be they changes in global trade policies, the emergence of disruptive technologies, or the impacts of climate change, just to name a few. The impact of specific macro-level changes may disproportionately affect specific sectors of the economy, such as the impact globalization and offshoring have had on North

American manufacturing in recent decades. Ensuring opportunities for the continued diversity of local employment across a range of sectors and land uses is a wise choice in planning for future economic growth.

B. FORECASTING FOR LAND USE CATEGORIES

The forecast model begins with an understanding of the trends and growth prospects for the Metro Vancouver economic region. This increment is then split based on employment sectors (2-digit NAICS) amongst four land-use based employment categories:

- **Major Office:** Employment uses which typically occur in large free-standing office buildings of 20,000 sq. ft. or greater. Businesses in this category often seek a central location with access to transit infrastructure and various other amenities, and are typically distributed amongst a few major concentrations in the region; the largest of which by far is Vancouver's Central Business District.

- **Population Related: Commercial:** Includes employment activities that primarily serve the local resident population, along with some regional population serving uses (like major malls) and tourism related uses. Businesses in this category can be accommodated in a range of built forms, including standalone shops, malls, and may be mixed in with other uses, including residential buildings.

- **Population Related: Institutional:** Like other population-related uses, activities in this group typically serve the local and regional population, including schools, hospitals and government buildings. They are distinct in their land needs in that they tend to require larger sites, buildings or campuses, and are often planned for separately from other population-serving uses.

- **Industrial Areas:** Uses accommodated in low-rise industrial-type buildings generally found only within employment-only areas. These often involve activities related to Production, Distribution and Repair, which are traditionally not compatible adjacent to or mixed with sensitive uses, like residential. In many cases, these businesses support other businesses within the city and broader region, or may be more trade-enabling in nature.

Additionally, a fifth "Footloose / Work at Home" category considers those jobs that do not report to a regular place of work. While these jobs do not directly create demand for employment space, they are still considered as part of the broader economic outlook for the region, and are of increasing importance in light of the shift towards working from home as a result of the pandemic.

The total number of jobs and amount of floor space in each land use category was estimated to determine floor space occupancy patterns within each, expressed as an average Floor Space per Worker (FSW). This FSW, and how it might change over time, serves as a key assumption for estimating the future demand for space in the forecasts that follow.

Estimated Floor Space by Land Use-Based Employment Category, 2016

Employment Category	Employment (2016)	Total Floor Space (000's of sq. ft.)	Floor Space per Worker (sq. ft.)
Major Office	124,500	32,900	264
Population Related	202,600	83,100	410
Institutional*	60,200	22,100	367
Commercial	142,400	61,000	428
Hotels	8,900	9,400	1,056
Other Tourism	24,900	8,400	337
Rest of Commercial	108,700	43,100	397
Industrial Areas	48,000	28,900	602
Footloose /Work at Home	52,300	0	0
Total	**427,500**	**144,900**	**386****

Source: Hemson Consulting, using data from Statistics Canada and City of Vancouver

Note: Figures are rounded, and may not add to total. Total floor space figures are for total Gross Floor Area, including factors for vacancy and net leasable/usable space. The same applies to floor space per worker figures.

(*) Total Institutional floor space inventory is estimated to account for buildings not accounted for by BC Assessment Authority using building foot prints from satellite photos and other secondary sources, such as interviews with healthcare organization publications, where available.

(**) Total average FSW does not include jobs that are Footloose /Work at Home.

While the specific floor space needs of each worker will vary depending on the sector and nature of each specific business and job, these FSW averages present a broad idea of how much space is needed across each land use category. As technology progresses and trends evolve, these FSW rates are also expected to change in turn. For example, open concept and shared offices have trended towards lower FSW in many Office businesses, while automation and changing standards for delivering care have increased the FSW in some Industrial and Institutional spaces, respectively. The arrival of the COVID-19 pandemic and the associated health concerns it has generated will also have a notable impact on the way different types of employment use their respective space. These factors are all considered and taken into account as inputs to each of the forecast scenarios.

C. COVID-19 IS RESULTING IN SIGNIFICANT ECONOMIC IMPACTS

The rapid onset and unprecedented nature of the COVID-19 pandemic have made the development of short and long-term forecast assumptions a challenge. Various sources are reporting new data points indicating different levels of economic activity on a daily basis, while economists are publishing updated outlooks that shift considerably with each new piece of information available. While earlier predictions of a rapid "V-shaped" recovery have proven to be unlikely the further we progress into the pandemic, the shape of the recovery rate still relies on many unknowns. Predictions about the shape of this recovery vary depending on whom you ask, though consensus amongst the business community appears to be growing that economic recovery will occur more gradually, requiring between one to five years to reach pre-pandemic levels depending on the scenario and economic sector.

At the local level, the pandemic has had a range of impacts on local employment sectors. These are summarized as follows:

- **Major Office**: Despite a sharp rise in sublet listings, Vancouver remains one of the healthiest office markets in Canada. The Finance, Insurance and Real Estate sectors, along with other high-tech firms, make up much of the major office tenancy, which are among the least affected by COVID-19, largely on account of their ability to transition to work from home in the interim. This shift to work from home has lowered the overall outlook for this category, but reports suggest strong demand for space will persist. A strong focus on innovation and productivity will determine employment trends for office work, likely drawing people back to the office over time.

- **Population Related: Commercial:** Retail and accommodation are by far the hardest hit sectors at the onset of the pandemic, with tourism in particular facing a significant headwind due to travel restrictions. This segment is anticipated to experience a more drawn out recovery overall.

- **Population Related: Institutional:** With schools returning to in-classroom operations in September and healthcare expected to be in demand both due to COVID-19 and other demographic trends, the overall outlook remains relatively strong for this category. However, the knock-on effects of provincial and municipal deficits may lead to project cancellations, layoffs, or slowed employment growth over the post-pandemic period.

- **Industrial Areas:** Despite a slight increase in available industrial space and a modest slowdown in construction activity since the start of the pandemic, the overall employment outlook remains good for this sector. While some city-serving activities may experience a short-term decline linked to their primary clientele, the potential for

reshoring of supply chains and an increased demand for transportation and logistics (including e-commerce) are likely to offset any losses over the long term.

D. THREE NEW FORECAST SCENARIOS ARE CONSIDERED

While the original forecasts did account for a broad range of potential factors, the unprecedented nature of the COVID-19 pandemic on the local, regional and global economy have severely altered the initial pace of growth across various sectors of the economy. As we are still in the midst of the pandemic, there is considerable uncertainty to how and when we will emerge from it, and what lingering effects it may have on growth over time.

To account for this uncertainty, three forecast scenarios have been prepared to represent three distinct roads to recovery. These forecasts build upon the five original scenarios presented to Vancouver Council in January, and have been expanded to contemplate the time required for the economy to recover to pre-pandemic levels of activity, along with assumptions for the long-term impacts of the virus on different employment sectors and land uses. The three new scenarios are summarized as follows:

- **Updated Reference Scenario (Medium Impact / Medium Growth):** Developed around the trends that we understand to be most likely given our current trajectory and currently available data. Assumes the reopening of the economy will occur at a gradual pace, but does not assume another major lockdown will be required before an effective vaccine is developed and distributed. The long-term employment outlook is slightly depressed and some sectoral shifts are assumed as a result, particularly a slower recovery for commercial and tourism related jobs compared to other sectors.

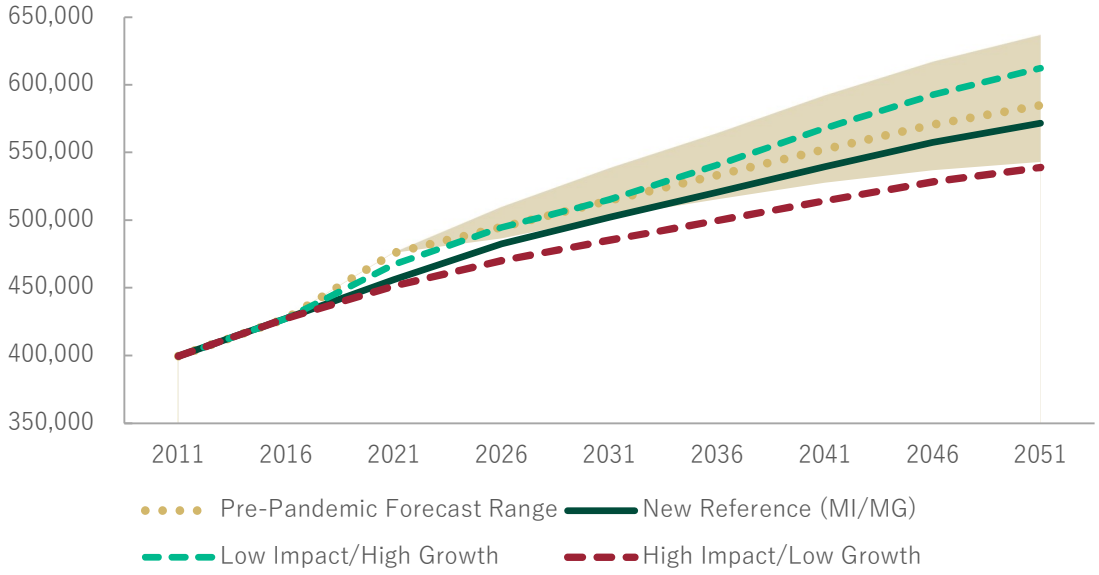
- **Low Impact / High Growth Scenario:** Assumes continued impacts from the pandemic will be minimized, combined with more optimistic post-pandemic recovery period in key sectors, such as tech. A short turnaround for a vaccine is also assumed, allowing for a much-reduced impact on the commercial and tourism sectors between now and 2026. New jobs that are footloose or based at home are assumed to still be significant, but represent a smaller share of overall growth than the other post-pandemic scenarios. This scenario represents a high-demand bookend to the pandemic recovery scenarios.

- **High Impact / Low Growth Scenario:** Postulates what the economy could look like if it takes considerably longer to recover from the pandemic, while also considering some of the factors that could limit the demand for local growth in the post-pandemic period. Assumptions include an increased shift towards employment in other parts of the region, increased footloose and work at home employment, and a more conservative

total outlook for employment as a whole. This scenario represents a low-demand bookend to the pandemic recover scenarios.

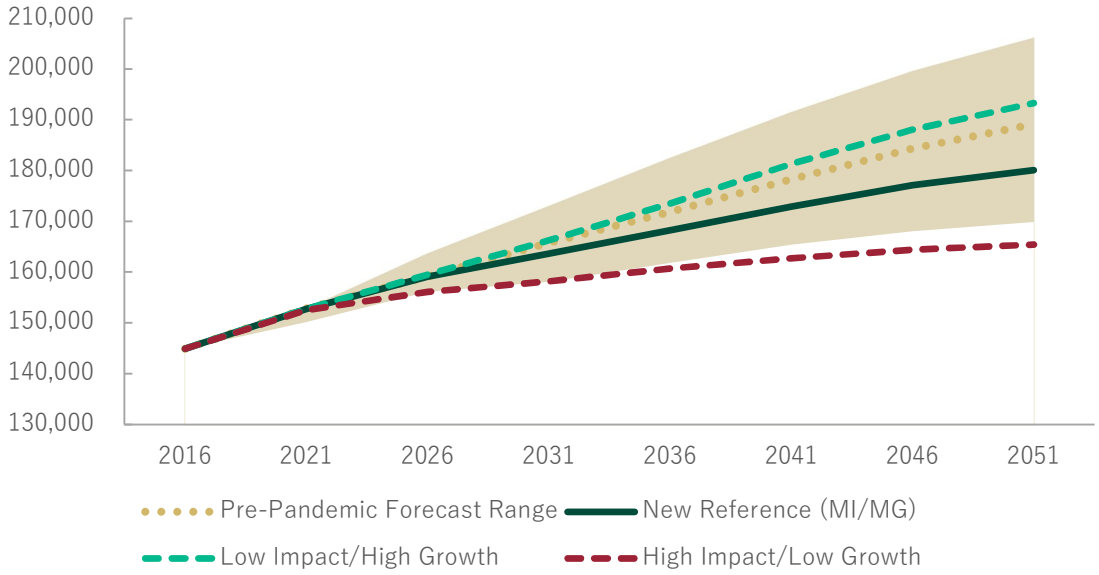
The total forecast employment and total space demand for each of the new scenarios is provided below, where it is overlaid against the range of the previous pre-pandemic forecasts for comparison.

Forecast Comparison – Total Employment, City of Vancouver, 2016-2051



Source: Hemson Consulting, using data from Statistics Canada and City of Vancouver

Forecast Comparison – Total Floor Space Demand, City of Vancouver, 2016-2051



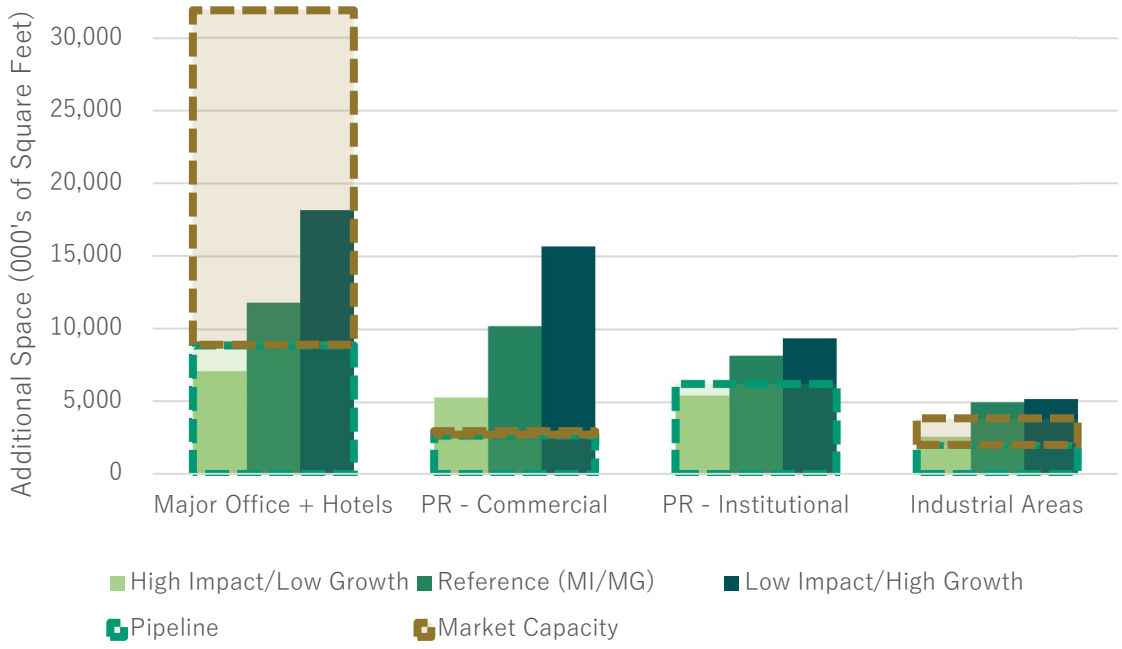
Source: Hemson Consulting, using data from Statistics Canada and City of Vancouver

The updated reference scenario results in 571,700 jobs and 180.1 million square feet of employment space by 2051 (a growth of 144,200 jobs and 35.2 million square feet between 2016 and 2051). At the high end, a Low Impact/High Growth scenario results in 612,300 jobs and 193.3 million square feet of space by the forecast horizon (a growth of 184,800 jobs and 48.4 million square feet). At the low end, a High Impact/Low Growth scenario would result in 539,000 jobs and 165.4 million square feet of employment space by 2051 (a growth of 111,500 jobs and 20.5 million square feet).

E. GAP ANALYSIS SUGGESTS CAPACITY SHORTFALL DESPITE LOWERED FORECAST OUTLOOK

Capacity modeling for all land use categories suggests a cumulative development capacity of 45.0 million square feet of employment space across the city. With a cumulative forecast demand ranging between 20.5 million and 48.4 million additional square feet, Vancouver could still experience a significant gap between the demand for employment space and its ability to accommodate it, even in light of current COVID-related shifts. This is of particular concern when observing the demand amongst specific employment land use categories.

Comparison of Updated Demand Forecasts and Capacity Analysis



Source: Hemson Consulting, with data from the City of Vancouver
Note: PR – Commercial demand and pipeline excludes hotels.

While space in the development pipeline is likely to be sufficient for most employment types under the High Impact / Low Growth scenario, the updated Reference and Low Impact /

High Growth scenarios indicate a shortfall in Commercial, Institutional and Industrial Area categories. At the same time, the development capacity for Major Office-type space is expected to present a number of challenges based on the location of the capacity, and competition with other uses, such as hotels.

- **Population Related: Commercial:** While the demand for Commercial space is likely to see the most significantly reduced demand for space as a result of the pandemic, coupled with the accelerated shift towards e-retailing and automation, it is still quite likely that a considerable amount of retail and small-office type space will be required once the economy recovers. The forecast model anticipates demand for an additional 5.3 to 15.7 million square feet of Commercial space by 2051, space for approximately 27,000 to 49,000 additional jobs (excluding hotels). However, with only 2.7 million square feet of additional space in the development pipeline and limited net increases in new space occurring as a result of Commercial redevelopment trends, there is likely to be a significant shortfall in the amount of space available for future Commercial uses.

  Industrial Areas: While limited land availability and market forces will push most industrial uses to other parts of Metro Vancouver, there will still be demand for some industrial space to accommodate local business-supporting-businesses. At the same time, tech-related manufacturing, increased logistics uses for e-retailing and the Port of Vancouver are all expected to continue to drive some demand in the city. The updated forecast scenarios anticipate demand for between 2.6 million and 5.2 million square feet of Industrial Area space in addition to what exists today. This would accommodate between 5,000 and 9,000 direct jobs.

  While the demand anticipated in the High Impact / Low Growth scenario could potentially be accommodated in existing buildings with the additional space noted in the development pipeline, the updated Reference and Low Impact / High Growth scenario outlooks will likely require more space than the market is likely to accommodate under current land use policies. While there are recent examples of multi-storey industrial space being developed in Vancouver as part of mixed industrial and office projects, it remains to be seen how easily these projects can be replicated.

- **Population Related: Institutional:** Despite reductions in overall population and employment as a result of the pandemic, demand for Institutional space is likely to remain high. This could result in a demand for between 5.5 million and 9.4 million square feet of additional Institutional space, accommodating between 15,000 and 23,000 additional jobs by 2051. Much of this demand can likely be accommodated within projects that are already in the development pipeline since 2016, which will add

6.3 million square feet of additional space if fully built out. However, additional demand will likely need to be accommodated through intensification and expansion of other health and education related campuses, along with nearby medical and support offices.

- **Major Office and Hotel:** Though significant shifts are occurring in the office market, including a shift towards flexible work arrangements and work-from-home, Vancouver is still anticipated to lead the region in demand for Major Office related jobs. The updated forecasts anticipate a need for between 6.3 and 14.7 million additional square feet of Major Office space, which would accommodate approximately 36,000 to 66,000 additional jobs. Demand for major hotel accommodation is also anticipated to continue, though demand is likely to be muted until later in the forecast window once the tourism industry has recovered. The updated scenarios predict a demand for between 0.8 and 3.5 million square feet of additional hotel space (1,600 to 4,000 jobs) by 2051. These two categories of space are shown together, as they typically compete for similar types of land and development capacity.

  In addition to the 8.1 million square feet of Major Office space and 0.8 million square feet of hotel space currently in the development pipeline, there is a considerable amount of potential development capacity spread across Vancouver, totaling approximately 23 million square feet. While it appears that the city has more than enough capacity to meet future demand, the location of some of this development capacity warrants some consideration. While most Major Office development has historically been centered on the Downtown and in the Central Broadway Area, the total capacity to accommodate additional development in these areas is limited. As a result, the City may need to consider policy changes that increase capacity in these high demand areas while also recognizing that office demand may start to shift towards other neighbourhoods where considerable development capacity exists, particularly near existing Skytrain Stations.

In the aftermath of the pandemic, it is also anticipated that a larger share of Vancouver's total employment will work from home, or have no fixed place of work. Before the pandemic, the original forecasts estimated between 67,000 and 76,000 jobs (roughly 12% of all jobs) in Vancouver would fall into the Footloose or Work at Home category by the end of the forecast period. Since the pandemic and the shift to more flexible work locations, including a notable increase in the amount of people considering to continue working from home after the pandemic has ended, this range now is anticipated between 79,000 and 86,000 (just over 15% of all jobs). It is important to note that while these jobs may not directly drive demand for space, their business does tend to have induced demands on other jobs and services, most of which still will require a regular location.

F. CONCLUSIONS

Based on the revised forecast outlooks and revised gap analysis, the following key conclusions were observed:

- Vancouver's economy has continued the long-term transition from resource and goods-producing industries to primarily service-based. The transition partly reflects the same shift in the broader national, provincial and metropolitan economies, but is even more concentrated in Vancouver as the central city of a rapidly growing region.

- In general, the positive long-term economic outlook for Vancouver remains in place, albeit with a deep recession and uncertain pace of recovery induced by COVID-19. We expect that the economic and employment growth as well as some of the population growth that had been expected to occur during the pandemic period will just be delayed and will be made up over next decade. However, we also expect that a portion of the otherwise-expected growth will simply not occur to the same degree resulting in marginally lower total employment and population in the city and the metropolitan region over the coming decades.

- The expected growth in most of the high-skilled service sector jobs before the pandemic is very likely to continue or even accelerate over the forecast period. These sectors are some of the least affected by the pandemic disruption and are the jobs that are best suited to working from home during the pandemic and, for a portion of the work force, on an ongoing basis in the future.

- In those sectors significantly affected by the pandemic, the overall economic contraction has yet to be complete. Many businesses and organizations that survived the shutdown and have reopened may still fail in the coming months. As well, the speed of the ongoing recovery remains quite uncertain in these most-affected sectors.

- Significant capacity in the development pipeline leading up to the pandemic, coupled with economic shocks, layoffs and work stoppages means that there will likely be a lag in demand for new space until both the pandemic-induced vacancies and the new stock is filled. Notwithstanding the significant development pipeline, over the next 30 years there will be significant additional demand for space in either the Reference Forecast or the Low Impact / High Growth Scenario. Even in the High Impact / Low Growth scenario, supply of built space and location-based constraints could still result in hurdles for many businesses finding appropriate space, particularly amongst Commercial and Industrial land uses where development capacity beyond the current pipeline is limited.

1. INTRODUCTION

This report presents long-term employment forecasts and development capacity analysis for the City of Vancouver that had been prepared 1½ years into the ongoing *Employment Lands & Economy Review* (EL&ER) planning process. Within a few weeks of the presenting the forecast conclusions to Vancouver City Council, the COVID-19 pandemic began. Given the initial economic consequences of the pandemic and the new uncertainty about the future, the City of Vancouver asked Hemson to update the forecasts to account for the dramatic change in circumstances. Since history is unchanged, this report provides the background context and initial data as it was to early 2020 and then provides alternative forecast scenarios based on the altered economic conditions and a revised view of the future of economic change, employment growth and built space demand. These updated forecasts will continue to support the City's efforts towards encouraging economic recovery and pro-active land use planning as part of the ongoing EL&ER work.

A. PURPOSE AND CONTEXT OF THE STUDY

The City of Vancouver is in the process of developing a long-range land use policy plan to ensure an appropriate supply of land and built space to support future economic growth. The purpose of this *Employment Lands & Economy Review* is to understand the diverse and dynamic needs of employment activities across the city today, how these needs have evolved over time, and how the changing nature of work and various other forces may affect the demand for different types of employment land and built space into the future.

In support of this objective, the City retained Hemson Consulting to conduct economic research and prepare a range of employment forecast scenarios, which were presented to Vancouver Council in January 2020. The forecasts were designed to provide a broad outlook for what Vancouver's economic future could look like in 2051, while also understanding the subsequent demand for land and built space. Concurrent to the preparation of these forecasts, City staff modelled Vancouver's non-residential development capacity under current land use policies and market trends. This development capacity model serves as a supply-side counterpart to the forecast scenarios' demand for space, providing a means to assess Vancouver's potential to accommodate future opportunities for employment and economic growth by identifying gaps between the supply and demand outlooks. This gap analysis serves to guide the City as it evaluates its current land use policies against a range of possible futures, enabling the development of robust and resilient policy responses where necessary.

In the time since the presentation of the forecast demand scenarios, Vancouver has been impacted by COVID-19 pandemic, which will be the most severe shock to the global economy in modern history. The scale and scope of the pandemic and its impact on both economic activity and employment cannot be understated. While the previous forecast scenarios were intended to account for a range of possible outcomes, the unprecedented nature of the pandemic, both in terms of immediate and longer-term implications, warrant an update to the forecast outlook.

This Forecast Update Report serves to summarize the findings of the previous forecasting and gap analysis, while also including three new forecast scenarios that account for what economic recovery and changing nature of employment in Vancouver could realistically look like in a post-COVID world. The report includes the following chapters:

- **Methodology:** includes an overview of Hemson's approach to developing and calculating the employment and space demand across key land use categories;
- **Vancouver's Economy in Context:** provides a summary of key employment facts and trends related to the history of the city's economic development and growth, which inform many of the assumptions in the forecast scenarios;
- **Existing Employment and Floor Space Inventory:** a summary of where and how jobs are located across Vancouver at the start of the forecast window in 2016;
- **The Impacts of COVID-19:** summarizes the various local and macro-level economic impacts that have been observed since the beginning of the pandemic, and their incorporation into the updated forecast scenarios;
- **Updated Forecast Scenarios:** describes the outputs of the three new forecast employment growth and demand scenarios, and how they compare to the previous pre-COVID scenarios;
- **Vancouver's Capacity to Accommodate Growth:** an overview of the supply side capacity modeling prepared by Vancouver planning staff;
- **Gap Analysis:** assesses the surplus or shortfall of development capacity against the new forecast scenarios for floor space demand; and
- **Conclusions:** discusses the implications of the findings of the forecast outlook and gap analysis, with a specific eye towards key areas of the city and their role in accommodating different type of employment.

2. METHODOLOGY

This chapter provides an overview of how data sources and other inputs were considered when developing the forecast scenarios, the intent of the updated scenarios, and the method for developing the outlook for employment and space demands in each scenario.

A. A RANGE OF DATA SOURCES AND INPUTS WERE CONSIDERED

In order to provide a comprehensive understanding of where Vancouver's economy is today, and where it is likely to be tomorrow, the *Employment Lands & Economy Review* relies on a wide range of data inputs. Starting with a functional analysis of economic and demographic data from the Statistics Canada Census, the review considers various sources, including the Statistics Canada Labour Force Survey, local building and development permits, data from various real estate brokerages, and academic and sectoral market reports.

The analysis was then supplemented and "ground-truthed" by consultation with stakeholders representing various areas of Vancouver's economy and workforce. This took the form of surveys with local Vancouver businesses and workers, interviews with key industry representatives and subject matter experts, and working sessions with an External Advisory Group (EAG) comprised of representatives from various economic sectors, organizations and interest groups.

The project methods and findings were also informed and reviewed by a Technical Team comprised of City staff from a range of departments, as summarized in Table 1.

Table 1: City of Vancouver Technical Advisory Team

Arts, Culture and Community Services
- Cultural Services
- Social Policy and Projects Division

Chief Resiliency Officer

Civic Engagement and Communications

Parks and Recreation

Engineering
- Integrated Strategy & Utilities Planning
- Transportation
- Film and Special Events

Finance, Risk and Supply Chain Management
- Long-term Financial Planning

Planning, Urban Design & Sustainability
- City-Wide & Regional Planning
- Community Planning
- Special Projects
- Sustainability Group

Real Estate and Facilities Management
- Real Estate Services

a) A Note Regarding Data Sources and Accuracy

There are a number of significant challenges associated with data collection and comparability when it comes to employment and space use, particularly when considering the complexity of a central city economy like that of the City of Vancouver.

The primary source of data for preparing employment forecasts is the Census of Canada, which is undertaken by Statistics Canada every five years. While the Census does provide a reasonable starting point for tracking broader sectoral trends in employment over time, its use of the North American Industrial Classification System (NAICS)[1] for tracking employment amongst different sub-sectors is less effective for certain types of economic groupings. For example, the not-for-profit and the technology sector are both important and specific sub-sectors that cross multiples NAICS categories.

Because the Census is only conducted once every five years, it cannot reflect up to date employment growth since it was conduced in 2016. The rapid increase in regional employment that has occurred prior to the onset of the pandemic according the Labour Force Survey is helpful to know, but these data do not include the level of detail necessary to properly assess more detailed economic change at a municipal or sub-municipal level. Real estate market reports can also inform us indirectly about employment change. For example, the take up of space and the decline in the office vacancy rate in Downtown Vancouver confirm the high rate of employment growth shown by the Labour Force Survey during this period, but also indicate a concentration of the growth in the sectors that are located in office space, and that there is concentration of such growth in Downtown area.

Similar challenges arise when seeking to tie jobs to specific space. For example, in developing the existing supply portion of its development capacity model, the City of Vancouver relied primarily on data from the BC Assessment Authority (BCAA) and municipal building permit data. However, due to different standards for tracking space over time, these data sources often feature gaps, such as:

- Many (but not all) institutional buildings not being counted because they are not taxable; and

[1] The North American Industry Classification System (NAICS) is an industry classification system developed by the statistical agencies of Canada, Mexico and the United States, and provided common definitions of industrial structure and a common statistical framework across North America. NAICS divides the economy into twenty sectors (identified with a 2-digit code), with industries within these sectors grouped according to production criterion. Various, more detailed sub-sectors also exist within these groupings.

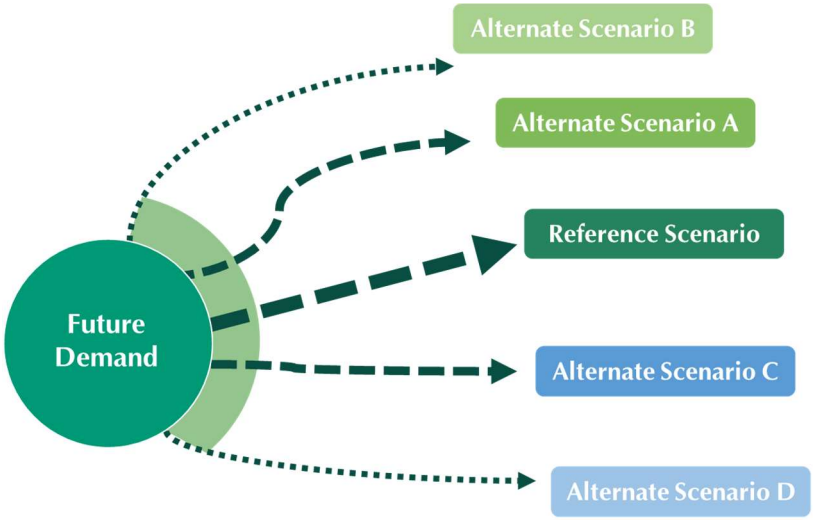
- Buildings in the general commercial category can include retail, service, cultural, institutional, and storage uses but also warehousing and service uses that might otherwise be consider industrial in nature.

In preparing the *Employment Lands & Economy Review*, every effort has been made to resolve differences between data sources as to present a comprehensive picture of both current and future employment in terms of both jobs and space needs. No data set is perfect and every single source of data has inherent limitations and inconsistencies compared with other sources because of how, when, where and why it is collected. Where possible, data sets and assumptions have been cross-checked and supplemented by a range of sources, including the Statistics Canada Labour Force Survey, market brokerage data, and consultation with various stakeholders and subject matter experts. Feedback from members of the EAG has proven particularly important in calibrating data and assumptions in order to prepare a range of demand outlooks that are feasible based on market trends and local lived experience.

B. APPROACH TO EMPLOYMENT FORECAST SCENARIOS

For the purposes of understanding Vancouver's future employment land needs, five forecast scenarios were originally prepared to present five distinct but feasible futures for both job growth and associated space needs. Each of these forecasts built upon what we know from our recent past and trends of today, while also considering potential changes on the horizon that could shift the trajectory of growth at both the local and regional level. A conceptual visualization of these scenarios is provided in Figure 1.

Figure 1: Forecast Scenario Methodology, Original Five Scenarios

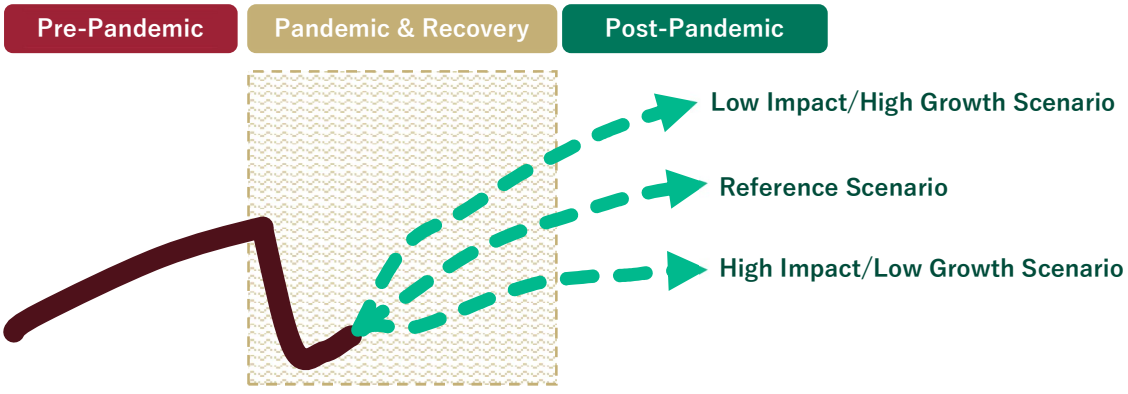


Starting with a reference scenario, which represented the most likely outcome based on information available at the time, four additional alternative scenarios were prepared to consider the potential impacts of external forces beyond the City's control. No one scenario was intended to present a "preferred" outcome, but instead allowed for the testing of a range of possible outlooks, which in turn enabled the development of resilient policy responses.

While the original forecasts did account for a broad range of potential factors, the unprecedented nature of the COVID-19 pandemic on the local, regional and global economy warrants an update to the forecast scenarios. As we are still in the midst of the pandemic, there is considerable uncertainty to how and when we will emerge from it, and what lingering effects it may have on growth over time.

To account for this uncertainty, three new forecast scenarios have been prepared to represent three distinct roads to recovery and beyond. These forecasts build upon the five original scenarios presented to Vancouver Council in January, and have been expanded to contemplate the time required for the economy to recover to pre-pandemic levels of activity, along with assumptions for the long-term impacts of the virus on different employment sectors and land uses. Each of these forecasts build upon what we know from the recent past and trends leading up to the pandemic, coupled with emerging data on changes to the workplace and economic shifts that have occurred since, to consider the potential trajectory of recovery and growth at the local level. A conceptual visualization of these scenarios is provided in Figure 2.

Figure 2: Forecast Scenario Methodology Visualization



Note: Growth trajectories shown here provide a simplified conceptual illustration of each scenario. Actual forecast growth trajectories are provided in Chapter 6.

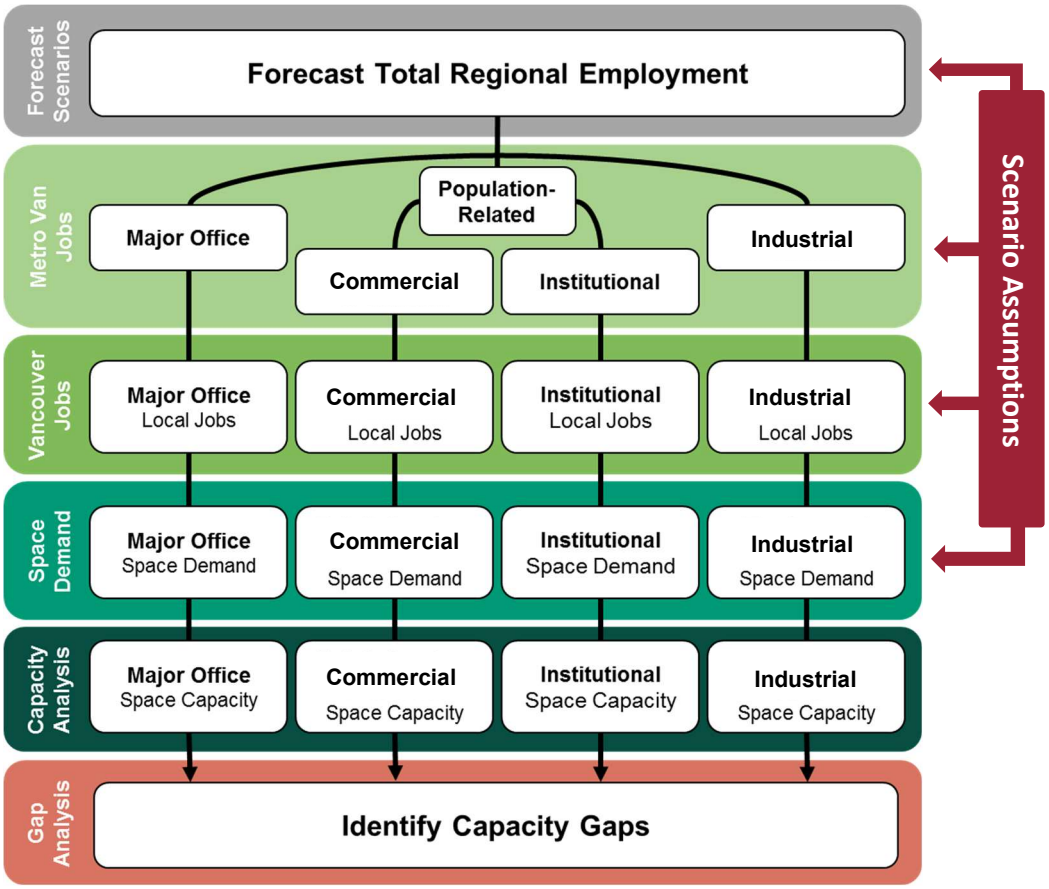
Starting with the updated reference scenario, which represents the most likely outcome based on our understanding of today, two additional alternative scenarios were prepared to

demonstrate what the outlook could look like depending on the timeframe for the economy to return to pre-pandemic levels, along with various factors that could affect the post-pandemic trajectory of growth. One alternative scenario considers a "high impact / low growth" scenario, presenting a more pessimistic outlook where a prolonged pandemic results in it taking longer for Vancouver to recover to pre-pandemic levels of employment, while lingering economic effects hinder post-pandemic growth. Another considers a more optimistic "low impact / high growth" scenario, in which Vancouver is both successful in mitigating the impacts of the pandemic, while also considering the factors that might lead to high levels of employment growth in the years that follow.

C. METHOD FOR QUANTIFYING FUTURE EMPLOYMENT DEMAND

The approach to the forecast of employment and space growth and demand in the City of Vancouver is summarized in Figure 3, which tracks the forecast method from a broader regional economic outlook down to a forecast of employment and space demand for different land use categories within the city.

Figure 3: Employment Lands & Economy Review Forecast Methodology



The forecast model begins with an understanding of the trends and growth prospects for the Metro Vancouver economic region. This increment is then split based on employment sectors (2-digit NAICS) amongst four land-use based employment categories:

- Major Office
- Industrial
- Population-Related (Commercial)
- Population-Related (Institutional)

Additionally, a fifth "Footloose / Work at Home" category (not shown in Figure 3) considers those jobs that do not report to a regular place of work. While these jobs do not directly create demand for employment space, they are still considered as part of the broader economic outlook for the region. More detail each of these employment categories is provided in Chapter 4.

The share of total forecast regional employment in each of these categories is then allocated down to Vancouver, informed by historic sectoral trends and forecast scenario assumptions. Once the local employment level for each land use-based category is established, assumptions for employment density (expressed as Floor Space per Worker, or FSW) are used to estimate the total floor space demand by category, based on a review of sectoral occupancy trends. This floor space demand metric serves as the key output from the forecast work, providing a quantum to test against the city's capacity for accommodating additional under current policies and market conditions.

3. VANCOUVER'S ECONOMY IN CONTEXT

This chapter provides a summary of Vancouver's economy and employment profile leading up to the COVID-19 pandemic. This historic context provides a baseline for the forecast modeling, providing perspective on the various sectors that drive the regional economy, and the degree to which the City of Vancouver participates in, and would be affected by changes to, these sectors.

A. VANCOUVER'S ECONOMY HAS GROWN AND TRANSFORMED OVER TIME

The area that is now known as the City of Vancouver has a long history of community and economic importance to the Lower Mainland. Vancouver, as it exists today, falls within the traditional territory of the Coastal Salish peoples of the Squamish, Tsleil-waututh and Musqueam. For thousands of years, these indigenous peoples made their homes along the banks of the Fraser River and along the Burrard Inlet, supporting their own resilient communities and economies amongst by the abundance of food and materials found in the local ecosystem.[2]

Following the first non-indigenous settlement in the 1860s, Vancouver's economy developed primarily as a logging town, with a number of mills located along the south shore of the Burrard Inlet in the area that now serves as the Port of Vancouver. A number of small town sites serving the local millworkers soon established themselves nearby, including the saloon and surrounding community that would later come to be known as Gastown.

With the mills and surrounding town sites being located on a natural harbor, the area was selected as the terminus of the Canadian Pacific Railway. By the time transcontinental rail service reached the recently incorporated City of Vancouver in May of 1887, the local population was 1,000. By 1891, its population surged to 14,000, continuing to grow to 120,000 by the time of the 1911 census.

With the construction of the Panama Canal in 1914, the Port of Vancouver became an increasingly important node for global trade, positioning the city as an alternative route for goods like lumber and grain to European markets. For much of the early 20th century, resource extraction, lumber and shipping dominated the local economy. It was not until the 1970s that Vancouver began to de-industrialize, following the trends seen in many other

[2] As noted by historian Bruce MacDonald in *Vancouver: A Visual History*. 1992.

North American markets as increased global competition spurred growth towards other emerging sectors[3].

By nature of its role as a globally important trade hub and the de-facto Canadian population centre on the Pacific coast, Vancouver began to attract a number of different types of employment and economic activities over time. As with other regional population centres, Vancouver has also evolved into a regionally significant centre for goods and services, home to a number of institutional services including major hospitals, shopping centres, and cultural hubs. At the same time, Vancouver has also leveraged its location and natural amenities to emerge as a world-renowned tourist destination.

Many major offices have established themselves in the city. While originally primarily linked to mining and resource operations, the breadth and character of these firms expanded over time, drawing on linkages to major local institutions including the University of British Columbia and Simon Fraser University, to attract highly skilled workers in the fields of finance, law, and professional and scientific services. More recently, the city has emerged as a globally recognized hub for technology focused firms and start-ups. As of March 2020, Vancouver ranked 22nd in terms in the rankings of global financial centres, making it the fifth highest ranked centre in North America, and first ranked centre amongst Canadian cities.[4] This marks the first time Vancouver has scored higher than Toronto according to the index, following a notable decline in the latter's ranking in the most recent update.

Vancouver has also established itself as a worldwide hub for film and television production over the past 40 years, with over 400 productions in the City of Vancouver in 2016, making Vancouver the third largest film and television production centre in North America.[5]

This evolution from small coastal logging settlement to globally significant centre highlights the versatility of Vancouver's economy. Over the years, it has been able to attract and grow a diverse range of employment activities, accommodating economic activities as they emerge. It is this spirit that guides the *Employment Lands & Economy Review*, and is an integral consideration in the development of the forecast scenarios.

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[3] Vancouver Historical Society, *The Story of Vancouver – Vancouver's Economic and Commercial Development*.

[4] Long Finance, *The Global Financial Centres Index 27*, March 2020.

[5] Vancouver Economic Commission, *Film and Television Production*, 2017

B. HOW DIFFERENT EMPLOYMENT SECTORS ARE ASSESSED AND DESCRIBED

This growth context and outlook for the City of Vancouver is primarily assessed and described in terms of 2-digit NAICS codes, which provides 20 categories of employment and is a reasonable basis for analysing and comparing different geographies and different Census periods. For inter-Census years, the Labour Force Survey only publishes data on a two-digit NAICS basis. More detailed 3-digit codes provide 95 categories in Vancouver and the 4-digit codes an additional 309 categories, some of which are on the standard listing but are zero in Vancouver, for example "Tabaco Manufacturing" or "Railroad Rolling Stock Manufacturing".

Detailed sub-categories of employment are, however, very helpful for understanding some of the categories of specific interest or special import to Vancouver's economic ecosystem which do not fall cleanly within the sector definitions. For example, the film industry where there are 8,650 jobs counted in the Census as Motion Picture and Sound Recording Industries in Vancouver would include most of people working in the sector but not all. For example, only some set carpenters or specialty and vintage vehicle providers may be counted as film, and none of the craft services jobs that are part of Food Services category elsewhere. Similarly, the technology sector is difficult to define in terms of sectors, while not-for-profit and social purpose organizations are difficult to distinguish from others undertaking similar activities for the private or public businesses and organizations.

Profiles for a select number of sub-sectors, along with specific examples of notable employment uses and issues related to these sectors, are summarized as follows:

1. Trade-Enabling Industries – The Port of Vancouver

The Port of Vancouver has long played an important role in the economic activity of the City of Vancouver, the region, and the rest of the country. From the region's roots as a resource-focused economy through to the emerging world of integrated global trade, the Port has supported Vancouver's role as Canada's gateway to the Pacific Ocean and the rest of the world for the transportation of goods, resources and people.

The Port of Vancouver is estimated to directly support 21,700 jobs across various sectors within the City of Vancouver[6]. While much of this activity is related to maritime cargo, construction and cruise ship tourism, it also directly supports employment in

[6] Port of Vancouver, *2016 Economic Impact Study*, 26 May 2017

other sectors such as accommodation, real estate and finance. This activity also results in indirect demand for other jobs across the city amongst the many businesses and sectors that supply goods and services to the Port.

2. City-Serving Industries – Produce Row

While there are many manufacturing and transportation sector businesses focused on trade through the region, there are likewise many industrial jobs that are integral to supporting local business activities. For example, the food wholesaling business along Malkin Avenue, otherwise known as 'Produce Row', are responsible for supplying independent grocery stores across the city and broader region.

These businesses directly employ over 1,000 people[7], and provide a critical link to local retailers and restaurants while also becoming a direct part of the tourism sector by resupplying cruise ships when moored between cruises.

3. High-Tech Industries – Clusters of Innovation

Vancouver is home to a number of emerging clusters of high-tech businesses spread across different sectors. These include software and video game publishing, data processing, hosting and broadcasting, and environmental, scientific and technical consulting and engineering, just to name a few.

These businesses are characterized by being at the forefront of technical innovation, often focusing on research, development, and product design. Over 75,000 workers in Vancouver work in high-tech industries[8], with approximately two-thirds of the province's high-tech businesses located within the city[9]. The local sector has attracted major industry players such as Microsoft, Amazon, Apple, Samsung, and SAP, while also supporting the emergence of a number of new innovative start ups in the fields of media production, virtual reality, and clean technology.

Firms in high-tech industries tend to benefit from agglomeration economics, clustering with similar and supporting uses. They typically prefer spaces well served by transit and amenities, frequently locating in office space in the Downtown core along with emerging nodes, such as the Mount Pleasant neighbourhood.

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[7] BC Trucking Association

[8] ICTC, *The Smart Economy Reshaping Canada's Workforce: Labour Market Outlook 2015-2019*

[9] BC Stats, *Profile of the British Columbia Technology Sector, 2017 Edition*

4. Film and Television Production – Clusters of Creativity

As a hub for motion picture, television, video production and post-production activity, Vancouver has established itself as Canada's top film hub and the third largest film centre in North America[10]. This sector intersects with the high-tech sector, but has a distinct role in the local economy.

An estimated 16,500 people work directly on film and TV productions in Vancouver, with significantly more indirect employment occurring through associated vendors, contractors, and supporting business activities. Vancouver is also home to over 100 animation and visual effects businesses, making the city one of the largest such clusters in the world. This sub-sector benefits from Vancouver having three of the leading VFX schools in the world, creating and attracting top talent. [11]

5. Local and Regional Institutions – The New St. Paul's Campus

As the central city in the region, Vancouver is already home to a large number of health care and social assistance related jobs, totalling just over 47,000 jobs, including over 16,000 hospital workers. This is largely on account of the city's major hospital network which includes Vancouver General Hospital, Children's Hospital, BC Women's Hospital, and Mount Saint Joseph Hospital. These institutions serve not only the local population, but also residents of the broader Metro Vancouver region and beyond.

These health campuses are not only home to the core hospital function, they also center a broader health cluster of professional and medical offices and other related businesses, including hotels and out-patient support.

One key area for growth in the near future is the relocation of St. Paul's Hospital from its current location in the Downtown to a new integrated health campus in the False Creek Flats. This new facility will have 548 beds (a net increase of 115 over the previous facility), while also serving as home to several leading provincial programs and referral centres. In addition to its role as a primary care and community care facility, the new hospital will also serve as a teaching and research related role, with the potential for various associated healthcare and biotech businesses to be integrated into and around the campus.[11]

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[10] CreativeBC, *Impact Report 2018/19*

[11] Providence Healthcare, *The New St. Paul's*

6. Not-for-Profit Sectors – Social Purpose Real Estate

Not-for-profit and purpose-based organizations include a wide range of civic and social focused businesses across various professional sectors. These include health care, social services, education, arts and culture, and childcare. Non-profits play an essential role in providing services and expertise and supports to many aspects of inclusive economic growth.

The City of Vancouver accounts for 47% of the region's community non-profit organizations[12]. These organizations are responsible for a number of services, including grant-making and giving services, social advocacy, and civic and social organizations. Community non-profits are primarily located downtown and in the surrounding areas, most commonly in office spaces, but they can also be found in various commercial spaces across town.

With the combination of a growing economy and the rapid pace of development, many of these organizations are facing increased financial vulnerability as they increasingly cannot compete for space or afford rising lease rates.

7. Tourism and Accommodation – Hotels and Competing Uses

As an affluent destination location on the Pacific coast featuring an abundance of natural amenities, the tourism industry plays a significant role in the local economy. The sector supports over 70,000 full time jobs regionally, and contributes over $14 billion in direct spending annually to the economy of Metro Vancouver, much of which is focused within the City of Vancouver. As a major cruise ship terminal, Vancouver receives more than 280 cruise ship calls annually, with each ship contributing an estimated $3 million in local economic activity.[13]

Hotels are one key component of this sector, supporting not only overall tourism activity, but also various other sectors by providing accommodation for various industry conferences and conventions, along with lodgings for those using local services, such as hospitals. Vancouver's hotels hosted 10.67 million overnight visitors in 2018, with potential demand to accommodate even more in the near future.[14]

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[12] Statistics Canada Business Registry, 2019

[13] Tourism Vancouver, *Vancouver's Tourism Industry Fast Facts*, 2019

[14] CBRE, *Canada Hotel Outlook, 2019*

Despite this demand, however, Vancouver has experienced a net loss of hotel space in recent years. The advent of the sharing economy through platforms such as AirBnB has created competition for some hotels, while others face other real estate pressures to convert to other uses, such as residential condominiums. Many hotels, particularly those that are business oriented, require well located properties in close proximity to key amenities. As a result, they often must compete with other commercial uses, such as major offices, that also seek development sites with similar characteristics.

8. Local and Regional Retail – Feeling the Pinch

All across the city, retail users can be found providing a range of goods and services, supporting the local neighbourhood while also attracting regional shoppers and tourists from abroad. The composition of Vancouver's retail streets varies from area to area, including a vibrant mix of small locally owned businesses, through to larger commercial chains.

While retailers can often locate in a broad number of different built forms, they face many of the same challenges other sectors do in terms of affordability of space. Many of Vancouver's Business Improvement Area (BIA) organizations have raised concerns over how increased competition for space and property speculation for high value mixed-use redevelopment is resulting in rising tax assessments and lease rates. At the same time, lack of local housing affordability in the central city has resulted in many businesses struggling to find workers, while the rise of online retailers like Amazon have shifted some demand for business to other areas.

Both small independent businesses and larger chains have been affected by these changes, with a number of businesses being forced to relocate or to close their doors altogether[15]. Such loses undermine the vibrancy of Vancouver's retail neighbourhoods, resulting in vacant storefronts while also depriving communities of local services.

Where possible, the outlooks for these distinct sub-sectors have been considered through alternative sources, including industry reports, special studies, and stakeholder input. While these sectors are not always explicitly identified, their needs and outlooks have also been considered as components of the broader economic forecast development.

[15] Cushman and Wakefield, *Marketbeat, Vancouver BC. Retail 2019*

C. EMPLOYMENT GROWTH AND A CHANGING ECONOMIC PROFILE

As of 2016, the City of Vancouver was home to over 377,000 jobs, spread across 20 different sectors. Of these, nearly half are located in professional, scientific, and technical services, health care and social assistance, accommodation and food services, and retail, as shown in Table 2.

Table 2: Total Jobs by Employment Sector, City of Vancouver, 2016

Employment Sector	Number of Jobs	Percentage of Total Jobs
Professional, scientific and technical services	58,740	15.6%
Health care and social assistance	47,085	12.5%
Accommodation and food services	40,360	10.7%
Retail trade	39,525	10.5%
Finance and insurance	27,660	7.3%
Educational services	22,530	6.0%
Information and cultural industries	20,640	5.5%
Other services (except public administration)	18,405	4.9%
Public administration	18,395	4.9%
Administrative support and waste management	13,295	3.5%
Real estate and rental and leasing	12,980	3.4%
Manufacturing	12,460	3.3%
Wholesale trade	10,220	2.7%
Construction	9,870	2.6%
Arts, entertainment and recreation	9,680	2.6%
Transportation and warehousing	9,105	2.4%
Mining and oil and gas extraction	2,005	0.5%
Utilities	1,545	0.4%
Management of companies and enterprises	1,520	0.4%
Agriculture, forestry, fishing and hunting	1,010	0.3%
Total Jobs	**377,015**	**100%**

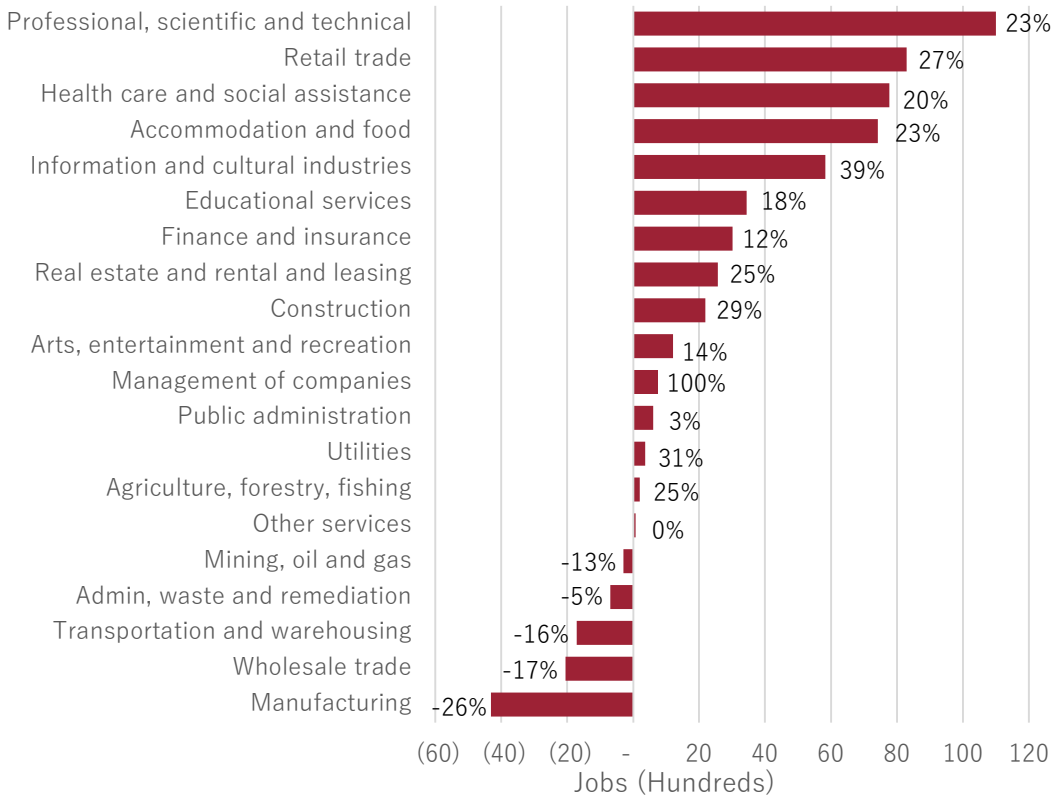
Source: Statistics Canada 2016 Census: Jobs by North American Industrial Classification System (NAICS) (2 digit).

Note: Employment in this chart includes 345,800 jobs with a “usual place of work”, plus 31,200 people who “work at home”. It does not include the 39,000 residents of Vancouver reporting jobs “with no fixed workplace address”.

In addition to the 377,000 jobs located in Vancouver, the City also is estimated to be responsible for accommodating 50,000 of Metro Vancouver's 169,000 jobs "with no fixed place of work". These include jobs like construction workers, truck drivers, and mobile care workers that may report to different work places each day, but still may be associated with demand for specific types of space (i.e. truck drivers with warehouses).

In the 10 years between 2006 and 2016, employment in Vancouver grew by over 45,000 jobs, or approximately 14%. This is quite rapid growth for a developed central city over a ten-year period. However, growth was not uniform across all sectors. Some sectors, such as professional services, retail, health care, and accommodation and food experienced strong growth, while others, such as manufacturing, wholesale trade, and transportation and warehousing experienced declines. Employment changes by sector are shown in Figure 4.

Figure 4: Job Increases and Decreases by Sector, City of Vancouver, 2006-2016

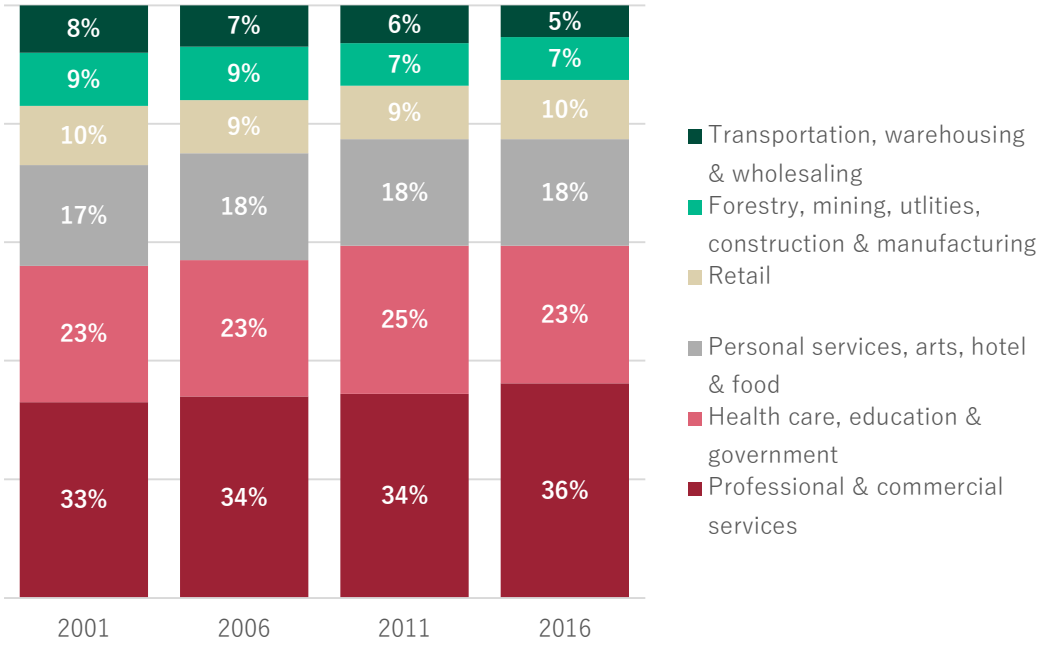


Source: Statistics Canada 2006 and 2016 Census: Jobs by NAICS (2 digit).
Note: Does not include jobs "with no fixed workplace address".

The pattern of growth by sector is not at all surprising for a central city where growth is expected to be in services, especially those occupying office space. Declines in the industrial activities are not unusual given an aging building stock and a relatively fixed (or often shrinking) land base and space supply.

To observe broader trends in Vancouver's employment profile, the 20 employment sectors were grouped into six categories, as shown in Figure 5. Since 2001, jobs in the transportation, warehousing and wholesale category and the forestry, mining, utilities, construction and manufacturing category have declined as a share of all jobs in the city. This has been primarily offset by the professional and commercial services category, which has grown faster than all other sectors over the same period.

Figure 5: Historical Share of Employment by Sector Groups, City of Vancouver, 2001-2016



Source: Statistics Canada 2001, 2006, 2011, 2016 Census: Jobs by NAICS (2 digit). Sector groups defined by City of Vancouver staff as outlined in Note 4 of Appendix A.

a) Accounting for the University of British Columbia and the UEL

While the University of British Columbia's main campus and the surrounding University Endowment Lands (UEL) are not within the City of Vancouver, and are not subject to Vancouver's land use policies, they do employ a significant number of people and drive a significant economic activity on account of their proximity and relationship to the city.

In 2016, UBC and UEL were home to 19,000 jobs. This includes over 12,000 jobs in the Education Services sector, over 2,000 jobs in Health Care and Social Assistance, and over 1,100 jobs in Professional, Scientific and Technical Services. In addition to the over 40,000 students and staff that attend the university on a regular basis, the UEL is also home to a rapidly growing permanent population that has increased from 6,700 in 2001 to 15,900 in 2016. As the University and the local population continue to grow, they too will create additional demand for services and transportation in neighbouring areas of Vancouver.

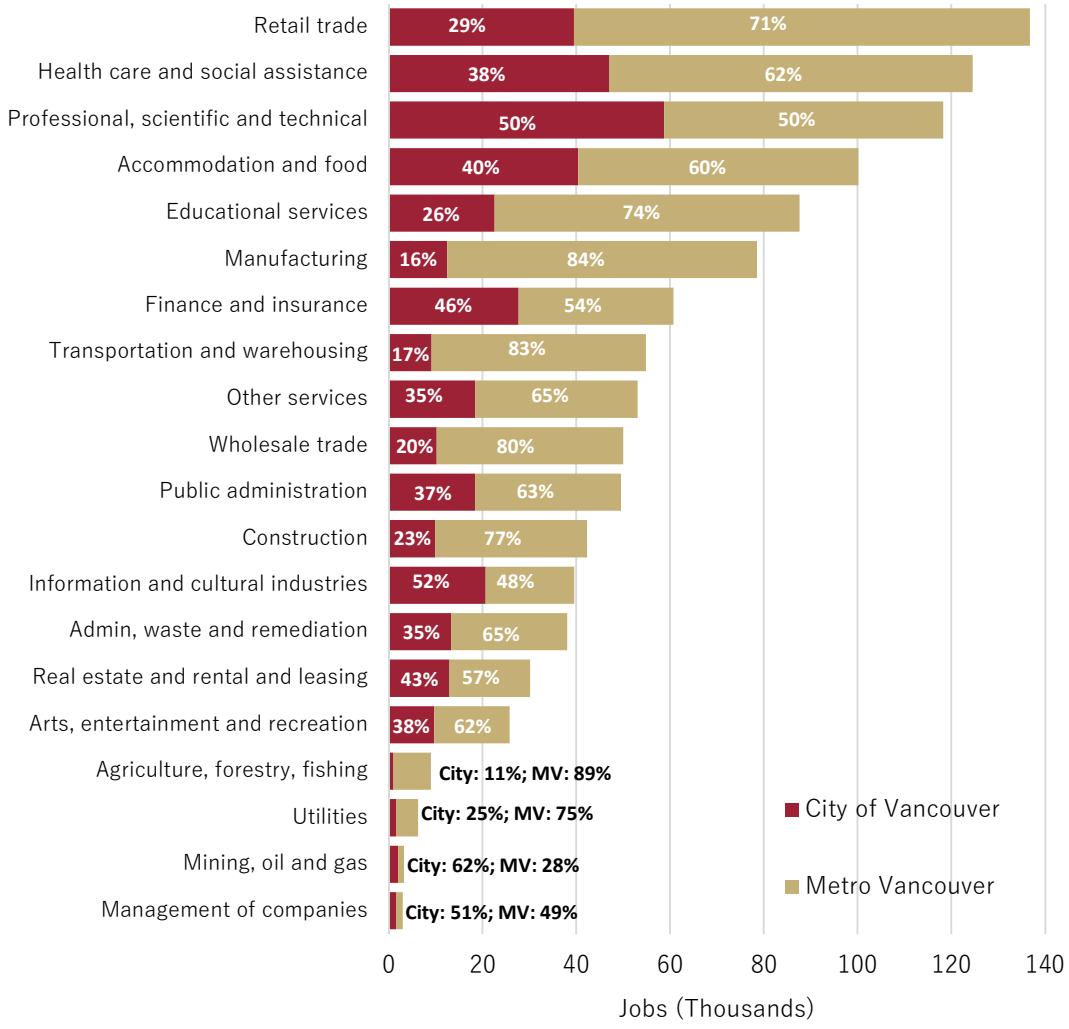
D. THE ROLE OF A CENTRAL CITY IN THE REGIONAL ECONOMY

The City of Vancouver currently accounts for 33% of all jobs within the Metro Vancouver region, while representing 26% of the region's population and 27% of the region's resident employed labour force. The City's share of regional employment has remained relatively constant over the past two Census periods back to 2006, despite the share of regional population gradually shifting towards the suburban parts of Metro Vancouver. Like most central cities, Vancouver has significant net in-commuting; there are about 70,000 more jobs in the city than there are employed residents.

Like central cities in other metropolitan areas, Vancouver plays a specific role within the regional economy – some economic activities are highly-oriented to the central city, while others more so to suburban locations. For example, businesses seeking prominent office space with good access to the regional labour force often benefit from the agglomeration of similar uses in a central business district with easy access to regional transit infrastructure, amenities and business services. On the other hand, industrial and trade-oriented uses may prefer larger and more modern buildings and sites with better highway and rail access than are typically available in developed central cities.

As a central city, Vancouver's economic profile is unique when compared to the rest of its economic region. The city is home to a disproportionately high concentration in sectors including information and cultural industries, professional, scientific and technical services, and finance and insurance. Similarly, Vancouver is home to a comparatively low share of the region's jobs in the manufacturing, transportation and warehousing, and wholesale trade sectors. The concentration of regional jobs between Vancouver and the region is shown in Figure 6 on the following page.

Figure 6: Distribution of Jobs between City of Vancouver and Metro Vancouver Region, by Sector, 2016



Source: Statistics Canada 2016 Census: Jobs by NAICS (2 digit).
Note: Does not include jobs "with no fixed workplace address".

The dynamics of being a central city also play a role where growth occurs. As demonstrated in Table 3 on the following page, while total employment in both the City of Vancouver and the rest of Metro Vancouver grew at a similar rate of 14 percent between 2006 and 2016, the growth of certain sectors differed depending on the geography, in some cases significantly.

Table 3: Job Increases and Decreases by Sector, City of Vancouver and Metro Vancouver, 2006-2016

Employment Sector	City of Vancouver	Rest of Metro Vancouver
Professional, scientific and technical	23%	23%
Retail trade	27%	18%
Health care and social assistance	20%	31%
Accommodation and food	23%	22%
Information and cultural industries	39%	0%
Educational services	18%	17%
Finance and insurance	12%	17%
Real estate and rental and leasing	25%	8%
Construction	29%	37%
Arts, entertainment and recreation	14%	17%
Management of companies	100%	23%
Public administration	3%	33%
Utilities	31%	18%
Agriculture, forestry, fishing	25%	-14%
Other services	0%	5%
Mining, oil and gas	-13%	1%
Admin, waste and remediation	-5%	16%
Transportation and warehousing	-16%	17%
Wholesale trade	-17%	-9%
Manufacturing	-26%	-12%
Total Employment (All Sectors)	**14%**	**14%**

City higher (+10%)	Similar growth (within 10%)	Region higher (+10%)

Source: Statistics Canada 2006 and 2016 Census: Jobs by North American Industrial Classification System (NAICS) (2 digit)

Note: Employment in this chart includes jobs with a "usual place of work", plus people who "work at home". It does not include jobs "with no fixed workplace address".

For example, the City of Vancouver experienced a significantly higher rate of growth in Information and cultural industries and within the Finance and insurance sector, but experienced job loses (or a higher relative share of job losses) in the sectors that are more industrial in nature, such as Transportation and warehousing and Manufacturing, which are more easily able to locate in suburban locations.

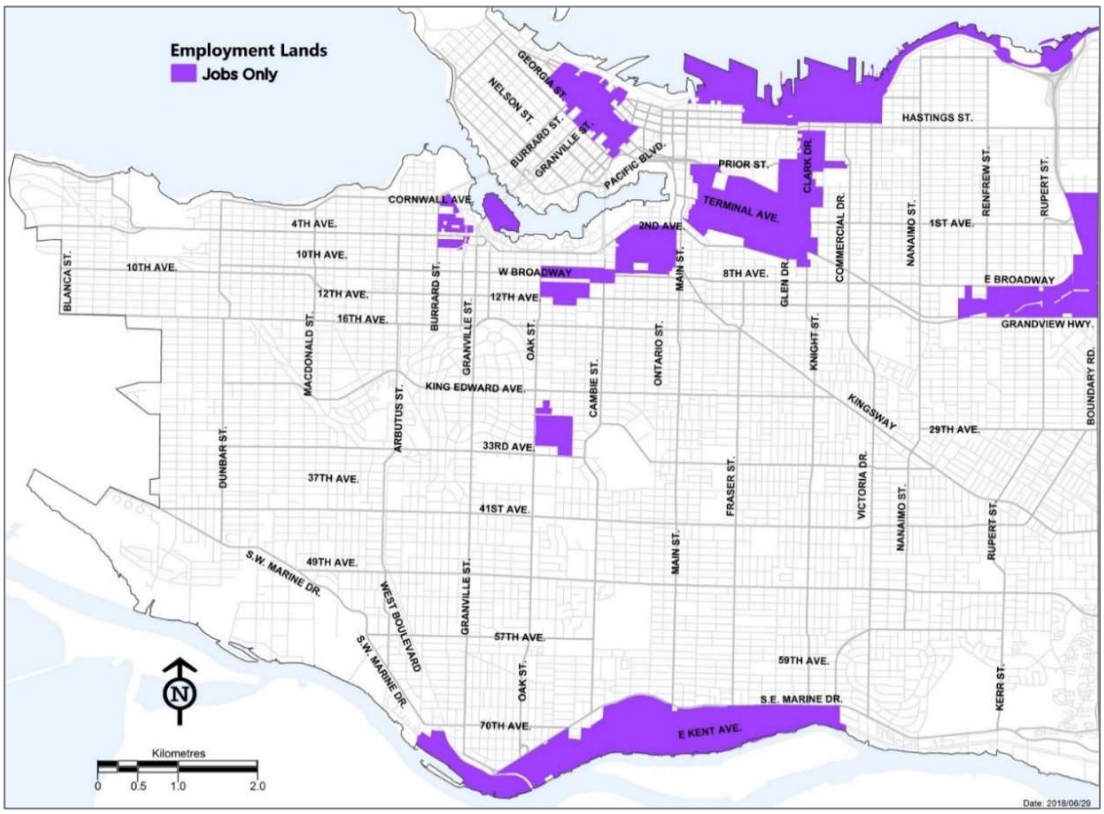
The implications of the shift to working from home and people looking to work closer to home as a result of the COVID-19 pandemic could result in a shift in these patterns, particularly in specific land use categories. These implications are discussed more in Chapter 5.

E. THE IMPACT OF A CONSTRAINED LAND SUPPLY

While the central-city orientation of a particular industry or activity is related to many factors, real estate is key amongst them. The availability and affordability of non-residential space, either within the existing building stock or through redevelopment of available land, is a major consideration for where businesses choose to locate. This is of particular note in Vancouver given its fixed and largely developed land base, which results in increased competition between land uses.

As illustrated in Figure 7, only 10% of the City's total land base permits "jobs only", yet nearly half of all jobs within the City of Vancouver are located within these areas. Uses on these lands range from office buildings and hospitals, to port facilities and factories. In many cases, these are the only locations that certain business activities are able to locate due to factors such as site size, infrastructure access, buffering from sensitive uses, zoning permission and other economic considerations.

Figure 7: Jobs Only Employment Lands



Source: City of Vancouver

With the city almost fully built out and few feasible options to expand this land base, there are limited opportunities for growth amongst those businesses that are unable to locate elsewhere. In many cases this results in growth in certain sectors being redirected to suburban areas, while in other cases potential growth may not be accommodated within the Metro Vancouver region at all due to a current lack of suitable sites.

At the same time, competition between employment uses and increasing speculation have resulted in increased rents and property valuations over the years, making it difficult for new and existing users to afford space. Redevelopment of existing building stock to more intense built forms may result in additional space usable for some sectors. In particular, those that can locate within offices or those that can take advantage of emerging technologies to increase efficiencies in their business footprint. However, this intensification also runs the risk of displacing existing employment activities, as new buildings typically demand higher rents and lease rates when compared to older, more modest buildings.

Consultations with stakeholders revealed affordability as the most common concern across almost all sectors, most notably for business that are unable to locate outside of jobs only areas. From office and retail tenants, to industrial users, to not-for-profit and mission-based organizations, the majority of stakeholders involved in the study process flagged rising costs and competition for space as a primary obstacle to both current business operations and future opportunities for growth.

F. THE IMPORTANCE OF A DIVERSE LOCAL ECONOMY

Though growth prospects for more traditional industrial employment land uses may be more limited in a central city like Vancouver, it is important to recognize the role many of these businesses continue to play in supporting other aspects of the City's economic system.

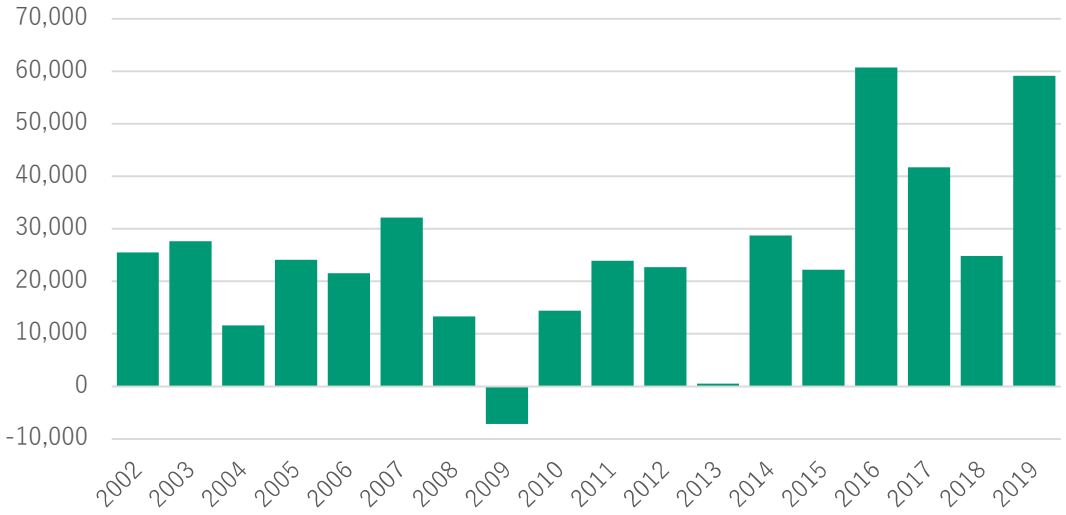
The Port of Vancouver and other industrial users enable trade-oriented activities that support the local, regional and national economy. At the same time, other industrial-type buildings in Vancouver's employment areas are also home to many businesses which specifically serve to support other business activities across the city. These include a wide range of uses where proximity to customers matters, including printing, document management, elevator maintenance, plumbing and electrical supplies, ice making, commercial bakeries, bus and taxi services, and auto body shops, to name a few. While these businesses may not always appear to be the high-skilled, high-value jobs often sought by economic development, many do feature high-skilled and technology-driven components. More importantly, they play a crucial role in supporting the functionality of the broader economy and need to be planned for and accommodated accordingly.

Planning for and encouraging a diverse range of employment activities is also beneficial to create economic resiliency and protect the local economy from sector specific disruptions and market shocks. Economic disruptions occur through forces largely beyond local municipal control, be they changes in global trade policies, the emergence of disruptive technologies, or the impacts of climate change, just to name a few. The impact of specific macro-level changes may disproportionately affect specific sectors of the economy, such as the impact globalization and offshoring have had on North American manufacturing in recent decades. Ensuring opportunities for the continued diversity of local employment across a range of sectors and land uses is a wise choice in planning for future economic growth.

G. GROWTH WAS ACCELERATING BEFORE THE PANDEMIC HIT

Prior to 2020, the Vancouver region experienced a surge of even more growth in the years that followed the most recent census in 2016. As shown in Figure 8, the Statistics Canada Labour Force Survey, which is published at a Census Metropolitan Area (CMA) level in the years between the official censuses indicates a significant increase in the annual amount of employment growth in the region in recent years, with the estimated growth in 2019 based on information to September 2019.

Figure 8: Estimated Annual Employment Growth, Vancouver CMA, 2001-2019



Source: Statistics Canada Labour Force Survey.

While the exact amount of job growth within Vancouver proper is unavailable at this time, it seems certain that that city participated in the region's rapid growth, as indicated by record low vacancy rates for both office and industrial space, This is coupled with a near record amount of office space under construction, demonstrating significant demand for additional employment space within the city. This trend was similar to other major metropolitan areas in Canada, and remains to be seen as to how long it will persist, given that the current economic expansion has now run for a full 10 years. The immediate impacts of this rapid growth pressure are resulting in reduced availability and increased competition and costs for all types of space, though these dynamics may be thrown into flux by pandemic related disruptions in the near-term.

4. Existing Employment and Floor Space Inventory

This chapter discusses how jobs are allocated between the key employment land categories, along with a summary of the key findings related to the number of jobs and floor space trends in each.

A. Understanding Different Employment Land Types

Forecasting for the purposes of land use policy requires an understanding of the different types of employment and their associated land and space needs. For example, businesses oriented around activities such as manufacturing or transportation and logistics require locations with different building types, site layouts and access to certain types of infrastructure. These needs are typically quite distinct from the type of space that an office-based business located in the heart of downtown might require.

In a similar fashion, employment activities that tend to focus on serving the local and regional population, such as retail, health care and education, tend to be much more flexible in where they locate. These 'population related' types of employment are often quite adaptable in their land and built form preferences, often being able to co-locate in mixed-use buildings with other employment or even residential land uses.

At the same time, there are also many people that either work at home or have no regular address to which they report for work. This includes jobs like realtors that work out of home-based offices, construction workers that report to a different job site depending on the day, or drivers working for ride-hailing services, just to name a few. In many cases these jobs are not directly creating additional demand for employment space, but they do continue to support the local economy, while also inducing demand for associated economic activities and space, such as construction material suppliers, vehicle repair garages, and others.

To account for these differences, the forecasts are structured to consider the outlook for jobs and associated space demand across five distinct land use-based categories. Each of these categories is comprised of a mix of jobs across different sectors, primarily characterized by a number of primary sectors that are most likely to be present in each respective category (as classified by 2-digit NAICS code). In each forecast scenario, the job growth outlook for each land use category is a composite of the individual outlooks of the various sectors therein, accounting for both historic trends and sector specific

considerations. A general description of each of the land use categories is provided in Table 4.

Table 4: Description of Key Land Uses Categories & Primary Sectors

Category	Description	Primary Sectors
Major Office	Employment uses which typically occur in large free-standing office buildings of 20,000 sq. ft. or greater. Businesses in this category often seek a central location with access to transit infrastructure and various other amenities. Due to agglomeration economics associated with this type of use, it is typically distributed amongst a few major concentrations in the region; the largest of which by far is Vancouver's Central Business District.	• Finance & insurance • Real estate brokerages • Professional, scientific & technical services • Management of companies
Population Related: Commercial	This category includes employment activities that primarily serve the local resident population, along with some regional population serving uses (like major malls) and tourism related uses. Uses include retail, hotels, restaurants and small offices. Businesses in this category can be accommodated in a range of built forms, including standalone shops, malls, and may be mixed in with other uses, including residential buildings.	• Retail trade • Arts, entertainment & recreation • Accommodation & food services
Population Related: Institutional	Like other population-related uses, activities in this group typically serve the local and regional population. They are distinct in their land needs in that they tend to require larger sites, buildings or campuses, and often planned for separately from other population-serving uses. Examples include schools, universities, hospitals, and government buildings.	• Education services • Health care & social assistance • Public administration

Table 4: Description of Key Land Uses Categories & Primary Sectors *(continued)*

Category	Description	Primary Sectors
Industrial Areas	Uses accommodated in low-rise industrial-type buildings generally found only within employment areas. These often involve activities related to Production, Distribution and Repair, which are traditionally not compatible adjacent to or mixed with sensitive uses, like residential. In many cases, these businesses support other businesses within the city and broader region, or may be more trade-enabling in nature. Examples of employment uses include factories, distribution and wholesale warehouses, vehicle repair facilities, and business parks.	• Manufacturing • Wholesale trade • Transportation & warehousing • Film production
Footloose/ Work at Home	A category representing employment activity that is either based at home, or does not typically report to a specific place of work, such as construction workers or taxi and truck drivers. Employment in these categories does not directly create demand for additional floor space in any of the other four categories, but does tend to induce some demand. This induced demand is captured within the floor space per worker trends of each of the respective categories.	• Construction • Work-at-home • Realtors • Telecommuters in various sectors

B. HOW ARE SUB-SECTORS ALLOCATED BETWEEN DIFFERENT LAND USE CATEGORIES?

It is important to note that while the primary employment sectors noted here are considered the most likely types of jobs to locate within each land use category, some sectors may be present in multiple categories. For example, health care related jobs are frequently located within Institutional spaces like hospitals, but may also be found in medical offices located in Major Office buildings or in smaller clinics found in commercial retail spaces.

While each of the land use categories is presented in terms of the primary 2-digit NAICS codes, a share of jobs from each NAICS sector has been allocated to each land use category based on a thorough review of local Place of Work data from the Census. This analysis relied on special run data provided by Statistics Canada to identify the distribution

of jobs in each sector across 32 sub-geographies, representing different employment areas and planning areas within the city. These allocations considered much more detailed 3- and 4-digit NAICS sub-sector codes, along with assessment data from existing buildings and other sources, such as brokerage market reports, to account for how different jobs and sub-sectors are allocated between different locations and types of space.

C. HOW MANY JOBS ARE CURRENTLY IN EACH LAND USE CATEGORY?

Based on a detailed analysis of Census Place of Work data, the total employment associated with each major land use category has been estimated, as shown in Table 5 on the following page. These figures represent employment in the city, including an allocation of regional workers with no-fixed place of work, as it was in 2016. This point serves as the starting point for the forecast scenarios that follow, and is integral to establishing the current space utilization trends that define how much demand there might be for different kinds of space in the future.

Table 5: Estimated Employment by Land Use-Based Employment Category, 2016

Employment Category	Employment (2016)	Share of Total
Major Office	124,500	29.1%
Population Related	202,600	47.4%
Institutional	60,200	14.1%
Commercial	142,400	33.3%
Hotels	8,900	2.1%
Other Tourism	24,900	5.8%
Rest of Commercial	108,700	25.4%
Industrial Areas	48,000	11.2%
Footloose / Work at Home	52,300	12.2%
Total	**427,500**	**100.0%**

Source: Hemson Consulting, using data from Statistics Canada and City of Vancouver
Note: Figures are rounded and may not add to total.

a) Why does the Commercial Category Separate Hotels and Tourism?

While the forecasts consider the outlook for each sector within the broader land use-based employment categories, hotels present a unique consideration for land use demand for the purposes of the gap analysis that follows. While the demand for hotel space is closely tied to the broader outlook for tourism and related activities within the Commercial land use category, most new major hotel space in Vancouver typically occurs in a built form more similar to Major Office space in physical character and location. In effect, the demand for more hotel space is likely to compete with the type of development capacity that otherwise might be used by Major Office uses.

The outlook for hotels, while assessed as part of the Commercial category in terms of broader trends and potential demand for employment, is considered separately for the impact it has on the need for specific types of space as part of the gap analysis.

D. UNDERSTANDING CURRENT FLOOR SPACE UTILIZATION TRENDS

In order to understand how we are likely to need space in the future, we need to first understand how it is utilized today. To do this, City staff compiled an inventory of non-residential floor space using a mix of BC Assessment Authority data and municipal building permits to estimate the total built space being utilized by different employment uses across Vancouver as of 2016. Using various indicators including the BCAA assessment code, building permit floor space allocations, and general building characteristics (i.e. if an office building is over 20,000 sq. ft. to be categorized as Major Office), staff were able to catalogue employment space into categories which aligned with each of the key land use categories.

These inventories of built space were then assessed against the estimated employment within each category to determine the average Floor Space per Worker (FSW) in that category[16]. These figures are presented in Table 6 on the following page.

[16] Floor space per worker figures in this report are all based total Gross Floor Area (GFA), including factors for vacancy rate and the difference between net usable space, net rentable space and GFA. As a result, some of the figures may seem much larger than the reader may have seen elsewhere, where FSW may be quoted in occupied usable area or occupied rentable area.

Table 6: Estimated Floor Space by Land Use-Based Employment Category, 2016

Employment Category	Employment (2016)	Total Floor Space (000's of sq. ft.)	Floor Space per Worker (sq. ft.)
Major Office	124,500	32,900	264
Population Related	202,600	83,100	410
Institutional[17]	60,200	22,100	367
Commercial	142,400	61,000	428
Hotels	8,900	9,400	1,056
Other Tourism	24,900	8,400	337
Rest of Commercial	108,700	43,100	397
Industrial Areas	48,000	28,900	602
Footloose /Work at Home	52,300	0	0
Total	**427,500**	**144,900**	**386***

Source: Hemson Consulting, using data from Statistics Canada and City of Vancouver

Note: Figures are rounded, and may not add to total. Total floor space figures are for total Gross Floor Area, including factors for vacancy and net leasable/usable space. The same applies to floor space per worker figures.

(*) Total average FSW does not include jobs that are Footloose /Work at Home.

While the specific floor space needs of each worker will vary depending on the sector and nature each specific business and job, these FSW averages present a broad idea of how much space is needed across each land use category, and serve as a basis point for the forecast demand for space. As technology progresses and trends evolve, these FSW rates are also expected to change in turn. For example, research and consultation with stakeholders has already highlighted the following trends.

[17] BCAA only tracks properties on which municipalities charge taxes or may charge taxes. Various institutional spaces, such as some hospitals and most schools are absent from its floor space inventory. Also, some non-taxable institutional uses that are located in part of a commercial building will have the space counted. While some of this gap is addressed through the City's building permit data for recently constructed buildings, a considerable amount of institutional space still is missing. Where this was the case, some additional institutional floor space was estimated by measuring building footprints and height on satellite images, supplemented by secondary data sources, such as interviews and health care organization publications, where available.

- Open concept and shared spaces have trended towards a lower FSW in many Office businesses as they seek efficiencies to reduce capital and operating costs.
- Automation and the changing nature of work are resulting in the need for fewer industrial workers, but tend to require the same amount of space, or more.
- Space needs in parts of the health care sector have increased with improved methods and standards for delivering care.

These are just the trends that we had been observing up until recently; other emerging technologies and economic factors could potentially reshape the way a number of different employment sectors us their space. Furthermore, the arrival of the COVID-19 pandemic and the associated health concerns it has generated in the workplace will also have a notable impact on the way different types of employment use their respective space (discussed more in the following Chapter). These factors are all considered and taken into account as inputs to each of the forecast scenarios.

5. THE IMPACTS OF COVID-19

This chapter discusses the impacts of the COVID-19 pandemic on the local and regional economy, while also identifying key impacts that are factored into assumptions for the updated forecast modeling.

A. THE COVID-19 PANDEMIC CAUSED SIGNIFICANT ECONOMIC SHOCKS ACROSS CANADA

This report was prepared in the midst of the COVID-19 pandemic, which will be the most severe shock to British Columbia's economy since the Great Depression. The immediate impacts of the crisis in the Lower Mainland are substantial: reduced population growth because of curtailed migration while travel is limited, as well as enormous fiscal pressure on all levels of government. The BC Government's COVID-19 spending, coupled with efforts to maintain service levels, will contribute to a projected $12.5 billion budget deficit for the 2020/21 fiscal year (BC Government Financial Reporting, July 14, 2020). Federally, the cost of COVID-19 support programs and concurrent economic shocks are estimated at $252 billion, representing the largest peacetime deficits ever (Parliamentary Budget Officer, April 30). Municipalities, which provide most of the infrastructure and services required to accommodate growth, are experiencing significant shortfalls in fee revenue, from transit fares, to development cost charges, to rents from community housing.

In terms of employment, Statistics Canada's May 2020 *Labour Force Survey* recorded an increase in nationwide unemployment from 5.6% to 13.7% between February and May, with a national loss of more than 3 million jobs; 264,900 job losses in the Vancouver Census Metropolitan Area alone. The survey was conducted during the week of May 10 to May 16, when BC was in a state of emergency and many non-essential businesses were closed. Since that time, the unemployment rate has continued to hover between 11.9 and 13.7%, fluctuating from month to month. Importantly, the unemployment rate *underestimates* the effects on employment and income as the figures do not account for the many people who, during the lockdown period, became unemployed and were not actively looking for work, or who had a job but worked severely reduced hours or no hours at all. From February to April 2020, total hours worked by all workers in BC declined by 24.4%, which is far greater than the 15.2% decline in jobs in BC over the same two-month period. Women and young people in particular experienced the greatest decrease in hours worked over this time. From April to June, 55% of the job losses and 52% of the loss in total hours had been regained as the economy began to open back up in a limited capacity.

The long-term effects of the pandemic are very uncertain. Economically, observers are at odds about how quickly production and employment will rebound. There are numerous reports of significant longer-term economic consequences to some industries, firms and individuals. Nevertheless, the long-term growth outlook for the Lower Mainland remains positive. The region will continue to be attractive to newcomers, mainly international migrants; the primary source of population growth. Although the population will be older in 2051, the rate of aging will be slower than in other regions, allowing for high levels of labour force participation supporting strong economic growth.

B. KEY MACRO-LEVEL ECONOMIC INSIGHTS

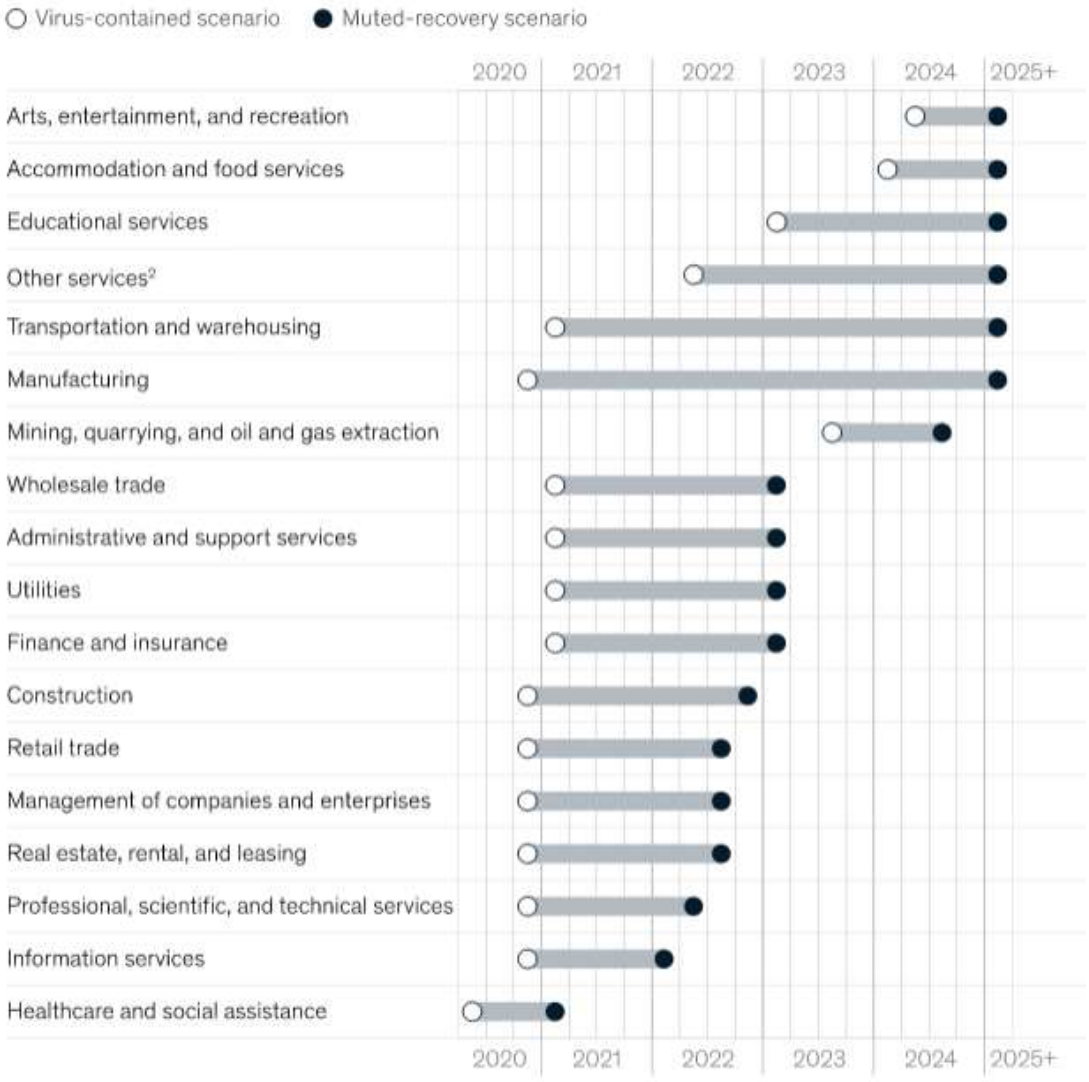
The rapid onset and unprecedented nature of the COVID-19 pandemic have made the development of short and long-term forecast assumptions a challenge. Various sources are reporting new data points indicating different levels of economic activity on a daily basis, while economists are publishing updated outlooks that shift considerably with each new piece of information available. For example, the national forecasts published by the Office of the Chief Economist in April called for a -6.5% GDP growth rate for 2020, while the subsequent May forecast predicted a -10.7% rate. Outlooks for BC specifically tend to mirror those at the federal level, with the BC Business Council estimating a GDP decline between 7% and 10% for 2020, followed by growth of 4.8% in 2021.

However, the exact window for recovery back to previous levels remains in question. While earlier predictions of a rapid "V-shaped" recovery have proven to be unlikely the further we progress into the pandemic, the shape of the recovery rate still relies on many unknowns. These include the impact of a second wave of the virus as we approach the fall, and the time required to develop and distribute an effective vaccine. Predictions about the shape of this recovery vary depending on whom you ask, though consensus amongst the business community appears to be growing that economic recovery will occur more gradually, requiring between one to five years to reach pre-pandemic levels depending on the scenario.[18]

The outlook between different employment sectors also varies, with sectors being disproportionally impacted by the pandemic and their ability to adapt to it. North American estimates of the time required for recovery across different sectors of the economy and different scenarios are shown in Figure 9 on the following page.

[18] Oxford Economics, McKinsey & Company analysis, *COVID-19 and the great reset: Briefing note #13,* 9 July 2020

Figure 9: Estimated Time to Recover to Pre-COVID-19 Sector GDP,



Source: Oxford Economics, McKinsey analysis; McKinsey Global Institute analysis

More locally, both the Metro Vancouver region and Vancouver Census Metropolitan Area (CMA) face similar outlooks for population and economic growth. Local unemployment in the CMA rose to 14.1% in May, with analysis by the Vancouver Economic Commission suggesting unemployment may not return to pre-pandemic levels until at least 2025. Approximately 30-40% of COVID-induced layoffs are anticipated to become permanent, equating to roughly 89,500 jobs in the CMA.[19] At the same time, updates to recent forecasts of population prepared by Metro Vancouver, which serve as the basis of this employment forecast, estimate a reduction in total population growth of 100,000 by 2030, and 125,000 by

[19] Vancouver Economic Commission, *COVID-19 Economic Update to City of Vancouver and VEC Staff*, June 5, 2020

2050, though these figures fall within the +/- 15% confidence interval of the original models.[20]

C. LAND USE-SPECIFIC PANDEMIC IMPACTS

At the local level, the pandemic has had a range of impacts on local employment sectors. While most data are not available at a municipal level, we are able to extrapolate a number of key factors that apply to the four major land use categories used in the forecast update. These are summarized in Table 7 in terms of current effects, short-term impacts (roughly over the next five years through the recovery window), and long-term impacts (factors that will apply well after we have recovered from the pandemic).

Table 7: Summary of Land Use Category Specific COVID-19 Impacts

	Current Effects	Short-Term Impact	Long-Term Impact
Major Office	• Despite negative net absorption in Q2, Vancouver remains one of the healthiest office markets in Canada.[21] • Vacancy rate in downtown sits at 3.3%, roughly the same Year-Over-Year, lower than at any point in 2018 or 2017.[21] • A sharp rise in sublet listings, making up 42% of vacant office space.[21]	• Finance, Insurance and Real Estate sectors make up much of major office tenancy, and are among the least affected by COVID-19. • Strong sentiment for a return to in-person work bodes well for office demand. This is despite a successful shift to Work From Home (WFH). • Growth in digital employment has grown in BC at a faster rate than the rest of Canada, indicating greater economic resilience against COVID.[22]	• WFH technology is well established, leading to some long-term occupancy shifts and flexibility in how often people physically report to the office. However, these are largely sector specific – and Vancouver's high-end office demand will likely continue. • Mixed forces on long-term demand: increased FSW offset by a reduced demand for central office jobs as regional satellite offices are considered. • A strong focus on innovation and productivity will determine employment trends for office work, likely drawing people back to the office over time.

[20] Metro Vancouver, *Developing a Shared Resiliency Framework for Metro 2050 and Transport 2050*, May 27, 2020

[21] CBRE, *Canada Q2 2020 Quarterly Statistics*

[22] Vancouver Economic Commission, *COVID-19 Economic Update to City of Vancouver and VEC Staff*, July 16, 2020

Table 7: Summary of Land Use Category Specific COVID-19 Impacts *(continued)*

	Current Effects	Short-Term Impact	Long-Term Impact
Population Related: Commercial	• Retail and accommodation by far the hardest hit sectors with 24.9% employment change between April and May 2020.[23] Sector beginning to show signs of rebound as of July.[24] • Tourism is expected to see unprecedented lows with no cruise ships and heavy travel restrictions. [27] • Service and sales jobs also were hard hit with a 18.1% loss between April and May.[23] They have since started to rebound since July.[24] • Consumer confidence in BC is growing at the fastest rate across Canada as of June.[25]	• Vancouver's large service sector means a more drawn out recovery overall. • Despite this, surveys show dining-in and supporting local business to be among the most anticipated activities through Phase 3 of recovery. • Small and medium sized business confidence has risen from a historic low in March, but remains heavily split, with 50% of business owners feeling pessimistic about the future.[26] • Forecasts between -35% and -55% GDP growth in 2020 for accom. and food services.[27]	• Expect accommodation, food service, & retail to have the slowest recovery due to lowered contact rate, increased business cost, and inability for WFH arrangements.[27] • Along with institutional employment, retail/food/ accommodation is the most subject to future COVID-19 measures and therefore the most uncertain.
Population Related: Institutional	• Elementary and secondary schools are in process of reopening, and are expected to return full-time to classrooms in September. [27] • Major loss in City of Vancouver income from tax deferrals, transit fees, etc. lead to $111 million deficit. [27] • Vancouver health occupations grew by 6.8% in May.[23] Has leveled off somewhat in recent months.[24]	• Funding cuts for libraries, rec. centres, and other non-essential services will continue beyond COVID-19 due to heavy deficits. [27] • Recovery of institutional employment strongly linked with overall regional GDP recovery. [27] • Even in post-recovery, cost of operation for public institutions will rise due to increased regulation and contingency. [27] • Health care industry is forecasted to expand in Metro Vancouver by 3.1% in 2020.[27]	• Demand for public health employment continues to be strong irrespective of future COVID-19 scenarios due to increased public health demands and aging demographics. • Knock-on effects of provincial and municipal deficits lead to project cancellation and layoffs in long-term. • Tele-medicine and online pharmacies will shift employment trends and competition.

[23] Labour Force Survey, *Vancouver CMA*, May 2020 update.

[24] Labour Force Survey, *Vancouver CMA*, August 2020 update.

[25] Vancouver Economic Commission, *COVID-19 Economic Update to City of Vancouver and VEC Staff*, July 16, 2020

[26] ECO Planning Trends and Analysis Team, *COVID-19 Today & Tomorrow*, 26 June 2020

[27] BC Business Council, *Business Alert | Preliminary Estimates of the Impact of COVID-19 and Related Containment Measures on the B.C. Economy in 2020*, 27 March 2020

Table 7: Summary of Land Use Category Specific COVID-19 Impacts *(continued)*

	Current Effects	Short-Term Impact	Long-Term Impact
Industrial	• Availability for industrial space at 2.9% in Q2, its' highest in 3 years. However, these are small and short-term leases, overall market remains healthy.[28] • Construction for industrial space is 20% lower than in Q1.[28] • Motion picture sector has been approved by WorkSafeBC to begin reopening. [29] • Manufacturing jobs grew in by 10.4% in May.[30] • Trades and related jobs dropped by 5.1% in May.[30] • Machine operators, production workers, tradespeople, labourers are some of the biggest employment gains (up 20%-31% since April).[30]	• Industries with a strong local supply chain are resilient and flexible.[29] • Reshoring of supply chains is part of an increasing demand for industrial space – something which existed pre-COVID.[29] • -15% to -35% GDP growth predicted for manufacturing in BC for 2020.[28] At the local level, Vancouver's city-serving production activities will likely recover quickly, though some businesses serving the Tourism sector (ex. those oriented towards resupplying cruise ships) may experienced more pronounced declines and a slower recovery.	• Level of employment area demand in COV for both jobs and space expected to be relatively unchanged. • Smaller supply chains expected to be resilient through acceleration of e-commerce logistics. • Shift to de-risking likely will involve acceleration of automation in many industrial work places.

Aside from the increased FSW requirement for workers returning to the office and other places of work, and some anecdotal interest in developing offices in more suburban locations, the pandemic has, for the most part, continued or accelerated trends that had previously been observed. High-tech and creative industries are still likely to continue to drive local economic growth in Vancouver, along with the health care and service-related jobs necessary to support the aging demographics of the local population. Tourism and related industries face the longest road to recovery, but are eventually expected to return. Meanwhile, city-serving industries will remain integral to supporting local businesses, coupled with a need for local logistics and fulfillment centres. Each of these factors provide some insight into what can reasonably be expected in terms of assumptions for the timing and scope of employment growth and floor space change over the forecast period. They have been used to develop the forecast scenarios described in the following chapter.

[28] CBRE, *Canada Q2 2020 Quarterly Statistics*

[29] Vancouver Economic Commission, *COVID-19 Economic Update to City of Vancouver and VEC Staff*, July 16, 2020

[30] Labour Force Survey, *Vancouver CMA*, May 2020 update.

6. UPDATED FORECAST SCENARIOS

This chapter summarizes the narrative and assumptions behind each of the updated scenarios, along with their associated outlooks through to 2051. These outlooks are then compared against the pre-pandemic forecasts to demonstrate the scope of the changes between the different forecast scenarios.

A. THE FORECAST UPDATE ADAPTS THE PREVIOUS FORECAST ASSUMPTIONS TO REFLECT THE IMPACTS OF THE PANDEMIC

The pre-pandemic forecasts considered five different scenarios for what Vancouver's economy could look like by 2051. These included a Reference scenario, designed to reflect a continuation, for the most part, of trends observed at the time, along with four alternative scenarios designed to test different ways the economies of both the City and Metro Vancouver region could change over time. The original Reference scenario, which served as the baseline for the scenario testing by representing the 'most likely' scenario based on what was observed at the time, relied on the following assumptions, as summarized in Table 8 below.

Table 8: Pre-Pandemic Reference Scenario Assumptions

Demographics	Population continues to age, with most growth due to net in-migration
Employment	Employment to population rate declines as population ages, gradual increase in senior (65+) work force, in-migration meets labour force needs
Economy	Regional sectoral activity and employment remains relatively consistent, Vancouver gradually shifts towards office and population serving, while local shares of regional employment remain steady
Environment	Climate change impacts increase over time, including modest sea level rise and increased flooding events in low laying areas. Increased mitigation measures are required, and assumed to be sufficient to offset more significant impacts
External Forces	Current trends persist in most areas, employment impact of disruptors limited or offset by growth in other sectors, continued stability in policy

Each scenario was developed to take into account the influence of a number of external forces – events, trends or disruptors beyond the City's control – which could fundamentally change the trajectory of growth from the reference scenario, along with the nature of the growth between different components of the economy. Over 20 possible external forces were identified through a review of market forces, academic literature, and consultation with stakeholders and industry experts based on their likelihood and potential impact to Vancouver and the surrounding region. These were eventually refined down to a total of 8 key groups, as summarized in Table 9.

Table 9: Original Key External Forces Considered

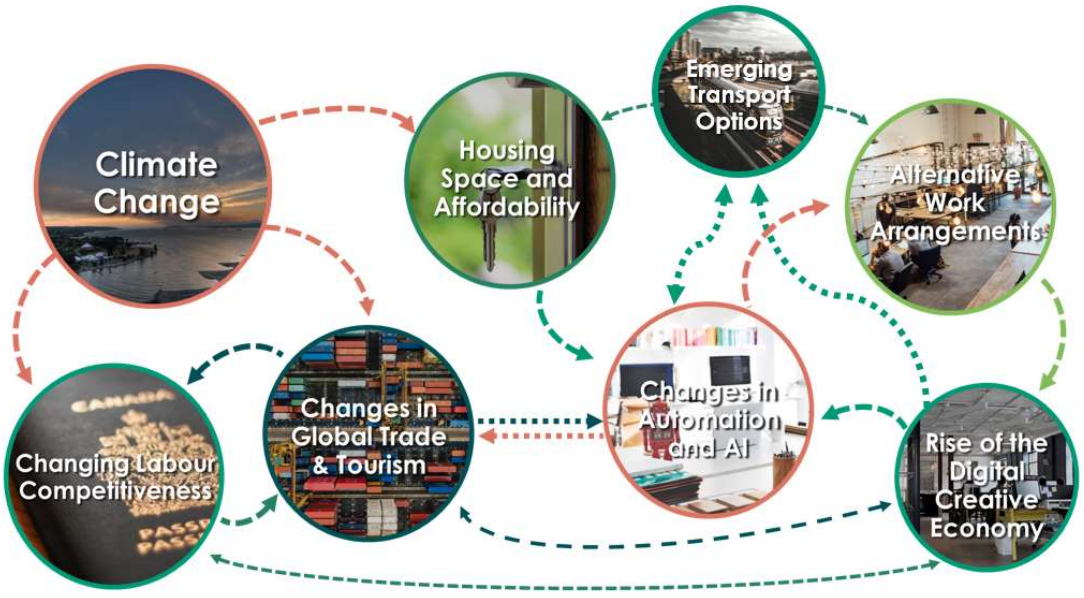
Climate Change	Various climate change related impacts such as more frequent weather events, including flooding and forest fires, rising sea levels, climate related migration, and increased strain on the region's water and food supplies
Housing and Space Affordability	Various factors that are limiting access to affordable space for both residents and businesses that may displace current residents and employers, or may discourage other growth opportunities
Changes in Global Trade & Tourism	Factors that could increase or decrease the volume and value of trade and tourism through Vancouver, including policy changes or changes in broader market demand, such as a shift towards renewable energy and increased competition from other markets
Changes in Automation and AI	Changing labour needs in both low and high skilled sectors as a result of automation and artificial intelligence. Automation in one sector is often offset by job creation in others, and does not necessarily result in less economic activity or need for space
The Rise of the Digital Creative Economy	Macro-level shifts towards digital, creative and high-skill sectors, along with the impacts of increasing digital sales and connectivity on various sectors, such as retail employment

Table 9: Original Key External Forces Considered (continued)

Changing Labour Competitiveness	Refers to Vancouver's competitive advantages and disadvantages in attracting international business through access to high-skilled and comparatively affordable local labour
Alternative Work Arrangements	The impact of the rise of non-traditional employment arrangements, including contract and gig-based work, as well as co-working and disruptive delivery models, such as AirBnB, Uber, and others
Emerging Transportation Options	Changes that could occur in location preferences and space needs due to transportation related innovations, including electric vehicles, autonomous vehicles, and major transit infrastructure investments

As illustrated in Figure 10, many of these forces are intrinsically linked to others. For example, if market pressures continue to make it unaffordable for many to live in the City, the lack of local labour may lower Vancouver's labour competitiveness, making it harder to attract investment, while also spurring other companies to accelerate their move to automate certain tasks where possible, such as replacing cashiers with self-check outs in certain retail businesses.

Figure 10: Interconnectivity between External Forces



Each scenario made a number of assumptions regarding these external forces that resulted in four possible alternative outcomes which were described as follows:

Alternate Scenario A: Higher Regional Growth + Constant Vancouver Share

Under this scenario, the Metro Vancouver region would become an even more attractive destination for global talent as rhetoric and policies in the US, Britain and other competing markets discourage and limit migration. At the same time, the continued shift towards the digital and creative economy would allow Vancouver and the surrounding region to further develop its identity as a hub for innovation and investment, spurring the growth of various tech-related sectors, along with some advanced manufacturing.

Under this scenario, disruptions from automation, alternative work arrangements, and climate change would continue, but would not increase significantly or were assumed to be adapted to accordingly. Affordability concerns and expanded transportation options would result in regional location preferences remaining similar to what they are the were at the time.

Alternate Scenario B: Higher Regional Growth + Increased Vancouver Share

Similar factors from Scenario A related to labour competitiveness and the region's establishment as a global tech hub were present, while also complimented by forces that resulted in a concentration of regional growth in the central city. A combination of market forces and support from other levels of government would allow Vancouver to consistently achieve its ambitious housing target over the forecast horizon, providing housing options for households of various income levels. This in turn, would drive demand for more population serving employment, as well as additional demand for centrally located office space to meet the needs of the digital creative economy. This scenario represented the highest demand for space of all the outlooks considered.

Alternate Scenario C: Slower Regional Growth, Reduced Vancouver Share

Under this scenario, a combination of market forces and the rise of disruptive alternative work arrangements resulted in limited wage growth across multiple sectors, resulting in affordability becoming even more of a concern. This would drive more residents and businesses to look for opportunities further out in the region where space would be more affordable. Limited available space and local labour in Vancouver limited growth opportunities for many businesses, spurring certain sectors to consider increased automation to fill the gap. Non-traditional and contract employment would become more prevalent, resulting in reduced incomes and less financial stability for some.

Alternate Scenario D: Slower Regional Growth, Reduced Vancouver Share and FSW Needs

Similar factors from Scenario C would slow the growth outlook and spread growth elsewhere in the region, while additional factors limited the amount of space needed for various activities. Policy changes amongst global competitors would undercut trade-enabling job-growth, particularly in industrial uses which tend to be land and space intensive. At the same time, space costs, automation and telecommuting would push employers to significantly reduce the required floor space needed per worker in various other sectors. This scenario represented the lowest demand for space of all the outlooks considered.

While each of the scenarios assumed for long term trends affecting growth patterns over time, which could account for a long term slow down or economic shock in specific portions of the economy in some scenarios, they did not predict an event with the global scale and scope of the COVID-19 pandemic. Not only did the pandemically significantly disrupt what is effectively the starting point of the forecast scenarios, but it will also influence many of the other external forces that formed the core assumptions of each scenario, and will likely continue to do so after the health crisis has abated. For example:

- The severity of the pandemic in different countries and their effectiveness in containing it is likely to shift flows of global trade and tourism as people look for more stable locations to visit and move goods through.
- The shutdown in the early days of the pandemic had a dramatic effect in accelerating the shift towards alternative work arrangements, specifically work from home.
- Public transportation and labour movement will likely be slow to recover from restrictions and lingering health concerns.
- The shift towards automation and the digital and high-tech economy seems to have only become more prevalent while other industries have been put on hold or receded.

At its core, the approach to the forecast scenarios and their development around the external forces remains sound. However, the baseline for growth must be adjusted to account for recent losses, with a new key external force – the pandemic itself – applying adjustments to each of the other forces and their related assumptions. This includes new assumptions for what recovery from the pandemic looks like, and how long it will take to eventually get there.

B. THREE NEW SCENARIOS REFLECT THREE PATHS TO RECOVERY AND BEYOND

For practical purposes, the five previous scenarios have been streamlined into three new outlooks for Vancouver's pandemic recovery. These three new scenarios adapt many of the principles of the previous scenarios to represent a reasonable range of what employment demand could look like by 2051, with due consideration for what the shape and timing of economic recovery could potentially look like. For clarity, the three scenarios are labeled in line with their assumed impact from the pandemic, and the resulting growth outlook that follows. Each of the scenarios and their associated assumptions are as follows:

1. Updated Reference Scenario (Medium Impact / Medium Growth)

Building on the same principles as the original Reference forecast, this scenario is developed around the trends that we understand to be most likely given our current trajectory and currently available data. This scenario assumes the reopening of the economy will occur at a gradual pace as local health officials deal with sporadic flare ups of the virus. It does not assume another major lockdown will be required before an effective vaccine is developed and distributed to the point that the economy can return to a broader semblance of business as usual, but may require some increased restrictions in the interim that could slow the rate of recovery. The long-term employment outlook is slightly depressed and some sectoral shifts are assumed as a result, particularly a slower recovery for commercial and tourism related jobs compared to other sectors.

2. Low Impact / High Growth Scenario

This scenario combines a reduced near-term impact from the pandemic with many of the assumptions in Alternative Scenario B that could lead to continued growth of specific sectors of the Vancouver economy. This is most notably assumed to be tied to continued strength in the tech sector, but is tempered by short term slow downs and labour movement restrictions that would prevent the City from achieving the same level of growth as previously assumed. A short turnaround for a vaccine is also assumed, allowing for a much-reduced impact on the commercial and tourism sectors between now and 2026, though it will still take some time for these sectors to see growth rates equivalent to other sectors. New jobs that are footloose or based at home are assumed to still be significant, but represent a smaller share of overall growth than the other post-pandemic scenarios. This scenario represents a high-demand bookend to the pandemic recovery scenarios.

3. High Impact / Low Growth Scenario

This scenario postulates what the economy could look like if it takes considerably longer to recover from the pandemic, while also considering some of the factors that could limit the demand for local growth in the post-pandemic period. This is in line with many of the assumptions noted in Alternative Scenario D, including an increased shift in employment to other parts of the region, increased footloose and work at home employment, and a more conservative total outlook for employment as a whole. More severe impacts from the pandemic, up to and including localized lockdowns, would have a prolonged effect on depressing recovery, most notably in commercial and tourism related employment, which would take even longer to recover than in other scenarios. The outlook for major office is also assumed to be less optimistic, with a distinct slowdown in high-tech and related job growth stemming from competition from other jurisdictions. This scenario represents a low-demand bookend to the pandemic recover scenarios.

C. THE PANDEMIC IS ANTICIPATED TO SLOW THE TREND TOWARDS REDUCED FLOOR SPACE PER WORKER

The forecast average FSW in each scenario has been assumed to build off the recent trends in each respective land use category, with specific adjustments to account for the potential long-term impacts of the pandemic across all sectors. Prior to the pandemic, most land use categories were expected to see a decrease in the average FSW by 2051 as employers sought space efficiencies in a constrained market. Industrial uses were expected to remain steady, while only Institutional FSWs were expected to increase gradually, reflecting a trend towards higher standards of healthcare in recent years and the increase in health care workers (particularly in long-term and seniors care) as a share of this land use category. Alternative Scenario D tested an alternative outlook where all space demands were reduced to represent the lower end of floor space demand that might occur as a result of both technological innovations and continued market constraints for space.

As the COVID-19 pandemic increases concerns over health in the workplace and spurs many users to experiment with flexible work arrangements, including partial work from home, this trend towards reduced FSWs is likely to dampen in the near term, specifically in Major Office and Commercial space. While it is still anticipated that employers and businesses will eventually seek to secure more efficient use of their floor space, the assumptions for the post-pandemic scenarios now assume much less ambitious FSW reductions by the year 2051. Similar to Alternative Scenario D, the High Impact / Low Growth scenario also tests a slightly lower FSW as a test of what a reduced demand for

space could look like, though the new post-pandemic assumptions are somewhat less ambitious than originally assumed in Alternative Scenario D. These updated FSW assumptions are provided against the current trends and previous assumptions in Table 10.

Table 10: Forecast FSW by Land Use Based Employment Category

Employment Category	Current FSW (sq. ft.)	Previous Forecast FSW (sq. ft.)		Updated Forecast FSW (sq. ft.)	
		Ref, Alts A-C	Alt D	Ref, LI/HG	HI/LG
Major Office	264	240	230	250	240
Population Related	410	392	366	400	386
Institutional	367	375	350	380	365
Commercial	428	399	373	409	395
Hotels	1,056	1,000	900	1,000	975
Other Tourism	337	320	300	330	320
Rest of Commercial	397	367	346	374	364
Industrial Areas	602	601	571	600	591
Footloose /Work at Home	0	0	0	0	0

Source: Hemson Consulting, using data from Statistics Canada and City of Vancouver

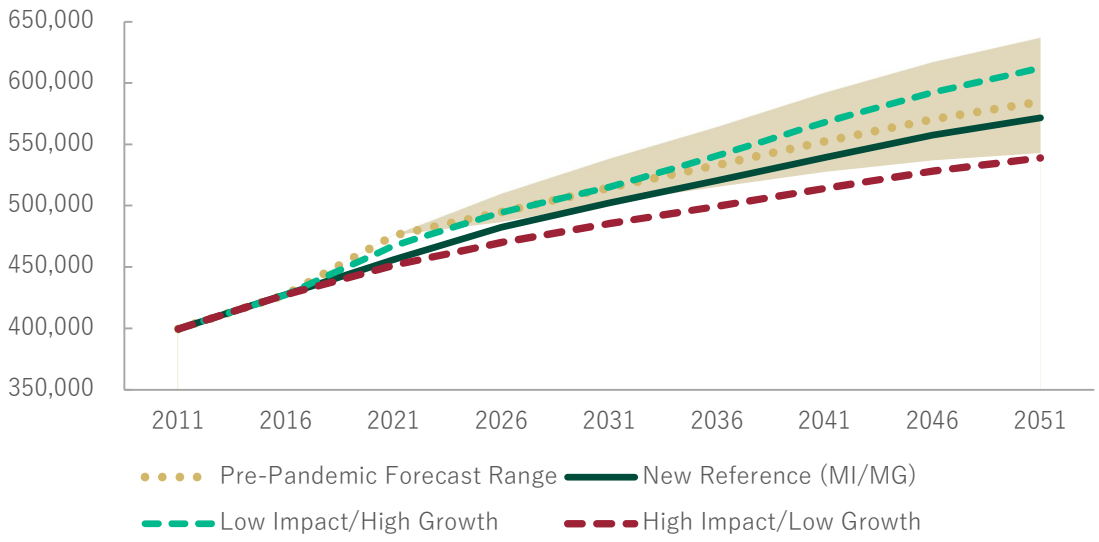
Note: Figures are rounded, and may not add to total. Floor space per worker figures are for total Gross Floor Area, including factors for vacancy and net leasable/usable space.

D. FORECAST UPDATE RESULTS

The total forecast employment for each of the new scenarios is provided in Figure 11 on the following page, where it is overlaid against the range of the previous pre-pandemic forecasts for comparison. Similarly, Figure 12 illustrates the total space demand of each of the new scenarios, again overlaid against the range of demand from the pre-pandemic forecast for reference.

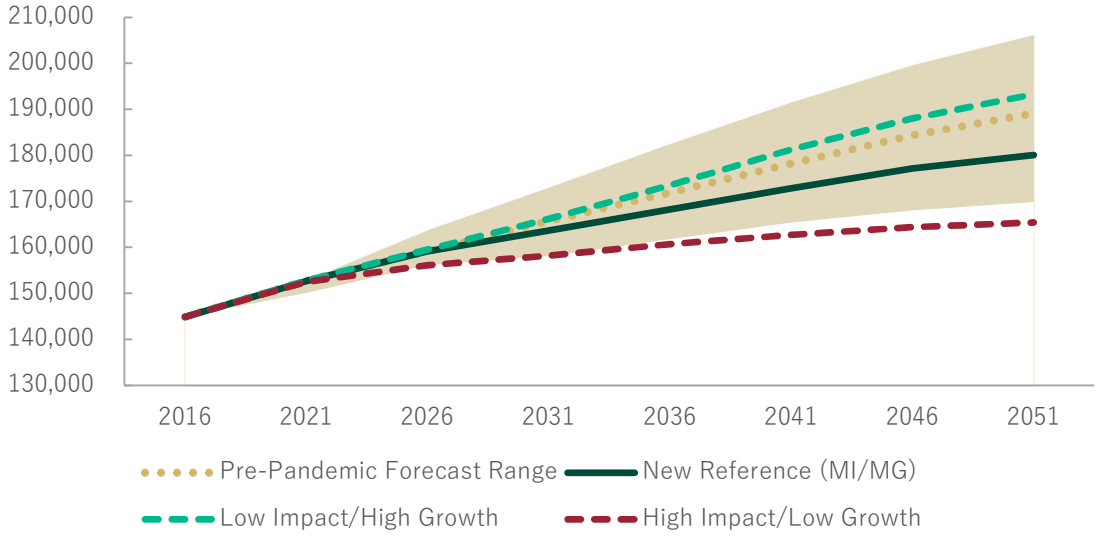
The outlook for employment in each of the new scenarios is somewhat lower than pre-pandemic analogues, though they remain close to the range previously postulated, particularly towards the end of the forecast horizon once the impacts of the pandemic have had a chance to dissipate. However, the outlook demand for floor space is notably lower, particularly on account of a shift towards increased work from home and other changes to how we might occupy space.

Figure 11: Forecast Comparison – Total Employment, City of Vancouver, 2016-2051



Source: Hemson Consulting, using data from Statistics Canada and City of Vancouver

Figure 12: Forecast Comparison – Total Floor Space Demand, City of Vancouver, 2016-2051



Source: Hemson Consulting, using data from Statistics Canada and City of Vancouver

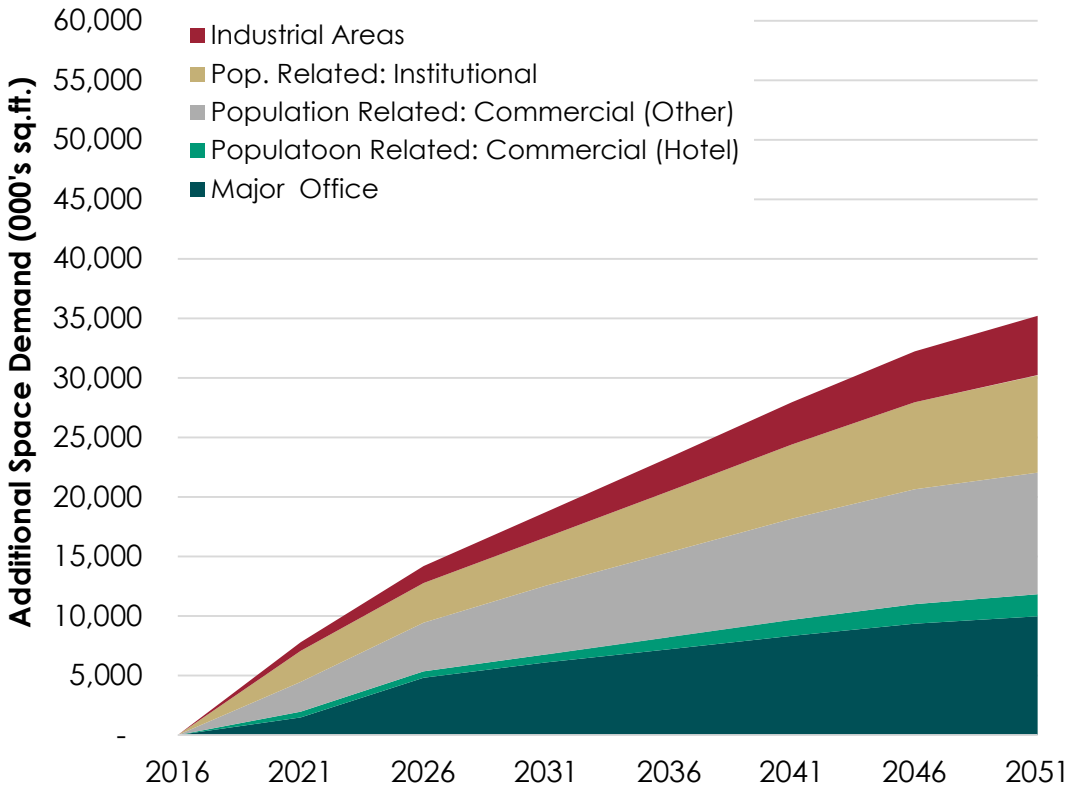
Category specific employment growth and floor space demand in each new forecast scenario is summarized on as follows:

Reference Scenario (Medium Impact / Medium Growth): Summary

Employment Category	Employment (2051)	Growth (2016-2051)	Add. Floor Space (000's sq. ft.)
Major Office	171,600	47,100	9,960
Population Related	258,700	56,000	20,260
Institutional	79,800	19,600	8,190
Commercial	178,900	36,400	12,070
Hotels	11,300	2,400	1,860
Other Tourism	31,100	6,200	1,880
Rest of Commercial	136,500	27,800	8,330
Industrial Areas	56,400	8,400	4,990
Footloose /Work at Home	85,000	32,700	n/a
Total	**571,700**	**144,200**	**35,210**

Source: Hemson Consulting

Note: Figures are rounded, and may not add to total.



Source: Hemson Consulting

Reference Scenario (Medium Impact / Medium Growth): Employment

Employment by Employment Category									
Employment Category	**2011**	**2016**	**2021**	**2026**	**2031**	**2036**	**2041**	**2046**	**2051**
Major Office	117,700	124,500	136,800	141,700	148,300	154,400	160,800	166,900	171,600
Population-Related	182,900	202,700	203,300	214,500	224,400	233,400	242,800	251,700	258,700
Institutional	59,400	60,200	65,200	67,800	70,500	72,900	75,500	77,900	79,800
Commercial	123,500	142,500	138,100	146,700	153,900	160,500	167,300	173,800	178,900
Hotels	8,200	8,900	8,500	8,900	9,400	9,900	10,400	10,900	11,300
Other Tourism	18,000	24,900	23,700	24,700	26,200	27,500	28,800	30,100	31,100
All Other Commercial	97,300	108,700	105,900	113,100	118,300	123,100	128,100	132,800	136,500
Industrial Areas	51,700	48,000	51,300	52,200	53,000	53,900	54,700	55,600	56,400
Footloose / Work at Home	47,300	52,300	64,600	74,000	76,400	78,700	81,000	83,200	85,000
Total Employment	399,600	427,500	456,000	482,400	502,100	520,400	539,300	557,400	571,700

Employment Growth by Employment Category									
Employment Category	**2011-16**	**2016-21**	**2021-26**	**2026-31**	**2031-36**	**2036-41**	**2041-46**	**2046-51**	**2016-51**
Major Office	6,800	12,300	4,900	6,600	6,100	6,400	6,100	4,700	47,100
Population-Related	19,800	600	11,200	9,900	9,000	9,400	8,900	7,000	56,000
Institutional	800	5,000	2,600	2,700	2,400	2,600	2,400	1,900	19,600
Commercial	19,000	(4,400)	8,600	7,200	6,600	6,800	6,500	5,100	36,400
Hotels	700	(400)	400	500	500	500	500	400	2,400
Other Tourism	6,900	(1,200)	1,000	1,500	1,300	1,300	1,300	1,000	6,200
All Other Commercial	11,400	(2,800)	7,200	5,200	4,800	5,000	4,700	3,700	27,800
Industrial Areas	(3,700)	3,300	900	800	900	800	900	800	8,400
Footloose / Work at Home	5,000	12,300	9,400	2,400	2,300	2,300	2,200	1,800	32,700
Total Employment Growth	27,900	28,500	26,400	19,700	18,300	18,900	18,100	14,300	144,200

Reference Scenario (Medium Impact / Medium Growth): Space Demand

Floor Space by Employment Category (000 sq. ft)								
Employment Category	**2016**	**2021**	**2026**	**2031**	**2036**	**2041**	**2046**	**2051**
Major Office	32,940	34,400	37,750	39,020	40,120	41,260	42,270	42,900
Population-Related	83,100	88,690	91,040	93,630	96,380	99,180	101,700	103,360
Institutional	22,130	24,730	25,460	26,210	27,250	28,380	29,440	30,320
Commercial	60,970	63,960	65,580	67,420	69,130	70,800	72,260	73,040
Hotels	9,440	9,940	9,970	10,110	10,460	10,790	11,100	11,300
Other Tourism	8,380	8,880	9,070	9,430	9,690	9,930	10,160	10,260
All Other Commercial	43,150	45,140	46,540	47,880	48,980	50,080	51,000	51,480
Industrial Areas	28,870	29,590	30,300	30,990	31,710	32,410	33,150	33,860
Footloose / Work at Home	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total Non-Residential Space	144,910	152,680	159,090	163,640	168,210	172,850	177,120	180,120

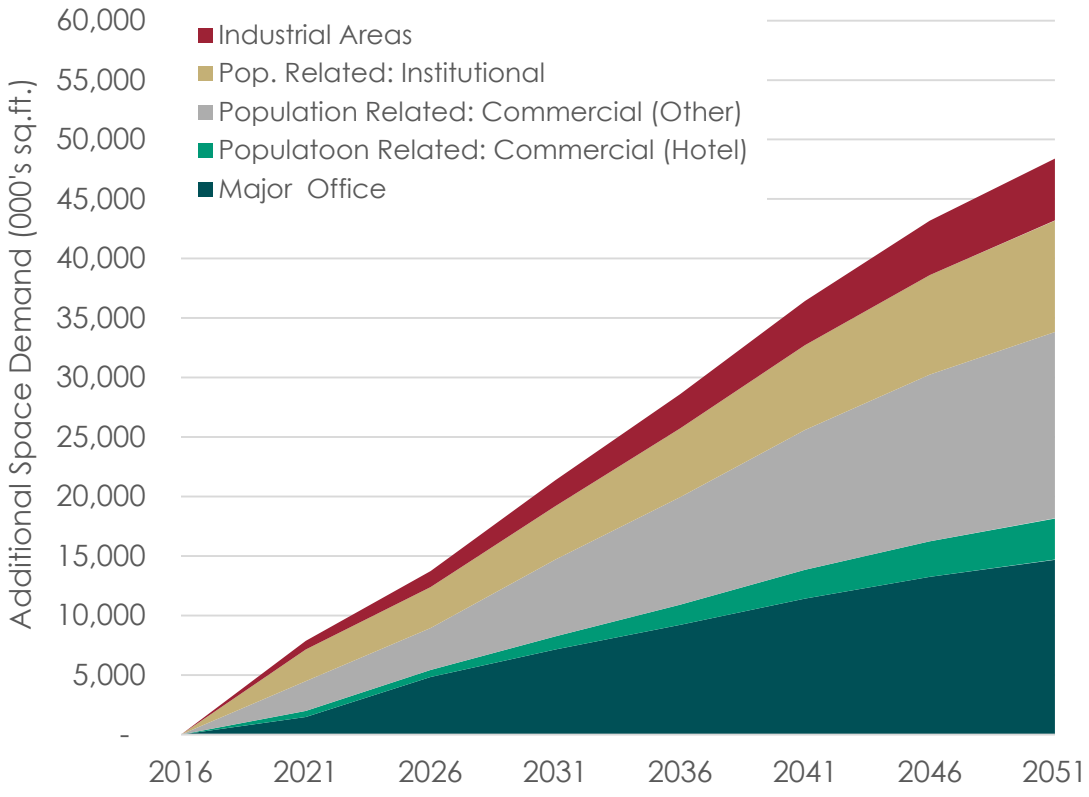
Floor Space Growth by Employment Category (000 sq. ft.)								
Employment Category	**2016-21**	**2021-26**	**2026-31**	**2031-36**	**2036-41**	**2041-46**	**2046-51**	**2016-51**
Major Office	1,470	3,350	1,270	1,100	1,140	1,010	630	9,960
Population-Related	5,590	2,350	2,590	2,750	2,800	2,520	1,660	20,260
Institutional	2,600	730	750	1,040	1,130	1,060	880	8,190
Commercial	2,990	1,620	1,840	1,710	1,670	1,460	780	12,070
Hotels	500	30	140	350	330	310	200	1,860
Other Tourism	500	190	360	260	240	230	100	1,880
All Other Commercial	1,990	1,400	1,340	1,100	1,100	920	480	8,330
Industrial Areas	720	710	690	720	700	740	710	4,990
Footloose / Work at Home	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total Non-Res. Space Growth	7,770	6,410	4,550	4,570	4,640	4,270	3,000	35,210

Low Impact / High Growth Scenario: Summary

Employment Category	Employment (2051)	Growth (2016-2051)	Add. Floor Space (000's sq. ft.)
Major Office	190,500	66,000	14,690
Population Related	278,500	75,800	28,490
Institutional	82,900	22,700	9,370
Commercial	195,600	53,100	19,120
Hotels	12,900	4,000	3,460
Other Tourism	35,800	10,900	3,430
Rest of Commercial	146,900	38,200	12,230
Industrial Areas	56,900	8,900	5,210
Footloose /Work at Home	86,400	34,100	n/a
Total	**612,300**	**184,800**	**48,390**

Source: Hemson Consulting

Note: Figures are rounded, and may not add to total.



Source: Hemson Consulting

Low Impact / High Growth Scenario: Employment

Employment by Employment Category									
Employment Category	**2011**	**2016**	**2021**	**2026**	**2031**	**2036**	**2041**	**2046**	**2051**
Major Office	117,700	124,500	139,200	144,000	154,300	163,800	174,000	182,900	190,500
Population-Related	182,900	202,700	212,100	218,700	232,100	244,400	257,500	269,100	278,500
Institutional	59,400	60,200	65,800	68,300	71,600	74,700	77,900	80,700	82,900
Commercial	123,500	142,500	146,300	150,400	160,500	169,700	179,600	188,400	195,600
Hotels	8,200	8,900	9,100	9,300	10,100	10,800	11,600	12,300	12,900
Other Tourism	18,000	24,900	25,400	25,900	28,100	30,100	32,200	34,200	35,800
All Other Commercial	97,300	108,700	111,800	115,200	122,300	128,800	135,800	141,900	146,900
Industrial Areas	51,700	48,000	51,700	52,400	53,400	54,200	55,200	56,200	56,900
Footloose / Work at Home	47,300	52,300	64,400	72,300	75,500	78,400	81,400	84,300	86,400
Total Employment	399,600	427,500	467,400	487,400	515,300	540,800	568,100	592,500	612,300

Employment Growth by Employment Category									
Employment Category	**2011-16**	**2016-21**	**2021-26**	**2026-31**	**2031-36**	**2036-41**	**2041-46**	**2046-51**	**2016-51**
Major Office	6,800	14,700	4,800	10,300	9,500	10,200	8,900	7,600	66,000
Population-Related	19,800	9,400	6,600	13,400	12,300	13,100	11,600	9,400	75,800
Institutional	800	5,600	2,500	3,300	3,100	3,200	2,800	2,200	22,700
Commercial	19,000	3,800	4,100	10,100	9,200	9,900	8,800	7,200	53,100
Hotels	700	200	200	800	700	800	700	600	4,000
Other Tourism	6,900	500	500	2,200	2,000	2,100	2,000	1,600	10,900
All Other Commercial	11,400	3,100	3,400	7,100	6,500	7,000	6,100	5,000	38,200
Industrial Areas	(3,700)	3,700	700	1,000	800	1,000	1,000	700	8,900
Footloose / Work at Home	5,000	12,100	7,900	3,200	2,900	3,000	2,900	2,100	34,100
Total Employment	27,900	39,900	20,000	27,900	25,500	27,300	24,400	19,800	184,800

Low Impact / High Growth Scenario: Space Demand

Floor Space by Employment Category (000 sq. ft)								
Employment Category	**2016**	**2021**	**2026**	**2031**	**2036**	**2041**	**2046**	**2051**
Major Office	32,940	34,400	37,750	40,080	42,140	44,350	46,170	47,630
Population-Related	83,100	88,770	90,650	95,140	99,620	104,400	108,470	111,590
Institutional	22,130	24,780	25,560	26,620	27,930	29,280	30,500	31,500
Commercial	60,970	63,980	65,090	68,520	71,690	75,120	77,970	80,090
Hotels	9,440	9,940	10,050	10,540	11,150	11,850	12,430	12,900
Other Tourism	8,380	8,900	8,990	9,660	10,240	10,850	11,400	11,810
All Other Commercial	43,150	45,140	46,050	48,320	50,300	52,420	54,140	55,380
Industrial Areas	28,870	29,590	30,210	31,030	31,740	32,580	33,430	34,080
Footloose / Work at Home	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total Non-Residential Space	144,910	152,760	158,610	166,250	173,500	181,330	188,070	193,300

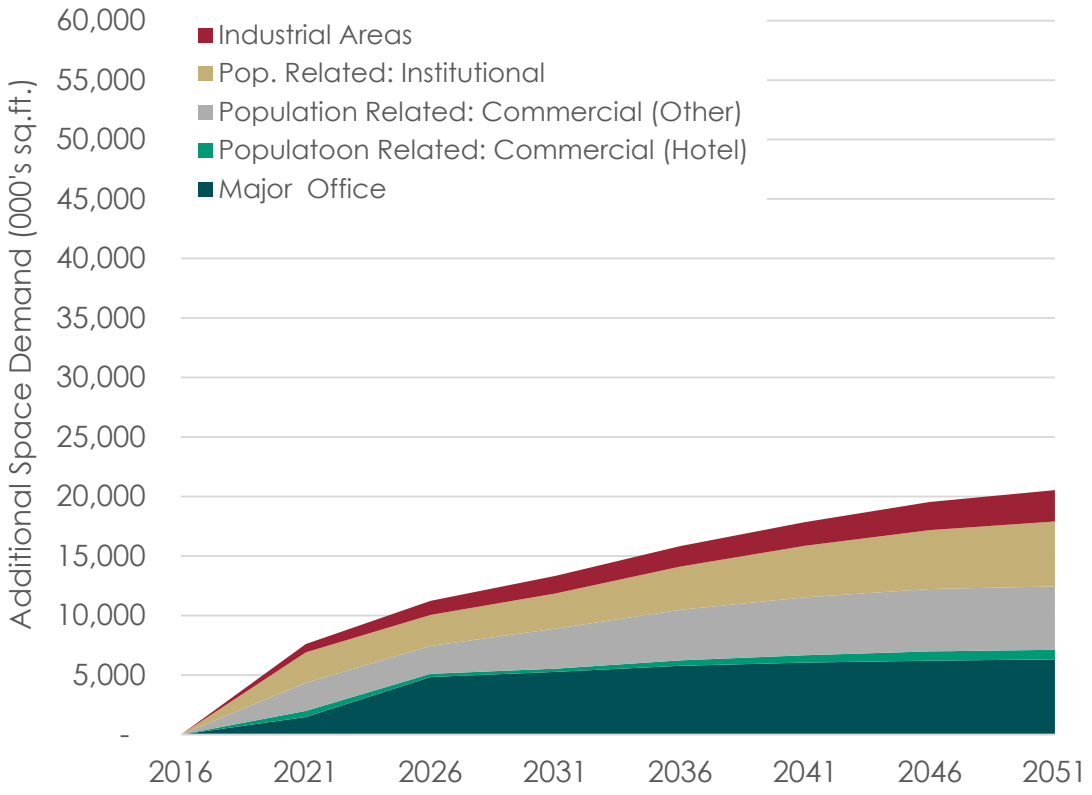
Floor Space Growth by Employment Category (000 sq. ft.)								
Employment Category	**2016-21**	**2021-26**	**2026-31**	**2031-36**	**2036-41**	**2041-46**	**2046-51**	**2016-51**
Major Office	1,470	3,350	2,330	2,060	2,210	1,820	1,460	14,690
Population-Related	5,660	1,880	4,490	4,480	4,780	4,070	3,120	28,490
Institutional	2,650	780	1,060	1,310	1,350	1,220	1,000	9,370
Commercial	3,010	1,110	3,430	3,170	3,430	2,850	2,120	19,120
Hotels	500	110	490	610	700	580	470	3,460
Other Tourism	530	90	670	580	610	550	410	3,430
All Other Commercial	1,990	910	2,270	1,980	2,120	1,720	1,240	12,230
Industrial Areas	720	620	820	710	840	850	650	5,210
Footloose / Work at Home	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total Non-Residential Space	7,850	5,850	7,640	7,250	7,830	6,740	5,230	48,390

High Impact / Low Growth Scenario: Summary

Employment Category	Employment (2051)	Growth (2016-2051)	Add. Floor Space (000's sq. ft.)
Major Office	160,200	35,700	6,310
Population Related	246,500	43,800	11,580
Institutional	75,600	15,400	5,460
Commercial	170,900	28,400	6,120
Hotels	10,500	1,600	800
Other Tourism	29,800	4,900	1,160
Rest of Commercial	130,600	21,900	4,160
Industrial Areas	53,300	5,300	2,630
Footloose /Work at Home	79,000	26,700	n/a
Total	**539,000**	**111,500**	**20,520**

Source: Hemson Consulting

Note: Figures are rounded, and may not add to total.



Source: Hemson Consulting

High Impact / Low Growth Scenario: Employment

Employment by Employment Category									
Employment Category	**2011**	**2016**	**2021**	**2026**	**2031**	**2036**	**2041**	**2046**	**2051**
Major Office	117,700	124,500	135,900	138,900	143,700	148,200	152,700	157,000	160,200
Population-Related	182,900	202,700	200,400	207,300	216,000	224,000	232,400	240,300	246,500
Institutional	59,400	60,200	65,000	66,300	68,400	70,300	72,300	74,100	75,600
Commercial	123,500	142,500	135,400	141,000	147,600	153,700	160,100	166,200	170,900
Hotels	8,200	8,900	8,300	8,500	9,000	9,400	9,800	10,200	10,500
Other Tourism	18,000	24,900	23,100	23,900	25,100	26,300	27,600	28,800	29,800
All Other Commercial	97,300	108,700	104,000	108,600	113,500	118,000	122,700	127,200	130,600
Industrial Areas	51,700	48,000	51,100	51,700	52,000	52,300	52,600	53,000	53,300
Footloose / Work at Home	47,300	52,300	64,200	72,200	73,700	75,200	76,600	78,000	79,000
Total Employment	399,600	427,500	451,600	470,100	485,400	499,700	514,300	528,300	539,000

Employment Growth by Employment Category									
Employment Category	**2011-16**	**2016-21**	**2021-26**	**2026-31**	**2031-36**	**2036-41**	**2041-46**	**2046-51**	**2016-51**
Major Office	6,800	11,400	3,000	4,800	4,500	4,500	4,300	3,200	35,700
Population-Related	19,800	(2,300)	6,900	8,700	8,000	8,400	7,900	6,200	43,800
Institutional	800	4,800	1,300	2,100	1,900	2,000	1,800	1,500	15,400
Commercial	19,000	(7,100)	5,600	6,600	6,100	6,400	6,100	4,700	28,400
Hotels	700	(600)	200	500	400	400	400	300	1,600
Other Tourism	6,900	(1,800)	800	1,200	1,200	1,300	1,200	1,000	4,900
All Other Commercial	11,400	(4,700)	4,600	4,900	4,500	4,700	4,500	3,400	21,900
Industrial Areas	(3,700)	3,100	600	300	300	300	400	300	5,300
Footloose / Work at Home	5,000	11,900	8,000	1,500	1,500	1,400	1,400	1,000	26,700
Total Employment	27,900	24,100	18,500	15,300	14,300	14,600	14,000	10,700	111,500

High Impact / Low Growth Scenario: Space Demand

Floor Space by Employment Category (000 sq. ft)								
Employment Category	**2016**	**2021**	**2026**	**2031**	**2036**	**2041**	**2046**	**2051**
Major Office	32,940	34,400	37,750	38,200	38,710	38,970	39,140	39,250
Population-Related	83,100	88,520	88,330	89,680	91,420	92,900	94,060	94,680
Institutional	22,130	24,680	24,750	25,090	25,750	26,450	27,080	27,590
Commercial	60,970	63,830	63,580	64,590	65,670	66,450	66,980	67,090
Hotels	9,440	9,940	9,730	9,710	9,900	10,060	10,210	10,240
Other Tourism	8,380	8,850	8,910	9,090	9,250	9,410	9,520	9,540
All Other Commercial	43,150	45,040	44,940	45,790	46,520	46,980	47,250	47,310
Industrial Areas	28,870	29,590	30,050	30,330	30,600	30,870	31,220	31,500
Footloose / Work at Home	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total Non-Residential Space	144,910	152,510	156,130	158,210	160,730	162,740	164,420	165,430

Floor Space Growth by Employment Category (000 sq. ft.)								
Employment Category	**2016-21**	**2021-26**	**2026-31**	**2031-36**	**2036-41**	**2041-46**	**2046-51**	**2016-51**
Major Office	1,470	3,350	450	510	260	170	110	6,310
Population-Related	5,410	(190)	1,350	1,740	1,480	1,160	620	11,580
Institutional	2,550	70	340	660	700	630	510	5,460
Commercial	2,860	(250)	1,010	1,080	780	530	110	6,120
Hotels	500	(210)	(20)	190	160	150	30	800
Other Tourism	480	60	180	160	160	110	20	1,160
All Other Commercial	1,890	(100)	850	730	460	270	60	4,160
Industrial Areas	720	460	280	270	270	350	280	2,630
Footloose / Work at Home	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total Non-Residential Space	7,600	3,620	2,080	2,520	2,010	1,680	1,010	20,520

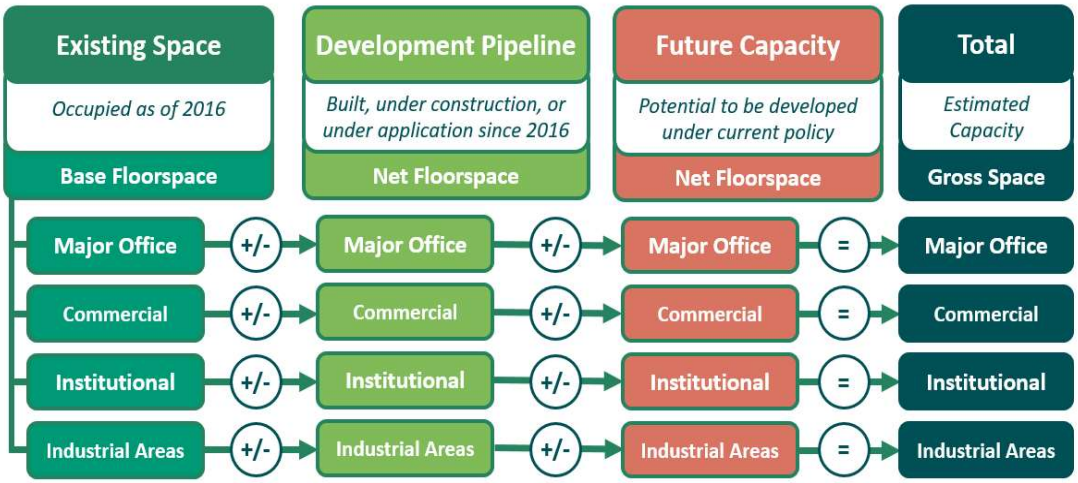
7. VANCOUVER'S CAPACITY TO ACCOMMODATE GROWTH

This chapter covers the methodology and outputs from Vancouver's development capacity model, and how it aligns with the forecast land use categories.

G. CAPACITY MODEL METHODOLOGY

To understand Vancouver's capacity to accommodate its potential for future employment growth, we need to understand what exists today, what has been built recently, what is under development and application, and what could potentially be built under current City policy. Effectively this comes down to an estimation of space, across each of the identified land use categories, via three key components as illustrated in Figure 13.

Figure 13: Components of Job Space Capacity Estimate



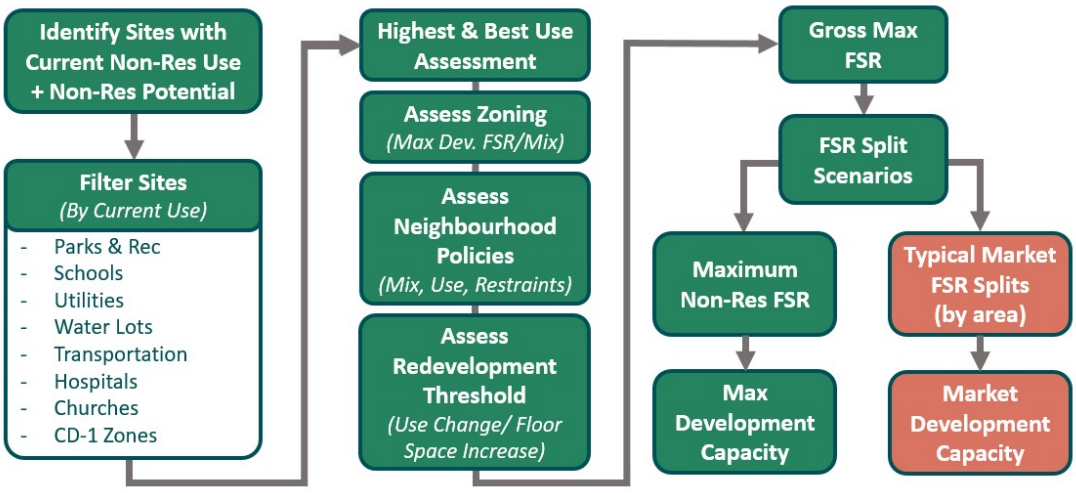
- **Existing Space** – any buildings occupied as of 2016 (the starting year of the forecast). Identified via BCAA data.
- **Development Pipeline** – any buildings built since 2016, or buildings that are under construction or under development application currently. Identified via BCAA data and municipal building and development permits.
- **Future Capacity** – sites with the potential to be redeveloped under current policy.

To understand Vancouver's future capacity beyond what has already been built or applied for, City staff prepared a comprehensive development capacity model. This model considered the redevelopment potential of parcels city-wide, considering current land use,

zoning, and neighbourhood policies, against what could potentially be built as the 'highest and best' use under current market trends.

To do this, the model identifies a variety of 'soft sites' – effectively parcels that have a realistic chance of being redeveloped within the forecast horizon. It is important to note, however, that not all sites that are currently below their maximum permitted density are considered candidates for redevelopment. The model makes a number of assumptions with regards to how much additional floor space could be developed, how recently the existing building was built, and the current use. It also excludes certain sites, such as schools, parks, hospitals, churches, and others including sites zoned under the City's site-specific CD-1 Comprehensive Development designation. This methodology is illustrated in Figure 14.

Figure 14: Capacity Model Methodology



Where a mix of uses are permitted, the model makes an assumption about the most likely mix based on development trends and market forces. For example, in a mixed-residential building, commercial uses are assumed to be limited to the first few floors, with the majority of the developable Floor Space Ratio (FSR) assumed to be residential, as this space tends to offer a higher rate of return for developers. Similar assumptions are made for mixed industrial and office spaces, where industrial uses are unlikely to occupy space above the ground floor. In this regard, the model does not estimate the maximum non-residential space that could be built, but instead represents the amount of non-residential space that is likely to be built under current policies and market trends.

H. VANCOUVER'S DEVELOPMENT CAPACITY AND KEY FINDINGS

A summary of the City's development capacity across each of these categories is included in Table 11 below.

Table 11: Employment Space Summary by Employment Land Use Category, Citywide

Land Use Type	Existing Space (millions of sq. ft.)	Development Pipeline (net millions of sq. ft.)	Future Capacity (net millions of sq. ft.)	Total Capacity (millions of sq. ft.)
Major Office	32.9	8.1	23.0	63.9
Population Related - Commercial	61.0	3.5	0.2	64.7
Hotels	9.4	0.8	- [a]	10.4
Other Commercial	51.5	2.7	0.2	54.4
Population Related - Institutional	22.1	6.3	- [b]	28.4
Industrial Areas	28.9	2.0	1.8	32.7
Total	**144.9**	**19.8**	**25.1**	**189.9**

Source: City of Vancouver
Note: Figures have been rounded and may not add to total.
(a) Hotel development capacity is assumed to be part of the future capacity for Major Office
(b) Due to site specific nature of institutional development, capacity model does not estimate future institutional capacity – please see subsection 3 on page 74 for details.

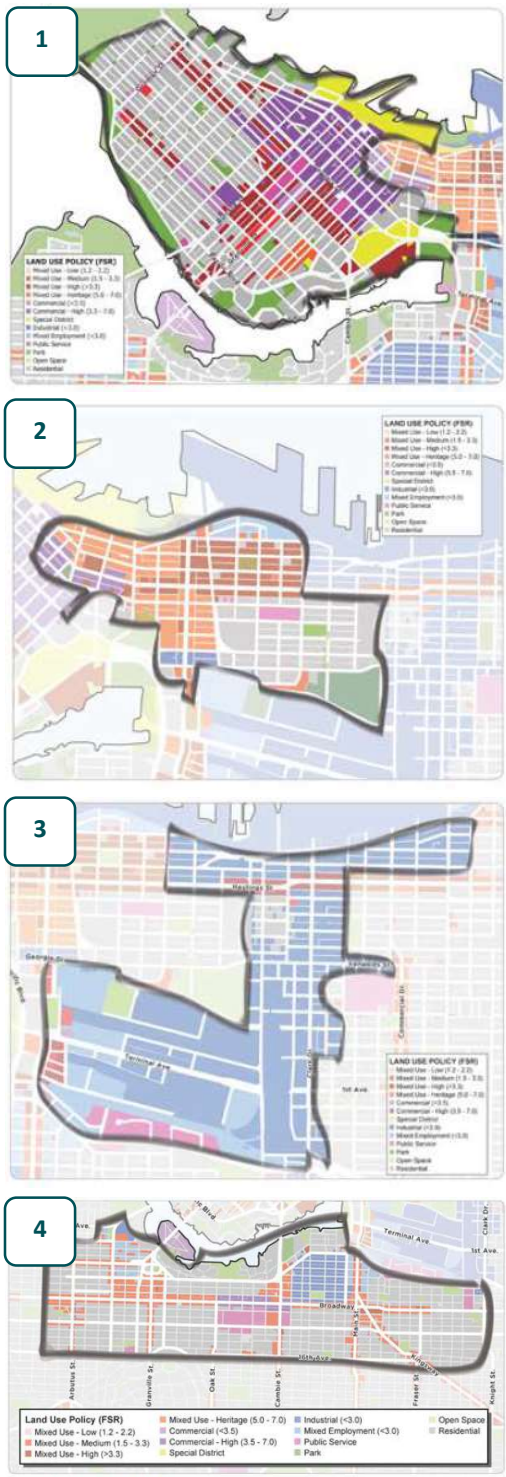
1. Location of Development Capacity is a Key Consideration

To guide policy discussions, the capacity model also identifies the net development non-residential development potential at a neighbourhood level. Seven key employment neighbourhoods have been identified based their distinct economic activities, land uses, and character. These neighbourhoods are:

- Downtown West
- Downtown East
- Eastern Core
- Central Broadway
- Oakridge & BC Women's & Children's Hospitals
- South Vancouver Industrial Area
- Grandview Boundary

The geographies of each of these neighbourhoods are mapped in Figure 13 on the following page, with an inventory of net pipeline and capacity estimates for each of the four key land use categories provided in Table 12 on page 73.

Figure 15: Neighbourhood Study Areas



1) Downtown West
2) Downtown East
3) Eastern Core
4) Central Broadway
5) Oakridge & BC Women's and Children's Hospitals
6) South Vancouver Industrial Area
7) Grandview - Boundary

Source: City of Vancouver

Table 12: Employment Capacity Summary by Employment Land Use Category & Neighbourhood (in 000s sq. ft.)

Neighbourhood	Major Office			Population Related - Commercial		
	Pipeline	Dev. Capacity	Total	Pipeline	Dev. Capacity	Total
Downtown West	4,247	4,125	8,372	412	864	1,277
Downtown East	190	(23)	168	111	16	127
Eastern Core	1,006	7,664	8,670	894	(349)	544
Central Broadway	1,150	1,141	2,291	429	1,029	1,459
Oakridge & Hospitals	308	256	565	848	37	885
South Vancouver Industrial Area	(12)	840	828	513	275	787
Grandview – Boundary	1,091	9,114	10,205	142	168	310
Rest of City	116	(96)	21	155	(1,793)	(1,638)
Total	**8,097**	**23,023**	**31,120**	**3,504**	**247**	**3,751**

Neighbourhood	Population Related - Institutional			Industrial Areas		
	Pipeline	Dev. Capacity	Total	Pipeline	Dev. Capacity	Total
Downtown West	1,788	-	1,788	169	(21)	148
Downtown East	-	-	-	(25)	(79)	(104)
Eastern Core	484	-	484	1,598	1,812	3,409
Central Broadway	847	-	847	26	609	634
Oakridge & Hospitals	766	-	766	-	-	-
South Vancouver Industrial Area	-	-	-	291	1,002	1,293
Grandview – Boundary	76	-	76	14	(1,178)	(1,164)
Rest of City	2,289	-	2,289	(77)	(304)	(382)
Total	**6,250**	**-**	**6,250**	**1,995**	**1,840**	**3,835**

Source: City of Vancouver

Note: Figures are in net new square feet. Figures have been rounded and may not add to total.

2. Significant Additions to the Commercial Inventory are Not Anticipated

There is over 3.5 million square feet of new Commercial space in the development pipeline, split between 0.8 million square feet of hotel space and 2.7 million square feet of other Commercial uses. In addition to this, there is a fair bit of additional development potential in the Downtown West and Central Broadway neighbourhoods. However, beyond this, the net amount of additional Commercial space is not anticipated to be very significant. This is primarily on account of the redevelopment of existing Commercial spaces across the rest of the city tending to result in no net gain, or even a net loss, when being redeveloped as mixed-use projects. This is particularly relevant in many of Vancouver's C-zones, where mixed-residential redevelopment only replaces a ground floor component of Commercial space, while the rest of the project is typically developed as residential floor space.

3. Institutional Development Capacity is Difficult to Predict

While the development capacity model is able to identify the likely redevelopment capacity for Major Office, Commercial and Industrial Area land use related space quite clearly, Institutional space is somewhat more challenging. Most Institutional space occurs on hospital or post-secondary campuses, which are usually developed under the City's CD-1 zoning bylaw, or under their own precinct-specific development plans. As such, current policies do not provide a clear idea of just how much additional space could be developed for these uses.

Many major hospitals and post-secondary institutions in the City, including Langara College, either have existing – or are in the process of developing – master plans for their respective campuses. However, many stakeholders from the Health and Post Secondary sectors note that these plans often require increased flexibility from what the City's current policy permits. In practice, most of these redevelopments will require site-specific zoning amendments. Additionally, some Institutional uses are able to locate in Major Office-type space, as has been demonstrated by the downtown campuses of both the University of British Columbia and Simon Fraser University.

Because of these discrepancies, the capacity model is unable to identify additional Institutional-specific development capacity. However, it is clearly noted that policy change will likely be necessary in order to realize the potential of existing Institutional sites, while others may create demand amongst the City's capacity for Major Office space.

4. Industrial Capacity is Limited to a Few Neighbourhoods

Outside of the Eastern Core and Southern Vancouver Industrial Area south of Marine Drive, there are very few areas for net growth in Industrial Area space. This is largely due to a lack of vacant industrial land, meaning that any new additional development capacity has to occur in multi-storey or mixed-employment projects. While this may result in some new capacity in areas like the False Creek Flats, much of this Industrial Area space is likely to be 'flex' space, which could also be occupied by other employment uses, like retail or office. Even if this space is retained for Industrial Area uses, the cost of multi-storey industrial may result in rents that are too expensive for a number of traditional city-serving industrial businesses.

It is also important to note that a considerable amount of potential employment land is under the jurisdiction of the Port of Vancouver, which is under a federal mandate. While the City has limited policy influence over development in these areas, the Port has undertaken a modernization review, and is committed to making more efficient use of its lands to accommodate growing demand for space related to its operations.

5. COVID-related Vacancies Will Result in Additional Capacity Until the Economy Recovers

Vacancies in different land use categories (most specifically office and retail space) will add additional floor space in the existing supply that will need to be absorbed before additional development is required. This is in addition to the additional capacity currently under construction in the development pipeline, assuming each of these projects are still delivered within the forecast window as proposed. This additional capacity will likely result in a lag in demand for new construction in the years following the pandemic, but will eventually be offset by the recovery of the economy and the returning need for space. By the end of the forecast window, it is still anticipated that additional development will be required across each of the land use categories.

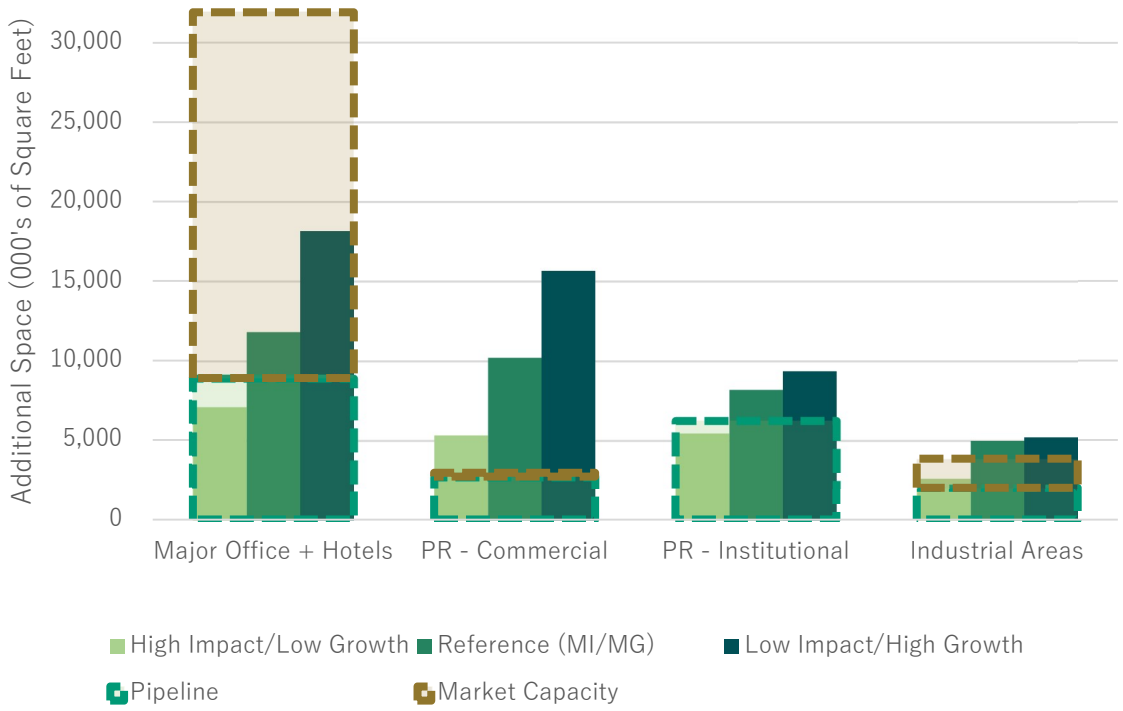
8. GAP ANALYSIS

This chapter summarizes the findings of the updated gap analysis, incorporating the updated forecast scenarios.

A. GAP BETWEEN SUPPLY AND CAPACITY STILL ANTICIPATED IN KEY LAND USE CATEGORIES

With a cumulative forecast demand ranging between 20.5 million and 48.4 million additional square feet of demand, and a combined pipeline and development capacity of 45.0 million square feet, the city could still experience a significant gap between the demand for employment space and its ability to accommodate it, even in light of current COVID-related shifts. This is of particular concern when observing the demand amongst specific employment land use categories as shown in Figure 16.

Figure 16: Comparison of Updated Demand Forecasts and Capacity Analysis



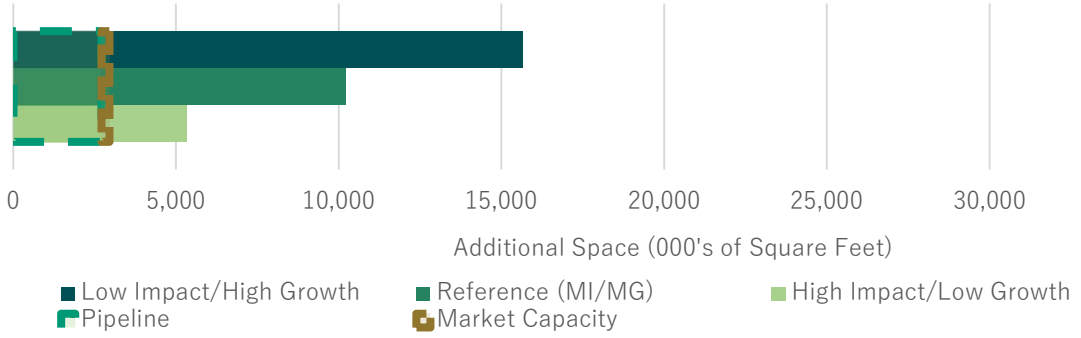
Source: Hemson Consulting, with data from the City of Vancouver
Note: PR – Commercial demand and pipeline excludes hotels.

While space in the development pipeline is likely to be sufficient for most employment types under the High Impact / Low Growth scenario, the updated Reference and Low Impact / High Growth scenario continue to indicate a shortfall in Commercial, Institutional, and Industrial Area categories. At the same time, the development capacity for Major Office-type space continues to present a number of challenges based on the location of the capacity, and competition with other uses such as hotels. The key takeaways from each component of the gap analysis are as follows:

1. Despite Significant Reduction in Commercial Demand, Capacity Likely to be a Long-Term Issue to Meet Needs of a Growing Population

While the demand for Commercial space is likely to see the most significantly reduced demand for space as a result of the pandemic, coupled with the accelerated shift towards e-retailing and automation, it is still quite likely that a considerable amount of retail and small office-type space will be required once the economy recovers. The forecast model anticipates demand for an additional 5.3 to 15.7 million square feet of Commercial space by 2051, space for approximately 27,000 to 49,000 additional jobs (excluding hotels). However, there are concerns that the city many not be able to accommodate this potential if current development trends persist. The gap between Commercial demand and development capacity is shown in Figure 17.

Figure 17: Updated Commercial Space Demand and Development Capacity



Source: Hemson Consulting, with data from the City of Vancouver
Note: Demand scenarios and development pipeline exclude hotels

Removing hotels from the calculation, there is only 2.7 million square feet of additional space for other Commercial uses in the development pipeline. At the same time, trends in the redevelopment of Vancouver's commercial zones are resulting in minimal net increase

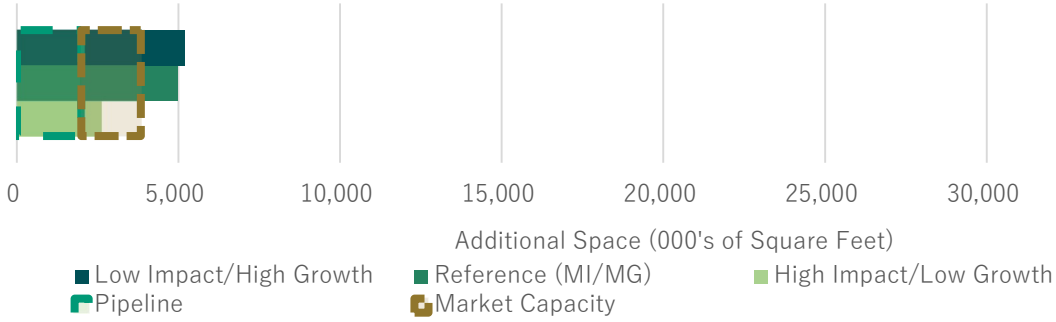
in Commercial space. What space is replaced through mixed-use redevelopment also tends to be more expensive than the space that preceded it, also raising concerns about the diversity of businesses and services that will be able to locate within this new supply.

2. Industrial Area Demand Remains High, Likely to Surpass City's Ability to Accommodate It

With a limited amount of industrial land and high market land and rental costs as a result, most of Metro Vancouver's Industrial Area demand will continue to be directed to other parts of the region, rather than the central city. However, there will still be demand for industrial space to accommodate local business-supporting-businesses, along with some advanced manufacturing related to Vancouver's growing high-tech market. At the same time, the accelerated shift towards e-retailing is driving demand for last mile customer fulfillment and distribution centres for businesses like Amazon, plus continued land for Port of Vancouver related activities.

While some of these businesses will be able to repurpose existing industrial space, limited vacancy rates mean that additional space will need to be developed in order to accommodate demand and changing Industrial Area space needs. As shown in Figure 18, the updated forecast scenarios anticipate demand for between 2.6 million and 5.2 million square feet of Industrial Area space in addition to what exists today. This would accommodate between 5,000 and 9,000 direct jobs, while also supporting the various local businesses and economic activities that rely on local and region-serving Industrial Area businesses for support and supplies.

Figure 18: Updated Industrial Area Space Demand and Development Capacity



Source: Hemson Consulting, with data from the City of Vancouver

While the demand anticipated in the High Impact / Low Growth scenario could potentially be accommodated in existing buildings with the additional space noted in the development pipeline, the updated Reference and Low Impact / High Growth scenario outlooks will likely

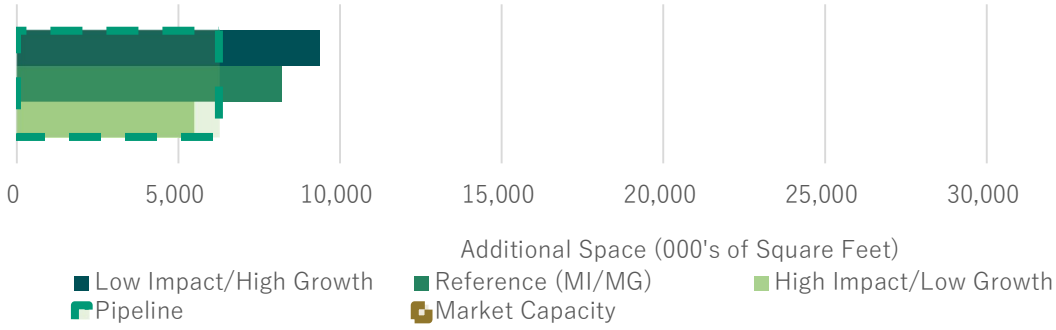
require more space than the market is likely to accommodate under current land use policies. While there are recent examples of multi-storey industrial space being developed in Vancouver as part of mixed industrial and office projects, it remains to be seen how easily these projects can be replicated. As with Commercial space, there are also concerns that the increased cost associated with redevelopment at increased densities and with a broader mix of uses could displace smaller or existing industrial businesses.

3. Demand for Institutional Space Likely Remains Greater than Current Pipeline

Despite reductions in overall population and employment as a result of the pandemic, demand for Institutional space is likely to remain high. This could result in a demand for between 5.5 million and 9.4 million square feet of additional Institutional space, accommodating between 15,000 and 23,000 additional jobs by 2051.

As shown in Figure 19, much of this demand can likely be accommodated within projects that are already in the development pipeline since 2016. While most of this capacity is being driven by the new St. Paul's hospital in the False Creek Flats, there are also various other projects around the city that will add approximately 6.3 million square feet of Institutional space if fully built out. However, additional demand will likely need to be accommodated through intensification of other health and education related campuses, along with associated medical and support offices in the nearby area.

Figure 19: Updated Institutional Space Demand and Development Capacity



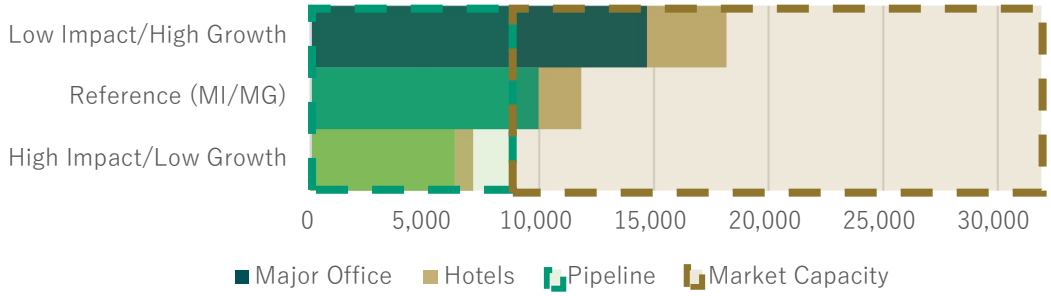
Source: Hemson Consulting, with data from the City of Vancouver

4. Despite Pandemic-Related Shifts, Office Demand Still Anticipated to Put Pressure on Specific Neighbourhoods

Though significant shifts are occurring in the office market, including a shift towards flexible work arrangements and work-from-home, Vancouver is still anticipated to lead the region in demand for Major Office related jobs. Depending on the scenario, the updated forecasts anticipate a need for between 6.3 and 14.7 million additional square feet of Major Office space, which would accommodate approximately 36,000 to 66,000 additional jobs. Demand for major hotel accommodation is also anticipated to continue, though demand is likely to be muted until later in the forecast window once the tourism industry has recovered. The updated scenarios predict a demand for between 0.8 and 3.5 million square feet of additional hotel space (1,600 to 4,000 jobs) by 2051. These two categories of space are shown together, as they typically compete for similar types of land and development capacity.

As shown in Figure 20, in addition to the 8.1 million square feet of Major Office space and 0.8 million square feet of hotel space currently in the development pipeline, there is a considerable amount of potential development capacity spread across Vancouver, totaling approximately 23 million square feet.

Figure 20: Updated Major Office & Hotel Demand and Development Capacity



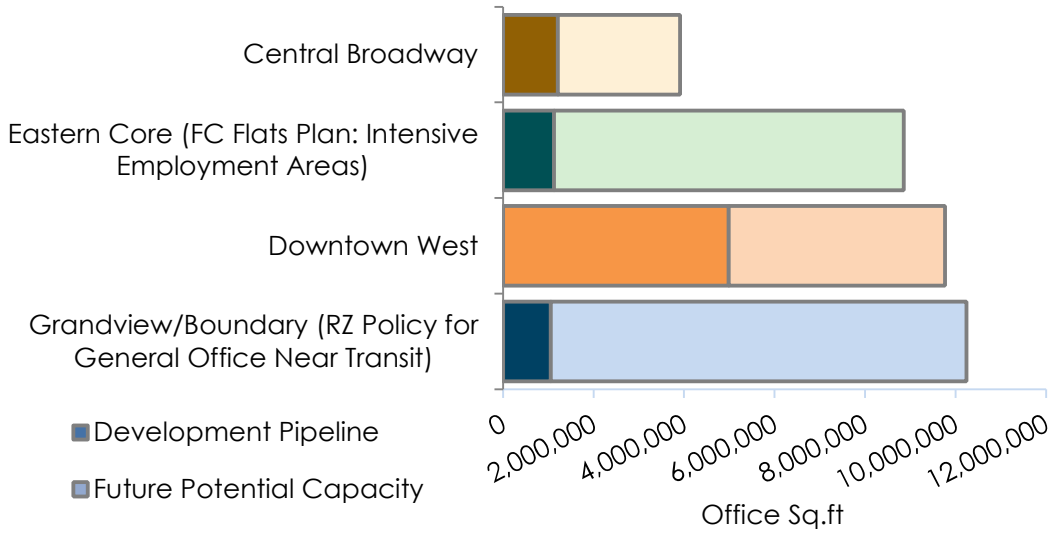
Source: Hemson Consulting, with data from the City of Vancouver

Note: Pipeline capacity shown includes both Major Office (8.1 million sq. ft.) and Hotels (0.8 million sq. ft)

While it appears that the city has more than enough capacity to meet future demand, the location of some of this development capacity warrants some consideration. As shown in Figure 21 on the following page, while most Major Office development has historically been centred on the Downtown, its total capacity to accommodate additional development is limited. As a result, the City may begin to see office development shift towards other

neighbourhoods where considerable development capacity exists, such as the False Creek Flats and Grandview – Boundary near existing Skytrain stations.

Figure 21: Top Neighbourhoods by Major Office and Hotel Development Capacity



Source: City of Vancouver
Note: Development Pipeline figures include both Major Office and Hotel projects

However, it is important to note that market demand continues to prefer the Downtown for a number of reasons, including its central location, concentration of similar uses and the general prestige associated with being located there. It remains to be seen if overall demand will persist to the same degree if office development is redirected to other areas of the city.

5. A Larger Share of Vancouver's Total Employment Now More Likely to Work from Home, or have No Fixed Place of Work

Before the pandemic, the original forecasts estimated between 67,000 and 76,000 jobs (roughly 12% of all jobs) in Vancouver would fall into the Footloose or Work at Home category by the forecast horizon. Since the pandemic and the shift to more flexible work locations, including a notable increase in the amount of people considering to continue working from home after the pandemic has ended, this range now is anticipated between 79,000 and 86,000 (just over 15% of all jobs). This may seem like a minor amount in terms of share of the total workforce, but it does have a significant impact on the estimated demand for additional space in the future. However, it is important to note that while these jobs may not directly drive demand for space, their business does tend to have induced demands on other jobs and services, most of which still will require a regular location.

9. CONCLUSIONS

Based on the forecasts presented in this report and the revised gap analysis, the following key conclusions can be drawn:

- Vancouver's economy has continued the long-term transition from resource and goods-producing industries to primarily service-based. The transition partly reflects the same shift in the broader national, provincial and metropolitan economies, but is even more concentrated in Vancouver as the central city of a rapidly growing metropolitan region. In recent years, the growing service sector has included the technology sector and the mostly-high-skilled jobs in professional, technical and financial and health services. As well, the service sector growth includes a number of mostly-lower-skilled jobs in retail and food, tourism-related and personal services. Much of this latter employment growth is occurring in support of the growth of other types of employment in the City and support services for the growing residential population. In Vancouver, like other central cities, much of the employment in the industrial or Production-Distribution-Repair sectors as well arts and culture and public services provide necessary supports to the overall city economy and its population. The Port is an exception to the more typical central city economy, as a very large industrial use of national scale and significance. Employment opportunities across this full range of businesses and services is key to keeping Vancouver's economy diverse and resilient.

- In general, the positive long-term economic outlook for Vancouver remains in place, albeit with a deep recession and uncertain pace of recovery induced by COVID-19. We expect that the economic and employment growth, as well as some of the population growth that had been expected to occur during the pandemic period, will just be delayed and will be made up over next decade. However, we also expect a portion of the otherwise-expected growth will simply not occur to the same degree. The result is a marginally lower total employment and population in the city and the metropolitan region over the coming decades.

- The expected growth in most of the high-skilled service sector jobs before the pandemic is very likely to continue or even accelerate over the forecast period. These sectors are some of the least affected by the pandemic disruption and are the jobs that are best suited to working from home during the pandemic and, for a portion of the work force, on an ongoing basis in the future. Depending on how businesses in this category transition through the recovery- and post-pandemic

period, there may be more jobs that do not rely upon physical office space for the entire work week. However, pandemic-related health concerns are likely to reverse the previously observed trend towards declining FSW for those that do report to their offices, resulting in continued demand for additional space over the long-term. A strong focus on innovation and productivity will determine employment trends for office work, likely drawing people back to the office over time.

- In those sectors significantly affected by the pandemic, the overall economic contraction has yet to be complete. Many businesses and organizations that survived the shutdown and reopened may still fail in the coming months. As well, the speed of the ongoing recovery remains quite uncertain in these most-affected sectors. More than just the economic uncertainty, the near-term activity and employment depends on public health, including the ferocity of a possible second wave, reinstated restrictions and the timing of a vaccine. Tourism, arts, culture and entertainment are among the hardest hit. Tourism includes air and ground transport; cruise ships; accommodation; and meeting, convention and trade show activities. Other hard-hit sectors are partly reliant on tourism, including retail, food, personal services, recreation and entertainment. For example, a full theatre, concert hall, stadium or arena appears to be a long way off. Some parts of these sectors may never fully recover.

- The economic disruption of 2020 has also been inequitable, with more severe impacts on those who cannot work from home, on lower paying jobs and on the lower-skilled jobs in service industries. Women and young people in particular have been disproportionately affected.

- Some of the impacts of COVID-19 may well worsen again before a full recovery takes hold. A significant second wave in the Fall, especially if necessitating new restrictions, could be quite debilitating to the economy. It also remains to be seen the impact of phasing out commercial rent relief, eviction protections and the Canadian Emergency Response Benefit being rolled into the Employment Insurance program. The Canada Emergency Wage Subsidy program has kept many people on private payrolls, who might otherwise have been laid off. The program's expiry at year end may well create another round of labour realignment in many sectors of the economy.

- Significant capacity in the development pipeline leading up to the pandemic, coupled with economic shocks, layoffs and work stoppages means that there will likely be a lag in demand for new space until both the pandemic-induced vacancies

and the new stock is filled. Notwithstanding the significant development pipeline, over the next 30 years, there will be significant additional demand for space in either the Reference forecast or the Low Impact / High Growth scenario. Even in the High Impact / Low Growth scenario, supply of built space and location-based constraints could still result in hurdles for many businesses.

- Beyond the current development pipeline, additional capacity remains a major concern, specifically for Commercial and Industrial uses. There is a growing focus at the regional level to encourage multi-storey and intensified industrial, of which Vancouver is well situated to realize if the proper land use policies are put in place to enable such development, while still protecting the intended industrial activity. However, it is important to recognize that such forms of intensified redevelopment can be unaffordable for many businesses, and may displace existing jobs in certain sectors and services, particularly amongst not-for-profit and small businesses.

- Health and demographic trends suggest demand for institutional space is likely to persist in line with population growth. While there is a significant amount of supply in the development pipeline, specifically in the new St. Paul's campus and other projects, it is likely that additional demand will need to be met through the intensification or expansion of existing health and education campuses.

- Downtown office is still likely to be in high demand, even after the pandemic recedes. Despite a shift towards increased work from home, it is unlikely that office demand will dissipate enough to invalidate previous findings related to this land use category. The City will need to consider which areas it wants to see develop as concentrations of specific office uses if it wants to make most benefit of economic clusters.

- Hotel and tourism demand will likely face an extended recovery period and lower overall growth in the years immediately afterwards. However, forecast demand still remains. The loss of hotels during the pandemic is a concern for Vancouver's post COVID economic growth, as this sector was already constrained before the pandemic, and will likely face an even greater supply shortfall afterwards.