Testing Outcomes

3

3.1 Is there capacity to accommodate the proposed land use mix within Box Hill's neighbourhoods?

In order to test the overall planning outcomes for the activity centre we have prepared an estimate of future floorspace growth over the next twenty years. This has been prepared on a precinct-by-precinct basis to understand the differing growth outcomes foreshadowed by the vision and land use framework.

This is not a floorspace target or a prediction of future change, it is one growth scenario amongst many potential outcomes.

It is anticipated that some neighbourhoods will grow significantly faster, and some neighbourhoods may grow at a slower rate compared to this estimate. Some sectors, for example major health and tertiary education, are strongly influenced by State and Federal Government funding priorities. Private development is greatly influenced by the development market and economic cycles, which may accelerate or slow down development outcomes. Overall, the centre as a whole may also grow much faster or slower than projected, particularly in the context of future major transport investment such as the Suburban Rail Loop.

This estimate is based primarily on projected demographic growth for the centre as a whole, derived from Victorian Government's Victoria in the Future (VIF) 2016 forecasts. Analysis from SGS Economics and Planning has indicated that this is a conservative estimate of potential change compared to other estimates such as .id Consulting and preliminary indications from VIF2019.

Our methodology distributes this growth across the neighbourhoods in the centre based on both the existing land uses and preferred future land use mix derived from the vision statements.

For example, the majority of existing health related floorspace is located within the Health and Education precinct. It is reasonable to assume that the majority of growth in health related employment is likely to occur within the same precinct, with a small proportion of health floorspace growth spilling over into adjacent neighbourhoods

The distribution of floor area in this model uses the residential / non-residential maximum percentages proposed for the ACZ schedule. Where a 30% maximum for residential floorspace is applied this is reflected in future growth estimates.

Most sites across the centre are already occupied by existing buildings and uses. Thus we need to estimate what sites are available for future development. Using a mapping database we set aside sites that have recently been developed or are under construction. Of the available sites, we estimated that only two out of every three (65%) will actually be developed over the next 20 years.

The floor area of buildings that are replaced does not disappear. It is important to estimate the overall floor area required to replace existing uses as well as generating the net growth in floorspace. Floorspace for existing uses is displaced and reallocated within new development across the centre. Thus a greater amount of future development is needed to be constructed to achieve the net growth required to meet demographic projections.

The overall figures and breakdown by neighbourhood is set out below.

Table 13 Required approvals to achieve projected growth — how much development is required to deliver the floorspace needed to accommodate the projected growth in employment and dwellings?

	Overall Growth in GFA (net)	Gross GFA required to account for growth and displaced uses
Box Hill MAC	**731,000**	**895,000**
Health and Education	294,000	301,000
Prospect	78,000	117,000
Garden	59,000	74,000
Central	223,000	281,000
Civic & Cultural	16,000	30,000
Enterprise	29,000	48,000
Residential Transition	30,000	45,000

3.2 How much development is provided within the envelope defined by the built form guidelines?

Estimating a development envelope

3D modelling produced an initial planning envelope for sites across the centre (generating floorplates allowing a measurement of gross floor area). These envelopes were derived from centre-wide built form controls, including: preferred maximum building height, street wall height and upper level setbacks, side and rear setbacks as well as overshadowing controls.

This model also assumes all sites are separately owned and individually developed. This is a conservative assumption, since consolidated sites are likely to generate greater potential yields. This envelope does not account for granular controls or guidelines such as ground level setbacks or other site-specific circumstances, nor attempt to model actual building depths. As a conservative assumption *(Assumption 1)*, the yield of the 3D-model derived planning envelope was reduced by half (50%) to provide an estimate for the lower GFA resulting from actually developable floorplates resulting from applying the planning guidelines. This provides us with an estimated yield of a hypothetical development envelope.

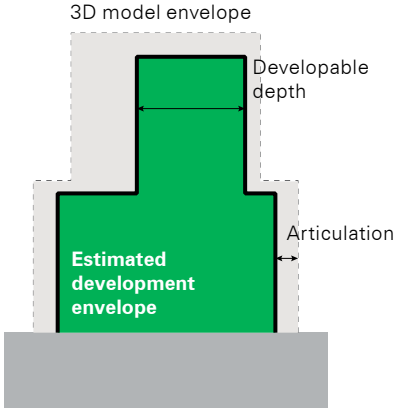
Estimating an indication of yield over the next 20 years

To determine the feasibility of the recommended built form framework in accommodating both significant forecast growth and land use aspirations for each neighbourhood, a high-level estimation of indicative yield over the next 20 years was prepared. This estimation relied on a range of assumptions, these included:

- Only 65% of available sites, i.e. 65% of estimated development envelope, will be developed (*Assumption 2)*
- All developments currently under construction and approved permits will be constructed.
- Buildings 4 storeys and lower were not modelled. We applied a general assumption for low-rise developments over the next twenty years based on analysis of planning permit applications. This assumed that 50 sites across the centre will be developed with an average GFA of 2000m^2.

As a whole, 3D modelling and high-level indicative yield estimates strongly suggest that the recommended built form controls would comfortably accommodate forecast growth on a gross basis even accounting for displaced uses. Future growth would use 74% of the available yield if 65% of sites were developed in accordance with the estimated development envelope.

Figure 27 Illustrative difference between 3D model envelope and estimated development envelope.



Box Hill MAC

Estimated development envelope	GFA (m^2)
Development envelope from 3D model	2,648,000
Assumption 1: 50% of envelope is buildable	-1,324,000
TOTAL	**1,324,000**
Estimated indicative yield over 20 years	
Assumption 2: 65% of sites developed	860,600
+ Developments under construction	94,100
+ Developments with approved permits	153,900
+ Developments (< 5 storeys over 20 years)	100,000
TOTAL	**1,208,600**

Forecast growth	
Overall growth (net)	731,000
Growth required inc. displaced uses (gross)	895,000
% of indicative yield	**74%**

74%

Development envelope
Approved built form

Figure 28 View 1 of estimated planning envelopes in Box Hill for buildings of 5 storeys and above

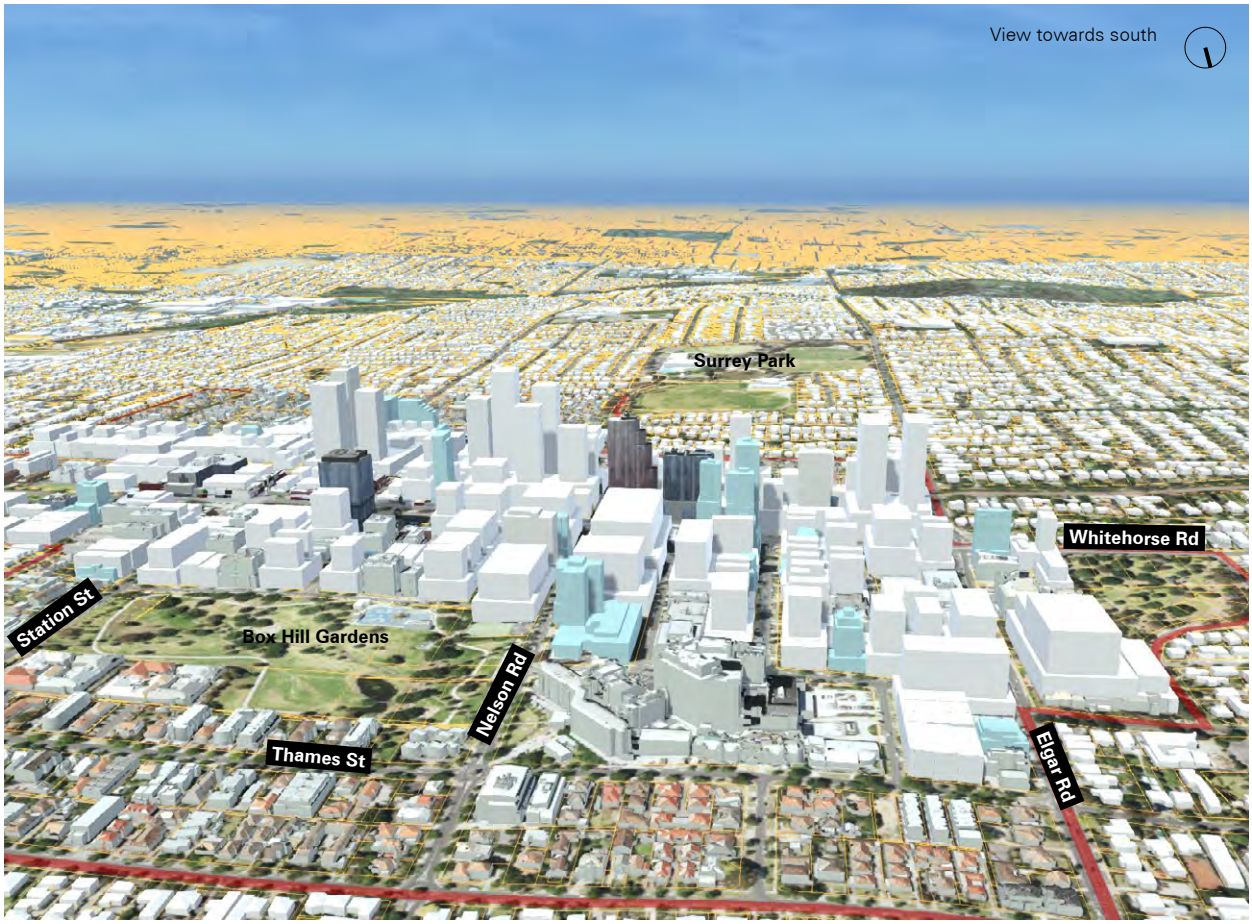


Figure 29 View 2 of estimated planning envelopes in Box Hill for buildings of 5 storeys and above

Precinct 1: Central

Precinct development envelope
Approved built form

Estimated development envelope	GFA (m^2)
Development envelope from 3D model	777,000
Assumption 1: 50% of envelope is buildable	-388,500
TOTAL	**388,500**
Estimated indicative yield over 20 years	
Assumption 2: 65% of sites developed	252,525
+ Developments under construction	47,700
+ Developments with approved permits	56,500
+ Developments (< 5 storeys over 20 years)	-
TOTAL	**356,725**

Forecast growth	
Overall growth (net)	223,000
Growth required inc. displaced uses (gross)	**281,000**
% of indicative yield	**79%**

79%

Precinct 2: Health & Education

Estimated development envelope	GFA (m^2)
Development envelope from 3D model	918,000
Assumption 1: 50% of envelope is buildable	-459,000
TOTAL	**459,000**
Estimated indicative yield over 20 years	
Assumption 2: 65% of sites developed	298,350
+ Developments under construction	1,300
+ Developments with approved permits	72,200
+ Developments (< 5 storeys over 20 years)	-
TOTAL	**371,850**

Forecast growth	
Overall growth (net)	294,000
Growth required inc. displaced uses (gross)	**301,000**
% of indicative yield	**81%**

81%

Precinct 3: Prospect

Estimated development envelope	GFA (m^2)
Development envelope from 3D model	444,000
Assumption 1: 50% of envelope is buildable	-222,000
TOTAL	**222,000**
Estimated indicative yield over 20 years	
Assumption 2: 65% of sites developed	144,300
+ Developments under construction	29,900
+ Developments with approved permits	3,700
+ Developments (< 5 storeys over 20 years)	-
TOTAL	**177,900**

Forecast growth	
Overall growth (net)	78,000
Growth required inc. displaced uses (gross)	**117,000**
% of indicative yield	**66%**

66%

Precinct 4: Garden

Precinct development envelope
Approved built form

Estimated development envelope	GFA (m^2)
Development envelope from 3D model	153,000
Assumption 1: 50% of envelope is buildable	-76,500
TOTAL	**76,500**
Estimated indicative yield over 20 years	
Assumption 2: 65% of sites developed	49,725
+ Developments under construction	15,200
+ Developments with approved permits	3,600
+ Developments (< 5 storeys over 20 years)	40,000
TOTAL	**108,525**

68%

Forecast growth	
Overall growth (net)	59,000
Growth required inc. displaced uses (gross)	74,000
% of indicative yield	**68%**

Precinct 5: Civic & Cultural

Estimated development envelope	GFA (m^2)
Development envelope from 3D model	133,000
Assumption 1: 50% of envelope is buildable	-66,500
TOTAL	66,500
Estimated indicative yield over 20 years	
Assumption 2: 65% of sites developed	43,225
+ Developments under construction	0
+ Developments with approved permits	8,700
+ Developments (< 5 storeys over 20 years)	10,000
TOTAL	**61,925**

48%

Forecast growth	
Overall growth (net)	16,000
Growth required inc. displaced uses (gross)	30,000
% of indicative yield	**48%**

Precinct 6: Enterprise

Estimated development envelope	GFA (m^2)
Development envelope from 3D model	223,000
Assumption 1: 50% of envelope is buildable	-111,500
TOTAL	**111,500**
Estimated indicative yield over 20 years	
Assumption 2: 65% of sites developed	72,475
+ Developments under construction	0
+ Developments with approved permits	5,000
+ Developments (< 5 storeys over 20 years)	-
TOTAL	**77,475**

62%

Forecast growth	
Overall growth (net)	29,000
Growth required inc. displaced uses (gross)	48,000
% of indicative yield	**62%**

Precinct 7: Northern and Southern Residential Transition

Estimated development envelope	GFA (m^2)
Development envelope from 3D model	Not modelled
Assumption 1: 50% of envelope is buildable	-
TOTAL	-
Estimated indicative yield over 20 years	
Assumption 2: 65% of sites developed	-
+ Developments under construction	-
+ Developments with approved permits	4,200
+ Developments (< 5 storeys over 20 years)	50,000
TOTAL	**54,200**

Forecast growth	
Overall growth (net)	30,000
Growth required inc. displaced uses (gross)	**45,000**
% of indicative yield	**83%**

83%

3.3 Testing the built form guidelines — planning envelopes for potential development

The combination of setbacks to the front, rear and sides above street wall height means that some smaller sites may not be able to be built to the preferred maximum height of its location. This is intentional and is a specific response to community feedback that built form height should relate to the size of the land as well as the height of surrounding buildings.

Side and rear setbacks

The mandatory side and rear setbacks ensure that there is adequate separation between built form on adjoining sites above the street wall height. The separation ensures that it is possible to see the sky in between taller built form. The setbacks also ensure that taller built form is designed to be seen from all sides rather than presenting a blank facade to an adjoining site.

There are two thresholds where side and rear setbacks may constrain overall building height:

— For very narrow or small sites the required side setbacks may mean there is no feasible footprint for built form above street wall height. Sites less than 10 metres wide will only be able to be built to the street wall height.

— For moderately sized sites there may be a feasible footprint for development above street wall height providing 5 metre setbacks but not for 10 metre setbacks. These sites will be constrained to a maximum of 15 storeys.

Figure 30 Testing outcomes of side and rear setbacks to sites on Prospect Street

Tested development envelope
Development envelope
Approved built form

Without lot consolidation

Taller form enabled by consolidation

Reduced side setback controls would enable taller 'pencil-tower' form with poorer separation between buildings and marginal feasibility

Incentivising lot consolidation

The combination of existing lot size and setback requirements provides a clear incentive for lot consolidation in locations where taller built form is otherwise possible (see Figure 31 and Figure 30). Larger sites created through lot consolidation are better able to manage off-site impacts, such as vehicular access, services and loading, and accommodate built form while still ensuring there is appropriate separation between towers.

Street wall height and upper level setbacks

The application of a street wall ensures that the height of the lower levels of a building (podium) is related to the width of the street (see Figure 32). This demonstrates how recessive built form is achieved above the street wall through the application of upper level setbacks. This ensures an appropriate sense of enclosure while providing clear views to the sky from the street.

Figure 31 The application of side and rear setbacks above the street wall provides a clear incentive for lot consolidation in locations where taller built form is possible.

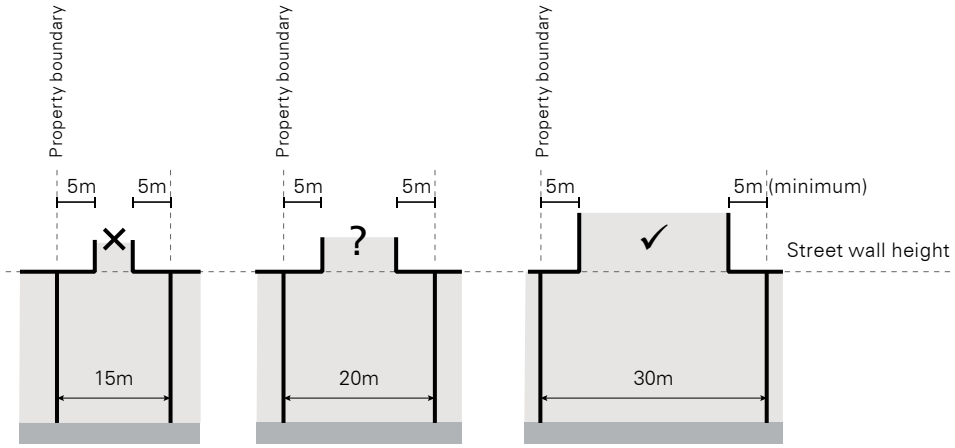
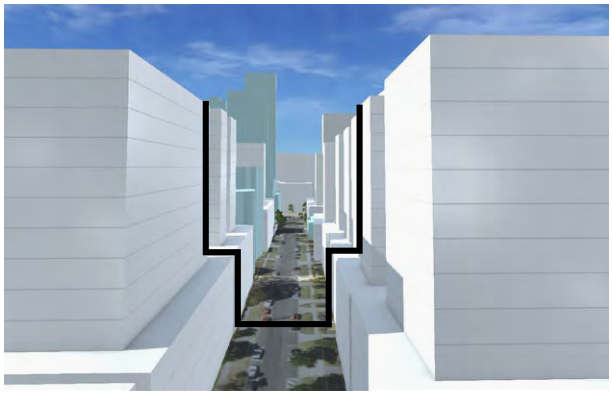


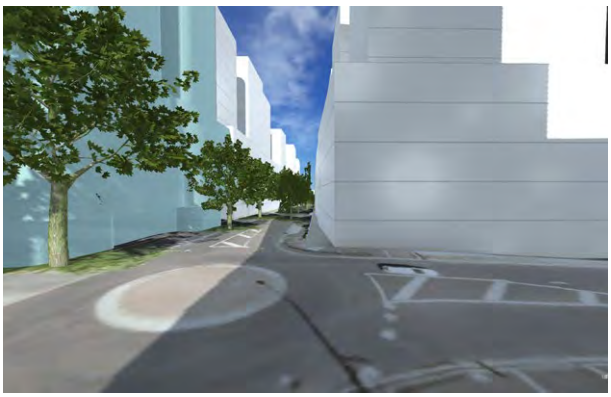
Figure 32 Testing street wall heights and upper level setbacks



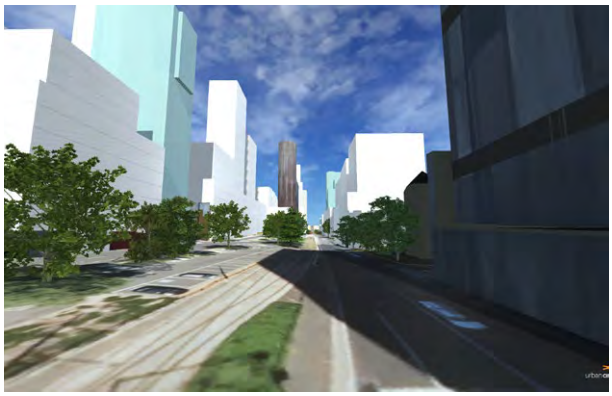
Wellington Road towards south, demonstrating the street wall and upper level setbacks in relation to width of the street

Streetscape view of Central Neighbourhood from Station Street/Whitehorse Road

Streetscape view of Carrington Road towards the east



Streetscape view of Prospect Street towards the west



Streetscape view of Whitehorse Road towards the west

Streetscape view of Station Street towards the south

Streetscape view of Bruce Street towards the south from Irving Avenue

Streetscape view of Garden Neighbourhood from Box Hill Gardens

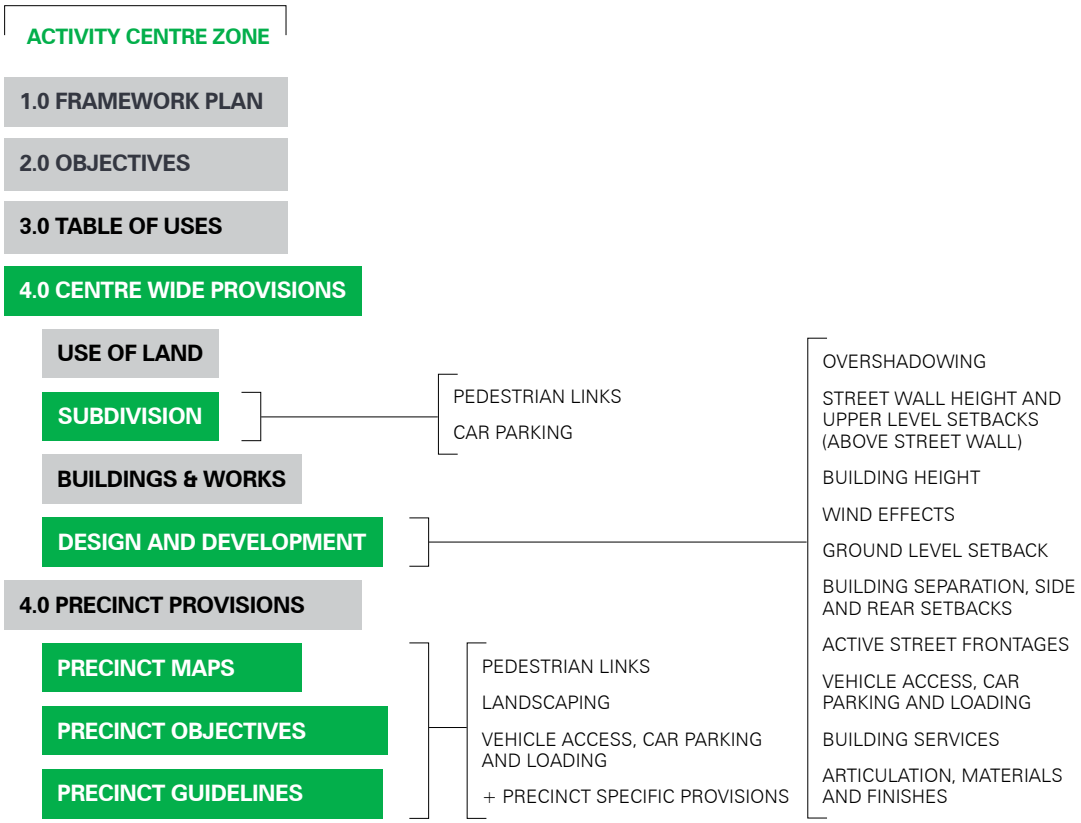
Implementation

4

4.1 Integration into the Activity Centre Zone

The recommended built form framework should be tightly integrated into the Activity Centre Zone. Specifically, the primary controls should be incorporated as Centre Wide Design and Development provisions with particular precinct-specific requirements, such as landscaping and provision of new links, be incorporated through Precinct Provisions.

Figure 33 Implementation of the UDF within the Activity Centre Zone




mgs