

# Economics

MARKET INTELLIGENCE



**September 2024**

**Building the Future:  
Unlocking the  
Production Potential  
of BC's Housing Sector**







## Summary of Findings

- A status quo level of homebuilding will not be enough to meaningfully improve affordability over the next ten years.
- Improving affordability will likely require a large expansion of construction production capacity to hit provincial targets.
- Construction labour force expansion will be necessary but not sufficient. We also need a significant boost to productivity in the construction sector.
- Building a record amount of new housing is going to require an unprecedented level of financial investment on the part of government and developers.

## Background and Motivation

For decades, debate has raged on about how to reverse deteriorating housing affordability in major Canadian cities. Although the problem has simmered for at least a generation, the COVID-19 pandemic caused a historic and sudden worsening in affordability nationwide. The combination of shuttered global supply chains, loose monetary policy, and generous fiscal support caused home prices and inflation to surge. In addition, tight labour markets precipitated one of the largest immigration booms in Canada's history, further increasing housing demand and pushing housing costs upward.

In the years leading up to the pandemic, most policies that focused on improving housing affordability were oriented toward limiting demand. Examples include: restrictions on mortgage credit (tighter downpayment requirements, amortization limitations, and stress test regulations), taxes (foreign buyer's taxes, capital gains tax increases, vacancy taxes, the school tax, and flipping taxes), as well as outright bans, such as the ongoing federal Foreign Buyers Ban. However, the effects of these policies were fleeting, and affordability only continued to deteriorate.

The ineffectiveness of this suite of demand-side policies has caused policymakers and commentators to reassess the approach to housing affordability with an increasing focus on housing supply.

The federal government introduced policies such as the Housing Accelerator Fund, which negotiates with municipalities to approve housing in exchange for funding. The federal government has also removed the federal Goods and Services Tax on new rental housing which will help to make some projects economically viable.

In British Columbia, the provincial government has unveiled a suite of reforms intended to increase housing supply. This primarily includes two measures:

1. The Small-Scale Multi-Unit Housing (SSMUH) initiative, which enables fourplex housing on all residential lots in urban areas across the province and sixplexes in the frequent transit network.
2. The Transit Oriented Area (TOA) initiative, which enables density as high as 20 stories and a minimum allowable floor space ratio / floor area ratio of 5.0 within 800 metres of rapid transit stations and bus exchanges.

In addition, the Province has legalized secondary suites, limited public rezoning hearings and spot zoning, and passed measures to cut permitting times. It is also using "naughty lists" to establish housing expectations with municipalities and is weighing valuable reforms such as allowing single egress stairs in mid-rise buildings. While these reforms are important and will certainly spur new homebuilding, it raises the question of how much additional building is possible given other constraints. The Ministry of Housing has produced thorough research on this topic,<sup>1</sup> but it remains unclear to what extent regulatory barriers alone restrict homebuilding in contrast to other, potentially overlapping, limiting factors such as the availability of construction inputs or increased government development charges.

Access to construction labour is a particularly binding constraint on BC's ability to increase capacity. The construction workforce tends to be older, with more than one in five workers over the age of 55. This means that retirements will sap the sector of experienced workers over the coming decade. In addition, perhaps surprisingly, immigrants are less likely than native-born Canadians to work in the construction sector. This means that increasing immigration is currently insufficient on its own to increase construction sector employment as a share of total employment.

If prior BCREA modelling<sup>2</sup> is correct, addressing BC's deteriorating housing affordability with new supply will require something like a doubling in the rate of home completions. To achieve this, a larger share of the workforce will need to shift into the construction sector, government departments and private sector builders will need to increase productivity across the entire development process from permit application to completion, and massive investment will be required for development and infrastructure costs.

The purpose of this report is to analyze BC's production capacity and understand how much of an increase in the inputs to construction sector capacity, such as labour, capital equipment, and productivity, will be required to deliver an expansion in housing supply as envisioned in the BC Homes for People plan.

<sup>1</sup>Jens von Bergmann, et al, *SSMUH and TOA Scenarios in British Columbia*, December 6, 2023 [SSMUH and TOA Scenarios in British Columbia \(gov.bc.ca\)](https://www.bcrea.ca/2023-09-25-market-intelligence.pdf).

<sup>2</sup>BCREA Economics, *Auckland's Housing Supply Experiment: What Does it Mean for British Columbia's Homes for People Plan*, September 2023 [2023-09-25-market-intelligence.pdf \(bcrea.bc.ca\)](https://www.bcrea.ca/2023-09-25-market-intelligence.pdf).



## About the BC Homes for People Plan

The BC Homes for People plan includes several specific policies intended to increase the rate of home completions across the province. The cumulative effect that these measures will have on net home completions remains uncertain.

The Province’s “naughty list” sets minimum thresholds for building across BC’s major municipalities that mark a 38 per cent increase in overall housing to be built in these communities over what was projected to have been created based on historic trends. However, these targets represent a minimum threshold, not the actual number of units that the Province forecasts will be generated by these policies. Given the relatively modest increase, one would hope that the actual rate of building far exceeds these thresholds by 2035.

The Ministry of Housing has produced forecasts for the effects on new home completions of the two largest components of the BC Homes for People plan: the SSMUH initiative and the TOA initiative. The report provides this summary table estimating the cumulative impact of both policies on new housing permits and new net completions:

**Table One: Estimated New Net Units Across Modelled Scenarios.<sup>3</sup>**

Measure	Five Years		Ten Years	
	Low	High	Low	High
Net new planned	83,000	111,000	298,000	437,000
Net new completions	44,000	54,000	216,000	293,000

The table indicates that the BC Government is forecasting a dramatic increase in completions compared to their current levels, increasing to between two and three times the current rate of home completions within ten years. This would represent a dramatic and unprecedented increase in the rate of homebuilding.

## Are the Targets Feasible?

To increase homebuilding by a factor of two or three requires a comparatively large increase in the inputs needed to complete a home. Raw materials, such as concrete and steel, and capital, such as equipment and machinery, are crucial to build new homes. But in a globalized, open economy, the supply of these inputs should be able to adjust upward with rising demand.

In contrast, the supply of construction labour needed to build new homes does not easily adjust to rising demand. Labour supply is inelastic in the short term and requires individuals to make educational and career decisions years in advance. Trade schools would need funding for many additional seats. Immigration can increase supply, but this is a policy decision largely independent of market forces. Housing demand also rises concurrently with immigration, cancelling out much of the net benefit. The unprecedented scale of employment growth that would be needed suggests that construction labour availability may prevent the Province from achieving its housing supply goals or forecasts.

However, if the reforms within the BC Homes for People plan are substantive and lasting, a genuine level shift in these trends is possible. Perhaps, with a far more relaxed regulatory environment, the supply of construction workers will become elastic. Since 2016, in New Zealand, the construction labour supply increased rapidly following liberalizing housing reforms. Structural issues like zoning, high development fees, and an expensive, time-consuming permitting process were recently cited by the Bank of Canada as a major constraint on supply.<sup>4</sup> Perhaps forthcoming reforms such as single egress stairs, simplified building codes, faster permitting, rezoning, technological change such as mass timber or modular construction, improvements in sector structure that enable knowledge transfer or economies of scale, and other changes that make construction cheaper, could enable more units to be completed per worker. In short, the need for labour force growth could be tempered by growth in multifactor productivity (MFP), which captures output growth not attributable to labour or capital.

In the section that follows, we endeavour to place quantitative bounds around these ideas with the goal of estimating the labour, capital, and productivity levels necessary to achieve the Province’s vision of a much-expanded residential construction sector.

<sup>3</sup> Jens von Bergmann, et al, SSMUH and TOA Scenarios in British Columbia, December 6, 2023 [SSMUH and TOA Scenarios in British Columbia \(gov.bc.ca\)](https://www2.gov.bc.ca/gov2/othergov2/SSMUH_and_TOA_Scenarios_in_British_Columbia).

<sup>4</sup> [Bank of Canada, Monetary Policy Report, July 2024.](https://www.bankofcanada.ca/2024/07/monetary-policy-report-july-2024/)



# Alternative Scenarios for Construction Capacity

The BC Homes for People plan forecasts are ambitious and have moved forward an important conversation about housing supply. However, what is missing from the BC Government’s work is an analysis of the construction sector’s capacity to build.

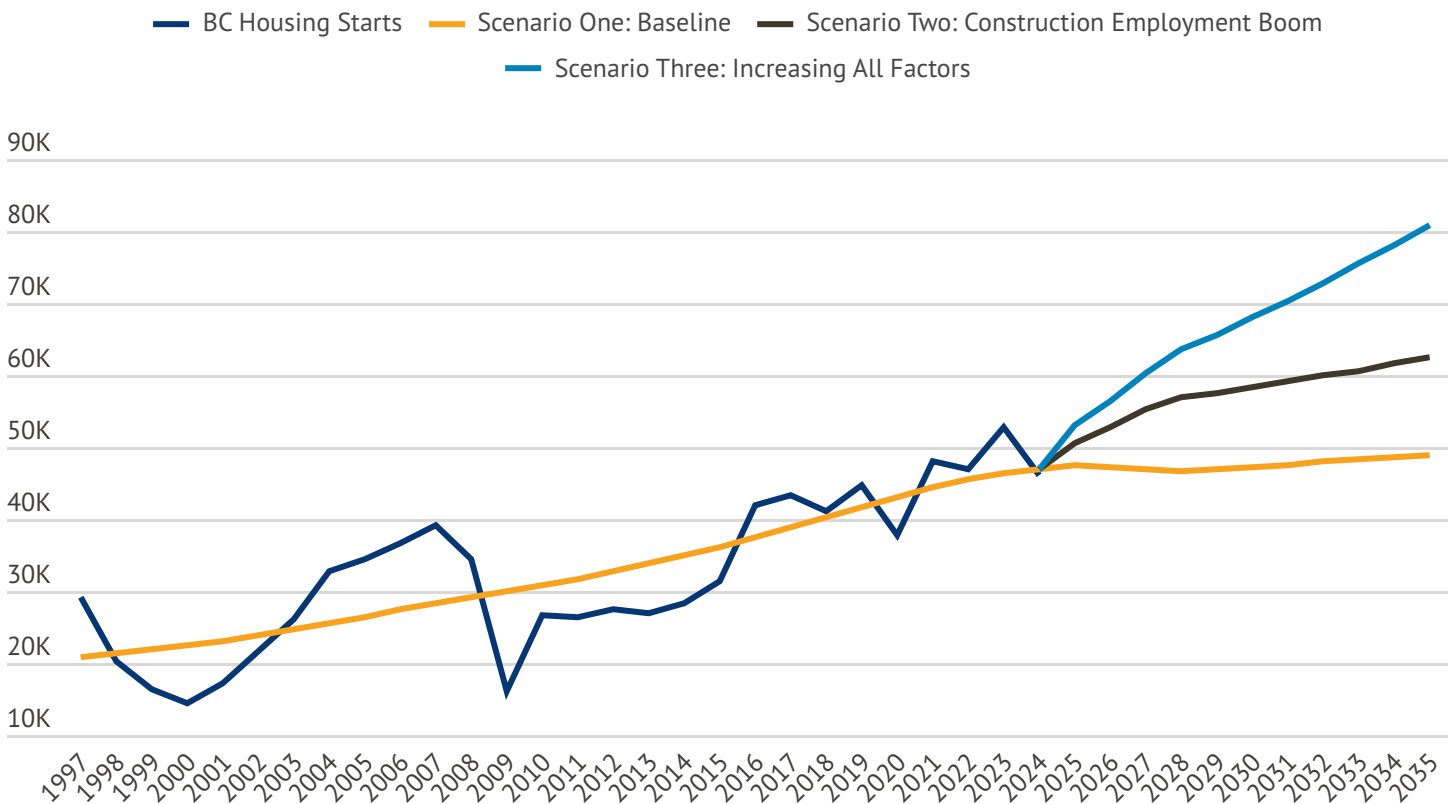
To address this question, we use a simple but powerful model<sup>5</sup> to estimate potential production capacity in the residential construction sector, focusing on three inputs – labour, capital equipment, and productivity. Despite its simplicity, the model provides a convincing measure of trend productive capacity in the construction sector, with historical housing starts closely oscillating around our trend measure.

While there is a vast continuum of possible outcomes, we concentrated our analysis on three scenarios with increasingly ambitious assumptions on the growth in construction sector inputs:

1. **Baseline Scenario:** this is the “business as usual” scenario, which assumes that no meaningful housing reforms have been implemented and inputs continue to grow on trend.
2. **Construction Employment Boom Scenario:** in this scenario, there is a large shock only to the employment input to construction capacity.
3. **Increasing All Factors Scenario:** this scenario involves employment, capital stock, and productivity each experiencing a large positive shock. This is the most optimistic scenario that we can envision for the construction sector.

Below is a detailed description of each of these scenarios and the results of our simulations,<sup>5</sup> which estimate the effects of increased construction inputs on housing starts, completions, average home prices, and affordability.

## Housing Starts vs. Estimated Construction Capacity



Sources: BCREA Economics; Canada Mortgage and Housing Corporation

<sup>5</sup> See [Appendix](#) for methodology.



## Scenario One: Baseline

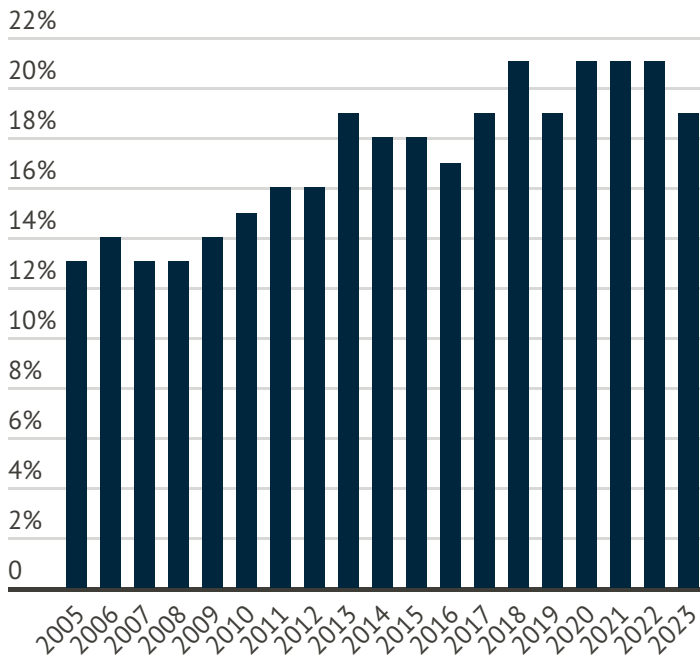
Under our baseline scenario for construction in BC, housing starts to flatten out near current levels. This is the result of minimal construction sector employment growth, where most hiring merely replaces retirements. In addition, we apply the Bank of Canada’s projected zero growth in MFP for the sector.<sup>6</sup>

This scenario also assumes trend growth in capital investment which, given the lack of growth in labour supply, implies an expanding reliance on machinery and equipment and a slight increase in labour productivity, as measured by workers needed per housing start.

Under this baseline, the BC construction sector produces housing starts at around 45,000 to 48,000 units per year, a similar pace to what has occurred over the last five years. Our model simulations show that this pace of building may be adequate to briefly stabilize housing affordability, but will not be enough to reverse the upward trend in the cost of owning a home over the long term.<sup>7</sup>

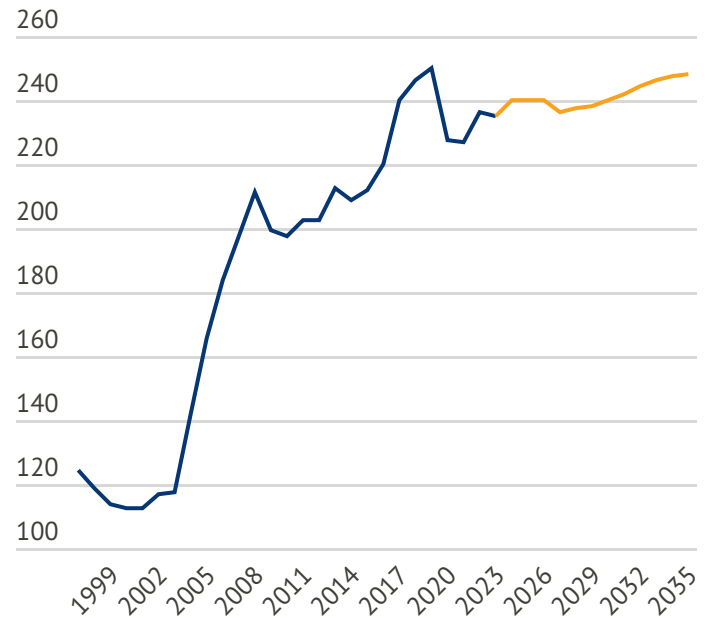
## BC Construction Workforce Projections

### Share of Workforce over 55



Sources: Statistics Canada; BC Labour Market Outlook (2023)

### Projected Construction Employment



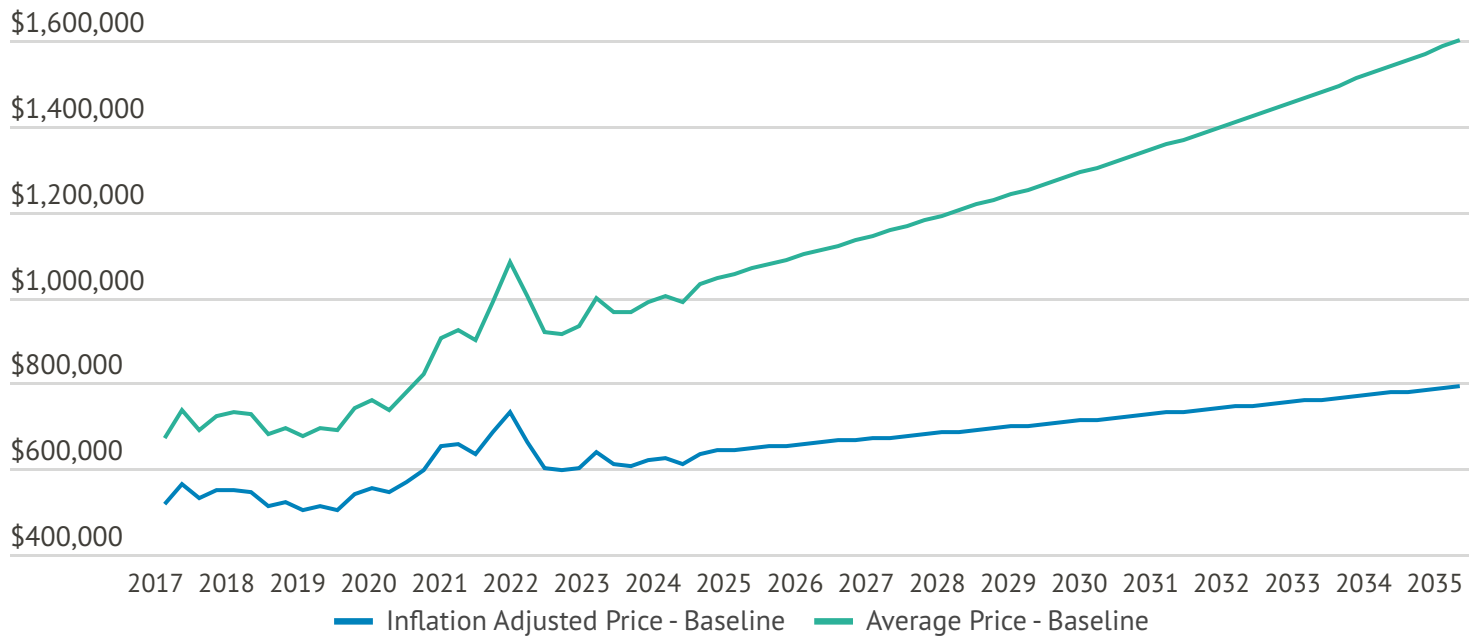
<sup>6</sup> Total factor productivity growth projection for Canada: A sectoral approach - Bank of Canada.

<sup>7</sup> Our baseline assumption is for historically average home sales, healthy resale home inventory, and average household income growth. The average five-year fixed mortgage rate in our simulations is 4.7 per cent.



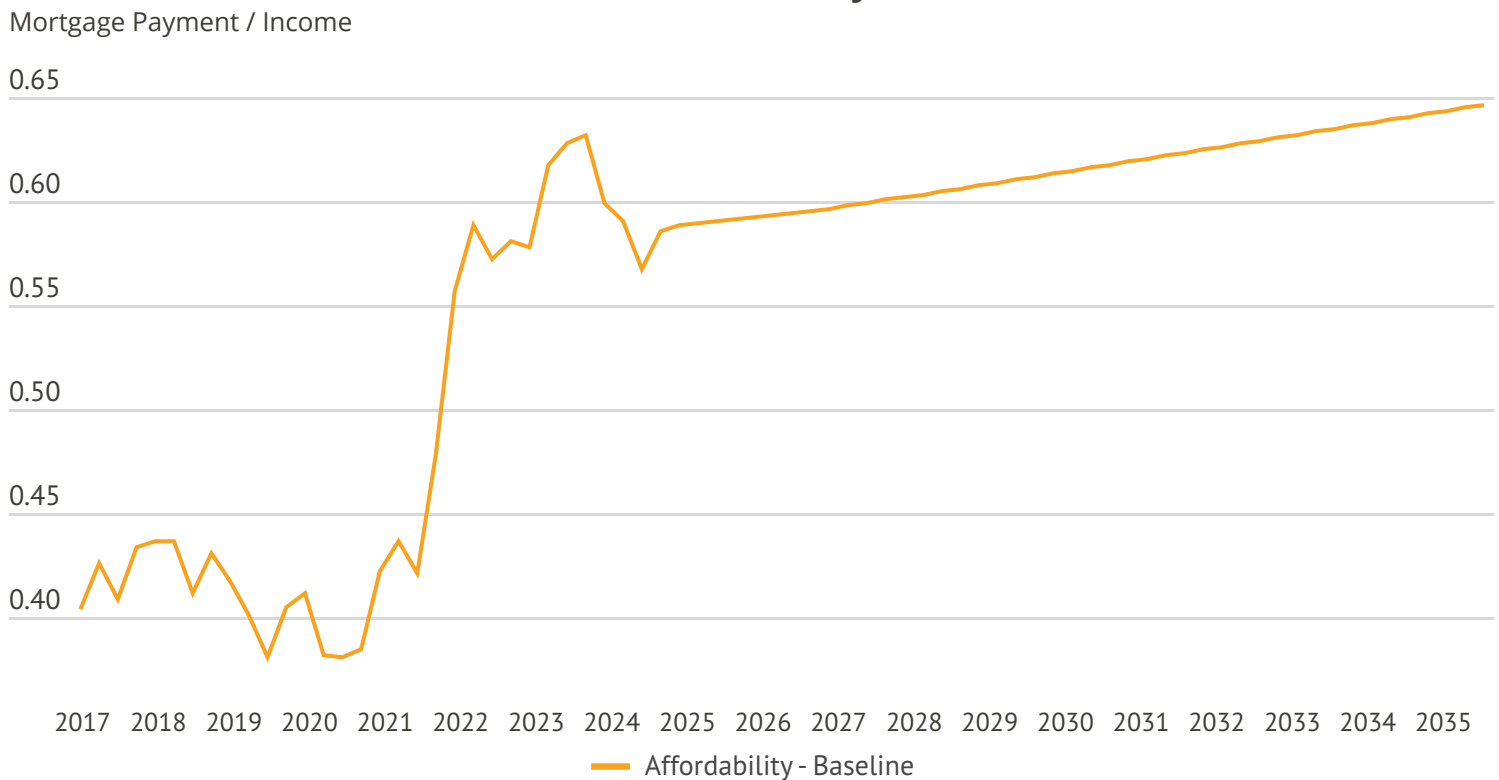
# Baseline Home Prices and Affordability

## MLS® Home Prices



Source: BCREA Economics

## Affordability



Source: BCREA Economics



## Scenario Two: Construction Employment Boom

To meaningfully increase construction capacity in the province, the construction sector will require either a significant expansion of the workforce, substantial productivity growth, or both.

Following the successful upzoning in Auckland that kicked off a construction boom of multi-family housing, New Zealand saw its construction sector expand from about 5.5 per cent of total employment to nearly 8.5 per cent, and the total labour input to production (total employment multiplied by hours worked) grew by 39 per cent from 2016 to 2023.<sup>8</sup>

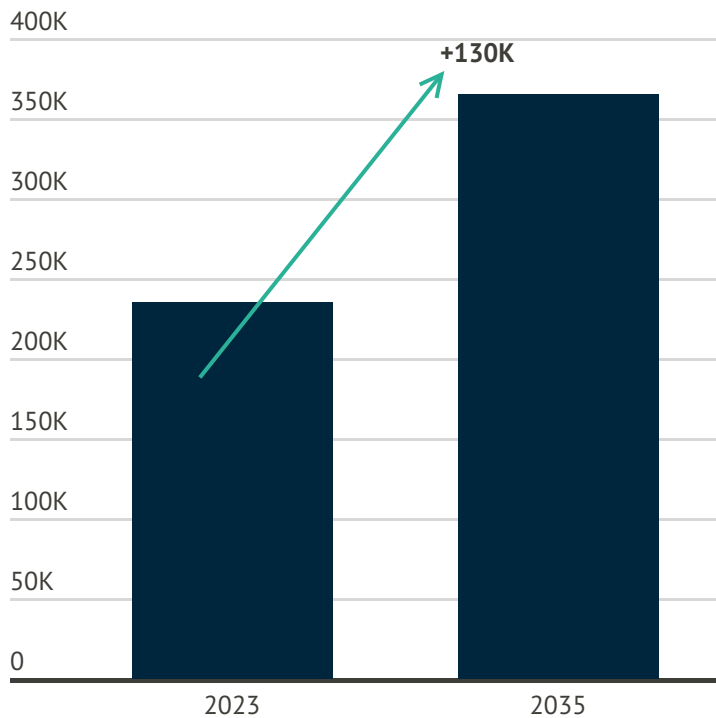
If the BC construction sector expanded employment over the next ten years at a similar trajectory as New Zealand, we could see a significant expansion in productive capacity even without widespread advancement in productivity and technology adoption.

In this scenario, construction employment expands by 130,000 workers by the end of 2035, or to about 11 per cent of total employment from its current level of 8.4 per cent. Capital investment is assumed to grow at its historical average, and MFP is still assumed to be flat.

Under this scenario, the construction sector's total productive capacity rises to 60,000 starts per year by 2035, and about 530,000 net units are added to the housing stock from 2025 to 2035. As a result, affordability in the province significantly improves as income growth catches up to home prices.

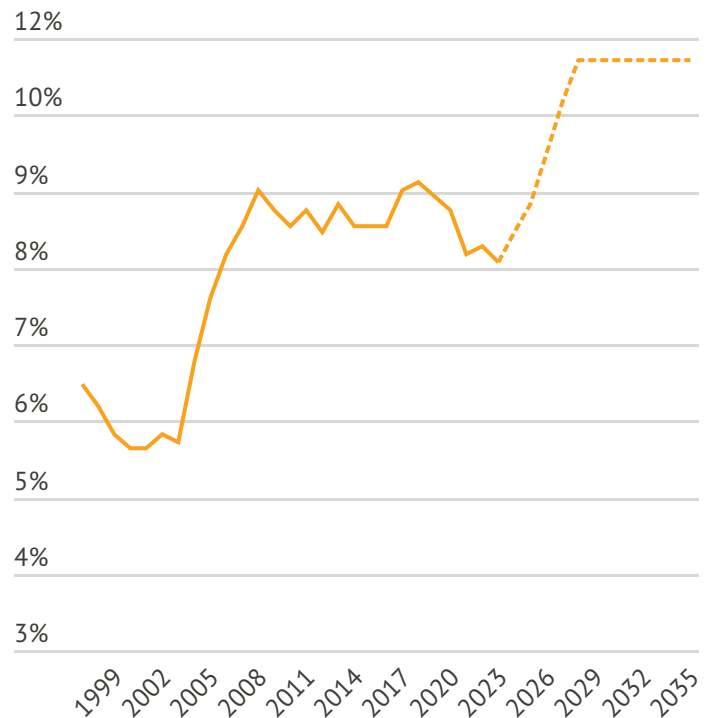
### Construction Hiring Boom?

#### BC Construction Employment



Sources: Statistics Canada; BCREA Economics

#### Share of BC Employment in Construction

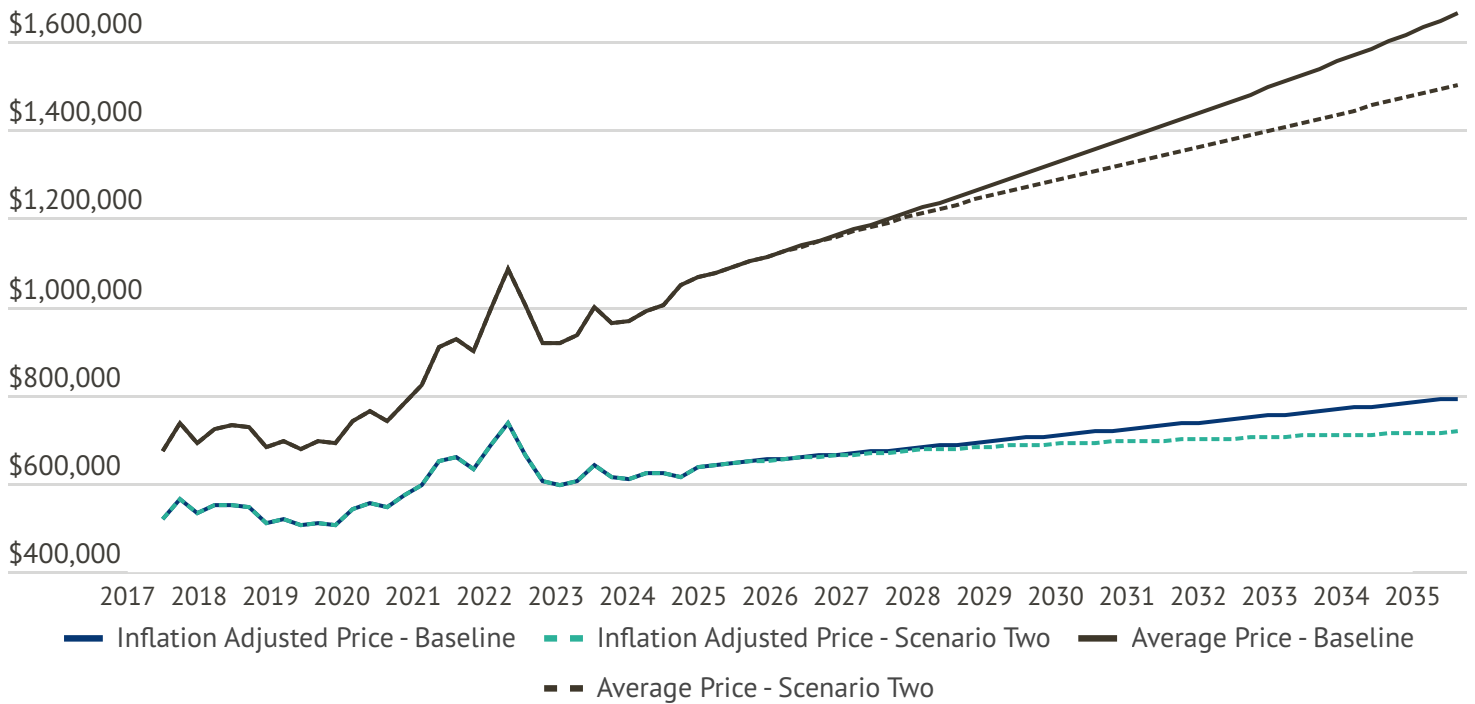


Sources: Statistics Canada; BCREA Economics

<sup>8</sup> Stats New Zealand, Productivity Stats 1979-2023.

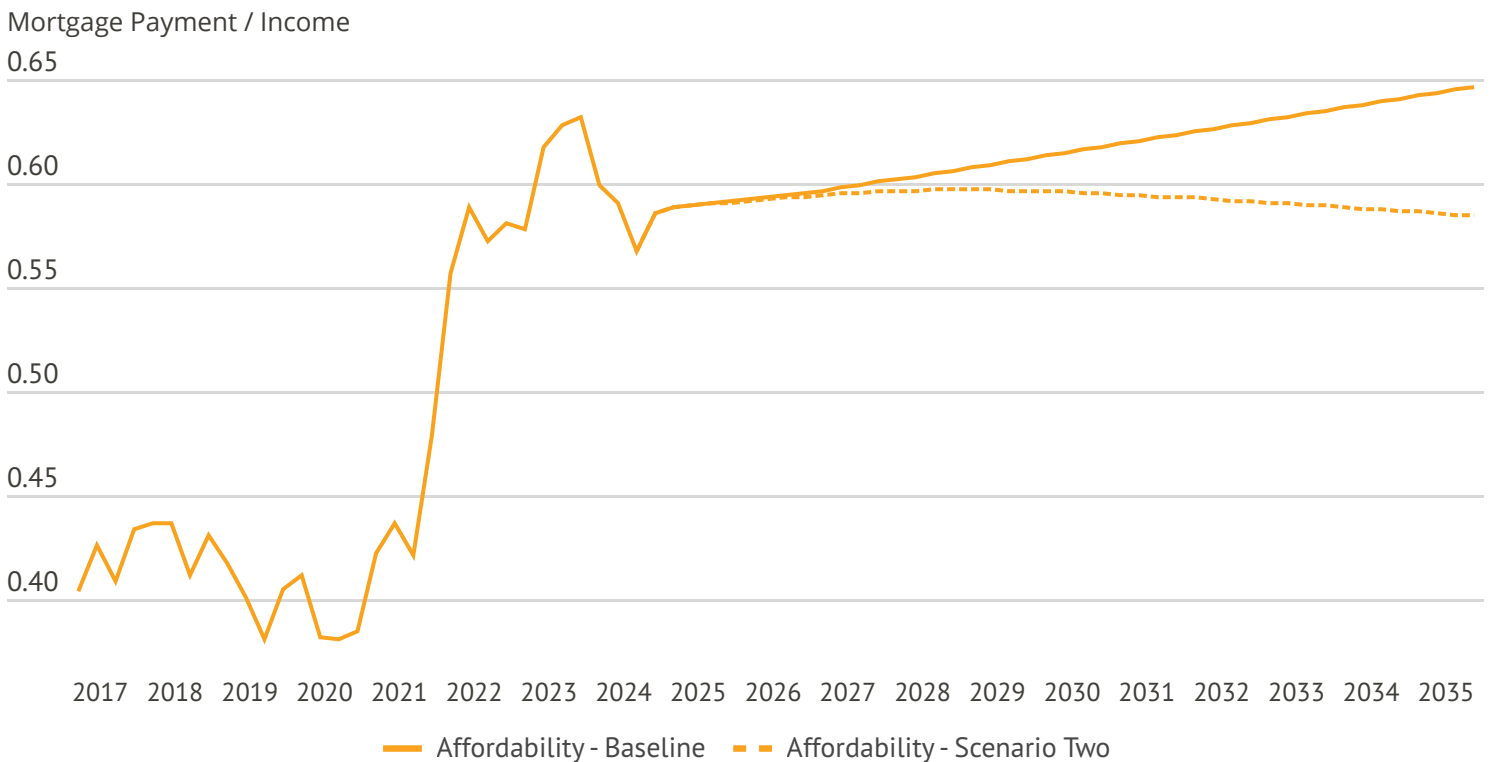


### Scenario Two vs. Baseline MLS® Home Prices



Source: BCREA Economics

### Affordability



Source: BCREA Economics





## Scenario Three: Increasing All Factors

In our final scenario, we assume a best-case scenario for growth in construction sector inputs. Employment grows rapidly, but the sector also invests heavily in capital and technology, leading to a boom in both labour productivity and MFP. This could be achieved by a coordinated effort from the government and the sector to adopt new methods and tools that enhance efficiency and quality in construction. For example, modular construction, digitalization, and automation (see Box 1). In New Zealand, there again exists a precedent for capital deepening in the construction sector, which saw the capital stock grow by 57 per cent from 2016 to 2023 following housing reforms. In BC, an example of this could include new factory capacity for off-site assembly of modular housing components.

A large expansion of productive capacity would be difficult without a ramp-up in productivity, and this scenario assumes a substantial turnaround in the construction sector MFP from essentially flat to growth of 1.5 per cent per year. Even New Zealand has had difficulty sustaining high MFP growth, though it did see construction MFP grow at 1.5 per cent from 2016 to 2021 before slipping in 2022 and 2023.

While there is limited historical precedent for sustained construction sector MFP growth, the point of this scenario is to depict the conditions necessary to achieve the home construction targets in the BC Homes for People plan. In this scenario, the construction sector would be able to produce housing starts at an unprecedented pace, reaching 80,000 units per year by 2035. Moreover, we also assume that time-to-completion dramatically improves from an average of 19 months to an average of 12 months. That is, both the total capacity and the ability to efficiently supply the market to improve. Under this scenario, more than 600,000 net units will be added to the housing stock from 2025 to 2035, boosting the housing supply. Housing affordability improves markedly as household incomes outpace home price appreciation.

### Box 1: Potential Productivity Enhancing Changes

#### 1. Increased Consolidation of the Construction Sector

According to the Canada Mortgage and Housing Corporation roughly 69 per cent of Canadian construction businesses have less than five employees.<sup>9</sup> With a highly fragmented profession, firms struggle to produce economies of scale to find efficiencies in production. Consolidation in the sector could provide the scale necessary to enhance productivity.

#### 2. Streamlining / Automating Approval Processes

The adoption of automated approval processes, and exploring emerging AI technology, aided by the use of a pre-approved catalogue of designs are often cited ideas for speeding up the far too lengthy permitting process.

#### 3. Changing How Construction is Done

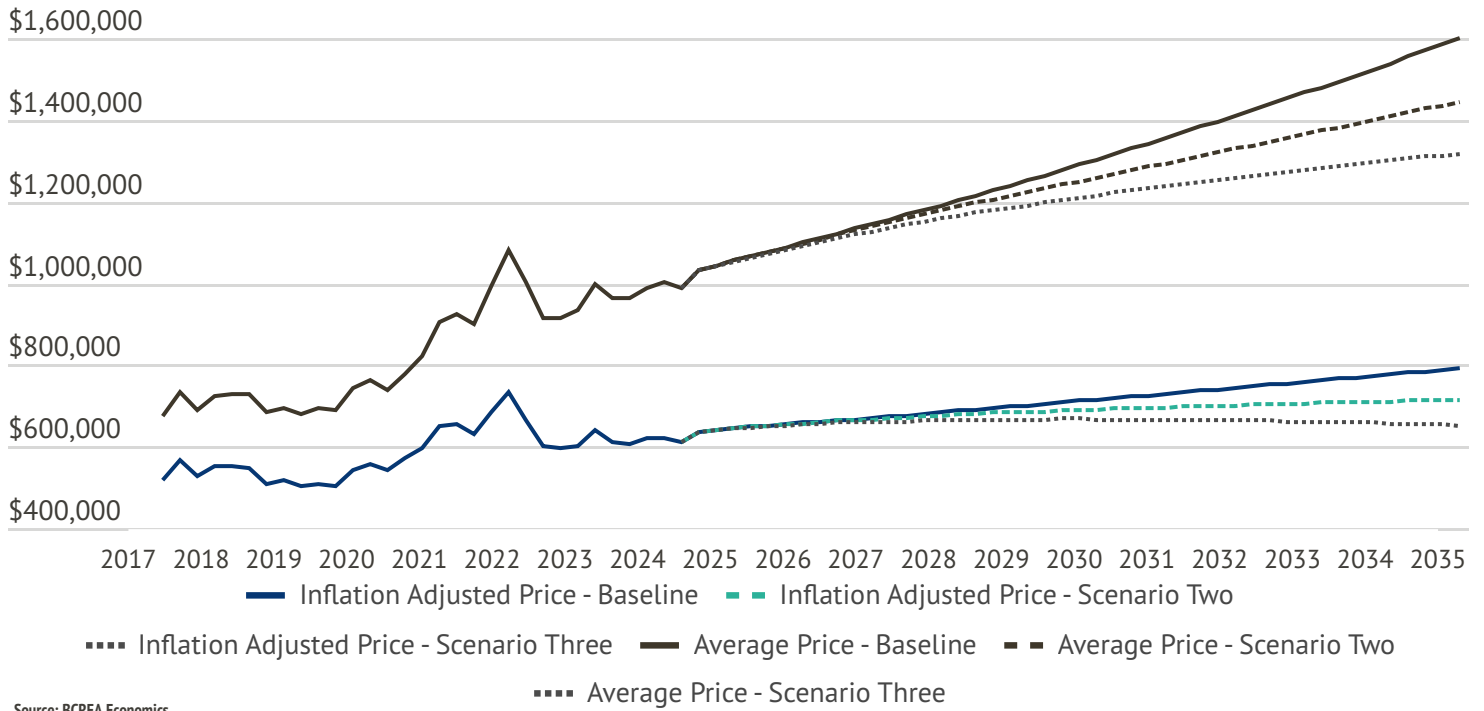
Incentives to promote factory-built construction and modular housing could help dramatically increase productivity in construction. As noted by the Canadian Home Builders' Association, "Factory construction can be efficient from a time, labour, and material perspective, which makes it an excellent candidate to boost overall sector productivity."<sup>10</sup> BC is already a leader in mass timber construction, which can allow for faster construction times, and cost savings from off-site pre-fabrication.

<sup>9</sup> [What is Canada's potential capacity for housing construction? | CMHC cmhc-schl.gc.ca](#)

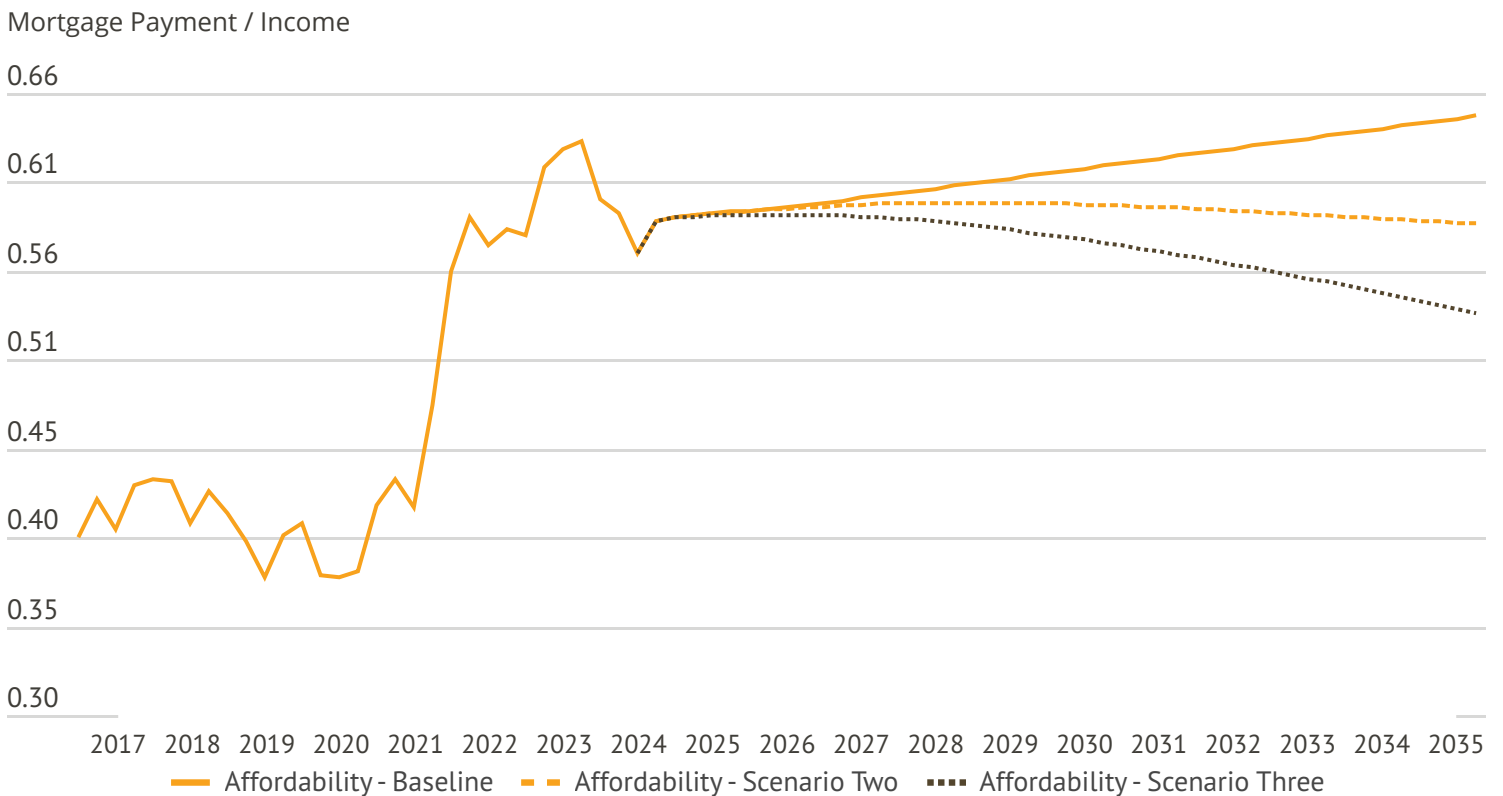
<sup>10</sup> [CHBA Sector Transition Strategy, 2024](#)



### All Scenarios MLS® Home Prices



### Affordability





## Challenges and Solutions

Model simulations are one thing, but real-world change means overcoming serious obstacles. Since 2008, there has been little construction sector employment growth in BC, and a surge in employment would require first replacing the large number of looming retirements.

Compounding labour issues is a troubling trend in residential construction costs. The cost of new construction has risen by over 70 per cent since 2017, including a 40 per cent jump in the cost of labour. Added to this is the rising burden of municipal taxes and fees, needlessly strict building code policies, and other regulatory hurdles that make construction more costly.

Unfortunately, human capital cannot be produced overnight and BC will need to expand its enrollment in training programs for skilled trades. Targeted immigration can bring in skilled workers, but it is far from a panacea and the additional housing demand from new arrivals could swamp the affordability impacts of additional housing construction. Moreover, progress on productivity and technological adoption seem similarly challenging. Construction sector productivity has been flat for nearly a decade and the outlook for productivity growth over the next decade is not optimistic.

Finally, one especially important but less discussed aspect of bold housing targets is the need for financing. Building a record amount of new housing will require unprecedented financial investment on the part of the government and developers. In terms of magnitude, our estimates of necessary capital deepening are more than \$10 billion in net capital investment in the BC construction sector. However, the dollar amounts to acquire land and build the required housing could be in the hundreds of billions over ten years, before accounting for investment in infrastructure and investment in productive capacity from the manufacturing sector and other construction-related professions.

Despite these challenges, there are also reasons for optimism. An employment surge is possible if the SSMUH and TOA initiatives make more projects feasible, spurring a building boom. Such surges have occurred before. New Zealand added close to 100,000 new construction workers over the past decade following reforms, and BC saw construction employment double from 2001 to 2008.

Productivity growth is also plausible given the public's appetite for reform. MFP gains can be realized in two phases: the pre-construction phase and the building phase itself. The former component involves design, permitting, legality, and assembly of production factors necessary to break ground on building. Streamlining the building approval process is a primary avenue for MFP growth, which several jurisdictions are exploring. For instance, the City of Kelowna recently piloted an AI program to automate the permitting and approval process of applications and answer questions pertaining to zoning bylaws. In essence, this project exemplifies the use of technological innovation to boost pre-construction MFP such that labour is more efficiently utilized.

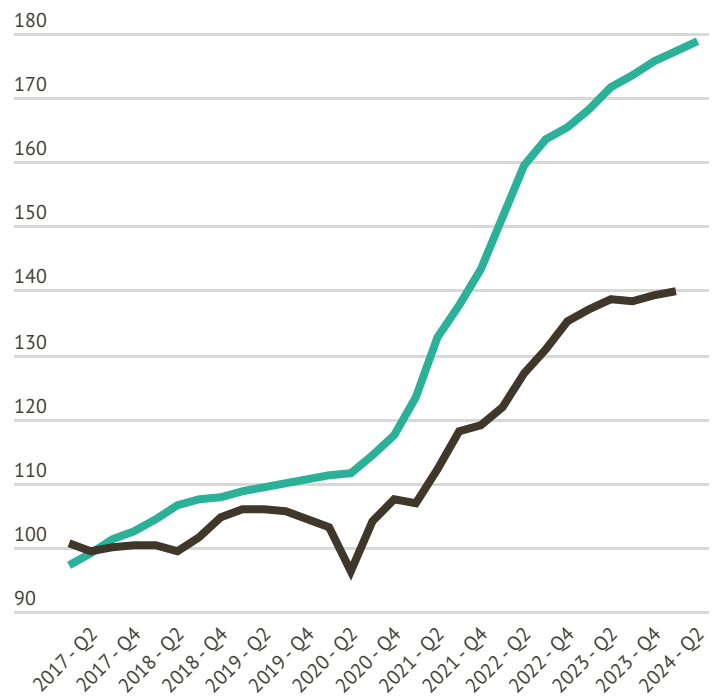
Additionally, advancements in manufactured and modular housing, combined with standardized building design, could significantly increase productivity, efficiency, and volume without the need for a massive surge in construction employment.

### Canadian Construction Costs

— Building Construction Price Index (Residential)

— Unit Labour Cost

Index: 100 = 2017



Source: Statistics Canada (Building CPI is Canada 11 CMA Composite)



## Conclusions

In this report, we have explored the possibilities and challenges of increasing BC's housing supply and improving housing affordability. Our simulations indicate that even if construction remains near its current historical highs, the number of completions will be insufficient to improve affordability in the province. Instead, we will need to see significant expansion of the construction sector to realize the Province's housing targets and achieve long-lasting improvements in affordability.

Several factors will likely be needed to enable such an expansion, including increased labour supply, capital stock, productivity growth, regulatory streamlining, and financing incentives.

Though a substantial increase in the size of the construction workforce is necessary, it is likely not sufficient. To that end, we have highlighted the importance of MFP, which captures the efficiency and innovation gains along the entire construction process, and provided some examples of how the government and the sector can work together to boost productivity and reduce costs in the pre-construction and building phases.

Transforming the construction sector such that it can create the housing supply targeted by the provincial government will require aggressive reforms. The Province must be credited for making important steps in the right direction, but success will also require a sustained effort from the construction sector and other levels of government.

What this report hopefully shows is that, while ambitious, achieving bold housing supply targets is possible and, indeed, crucial to meaningfully improving housing affordability for British Columbians.





## Appendix

### Cobb-Douglas Production Function with Labour, Capital, and Productivity

We use a Cobb-Douglas production function to model British Columbia's long-run capacity for housing development. This is a common methodology used for growth accounting and other purposes in macroeconomics due to its relatively straightforward interpretation and flexibility. Its main assumption is constant returns to scale, meaning that if all inputs increase by a given factor, total output will increase by that same factor.

Within this context, this function calculates total housing construction gross domestic product (GDP) as a function of three core elements. The first and most intuitive component is the quantity of labour and capital inputs supplied to produce homes. In conjunction with these fundamental inputs, Cobb-Douglas models include a parameter, usually denoted " $\alpha$ " which represents the output elasticity of labour and is estimated by the labour share of construction GDP. Essentially, a higher alpha value suggests that output is more sensitive to labour changes than capital and vice versa.

Finally, our functional form involves an MFP parameter which captures the effects of technological innovation, heightened efficiency, and any other factor that affects output and its growth rate.

The functional form of the model is:

$$Y = A L^{\alpha} K^{(1-\alpha)}$$

Where **Y** is total construction sector GDP.

**L** is the labour input, measured by total hours worked in the construction sector.

**K** is the capital stock of the construction sector.

**A** is multifactor productivity.

**$\alpha$**  is the labour share of sector GDP.

Our measure of output is total provincial construction sector GDP, including both residential and non-residential subsectors. This is due to data availability, but also due to the substitutability of labour and capital between residential and non-residential construction activity.

We ultimately want a measure of residential building capacity, not potential output for the entire construction (residential and non-residential) sector. Once our estimate of Y is made, we then take advantage of the high correlation between construction sector GDP and housing starts and relate construction output to the level of housing starts using a linear regression.



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