ADDENDA 6
Amendment GC81
Fishermans Bend
Expert Urban Design
Evidence: Response to expert witness reports

Prepared on behalf of DELWP
30 April 2018
1. Scope

1) This addenda has been prepared in accordance with the request made to Panel on 19 April, 2018 (Tabled Document 251).

2) This articulated that the 'matters we wish Ms Hodyl to address in further evidence are:
   • The modelling of Mr Sheppard, Mr McGurn and Ms Heggen in order to explain the differences between the various witnesses’ models.
   • Mr Sheppard’s recommendations in his precinct specific evidence relating to building heights to explain why in Ms Hodyl’s evidence those recommendations should not be adopted’

3) This Addenda has been prepared to respond to these two items.

4) In regards to the second item, I provide an assessment of each of Mr Sheppard’s recommendations and my opinion on whether these should be adopted or not.

5) In the preparation of Addenda 2 to my original evidence statement, I modelled all sites where a submission has been made through the Panel process.

6) This means that I have modelled all of the sites that have been modelled by each of these experts enabling a direct comparison of the differences in modelling outcomes between the various witnesses’ models.

2. Overview

7) The differences between the various expert witnesses’ models are the result of five key drivers:

a. Different methods of applying the FAR
   • The 3 experts and I each take a different approach

b. Different building design assumptions
   • The assumptions within Mr Sheppard’s and my modelling are closely aligned and take into consideration building design
   • Mr McGurn’s and Ms Heggen’s modelling vary in approaches and frequently do not take into consideration building design

c. Differences in the application of proposed controls
   • Differences include varied responses to the inclusion of laneways and the modelling of street wall heights adjacent to parks. This has significant outcomes on the development outcomes modelled.

d. Errors in the application of the proposed controls or in modelling calculations
   • Minor errors are noted for all 4 experts where they have been identified.

e. Differences in the degree to which the preferred character, as defined in the draft MSS, has been considered
   • The proposed Design Development Overlay (DDO) includes a Design Objective ‘To encourage a diversity of architectural styles and building typologies, to create a place of architectural excellence, and an engaging and varied built form
in response to the desired/preferred place and character.' (Tabled document 66F, paragraph 2).

- The preferred vision for each precinct and the preferred character for each sub-precinct is stated within the draft MSS (Documents 66B and 66C). Two of these have been summarised and illustrated with precedent image examples in tabled documents M2 (Montague) and S3 (Sandridge).

8) The preferred character statements in the draft MSS have been largely ignored by the other 3 expert witnesses’ modelling. This creates a significant difference in the modelling outcomes and in the conclusions that are drawn from their modelling work.

3. Mr Sheppard

9) Mr Sheppard has modelled a total of 29 sites:
   - Montague - 13 sites (8 core; 5 non-core)
   - Sandridge - 5 sites (3 core; 2 non-core)
   - Lorimer - 6 sites
   - Wirraway - 5 sites (3 core; 2 non-core)

a. Method of applying the FAR

10) Mr Sheppard in his original evidence (March 2018) has modelled the total GFA shown as equal to the maximum FAR in the CCZ [e.g. Montague core 6.1:1] plus the minimum commercial requirements [e.g. Montague core 1.6:1];

11) In his updated evidence (presentations to panel for Montague, dated 19 April 2018 and ‘Sandridge revised FAR modelling - 26.04.2018’), he has revised his approach to align with the Part B CCZ and models the total GFA shown as equal to the maximum FAR in the CCZ with the commercial requirement included within this maximum FAR.

12) Mr Sheppard’s revised modelling for Montague and Sandridge has taken the same approach as my modelling in applying the FAR which also aligns with the Part B CCZ.

13) In referring to Mr Sheppard’s evidence I refer to his revised modelling for Sandridge, Montague and Lorimer and his original modelling for Wirraway as that is what is available at this point in time.
b. Building design assumptions

Residential floorplate assumptions

14) Mr Sheppard has stated his modelling assumptions for residential building floorplates within his report, including:

- Tower width - minimum 15m, maximum 25m (double loaded)
- Tower floor plates (maximum 900m$^2$ for buildings up to 15 storeys high, 1250m$^2$ for taller buildings)
- Apartment orientation: The longer side of a tower floorplate is assumed to have habitable room windows, the shorter side is assumed to have non-habitable windows or secondary habitable room windows

15) This is generally in line with the building floorplate assumptions that I have adopted within my modelling. The key differences being:

- I have modelled residential floorplates with a maximum depth of 26 metres, not 25 metres, and with a total floor area of 1,500m$^2$, not 1,250m$^2$.
- I have modelled a greater range of site coverage within core areas to respond to the preferred character as outlined in the draft MSS.

Figure 1 Differences in modelling outcomes due to different floorplate assumptions for 365-391 Plummer Street, Wirraway (Mr Sheppard - left; extract from my model as included in Addenda 2 - right) - sites shown at same scale as each other.
The tower widths and floorplates in Mr Sheppard’s models, however, do not always meet the assumptions as he has defined. For example:

- 118 Bertie Street, Montague has been modelled with a reduced tower width on this site of 10m (I have modelled a 12m wide tower)
- 365-391 Plummer Street, Wirraway has been modelled with a tower footprint [combined building of 12 and 24 storeys] of 1,800m² (40m x 45 metres) which is an unrealistic residential tower floorplate (refer Figure 1).

In general, however, the approach taken by Mr Sheppard for modelling residential uses is aligned with my own and this does not drive significant differences between our models.

The approach that Mr Sheppard and I have taken to modelling residential buildings is also aligned with the 3d modelling work undertaken by Hayball Architects for the C270 Amendment.

**Podium design**

Mr Sheppard has determined the height of the podium [where included] by calculating non-dwelling and all car parking GFA, divided by podium footprint, + 0.5 then rounded up (to allow for sleeving).

Mr Sheppard has adopted 100% site coverage for all core areas and 70% in Wirraway and Sandridge non-core areas [except where the gross developable site area is less than 1200m²].

This at times creates very large podium floorplates. I have generally accepted, however, that these are workable as they are aligned with the maximum car parking and minimum commercial floor area for each site.

I have taken a different approach. I have varied the modelling of the podium height on a site-by-site basis to respond to the specific context and to respond to the preferred character within each sub-precinct. This means that residential uses are sometimes incorporated into the podium floors. I have always ensured, however, that the internal floorplates of the podiums are not too deep/large so that they provide useable floor area for residential uses across the whole floorplate or sleeved around car parking.

Both Mr Sheppard’s and my approach to modelling podium floorplates has resulted in realistic, useable podium designs.

The approach taken by Mr Sheppard, however, does not take into account the preferred character for each precinct - this is discussed below.

**c. Application of controls**

The approach Mr Sheppard takes to locating laneways varies (original report page numbers noted):

- 248-254 Normanby Road - it appears that the laneway along the western boundary has not been accommodated on this site although it is unclear from the drawings (Montague - p58)
- 256-262 Normanby Road - it appears that the laneway has been modelled completely within this site, not across this site and the adjacent site although it is unclear from the drawings (Montague - p64)
- 228-238 Normanby Road - it is assumed that the laneway is on the adjacent site, not within this site (Montague - p74)
- 235-239 & 241-243 Normanby Road - it appears that the laneway has been modelled completely within this site, not across this site and the adjacent site although it is unclear from the drawings (Montague - p91)
• 870 Lorimer Street - the laneways have not been included within the modelling [Lorimer - p28]
• 111 Lorimer Street - new 12 metre street not included within the modelling [Lorimer - p23]

I have assumed in my modelling that a new laneway (that is included in the draft Framework) is always split across two adjacent sites to facilitate staged delivery regardless of which site develops first. This would result in a minimum of 3m ground level setback to accommodate half of the laneway. If primary frontages are addressed to this laneway I have increased this setback to 6m as required by the DDO.

The inclusion of laneways (or not) has a direct impact on the modelling. The inclusion of a laneway on a side boundary, for example, increases useability of the podium floor area as it provides access to daylight at this laneway interface - refer example for 870 Lorimer Street in Figure 2. In Mr Sheppard’s modelling of this site the laneway has not been included [refer Figure 3].

This varied response reflects the need for a consistent approach for the delivery of laneways. This is obviously important to provide certainty on how laneways will be delivered to improve overall walkability and connectivity within each precinct, but also as it has a direct impact on the built form outcomes. It improves the useability of the podium floor area and results in the allowable GFA being redistributed into the remainder of the site, creating taller buildings.

Relationship between street wall heights and overshadowing

The overshadowing controls for parks in Montague and Lorimer are generally determined by the street wall height. My original evidence noted that there was no built form control provided for street wall heights onto parks. I have recommended a preferred height of 4 storeys and a mandatory maximum of 6 storeys and have modelled street walls between 4 and 6 storeys within my modelling.

The maximum shadow that can be cast is established by building the street wall to the maximum height that is allowed. Modelling a 6 storey street wall height onto parks enables the greatest flexibility when locating the mass of the building above the street wall height.

In his original evidence for Lorimer Mr Sheppard has not taken this approach, rather he has minimised overshadowing to the park through a low street wall. This means that it is more difficult to achieve the FAR on the site and results in less desirable ‘wedding cake’ buildings.

The stark difference between these two approaches is illustrated in Figure 2, Figure 3 and Figure 4.

In each of these, I am of the opinion that increasing the street wall height would result in a preferable architectural design (no ‘wedding’ cake buildings), enable the FAR to be more readily delivered (with greater flexibility for different design outcomes) and create buildings that would more readily deliver the preferred character in each area.

Mr Sheppard has included an alternative option for these Lorimer sites in his additional modelling [refer Figure 5] which models a street wall of 8 storeys immediately adjacent to the park. As Mr Sheppard notes this creates a significant shadow across the proposed Lorimer Central Park. I would not support street walls of this height onto the park.
Figure 2 Modelling undertaken for 870 Lorimer Street and 880-884 Lorimer Street in my original evidence report (Figures 15 and 16, p73) with two sites also modelled by Mr Sheppard highlighted. The impacts on the modelling as a result of different approaches to modelling laneways and street wall heights is illustrated here and in Figure 3 and Figure 4.

Inclusion of laneway with 6m setback with habitable rooms located on this laneway interface

Modelling taller street wall heights to the park creates greater flexibility in locating upper levels

Modelling taller street wall heights to the park creates greater flexibility in locating upper levels
Laneway not included within site

Figure 3 870 Lorimer Street modelling in Mr Sheppard’s reports (p29 original evidence; p3 additional summary 13.04.2018)

Modelling podium height at only 3 storeys limits the potential of the development above as upper floors cannot create a shadow greater than that created by the street wall height. This results in ‘wedding’ cake buildings.

Modelling podium height at only 2 storeys limits the potential of the development above as upper floors cannot create a shadow greater than that created by the street wall height. This results in ‘wedding’ cake buildings.

Figure 4 880-884 Lorimer Street modelling in Mr Sheppard’s reports (p37 original evidence; p4 additional summary 13.04.2018)
3D image of compliant development at 870, 880 and 884 Lorimer Street, and Lorimer Place showing winter solstice shadow (10am)

Figure 5 870 and 880-884 Lorimer Street revised modelling in Mr Sheppard's addendum, 13.04.2018 (p2)
d. Errors in modelling

35) Mr Sheppard’s documentation of existing site sizes within his urban context analysis includes errors for Lorimer (p5), Sandridge (p5) and Montague (p5). In Montague Core area, 7 sites are noted as small which are medium. In Lorimer, two sites are noted as large which are medium. In Sandridge, 1 site is noted as large which is of medium size; 3 sites are noted as medium which are large. The size of the site directly relates to the typology of building(s) that can be delivered. This is discussed further below in relation to delivering hybrid developments.

36) The following calculation error has been identified:

- 541 Graham Street, Wirraway - the potential GFA on this site for a FAR of 2:1:1 is 29,453m$^2$ (correctly noted on p33). It is noted on p35 that the modelling demonstrates the maximum FAR. The modelled GFA, however, is only 16,104m$^2$ (2 x 6 storey buildings, each with a 22m x 61m floorplate, p34). This represents 55% of the potential GFA. The additional 13,349m$^2$ could be added to this site and would fit within the defined building envelope. This would deliver a significantly different outcome to the development proposal modelled on this site by Mr Sheppard.

37) The modelling in Mr Sheppard’s reports does not align with the controls in only one instance that I have identified:

- 30-38 Thistlethwaite Street should have a mandatory 4 storey control applied (9 storeys has been modelled - refer Mr Sheppard’s Montague presentation to Panel)

38) I have also modelled this site above the mandatory height limit in my modelling. This is an error in both of our modelling.

e. Response to preferred character

39) Mr Sheppard refers to the overarching vision statement that is included in the draft MSS for Montague, Sandridge, Lorimer and Wirraway. He is supportive of the vision for each precinct.

40) Mr Sheppard does not refer to the preferred character statements for each sub-precinct in his reports. This omission and the lack of consideration of the preferred character outcomes leads to a number of significant differences between his modelling and the modelling that I have undertaken. The degree of difference within each precinct varies and is summarised below.

Montague Core

41) The modelling by Mr Sheppard in the Montague Core area includes two sub-precinct character areas: M1 and M5. Both of these include preferred character outcomes that incorporate:

- a range of mid-rise and tower buildings, including hybrid developments [Montague North includes reference also to perimeter blocks]
- well-spaced, slender towers
- location and design of towers to minimise overshadowing of Buckhurst Street and Normanby Road spine
- lower street wall heights on north of Buckhurst spine and north of Normanby Road
- provision of private and communal open space within development with good access to sunlight (M1 in Montague North only)

42) Eight sites have been modelled by Mr Sheppard in the Montague core area. They all include tower developments which are supported, however, they do not include any of the other key attributes sought, including:

- mid-rise buildings and hybrid envelopments
228-238 Normandy Road - refer also example at Figure 19 and Figure 20

Figure 6 Examples of hybrid developments [combination of towers with midrise and perimeter (courtyard) blocks modelled on 6 sites within Montague North. Original image: Addenda 2.

Figure 7 Example of hybrid development modelled in Mr Sheppard’s overarching evidence demonstrating the combination of point towers, mid-rise buildings and communal open space (p128)

Figure 8 Example of hybrid development included for Montague North in Montague: Proposed Precinct Character [document M2] demonstrating point towers, mid-rise buildings and communal open space (p19)
• perimeter block developments
• provision of private and communal open space within the development.

43) Mr Sheppard notes that ‘the proposed maximum FAR prevents many properties from reaching anywhere near their preferred maximum heights... Further... I consider the preferred maximum heights in some areas to be unjustifiably low. This indicates that the proposed maximum FAR unnecessarily limits and unreasonably the development potential of this land’ [paragraph 60].

44) This ignores the character statements for the sub-precincts which do not suggest that a tower (or multiple towers) maximised to the height limit is desirable on every site. Examples of hybrid development models are included in Mr Sheppard’s evidence [refer example in Figure 7], however these are modelled for the whole block and ignore property boundaries.

45) By comparison, the development outcomes included in my modelling for Montague Core demonstrates the delivery of hybrid development models on six of the sites that I have modelled [refer Figure 6]. This demonstrates that the preferred character outcomes can be delivered on these larger sites.

Montague Non-Core

46) Five sites have been modelled by Mr Sheppard in the Montague Non-core area. This modelling is generally aligned with the preferred character outcomes as they include mid-rise buildings with varying street wall heights. This modelling is also aligned with the modelling that I have undertaken for the Montague Non-core area.

Sandridge Core

47) Three sites have been modelled by Mr Sheppard in the Sandridge Core area. This modelling is generally aligned with the sub-precinct character statement and is generally aligned with the modelling that I have undertaken for the Sandridge Core area.

Sandridge Non-Core

48) Two sites have been modelled by Mr Sheppard in the Sandridge non-core area. One of these occurs in sub-precinct S5 which also includes modelling undertaken by Mr McGurn and Ms Heggen.

49) Sub-precinct S5 includes the following preferred character outcomes:

• Hybrid developments of mid-rise perimeter blocks and tower developments
• Slender towers located to minimise overshadowing impacts on streets and linear parks
• Provision of private and communal open space with good access to sunlight to provide high levels of amenity for residents and workers
• A variety of street wall heights between 4 and 8 storeys to contribute to architectural diversity within the street and provide opportunities for portions of the street to receive greater levels of sunlight access throughout the day

50) In sub-precinct S5, the loose ‘fit’ between the FAR of 3.3:1 and the building envelope [towers up to 24 storeys are supported] is deliberate to support these design outcomes.

51) The modelling for 60-82 Johnson Street within Mr Sheppard’s work incorporates two podium-tower buildings. As there is no requirement for minimum commercial floor area it is unclear if the 2 storey podium shown is therefore only dedicated to car parking. The modelling incorporates the minimum required communal open space as a linear east-west park between two linear 10 storey buildings. This
design response would result in a low street wall to Johnson and Governor Street, and an overshadowed central open space which does not meet the character outcome to create ‘communal open space with good access to sunlight...’ (refer Figure 9).

52) To meet the character objectives I have adopted a hybrid typology that includes a single tower, mid-rise development and courtyard which better meets the multiple character objectives (refer Figure 10).

Lorimer

53) Mr Sheppard has modelled 6 sites within Lorimer with 2 sites included in the L1 and L4 sub-precincts. The preferred character outcome defined in the draft MSS includes a preference for hybrid developments of mid-rise perimeter blocks and tower developments. Examples of this preferred typology are included in my modelling (refer Figure 11).

54) This preferred character has not been considered by Mr Sheppard - for example refer to Figure 12 which illustrates the modelling undertaken for 162-188 Turner Street. This modelling assumes a 100% site coverage and a podium-tower typology across the full extent of this large site.
Figure 5

Lorimer plan view: In this illustration all sites are also modelled to the proposed FAR of 5.4 and in compliance with the built envelope controls (including overshadowing requirements). This demonstrates a variety of potential design responses that are possible within the proposed controls.

Figure 11

Examples of hybrid developments modelled within Lorimer for sub-precincts L1 and L4 according to the preferred character outcomes in the draft MSS (166-188 Turner Street highlighted which incorporates perimeter block and tower-podium developments).

Figure 12

Modelling undertaken for 162-188 Turner Street by Mr Sheppard which ignores the preferred character outcomes and models only podium-tower developments.
Wirraway Core

55) Mr Sheppard has modelled 3 sites within the Wirraway core. These generally align with the preferred character and my own modelling, although one includes an unrealistic tower floorplate as noted above.

Wirraway Non-Core

56) Mr Sheppard has modelled only 2 sites within the Wirraway non-core. One is generally aligned with the preferred character and my own modelling while the other contains errors as noted above.

Summary

57) The most significant difference between the modelling undertaken by Mr Sheppard and myself is in the Montague Core, Sandridge Non-core and Lorimer. These include sub-precincts where the preferred typology is for hybrid developments (mix of towers, mid-rise buildings and perimeter block developments). The proposed controls in these sub-precincts support hybrid developments as they include a "loose fit" between the FAR and the maximum height control. This is a deliberate strategy.

58) There are examples of this type of development delivered or being planned within Melbourne and Sydney, including the Melburnian (St Kilda Road, Southbank), Arden Gardens, North Melbourne (example provided at Figure 8) and numerous developments in Green Square, Sydney including the award-winning East Village development.

59) As the preferred character has not been taken into account, this has resulted in Mr Sheppard drawing the conclusion that there is a misalignment between the FAR and the development outcomes sought in these areas.

Ms Heggen

a. Method of applying the FAR

60) The maximum potential building envelope is modelled and then the floor area that is delivered within the maximum FAR (e.g. Montague core 6.1:1) is noted within the model.

b. Building design assumptions

61) Ms Heggen does not note any assumptions adopted for her modelling. This is consequential as it results in significantly different outcomes for the modelling in regard to:

- Maximum tower depths or floorplates are not nominated - the floorplates drawn do not consider the internal layouts of the building.
- The composition of uses within the podium is not considered. The podium is modelled to the maximum street wall height, regardless of whether this delivers a realistic, useable building.

62) This has led to significant differences in the modelling for 90-96 Johnson Street, Sandridge, as follows:

- The modelling includes an apartment tower with a very large residential floorplate of 2,624m² - 42m x 63m. This floorplate depth significantly exceeds the maximum depths assumed in Mr Sheppard’s modelling and in my modelling. The built form testing undertaken by Hayball for Amendment C270 also assumed a maximum floorplate depth of 25 metres (refer to Figure 13).
- The Hayball report also includes assumptions about the depth of ‘sleved’ residential and commercial uses in a podium (refer Figure 13: 10 metres for residential and 15 metres for commercial). The podium floor plate modelled by Ms Heggen is very large and includes a significant amount of floor area that would only be suitable for
1.0 Introduction

Based on benchmark research, the following building envelope assumptions were adopted for design testing where possible.

RESIDENTIAL TOWER ENVELOPE ASSUMPTIONS

- Minimum shell depth of 10m

COMMERCIAL TOWER ENVELOPE ASSUMPTIONS

- Tower slenderness ratio
  - Maximum shell depth of 25m x 50m

PODIUM SLEEVING ASSUMPTIONS

- Maximum shell depth of 30m x 80m

REFERENCE QV BHP BILLITON - 171 COLLINS STREET, MELBOURNE

REFERENCE AMP SQUARE - 535 BOURKE STREET, MELBOURNE

- Maximum shell depth of 50m x 50m square

h: height

d: depth

≥ 10M

≤ 25M

≤ 50M

≤ 30M

≤ 80M

≥ 50M

≤ 50M

≥ 10M

≤ 15M

≤ 35M

Figure 13 (right) Development assumptions from Architectural Testing of Built Form Controls: Melbourne Hoddle Grid/Southbank, Central City Built Form Review, Hayball, 2016

2.2 What are the implications for the CitiPower landholding?

The particular issues that relate to the CitiPower site in part go to the interrelationship between the FAR and FAU.

A 3D modelling exercise was undertaken by my office to explore and test these techniques on a relatively unconstrained site in terms of the proposed statutory control regime.

The CitiPower site is located on the eastern edge of the Sandridge Precinct in a non-core area.

The FAR for the Sandridge non-core area is 3.3:1.

The DOO specifies a preferred building height of 67.8m with a combination of nominated street wall height, setbacks and building separation dimensions depending on the ultimate overall height of a building.

There are no nominated district, precinct or neighbourhood parks in the vicinity of the CitiPower site that would influence the shape of any building volume by virtue of a consequential shadow impact on any such park.

Similarly there are no street or laneway widenings proposed that would reduce the developable area.

On this basis two potential 3D options were modelled to test firstly the allowable FAR outcome and then what the extent of the possible FAU might look like.

The two 3D options are depicted in Figure 4.

What can be seen from these 2 examples is that by comparison to the preferred overall building height, the FAR allows for only 25%-33% of the potential development outcome if an FAU is taken up.

Acknowledging that the selected category of FAU public benefit would have an impact on the balance 66%-75% development yield where say affordable housing was to be delivered on site, the 3D models do demonstrate the significant divergence between the nominated FAR and the potential FAU outcomes.

In terms of a built form solution there appears to be no obvious reason why the FAU outcome would not be considered acceptable particularly given it accords with other built form controls.

I note that Ms Hodyl’s Addenda 2 includes massing studies (at pages 18 and 19) of 2 blocks at the western end of the Sandridge precinct. Her modelling also confirms that in a number of other instances there is a considerable divergence between density and built form outcomes between the mandatory FAR and discretionary FAU.

A threshold question that this disparity raises is, “Is it an appropriate planning practice that there is such a great divergence between the mandatory FAR and discretionary FAU built form outcomes even if extremely valuable infrastructure is extracted?”

Figure 14 No. 90-96 Johnson Street, South Melbourne, 20 Storey Option (Ms Heggen’s, p 7) which includes communal open space (shown in yellow) located around the perimeter of the building. This would be less useable space than if the communal open space was incorporated within the development in a more useable shape [refer Figure 16].
**Figure 15** Analysis of the modelling for 90-96 Johnson Street in Ms Heggen’s report

**Figure 16** Modelling for 90-96 Johnson Street (as included in Addenda 2) which supports proposed character for sub-precinct S5 - hybrid development and useable communal open space.

**Total building as modelled (20 storey option)**

- Extent of floor area within model that is unusable space
- Floor area that exceeds mandatory street wall height

- Additional building delivered through FAU to reach height limit
- Communal open space located within the development which makes it a useable space
- New laneway link
car parking or the building core. This is illustrated in Figure 15 which applies the assumptions adopted in the Hayball testing to the modelling undertaken by Ms Heggen.

63] Together, this results in an apartment building being modelled by Ms Heggen that is unrealistic and significantly different to the modelling I have undertaken [refer to Figure 15].

c. Application of controls

64] N/A - the controls have been applied incorrectly, rather than interpreted differently.

d. Errors in modelling

65] The following misinterpretations of the controls are noted in the modelling for 90-96 Johnson Street:

• The tower setback shown on the northern boundary in the 20 storey option is modelled at 5 metres on both side boundaries. This assumes that both facades do not contain habitable rooms which is not realistic considering the depth of the tower floorplate
• The modelling includes an 8 storey street wall on the corner of Munro Street and Johnson Street. This is incorrect application of the controls. As the overall building height exceeds 10 storeys the maximum street wall height allowed is 23 metres (6 storeys).
• The modelling does not include the requirement to deliver a maximum of 70% site coverage.

66] The difference in assumptions and the incorrect application of the planning controls leads to significantly different modelling outcomes. The buildings that have been modelled by Ms Heggen are unrealistic and do not comply with the controls. It means that the difference between the floor area that can be delivered by the FAR and a potential building that can be delivered on this site in response to the building envelope is greatly exaggerated by Ms Heggen’s modelling.

e. Response to preferred character

67] Ms Heggen does not refer to the preferred overall vision statements nor the character statements for each sub-precinct in her report.

68] 90-96 Johnson Street is located with sub-precinct S5. The preferred character for this area is outlined in paragraph 48 above.

69] The modelling for this site does not take into account these preferred character outcomes and is therefore significantly different to the modelling that I have undertaken [refer to Figure 14 and Figure 16].

70] Specifically, the modelling by Ms Heggen does not address the following requirements which are addressed in my modelling:

• Hybrid developments of mid-rise perimeter blocks and tower developments
• Slender towers located to minimise overshadowing impacts on streets and linear parks
• Provision of private and communal open space with good access to sunlight to provide high levels of amenity for residents and workers
Mr McGurn

71) Mr McGurn has modelled a total of 11 sites:
   - Montague - 4 sites (all in the core area)
   - Sandridge - 1 site (non-core)
   - Lorimer - 3 sites
   - Wirraway - 4 sites (2 core; 2 non-core)

a. Method of applying the FAR

72) The total GFA shown is equal to the maximum FAR in the CCZ [e.g. Montague core 6.1:1]. Additional potential commercial FAR is then illustrated up to the preferred height limit.

b. Building design assumptions

73) The assumptions in Mr McGurn’s modelling (paragraph 65) are:
   - The potential floor area permissible in the FAR is assumed to occupy the maximum street wall height - for ‘consistency’ a 23 metre street wall has been used
   - The side setbacks have been modelled assuming that building face each other (with balconies/windows directly opposite each other)
   - Allows for widened and new streets but not the new laneways

74) Mr McGurn modelling does not address:
   - Maximum tower depths or floorplates
   - Composition of uses within a podium

75) This has consequential differences between his modelling and Mr Sheppard’s and my modelling.

76) This means that Mr McGurn’s modelling, in the same way as Ms Heggen’s, does not include realistic building floorplates. For example, applying the assumptions from within the Hayball report for sleeving within the podium, over 60% of the podium floorplates above ground would not be useable for office or residential uses (refer to Figure 17 and Figure 18). Almost the whole building GFA is located in the podium so this is significant.

77) Similar outcomes are demonstrated in the modelling undertaken by Mr McGurn on other sites including:
   - 162-188 Turner Street, Lorimer
   - 351 Ingleis Street, Lorimer
   - 187-197 Normanby Road, Montague
   - 320 Plummer Street, Wirraway
   - 365-391 Plummer Street, Wirraway
   - 17 Rocklea Drive, Wirraway

78) In each of these sites very deep floorplates have been incorporated and unrealistic buildings have been modelled.

79) This has significant implications for the modelling outcomes between Mr McGurn’s modelling and the modelling that Mr Sheppard and I have undertaken. An example of these distinct differences is illustrated between Figure 19 and Figure 20.

c. Application of controls

80) Mr McGurn has not incorporated laneways that are included within the draft Framework in a number of sites, including 111 Lorimer Street, 162-188 Turner Street, 351 Ingleis Street, 235-239 Normanby Road and 365-391 Plummer. By not including a laneway in these locations his modelling also does not meet the proposed laneway controls.

81) As noted above, this has a significant impact on the modelling outcomes.
### EXISTING CONTROLS

- **Massing Controls**

  - **Site no:**
  - **Site area:** 3,234 sqm
  - **Max building height:** 40 storeys
  - **Max street wall height:** 20 m or 5 storeys
  - **Min tower setback from street:** 10m
  - **Min tower setback from side and rear boundaries:** 10m
  - **Total GFA:** 62,009 sqm

### PROPOSED CONTROLS

**FAR:** 6.1:1  
**Site area:** 3,234 sqm  
**Maximum GFA:** 19,725 sqm

<table>
<thead>
<tr>
<th>FAR Scenario</th>
<th>Max Building Height Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building height</td>
<td>26.2 m (approx.)</td>
</tr>
<tr>
<td>Street wall height</td>
<td>23 m</td>
</tr>
<tr>
<td>Street wall upper level setbacks</td>
<td>3 m</td>
</tr>
<tr>
<td>Side and rear upper level setbacks</td>
<td>9 m</td>
</tr>
<tr>
<td>GFA</td>
<td>19,701 sqm</td>
</tr>
</tbody>
</table>

*Figure 17* Modelling for 235-239 and 241-243 Normanby Road (McGurn Site 6)
**EXISTING CONTROLS**

- Massing Controls
  - Site no: 
  - Site area: 3,234 sqm
  - Max building height: 40 storeys
  - Max street wall height: 20 m or 5 storeys
  - Min tower setback from street: 10m
  - Min tower setback from side and rear boundaries: 10m
  - Total GFA: 62,009 sqm

**PROPOSED CONTROLS**

- FAR: 6.1:1
- Site area: 3,234 sqm
- Maximum GFA: 19,725 sqm

<table>
<thead>
<tr>
<th>Building height</th>
<th>FAR Scenario</th>
<th>Max Building Height Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>Street wall height</td>
<td>23 m</td>
<td>23 m</td>
</tr>
<tr>
<td>Street wall upper level setbacks</td>
<td>3 m</td>
<td>5 m</td>
</tr>
<tr>
<td>Side and rear upper level setbacks</td>
<td>9 m</td>
<td>10 m</td>
</tr>
<tr>
<td>GFA</td>
<td>19,701 sqm</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 18** Modelling for 235-239 and 241-243 Normanby Road (McGurn Site 6) with potential uses within the podium illustrated according to the Hayball report (prepared for Amendment C270, 2016)
Montague Core modelling differences

Figure 19 Modelling outcomes for 228-238 Normanby Road drawn from reports by Mr Sheppard (left), Mr McGurn (right) - FAR of 6.1:1.

Laneway not included

6 storey slab building which incorporates significant amount of unusable floor space. Exceeds preferred maximum podium height of 4 storeys.

Laneway not included

Large slab podium which includes the minimum commercial requirement and all required car parking

Mr Sheppard’s modelling (updated evidence)

Mr McGurn’s modelling
Montague Core modelling differences

Figure 20 Modelling for 228-238 within my Addenda 2 (right) and alternate option (left) - this illustrates two alternate options for delivering a FAR of 6.3:1. Both designs meet the preferred character outcomes for sub-precinct M1.
d. Errors in modelling

82) The modelling in Mr McGurn’s report does not align with the controls in one instance that I have identified:

- Street wall heights north of Normanby Road are modelled to 6 storeys, whereas the preferred height limit is 4 storeys

e. Response to preferred character

83) Mr McGurn does refer to the preferred overall vision statements and the character statements for each sub-precinct in his report. The modelling, however, does not appear to respond to the preferred character statements. This leads to significant differences in the modelling included within Mr McGurn’s report from the modelling I have undertaken.

Montague Core

84) For example, Mr McGurn’s report includes modelling for 4 sites in Montague North in sub-precinct M1. The preferred character for this sub-precinct is discussed in paragraph 40 above.

85) The modelling in Mr McGurn’s report does not reflect this preferred character, but rather assumes that podium-tower developments are preferred on every site. As noted above, the podiums that are modelled are frequently not realistic.

Sandridge Non-Core

86) The modelling in McGurn’s report does, to a degree reflect the preferred character in that it illustrates an example of a mid-rise development with communal open space. The layout of this design, however, does not maximise amenity on the site as the podium appears approximately 30 metres deep and is modelled hard against the side boundary.

Incorporating a setback for these lower floors from the side boundary would make the podium a more useable space and then result in taller buildings.

Lorimer

87) The modelling in McGurn’s report does not reflect the preferred character, but rather assumes that podium-tower developments are preferred on every site. As noted above, the podiums are very large and not realistic. The laneways have not been modelled which does not align with the preferred vision for Lorimer.

88) This leads to significant differences between Mr McGurn’s modelling and my own [refer, for example to Mr McGurn’s modelling of 351 Ingles Street compared to my modelling as illustrated in Figure 11 above].

Wirraway Core

89) The Wirraway core is located in sub-precinct area W2 which has a preferred character outcome which includes slender towers, activation of new north-south connections that connect to Plummer Street and provision of private and communal open space within development with good access to sunlight.

90) Mr McGurn’s modelling does not demonstrate any of these three attributes.

Wirraway Non-core

91) Mr McGurn includes sites modelled within sub-precinct areas W1 and W3 where the preferred character is:

• W1 - Generally mid-rise developments with potential for commercial uses and private and communal open spaces within developments with good access to sunlight to provide high levels of
amenity for residents and workers

- W3 - Generally a low-mid rise scale of development with visually recessive upper levels and a variety of street wall heights.

92) Mr McGurn’s modelling is somewhat aligned with these attributes.

Conclusions

93) There are significant differences between the modelling by Mr Sheppard, Ms Heggen, Mr McGurn and myself. These differences have significant implications as they have informed the conclusions of each expert.

94) The differences are driven by:

- a. Different method of applying the FAR
- b. Different building design assumptions
- c. Differences in the application of controls
- d. Errors in modelling
- e. Lack of response to preferred character

Mr Sheppard - summary of differences and implications

95) There is the closest alignment between Mr Sheppard's modelling and my modelling. This is evident in the similarities in Mr Sheppard’s and my modelling in the Sandridge Core and Montague Non-Core areas.

96) The key differences between Mr Sheppard’s modelling and my own is that Mr Sheppard has not taken into consideration the preferred character for each sub-precinct as defined in the draft MSS. This is particularly the case for Montague Core, Sandridge Non-core and Lorimer.

97) This has informed Mr Sheppard’s conclusions that there is a misalignment between the preferred height limits and the FAR controls which is an unwarranted conclusion if the preferred character outcomes are taken into consideration.

Ms Heggen - summary of differences and implications

98) Ms Heggen’s modelling incorporates unrealistic building designs, inaccurately applies the proposed
controls and ignores the preferred character outcomes. This has led to the mistaken conclusion that there is a significant gap between the allowable FAR and the potential yield that can be delivered on the 90-96 Johnson Street site.

**Mr McGurn - summary of differences and implications**

99) Mr McGurn’s modelling for Montague North does not adequately consider building design resulting in unrealistic buildings. It has resulted in Mr McGurn incorrectly concluding that there is a significant gap between the potential yield on a site (as determined by the building envelope) and the allowable yield as determined by the FAR.

100) Across all three experts the most significant difference between their modelling and my own is the degree to which the modelling has taken into account the preferred character outcomes.

101) It is clear from the analysis of the expert witnesses’ modelling that the overall building envelopes are being ‘read’ by these experts as defining the preferred character outcomes.

102) This is incorrect - the preferred character statements are defined in the draft MSS. The building envelopes together with the FAR, facilitate the realisation of this preferred character. The preferred character is not delivered by simply maximising the yield to fit within the maximum building envelopes.

103) The preferred character outcomes are essential urban design considerations - they define how Fishermans Bend should evolve as a distinct place that delivers the Fishermans Bend Vision.

4. Response to Mr Sheppard’s recommendations for changes to proposed building heights

104) Mr Sheppard includes the following recommendations in regards to building heights in his statements:

**Montague**

105) 1. Revert the overall building height limits in the Montague Core to 40 storeys in Montague North and 30 storeys in Montague South between Gladstone Street and Buckhurst Street, from 134-150 Buckhurst Street to Kerr Street

   - The preferred character for Montague North includes ‘heights, location and position of towers that allows for sunlight access to the southern side of Normanby Road at September equinox’. The 20 storey height limit achieves this as illustrated in document M6. Note that the overshadowing illustrated in document 188b (page 25) for Normanby Road is incorrect.
   - The sub-precinct character for Area M5 includes that the ‘location and design of towers (should) minimise overshadowing of Buckhurst Street spine’ (draft MSS)
   - Reversion to 40 storeys and 30 storeys is not supported as it will result in significant overshadowing (as demonstrated in tabled document M6)
   - The proposed heights of 20 storeys will enable new development to ‘stitch in’ to the approved taller developments within this precinct while achieving better urban design outcomes that deliver on the preferred character.

2. Revert the maximum building heights north of Montague Park North and the Thistlethwaite Street Park to the surrounding maximum building heights

   - The preferred character for Montague North includes ‘the creation of a high quality, high
amenity public realm’ [Clause 21.06-8. Document 66c, p35].
• The maximum building heights north of Montague Park North have been adjusted to protect the proposed new park from overshadowing. Reversion to the previous maximum of 40 storeys is therefore not supported.
• The preferred character statement for Montague South includes that ‘Parks... provide high quality social spaces to gather, relax and connect’ [Clause 21.06]. Access to sunlight is critical to creating welcoming, attractive parks, particularly in the cooler months.
• The DDD includes a maximum 4 storey height limit for the sites to the north and east of the new Thistlethwaite Street Park.
• The site north of Thistlethwaite Street Park should remain as 4 storeys. This could be converted to discretionary height but only if the overshadowing controls remain mandatory.
• The modelling by Mr. Sheppard and me for 30-38 Thistlethwaite Street demonstrates that a building in the order of 8 storeys results in acceptable overshadowing if the upper floors are setback above the street wall. Reversion to 30 storeys is not supported, however, the introduction of an 8 storey height limit is supported with a maximum street wall height of 6 storeys.

3. Increase the maximum building height for the Gladstone Street properties that are recommended by Ms. Hodyl to form part of the core to match the surrounding maximum heights
• The preferred character for area M4 which includes these Gladstone Street properties is ‘generally a mid-rise scale of development with opportunities for additional upper levels that are visually recessive from the street and do not result in podium-tower forms’. The properties along the northern side of Gladstone Street do not need to increase their maximum building height to reach the maximum FAR of 6.1:1 as exhibited, nor to reach the maximum FAR of 6.3:1 as I have recommended. This is demonstrated in my Addenda 2 report.
• These properties are only 26 metres deep and vary in width from 5 to 60 metres. The shallow depth means that a building with 100% site coverage is supportable and will deliver high levels of internal amenity with access to a minimum of 2 street frontages. These attributes make these ideal sites to support mid-rise development.
• Increasing the height limits to 20 storeys would result in unacceptable overshadowing of the south side of Gladstone Street.

5. Replace the mandatory 4-storey height limit on City Road with a discretionary maximum 4-storey street wall height, and a discretionary minimum 10m setback above.
• The 4 storey mandatory height limit along City Road is proposed to ‘ensure that the precinct is well integrated with its neighbours’ (draft MSS).
• This same condition is proposed along Williamstown Road interface in Sandridge and Wiraway.
• The impact of this proposed change for Williamstown Road is illustrated in figure 9. An additional 2 floors [total of 6 storeys] has minimal visual impact from within Bridge Street looking north. An additional 4 storeys, however, has a significant visual impact on the street. This modelling also demonstrates a 4 storey street wall height - making this discretionary means that even taller street walls may be supported.
• The replacement of the mandatory 4-storey height limit with a discretionary 4 storey street wall height is therefore not supported.
• The interface with City Road is a far more sensitive interface as it includes heritage buildings along the
northern frontage. The visual impact would be similar to that modelled for Williamstown Road, however greater attention would be needed to consider potential visual impact in the proximity of heritage buildings.

- The introduction of a mandatory 4 storey street wall with a mandatory maximum of 6 storeys with the upper 2 floors set back a mandatory maximum of 10 metres behind the street wall is supported along City Road and Williamstown Road.
- Considering the development pressures on Fishermans Bend, it is critical that these controls are mandatory to provide the certainty that the transition from higher density areas within Fishermans Bend to the lower scale neighbourhoods will occur.

**Sandridge**

109) Mr Sheppard includes the following recommendations in regards to the draft built form controls for Sandridge:

1. **Remove the overall building height limits in the Sandridge core**
   - This is not supported as the heights deliberately transition down towards the non-core areas towards Wirraway. This transition is important.
   - The height limits respond to the overshadowing requirements, making it easier for the community to understand the scale of buildings that will be developed.

**Lorimer**

110) Mr Sheppard includes the following recommendations in regards to the draft built form controls for Lorimer:

1. **Remove the overall building heights**
   - This is not supported as:

- The lower tower heights north of the Lorimer Parkway are part of the built form strategy to step the heights of buildings down towards the river. While there are some towers located on the river’s edge a significant portion of the riverfront area to the north of Lorimer is low-rise.

**Wirraway**

112) Mr Sheppard includes the following recommendations in regards to the draft built form controls for Wirraway:

3. **Increase the maximum heights of 6 storeys to 8 or more storeys**

113) This is not supported as it will create a misalignment with the preferred character which is intended to be distinctly different from other parts of Fishermans Bend. The non-core areas of Wirraway have the lowest densities proposed of all precincts in Fishermans Bend which align with the 6 storey building height.

4. **Replace the mandatory 4-storey height limit on Williamstown Road with a discretionary 4-storey street wall height, and a discretionary 10m setback above.**

114) The introduction of a mandatory 4 storey street wall with a mandatory maximum of 6 storeys with the upper 2 floors set back a mandatory maximum of 10 metres behind the street wall is supported along Williamstown Road as noted above.

115) Considering the development pressures on Fishermans Bend, it is critical that these controls are mandatory to provide the certainty that the transition from higher density areas within Fishermans Bend to the lower scale neighbourhoods will occur.
Figure 21 (left) Views from within Bridge Street (south of Williamstown Road) looking north towards Fishermans Bend and (right) views looking along Williamstown Road towards the west.