



## CHATSWOOD CBD STRATEGY DENSITY STUDY

08/05/2020



## INTRODUCTION

In January 2020, GMU conducted a built form study for Chatswood CBD Planning and Urban Design Strategy to 2036. The outcome presented in the Chatswood Precinct Study Report dated 29th Jan 2020 identified 9 out of the 79 sites tested in total needing mitigation measures to address the visual impact, transition in scale and overshadowing issues identified through the testing. These sites are identified in Figure 1.

Out of the 9 sites, only 4 sites require a reduction in both height and FSR (highlighted in yellow in Figures 1 and 2). The remainder of the sites required a re-arrangement of the built form configuration and can retain the same FSR pending built form testing and the achievement of elegant and well-sculpted forms (highlighted in blue in Figure 1).

Sites that required a re-arrangement of the built form configuration only (no reduction in GFA or FSR):

1. 54-56 Anderson Street
2. 58 Anderson Street
3. 51-61 Archer St., 34-34B Albert Avenue & 30-32 Bertram Street
4. 37-49 Archer Street
5. 45-47 Neridah Street
6. Chatswood Dive Site Precinct
  - 591-607 Pacific Highway, 5-7 Bryson Street
  - 337-355 Mowbray Road

Sites that required a reduction in both height and FSR (in orange):

1. 27-35 Archer Street & 22-28 Bertram Street
2. 28 Claude Street
3. Block Between Olga Street and Hercules Street
4. Chatswood Dive Site Precinct
  - 569-589 Pacific Highway, 8 Bryson Street

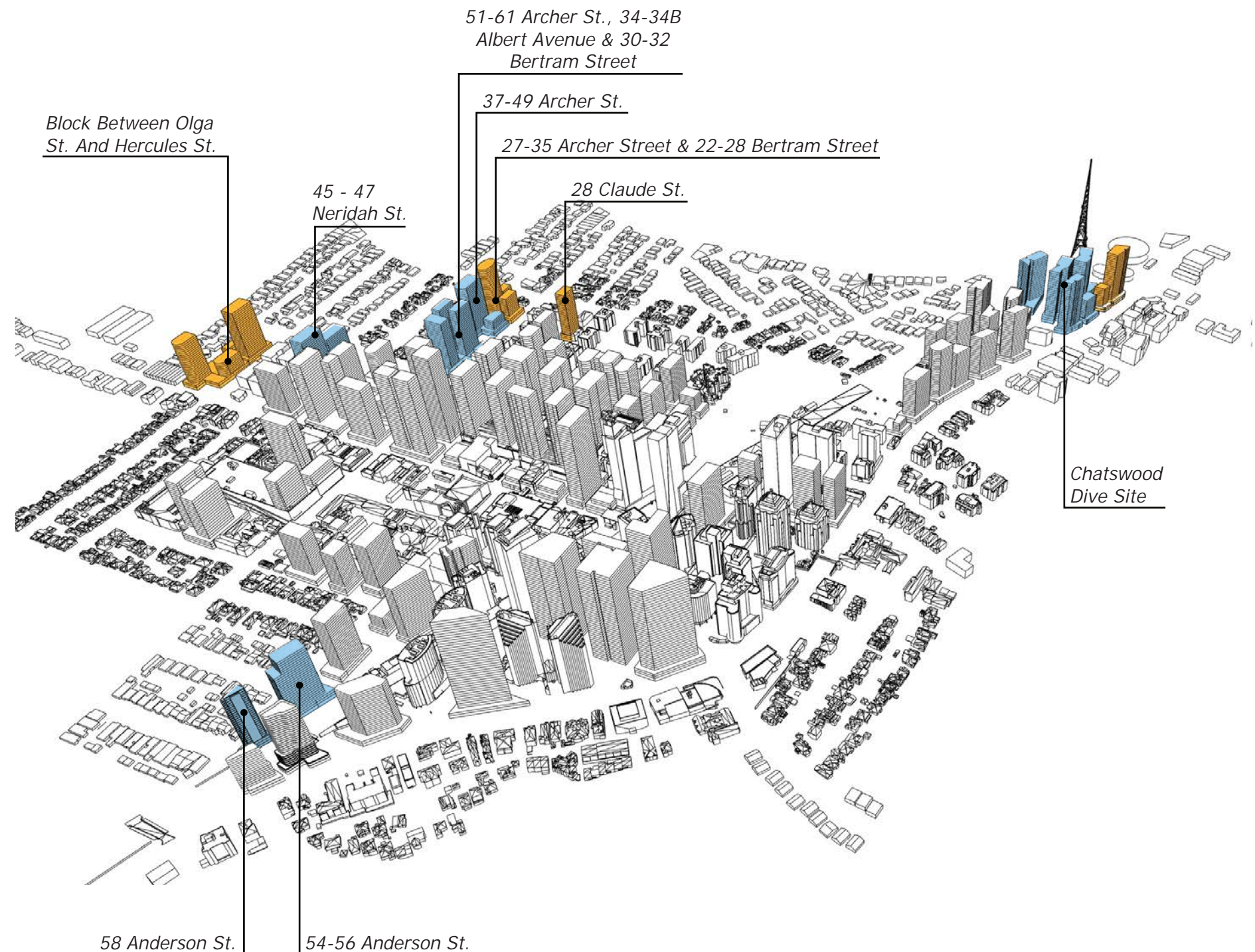


Figure 1. Sites identified requiring mitigation measures



METHODOLOGY

In undertaking this study, GMU has conducted extensive analysis to understand the true potential of each site within the study area. GMU’s methodology included:

- testing opportunity and amalgamated sites identified on page 106 and 109 of the Chatswood CBD Planning and Urban Design Strategy (Architectus, January 2018) and created a compliant massing for each site that is consistent with ADG guidelines and applicable controls.
- applied the proposed height and FSRs into a 3D massing form of each opportunity sites as nominated by page 34 and 36 of the Chatswood CBD Planning and Urban Design Strategy to 2036 (January 2018), and the outcome is shown in yellow in Figure 2.
- applied the GMU recommended height to the sites identified in yellow, and calculate the potential change in FSR, GFA and unit provision based on the assumptions below:
  - The residential GFA of proposed built form is assumed at 75% of the building envelope, and 85% for commercial development (consistent with Architectus Chatswood CBD Planning and Urban Design Strategy Jan 2018).
  - 90sqm GFA is assumed per residential dwelling.
  - A commercial floor space ratio of 1:1 is considered.
  - The reduction in unit numbers does not take into account existing or approved dwellings on the tested sites.

As a result of the study, the total reduction in GFA and unit provision of the highlighted sites are as follows:

	GFA	UNIT PROVISION
PROPOSED BY STRATEGY	206,460 SQM	1,912
GMU RECOMMENDATION	145,048 SQM	1,229
REDUCTION	-61,412 SQM	-682

The calculation only includes the sites identified in Figure 2. The yellow sites require a reduction in FSR and the sites in blue are properties along Johnson Street, which are considered to have potential development only in the long term.

The detailed breakdown of the calculation will be presented overleaf.

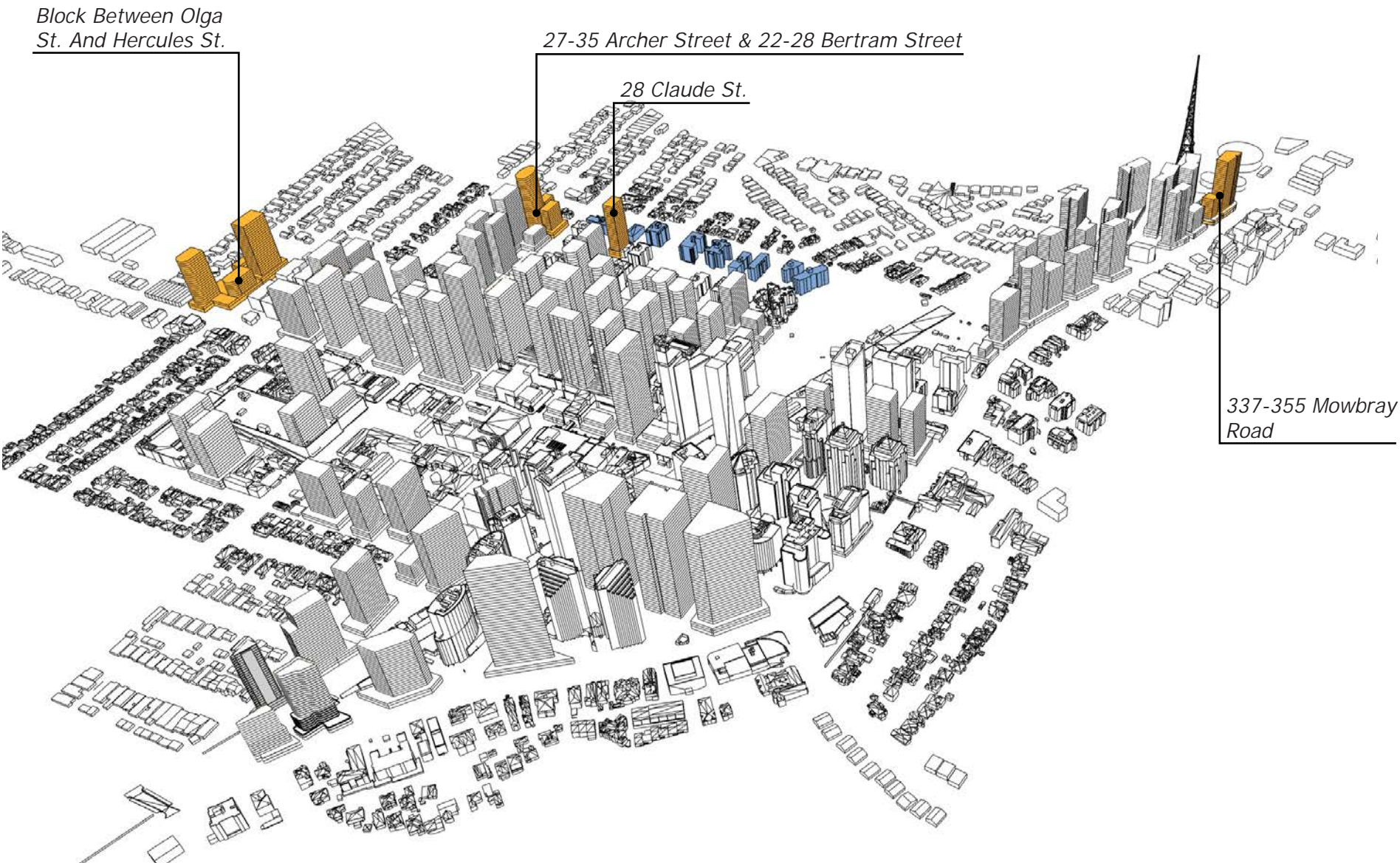
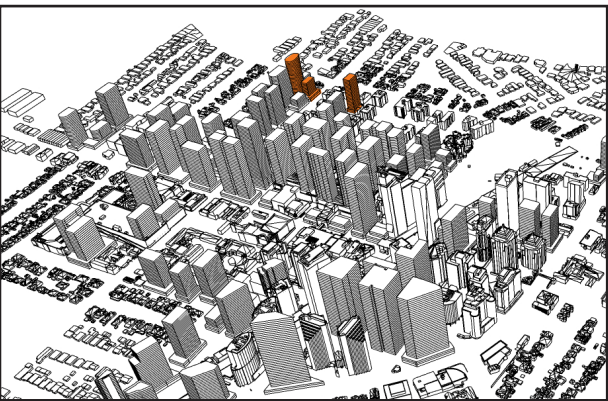
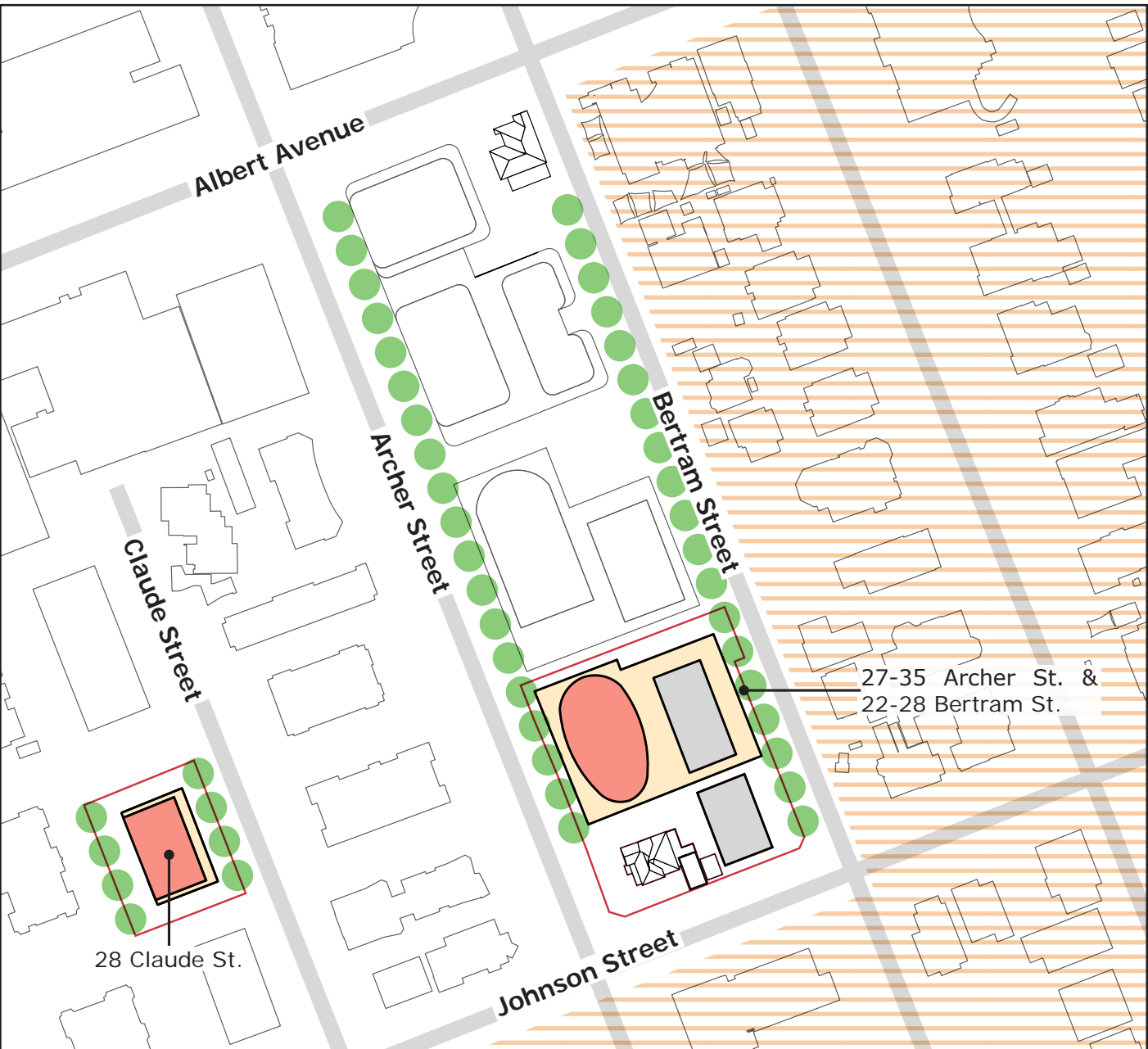


Figure 2. Sites requiring reduction in height and FSR

BLOCK BOUNDED BY ARCHER STREET AND BERTRAM STREET



27-35 ARCHER ST. & 22-28 BERTRAM ST.

	HEIGHT	GFA	FSR	UNIT PROVISION
PROPOSED BY STRATEGY	90M	20,616 SQM <sup>1</sup>	6.0:1	191
GMU RECOMMENDATION	49M +	12,548 SQM <sup>2</sup>	3.7:1	101
REDUCTION	-41M *	-8,068 SQM	-2.3:1	-90 <sup>3</sup>

+ Approx. 15 Storeys

\* Approx. 13 Storeys

28 CLAUDE STREET

	HEIGHT	GFA	FSR	UNIT PROVISION
PROPOSED BY STRATEGY	90M	7,902 SQM <sup>1</sup>	6.0:1	73
GMU RECOMMENDATION	59M +	6,585 SQM <sup>2</sup>	5.0:1	59
REDUCTION	-31M *	-1,317 SQM	-1.0:1	-14 <sup>3</sup>

+ Approx. 18 Storeys

\* Approx. 10 Storeys

Explanatory Notes:

<sup>1</sup> GFA indicates maximum prescribed by the Strategy (Site area x FSR) inclusive of 1:1 Commercial FSR.

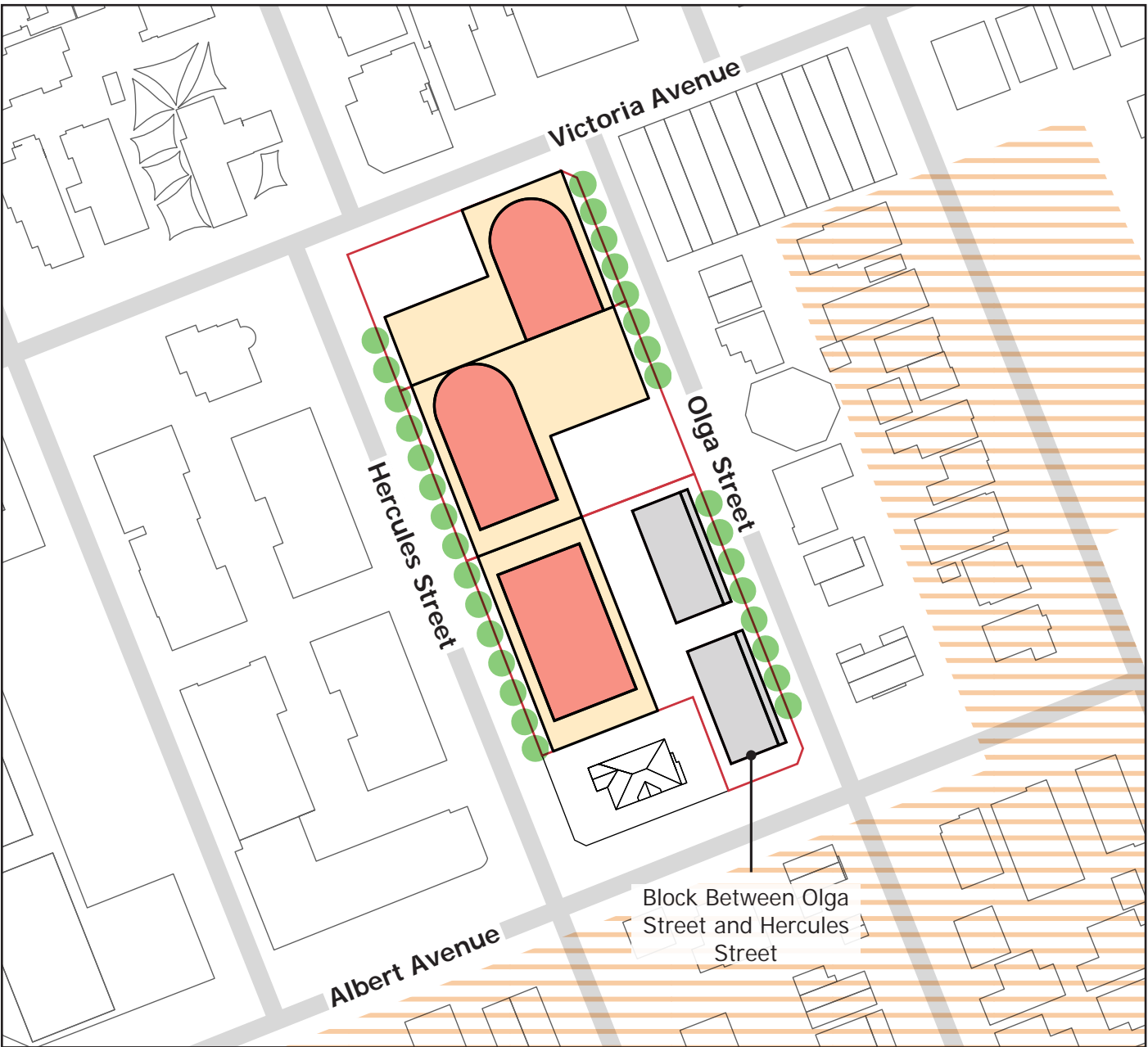
Unit provision = Total residential GFA (minus the Commercial GFA) divided by 90sqm.

<sup>2</sup> GFA indicates GBA for each envelope shown x 75% efficiency (minus Commercial GFA) divided by 90sqm.

<sup>3</sup> Unit Reduction = GMU Recommendation subtracted from Proposed by Strategy. Total does not factor existing or approved dwellings on the tested lots.



BLOCK BETWEEN OLGA STREET AND HERCULES STREET



BLOCK BETWEEN OLGA ST. AND HERCULES ST.

	HEIGHT	GFA	FSR	UNIT PROVISION
PROPOSED BY STRATEGY	90M	51,828 SQM <sup>1</sup>	6.0:1	480
GMU RECOMMENDATION	31M <sup>+</sup>	23,148 SQM <sup>2</sup>	2.7:1	161
REDUCTION	-59M <sup>*</sup>	-28,680 SQM	-3.3:1	-319 <sup>3</sup>

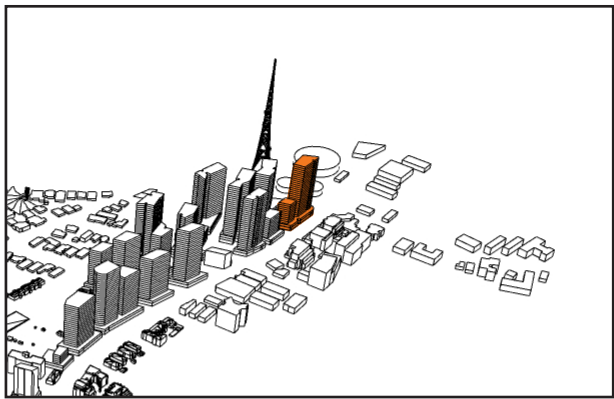
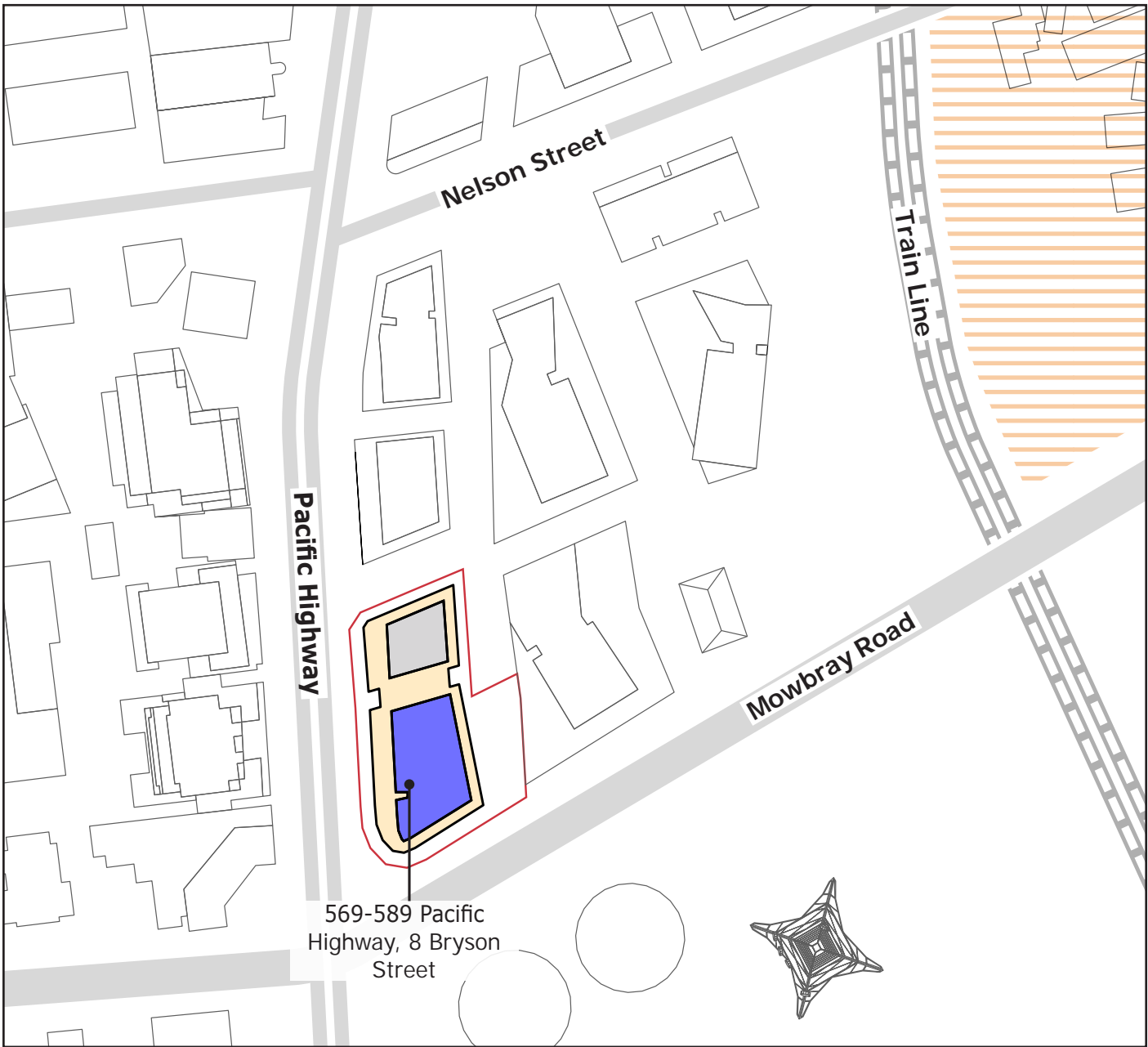
+ Approx. 9 Storeys                      \* Approx. 19 Storeys

Explanatory Notes:

- <sup>1</sup> GFA indicates maximum prescribed by the Strategy (Site area x FSR) inclusive of 1:1 Commercial FSR.  
Unit provision = Total residential GFA (minus the Commercial GFA) divided by 90sqm.
- <sup>2</sup> GFA indicates GBA for each envelope shown x 75% efficiency (minus Commercial GFA) divided by 90sqm.
- <sup>3</sup> Unit Reduction = GMU Recommendation subtracted from Proposed by Strategy. Total does not factor existing or approved dwellings on the tested lots.



CHATSWOOD DIVE SITE



569-589 PACIFIC HWY., 8 BRYSON ST.

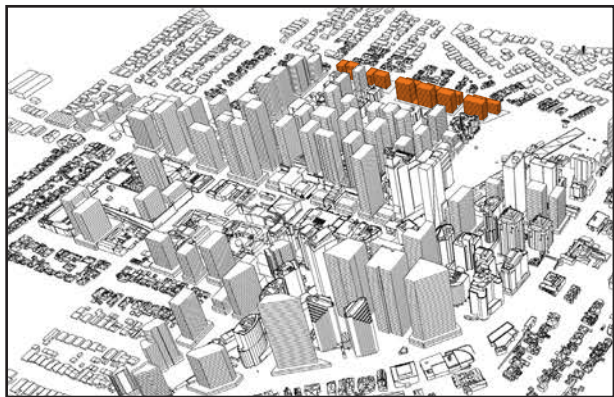
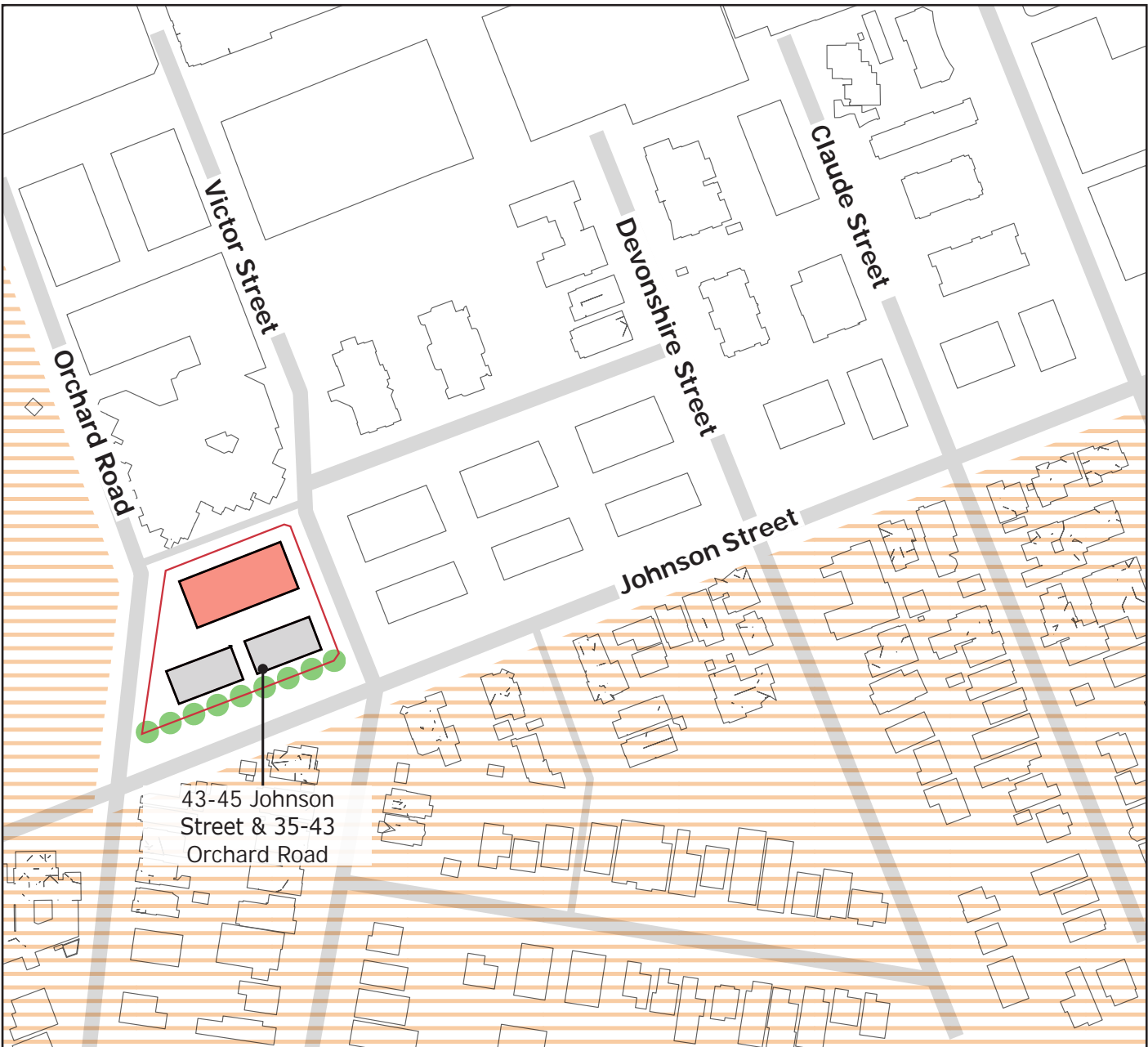
	HEIGHT	GFA	FSR	UNIT PROVISION
PROPOSED BY STRATEGY	90M	16,986 SQM <sup>1</sup>	6.0:1	157
GMU RECOMMENDATION	55M <sup>+</sup>	11,827 SQM <sup>2</sup>	4.2:1	100
REDUCTION	-35M*	-5,159 SQM	-1.8:1	-57 <sup>3</sup>

+ Approx. 17 Storeys                      \* Approx. 11 Storeys

Explanatory Notes:

- <sup>1</sup> GFA indicates maximum prescribed by the Strategy (Site area x FSR) inclusive of 1:1 Commercial FSR.  
Unit provision = Total residential GFA (minus the Commercial GFA) divided by 90sqm.
- <sup>2</sup> GFA indicates GBA for each envelope shown x 75% efficiency (minus Commercial GFA) divided by 90sqm.
- <sup>3</sup> Unit Reduction = GMU Recommendation subtracted from Proposed by Strategy. Total does not factor existing or approved dwellings on the tested lots.

PRECINCT NORTH OF JOHNSON STREET



The Chatswood CBD Planning and Urban Design Strategy (Architectus, January 2018) did not identify the sites along Johnson St as Opportunity Sites. In GMU’s Chatswood Precinct Study report, these sites have been identified as having limited development potential in the short to mid terms due to the high number of owners in each strata title ranging from 40-49. If these sites are to be developed in the long term, they need to mitigate adverse impacts to the dwellings in the HCA to the south of Johnson Street, especially with regards to overshadowing. GMU has tested their potential assuming either two or three hours of solar access. Limiting the solar access to 2 hours allows greater redevelopment potential to these constrained sites.

43-45 JOHNSON ST. & 35-43 ORCHARD RD.

Two hour solar access to the HCA south of Johnson Street:

	HEIGHT	GFA	FSR	UNIT PROVISION
PROPOSED BY STRATEGY	90M	24,138 SQM <sup>1</sup>	6.0:1	224
GMU RECOMMENDATION	55M - 61M <sup>+</sup>	20,115 SQM <sup>2</sup>	5.0:1	179
REDUCTION	-29M - 35M <sup>*</sup>	-4,023 SQM	-1.0:1	-45 <sup>3</sup>

+ Approx. 17 Storeys - 19 Storeys                      \* Approx. 9 Storeys - 11 Storeys

Three hour solar access to the HCA south of Johnson Street:

	HEIGHT	GFA	FSR	UNIT PROVISION
PROPOSED BY STRATEGY	90M	24,138 SQM <sup>1</sup>	6.0:1	224
GMU RECOMMENDATION	45M <sup>+</sup>	14,411 SQM <sup>2</sup>	3.6:1	115
REDUCTION	-45M <sup>*</sup>	-9,727 SQM	-2.4:1	-109 <sup>3</sup>

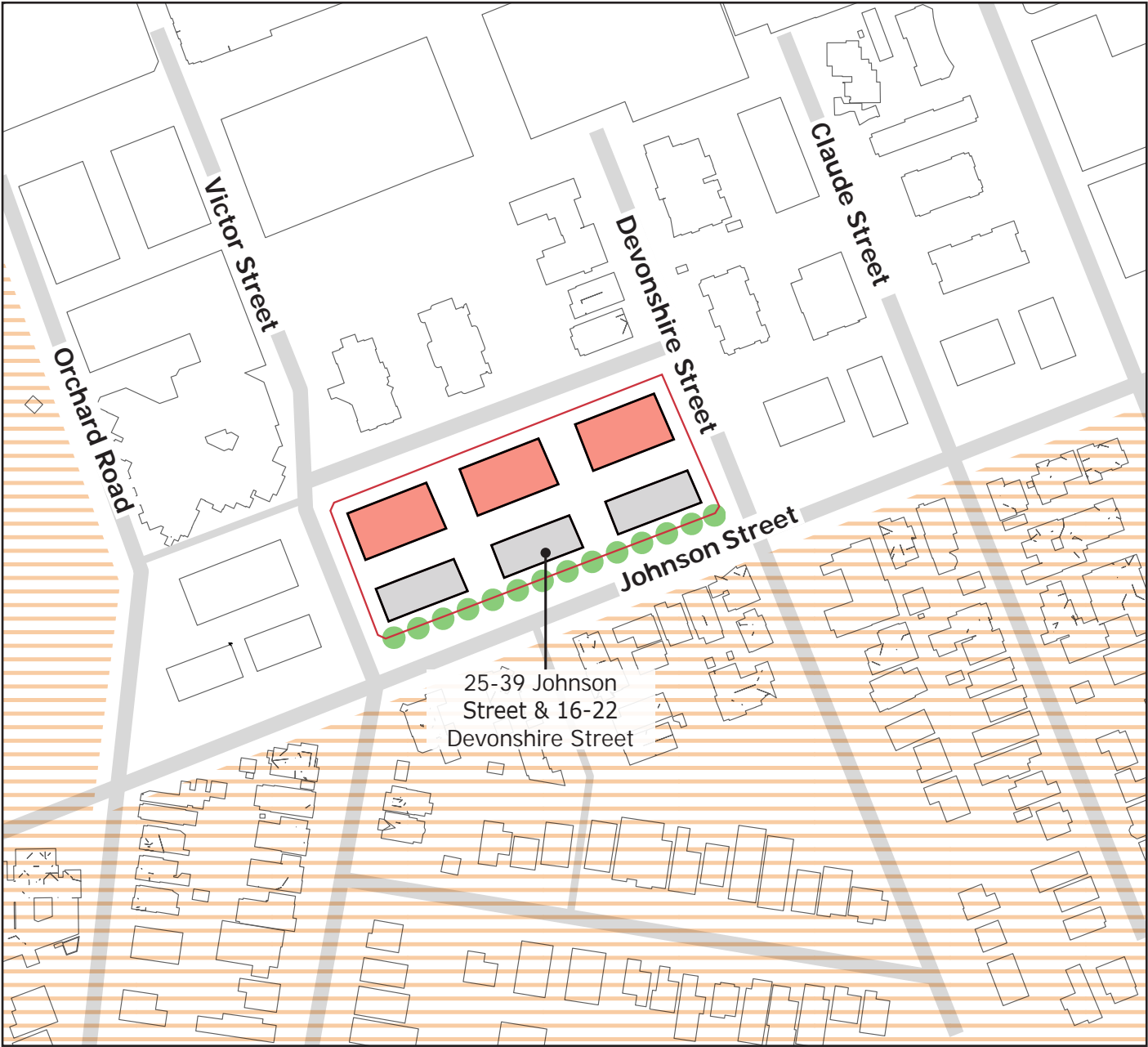
+ Approx. 14 Storeys                      \* Approx. 14 Storeys

Explanatory Notes:

- <sup>1</sup> GFA indicates maximum prescribed by the Strategy (Site area x FSR) inclusive of 1:1 Commercial FSR.  
Unit provision = Total residential GFA (minus the Commercial GFA) divided by 90sqm.
- <sup>2</sup> Total height depends on solar access performance to the dwellings south of Johnson Street. GFA indicates GBA for each envelope shown x 75% efficiency (minus Commercial GFA) divided by 90sqm.
- <sup>3</sup> Unit Reduction = GMU Recommendation subtracted from Proposed by Strategy. Total does not factor existing or approved dwellings on the tested lots.



PRECINCT NORTH OF JOHNSON STREET



25-39 JOHNSON ST. & 16-22 DEVONSHIRE ST.

Two hour solar access to the HCA south of Johnson Street:

	HEIGHT	GFA	FSR	UNIT PROVISION
PROPOSED BY STRATEGY	90M	51,468 SQM <sup>1</sup>	6.0:1	477
GMU RECOMMENDATION	55M - 61M <sup>+</sup>	42,890 SQM <sup>2</sup>	5.0:1	381
REDUCTION	-29M - 35M <sup>*</sup>	-8,578 SQM	-1.0:1	-96 <sup>3</sup>

+ Approx. 17 Storeys - 19 Storeys      \* Approx. 9 Storeys - 11 Storeys

Three hour solar access to the HCA south of Johnson Street:

	HEIGHT	GFA	FSR	UNIT PROVISION
PROPOSED BY STRATEGY	90M	51,468 SQM <sup>1</sup>	6.0:1	477
GMU RECOMMENDATION	45M <sup>+</sup>	31,446 SQM <sup>2</sup>	3.7:1	254
REDUCTION	-45M <sup>*</sup>	-20,022 SQM	-2.3:1	-223 <sup>3</sup>

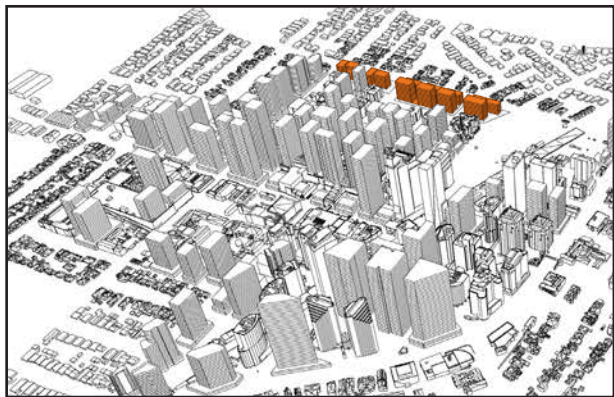
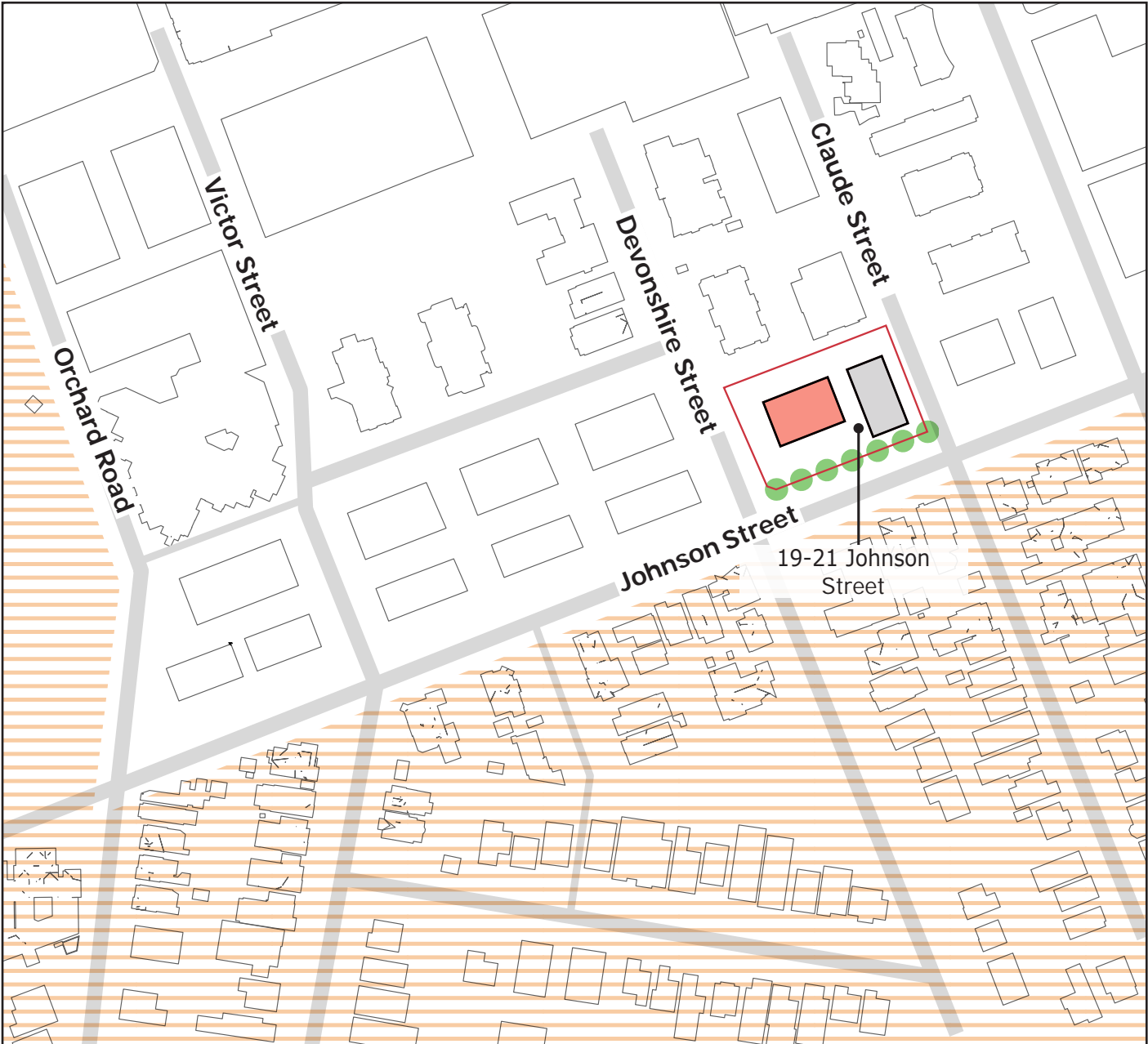
+ Approx. 14 Storeys      \* Approx. 14 Storeys

Explanatory Notes:

- <sup>1</sup> GFA indicates maximum prescribed by the Strategy (Site area x FSR) inclusive of 1:1 Commercial FSR.  
Unit provision = Total residential GFA (minus the Commercial GFA) divided by 90sqm.
- <sup>2</sup> Total height depends on solar access performance to the dwellings south of Johnson Street. GFA indicates GBA for each envelope shown x 75% efficiency (minus Commercial GFA) divided by 90sqm.
- <sup>3</sup> Unit Reduction = GMU Recommendation subtracted from Proposed by Strategy. Total does not factor existing or approved dwellings on the tested lots.



PRECINCT NORTH OF JOHNSON STREET



19-21 JOHNSON ST.

Two hour solar access to the HCA south of Johnson Street:

	HEIGHT	GFA	FSR	UNIT PROVISION
PROPOSED BY STRATEGY	90M	18,858 SQM <sup>1</sup>	6.0:1	175
GMU RECOMMENDATION	55M - 61M <sup>+</sup>	15,715 SQM <sup>2</sup>	5.0:1	140
REDUCTION	-29M - 35M <sup>*</sup>	-3,143 SQM	-1.0:1	-35 <sup>3</sup>

+ Approx. 17 Storeys - 19 Storeys                      \* Approx. 9 Storeys - 11 Storeys

Three hour solar access to the HCA south of Johnson Street:

	HEIGHT	GFA	FSR	UNIT PROVISION
PROPOSED BY STRATEGY	90M	18,858 SQM <sup>1</sup>	6.0:1	175
GMU RECOMMENDATION	45M <sup>+</sup>	8,807 SQM <sup>2</sup>	3.5:1	63
REDUCTION	-45M <sup>*</sup>	-10,051 SQM	-2.5:1	-112 <sup>3</sup>

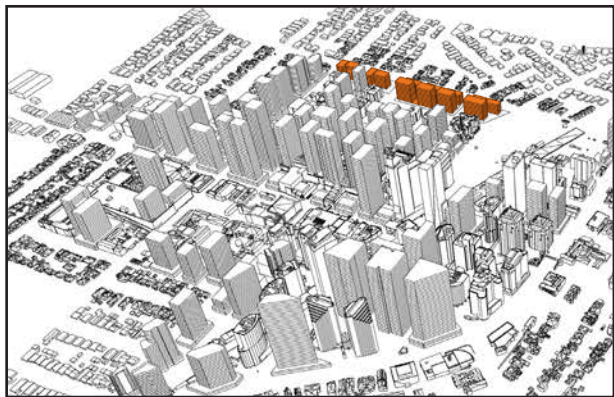
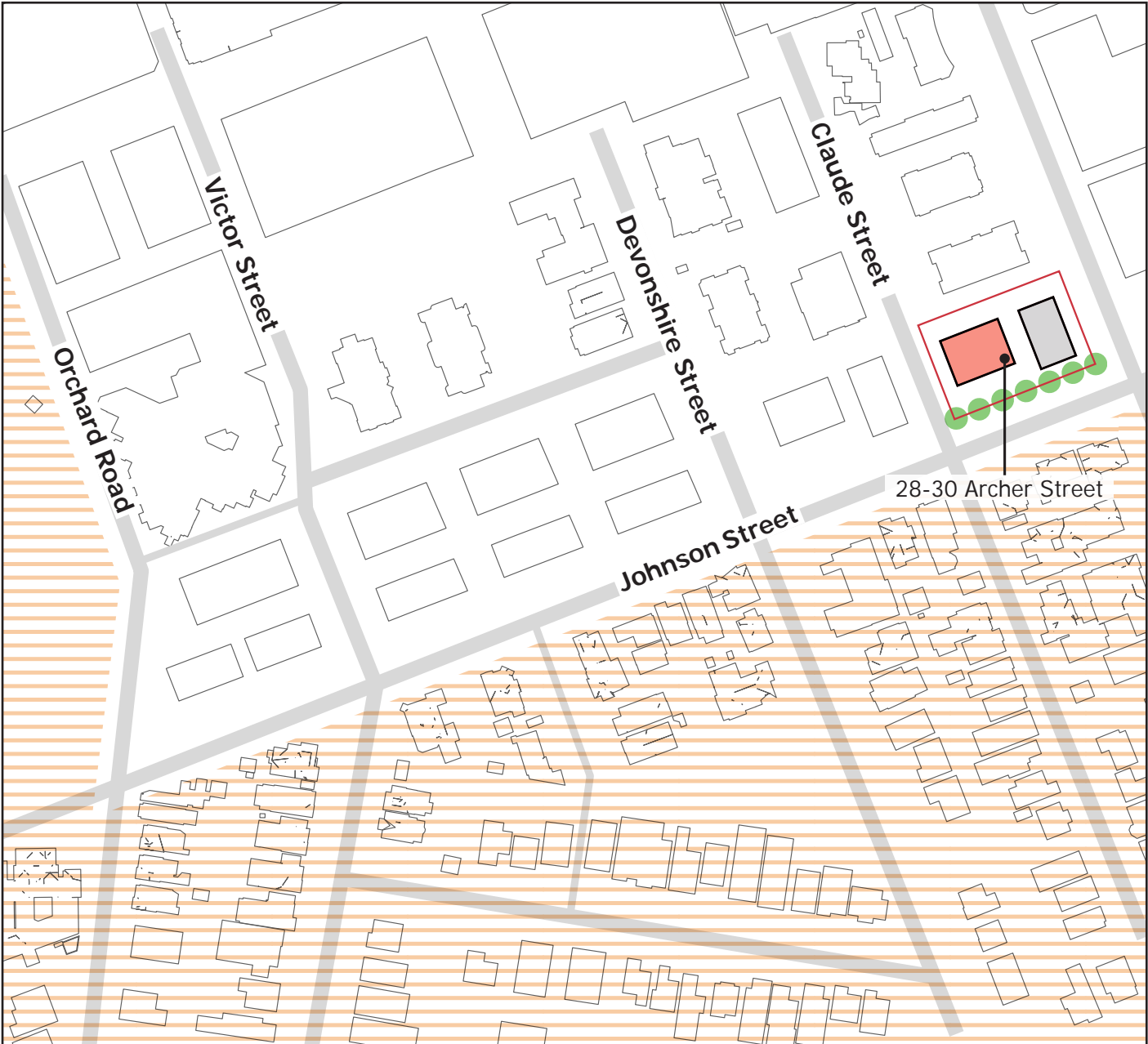
+ Approx. 14 Storeys                      \* Approx. 14 Storeys

Explanatory Notes:

- <sup>1</sup> GFA indicates maximum prescribed by the Strategy (Site area x FSR) inclusive of 1:1 Commercial FSR.  
Unit provision = Total residential GFA (minus the Commercial GFA) divided by 90sqm.
- <sup>2</sup> Total height depends on solar access performance to the dwellings south of Johnson Street. GFA indicates GBA for each envelope shown x 75% efficiency (minus Commercial GFA) divided by 90sqm.
- <sup>3</sup> Unit Reduction = GMU Recommendation subtracted from Proposed by Strategy. Total does not factor existing or approved dwellings on the tested lots.



PRECINCT NORTH OF JOHNSON STREET



28-30 ARCHER ST.

Two hour solar access to the HCA south of Johnson Street:

	HEIGHT	GFA	FSR	UNIT PROVISION
PROPOSED BY STRATEGY	90M	14,664 SQM <sup>1</sup>	6.0:1	136
GMU RECOMMENDATION	55M - 61M <sup>+</sup>	12,220 SQM <sup>2</sup>	5.0:1	109
REDUCTION	-29M - 35M <sup>*</sup>	-2,444 SQM	-1.0:1	-27 <sup>3</sup>

+ Approx. 17 Storeys - 19 Storeys      \* Approx. 9 Storeys - 11 Storeys

Three hour solar access to the HCA south of Johnson Street:

	HEIGHT	GFA	FSR	UNIT PROVISION
PROPOSED BY STRATEGY	90M	14,664 SQM <sup>1</sup>	6.0:1	136
GMU RECOMMENDATION	45M <sup>+</sup>	7,833 SQM <sup>2</sup>	3.2:1	60
REDUCTION	-45M <sup>*</sup>	-6,831 SQM	-2.8:1	-76 <sup>3</sup>

+ Approx. 14 Storeys      \* Approx. 14 Storeys

Explanatory Notes:

- <sup>1</sup> GFA indicates maximum prescribed by the Strategy (Site area x FSR) inclusive of 1:1 Commercial FSR.  
Unit provision = Total residential GFA (minus the Commercial GFA) divided by 90sqm.
- <sup>2</sup> Total height depends on solar access performance to the dwellings south of Johnson Street. GFA indicates GBA for each envelope shown x 75% efficiency (minus Commercial GFA) divided by 90sqm.
- <sup>3</sup> Unit Reduction = GMU Recommendation subtracted from Proposed by Strategy. Total does not factor existing or approved dwellings on the tested lots.



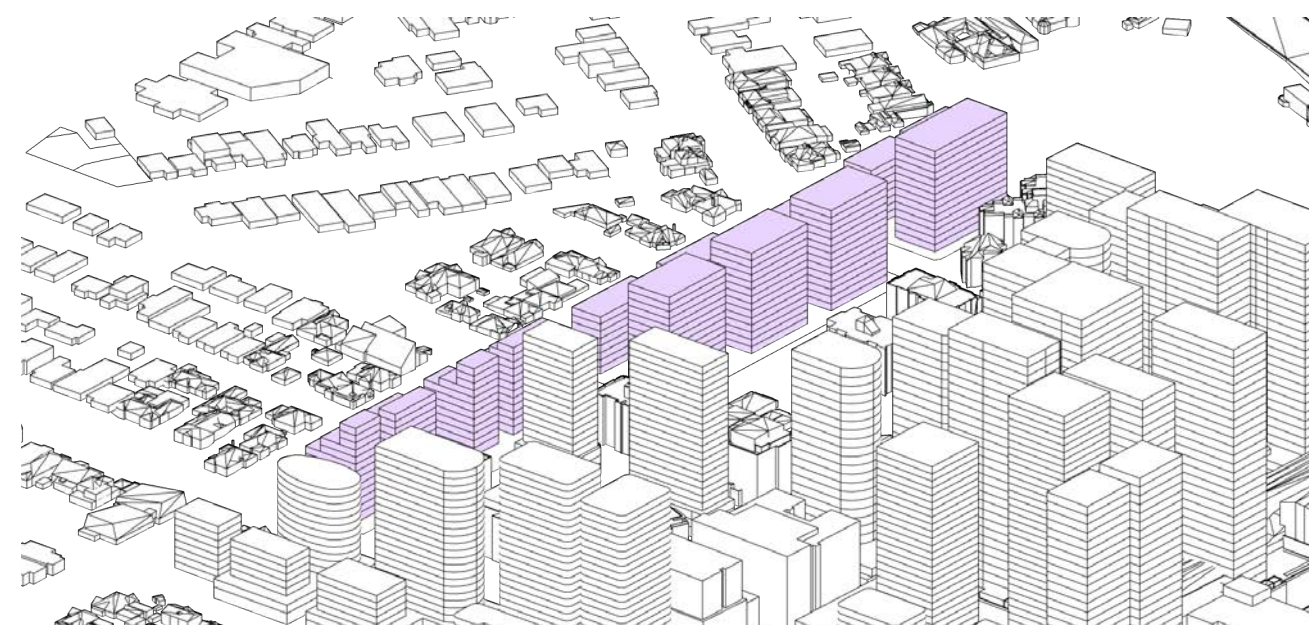
## SUN-EYE ANALYSIS - JOHNSON STREET DEVELOPMENT

The recommendations for the developments along Johnson Street are divided into 2 scenarios:

- **3 hour solar access** to the Heritage Conservation Area, which is compliant with Willoughby Council DCP 2012 E1.10, which requires the northern windows of living areas of adjoining buildings to have at least 3 hours of solar access between 9 am to 3 pm.
- **2 hour solar access** to the Heritage Conservation Area, which is consistent with the ADG objectives for Residential Flat Building in urban areas.



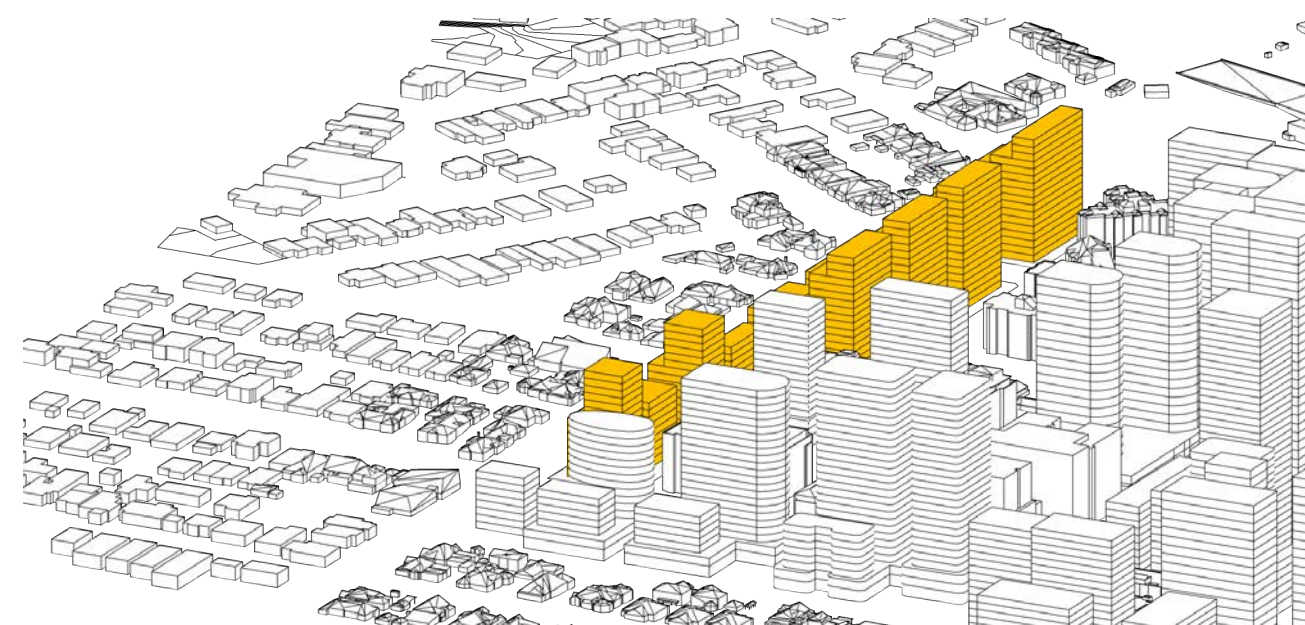
9 am



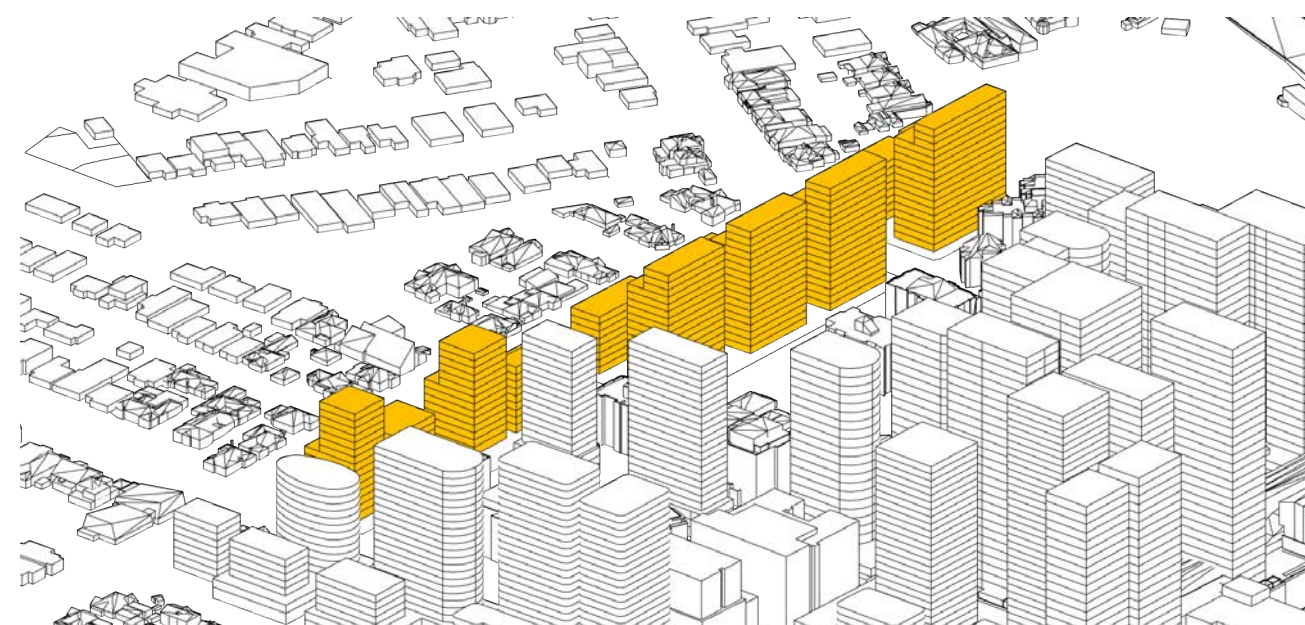
10 am

3 hour solar access

The following diagrams on the left with buildings coloured in light purple suggest developments allowing 3 hours of solar access to the Heritage Conservation Area and the diagrams on the right with buildings in orange will allow for 2 hours of solar access to the Heritage Conservation Area:



9 am



10 am

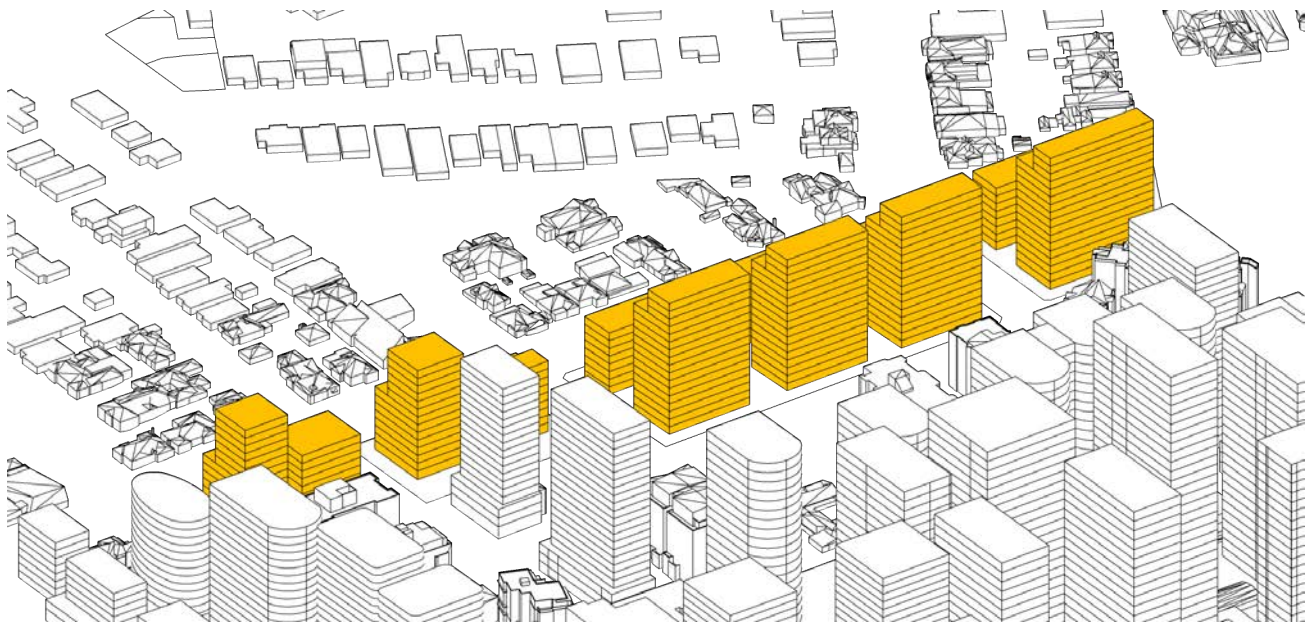
2 hour solar access



SUN-EYE ANALYSIS - JOHNSON STREET DEVELOPMENT



11 am

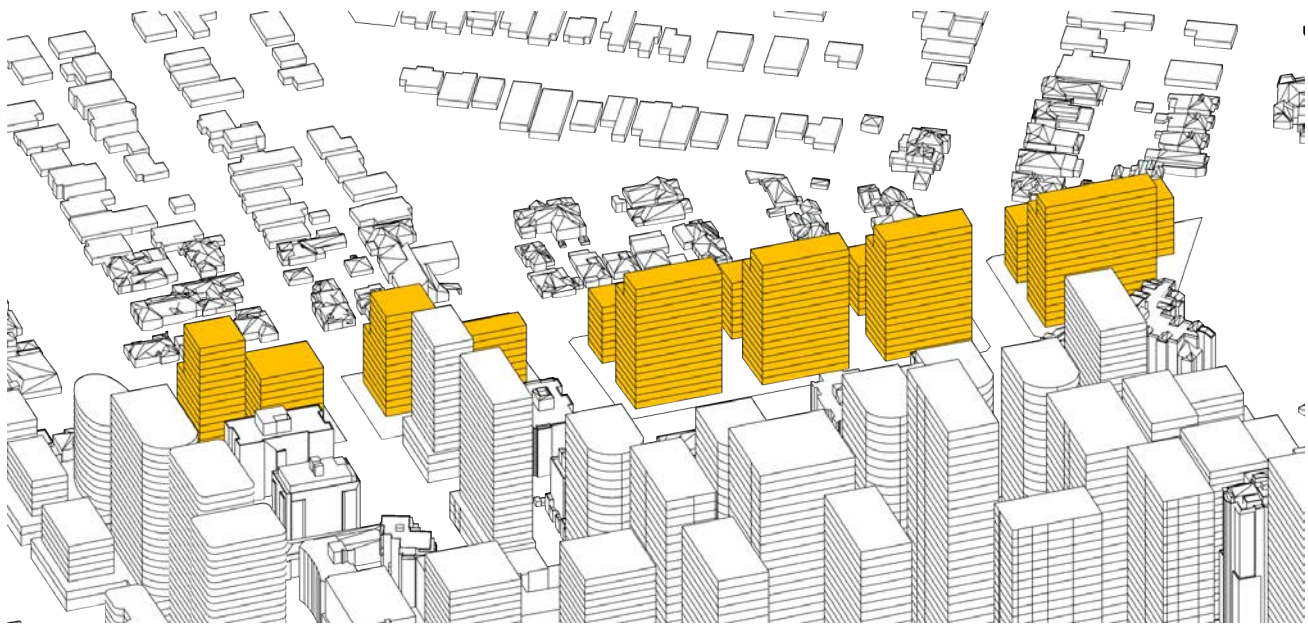


11 am



12 pm

3 hour solar access

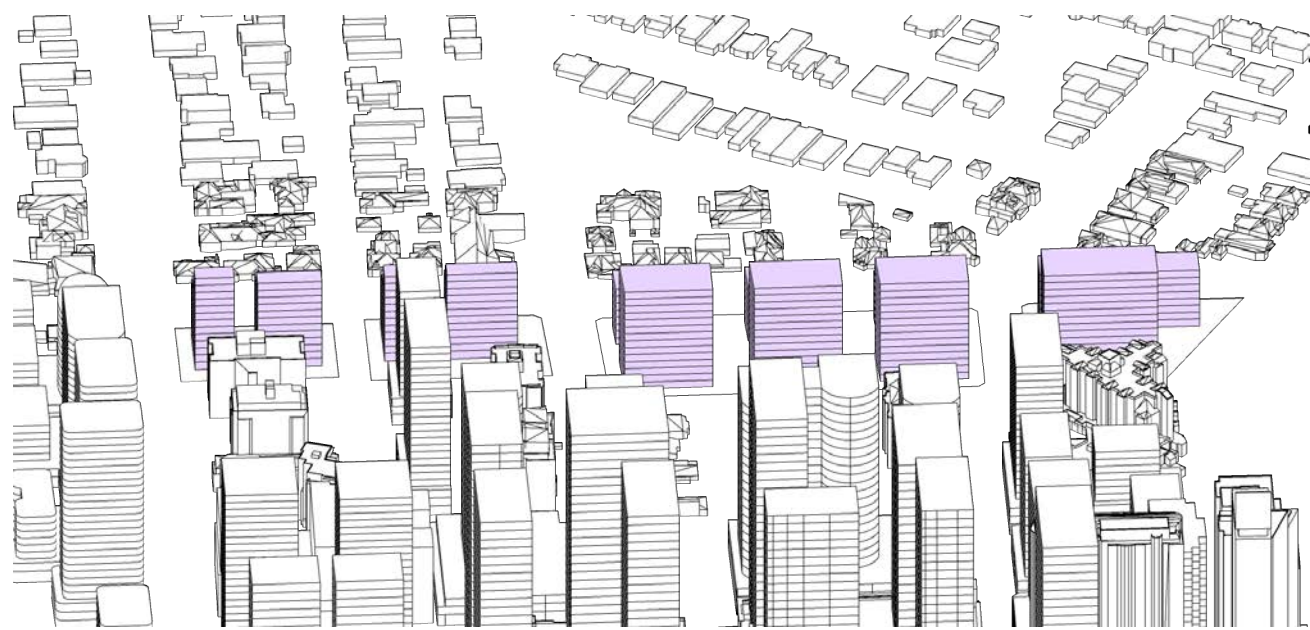


12 pm

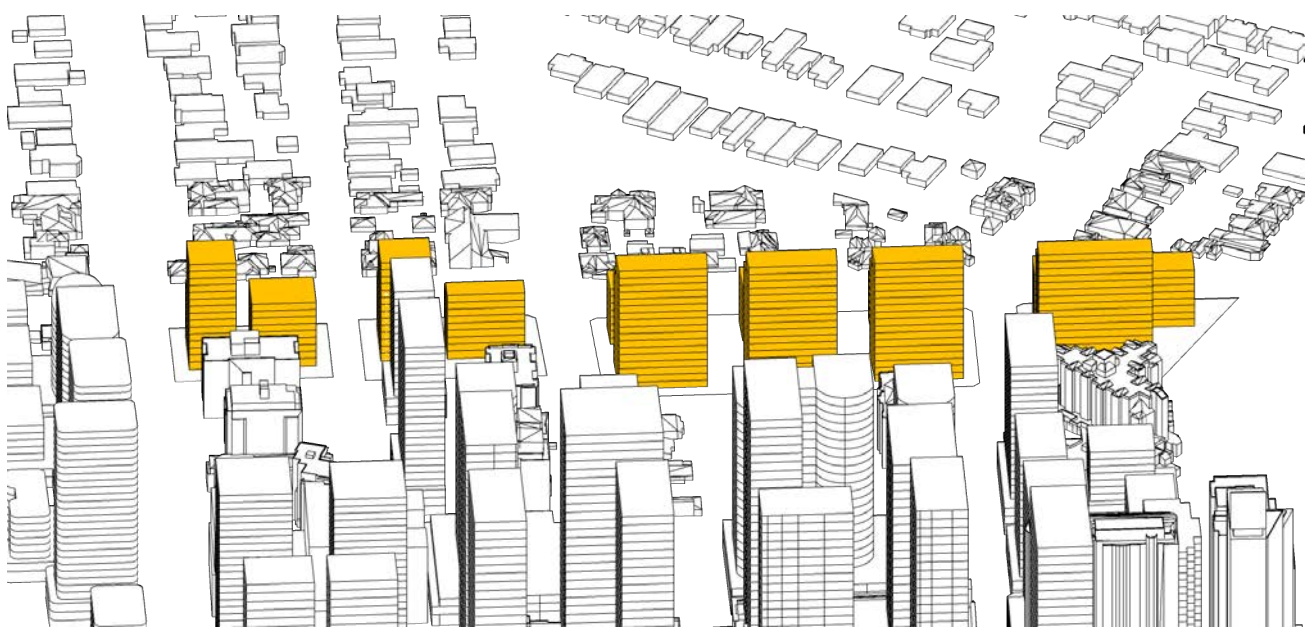
2 hour solar access



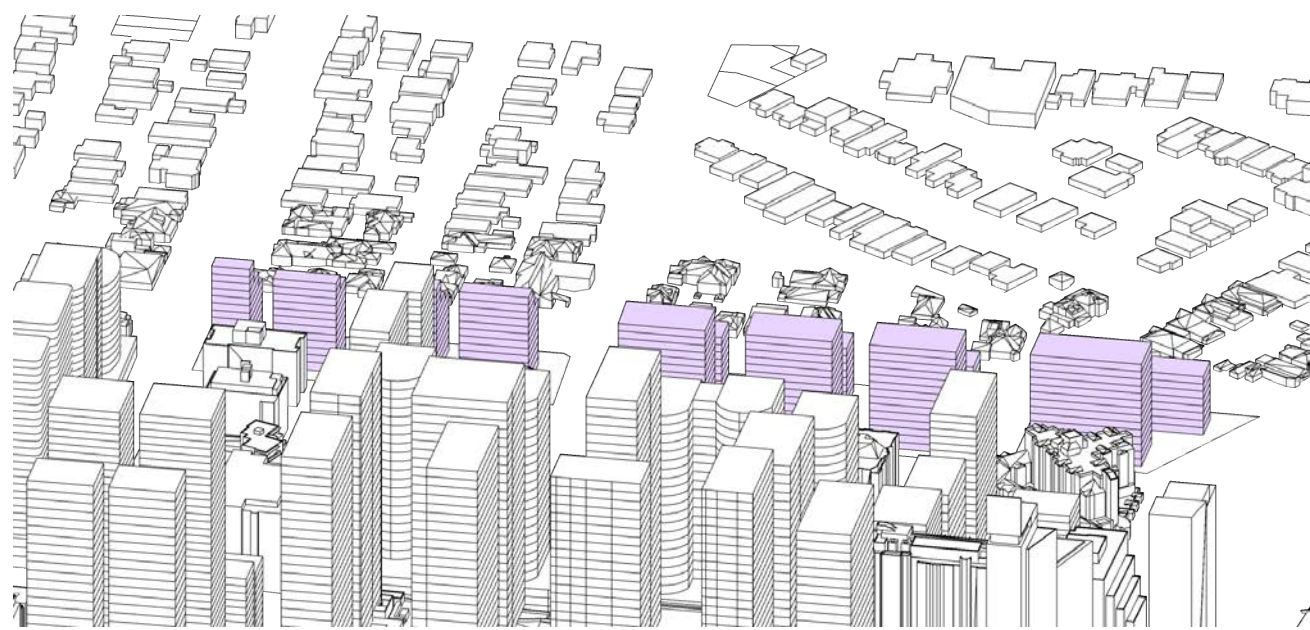
SUN-EYE ANALYSIS - JOHNSON STREET DEVELOPMENT



1 pm

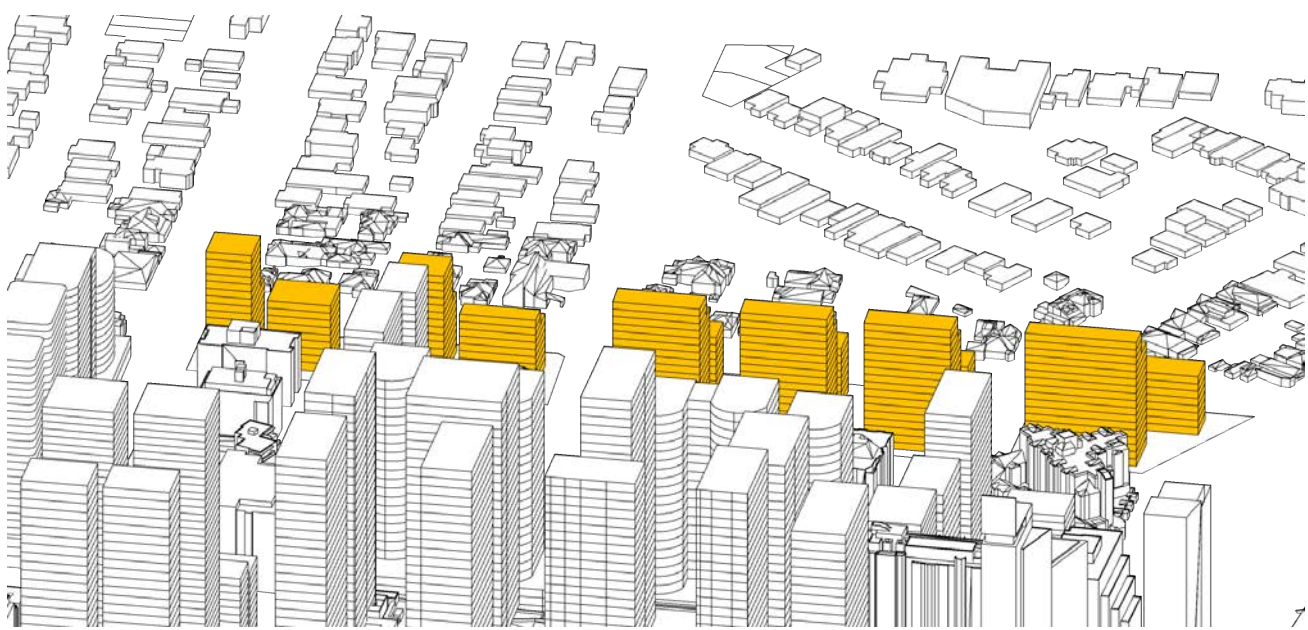


1 pm



2 pm

3 hour solar access



2 pm

2 hour solar access

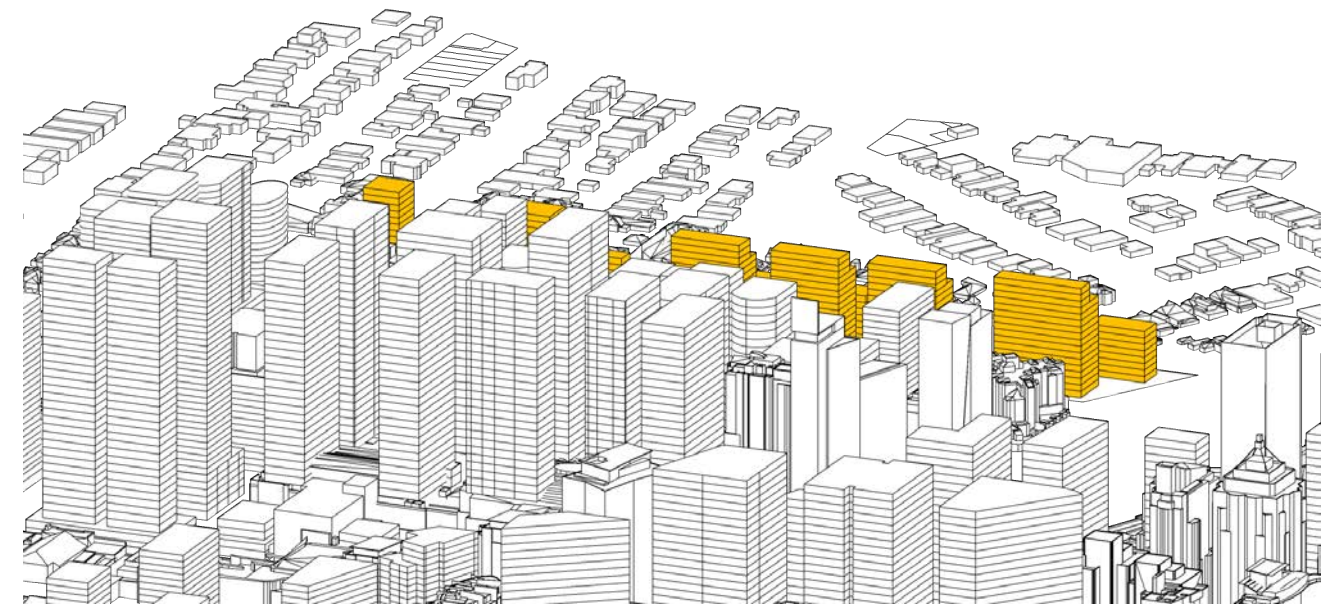


## SUN-EYE ANALYSIS - JOHNSON STREET DEVELOPMENT



3 pm

3 hour solar access



3 pm

2 hour solar access