



How Can Vancouver Manage Its Rapid Population Growth While Balancing Housing, Transportation, Sustainability, Infrastructure, and Quality of Life?

Edward Tan

Abstract

Vancouver, a vibrant and fast-growing city in Canada, faces urban planning challenges as its population expands. Issues such as housing affordability, traffic congestion, and sustainability demand clear solutions. This paper investigates key strategies to help Vancouver maintain its quality of life while balancing rapid growth. Through a literature review and case study analysis from cities like Seattle and Melbourne, the research has identified six strategies for increasing livability in growing cities: congestion pricing, targeted upzoning, public transportation efficiency, green infrastructure, complete neighbourhoods, and multiple city centers. If these methods are effectively implemented and adapted to Vancouver, it can improve affordability, livability, and quality of life. The findings aim to inform policymakers, urban planners, and engineers seeking sustainable solutions to urban growth.

Designing A Sustainable and Comfortable Future for Vancouver

Vancouver, Canada, home to over 700,000 people, is a coastal city known for its beautiful scenery, cultural diversity, and high quality of life. As one of the fastest-growing cities in Canada, Vancouver faces significant challenges in urban growth, transportation, infrastructure, and housing affordability. The city's capacity to expand is restricted by its geographical boundaries, including the Pacific Ocean, mountains, and the US border. Vancouver's fast-growing population necessitates a balance between urban development, livability, and sustainability.

This problem is made more difficult by Vancouver's demographic patterns, which draw a large number of students, immigrants, and families from all around the world, increasing housing needs and straining public transit further. As a result, urban planners, policymakers, and civil engineers must address key questions: What infrastructures are necessary to support higher density? Can the city expand without compromising environmental sustainability? How can Vancouver tackle the increasing housing demand? These questions form the foundation of the ongoing debate surrounding Vancouver's future growth.

Literature Review

Vancouver's approach to urban development has been closely examined in policy documents and academic research. The city's Housing Vancouver Strategy plans to address housing affordability by increasing the rental housing supply and encouraging gentle densification in traditionally low-density areas. However, some argue that because zoning laws complicate this issue, these efforts have not been effective in limiting rising housing costs (Housing Vancouver



Strategy, n.d.). While the strategy presents a promising vision, its effectiveness is restricted by the slow pace of zoning approvals and resistance from some neighbourhoods.

Metro Vancouver's 2050 Regional Growth Strategy plans to manage urban expansion by promoting transit development and protecting green spaces. This strategy encourages development surrounding major transit hubs to reduce the number of cars on the roads and support sustainable transportation. Although this approach has been successful in some areas, there are still issues with housing prices and noise levels around transit hubs (Metro Vancouver, n.d.).

TransLink's 2050 Plan provides a structure to address transportation inefficiencies, congestion, and affordability. Their strategy includes making public transit more reliable, convenient, standard, and carbon-free. However, funding and public resistance to change may be some of the factors preventing this plan from moving quickly (Translink, n.d.).

Similar case studies from different cities, such as Melbourne or Seattle, offer valuable information about potential solutions for Vancouver. Seattle has integrated a Mandatory Housing Affordability policy for developers to contribute to affordable housing funds (City of Seattle, n.d.). Melbourne's plan for growth focuses on accommodating the city's growth while maintaining livability and sustainability by emphasizing urban densification, efficient transportation systems, and green infrastructure (Victoria State Government, 2024). These models provide possible solutions for Vancouver but need to be adapted to the city's characteristics.

Urban planner Alain Bertuad advocates for land use regulations aligning with actual demand, emphasizing the importance of transportation efficiency and housing supply. His perspective provides valuable insight into rigid zoning laws that restrict density and building types, leading to housing that is not affordable (Bertuad, 2018). An example of a city with flexible zoning laws is Tokyo; its zoning laws have contributed to both higher density living and housing affordability, setting a benchmark for other cities (Dongminson, 2023).

When analyzed together, these strategies reveal a common theme—transit development, densification, and housing affordability—but also common challenges, such as public resistance, underfunding, and inconsistent implementation. Vancouver's current strategies have aligned with global best practices but may fall short without deeper reforms, cooperation, and policy enforcement.

By examining these different strategies, this research will explore how Vancouver can balance housing, transportation, sustainability, infrastructure, and quality of life.

Methods

Congestion Pricing

While existing policies already address Vancouver's growth, additional strategies can be implemented further to improve the city's long-term livability and sustainability. One potential solution involves using congestion pricing in high-traffic areas such as downtown Vancouver, Oak Street, and Marine Drive. By introducing tolls on major roadways to charge drivers during peak hours, the city could reduce traffic congestion, promote the use of public transport, and generate revenue to fund transportation improvements. This same strategy has been successful in cities, including China, Singapore, and London, to relieve traffic while funding public transportation expansions.

While congestion pricing has been effective in numerous cities, many challenges come with it. Public resistance is the largest barrier. Residents may view congestion pricing as another unnecessary tax targeting drivers. Therefore, the city would need to develop a way to communicate a strategy to drivers that highlights the long-term benefits to gain public support.

Implementation is another issue. For congestion pricing to be effective, an accurate and reliable system must be used to track vehicles. This might involve installing license plate recognition cameras at specific points or developing an RFID chip system similar to Singapore's Electronic Road Pricing system.

Additionally, deciding on which neighbourhoods and times to charge a fee is crucial. Vancouver downtown is a strong starting point for congestion pricing due to its traffic density, but other congested corridors like Granville Street and Main Street could also be considered. As for the timing, congestion pricing should take place during peak hours from 6 am to 6 pm, when there is an influx of vehicles heading in and out of the city.

With extra funds, Vancouver must determine how to use the revenue generated. Transparent reporting and guaranteeing that funds directly go into improving bus efficiency, SkyTrain expansions, or bike lane upgrades would increase public trust and acceptance of congestion pricing.

Targeted Upzoning/Housing Coordination

Another important strategy to support Vancouver's growth is to implement targeted upzoning and regional housing coordination. Instead of drastically changing the whole city, Vancouver could focus on increased density around major transit hubs and commercial zones. This would prevent out-of-control housing sprawl while bringing more new housing within reach of transit lines. Additionally, easing zoning restrictions around transit hubs would encourage developers to build more properties, creating a dense neighbourhood that supports local businesses and reduces the need for long commutes. However, this strategy requires careful regional coordination to be successful and avoid uneven growth. Furthermore, while this strategy theoretically allows for more housing, the actual number of units produced has fallen short of demand. With immigration increasing, the housing supply is not able to keep pace with population growth. According to a 2023 progress report, Vancouver has fallen behind on laneshouses, condos, and townhouse completions (Progress Report Dashboard 2023 Annual Update, n.d.). This reveals a weakness in current zoning laws. They may allow for more

short-term housing, but delays, community opposition, and strict rules for developers result in minimal change over time.

Public Transport Efficiency

Efficiency in public transport must also be enhanced to support Vancouver's expansion. While Translink's 2050 plan is ambitious, many parts of the city still experience unreliable bus services. To reduce these issues, Vancouver could run more bus routes to increase accessibility and reduce overcrowding during peak hours. Routes can also be shortened to allow for quicker, more efficient travel. Additionally, investing in bus lanes would help buses avoid traffic jams and stay on schedule. Along with congestion pricing, citizens would be incentivized to rely on public transit instead of private commuting, reducing congestion and greenhouse gas emissions. Introducing an app where commuters can pre-pay their fare will reduce boarding delays caused by cash payments and lineups. Additionally, cities like New York are transitioning into a contactless payment system where riders can pay fares by tapping a transit card into bus or subway fare readers. This idea reduces boarding delays caused by cash payments on the bus and lineups and keeps buses running on schedule, making public transit a more attractive option.

Green Infrastructure

Vancouver should expand its commitment to green infrastructure to ensure sustainability as the city grows. This can be achieved by requiring new buildings to have green roofs, rainwater harvesting systems, and energy-efficient designs. Green roofs help manage stormwater, reduce urban heat, and create additional green spaces in urban environments. Rainwater harvesting systems can reduce water consumption, and building energy-efficient residences drives more sustainability and keeps the cost lower for occupants (Government of Canada, 2025). Expanding parks and incorporating more greenery into the city, such as tree-lined roads, would not only make Vancouver a more livable city but also improve air quality and reduce urban heat. As climate change intensifies, green infrastructure offers an adaptive solution that blends engineering with the environment, contributing to both environmental sustainability and public well-being. However, green infrastructure also faces several limitations. It is often implemented unevenly across neighbourhoods, with wealthier areas receiving better landscaping and maintenance. Additionally, green infrastructure requires long-term maintenance and coordination across departments, which can strain city budgets and lead to overgrowth if not properly managed.

Complete Neighbourhoods

One effective way to improve Vancouver's livability is to create complete neighbourhoods where everything people need is close by. Often called the "15-minute city," this idea explores how essentials such as grocery stores, schools, hospitals, parks, and recreation spaces are within walking or biking distance. Not only would this help reduce car trips and decrease congestion,

but it would also promote healthier lifestyles and stronger communities. Some areas in Vancouver that could benefit from complete neighbourhoods include Broadway, Kerrisdale, and Kitsilano, where there is a blend of residential, commercial, and recreational spaces. Nonetheless, implementation is a major challenge. Many of Vancouver's residential areas remain zoned primarily for single-family housing. Furthermore, another key weakness is the assumption that adding infrastructure or services will automatically foster social inclusion. Without careful planning, complete neighbours may accelerate gentrification and raise property values. Successful complete neighbourhoods require not just physical infrastructure, but also affordability protections, inclusive public spaces, and meticulous planning to prevent inequalities.

Multiple City Centers

Creating multiple city centers is another strategy worth exploring. Currently, downtown Vancouver is home to many jobs, entertainment, and services, putting unnecessary pressure on the small hub. Instead, Vancouver could expand to incorporate multiple mini-downtown centers throughout the city. Each of these centers should be designed to support residential housing, office spaces, shopping malls, entertainment, and essential services. This reduces commute time, improves affordability, and supports balanced growth. For this strategy to succeed, Vancouver must strengthen transportation, such as adding more Skytrains and bus routes, bike lanes, and roads that can connect these hubs. Furthermore, zoning laws should be relaxed to encourage vertical expansion, ensuring these hubs grow upwards instead of outwards and turning the city into an urban sprawl. While this vision is compelling, implementation is a challenge. Particularly on the west side, Vancouver has many residential areas for single-family housing, and coupled with zoning laws, finding a suitable place for a city center could be difficult. Still, if integrated efficiently, multiple city centers can play a crucial role in creating a more developed and enjoyable city.

By integrating these measures – congestion pricing, targeted upzoning, improved public transit, green infrastructure, complete neighbourhoods, and multiple city centers – Vancouver can better control its explosive growth while maintaining affordability, sustainability, and quality of life for its residents.

Recommendations

Based on the research and findings in this paper, three strategies emerge as the most promising for addressing Vancouver's growth: congestion pricing, multiple city centers, and public transport efficiency. These approaches are not only feasible but also synergize with each other.

Congestion Pricing

Vancouver should begin testing congestion pricing in high-traffic areas such as downtown Vancouver, Oak Street, and Marine Drive. To ensure public support, the city should be transparent in how much money is spent. The funds generated should be reinvested directly into public transport, road improvements, and city development. Additionally, fair pricing must be considered, and discounts or exemptions must be offered to low-income residents and those with limited mobility.

Multiple City Centers

Creating multiple mini-city centers throughout Vancouver can reduce the strain and traffic congestion on Vancouver's core while promoting development across the region. Each center should offer jobs, housing, services, and transit access. To become successful, these centers need to be connected with transportation, vertical zoning to ensure these hubs grow upwards instead of outwards, and collaboration between citizens for smooth implementation.

Public Transit Efficiency

For both congestion pricing and multiple city centers to work efficiently, public transit must be fast, reliable, and accessible. Vancouver should optimize bus routes, implement more bus lanes, and incorporate contactless payment systems. Additional SkyTrain expansions could also be made to make transit more attractive to commuters while reducing the city's carbon footprint.

By focusing on these three strategies, Vancouver can reduce car dependence, support development, and accommodate population growth without sacrificing sustainability or livability.

Conclusion

Vancouver is at a turning point. As its population continues to grow, the city must find bold ways to remain sustainable, livable, and inclusive. Through congestion pricing, targeted upzoning, improved public transport, expanded green infrastructure, complete neighbourhoods, and multiple city centers, Vancouver can address its urban challenges. While no single strategy is perfect, the combination, adapted to Vancouver's characteristics, will pave the way forward. Moreover, learning from other cities such as Melbourne, Tokyo, and New York will be key. With strong leadership, community support, and cooperation, Vancouver can serve as a model for urban growth.

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