

THE WINSTON CHURCHILL MEMORIAL TRUST OF AUSTRALIA

**Report by Leanne Hodyl – 2014 Churchill Fellow**

---

*To investigate planning policies that deliver positive social outcomes in hyper-dense, high-rise residential environments.*

I understand that the Churchill Trust may publish this Report, either in hard copy or on the internet or both, and consent to such publication.

I indemnify the Churchill Trust against any loss, costs or damages it may suffer arising out of any claim or proceedings made against the Trust in respect of or arising out of the publication of any Report submitted to the Trust and which the Trust places on a website for access over the internet.

I also warrant that my Final Report is original and does not infringe the copyright of any person, or contain anything which is, or the incorporation of which into the Final Report is, actionable for defamation, a breach of any privacy law or obligation, breach of confidence, contempt of court, passing-off or contravention of any other private right or of any law.

**Leanne Hodyl**

Signed

**4 February 2015**

Dated



*‘Without the support of the community, you are only developing building stock’*

**Iris Tam**  
Managing Director  
Hong Kong Urban Renewal Authority



Yau Lai Estate, Hong Kong

*I would like to thank*

The Churchill Trust for the extraordinary opportunity

The passionate individuals in New York, Vancouver, Tokyo, Hong Kong and Seoul who generously offered me their time, their local knowledge and their professional insights to help create a better Melbourne

Scott Adams for asking me the right questions

Dr Amy Nethery, Dr Nicolette Hodyl, Dr David Hundt, Dr Kathryn Bowen, Ross Allen and Dr Rosa Holman for their enthusiasm, encouragement and research advice

Professor Carolyn Whitzman, Larry Parsons, Professor Tom Kvan, Will Symons, Dr Thomas S.K. Tang, Sarah Lowcock, Damon Rao and Gary Lawrence for generously connecting me to their international contacts

Dr Marcus Spiller and Professor Rob Adams for their endorsement of my original application and support in connecting me to their contacts overseas

My colleagues at the City of Melbourne who have taught me how to become a better urban designer and planner, in particular, my talented team Adam Mills, Alex Robinson, Victoria Evans and Anne Laing who set such high standards on our project work


and Peter Galvin for his resolve, clarity and for giving me the right answers, always.



# Contents

---

Executive Summary	7
Programme	8
Introduction	11
Part 1: Key concepts in apartment tower living	12
Part 2: How does Melbourne compare to other cities?	16
Part 3: What needs to change?	34
References	39



*“There is not a problem with the high-rise typology, it’s just about doing it well.”*

**Brian Jackson**  
General Manager -  
Planning & Development Services  
City of Vancouver



**Woodwards, Vancouver**

Incorporates social housing and community facilities in exchange for a density bonus

# Executive Summary

High-rise apartment towers are being built in central Melbourne at four times the maximum densities allowed in Hong Kong, New York and Tokyo – some of the highest density cities in the world.

This is possible because the policies used to regulate decision-making for high-rise developments in central Melbourne are weak, ineffective or non-existent. This enables the approval of tower developments that are very tall and that squeeze out the space between buildings, with little regard on the effect on the residents within, the impact on the streets below or on the value of neighbouring properties.

Increasing the supply of housing in the central city close to jobs and transport brings numerous benefits to the city and should be supported. The high-rise apartment tower plays an important role in delivering this supply. There is legitimate concern, however, that developing at these extreme densities will have negative, long-term impacts for Melbourne, eroding away Melbourne's celebrated liveability. It will create a legacy of apartments that are of poor quality – homes that lack access to light, air and an outlook - and diminish the quality of the streets and parks below by blocking sunlight, increasing wind drafts and obstructing sky views. The quality of these public spaces is critical – even more so as these city residents retreat from their compact apartments to use the city's streets and parks as their 'living room'.

At the same time, the density of these developments is resulting in a rapid and unpredictable increase in the population living in the central city. These residents need adequate open space and community services to ensure that they can enjoy a good quality of life. There are currently no policies in place that link the density of developments to the provision of this essential infrastructure, resulting in a significant funding opportunity being missed.

Incentivising developers to deliver public benefit through density bonuses is common practice in many cities and has effectively delivered parks, plazas, community facilities like childcare and cultural facilities such as cinemas or performing arts spaces. It also enables the delivery of affordable housing to ensure low-income earners are supported and have good access to their central-city jobs. This is good planning. Instead, Melbourne's planning controls offer 'cheap density' to developers as they are able to build unlimited density with limited need for a community contribution.

Not one of the five cities that I studied – New York, Vancouver, Tokyo, Hong Kong and Seoul - is choosing to

develop in this way. There was general consensus from the planning and design experts that I interviewed who manage and study these established, globally successful cities that the densities being delivered in central Melbourne are too high and many questioned whether they could deliver long-term liveable outcomes.

We have highly competent developers and design and planning professionals in Melbourne. It is the lack of effective policies that is letting Melbourne down.

The evidence from these cities is clear. Melbourne would benefit from the introduction of policies that:

- Establish appropriate density controls in central Melbourne.
- Establish density bonuses to link development to public benefit and incentivise the delivery of new open spaces, affordable housing and other community facilities.
- Establish an enforceable tower separation rule.
- Establish apartment standards.

This report also recommends investigating the introduction of two planning streams for large-scale development approvals that developers can choose between – an 'as-of-right' approval for meeting these controls (that can provide certainty to developers and the community) or a negotiated outcome (with community review) if the controls are exceeded.

Too much attention is given to the height of these towers. What is far more important in delivering good outcomes for residents and the broader city are the overall numbers of people living in a development, whether the apartments enable a good quality of life or not, whether residents have access to the open space and community services that they need and the cumulative impact of these developments on the quality of the public realm below.

It is difficult to retrofit or demolish high-rise apartment towers once the apartments are sold. Any negative impacts will therefore be long-lasting and the opportunity to capture a public benefit will be gone. As the proportion of Australians living in high-rise communities in our central cities increases, it is imperative to act now.

*This report represents the views of the author and the findings of her Churchill Fellowship.*

Contact: [lthodyl@gmail.com](mailto:lthodyl@gmail.com)

# Programme

The following people and organisations generously gave their time to discuss high-rise, high-density housing in their city in order to inform this report.

All meetings were held during September - October, 2014.





*‘When cities improve,  
the world improves’*

(Washburn, 2013)



**Yang, Byung Hyun**  
Team Leader of  
City Planning Division  
**Joseph (Joon Hi) Son**  
Manager, International  
Relations Division  
**Lee, Joo Yon**  
Senior Researcher  
**Jiyon Shin**  
Senior Researcher  
**Jin, Myeong-kuk**  
Urban Planning Division /  
Manager  
*Planning Department  
Seoul Metropolitan  
Government*

**Professor Cheoul-Soo Park**  
*University of Seoul*

**Yoonjin Park  
-  
Jungyoon Kim**  
Principals,  
*Park Kim Urban Design and  
Landscape Architecture*

**Jung-gu Kang**  
Urban Designer  
*Seoul National University*

**Professor Sohyun Park**  
Program Head of Architecture  
*Seoul National University*

**Professor Yasushi Asami**  
Department of Socio-Cultural  
Environmental Studies  
*University of Tokyo*

**Professor Azby Brown**  
Director, Future Design Institute  
*Kanazawa Institute of Technology*

**Professor Darko Radovic  
Dr Davisi Boontharm**  
*co+labo  
Keio University, Tokyo*

Seoul ● Tokyo

● Hong Kong

**Dr Thomas S.K. Tang**  
Director, Corporate Sustainability  
**Marcus Ip Kin Chor**  
Technical Director - Environment  
*AECOM*

**Ada Fung**  
Deputy Director of Housing  
(Development & Construction)  
*Hong Kong Housing Authority*


**Robert H.C. Tsang**  
Town Planner  
**Paulina Lim Shuet Pun**  
Senior Town Planner  
**Viko Wan Ka-ho**  
Town Planner  
**Ng Yong, Stella**  
Senior Town Planner  
*Planning Department  
Government of Hong Kong SAR*

**Professor Rebecca Chiu**  
Director, Centre of Urban Studies  
and Urban Planning  
Head, Department of  
Urban Planning and Design  
*The University of Hong Kong*

**Iris Tam**  
Managing Director  
*Hong Kong Urban Renewal Authority*

**Professor NG Mee Kam**  
Department Vice-Chairman  
Director, Urban Studies Program  
Associate Director, Institute of Future Cities  
Associate Director, Hong Kong Institute of  
Asian Pacific Studies  
*Chinese University of Hong Kong*

● Melbourne



*“The principle at the basic core of Vancouver’s planning is density balanced with community or public benefit”*

**Dan Garrison**  
Senior Planner, Housing Policy  
City of Vancouver



**Vancity Development, Vancouver**

A density bonus of 60% was agreed with the developer in exchange for the delivery of the Vancouver International Film Centre

# Introduction

This paper represents the findings of my Churchill Fellowship which investigated the planning policies that deliver positive social outcomes in hyper-dense, high-rise residential environments in New York, Vancouver, Tokyo, Hong Kong and Seoul.

To explore this objective, I interviewed professionals in the planning and design industry in each city, including urban designers, urban planners, architects, real estate professionals, government policy-makers and academics.

This research was centred on four questions:

- What planning controls govern the densest residential developments in their city?
- To what extent do these controls require developers to consider the social outcomes of the people who will live in them?
- What are the best examples of high-rise living in their city that demonstrate this policy in practice?
- Are they aware of any evidence that high-rise living is detrimental to people who live in this type of building/development?

Recent patterns of development in Melbourne include a rapid increase in the number of apartment towers being approved in the central city. This is being driven by increased demand for central city living, new construction technology that enables the development of very tall towers on small sites, planning policies that support high-density growth in the central city and overseas investment.

I am very supportive of developing the centre of our cities including, where appropriate, the development of high-rise apartment towers. The benefits of city living for residents are many – easy walking access to jobs, shops, restaurants, entertainment, services and facilities, which leads to a greater amount of flexibility and time available in each day and positive health benefits.

Increased development in the city enables the city to evolve, grow, become economically stronger, more sustainable, more lively and animated, more interesting and popular with more things to do and see. This attracts more people to the city – residents, local visitors and tourists as well as businesses and employers - which further enlivens the city. The quality of our cities – what it's like to live in them, be in them and how easy it is to get

around - is critical to this success.

Planning policies should aim to ensure that this growth is managed well; to ensure that the cumulative effect of all decisions made in the city make the city a better place to be and balance private and public benefit.

This report begins with an overview of the key concepts in the planning and design of apartment towers. This is followed by a comparative analysis of the planning policies that apply to the highest density residential developments in each city and the existing policies and recent development approvals in Melbourne. This report concludes with recommendations to address the challenges that these hyper-dense, high-rise residential developments are creating for central Melbourne.

I argue, as do others in Melbourne, that we can do better (for example, see Gallagher, 2014). Reformed central city planning policies which balance development and investment in the city and deliver quality places for our residents to live in are both needed and possible.

1

# Key Concepts in Apartment Tower Living



Cities are complex and the practice of planning and urban design, like all professions, has its own language and jargon to explain and manage these complexities.

An overview of the key concepts that are embedded in planning and urban design policies that influence apartment towers are outlined below.

### Building Height

There is no simple definition for what constitutes a tall building (Council for Tall Buildings and Urban Habitat, 2014). Height is a relative concept. Within a suburb of single-storey detached dwellings, a six-storey apartment building will often be considered as a 'high-rise'. As this paper is focused on central city living, high-rise in this context is generally taken to mean buildings in the order of 20 storeys (approximately 60 metres) or taller.

At present, the tallest high-rise apartment building in Melbourne is the Eureka Tower which is 297m tall and 91 storeys high.

### Building Density

Density is a useful measure in planning as it can quickly explain the quantitative aspects of a development. It is always expressed as a ratio, typically as a floor area ratio (also known as a plot ratio, or floor space ratio) which outlines the amount of gross floor area built as a multiple of the site area (see figure 1). Melbourne, overall, is built at low densities as it is a large, sprawling city, primarily comprised of low-rise suburbs.

There is no fixed relationship between density and height. Rather, it is the site coverage, together with the number of storeys of a building that determines density (see figure 1). The way that the same density is delivered on a site will significantly alter the experience of living in the development. As buildings get taller, if the density remains the same, a larger proportion of the site could be then used for open space and the distance between buildings is increased.

In central Melbourne, the building densities of recent high-rise developments have been in the order of 30:1 and as high as 55:1. These densities are reached because the buildings are very tall *and* site coverage is very high.

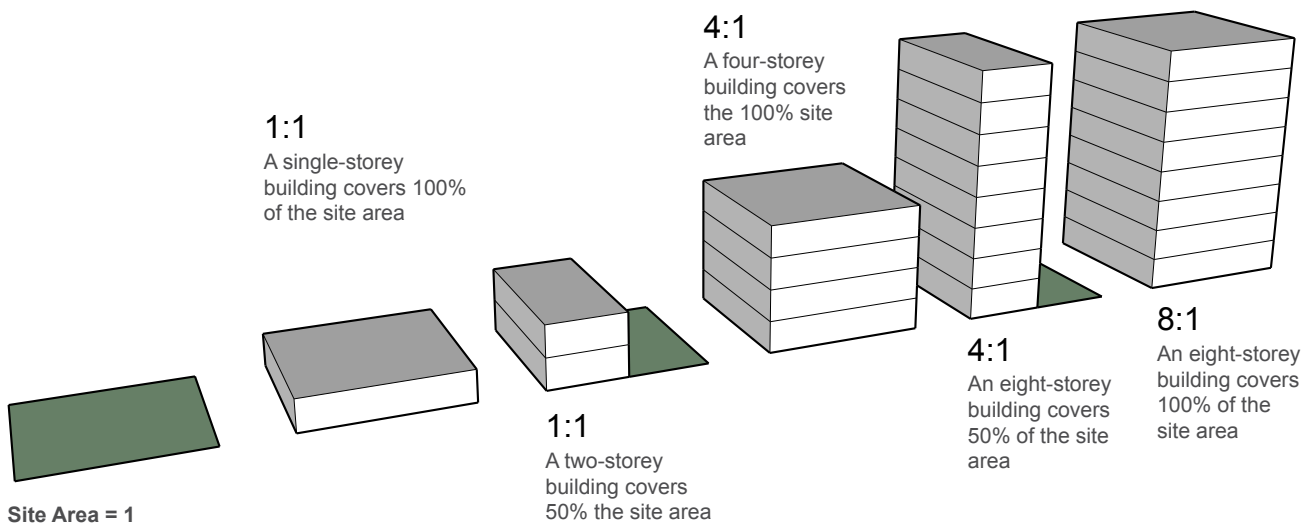


Figure 1: An explanation of floor area ratio. For example, for a 4:1 floor area ratio, the first number (4) is the amount of total floor area built on a site as a multiple of the site area (1).

## Residential Density

Density can also be expressed as the number of people or dwellings within an area. This indicates the residential density of a development and in Australia, is typically measured as residents or dwellings per hectare. Understanding residential densities can assist with planning for a community more readily than measuring, for example, the heights of buildings. This is because different building shapes and sizes can all have the same density and house the same number of people. In planning for community needs, it is the number of people that use the local parks, schools or libraries, for example, that are more critical than the form of the buildings that house these people.

Residential densities can be measured in gross terms – the density of people living in a larger area, which includes all of the streets, parks etc. Net densities, however, are measured for a specific site. Net densities are therefore higher than gross densities. Generally the densities noted in this report are for specific sites and are therefore net densities.

Residential densities in the outer suburbs of Melbourne are in the order of 10-20 dwellings per hectare (gross). Inner city suburbs like Carlton are in the order of 50-60 dwellings per hectare (gross). In some of the densest areas in the world, for example Manhattan, residential densities reach as high as 320 people per hectare (gross) in the order of 451 people per hectare (gross) in Kowloon in Hong Kong (Washburn, 2013).

## Density Controls

Density controls set limits on the amount of development that can occur on a site. For example, a density control that sets a maximum floor area ratio of 10:1 enables the development of floor area that is ten times the site area. Density controls mean that the number of apartments, and therefore residents, that can be accommodated on each site is more predictable. They also make development yields easier to estimate and can have a stabilising influence on land values as development speculation is reduced.

New York's policies also incorporate a dwelling factor – effectively a maximum number of dwellings that can be delivered within any particular density.

Melbourne has regulations in place for a base density control in the Hoddle grid, but the way that it is structured (on a whole block basis, rather than a site basis) and the phrasing that development 'should generally not exceed 12:1' (Department of Transport Planning and Local Infrastructure, 2013) but doesn't require that it be met, renders this policy control ineffective and obsolete in practice.

## 'As-of-right' density

Planning policies frequently enable some development to be 'as-of-right'. This means that developers can generally expect their developments to be approved if they meet the conditions outlined in the respective 'as-of-right' policies. All five global cities studied have density controls which establish 'as-of-right' densities. Developments that build up to this density limit will generally be expected to be approved for this development criteria (developments will still be subject to all other policies which vary significantly city to city).

If developers seek to build above these 'as-of-right' densities (where allowed), they are typically required to undergo a far more rigorous process and the development proposals are generally subjected to far greater community review.

## Density bonuses

Density controls enable a cap on development within a site. This creates the opportunity to negotiate the provision of a community benefit from the developer in exchange for giving the developer greater development capacity above this cap. This is called a density bonus and is a common tool used in planning systems to balance private development profits with community benefit.

While density controls can act as the stick, density bonuses can be the carrot. Melbourne's planning scheme has in the past included density bonuses. These are no longer in place. They facilitated the delivery of plazas, laneways and the preservation of some heritage buildings in the Hoddle grid. These were removed at a time when the current drivers for developing very tall towers on small development sites were not evident and when demand for living in the central city was far lower than today.

## Public Realm Quality

The public realm is made up of the spaces between buildings that are accessible to the public. It includes streets and laneways, parks, plazas and squares. The design of buildings within private land has a direct impact on the quality of this public realm. The higher the quality of public realm, the more likely that people will choose to stay and enjoy these public spaces, creating a lively, interesting and safer urban environment (Gehl, 2010).

Policy controls for tall buildings aimed at protecting and enhancing the quality of the public realm include overshadowing controls (that limit overshadowing in order to allow sunlight into streets and parks), building setbacks or separation (see below) and wind speed targets at ground or podium levels (to enable a comfortable pedestrian experience by preventing exacerbation of wind-drafts in built-up areas).

## Apartment Quality - Internal Amenity

Many of the international policies that regulate high-rise apartment buildings are focused on creating a good quality of internal amenity within the apartments themselves. Internal amenity refers to the degree to which an apartment is pleasant to be in and to which it functions – for example, ‘does it offer convenience?’, ‘does it provide useability to carry out everyday activities like cooking, relaxing or sleeping?’, ‘is there any flexibility in the apartment layout so residents can adapt the way they use the spaces as their life circumstances change?’, ‘are the spaces enjoyable to be in and to use?’, ‘is there enough natural light and sunlight?’, ‘does enough air enter the apartment?’, and ‘is there enough storage for belongings or are they piled up in the corners?’.

Policies that consider internal amenity include minimum apartment sizes, a maximum number of apartments per floor, requirements for window locations, building setbacks or separation distances from windows (see below), minimum floor-to-ceiling heights and minimum storage sizes. These effectively influence the form of the building from the ‘inside-out’.

The City of Melbourne’s recent housing discussion paper ‘Future Living’, investigated the design quality of recently built apartment developments in Melbourne. One in three apartments were considered of poor quality – not meeting benchmarks for good living standards. This increased to one in two for buildings over sixteen storeys high (City of Melbourne, 2013b). A common flaw was a lack of any windows in bedrooms (City of Melbourne, 2013). This is illegal in New York, Hong Kong and Vancouver.

## Building Setbacks and Separation

Building setbacks and separation controls create space between buildings. A setback control delineates the distance that a building needs to be from a site boundary while a separation control determines the distance from another building or a window. For residential towers, these controls have benefits for both the internal amenity of apartments and the quality of the public realm.

Front tower setbacks (measured from the street frontage) are introduced to create a lower building form at the street edge which creates a scale of building that is more relatable to the pedestrian experience – the pedestrian can see the top of the lower form of the building - reducing the perceived visual dominance of the larger building on the street. Front setbacks can also mitigate the impacts of downward wind-drafts and reduce overshadowing by minimising the bulk of the building.

Side and rear setbacks are measured from side or rear boundaries. These setbacks and building separation requirements allow natural light and sunlight to reach the internal areas of apartments or open spaces within developments such as rooftop gardens, plazas or

courtyards. They also create privacy distances between apartment buildings and allow air flow between buildings. Side and rear setbacks also ensure that adjacent sites cannot be built out, protecting the development expectations of adjacent land owners.

Melbourne has regulations in place for tower separation distances in the Hoddle Grid which recommend a distance between towers of 24 metres. This regulation is discretionary and therefore difficult to enforce. This renders this policy control ineffective in practice.

## Tower Floorplate Size

A tower floorplate is the overall area of a particular storey in a tower. The size of a tower floorplate can impact the quality of the apartments within and the number of apartments on a floor. Towers that have very deep floorplates make it more difficult to design apartments where all rooms have good access to natural light and air. The floorplate size will also influence the impact that the tower has on the public realm below. The larger the floorplate, the larger the shadow that is cast on the streets or parks below and views to the sky are diminished. Tower floorplate sizes can be regulated directly by limiting the overall size of each floor (in square metres), limiting the maximum dimension of a tower either in the horizontal (side) dimension or the diagonal dimension across the floor plate, or through a site coverage control which limits the maximum percentage of the lot area that the tower can cover. The floorplate size can also be regulated indirectly by limiting the number of apartments allowed per floor.

There are currently no controls regulating tower floorplate size in central Melbourne.

*A comparison of how Melbourne regulates these influencing factors in comparison to the international case study cities is outlined below in Part 2.*

2

How does Melbourne  
compare to other cities?



New York by Gehry, New York



To demonstrate to international experts the recent pattern of hyper-dense, high-rise developments occurring in Melbourne, an illustration of what is happening on one block in Southbank was presented (see figure 2).

An estimated 9,200 people could live on this block in Southbank when fully developed. Eight of the eleven towers shown are built or approved. The three grey buildings fronting City Road are not approved and illustrate the scale of development that may be built according to current (discretionary) planning controls.

There was general consensus that the building densities (in the order of 30:1) and urban form shown in this block were unsupportable. There was frequently genuine surprise that Melbourne’s policies enable developments of this density to be built.

*“This cluster of towers would never be built in New York. Citizens wouldn’t like the intensity of the ground cover (the tower footprints) because city people are walkers... The idea of creating a liveable city at this density is crazy”*

**Gary Lawrence**

Chief Sustainability Officer,  
AECOM, New York  
(Former Director of Planning, City of Seattle)

*“The Southbank project as presented is a mistake. It overreaches with respect to the scale, form and spacing of proposed individual buildings collectively contributing to a questionable civic image for Melbourne.”*

**Scot Hein**

Urban Designer & Adjunct Professor  
University of British Columbia  
Vancouver

*“A density of 30 to 1 is terrible.”*

**Ada Fung**

Deputy Director of Housing (Development & Construction)  
Hong Kong Housing Authority

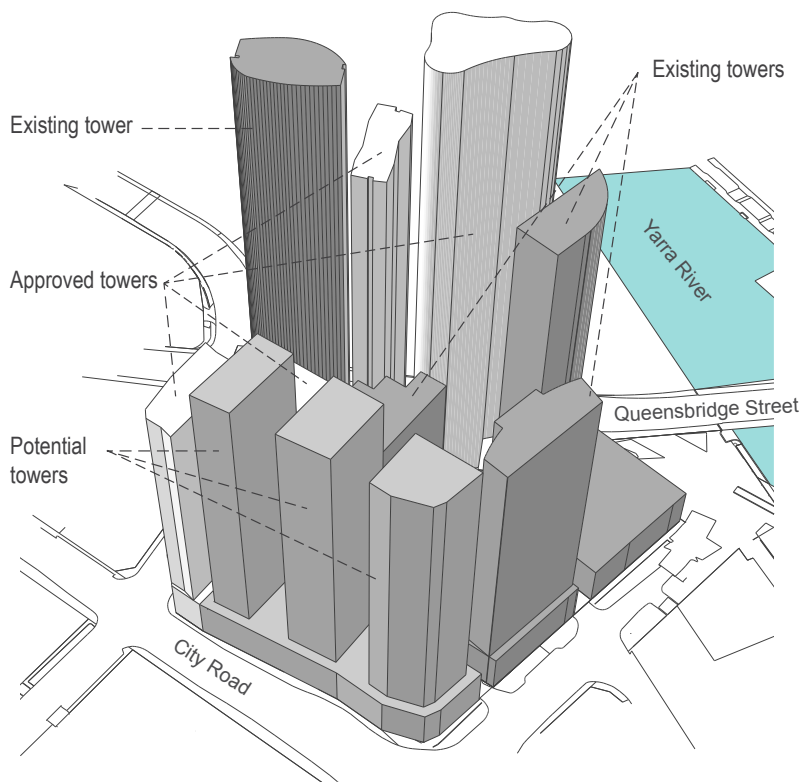


Figure 2: Example of hyper-dense, high-rise development patterns in Southbank

## Exploring the impact of different policy controls

To best depict the impact of the different apartment tower controls in other cities, the scenarios illustrated in this chapter demonstrate how a block in central Melbourne would be developed if it was subject to the policies that allow the densest residential developments in Vancouver, New York, and Hong Kong (see also Table 1, pp30-31). This is then contrasted with the current patterns of development actually occurring in this same block.

The block selected is bounded by A'Beckett, Elizabeth, Franklin and Stewart Streets and is located within the Hoddle Grid (see figure 3). It is subject to significant development pressure. There are currently two towers built on this block and one with sales commenced (refer figure 4). There is a total of approximately 1,300 apartments across these three towers housing approximately 2,600 residents. There are approximately 440 car spaces.

An additional three towers have recently been approved (these are shown in figure 5). This incorporates an additional 1,200 apartments, approximately 2,400 people and 390 cars.

What is happening on this block is not an exception to recent development patterns in the area. This block is located within a precinct where a significant number of high-rise, very high-density residential apartment buildings have been recently approved (see figure 6).

In each of the scenarios illustrated on the following pages, the existing tower that fronts Franklin Street is retained, as is the heritage building on the corner of Franklin Street and Stewart Street.

A summary of the outcomes of each scenario, and the actual outcomes for Melbourne are included on the following pages. As the illustrations show, the scale of density that is occurring in Melbourne far exceeds what would be allowed in these other cities.



Figure 3: Location of block bounded by A'Beckett, Elizabeth Street, Franklin Street and Stewart Street

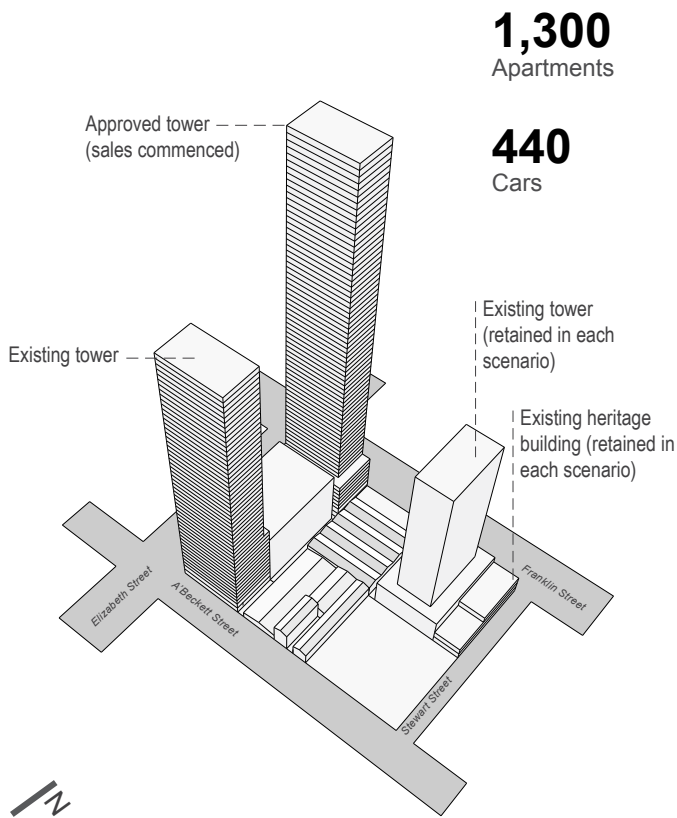


Figure 4: Current development (existing or underway) on A'Beckett / Franklin block

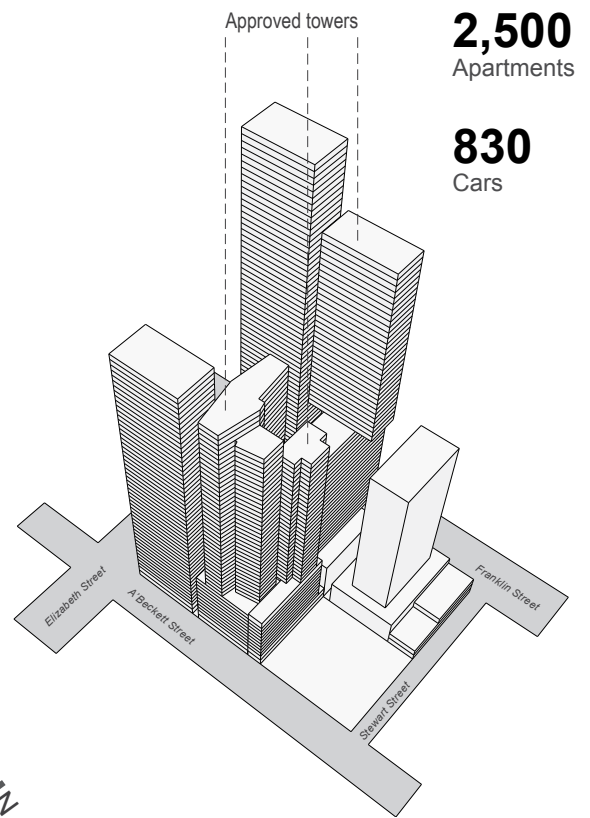


Figure 5: Current and approved development on A'Beckett / Franklin block. An additional three towers have been approved.

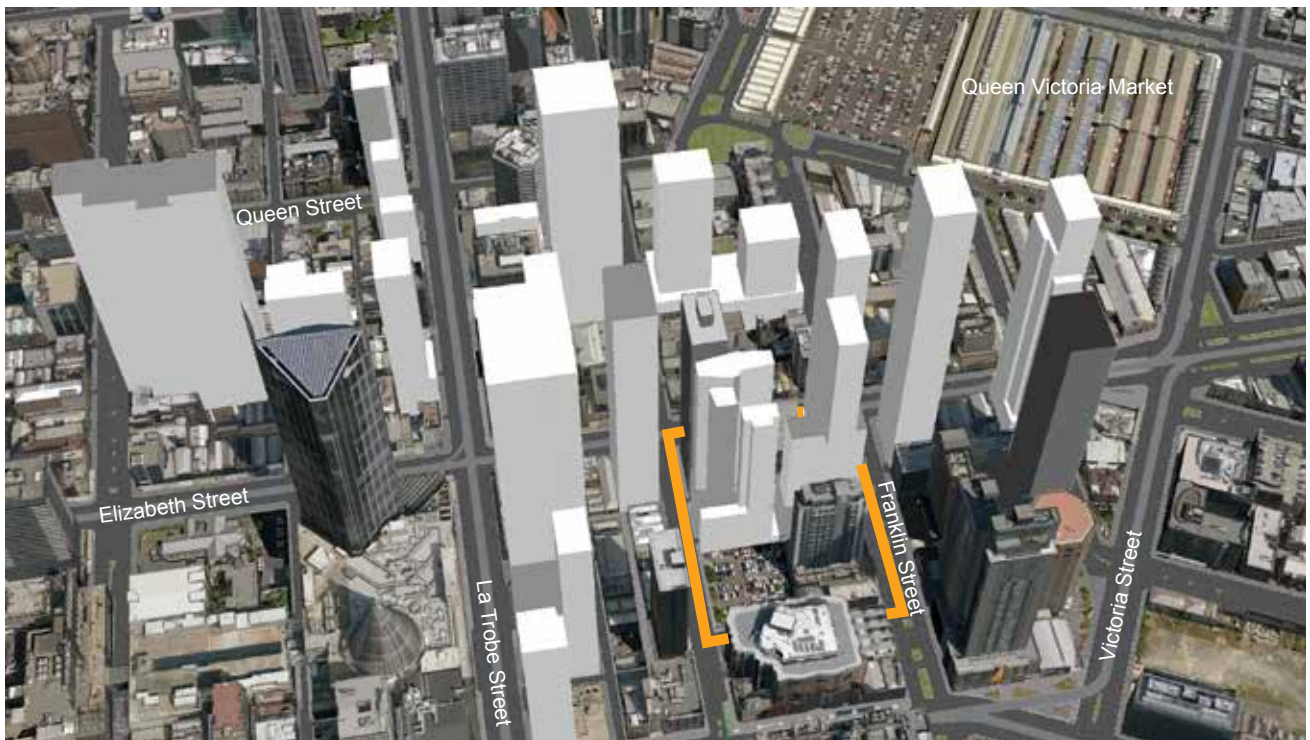


Figure 6: Indicative scale and location of new residential tower developments in the Elizabeth Street / La Trobe Street area as of December, 2014 (Image courtesy of the City of Melbourne)

 A'Beckett/Franklin block

# Vancouver

The majority of Vancouver's Downtown South high-density residential area is subject to a density control of 3:1. This can be increased 'as-of-right' to 5:1 on larger sites or if social housing is provided and constitutes at least two thirds of the development floor area.

If developers seek to build a denser development they trigger the need for a rezoning. Through this process a developer contribution which provides public benefit back to the community (called a Community Amenity Contribution or CAC) is negotiated with the developer in exchange for a density bonus.

**3:1**  
As-of-right Maximum Building Density

**1,750**  
Residents

**261**  
Cars  
(155 in retained tower)

**67%**  
Total site coverage (ground)

**5:1**  
As-of-right maximum on larger sites or for the provision of social housing.

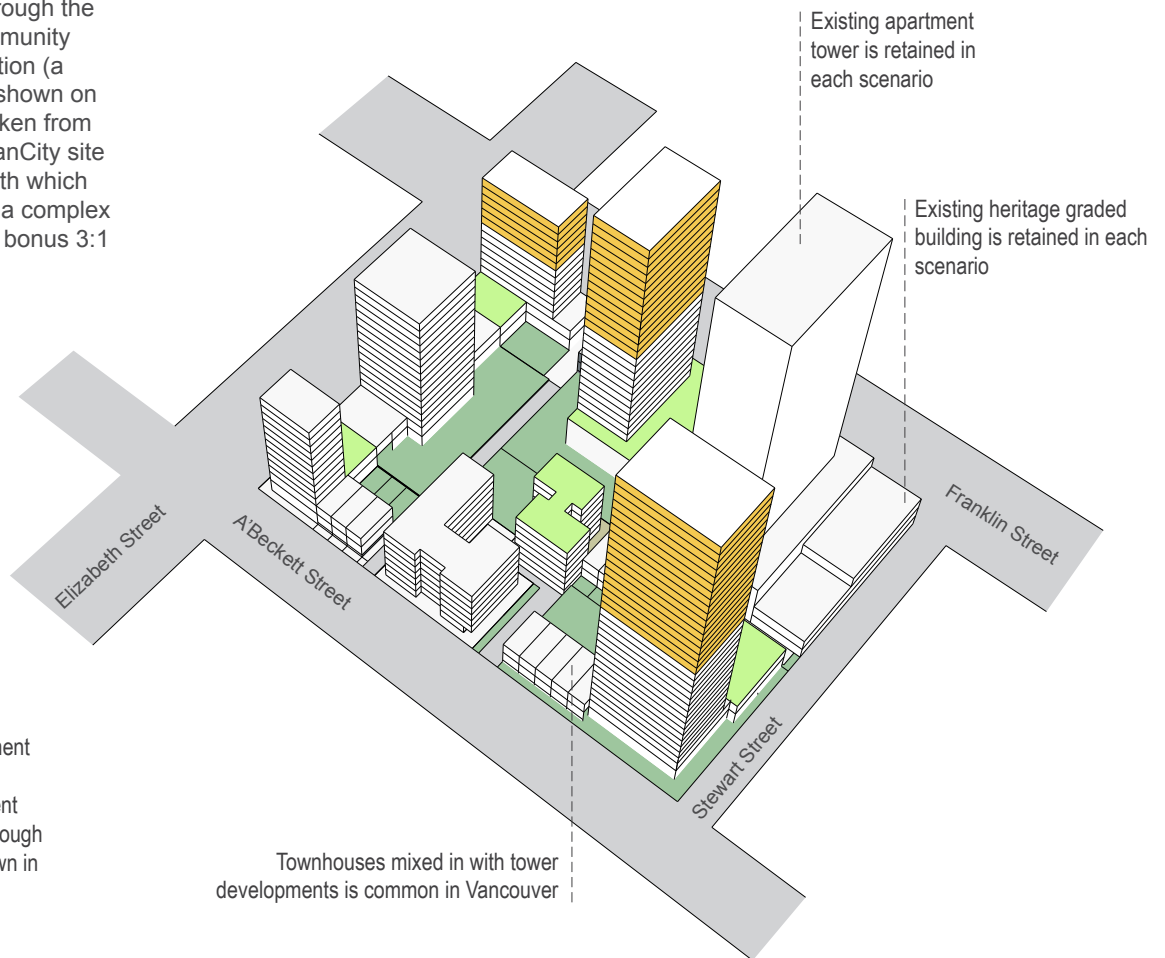
**875**  
Apartments  
37 affordable housing apartments enabled due to density bonus.

**3.0** m<sup>2</sup>  
Open space/person

**19%**  
Total site coverage (towers)

**8:1 (varies)**  
Maximum density bonuses are negotiated through the delivery of a Community Amenity Contribution (a density of 8:1 as shown on this example is taken from the approval of VanCity site in Downtown South which delivered a cinema complex in exchange for a bonus 3:1 ratio)

**13-36**  
Tower heights (in storeys)



'As-of-right' development floors shown in white. Additional development capacity delivered through density bonuses shown in orange.

Figure 7: Aerial perspective - A'Beckett / Franklin block developed according to Vancouver's apartment tower controls

*“There has not been one instance in Vancouver of a developer saying no to the request for the contribution”*

**Brian Jackson**  
 General Manager -  
 Planning & Development Services  
 City of Vancouver  
 (in relation to negotiations with developers for  
 Community Amenity Contributions)

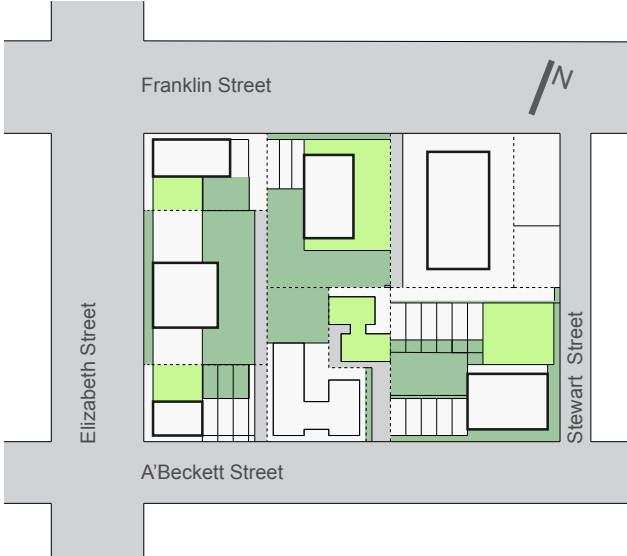


Figure 8: Plan view: A'Beckett / Franklin block developed according to Vancouver's apartment tower controls

- Open space (ground)
- Open space (on roof)
- Apartment tower building (six towers possible)
- Site Boundaries

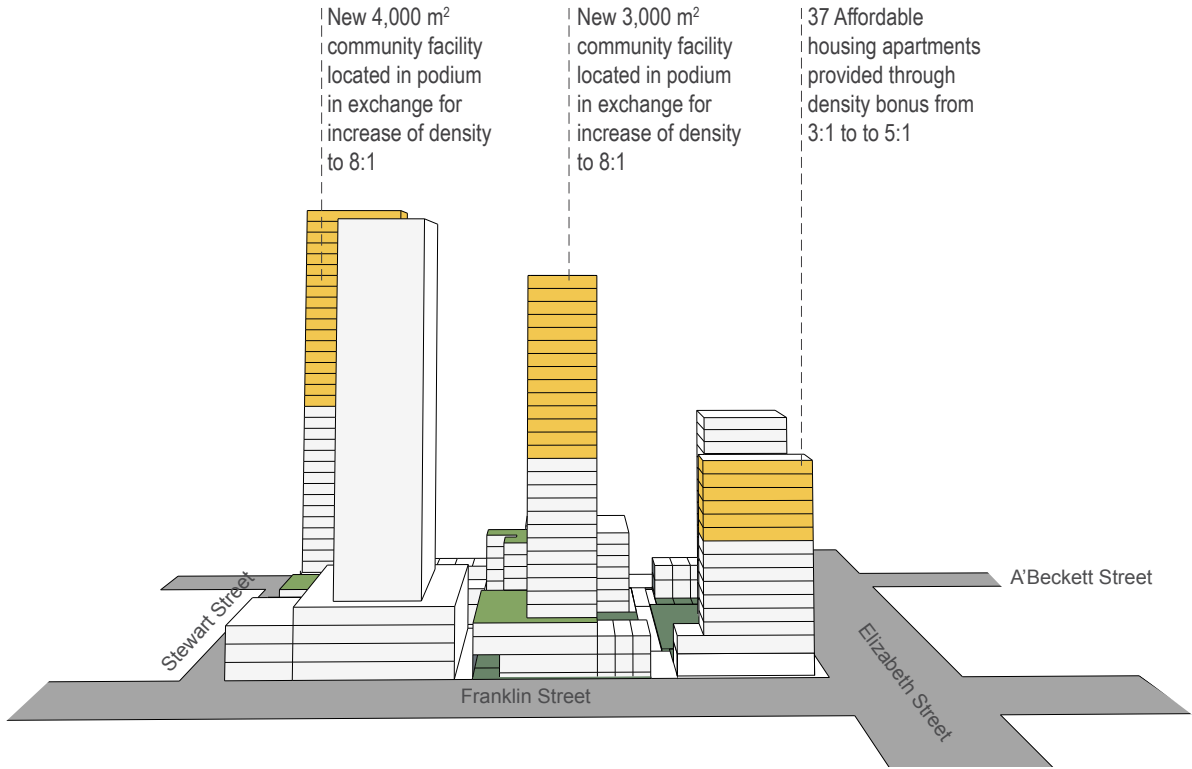


Figure 9: North Elevation - A'Beckett / Franklin block developed according to Vancouver's apartment tower controls

# New York

The maximum building densities for residential uses allowed in New York 'as-of-right' are 10:1.

A 20% increase to 12:1 is primarily enabled through the delivery of affordable housing (in nominated districts) or a plaza (open space) on the development site. The maximum building density for commercial developments is 15:1. A 20% increase enables developments up to 18:1, however the residential component is contained to 12:1.

**10:1**  
As-of-right Maximum Building Density

**3,500**  
Residents

**155**  
Cars (within retained tower). There is no requirement to deliver car parking in Manhattan.

**73%**  
Total site coverage (ground)

**12:1**  
Maximum with density bonus (20% bonus for affordable housing or creation of plaza)

**1,750**  
Apartments  
172 affordable housing apartments enabled due to density bonus.

**1.1 m<sup>2</sup>**  
Open space/person

**22%**  
Total site coverage (towers)

**25-33**  
Range of tower storeys

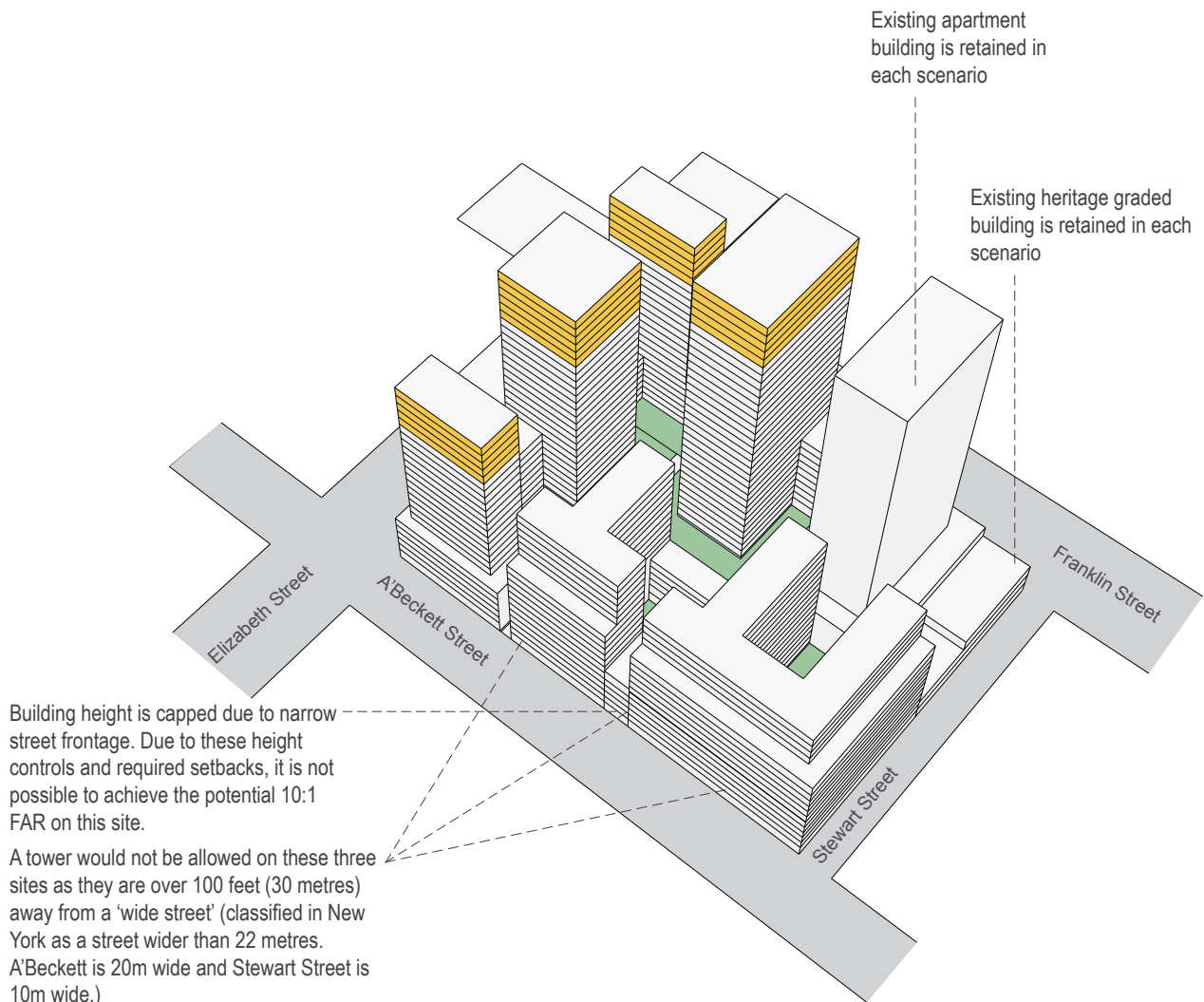
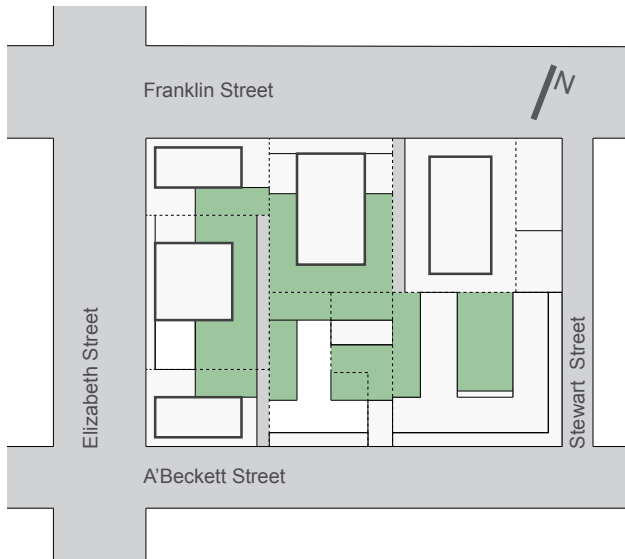


Figure 10: Aerial perspective - A'Beckett / Franklin block developed according to New York's apartment tower controls



*“The quality of housing will impact the workers that companies can attract”*

**Gary Lawrence**  
Chief Sustainability Officer  
AECOM, New York

Figure 11: Plan view: A'Beckett / Franklin block developed according to New York's apartment tower controls

- Open space (ground)
- Apartment tower building (five towers possible)
- Site boundary

As-of-right development floors shown in white. Additional development capacity delivered through density bonuses shown in orange.

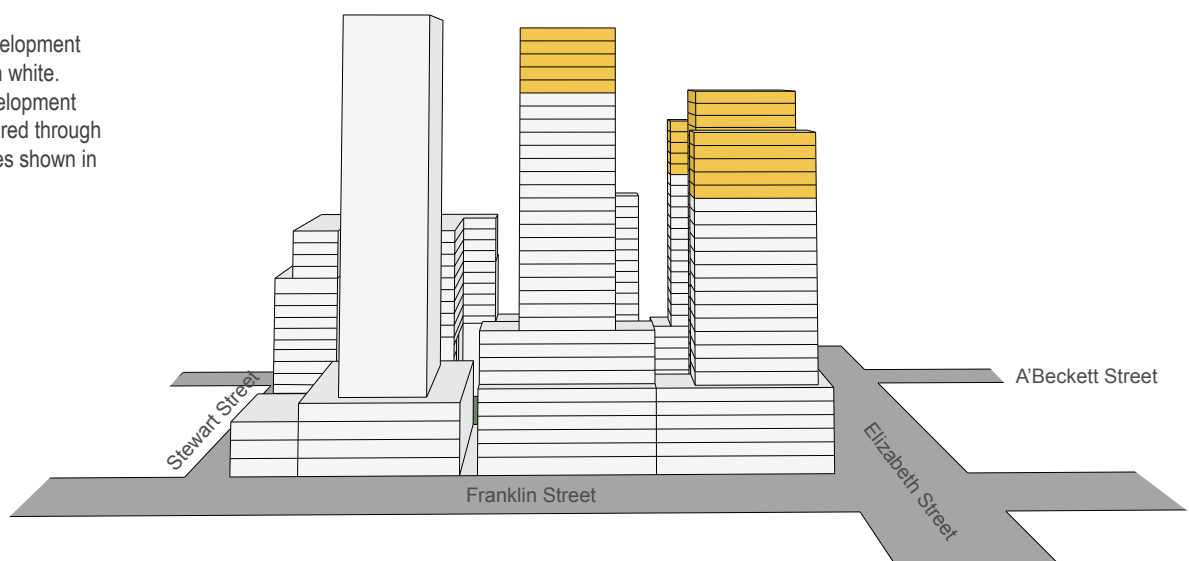


Figure 12: North Elevation - A'Beckett / Franklin block developed according to New York's apartment tower controls

# Hong Kong

Hong Kong's maximum density control is 10:1. This is only allowed on sites that have three street frontages. As no sites within the A'Beckett/Franklin block have three street frontages what is incorporated in this scenario is a maximum of 9:1 (for sites with two frontages) and 8 :1 (for sites with only one street frontage).

Hong Kong provides a 10% density bonus to incentivise developers to deliver better environmental design outcomes in their developments.

**9:1**

As-of-right Maximum Density

**3,600**

Residents

**324**

Cars

**61%**

Total site coverage (ground)

**9.9:1**

Maximum with density bonus (10% increase on the as-of-right density is provided for delivering buildings according to Environmentally Sustainable Development controls)

**1,650**

Apartments

**1.5** m<sup>2</sup>

open space/person

**27%**

Total site coverage (towers)

**13-46**

Tower storeys

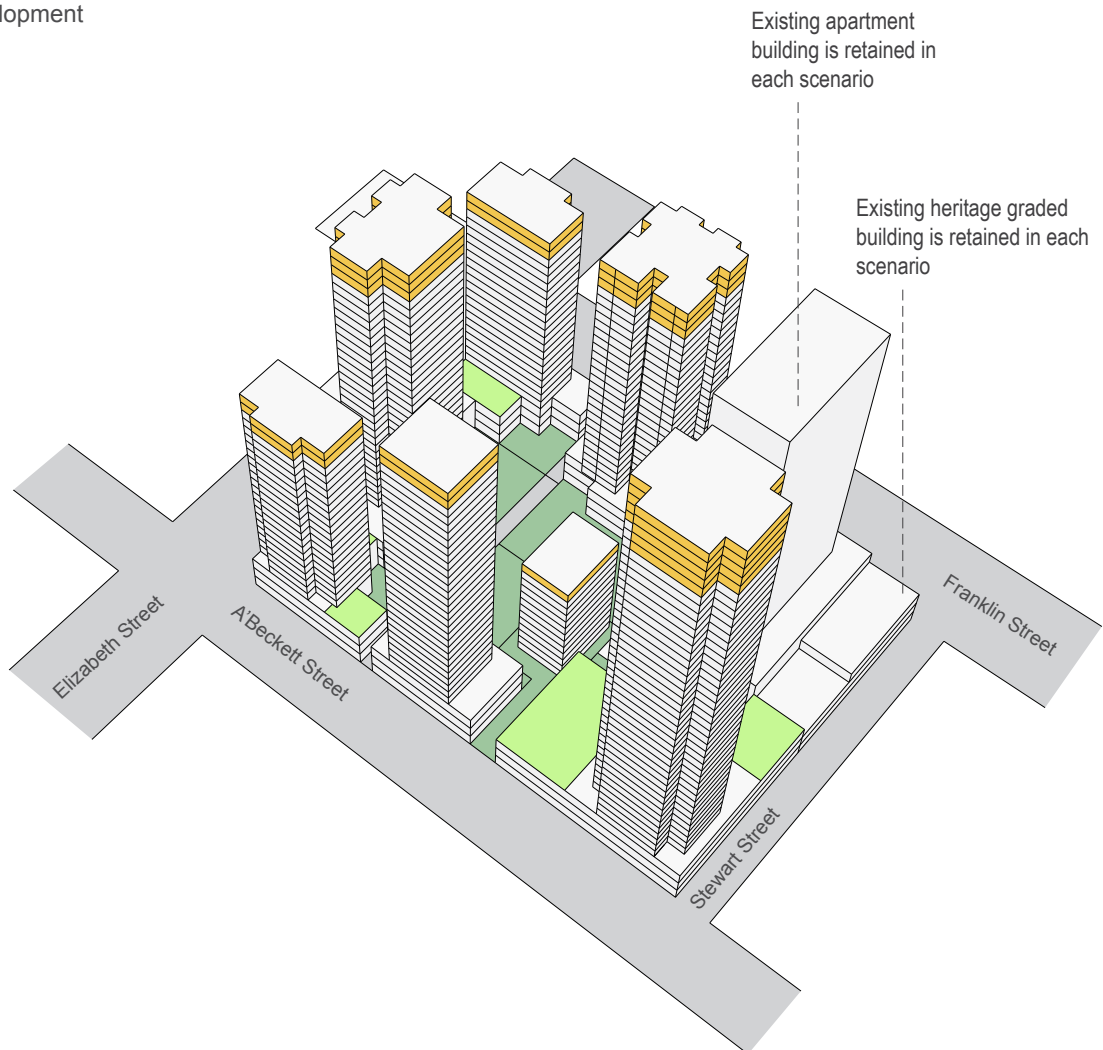


Figure 13: Aerial perspective - A'Beckett / Franklin block developed according to Hong Kong's apartment tower controls



*'We go vertical in Hong Kong to release more open space'*

**Iris Tam**  
 Managing Director  
 Hong Kong Urban Renewal Authority



Figure 14: Plan view - A'Beckett / Franklin block developed according to Hong Kong's apartment tower controls

- Open space (ground)
- Open space (on roof)
- Apartment tower building (seven towers possible)
- Site boundary

As-of-right development floors shown in white. Additional development capacity delivered through density bonuses shown in orange.

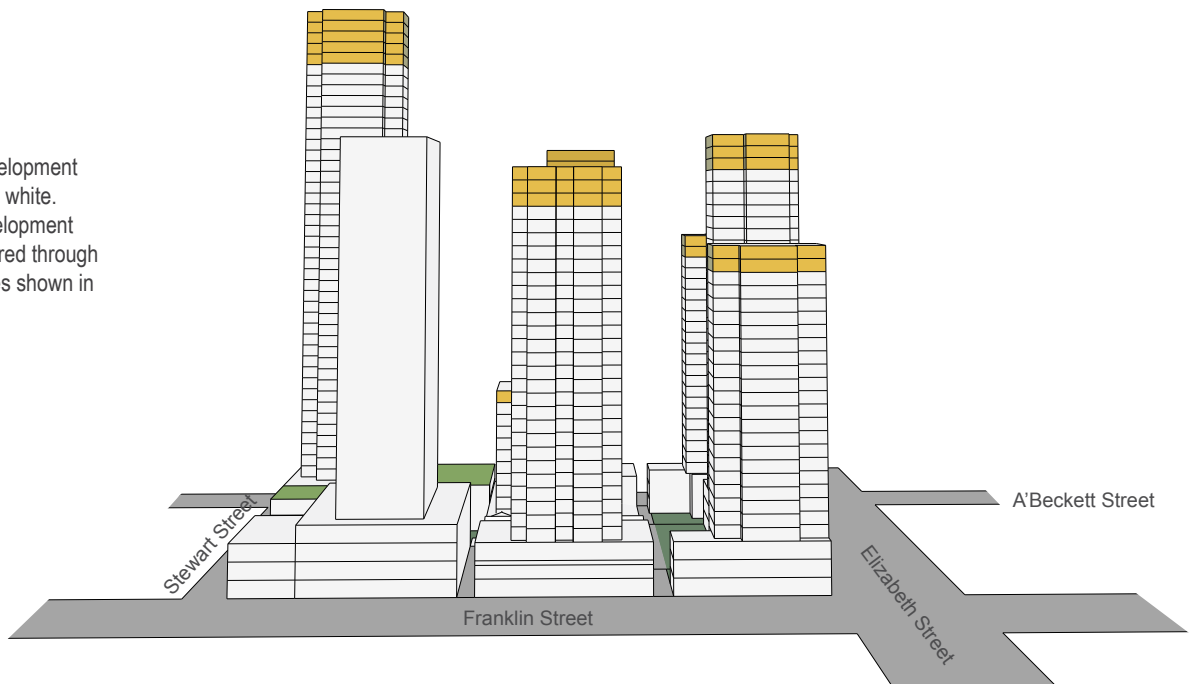


Figure 15: North Elevation - A'Beckett / Franklin block developed according to Hong Kong's apartment tower controls

There are no enforceable density or height controls guiding development outcomes on this block.

# Melbourne

The densities of the new developments shown range from 21:1 to as high as 49:1.

**8,600**  
People

**4,300**  
Apartments

**1,400**  
Cars

**0.1** m<sup>2</sup>  
Open space/person

**92%**  
Total site coverage  
(ground)

**67%**  
Total site coverage  
(Mid-level of towers)

**47%**  
Total site coverage  
(Upper level of towers)

**29-95**  
Tower heights  
(in storeys)

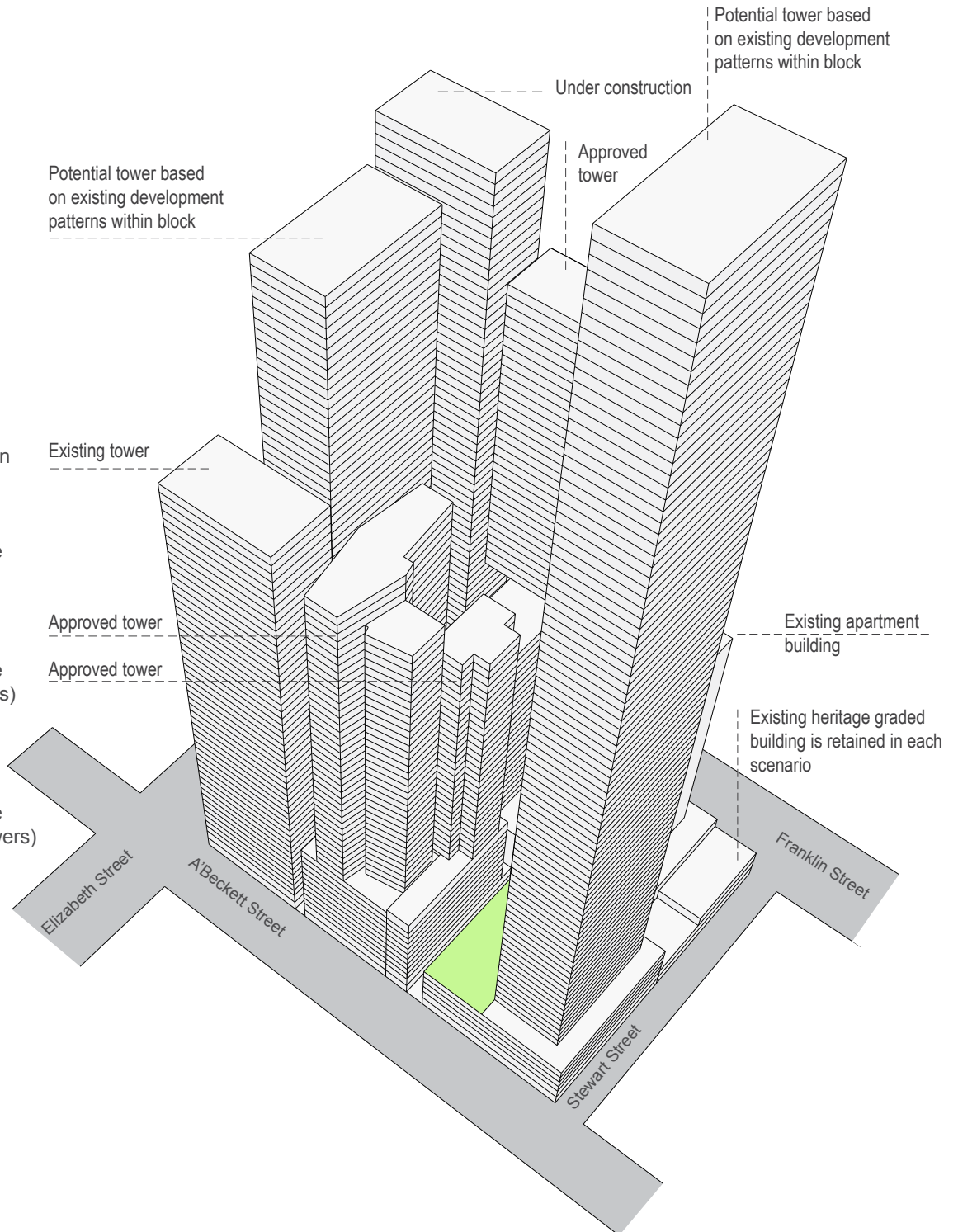
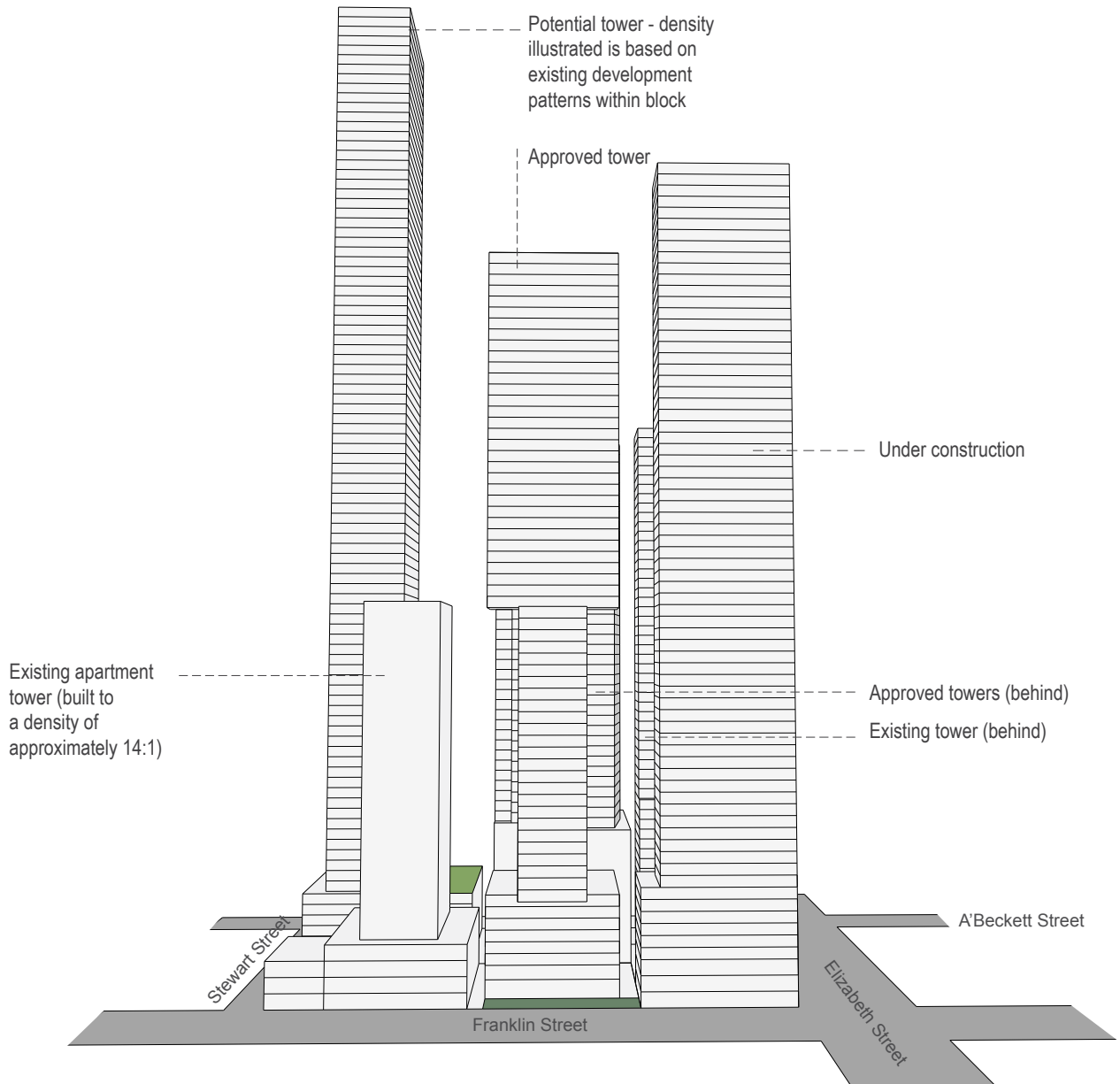
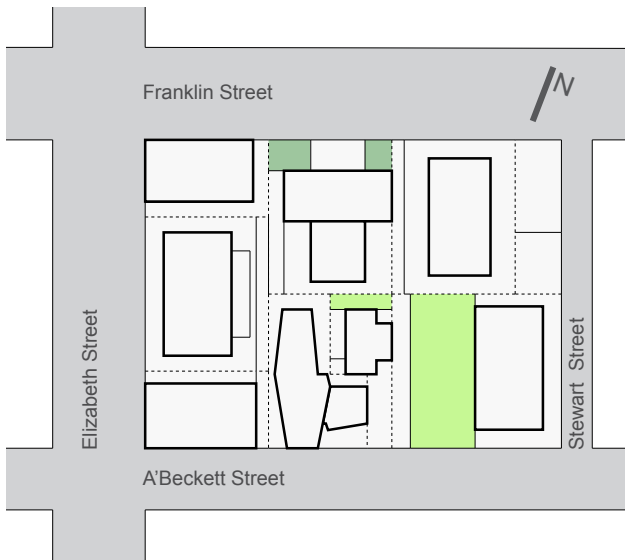


Figure 16: Aerial perspective - A'Beckett / Franklin block developed according to Melbourne's lack of apartment tower controls



# How does Melbourne compare to other cities?

A summary of development outcomes.

All models shown here are to the same scale.

A summary of the existing policy controls that have delivered these outcomes is included in Table 1 on the next page.

## Vancouver

**1,750** residents

Density

**1,290**

People/hectare

Built outcome

**64%**

Total site coverage  
(ground level)

**640**

Apartments/hectare

**19%**

Total site coverage  
(towers)

**192**

Cars/hectare

**13-36**

Tower heights (in  
storeys)

**3.0** m<sup>2</sup>

Open space/person

Community benefit

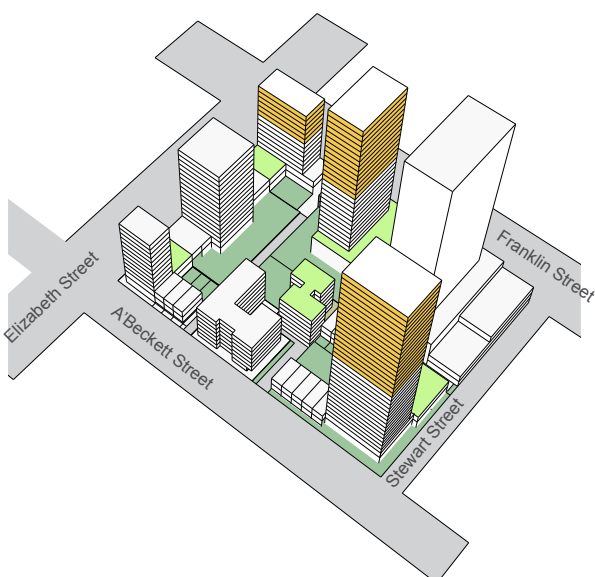
(as a result of density bonuses)

**37**

Affordable housing  
units

**7,000**

m<sup>2</sup> of community  
facilities



## New York

**3,500** residents

Density

**2,560**

People/hectare

Built outcome

**73%**

Total site coverage  
(ground level)

**1,280**

Apartments/hectare

**22%**

Total site coverage  
(towers)

**114**

Cars/hectare

**25-33**

Tower heights (in  
storeys)

**1.1** m<sup>2</sup>

Open space/person

Community benefit

(as a result of density bonuses)

**172**

Affordable housing  
units

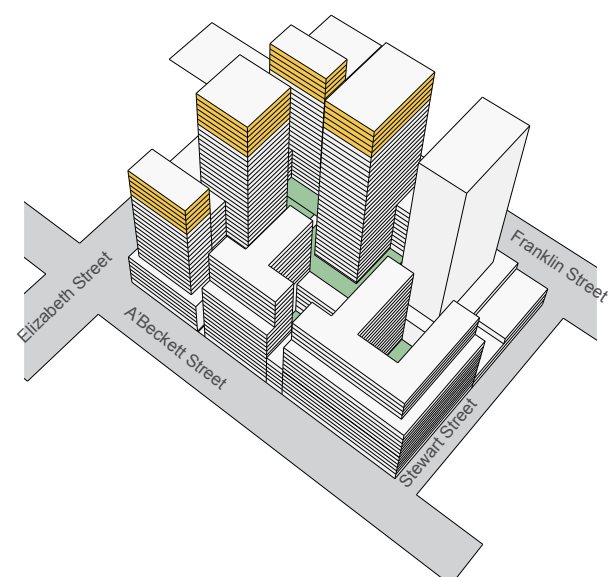


Figure 1: Aerial perspectives: A'Beckett / Franklin block developed according to Vancouver, New York, Hong Kong and Melbourne controls

## Hong Kong

**3,600** residents

Density

**2,620**

People/hectare

Built outcome

**61%**

Total site coverage  
(ground level)

**1,200**

Apartments/hectare

**27%**

Total site coverage  
(towers)

**237**

Cars/hectare

**13-46**

Tower heights (in storeys)

**1.5** m<sup>2</sup>

Open space/person

### Community benefit

(as a result of density bonuses)

More environmentally sustainable designed buildings.



## Melbourne

**8,600** residents

Density

**6,290**

People/hectare

Built outcome

**92%**

Total site coverage  
(ground level)

**3,140**

Apartments/hectare

**67%**

Total site coverage

**1046**

Cars/hectare

**29-95**

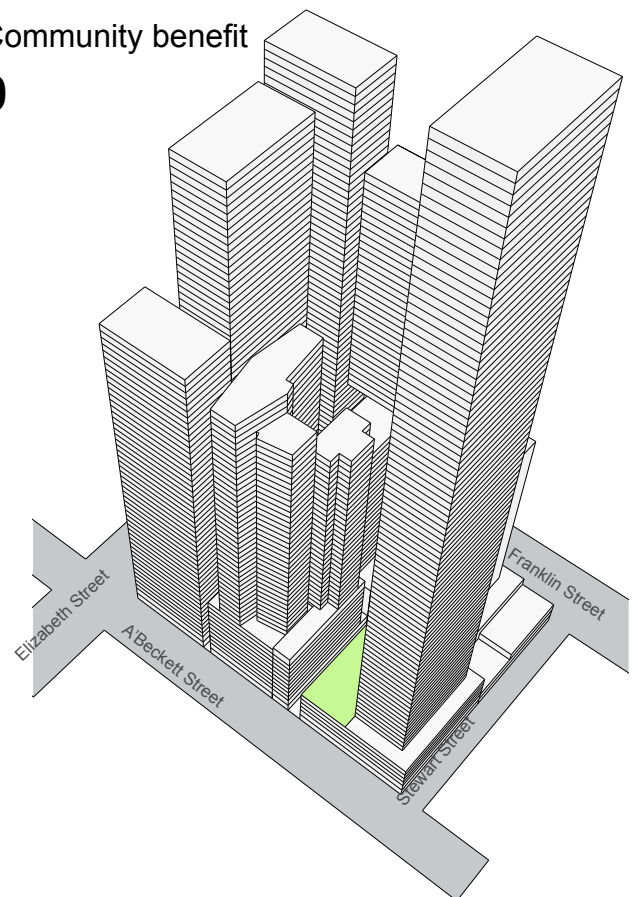
Tower heights (in storeys)

**0.1** m<sup>2</sup>

Open space/person

### Community benefit

**0**


























# How does Melbourne compare to other cities?





A summary of policy controls for apartment towers.

































The following table details some of the key policies that influence the outcomes of apartment tower development in Melbourne, New York, Vancouver, Tokyo, Hong Kong and Seoul.

Source: Interviews in each city and planning policies in each city.

Table 1: A comparison of the current planning policies in Melbourne and those that operate in the five comparative cities

	How many people can live there? (density)			How tall can the tower be?
	Building density controls <small>(As-of-right maximum densities noted)</small>	Building density bonuses <small>(Max. density noted is in exchange for a community benefit)</small>	Allow transfer of development rights	Tower Height
<i>Melbourne</i>	 <p>12:1 (Hoddle grid area only - not enforceable, never met)</p>	 <p>No density controls so not an option.</p>	 <p>No density controls so not an option.</p>	
<i>New York</i>	 <p>10:1</p>	 <p>12:1 For provision of open space, affordable housing or other community benefits, eg. transit station upgrades.</p>	 <p>Yes, in designated districts</p>	 <p>Generally no height limits - zoning controls for towers on a podium require that 55% of floor area is located under a 46m height threshold.</p>
<i>Vancouver</i>	 <p>5:1 <i>b</i></p>	 <p>Negotiable based on provision of community benefit which varies.</p>	 <p>Yes, to promote preservation of heritage buildings</p>	 <p>Typically 300 feet (90 metres). View corridors to mountains generally restrict tower heights.</p>
<i>Tokyo</i>	 <p>5:1 Residential only zone 13:1 Commercial Zone (which allows residential development)</p>	 <p>7.5:1 (Residential) 19.5:1 (Commercial) Negotiable for provision of open space and other community benefit</p>	 <p>Yes, on adjoining blocks on specified sites suitable for substantial development.</p>	
<i>Hong Kong</i>	 <p>10:1</p>	 <p>11:1 - Up to 10% for Environmental Sustainable Development initiatives</p>		
<i>Seoul</i>	 <p>2.5:1</p>	 <p>3:1 for affordable housing and open space</p>	<p>Unknown.</p>	 <p>Most apartments buildings are 20-30 storeys high.</p>

-  Policy in place and effective (that is, complied with)
-  Policy in place - negotiated outcome (effective)
-  Policy in place - negotiated outcome (ineffective)
-  No policy in place

How wide can the tower be?		What are the apartments like to live in?			
Form of Tower (Floorplate dimensions or max size in m <sup>2</sup> )	Site Coverage of tower (% of site area)	Apartment Size (min m <sup>2</sup> )	Access to light and air		Minimum open space <i>j</i>
			Windows to all bedrooms	Side / rear building setback or building separation distances	
				 <i>h</i> Tower separation of 24m (Hoddle grid), 20m (Southbank) - both not enforceable)	 <i>k</i> Up to 5% of land area (or equiv. \$ value) - contribution as public open space (not required on site).
Varies.  In certain areas, for example eg. the Lower Manhattan district a maximum floorplate dimension applies.	 30% Minimum 40% Maximum	 37m <sup>2</sup> for Quality Housing Buildings.		 Varies, however generally 9m from a window to a side or rear boundary.	
 A max tower dimension of 90 feet (27m) and max floorplate area of 6,500 feet gross (604 m <sup>2</sup> ).	 Note - in Downtown South, there is generally a maximum of two towers per block.			 12m to a side boundary, 24m between towers	 4.6m <sup>2</sup> per apartment required on-site of communal open space.
Unknown.	Unknown.	 25m <sup>2</sup> (min.) and 40m <sup>2</sup> (preferred) for 1 person. Area increases with number of people in household. <i>f</i>	 Not required, however rare for a window not to be provided in all bedrooms.		Unknown.
	 Related to the height and street frontages. E.g. for sites with 2 street frontages and tower above 61m in height maximum is 37.5%			 7.5m to side/rear boundary, 15m tower separation. Wind impact assessment required.	 1m <sup>2</sup> /person of public open space on site.
		 60m <sup>2</sup> <i>g</i> (public housing)		 6m (if no windows), else proportional to building height. <i>i</i>	 <i>l</i>

### Table 1 Notes

*a*

A density control of 12:1 for the whole block is in place in the Hoddle grid. This is not enforceable as it is impractical to assess on a site-by-site basis making this control unworkable. Southbank has no density controls.

*b*

A small area within Vancouver allows an as-of-right density ratio as high as 7:1, however this applies to only two blocks and so has not been used as the primary control to test Vancouver's policy impacts.

*c*

Generally there are no height controls in areas that permit a tower in the Hoddle grid. Height controls in Southbank have proven ineffective with developments exceeding discretionary height controls by up to 200%.

Heights of towers on some sites are influenced by the requirement to protect some areas of open space within the city from overshadowing.

*d*

Tower heights in Tokyo and Seoul are determined by sky plane angles that protect sunlight reaching the streets. The heights of towers are therefore related to the size of the site and adjacent street width.

*e*

There are generally no tower heights in Hong Kong, with some exceptions. Urban design principles suggest that towers should be 20% below the height of the adjacent mountains.

*f*

Tokyo has minimum apartment size standards however they are rarely met.

*g*

While no minimum apartment sizes apply in Seoul, the market expectation delivers a standard apartment size - an apartment with 2 bedrooms is approximately 60m<sup>2</sup>, 3 bedrooms are 85m<sup>2</sup>, 4 bedrooms are 102m<sup>2</sup> and up to 135m<sup>2</sup>.

When the Korean economy was booming in the 1990s, a minimum apartment size was imposed of 60m<sup>2</sup> to ensure that apartments were of a reasonable size.

*h*

Tower separation distances of 24m are in place in the Hoddle grid. These are discretionary and in recent times are rarely met. Preferred tower separation distances in Southbank are 20m, with a 10m minimum. These are also discretionary and the 20m separation is rarely met.

*i*

A solar skyplane operates to ensure buildings on the southern side of a block are lower than those on the north to ensure solar access to apartments. A minimum of 2 hours sun must reach into the apartment between 9 and 3pm at the equinox.

The distance between buildings is a proportion of the height of the building - a ratio in the range of 0.8 - 1.2. E.g. if a building is 100m tall, the building adjacent (to the north) would be a minimum of 80m away.

*j*

Open space can be required to be public open space (accessible to the all members of the public) or communal open space (accessible to the residents of that development).

*k*

Up to 5% of land area or equivalent cash value - the public open space is therefore not required to be located on-site and is negotiated on a site-by-site basis. A current policy amendment aims to increase this to an 8% non-negotiable contribution in high growth areas.

The mechanism requires a fixed contribution of open space that is not connected to the numbers of people moving into a development site. As the density on a site increases, there are more people using this open space, effectively eroding away the amount of open space provided per person.

*l*

In Korea, the national law states that each person should have open space (in the order of 6-9m<sup>2</sup> per person), however there are no requirements for a developer to locate this on a development site.





## Clinton area, New York

Designated inclusionary housing area enabling 20% density bonuses for provision of affordable housing

3

## What Needs to Change?

Seoul



Melbourne has, by far, the least policies that regulate tower apartment developments compared to New York, Vancouver, Tokyo, Hong Kong and Seoul – all cities that have been managing high-rise, high-density, inner-city living for much longer than Melbourne. All of the recent residential developments approved within this case study block would not be supported under the policy controls of these very high density cities.

Cities change and managing them is an ongoing and deliberative task. New York and Hong Kong have both revised their density controls in the past to reduce the amount of development that can be built on a site (Washburn, 2013 and interview with the Hong Kong Planning Department). In Hong Kong this has been done twice. This was in response to repeated examples of poor quality development (resulting from an over-development of a site) and the need to restrict population growth in each neighbourhood with what could realistically be supported by the local infrastructure.

These revisions to the planning policies in each city still enable high-rise, high density developments. Importantly, they seek to balance liveability with economic success. These changes benefitted many people – including landowners whose land value became better protected as they were now less likely to be crowded out by the over-development of an adjacent site.

Melbourne is a city that prides itself on its liveability, regularly being crowned the most liveable city in the world. This accolade puts into stark contrast the recent development patterns that are occurring in central Melbourne.

As illustrated in the Melbourne case study, on this one block, there could be eight towers, housing approximately 8,600 residents. This is 5,000 more people than the next highest residential population that would be possible in the Hong Kong scenario. Hong Kong is a very high density city, with significant population pressures and where development opportunities are severely constrained by the mountains and the sea. And yet, Hong Kong carefully manages and caps density in order to protect the liveability of the city for its residents. It requires developers to provide open space for their residents. In Hong Kong, significant density bonuses are not offered as increasing the numbers of people living in a neighbourhood above what is planned for is not accepted as there would be insufficient local infrastructure, for example schools, to support these greater residential densities.

Developing in the central city is important and critical for the prosperity and sustainability of the city, however, this should not be done at the expense of liveability and longer-term prosperity of the city. The social and economic consequences of this pattern of hyper-dense, high-rise development are unknown. This scale of densities is not required to support population growth in the central city as there is sufficient land supply to meet the growth projections. Nor is there a valid argument that these densities are required to 'put Melbourne on the map' as a global city.

Not having density or enforceable height limit controls has led to significant increases in land value. As land values rise, developers seek greater financial return to compensate for the cost of the land. This then locks in a cycle of increasing densities as developers speculate on the potential higher yield that they now could realise. These high yield targets add further pressure to increase the number of apartments within a development, and to decrease the size of apartments. This diminishes the provision of basic levels of amenity such as light and air to bedrooms. High land values also restrict or prohibit the opportunity for government to purchase land for open space or community facilities to support these new residents.

This pattern of development is also affecting the diversity of the housing supply. High land values mean that in order for developers to achieve viable returns on a development, different types of housing, eg. mid-rise developments that have lower yields are not an option.

It is important to acknowledge that a density control is only one mechanism to influence development patterns. Importantly, as Alex Washburn notes:

*'Density is a tool of mitigation; it is not an end in itself. The larger point is that density has to be liveable, and people like variety.'*(p167, Washburn, 2013)

Further work would need to be undertaken to determine what density controls would be appropriate for central Melbourne. A density control does provide the strongest regulatory tool to guide the amount of tall building development permitted in a given area. (Urban Strategies Inc. & Hariri Pontarini Architects, 2010) 'The appropriate density controls for central Melbourne would need testing to balance population growth, development feasibility and the opportunity to link funding (or the direct provision) of community facilities or open space with development approvals. It should also consider the opportunity to

incentivise affordable housing to support more diverse and inclusive communities. The means of introducing a control would need to be carefully considered.

The flow-on impacts of these extreme densities also need to be adequately addressed in planning policies. For example, car ownership coupled with these high densities will impact congestion in the city. The Melbourne case study will provide in the order of 1,400 car spaces, far above what would be required in Hong Kong, New York or Vancouver. Central Melbourne is well-served by public transport and car ownership is not necessary to move easily about the central city.

The enjoyment of the city will be compromised if the quality of the public realm diminishes due to the cumulative effect of overshadowing and wind drafts from closely spaced, tall towers. Melbourne is celebrated for its streets and laneways. This is embedded in our cultural, social and economic success. Developing at such extreme densities will erode our highly valued and celebrated public realm. Is this something we are willing to risk?

Access to open space is poor in these hyper-dense developments. The amount of open space available per person on average is in the order of 0.1m<sup>2</sup> per person. This compares to Vancouver (3m<sup>2</sup> per person) or Hong Kong (1.5m<sup>2</sup> per person). The high site coverage in the Melbourne case study (92% of the ground level) and high tower site coverage (62% of site area) leaves very little opportunity for open space either at street level or as roof gardens on the podium level. It is difficult to understand how or if the people who live in these buildings will socialise with their neighbours? Conversely, in the New York, Vancouver and Hong Kong scenarios it is easy to see where open space is provided, either as public or communal open space and that these spaces will have reasonable access to sunlight. In high-density cities, adequate and well-designed open spaces are critical for the social life and general health and well-being of residents.

High-rise housing is not necessarily un-family-friendly. Apartments that are small, inflexible, that have limited storage space and no access to an outdoor play space, however, will not attract families to the central city. By comparison, the number of children living in downtown Vancouver has increased by 69% between 2001 and 2011.

There was little evidence identified during this research that living in high-rise apartments is inherently problematic or bad for residents. Rather the consensus was that the three critical factors that impact the social outcomes of the residents were the quality of the living space inside the apartment, the quality of the neighbourhood (including the urban form and provision of open space) and access to local services and facilities. These are all factors that can be addressed by thoughtful and effective planning and design policies.

## Conclusion and Recommendations

This analysis of the apartment tower policies in New York, Vancouver, Tokyo, Hong Kong and Seoul tells a compelling story. Regardless of cultural influence, the political landscape, governance frameworks, local climate or growth pressures in each city, they all have in place similar policies to promote positive high-rise, high-density development outcomes as follows:

- Every city regulates density.
- Every city incentivises public or community benefit through density bonuses, explicitly acknowledging the need to link development capacity with local infrastructure capacity and delivery.
- Every city regulates buildings setbacks and, with the exception of Tokyo, tower separation distances.
- Every city has some method of regulating apartment quality (typically including the need for windows in all habitable rooms and a minimum apartment size).

Together these controls consider the inhabitants of these buildings and the larger implications for the city, create funding mechanisms for much needed open space, affordable housing and community facilities and protect the land value of adjacent development sites.

By contrast, Melbourne's weak policies incorporate:

- No effective density controls.
- No density bonus scheme.
- No effective height controls.
- No effective controls influencing the space between towers.
- No requirements for considering apartment quality.

This results in:

- Extremely high-density developments. This is facilitating rapid population growth in concentrated city areas, without consideration of whether the neighbourhood and local infrastructure can support these residents.
- A missed opportunity to fund infrastructure through density bonuses.
- Buildings that are very high and very close together resulting in poorly designed apartments that lack good access to light, air and an outlook and impacting on the quality of the public realm of the streets below.

We have highly competent developers and design and planning professionals in Melbourne. It is the lack of effective policies that is letting Melbourne down.

The evidence from these cities is clear. Melbourne would benefit from the introduction of policies that:

- Establish appropriate density controls in central Melbourne.
- Establish density bonuses to link development to public benefit and incentivise the delivery of new open spaces, affordable housing and other community facilities.
- Establish an enforceable tower separation rule.
- Establish apartment standards.

This report also recommends investigating the introduction of two planning streams for large-scale development approvals that developers can choose between – an 'as-of-right' approval for meeting these controls (that can provide certainty to developers and the community) or a negotiated outcome (with community review) if the controls are exceeded.



## References

- City of Melbourne. (2013). *Future Living: A discussion paper identifying issues and opportunities for housing our community*. Melbourne: City of Melbourne Retrieved from [http://www.melbourne.vic.gov.au/BuildingandPlanning/FutureGrowth/Documents/future\\_living\\_discussion\\_paper.pdf](http://www.melbourne.vic.gov.au/BuildingandPlanning/FutureGrowth/Documents/future_living_discussion_paper.pdf).
- City of Melbourne. (2013b). *Understanding the Quality of Housing Design*. Melbourne.
- City of New York. (2011). *Zoning Handbook*. New York: New York City, Department of City Planning.
- City of New York. (2013). *Zoning Resolution, Article II: Residence District Regulations*. York: Retrieved from <http://www.nyc.gov/html/dcp/pdf/zone/art02c03.pdf>.
- City of New York. (2014). *Zoning Resolution: Article II – Residence District Regulations - Chapter 8 – The Quality Housing Program*.
- City of Vancouver. (2004). *Downtown South Guidelines (Excluding Granville Street)* Retrieved from <http://former.vancouver.ca/commsvcs/guidelines/D007.pdf>.
- City of Vancouver. (2013). *Official Development Plan By-Laws: Downtown Official Development Plan*. Vancouver: City of Vancouver Retrieved from <http://former.vancouver.ca/commsvcs/BYLAWS/ODP/dd.pdf>.
- Council for Tall Buildings and Urban Habitat. (2014). *Criteria for Defining and Measuring of Tall Buildings*. Chicago.
- Department of Transport Planning and Local Infrastructure. (2013). *Melbourne Planning Scheme, Clause 22.01 - Urban Design within the Capital City Zone*. Retrieved from [http://planningschemes.dpcd.vic.gov.au/schemes/melbourne/ordinance/22\\_lpp01\\_melb.pdf](http://planningschemes.dpcd.vic.gov.au/schemes/melbourne/ordinance/22_lpp01_melb.pdf).
- Gallagher, C. (2014). *Melbourne faces becoming an 'Anywhere City' unless we come up with a plan*. Guardian Australia. Retrieved from <http://www.theguardian.com/australia-news/victorian-election-the-countdown/2014/oct/27/melbourne-faces-becoming-anywhere-city-unless-we-come-up-with-a-plan>
- Gehl, J. (2010). *Cities for people*. Washington: Island Press.
- Government of Hong Kong SAR. (2012). *Building (Planning) Regulations - Hong Kong*.
- Government of the Hong Kong SAR. (May 2014). *Hong Kong Planning Standards and Guidelines*. Hong Kong: The Government of the Hong Kong Special Administrative Region Retrieved from [http://www.pland.gov.hk/pland\\_en/tech\\_doc/hkpsg/full/index.htm](http://www.pland.gov.hk/pland_en/tech_doc/hkpsg/full/index.htm).
- Hong Kong Government - Building Department. (2014). *Building Department: Practice Note for Authorized Persons Registered Structural Engineers and Registered Geotechnical Engineers APP-151 - Building Design to Foster a Quality and Sustainable Built Environment*.
- Ministry of Land Infrastructure and Transport. (2003). *Introduction of Urban Land Use Planning System in Japan*. Tokyo: City Planning Division - City and Regional Development Bureau, Ministry of Land, Infrastructure and Transport Retrieved from <http://www.mlit.go.jp/common/000234477.pdf>.
- Seoul Metropolitan Government. (2014). *Urban Planning of Seoul*. Provided in interview with Seoul Metropolitan Government.
- Urban Strategies Inc., & Hariri Pontarini Architects. (2010). *Tall Buildings: Inviting Change in Downtown Toronto*.
- Washburn, A. (2013). *The Nature of Urban Design: A New York Perspective on Resilience*. New York: Island Press.

All images are the author's own, except where noted.

Leanne Hodyl  
Churchill Fellowship Report

*February 2015*