

Appendix A2

Solar Access

The following slides provide a summary of the proposed development with regards to;

- Shadows
- Residential Compliance Summary
- Views From the Sun
- Park Analysis
- Public Domain
- Detailed Assessment of Neighbouring Buildings
 - 1 Warehouse (Danks Street)
 - Tiara (Bourke Street)
 - City West (Bourke Street)
 - Toyota Showroom (Bourke Street)
 - DASC0 Precinct (Young Street)
 - DASC0 Precinct (Bourke Street)
 - Young Street DCP (Young St)

Appendix A2 - Solar Access

Proposed Shadows

June 21
Winter Solstice

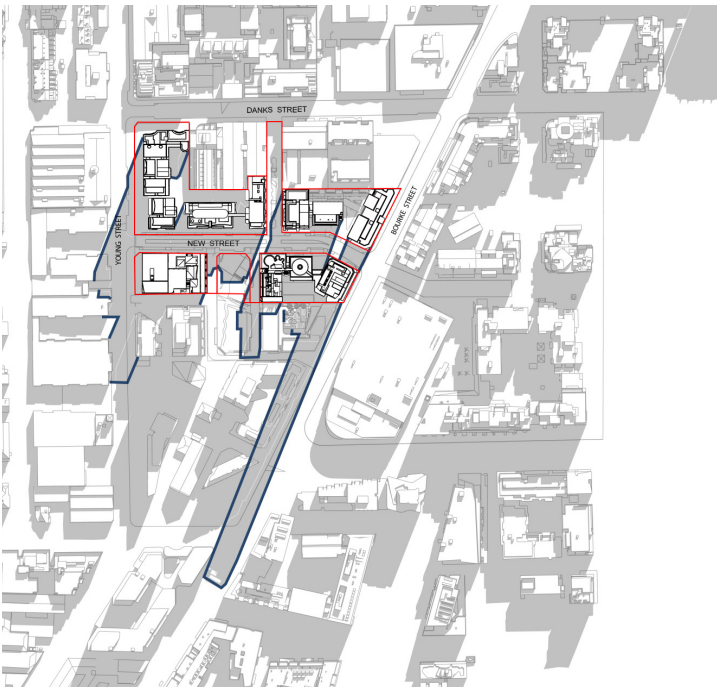
These diagrams represent shadows cast in plan form between 9am and 3pm in mid winter.

Key

Shadow created by the proposed scheme



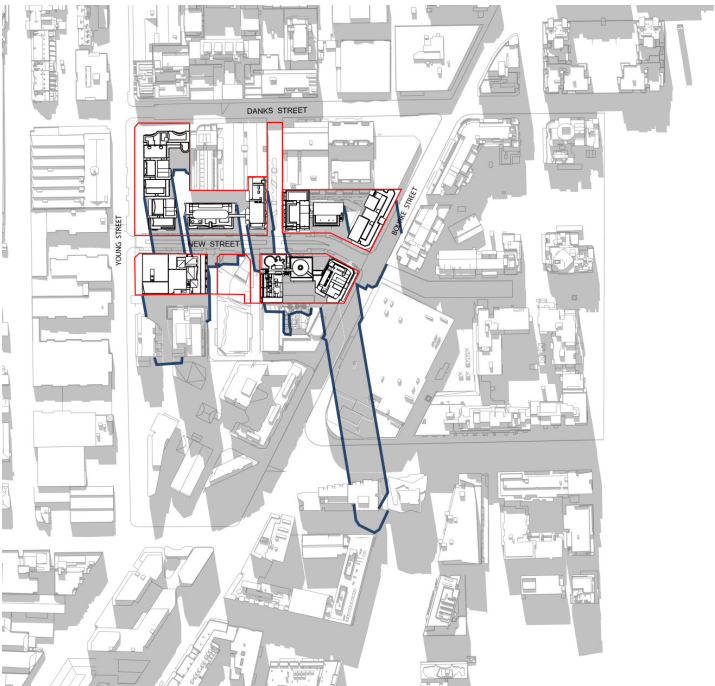
9am



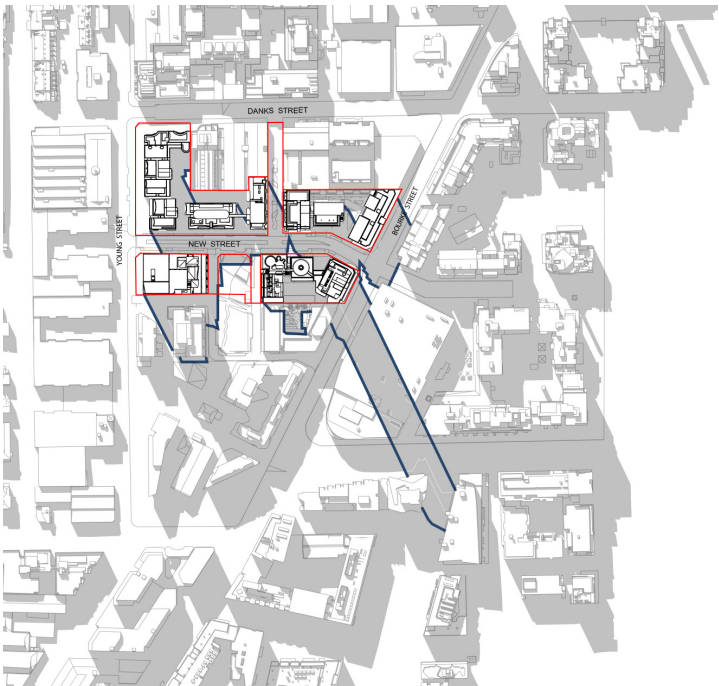
10am



11am



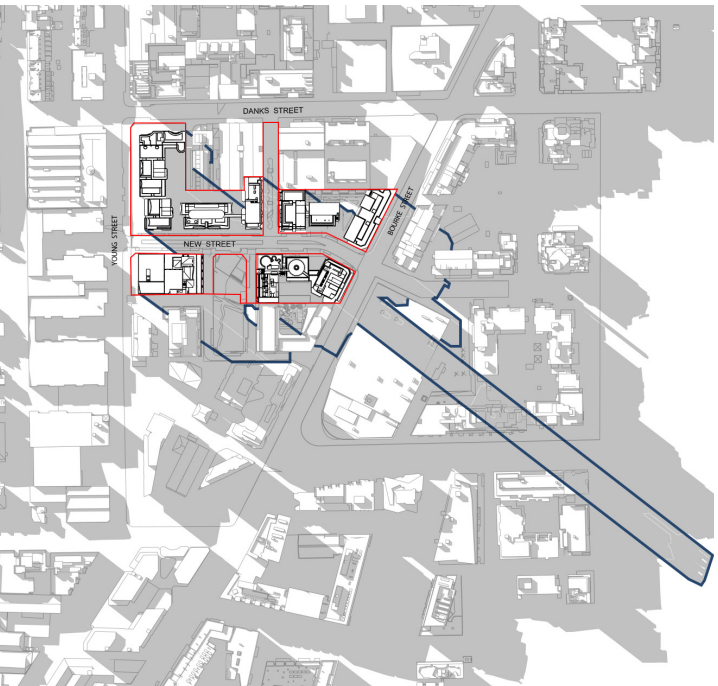
12pm



1pm



2pm



3pm

Appendix A2 - Solar Access Shadow Overlay Diagrams

June 21
Winter Solstice

These diagrams represent the difference between approved envelope and proposed shadows cast in plan form between 9am and 3pm in mid winter.

Key

Improved solar access: areas receiving direct sun that were previously overshadowed by the approved

Additional shadow created by the proposed scheme that was not already created by the approved envelope.

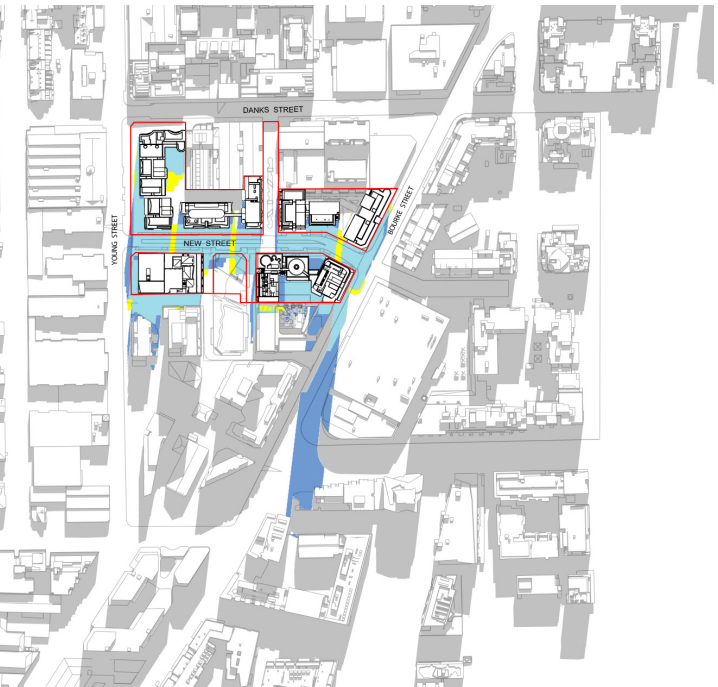
Overshadowing created by both the approved envelope and the proposed scheme.



9am



10am



11am



12pm



1pm



2pm



3pm

Appendix A2 - Solar Access

Residential Compliance Summary

Solar access compliance is met on a parcel by basis. All individual buildings comply with the exception of buildings 1c and 1d which rely on parcel compliance.

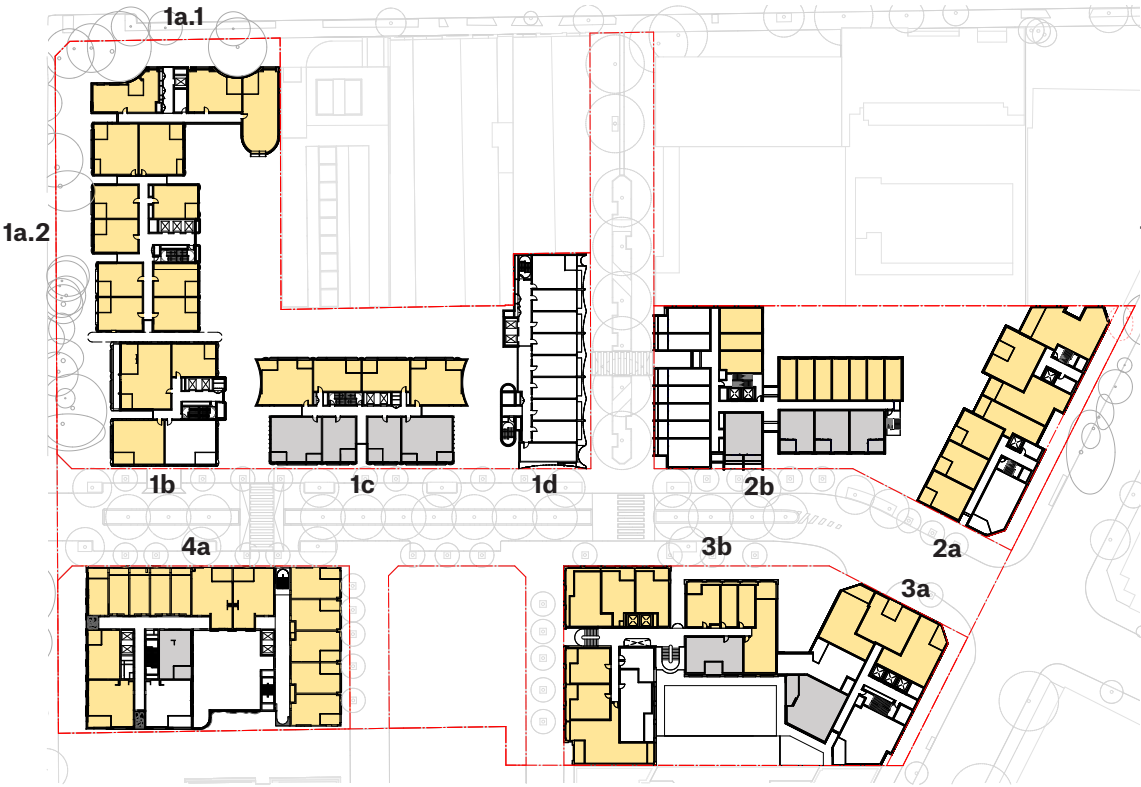
Refer to individual drawings sets for individual building compliance drawings

The precinct achieves a total of;

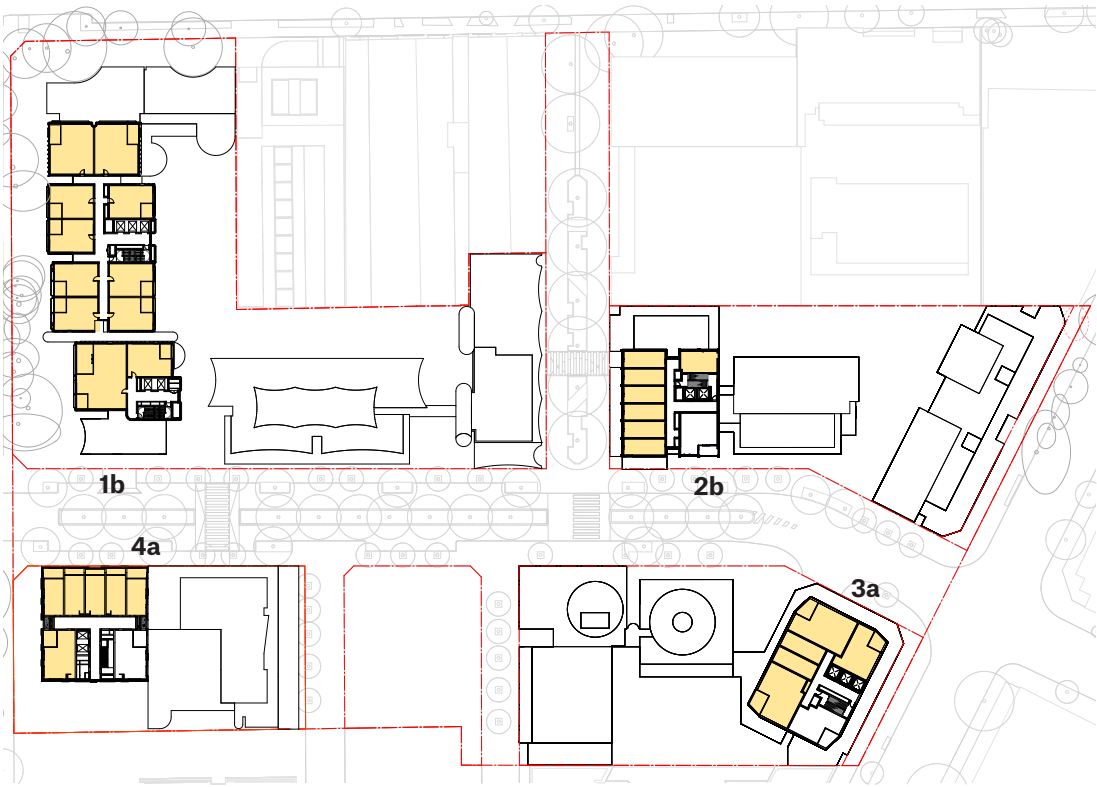


Parcel	Building	Dwellings	2 Hrs Sun	% (min 70%)	Sth Facing	% (max 15%)
1	1a.1	9	9	100%	0	0%
	1a.2	143	140	98%	2	1%
	1b	44	32	73%	0	0%
	1c	38	19	50%	16	42%
	1d	45	0	0%	0	0%
	1 Total	279	200	72%	18	6%
2	2a	43	34	79%	0	0%
	2b	165	117	71%	19	12%
	2 Total	208	151	73%	19	9%
3	3a	186	143	77%	4	2%
	3b	59	43	73%	6	10%
	3 Total	245	186	76%	10	4%
4	4a	118	91	77%	4	3%
	4 Total	118	91	77%	4	3%

Summary	Dwellings	2 Hrs Sun	% (min70%)	Sth Facing	% (max 15%)
parcel 1 + 4	397	291	73%	22	6%
parcel 2 + 3	453	337	74%	29	6%
Grand Total	850	628	74%	51	6%



Typical Lower Levels



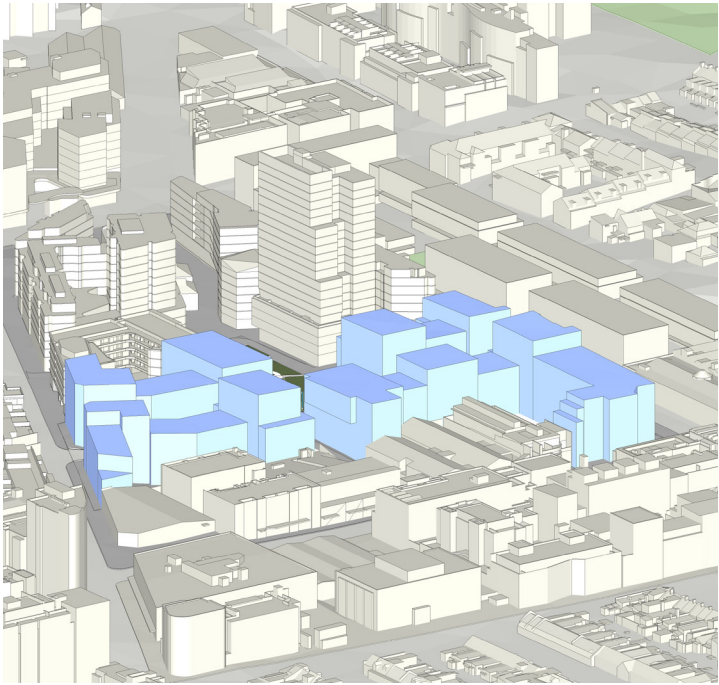
Typical Upper Levels

Appendix A2 - Solar Access

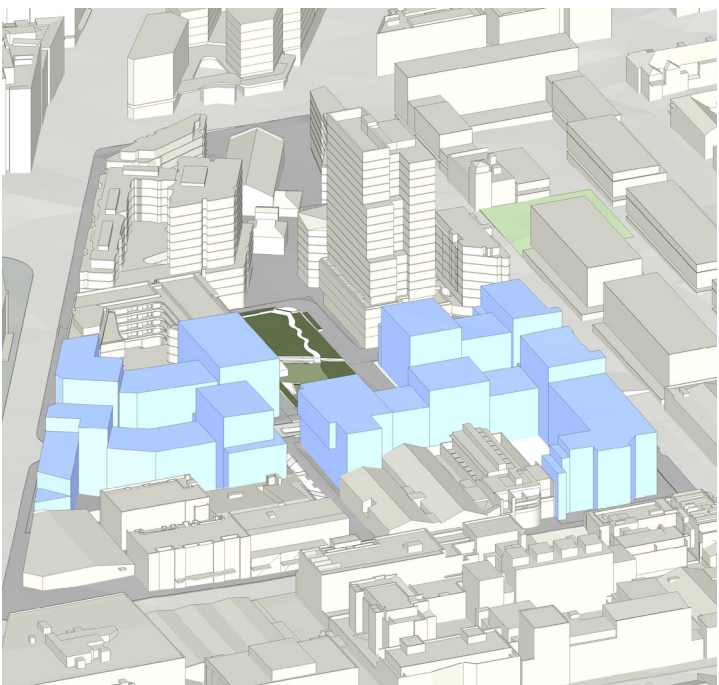
Views From The Sun

Approved Envelope

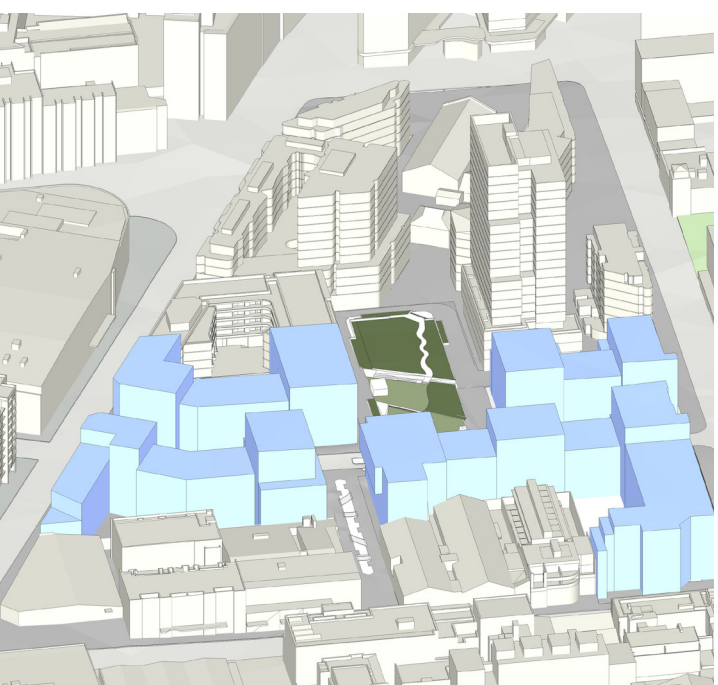
June 21
Winter Solstice



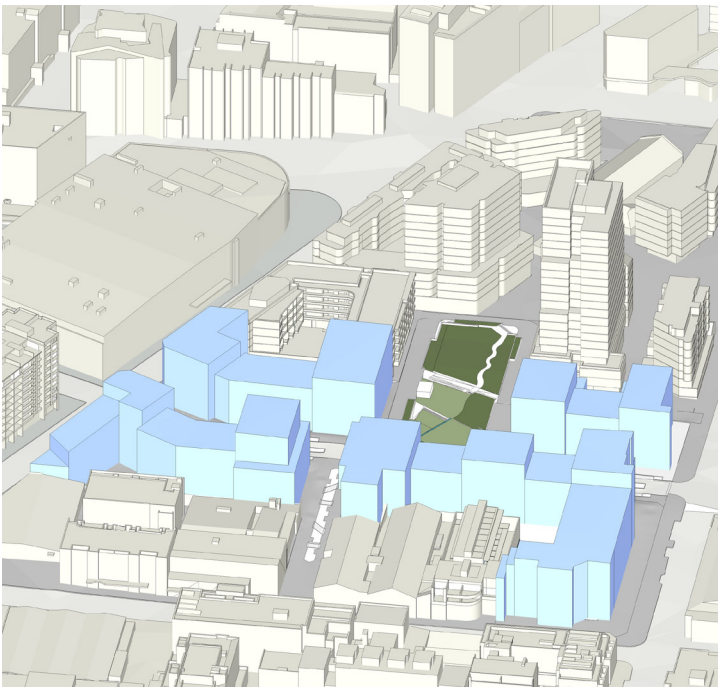
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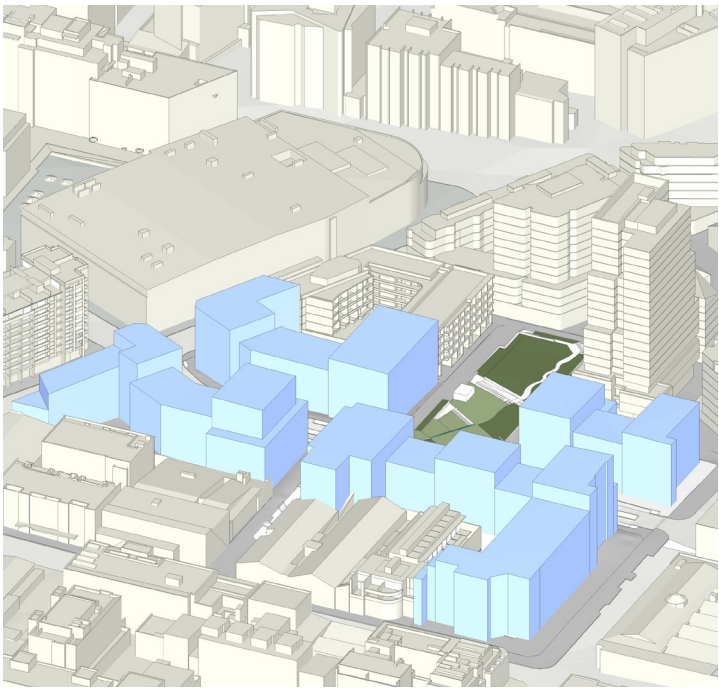
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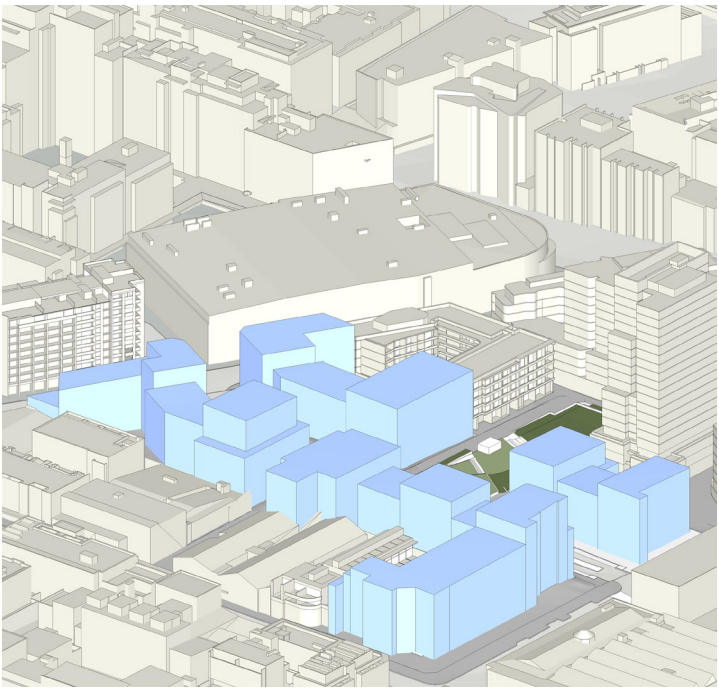
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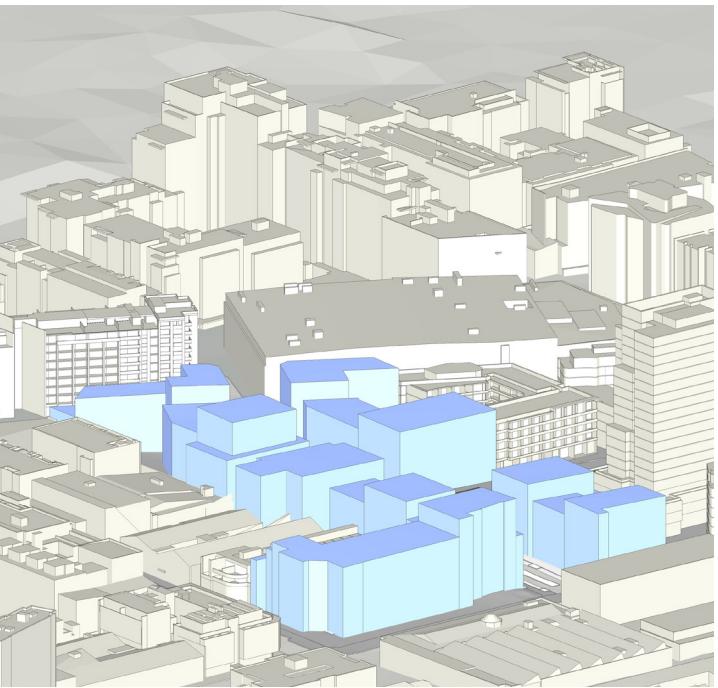
12pm



1pm



2pm



3pm

Appendix A2 - Solar Access

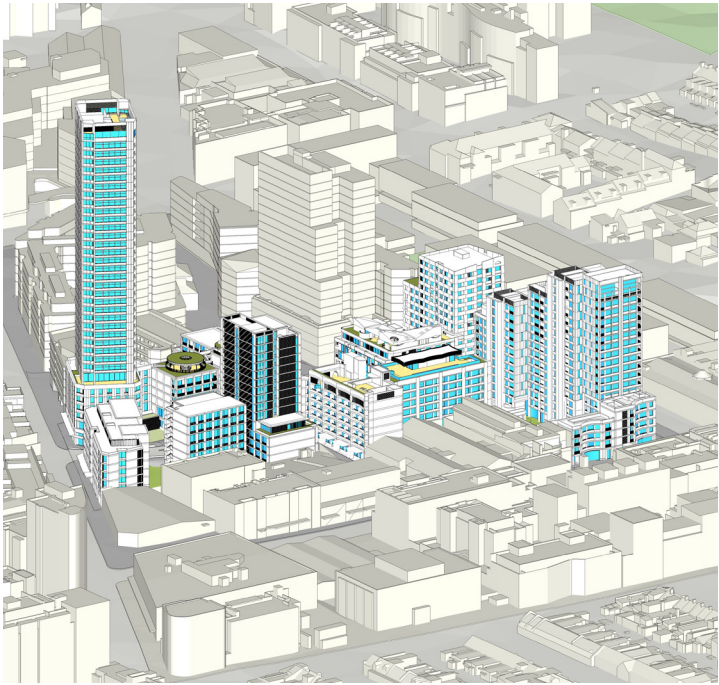
Views From The Sun

Proposed

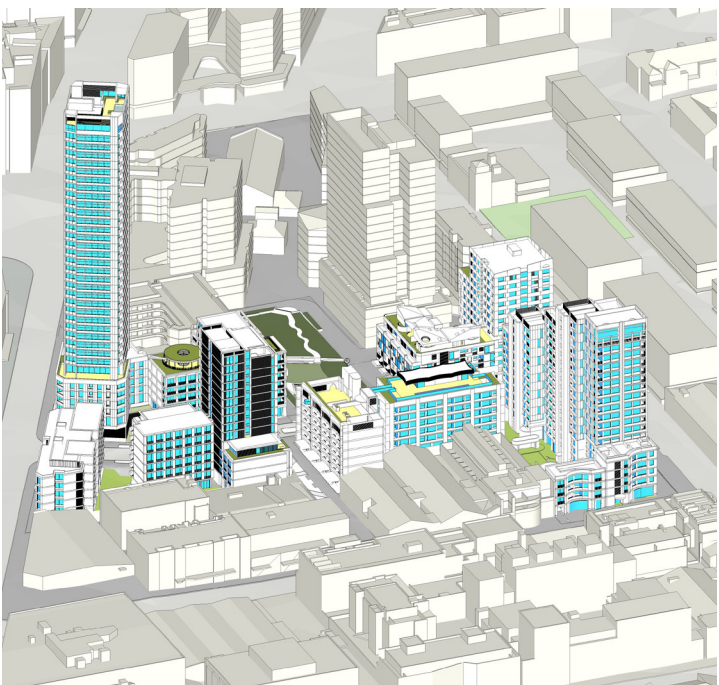
June 21
Winter Solstice

Key

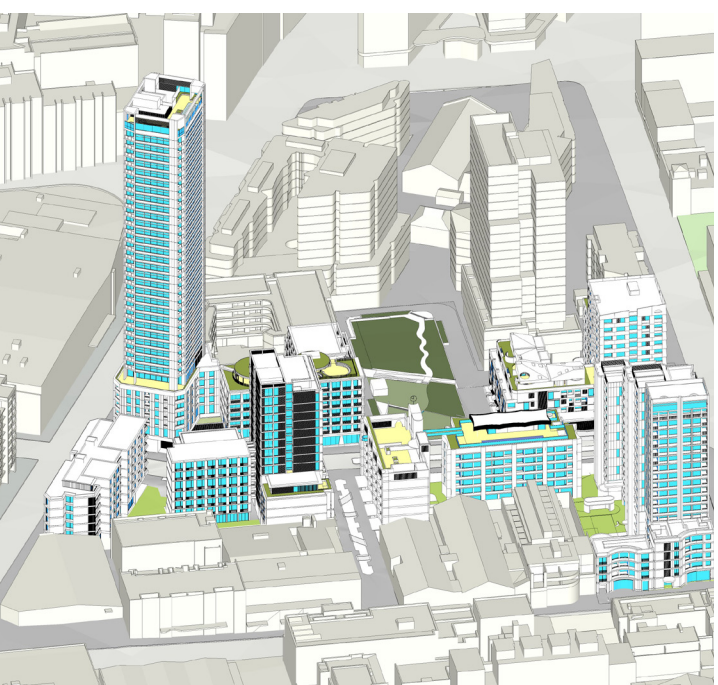
- Glazing
- Rooftop Open Space
- Ground Open Space



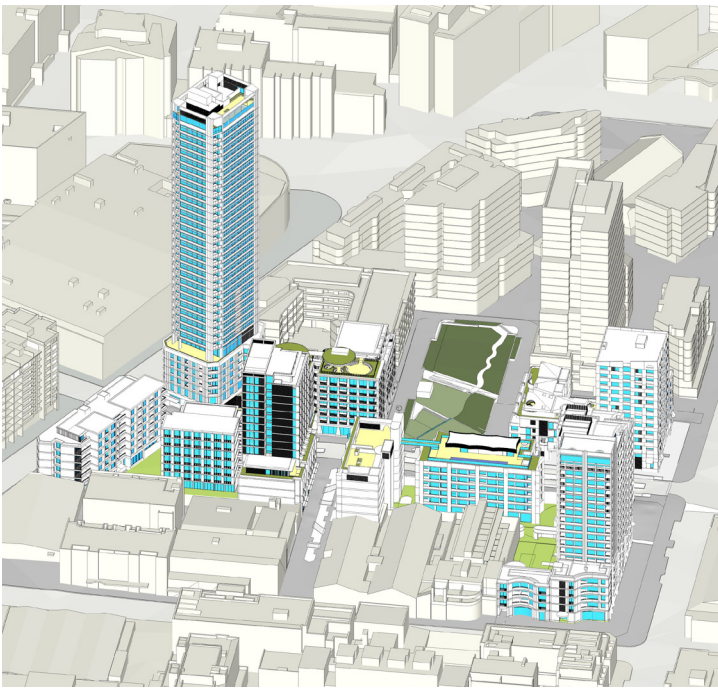
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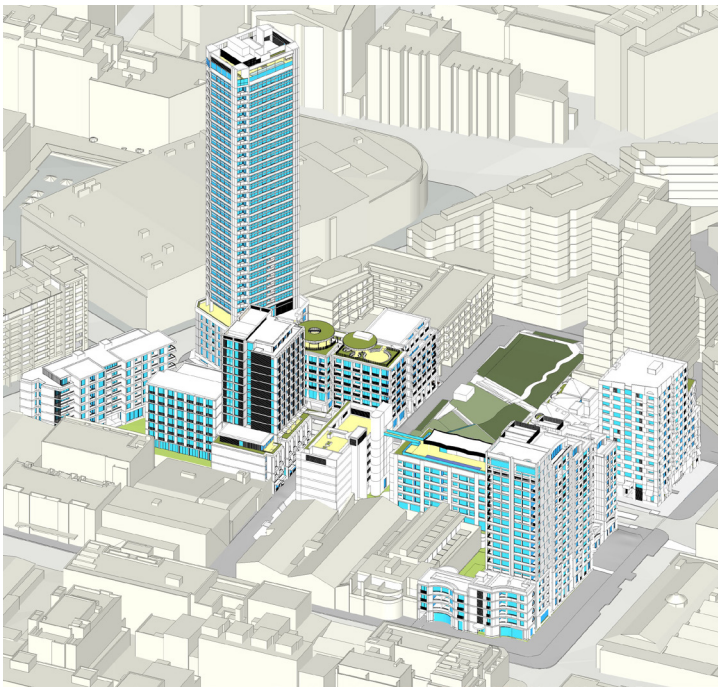
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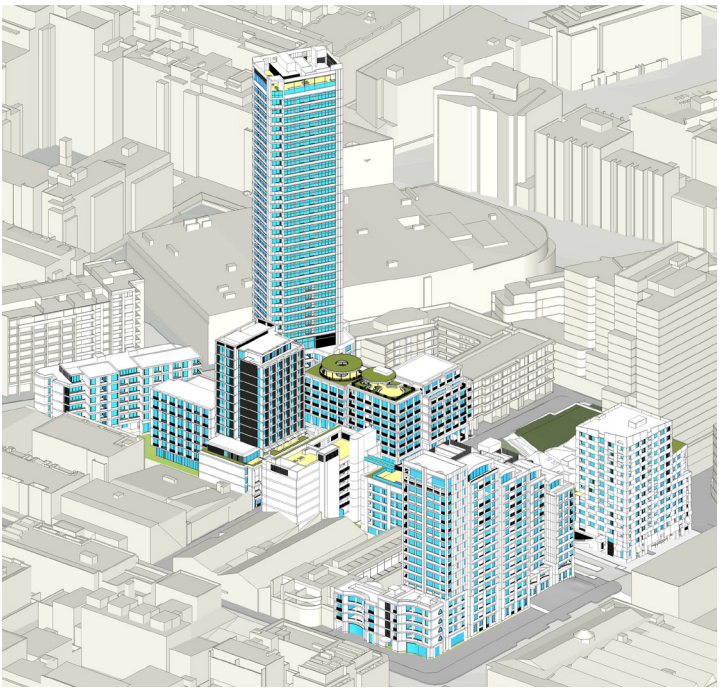
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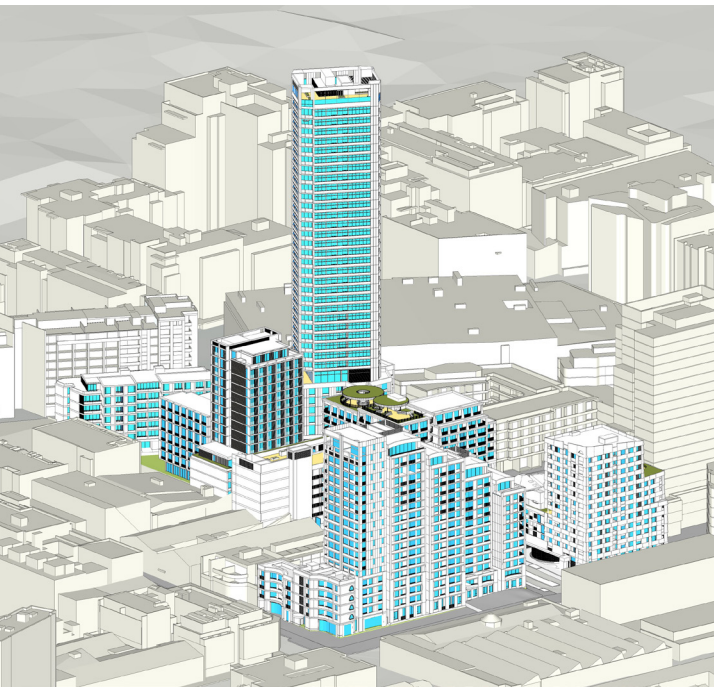
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1pm



2pm



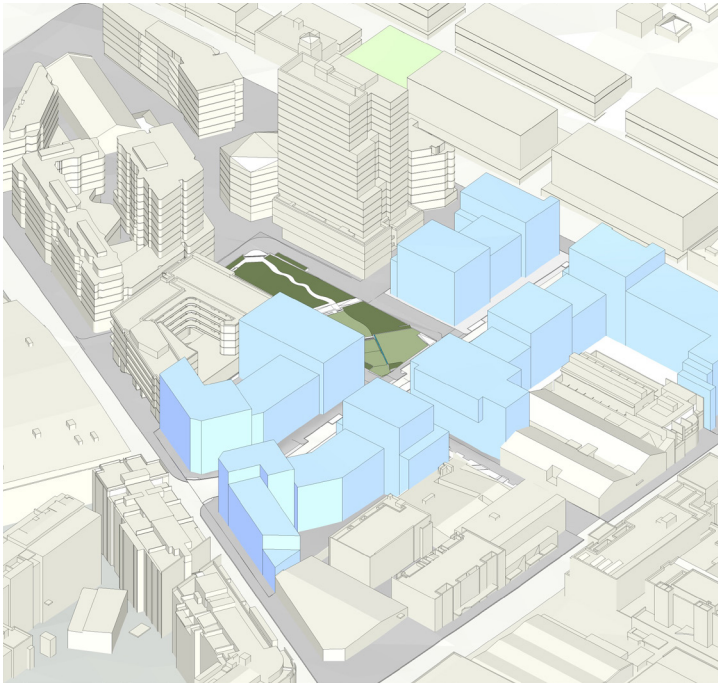
3pm

Appendix A2 - Solar Access

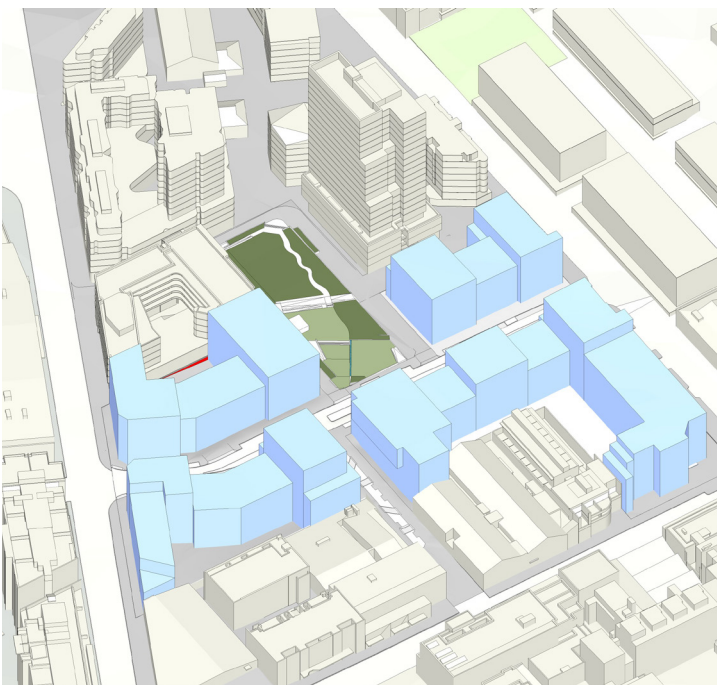
Views From The Sun

Approved Envelope

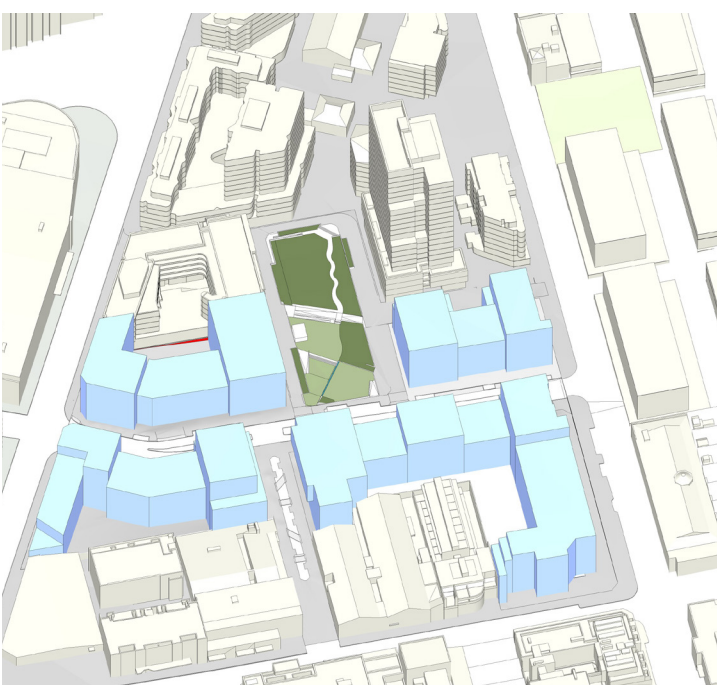
September 23
Equinox



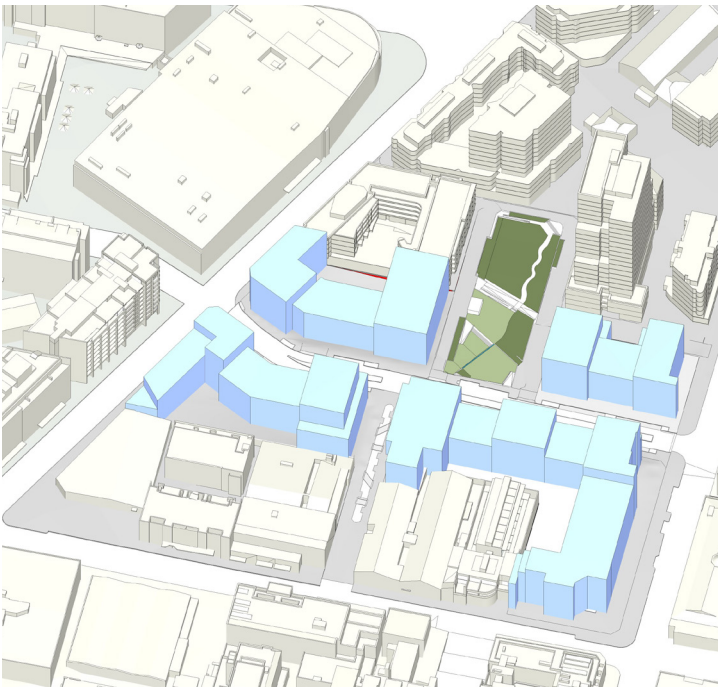
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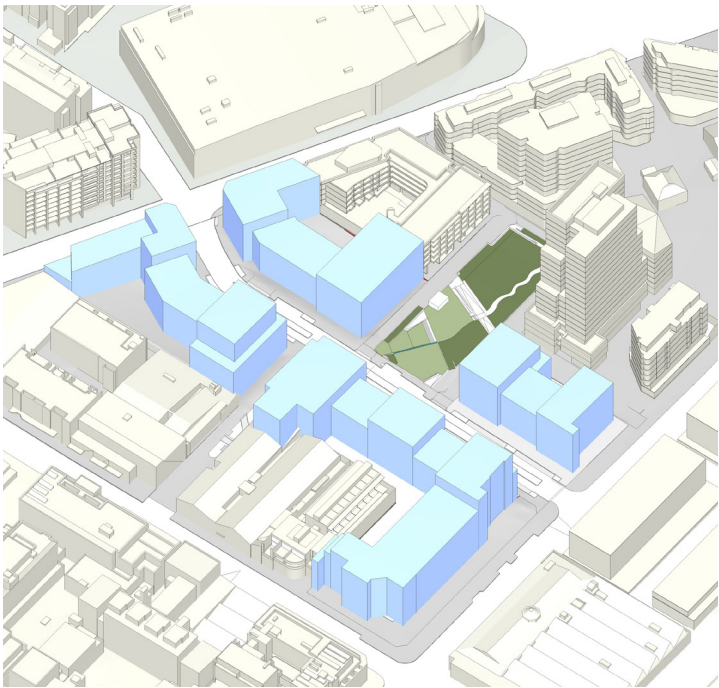
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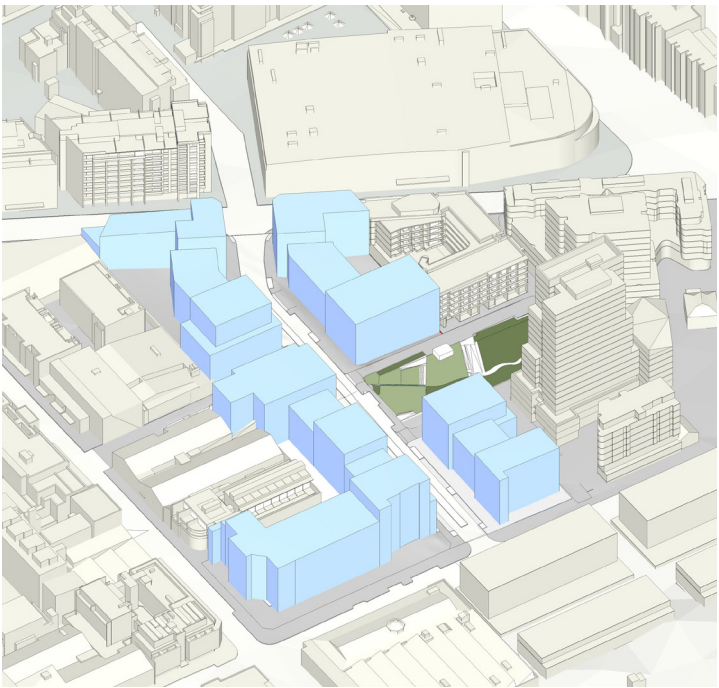
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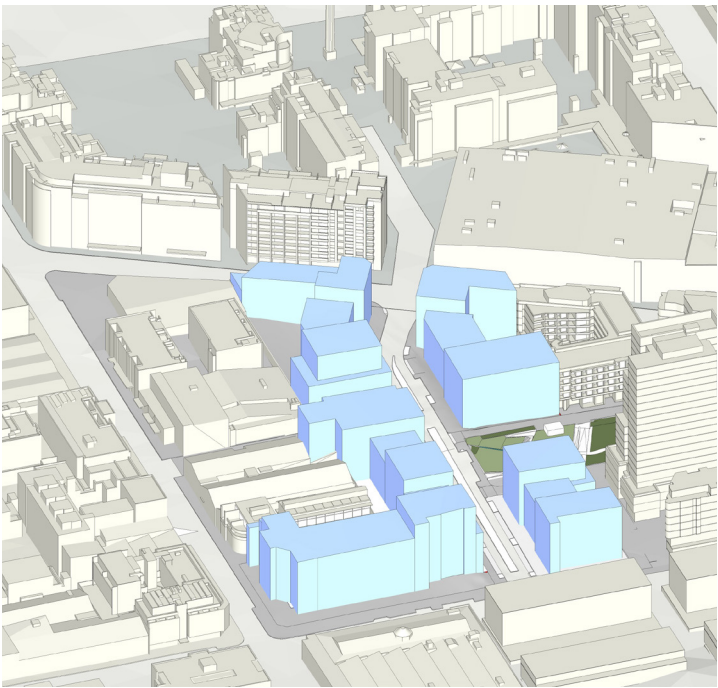
12pm



1pm



2pm



3pm

Appendix A2 - Solar Access

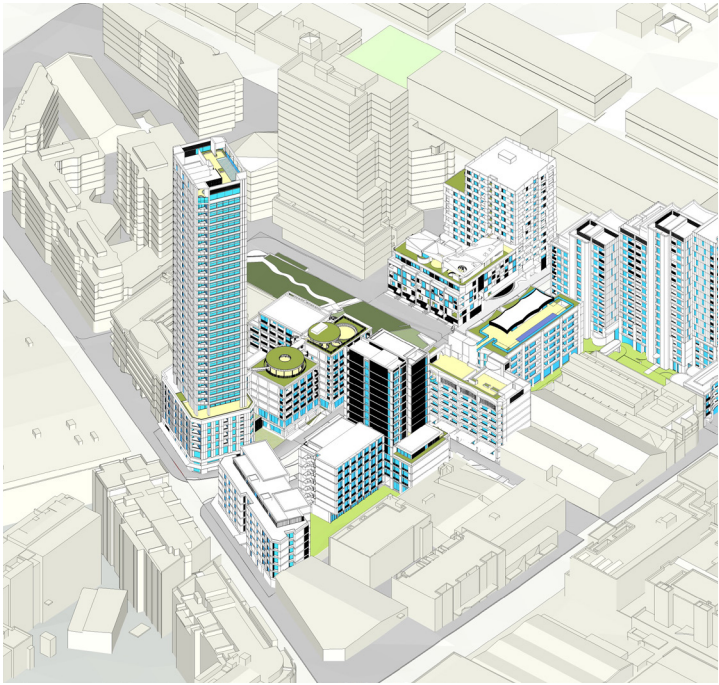
Views From The Sun

Proposed

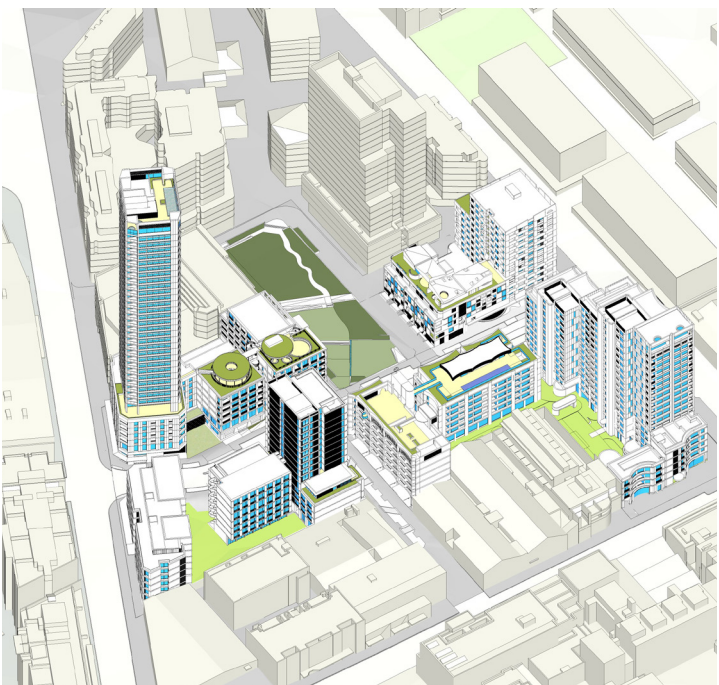
September 23
Equinox

Key

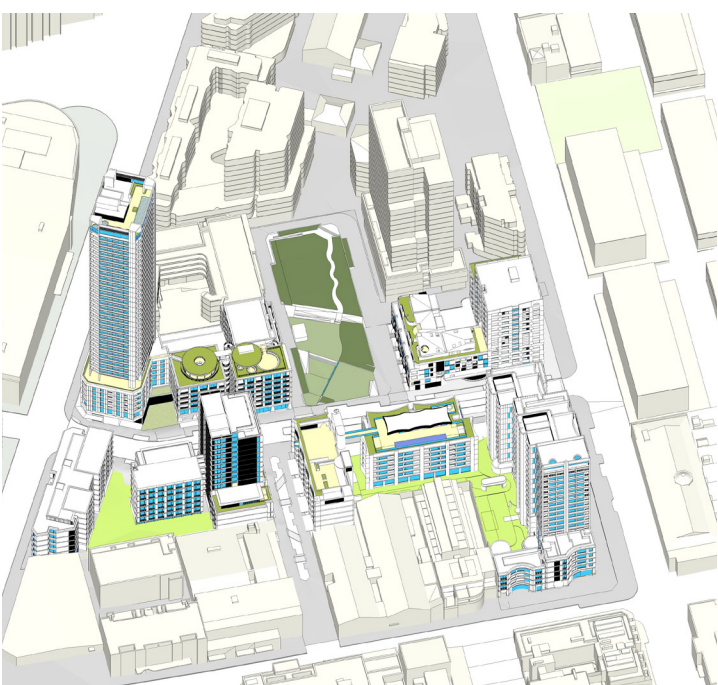
- Glazing
- Rooftop Open Space
- Ground Open Space



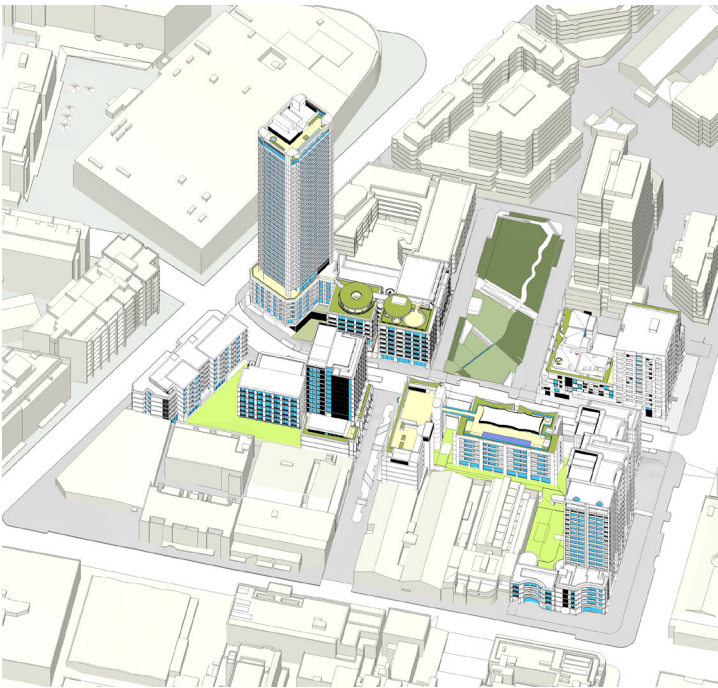
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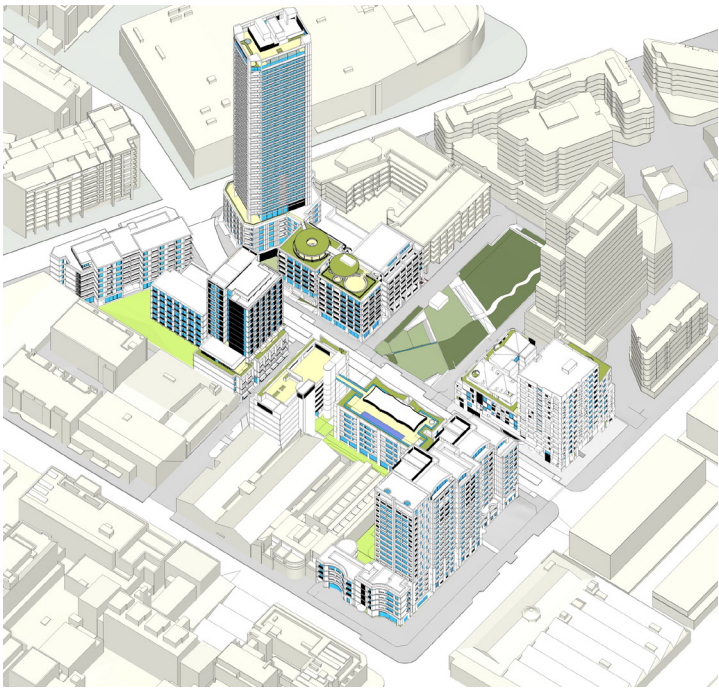
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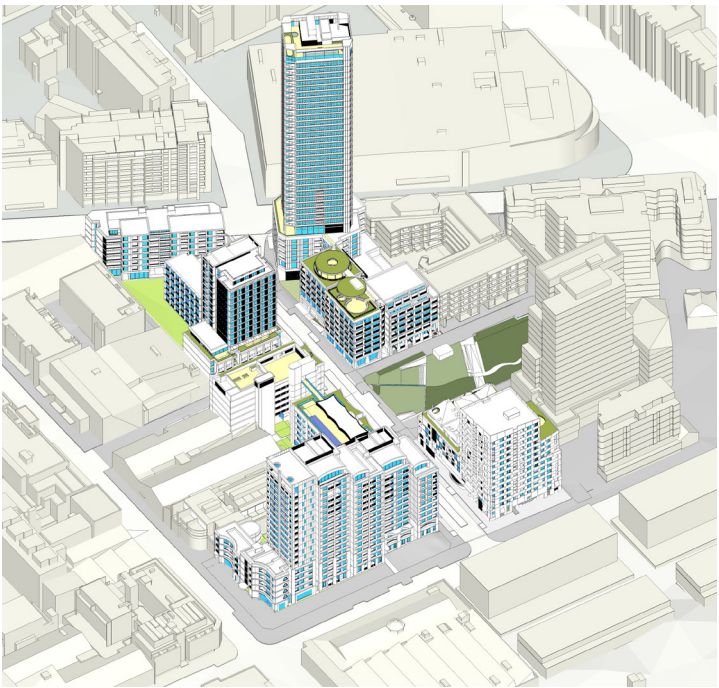
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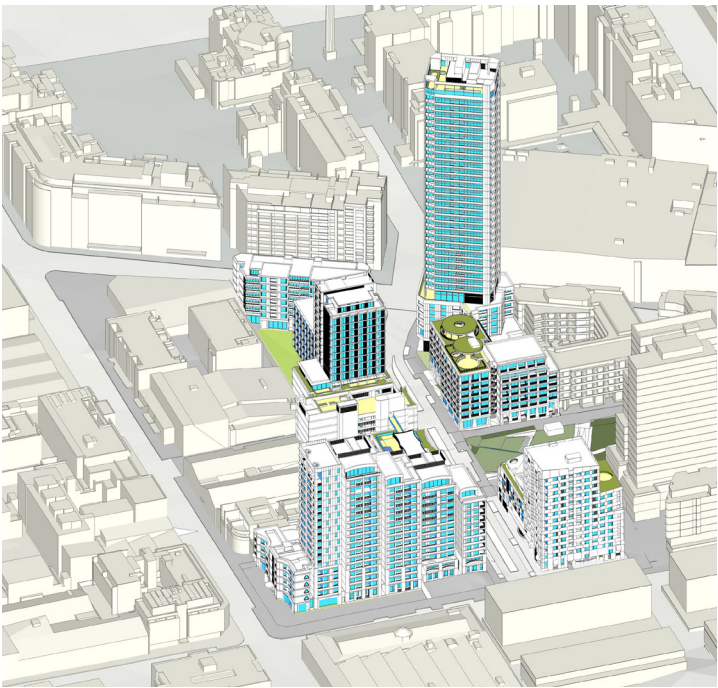
12pm



1pm



2pm



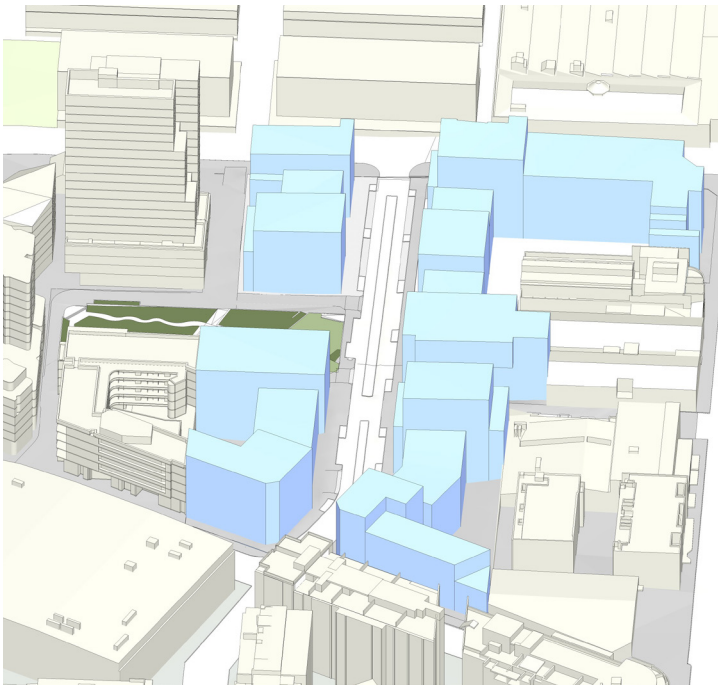
3pm

Appendix A2 - Solar Access

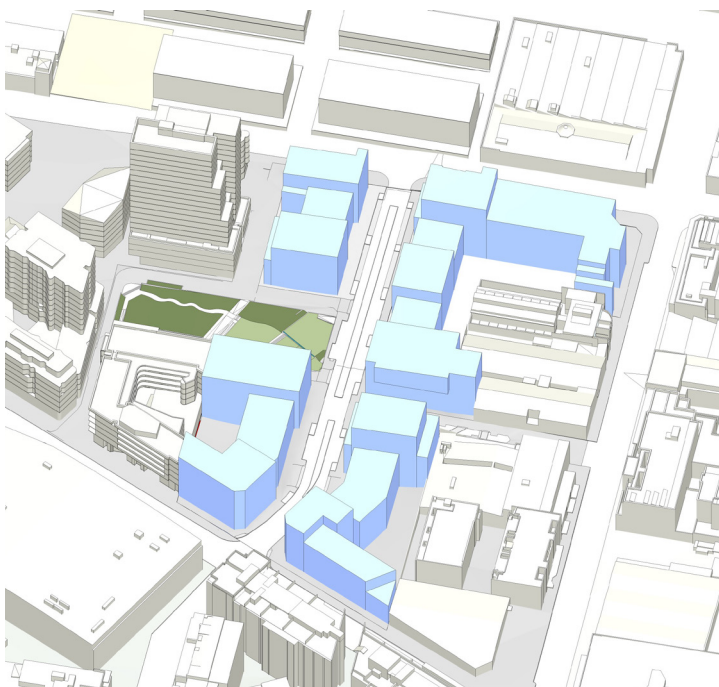
Views From The Sun

Approved Envelope

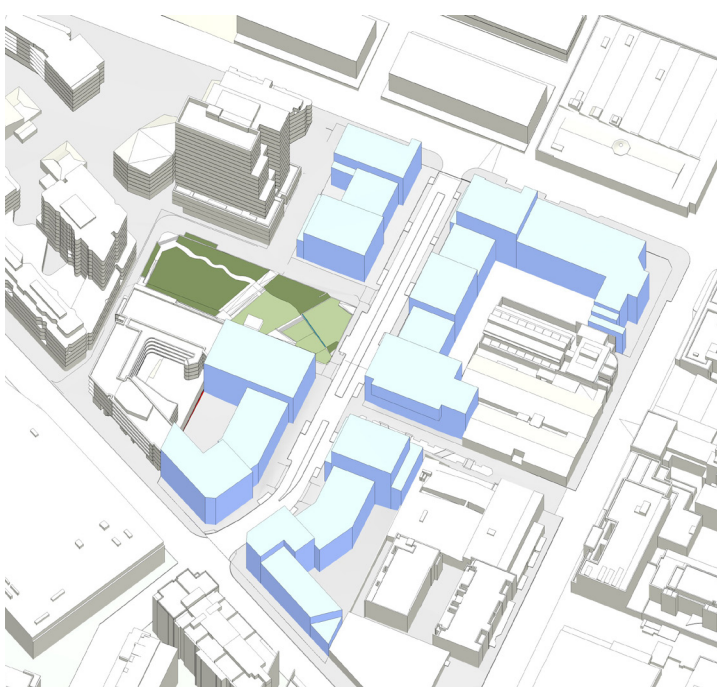
December 21
Summer Solstice



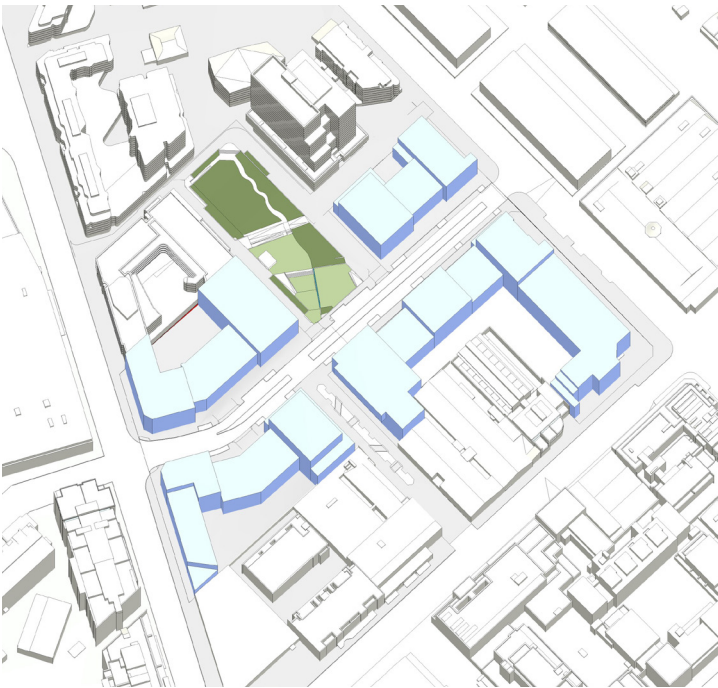
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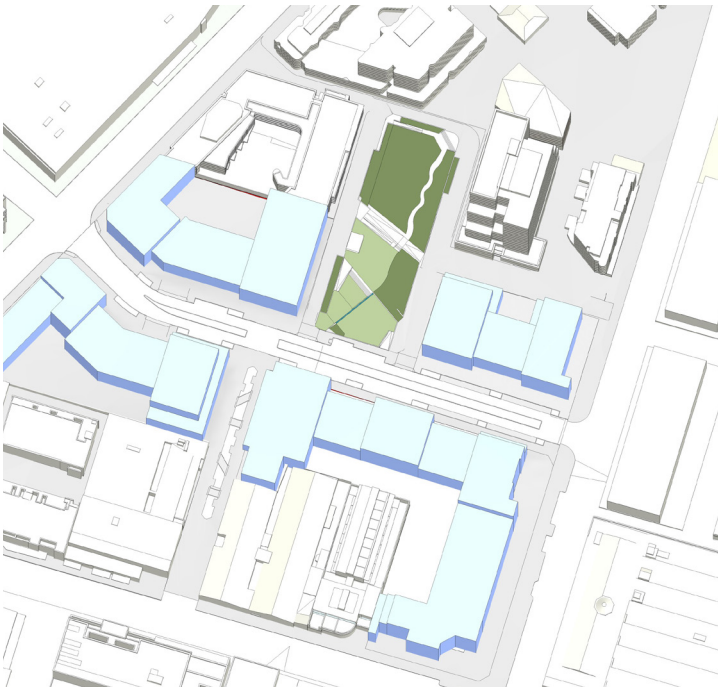
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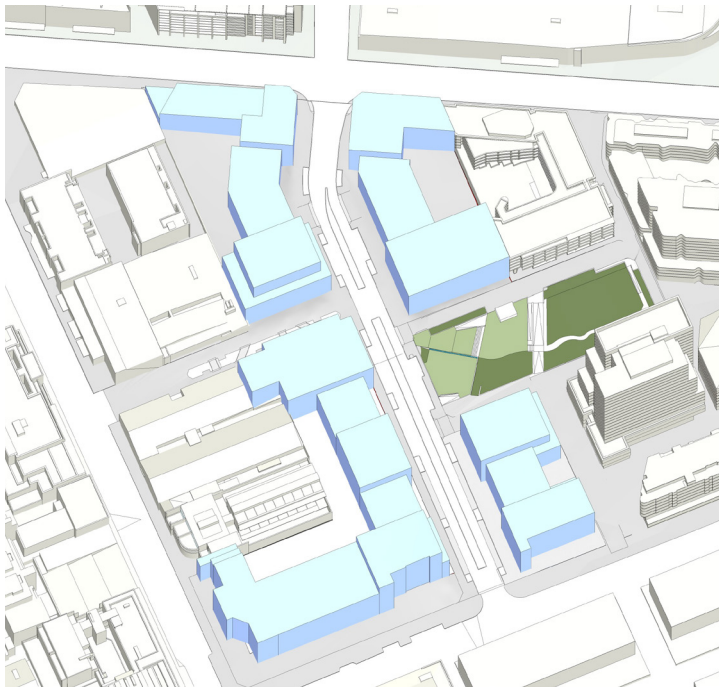
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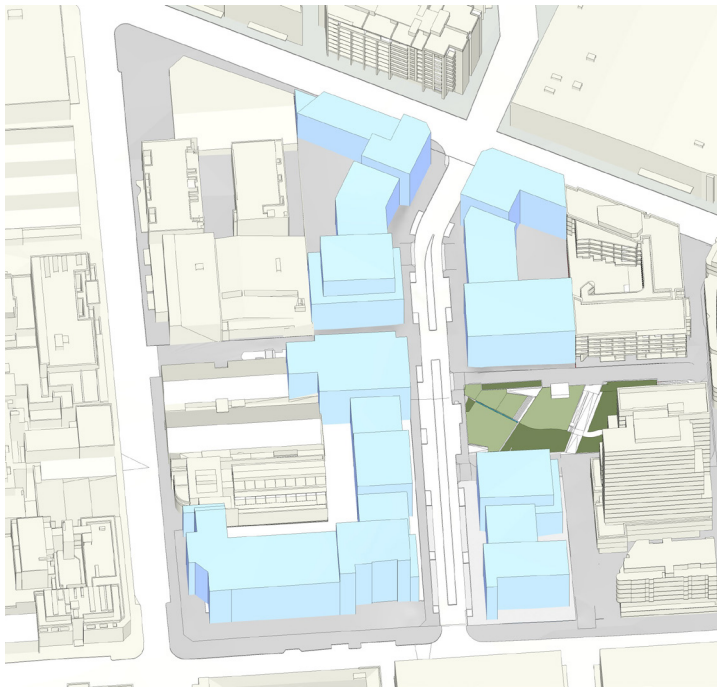
12pm



1pm



2pm



3pm

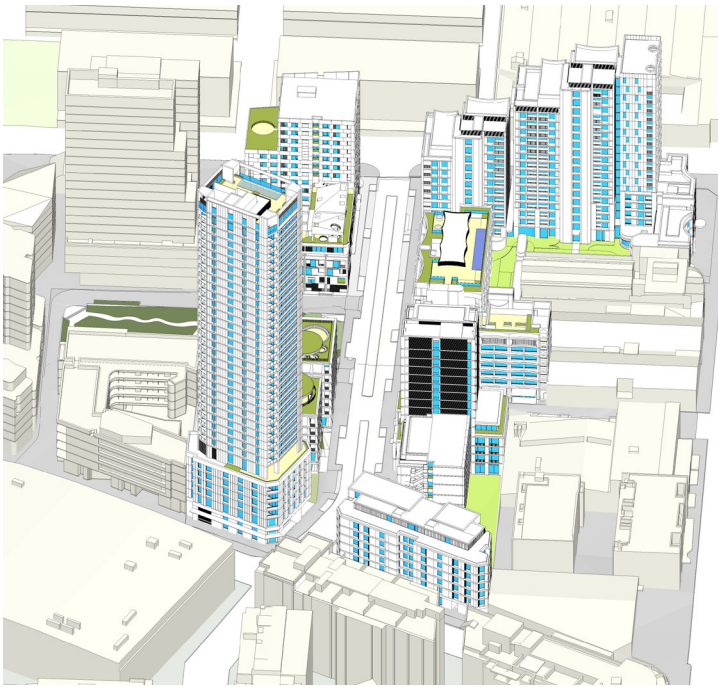
Appendix A2 - Solar Access

Views From The Sun

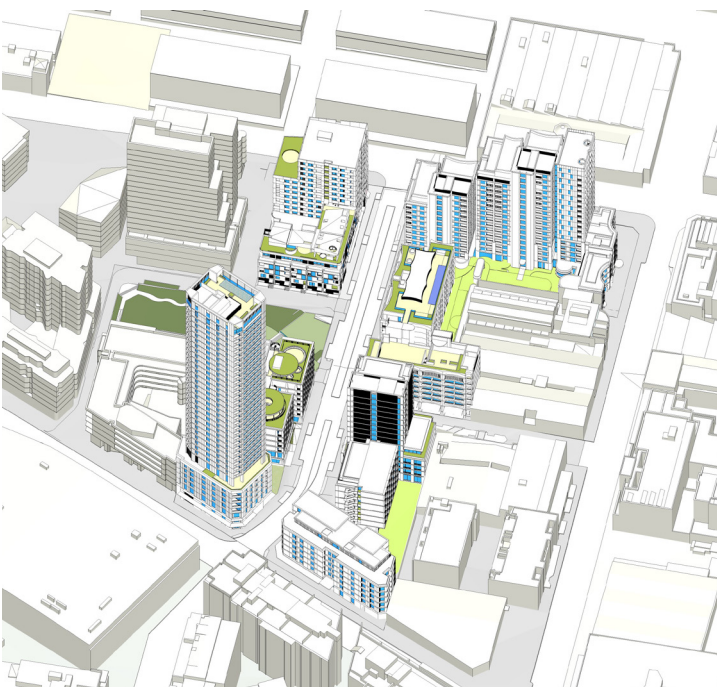
Proposed

December 21
Summer Solstice

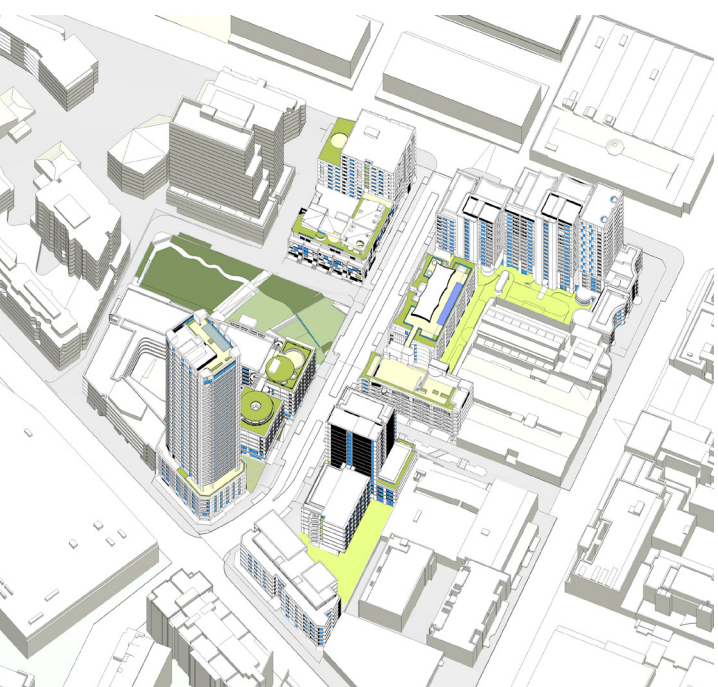
- Key
- Glazing
 - Rooftop Open Space
 - Ground Open Space



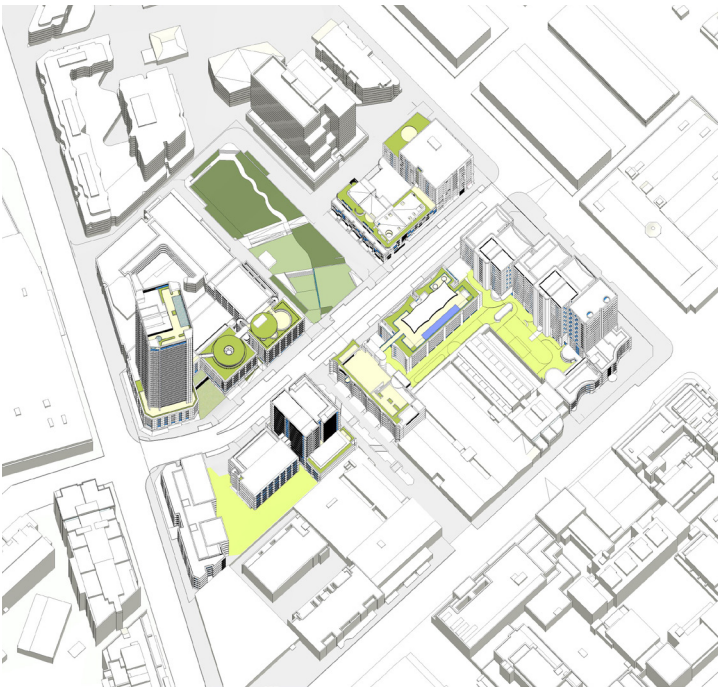
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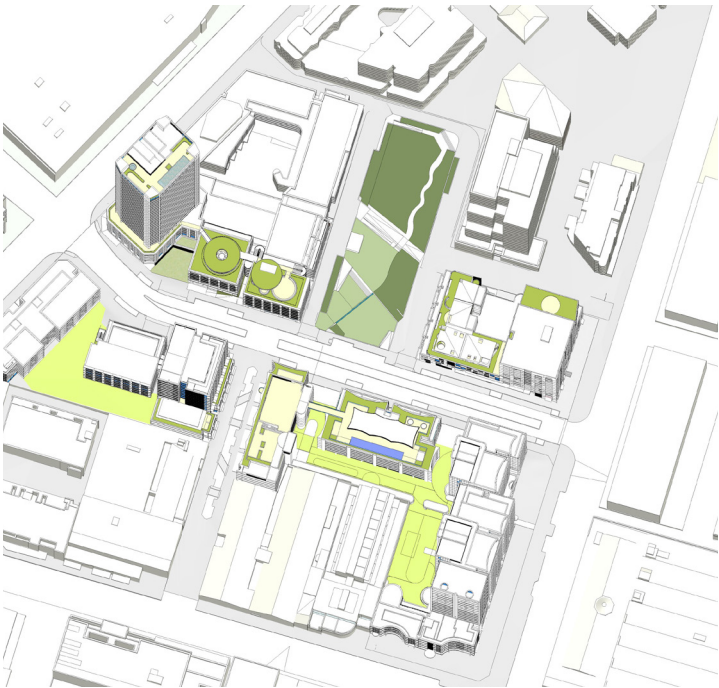
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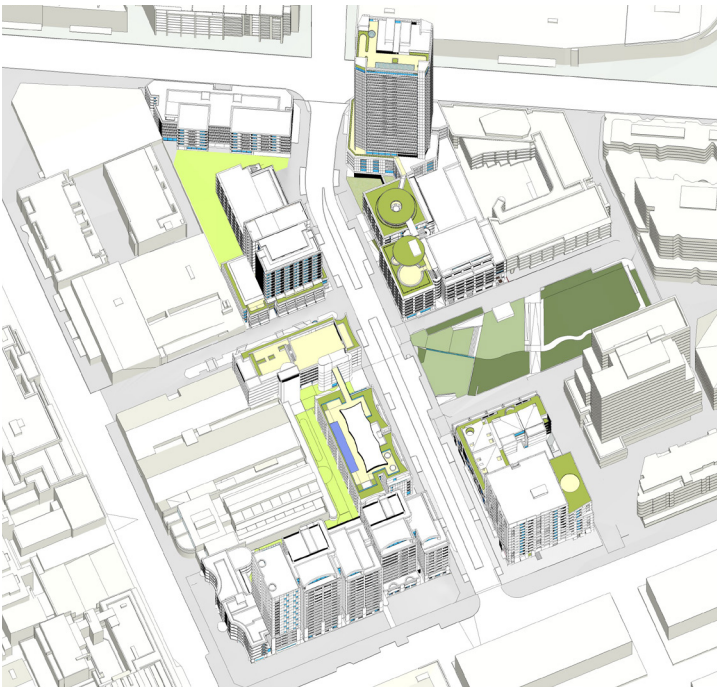
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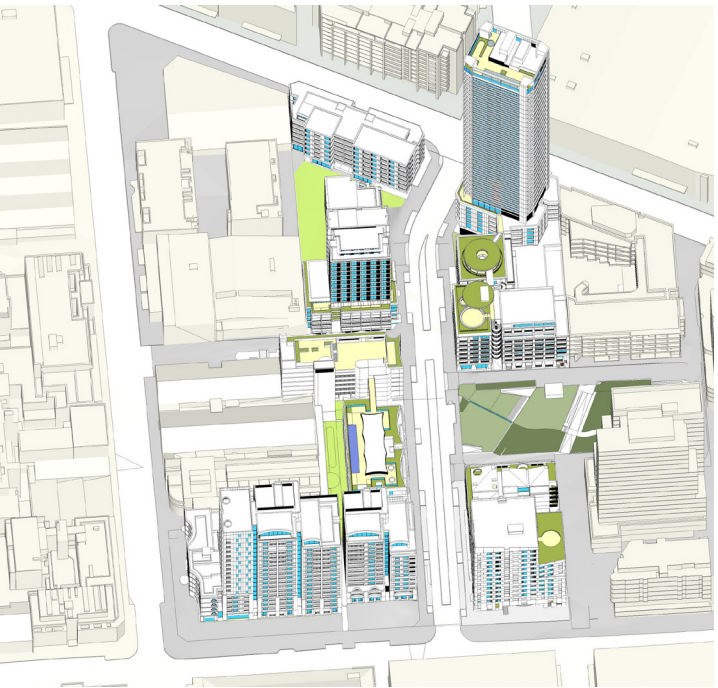
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1pm



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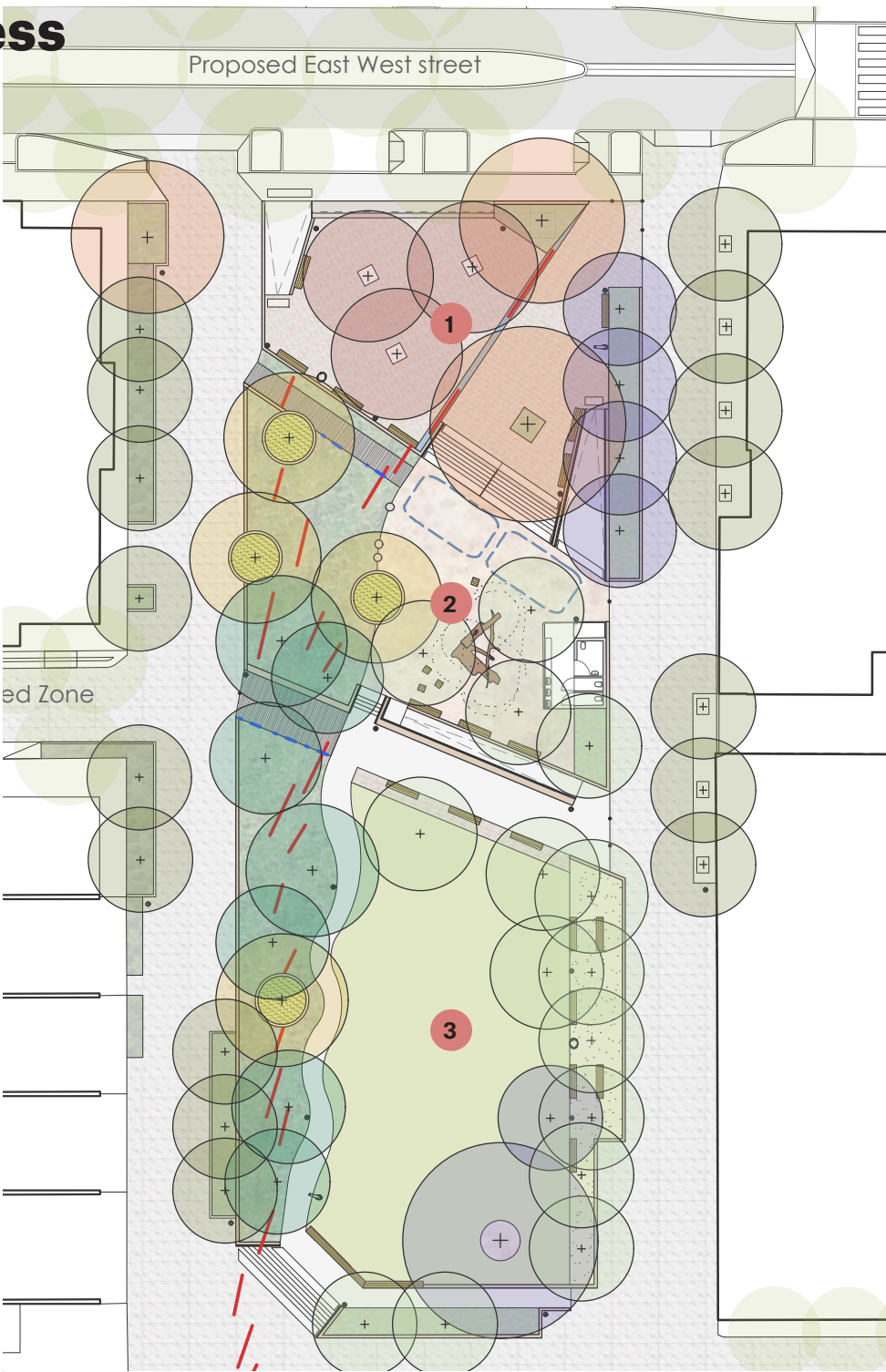
3pm

Appendix A2 - Solar Access Park Analysis

We have prepared a detailed overshadowing analysis of the proposed park based off 2022 Danks Street South Precinct Open Spaces Concept Design Report, developed in collaboration by JILA,MAPA, Bangawarra and the City of Sydney.

The proposed overshadowing is consistent with shadows cast by the approved envelope and complies with the DCP requirement to achieve; "50% of the total area is to receive sunlight for 4 hours from 9am to 3pm on 21 June"
- Sydney DCP 2012 (Clause 3.1.4 [3a])

The following outlines the detailed solar analysis of the proposed park.

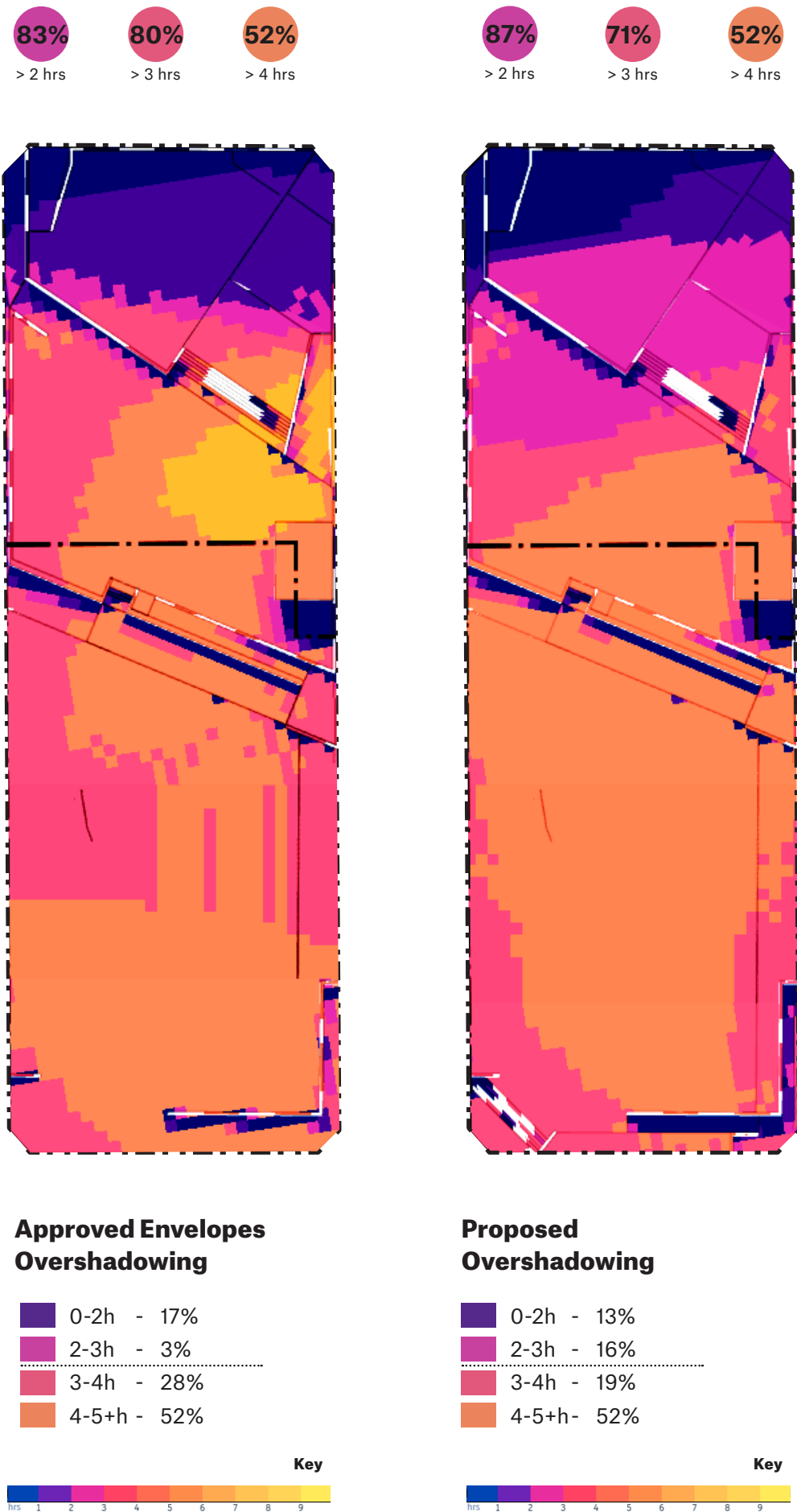


Proposed Park
The proposed concept design of the park has three main spatial zones;

1. Northern Plaza
2. Central Play
3. Southern Lawn



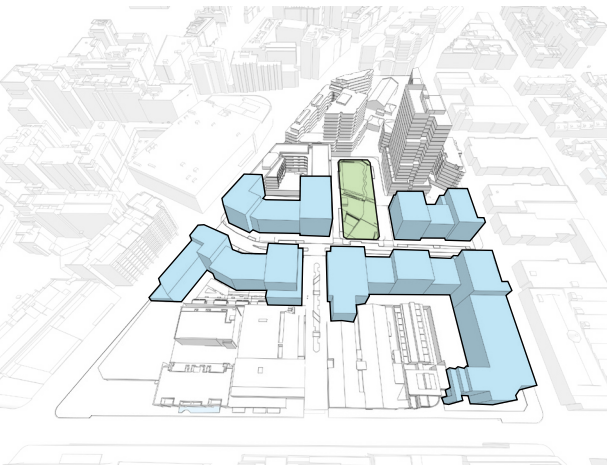
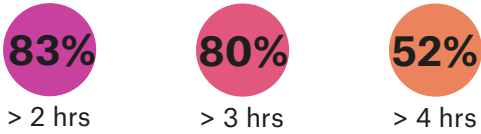
Danks Street South Precinct Open Spaces
May 5th 2022



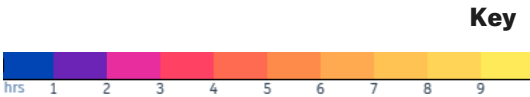
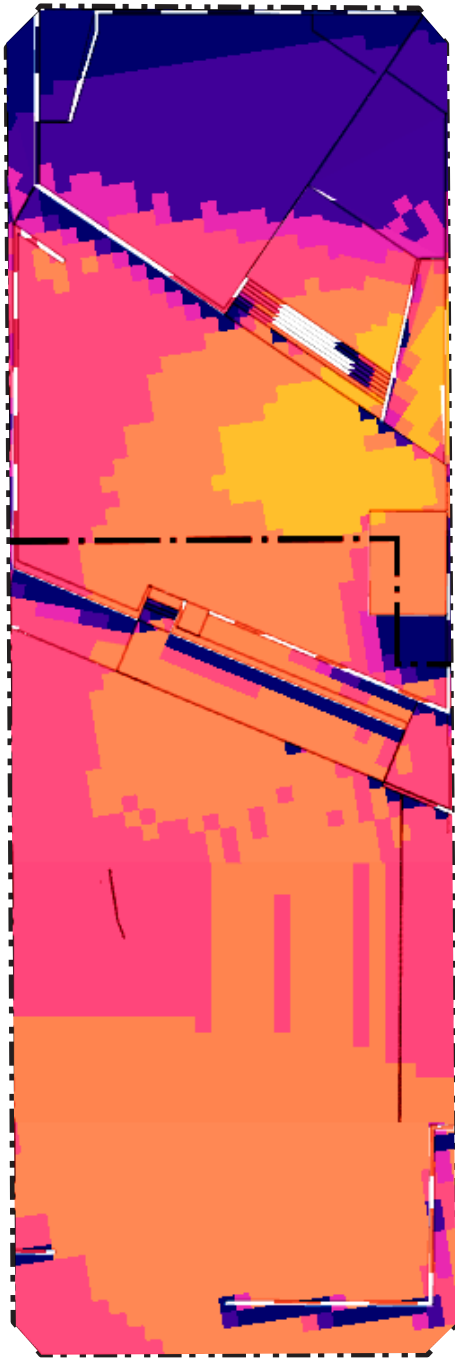
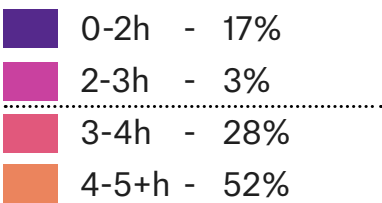
Appendix A2 - Solar Access Park Analysis

Approved Envelopes

June 21

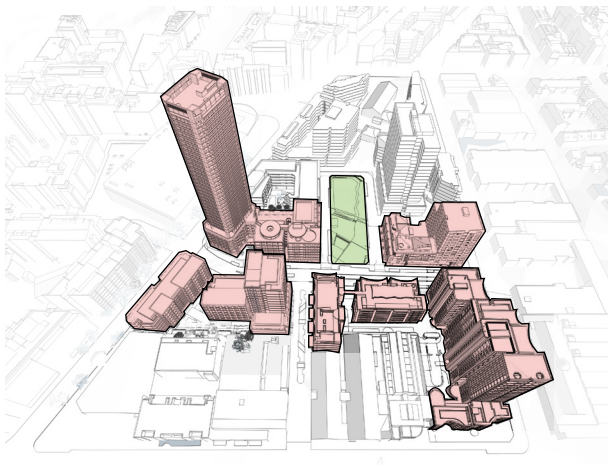
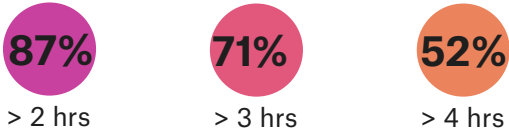


Park Analysis

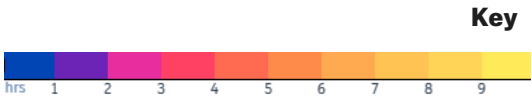
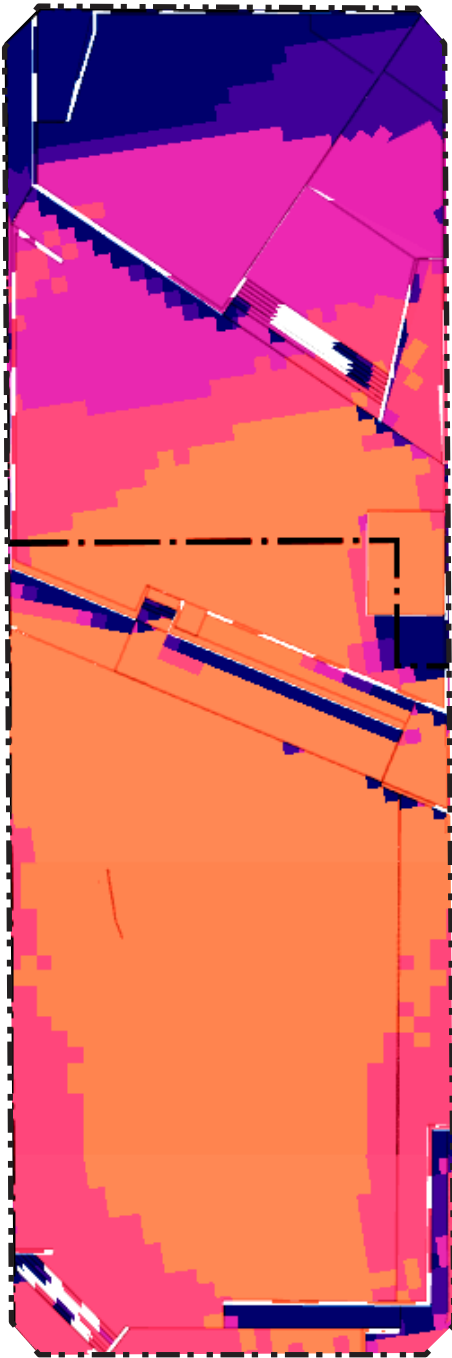
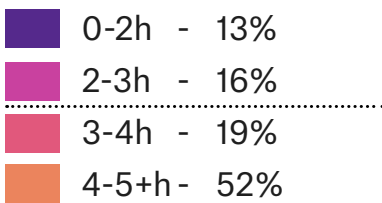


Proposed

June 21

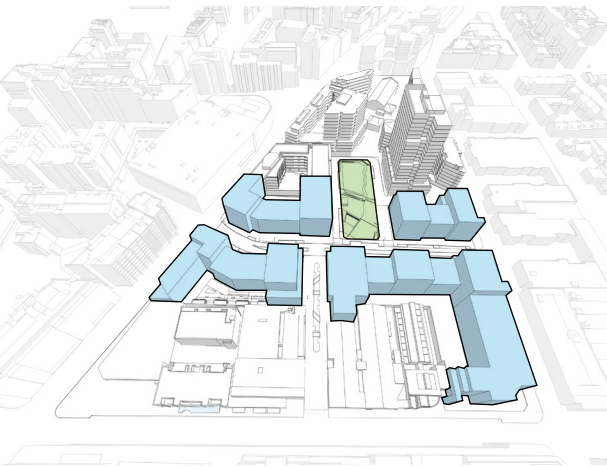


Park Analysis



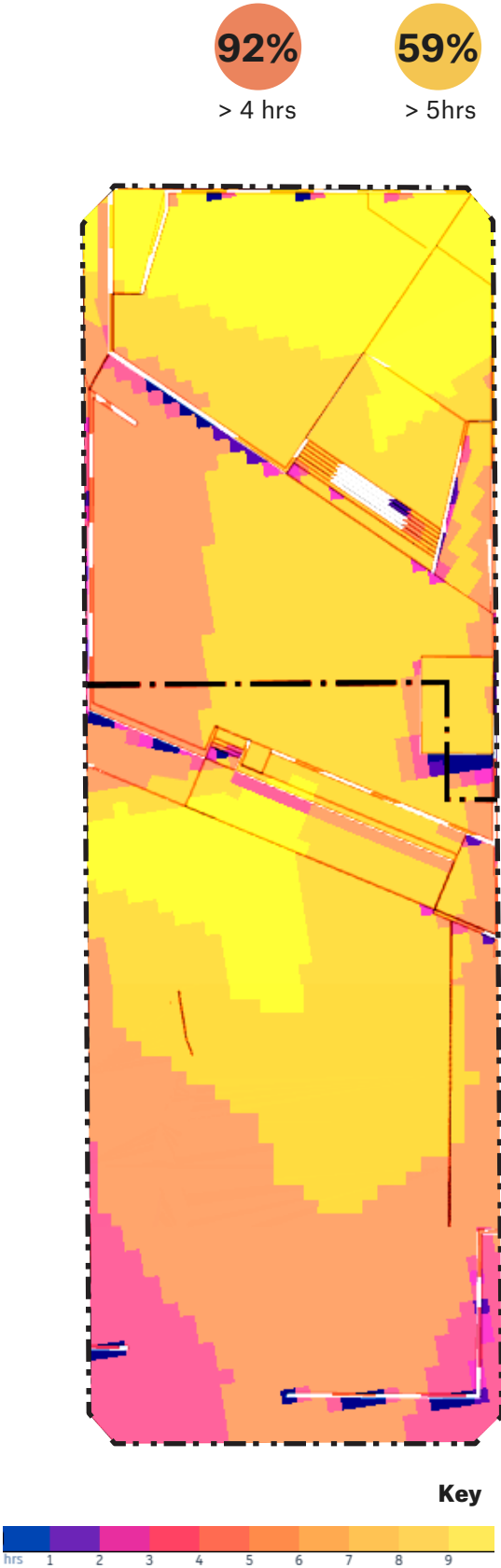
Appendix A2 - Solar Access Park Analysis

Approved Envelopes
September 23

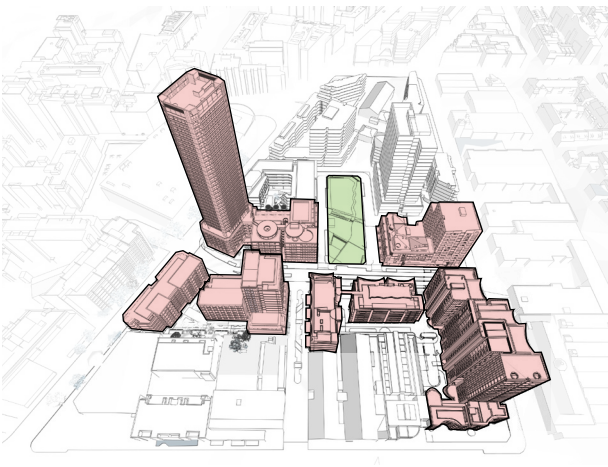


Park Analysis

0-2h	-	1%
2-3h	-	0%
3-4h	-	7%
4-5h	-	33%
5-6h	-	41%
>6h	-	18%

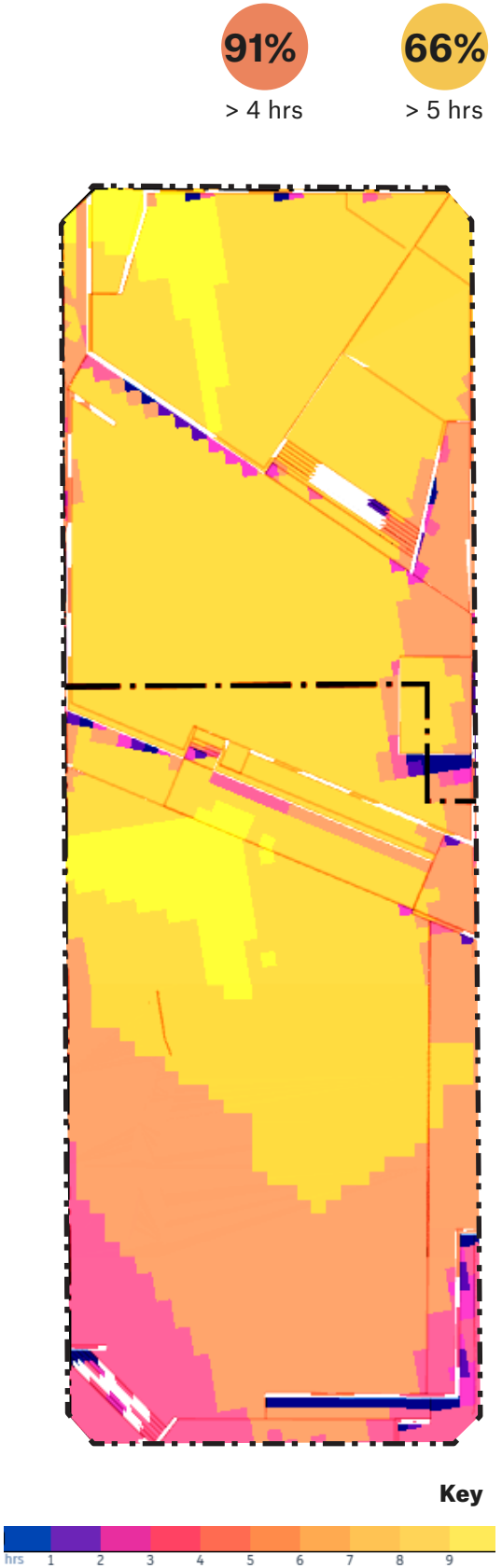


Proposed
September 23



Park Analysis

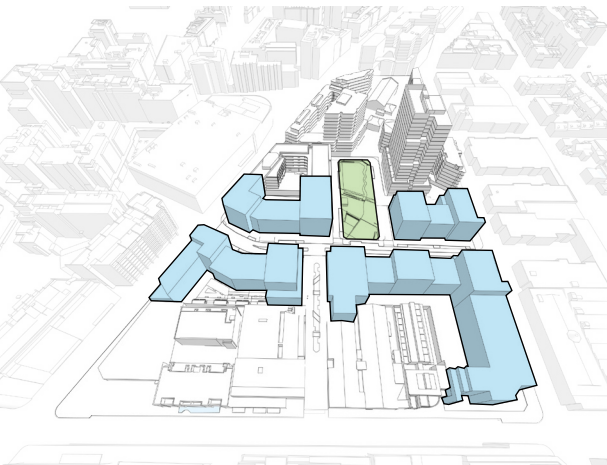
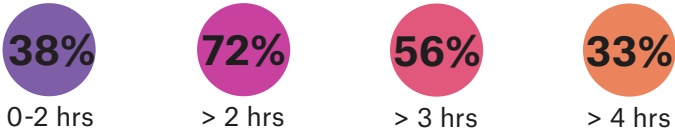
0-2h	-	1%
2-3h	-	0%
3-4h	-	8%
4-5h	-	25%
5-6h	-	59%
>6h	-	7%



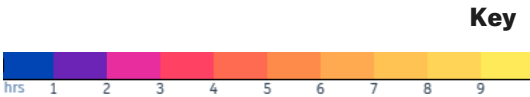
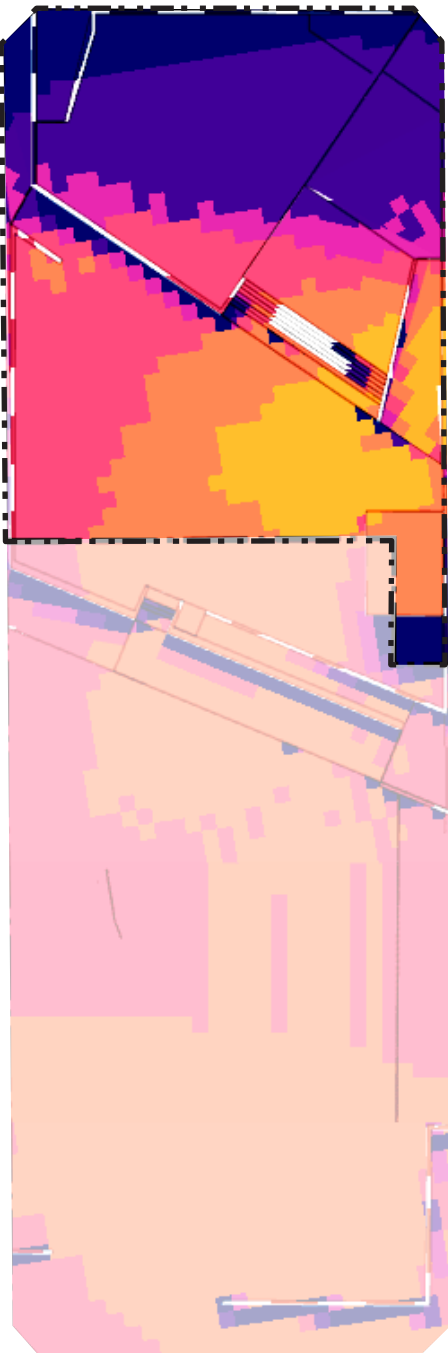
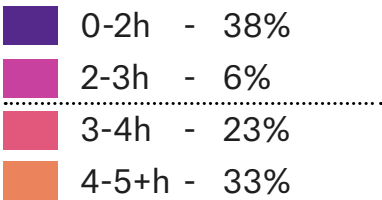
Appendix A2 - Solar Access Park Analysis

Approved Envelopes

June 21

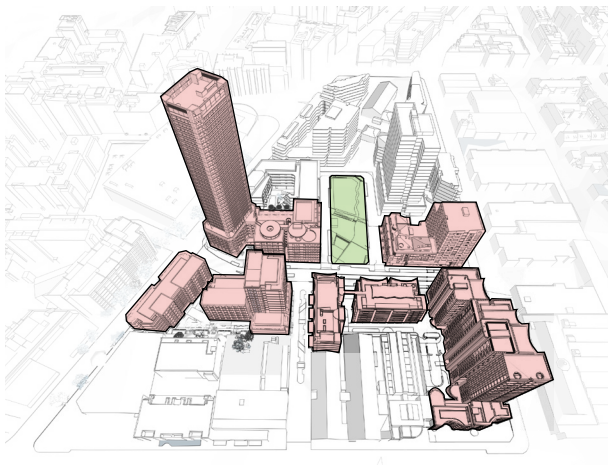


Park Analysis

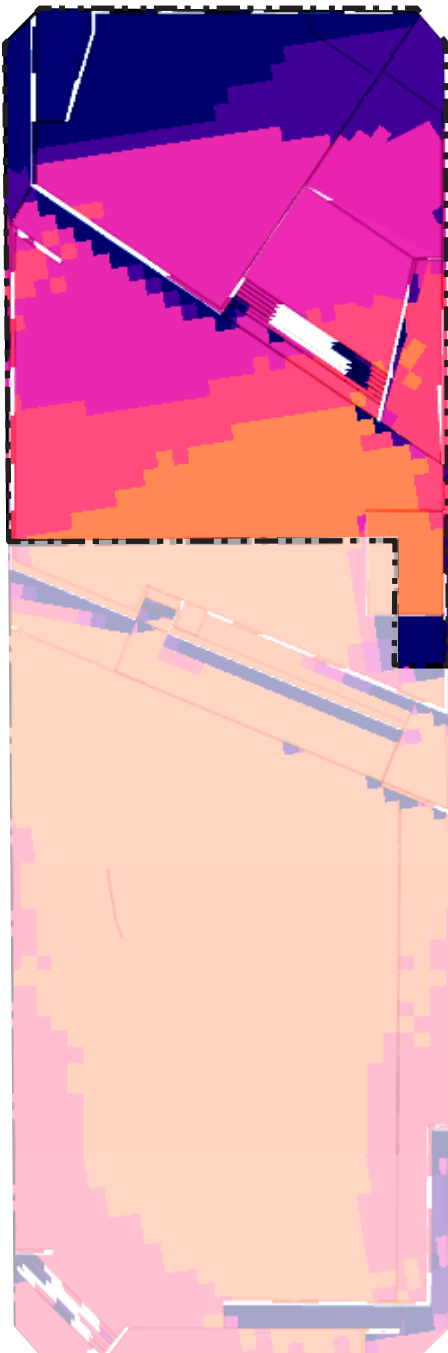
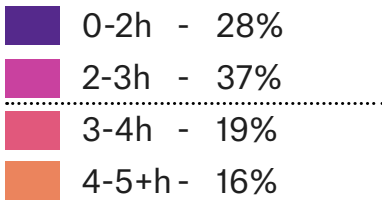


Proposed

June 21



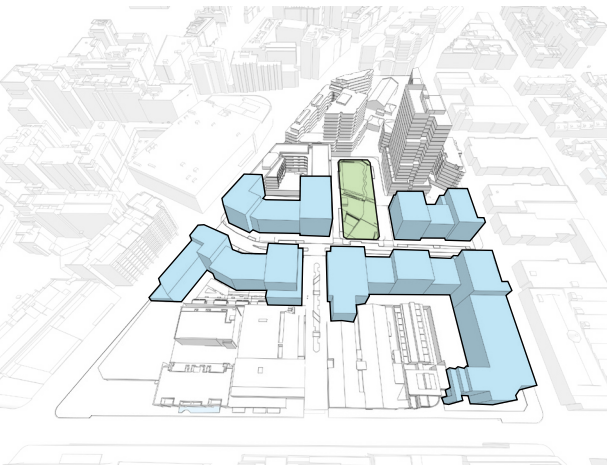
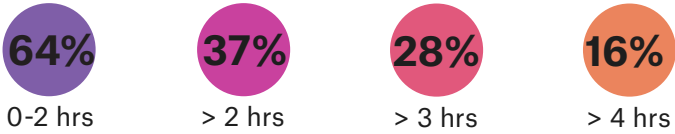
Park Analysis



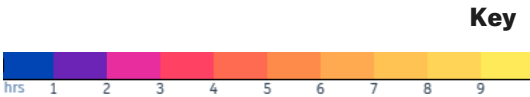
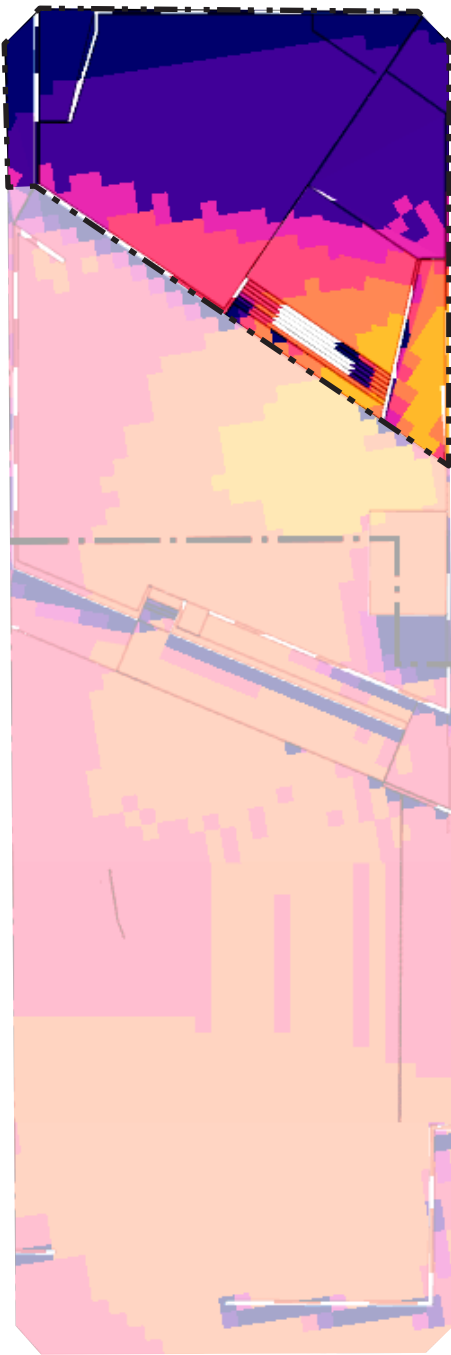
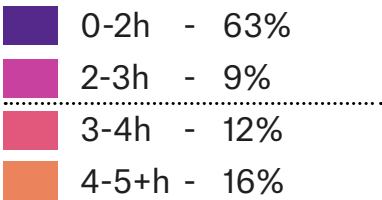
Appendix A2 - Solar Access Park Analysis

Approved Envelopes

June 21

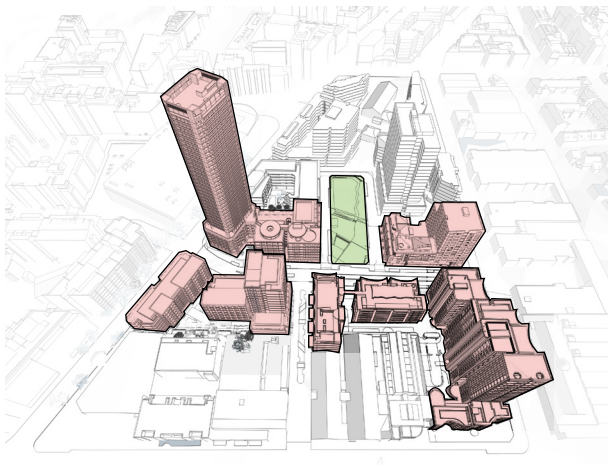


North Plaza

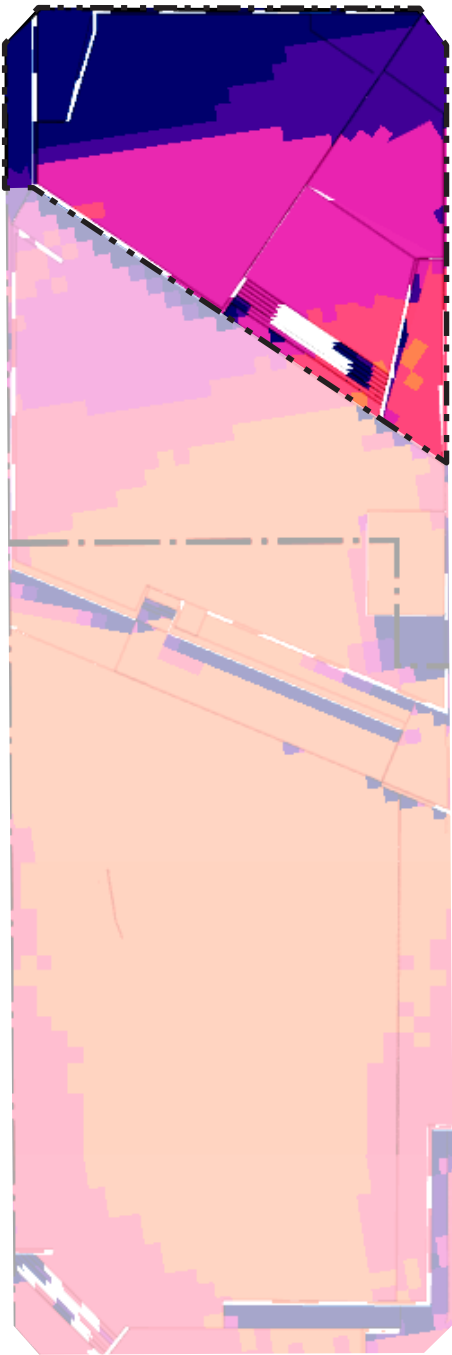
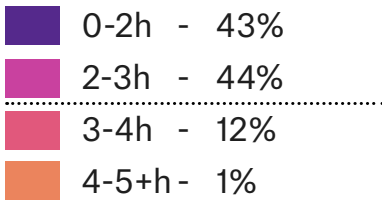


Proposed

June 21



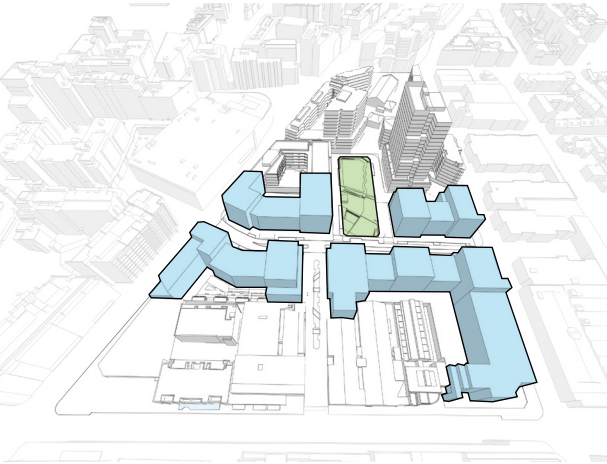
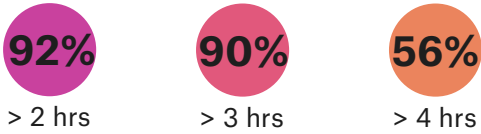
North Plaza



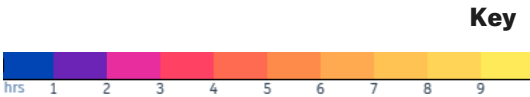
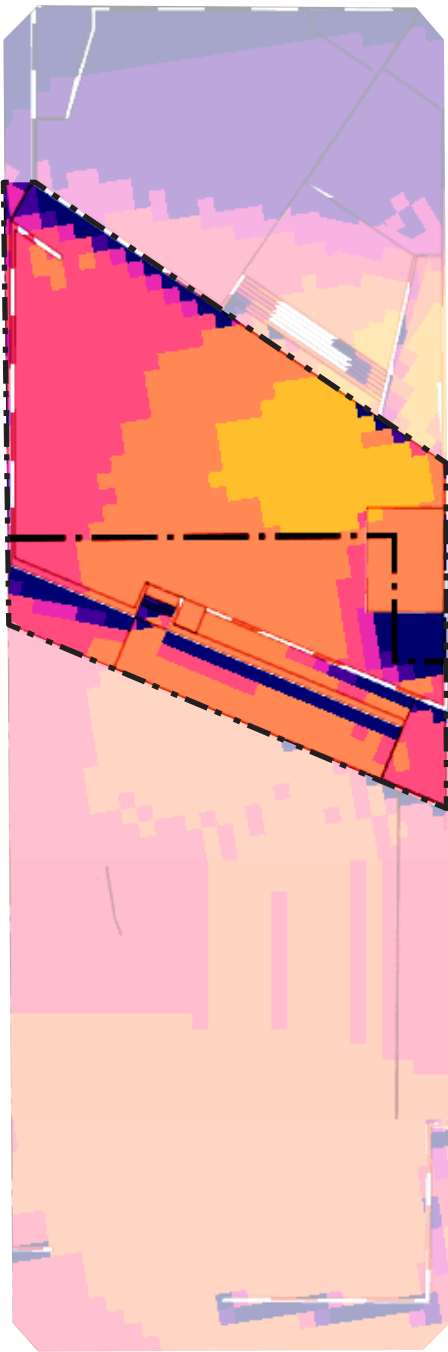
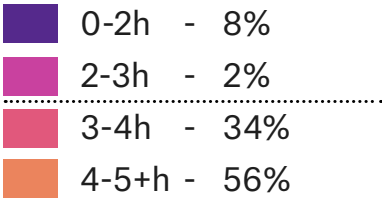
Appendix A2 - Solar Access Park Analysis

Approved Envelopes

June 21

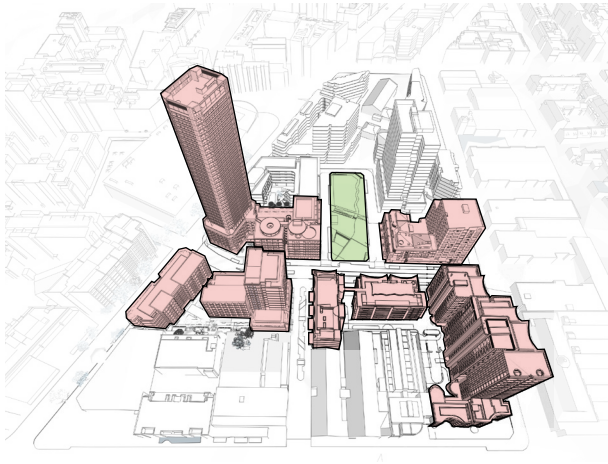
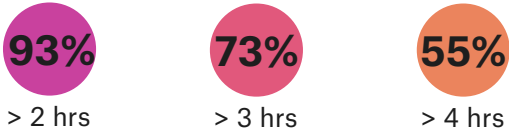


Central Play

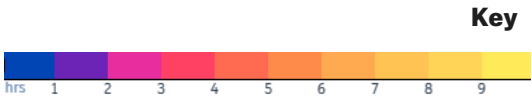
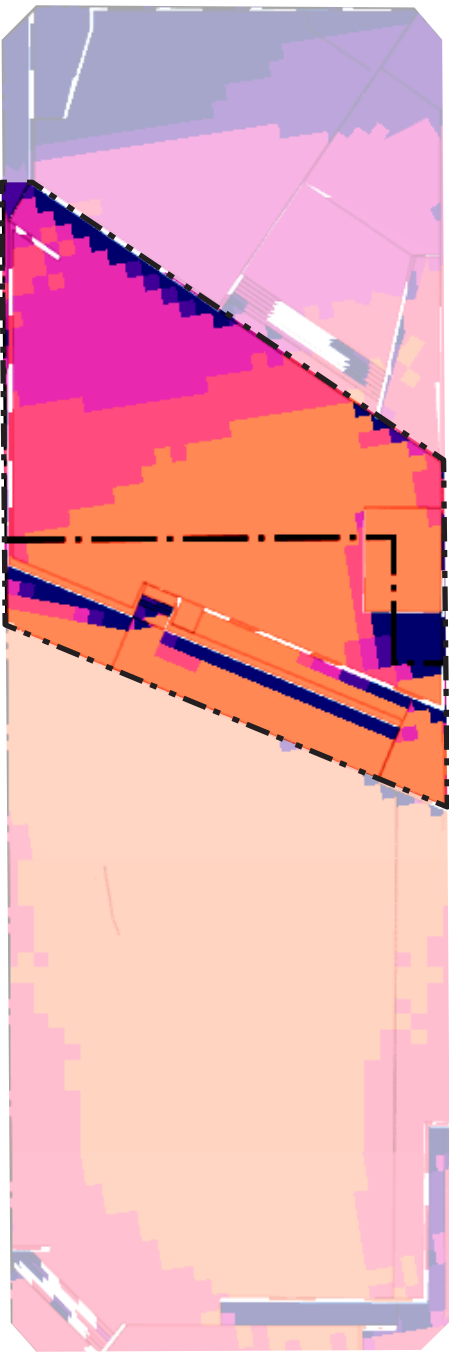
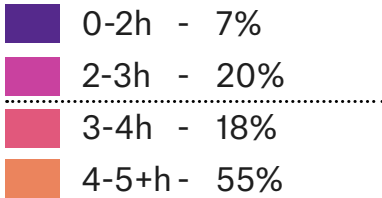


Proposed

June 21

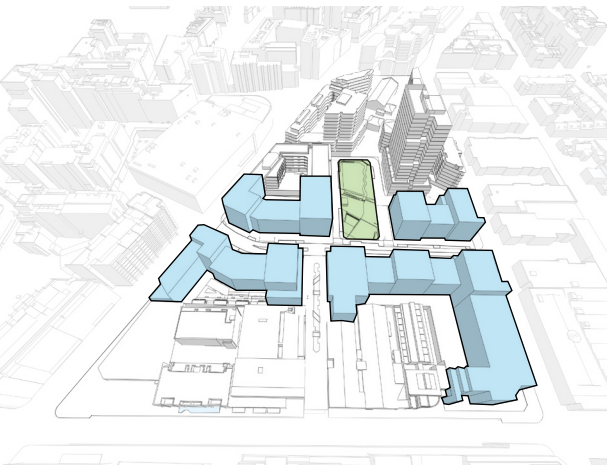


Central Play



Appendix A2 - Solar Access Park Analysis

Approved Envelopes June 21

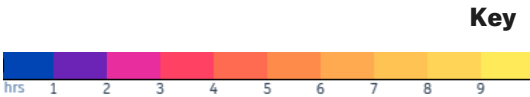
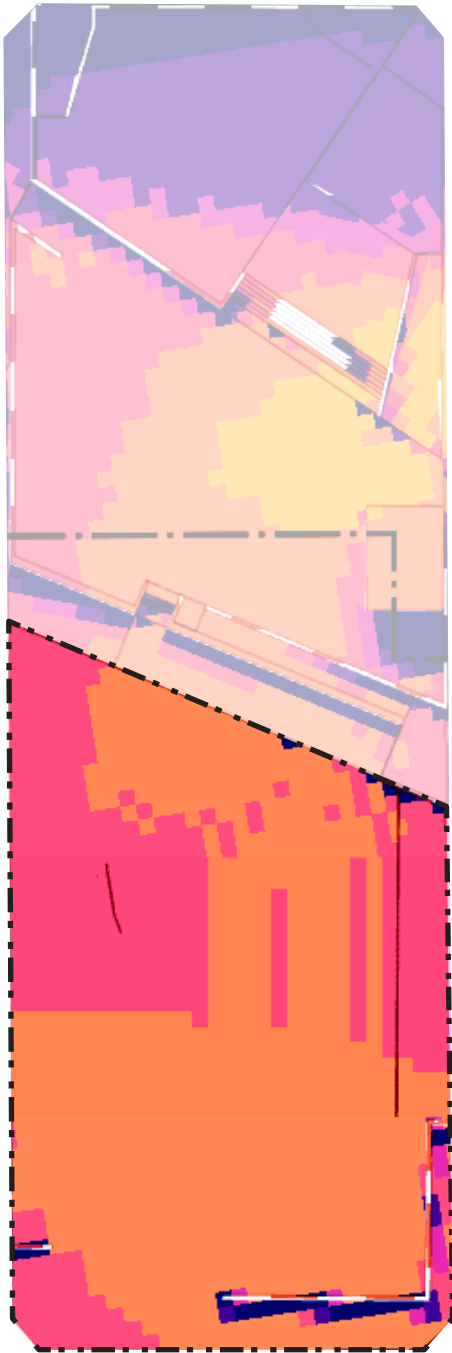


South Lawn

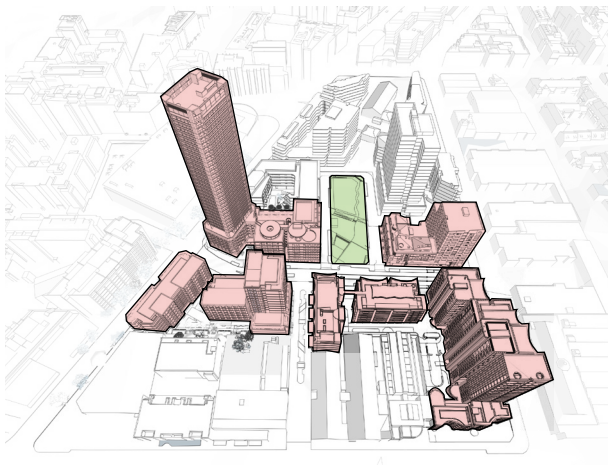
0-2h	-	2%
2-3h	-	0%
3-4h	-	32%
4-5+h	-	66%

98%
> 3 hrs

66%
> 4 hrs



Proposed June 21

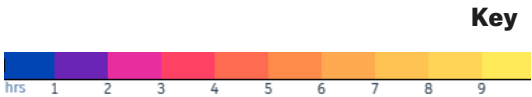
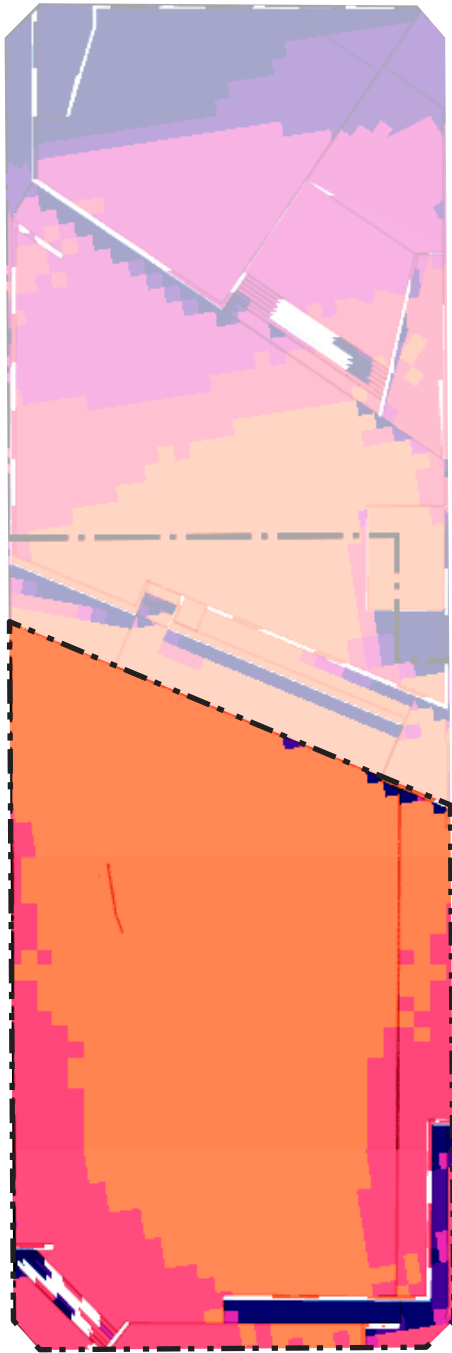


South Lawn

0-2h	-	3%
2-3h	-	0%
3-4h	-	24%
4-5+h	-	73%

97%
> 3 hrs

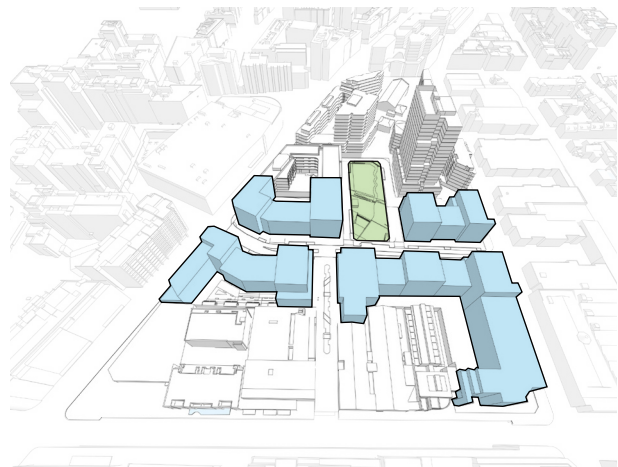
73%
> 4 hrs



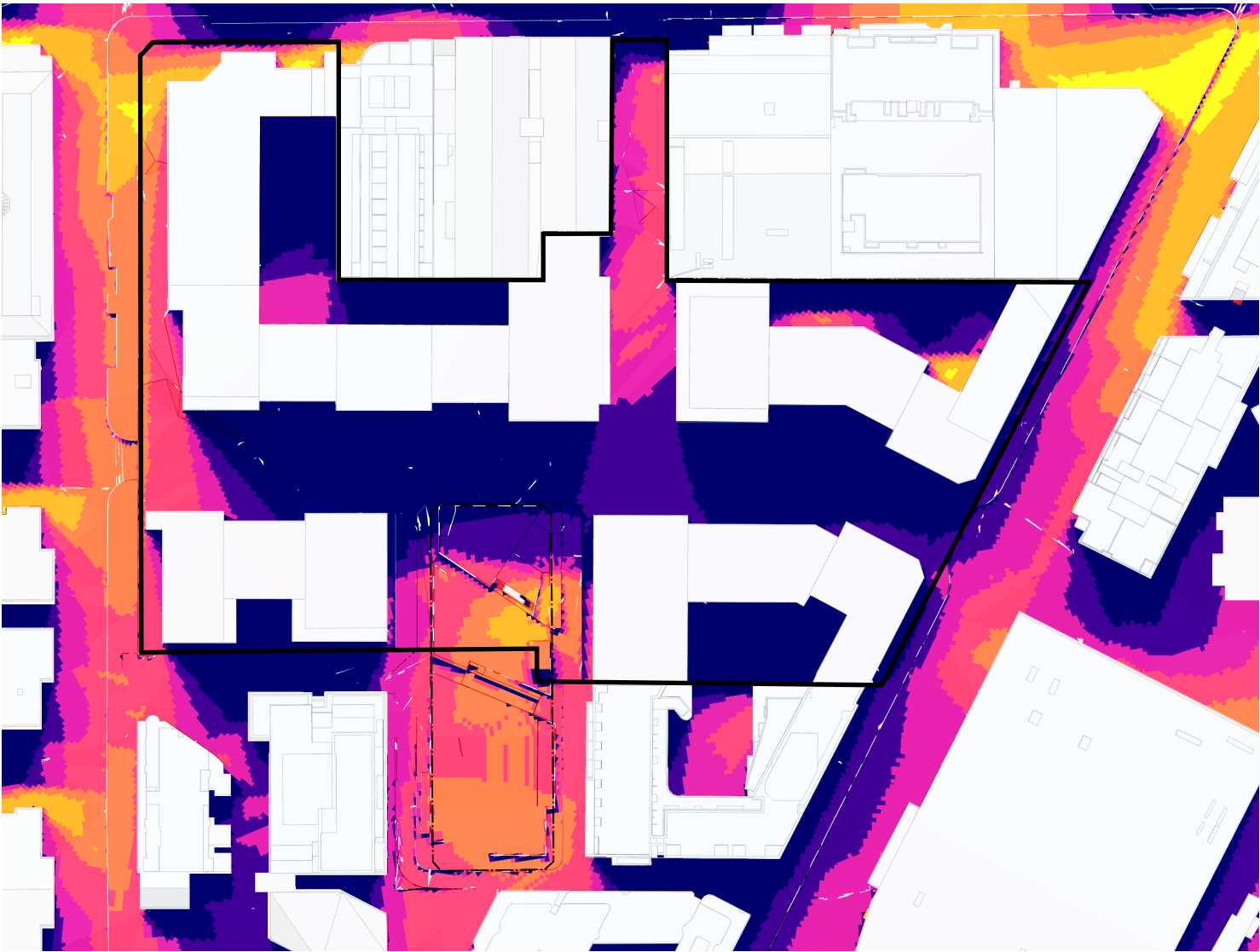
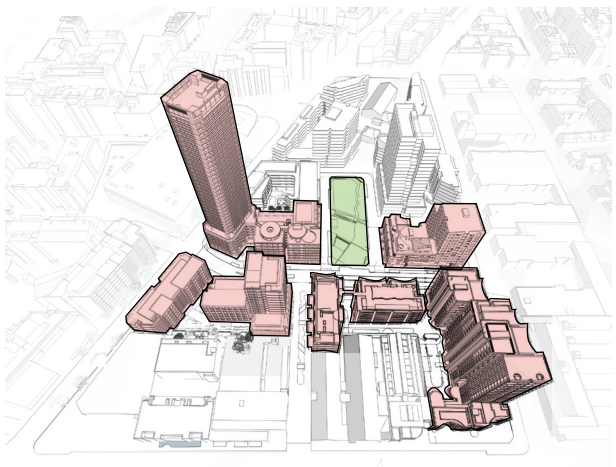
Appendix A2 - Solar Access

Public Domain

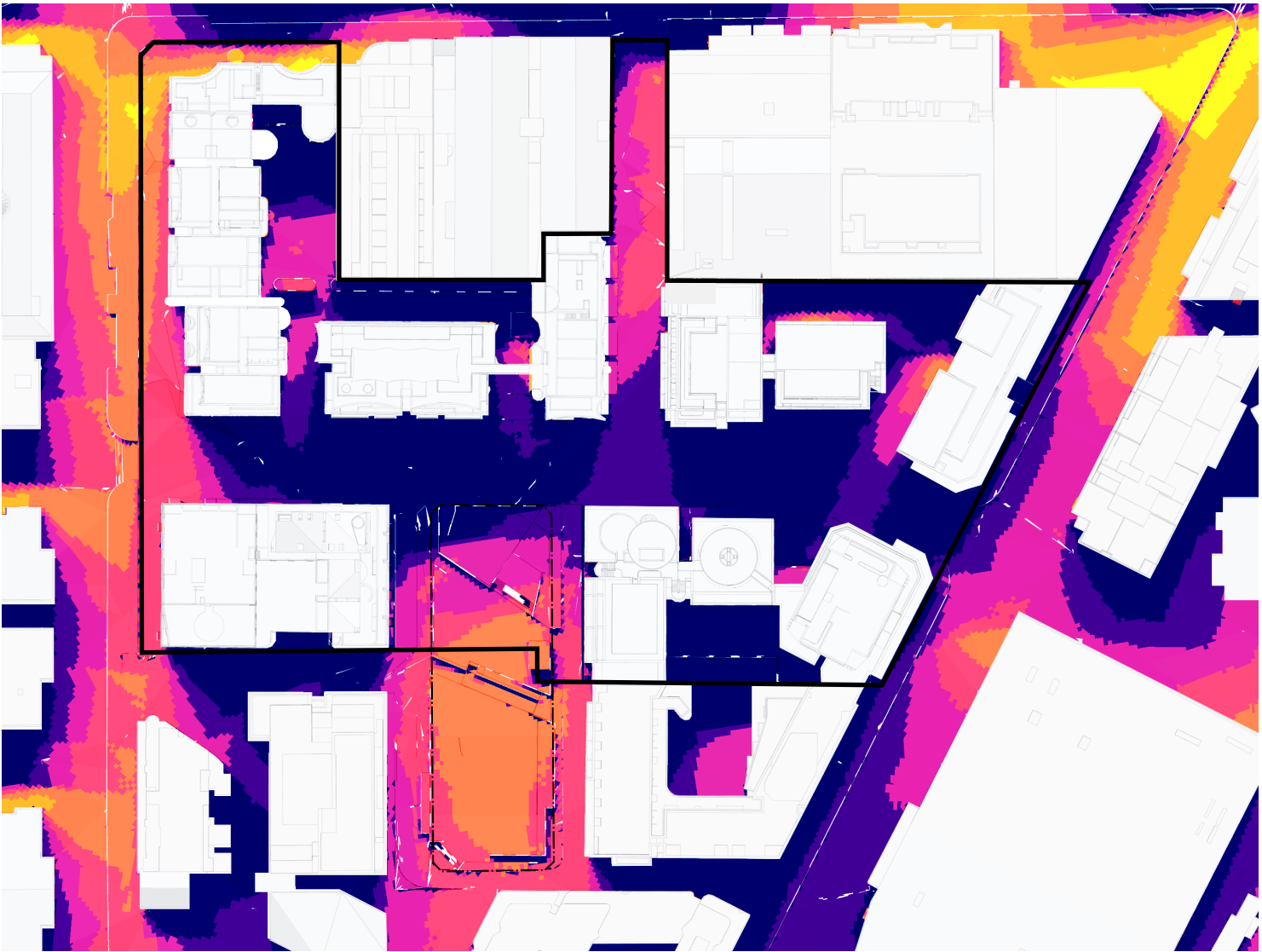
Approved Envelopes
June 21



Proposed
June 21



Key



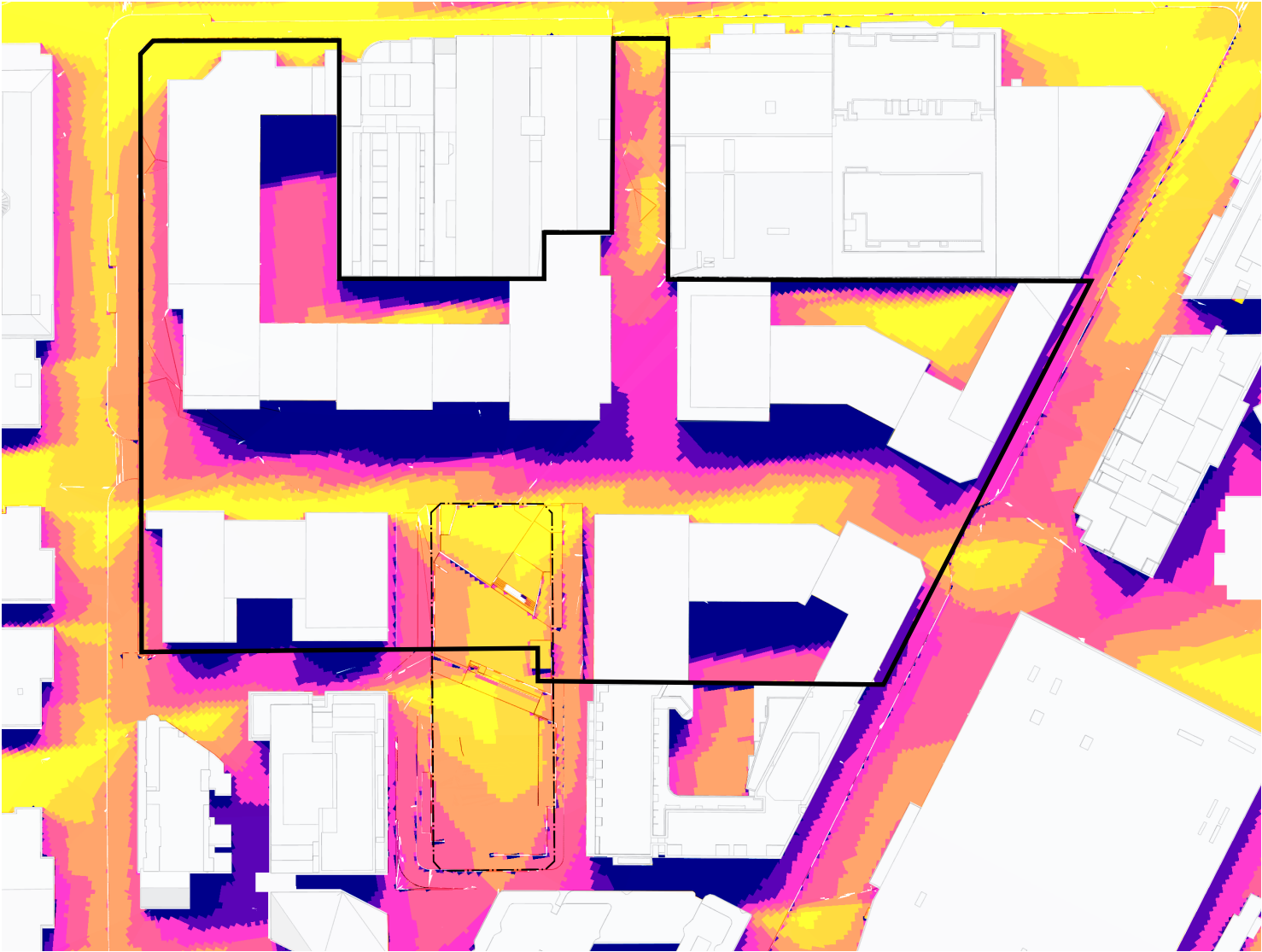
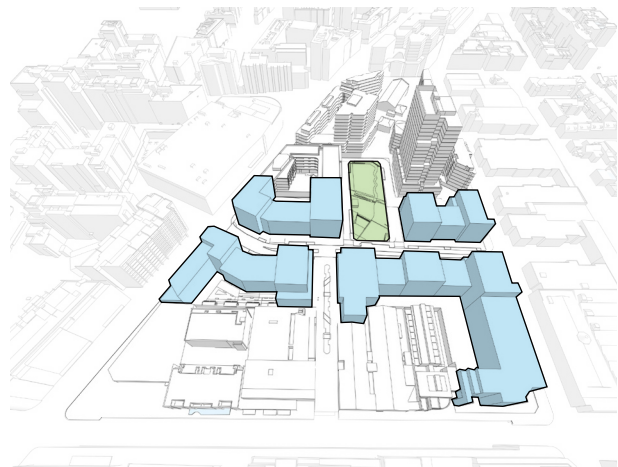
Key



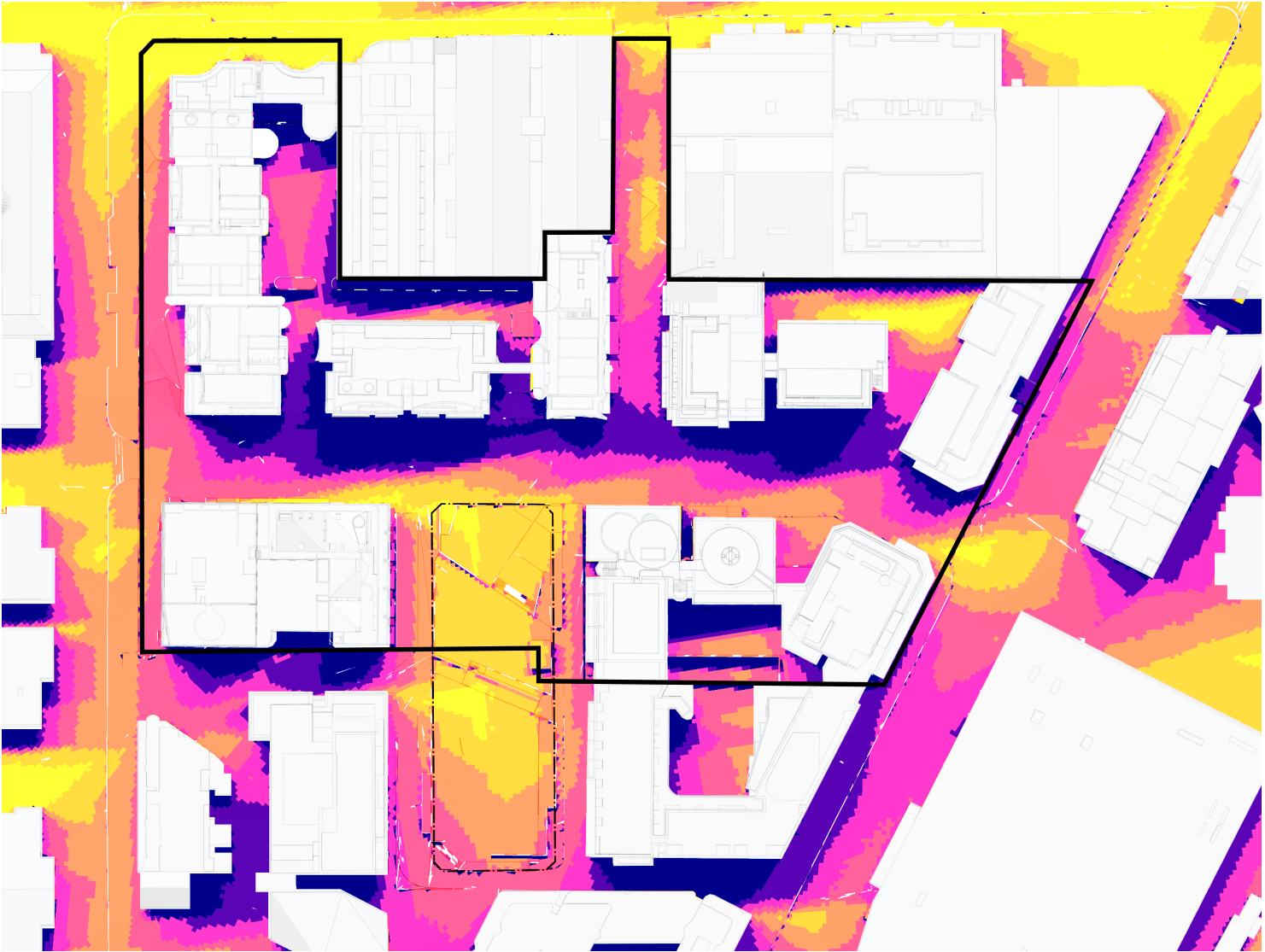
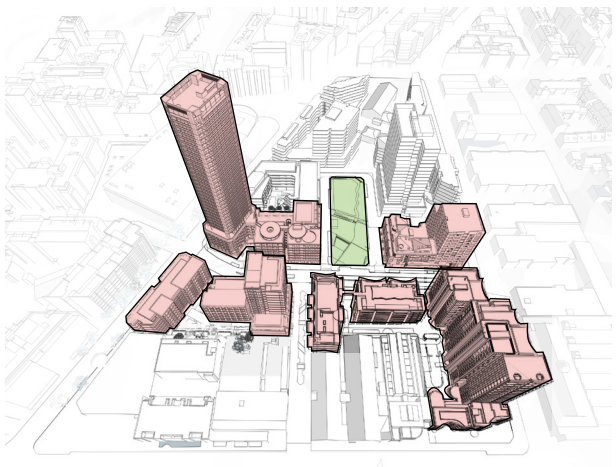
Appendix A2 - Solar Access

Public Domain

Approved Envelopes
September 23



Proposed
September 23



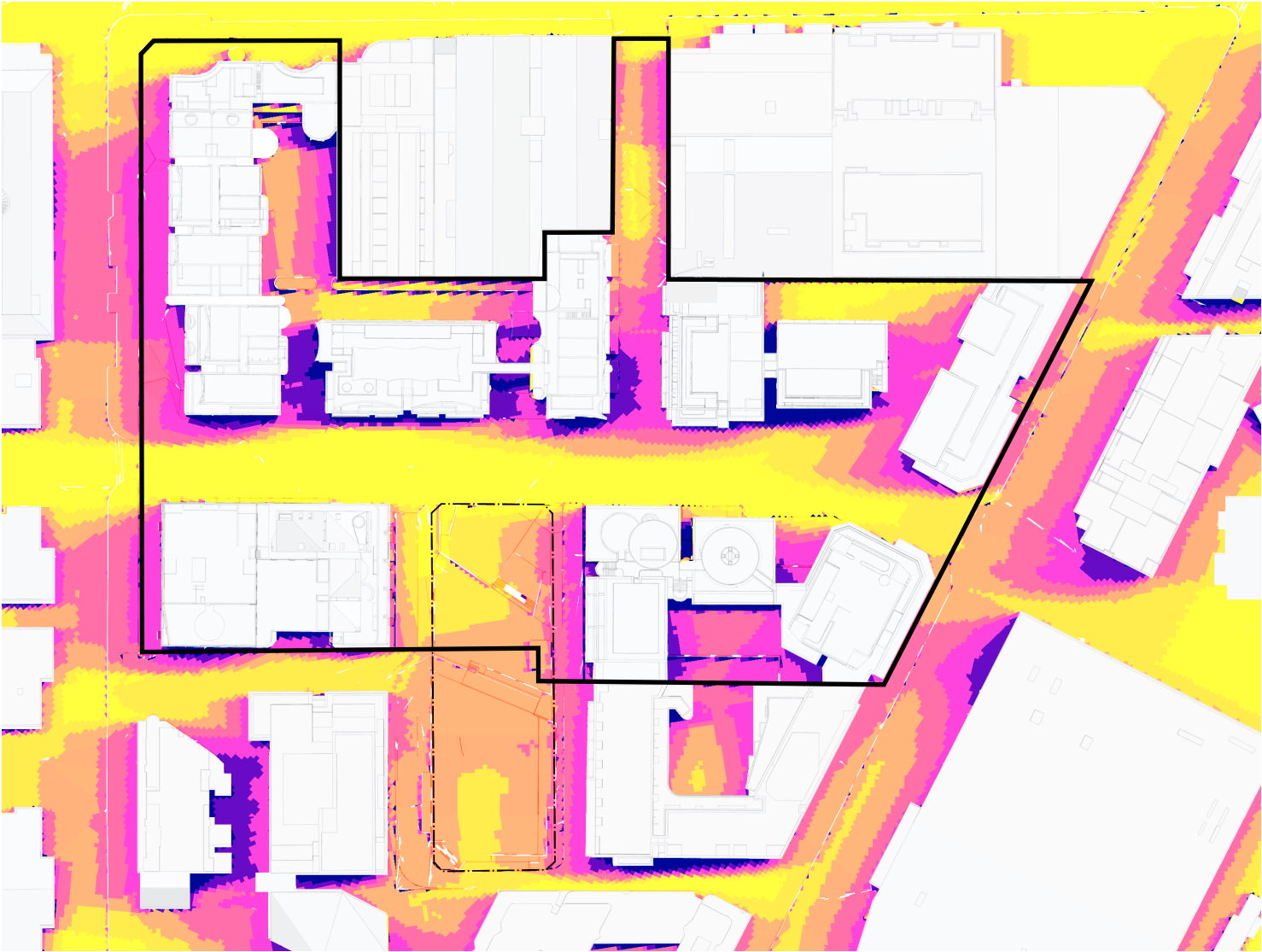
Appendix A2 - Solar Access

Public Domain

Approved Envelopes
December 21



Proposed
December 21



Appendix A2 - Solar Access

Detailed Assessment of Neighbouring Buildings

Methodology

Demonstration that overshadowing of existing, approved and planned apartments is minimised during mid-winter (9am to 3pm on 21 June) per the City of Sydneys ‘Minimising overshadowing of neighbouring apartments - Documentation Guide’

1. Measure Compliance

- Measure solar access to living rooms and private open spaces of neighbouring properties at mid-winter against the Stage 1 Approved Envelope

2. Maintain Compliance

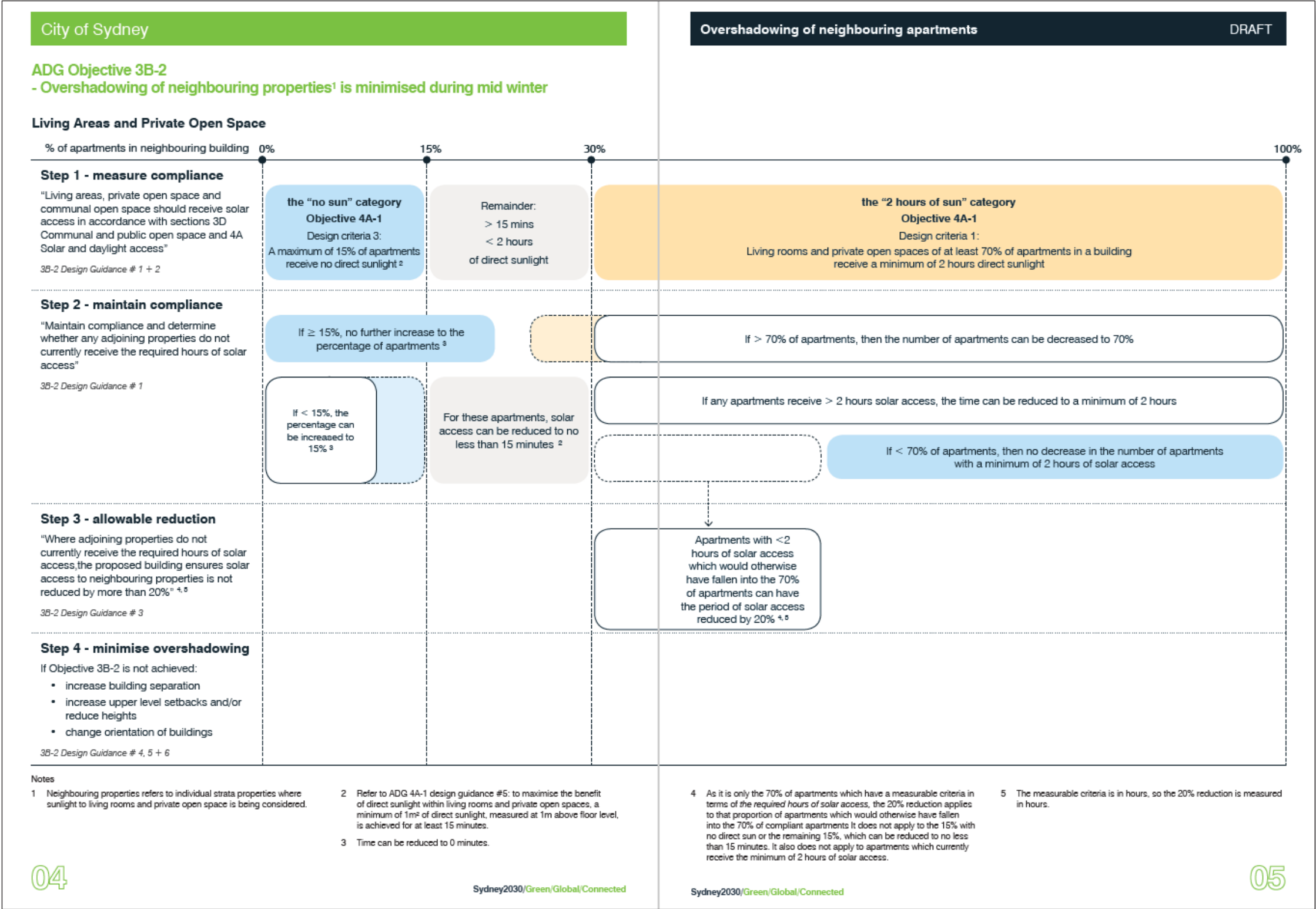
- If neighbouring properties achieve >70% compliance, then the number of apartments can be reduced to 70%

3. Allowable Reduction

- If neighbouring properties do not currently receive the required hours of solar access, the proposed building ensures solar access to neighbouring properties is not reduced by more than 20%



August 3rd 2020



Appendix A2 - Solar Access

Detailed Assessment of Neighbouring Buildings

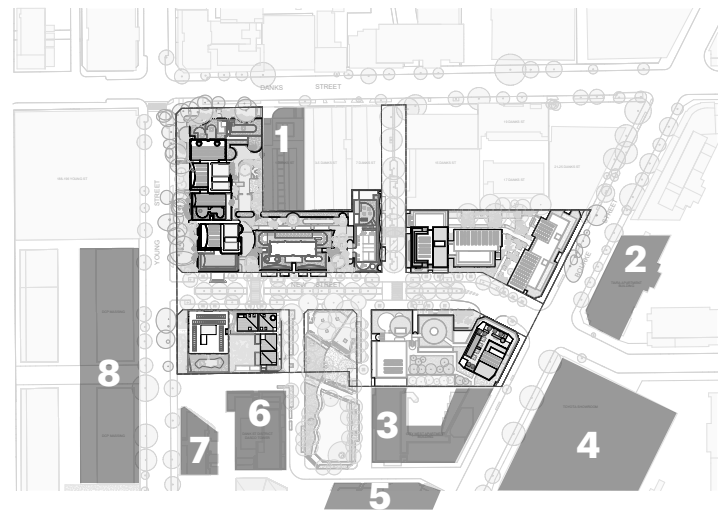
Summary

We have undertaken detailed analysis of neighbouring properties (existing, approved and planned developments) to ensure adequate solar access has been maintained.

Detailed analysis is provided for the below properties;

- 1 Warehouse (Danks Street)
- Tiara (Bourke Street)
- City West (Bourke Street)
- Toyota Showroom (Bourke Street)
- DASCO Precinct (Tower)
- DASCO Precinct (Young Street)
- DASCO Precinct (Bourke Street)
- Young Street DCP (Young St)

Key Plan



1 Warehouse
1 Danks Street

Target

Improve solar access to apartments compared to approved Stage 1 Envelope.

Status



Tiara
Bourke Street

Target

Maintain solar access consistent with conditions of consent

Status



City West
Bourke Street

Target

Review construction certificate drawings and manage impacts consistent with the Draft City of Sydney Guidelines

Status



Toyota Showroom
Bourke Street

Target

Provide flexibility to develop in future as residential

Status



Dasco Precinct (Bates Smart)
Central Tower

Target

Review s4.55 Modification and manage impacts consistent with the Draft City of Sydney Guidelines

Status



Dasco Precinct (Richards and Spence)
Young Street

Target

Review s4.55 Modification and manage impacts consistent with the Draft City of Sydney Guidelines

Status



Dasco Precinct (MHNDU)
Bourke Street

Target

Review s4.55 Modification and manage impacts consistent with the Draft City of Sydney Guidelines

Status



Young Street DCP
Future Context

Target

Provide flexibility to develop in future as residential

Status



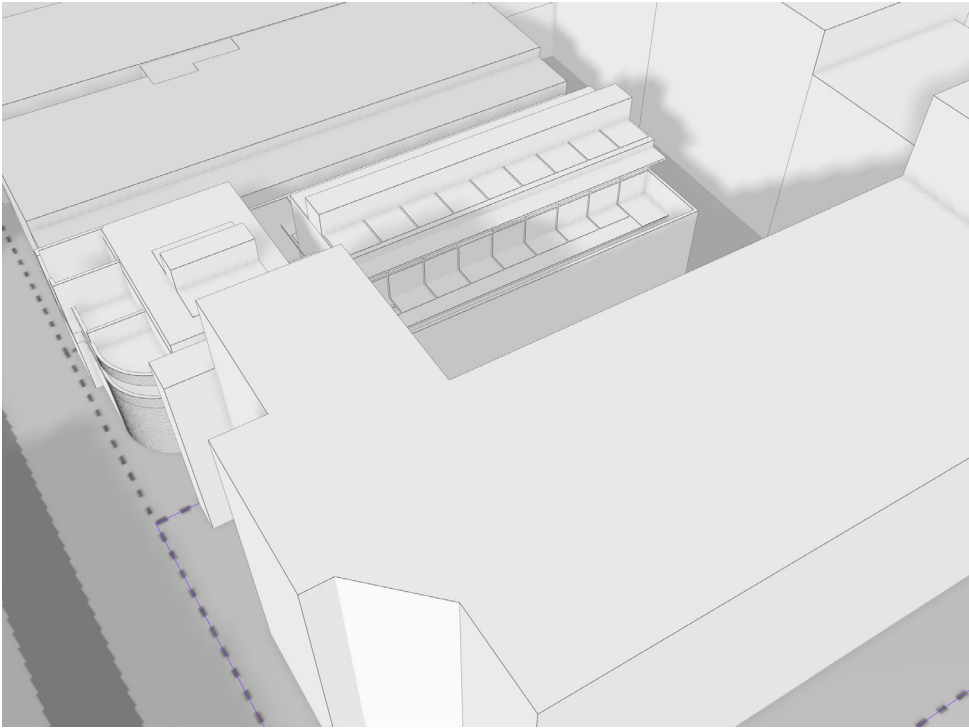
Appendix A2 - Solar Access

Detailed Assessment of Neighbouring Buildings

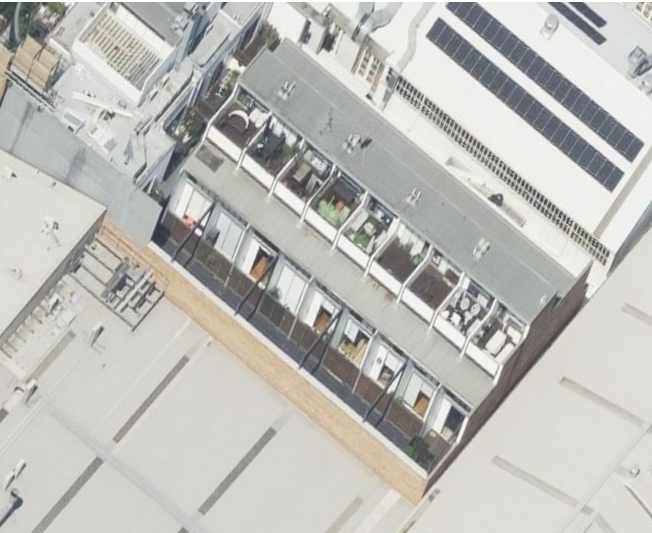
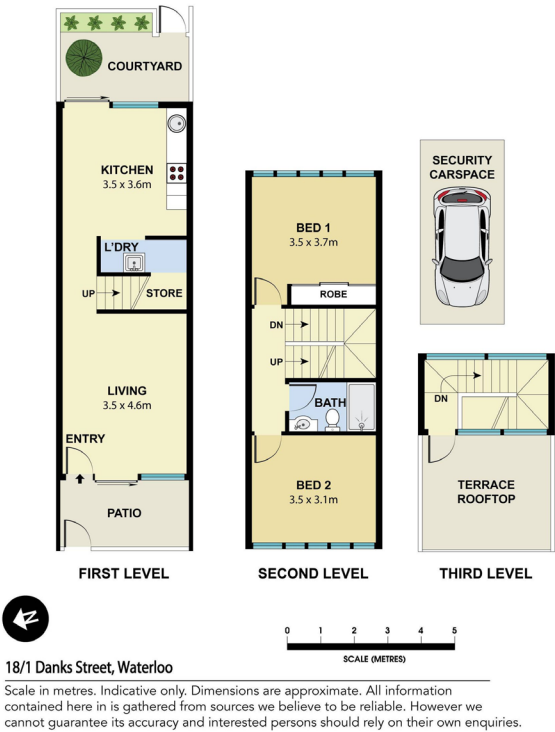
1 Warehouse

Danks Street

01
Warehouse 1 as previously modelled for Approved Envelope analysis



02
Real estate data showing party walls extended externally from the unit self shading living rooms at First Level

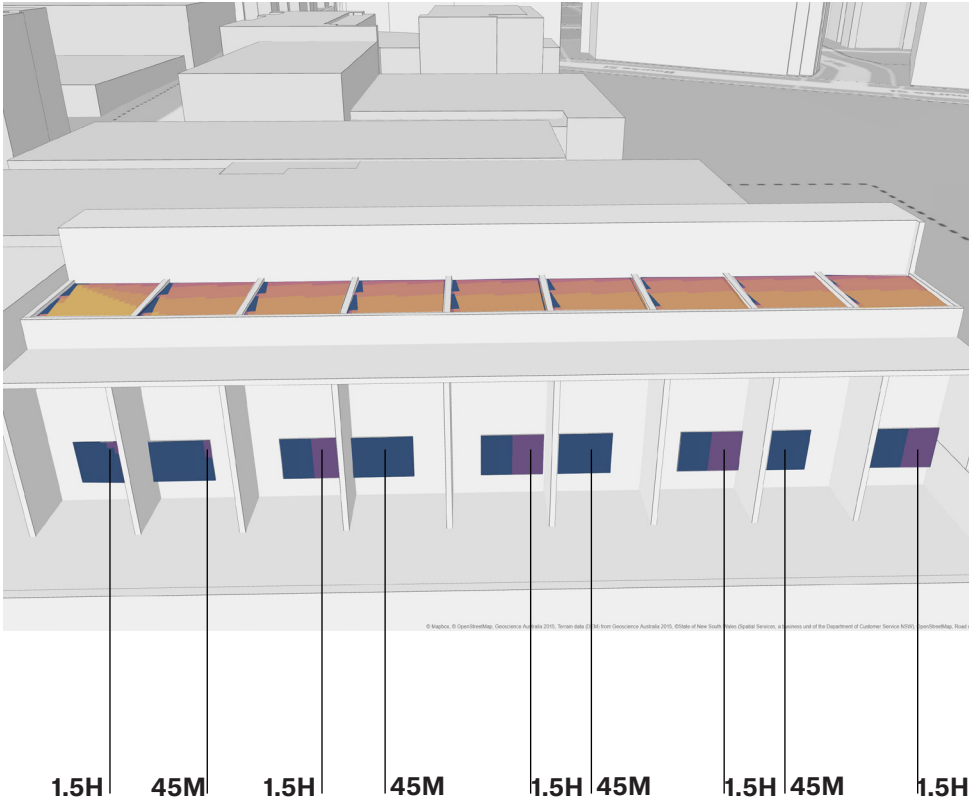


Appendix A2 - Solar Access

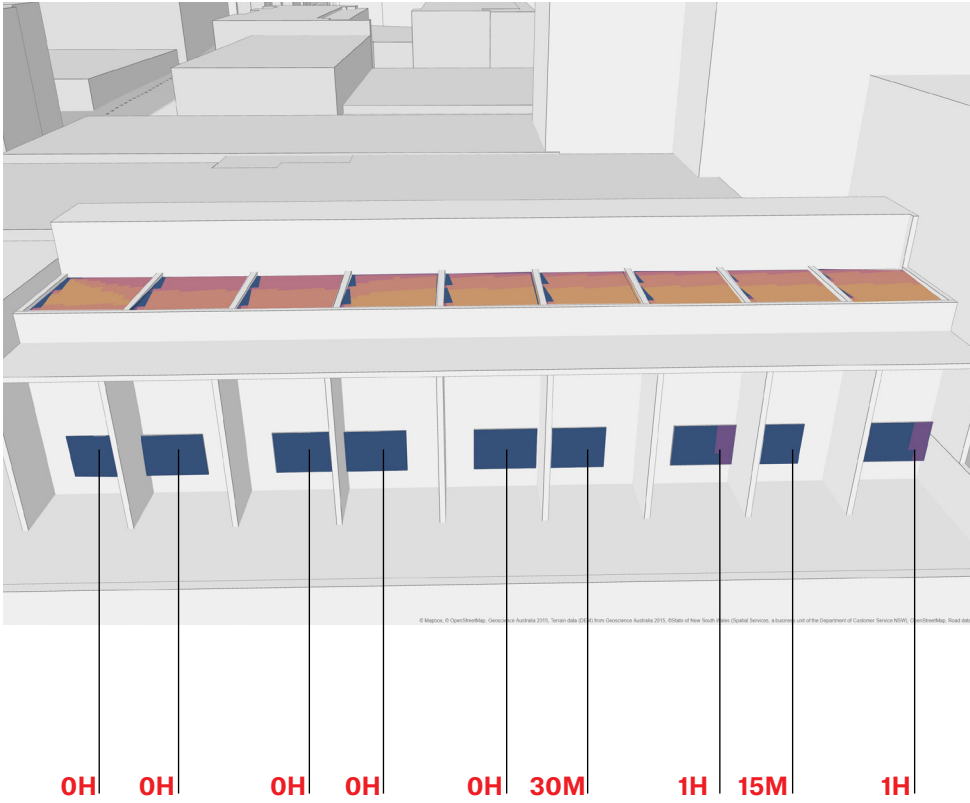
Detailed Assessment of Neighbouring Buildings

1 Warehouse Danks Street

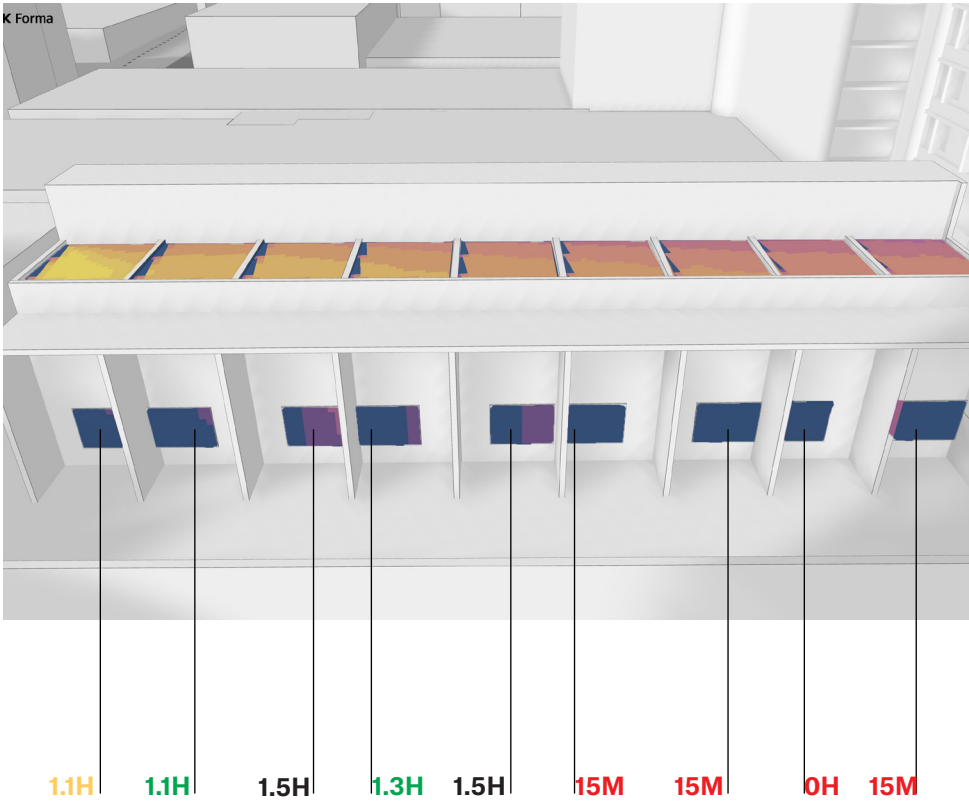
01
Existing with blade walls modelled



02
Approved Envelope with blade walls modelled

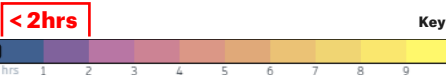


03
Proposed with blade walls modelled



Summary

- West facing units don't achieve minimum 2hrs solar access in existing condition
- Proposed solar access greatly improved compared to approved Stage 1 envelope
- 3x Danks Street facing units not affected
- 2 units will have improved solar access compared to existing condition
- 1 unit will have reduced solar access compared to existing condition but not more than 20% of time
- 4 units will have reduced solar access compared to existing condition for more than 20% of time



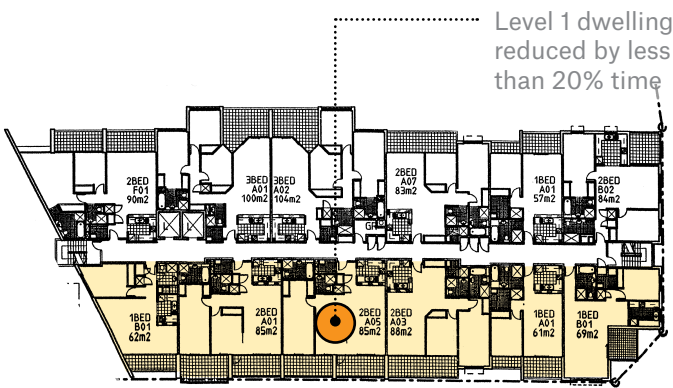
Appendix A2 - Solar Access

Detailed Assessment of Neighbouring Buildings

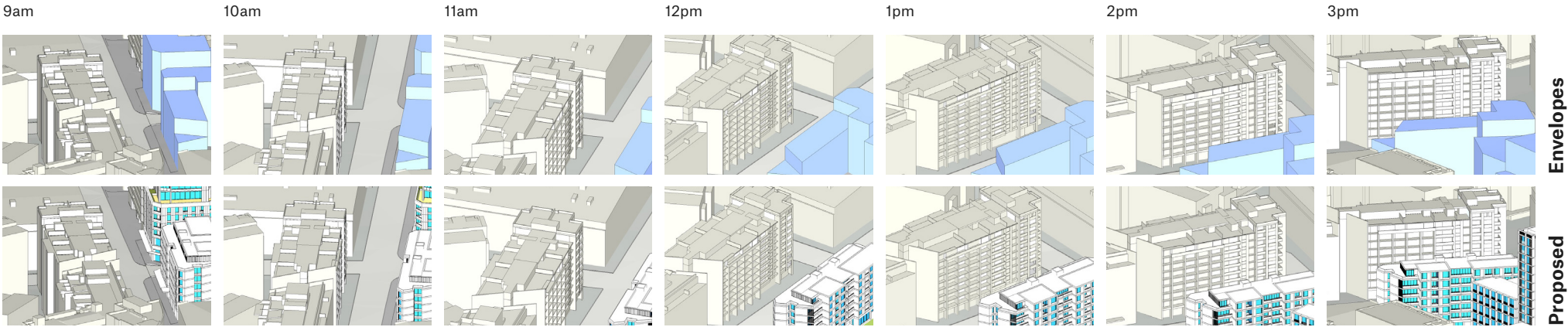
Tiara
Bourke Street

Summary

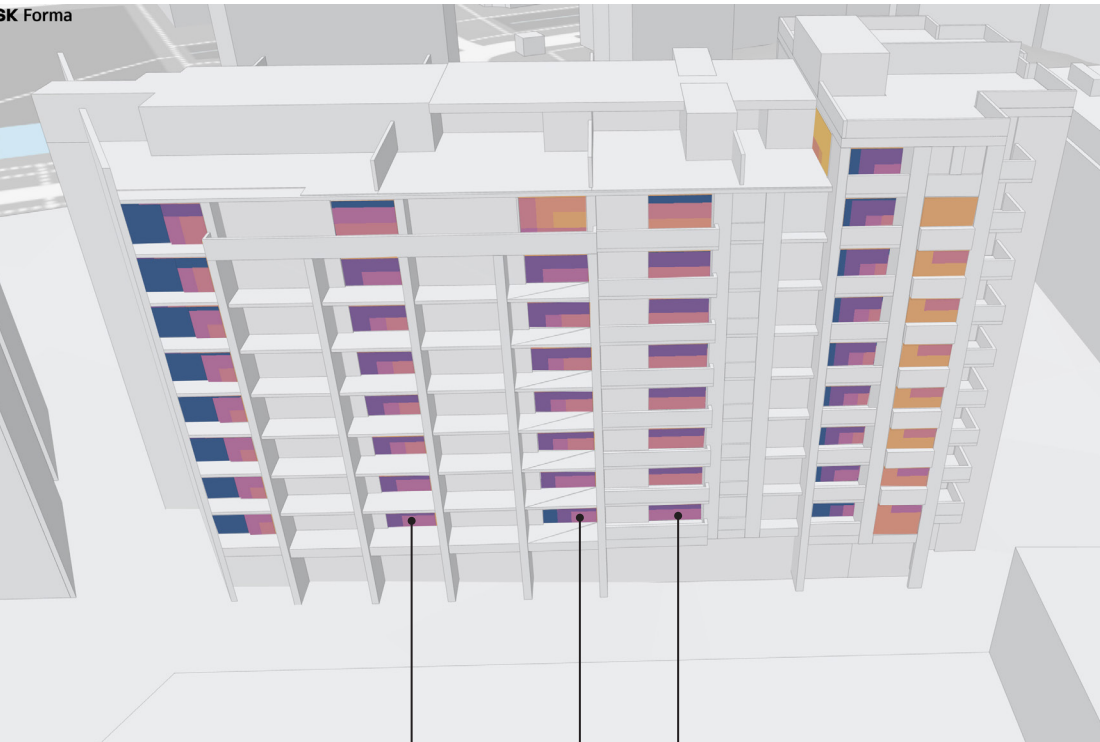
- Existing solar access is 52%
- Therefore individual dwellings that presently achieve 2 hrs sun must only be impacted by <20% time reduction
- All dwellings fronting Bourke Street maintain 2hrs solar access other than
- 3 dwellings on level 1 impacted by less than 20% of time
- Complies with the City of Sydney’s ‘Minimising overshadowing of neighbouring apartments - Documentation Guide’



Typical Plan

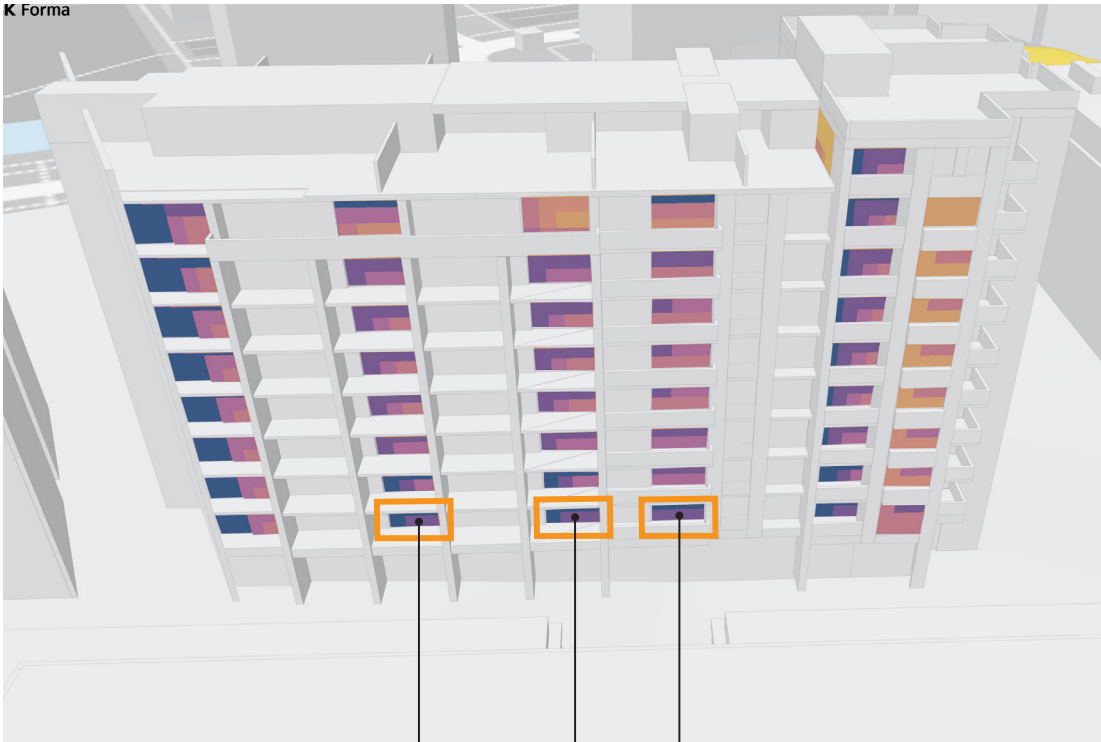


01
Approved Envelope



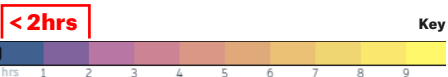
2.0hrs 2.0hrs 2.0hrs

02
Proposed



1.8hrs 1.6hrs 1.8hrs

2.0hrs -20% = 1.6hrs
3 Level 1 dwellings
reduced by less
than 20% time



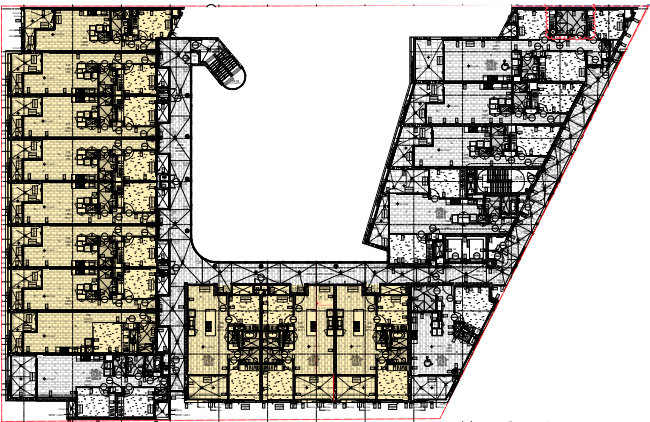
Appendix A2 - Solar Access

Detailed Assessment of Neighbouring Buildings

City West
Bourke Street

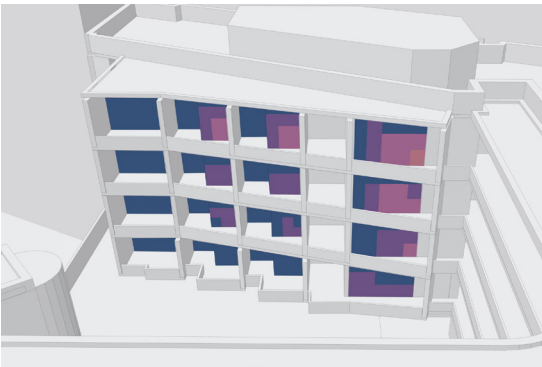
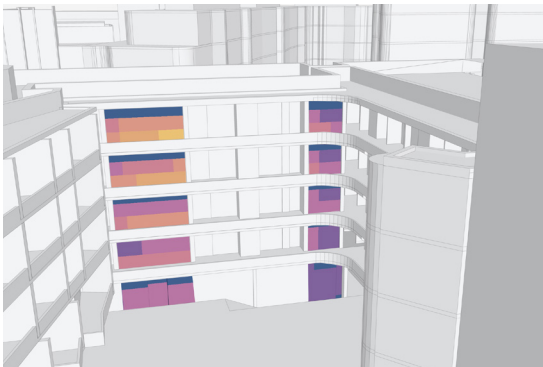
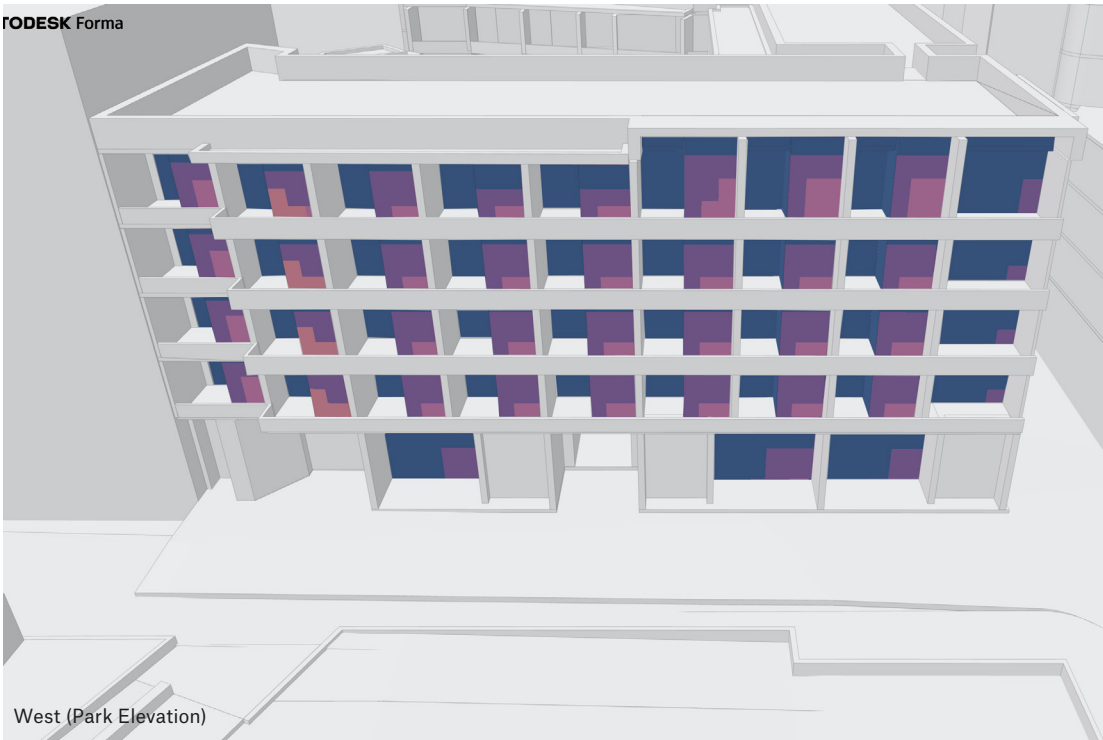
Summary

- Existing solar access is 70%
- Solar access maintained to all compliant dwellings on North and West frontages
- Compliance maintained

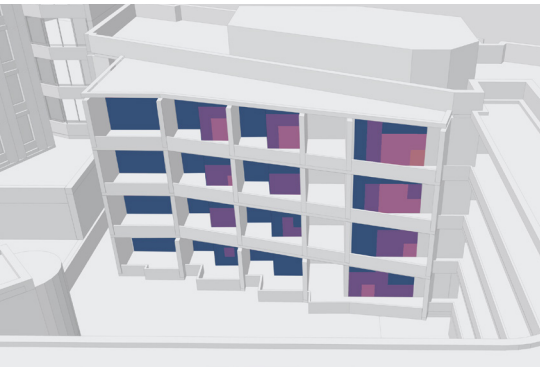
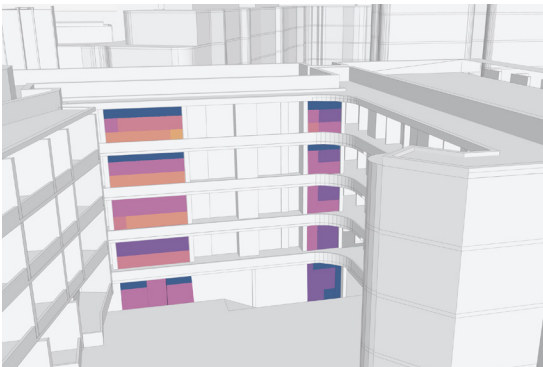
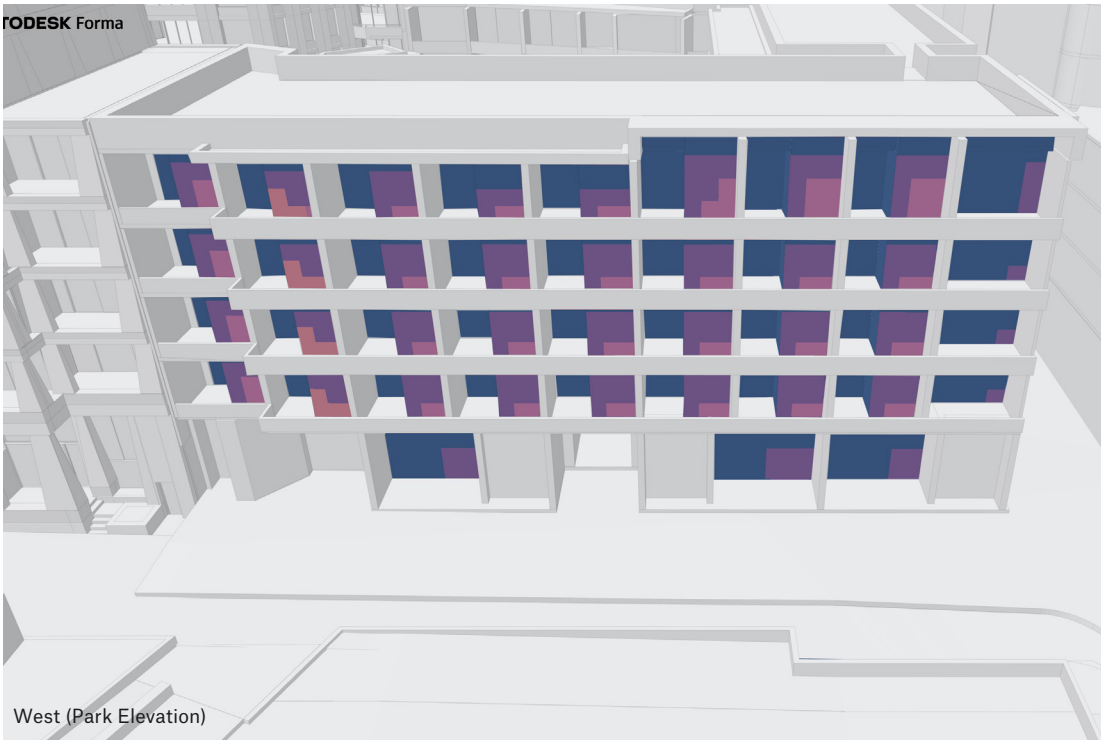


Typical Plan

01
Approved Envelope



02
Proposed



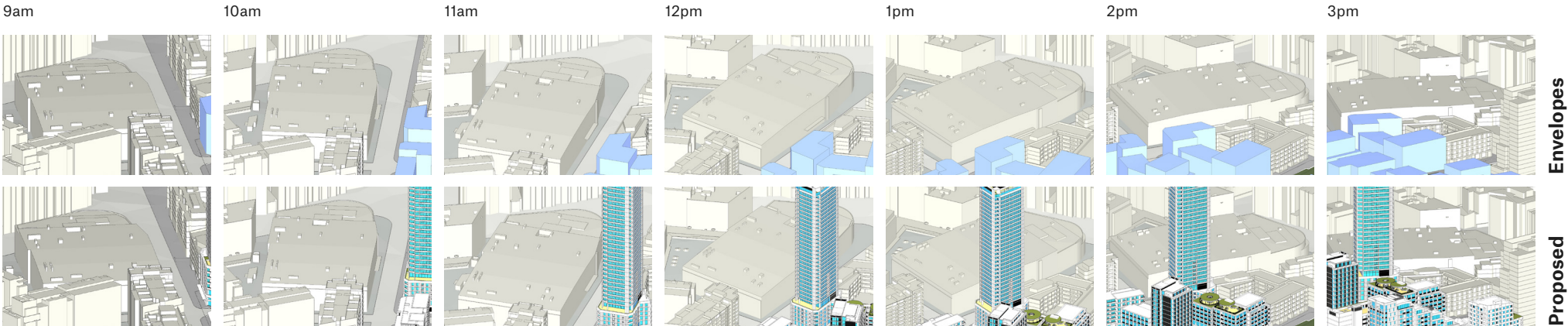
Appendix A2 - Solar Access

Detailed Assessment of Neighbouring Buildings

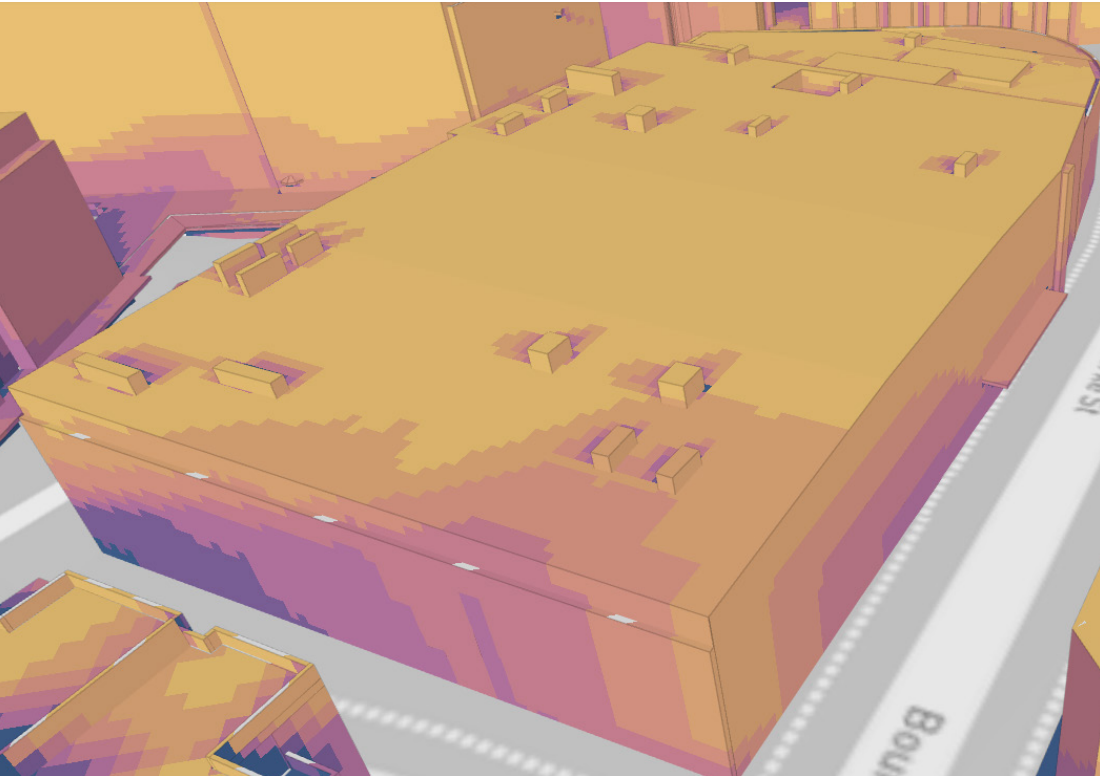
Toyota Showroom
Bourke Street

Summary

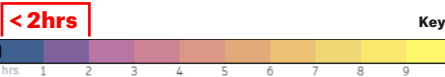
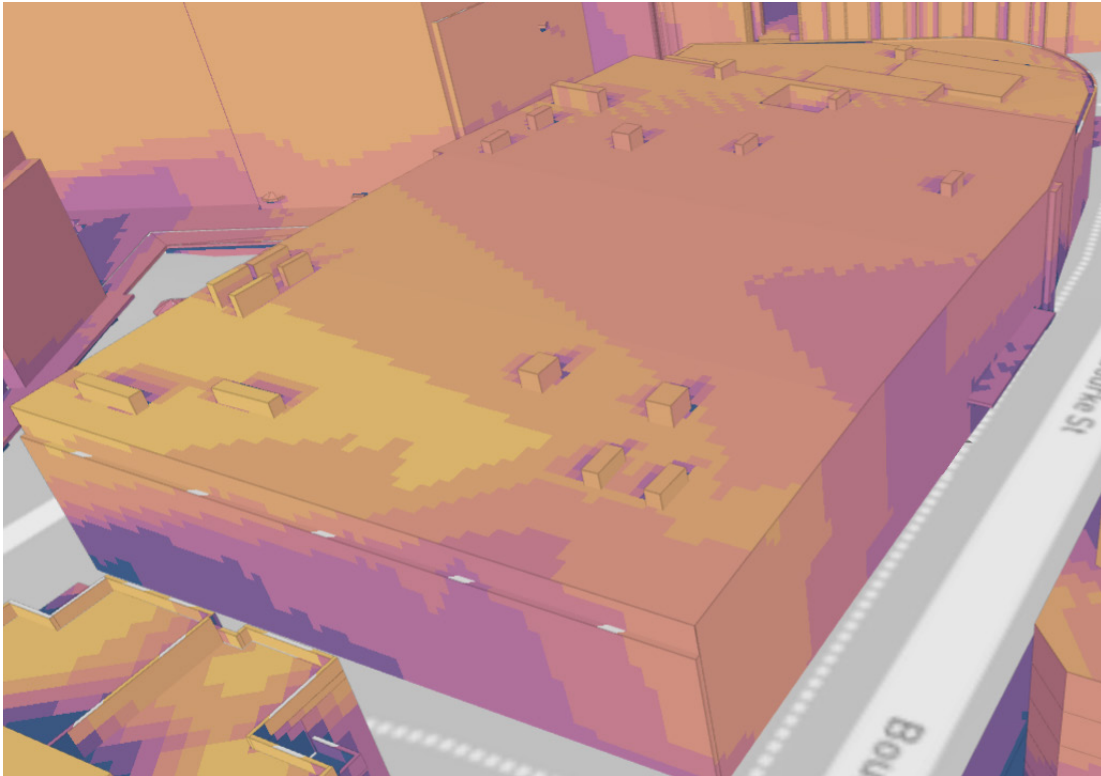
- Potter Street frontage overshadowing is broadly consistent; able to be developed in the future
- Bourke Street frontage overshadowing has maintained 2 hours and is able to be developed as residential in the future.
- Future development potential maintained



01
Approved Envelope



02
Proposed



Appendix A2 - Solar Access

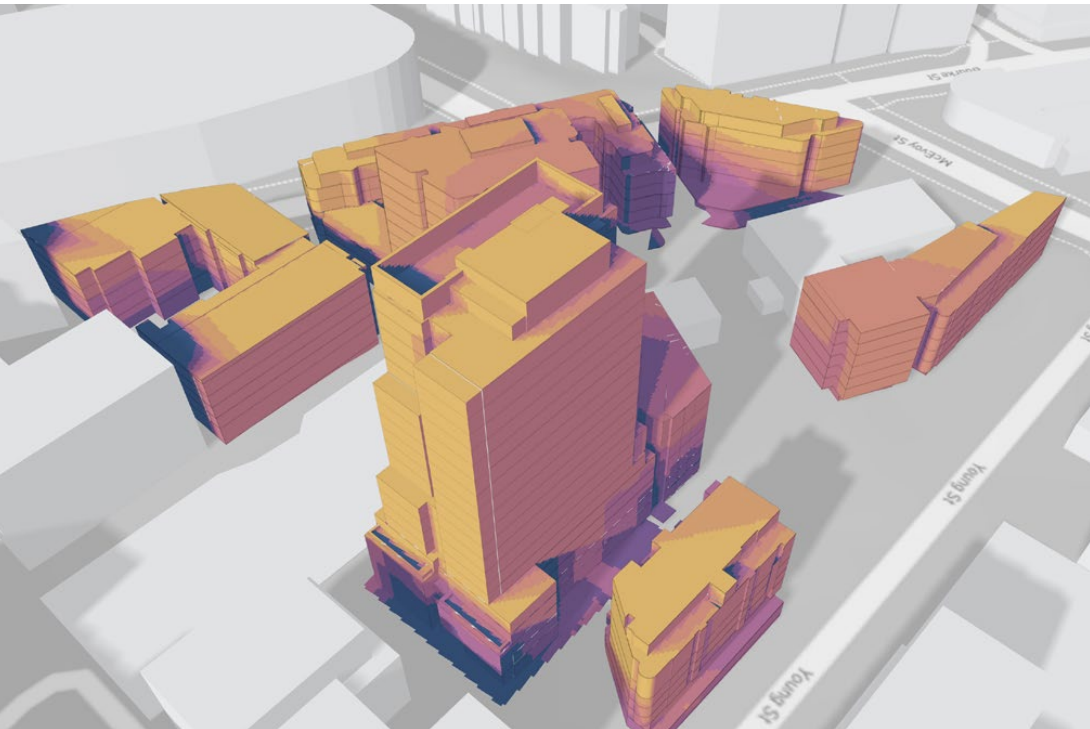
Detailed Assessment of Neighbouring Buildings

DASCO Precinct

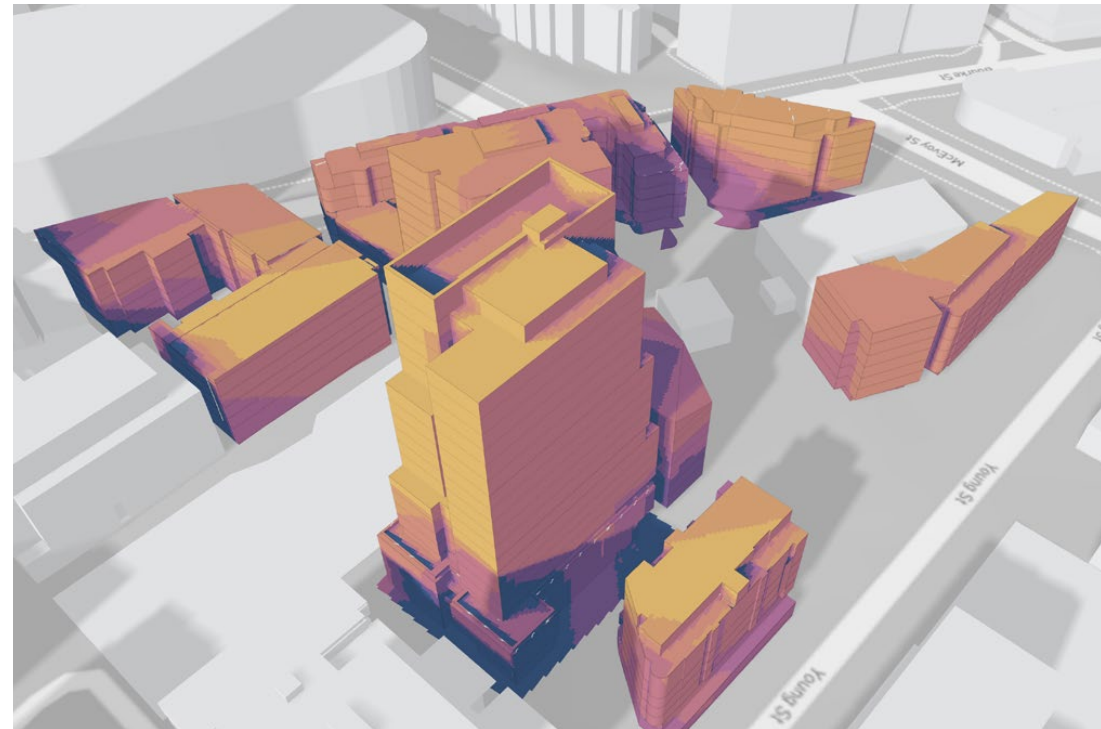
Summary

- Analysis of both DA and s4.55 conditions have been undertaken
- Understanding of precinct compliance to maintain 70% Solar Access to the Danks Street South precinct
- Precinct compliance has been maintained

01
Approved Envelope



02
Proposed



BUILDING NAME	DA			S4.55				
	# units	>2hrs	%	# units	diff to DA	>2hrs	diff to DA	%
BS D1(A) - Tower	147	116	78.9%	134	13	103	-13	76.9%
BS D1(B) - Plaza	23	11	47.8%	23	0	11	0	47.8%
R+S D1(A) - Young St North	21	13	61.9%	21	0	13	0	61.9%
R+S D1(B) - Young St South	32	32	100.0%	32	0	32	0	100.0%
MHNDU D2(A) - North	122	74	60.7%	120	2	71	-3	59.2%
MHNDU D2(B) - South	28	28	100.0%	21	7	19	-9	90.5%
TOTAL	373	274	73.5%	351	22	249	-25	70.9%
	70%			70%				
# units which can be reduced <2hrs	261.1	12.9		245.7		3		



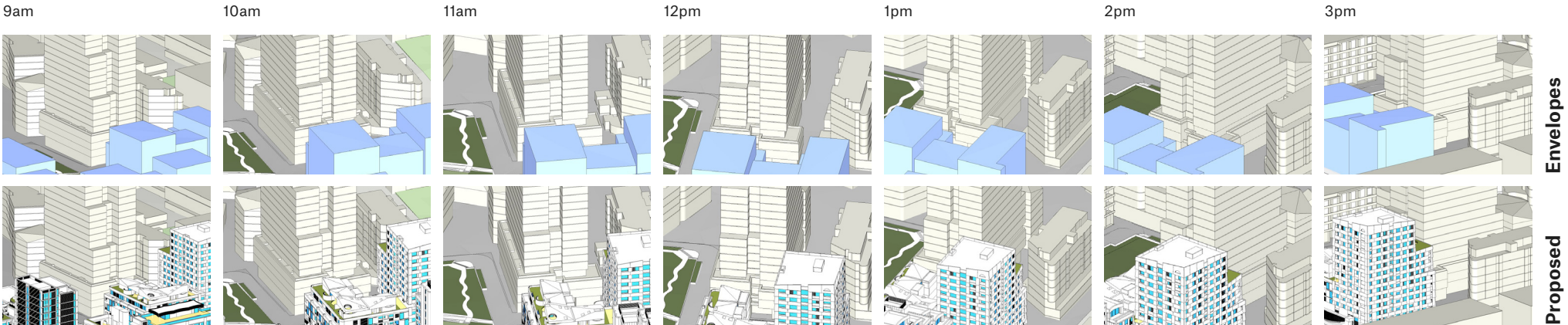
Appendix A2 - Solar Access

Detailed Assessment of Neighbouring Buildings

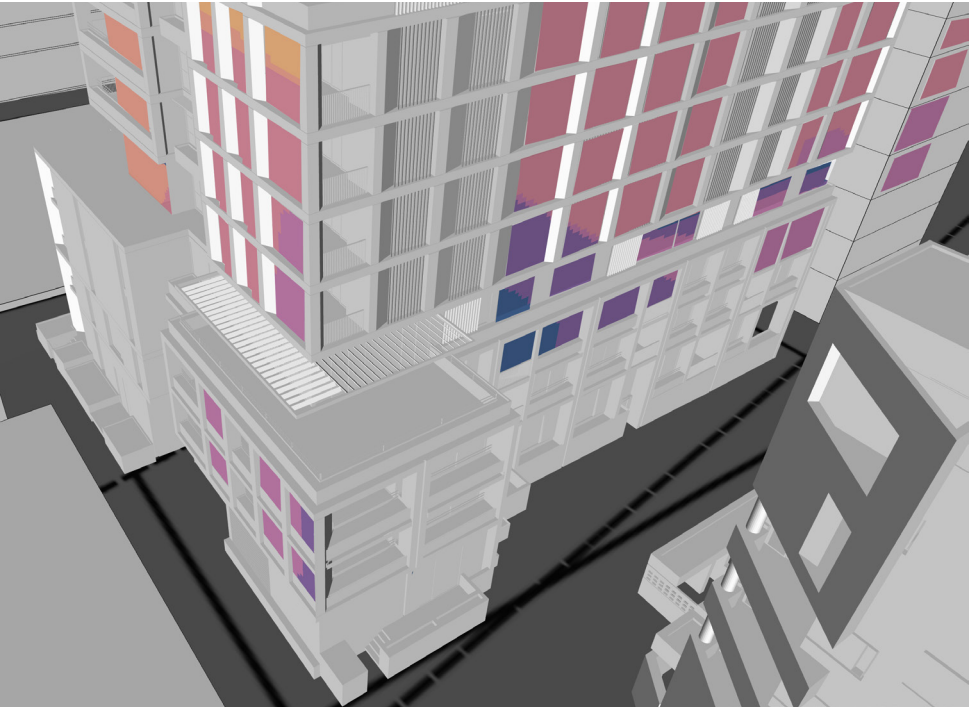
DASCO Precinct Tower (Bates Smart)

Summary

- s4.55 solar access is 77%
- 3 Apartments have been negatively impacted
- 2 Apartments have been positively impacted
- Building and precinct compliance has been maintained



01 s4.55 Approved Design



02 Solar Impact on s4.55 Approval



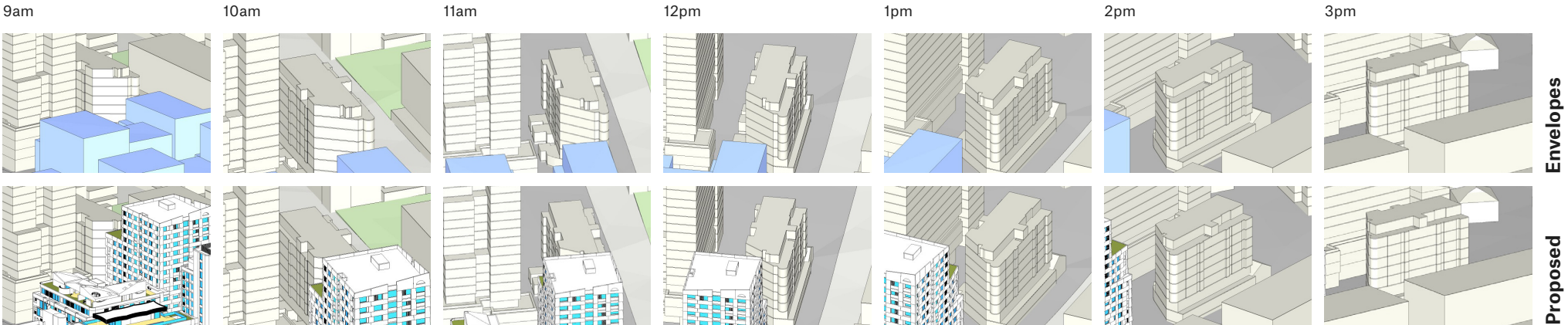
- Achieves 2hrs solar compared to Approved Envelope
- ✗ No longer achieves 2hrs solar compared to Approved Envelope



Appendix A2 - Solar Access

Detailed Assessment of Neighbouring Buildings

DASCO Precinct
 Young Street (Richards & Spence)



01
 s4.55 Approved Design

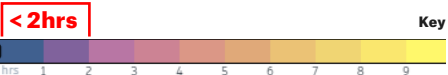
- s4.55 Solar Access is 62%
- 3 Apartments have been negatively impacted
- Precinct compliance has been maintained



02
 Solar Impact on s4.55 Approval



X No longer achieves 2hrs solar compared Approved Envelope



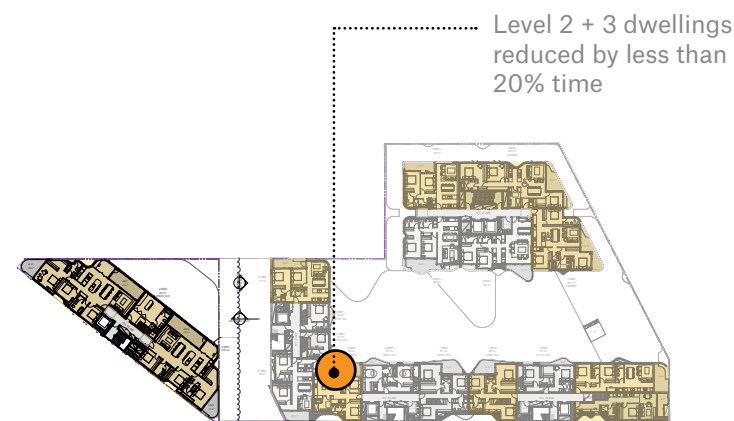
Appendix A2 - Solar Access

Detailed Assessment of Neighbouring Buildings

DASCO Precinct Bourke Street (MHNDU)

Summary

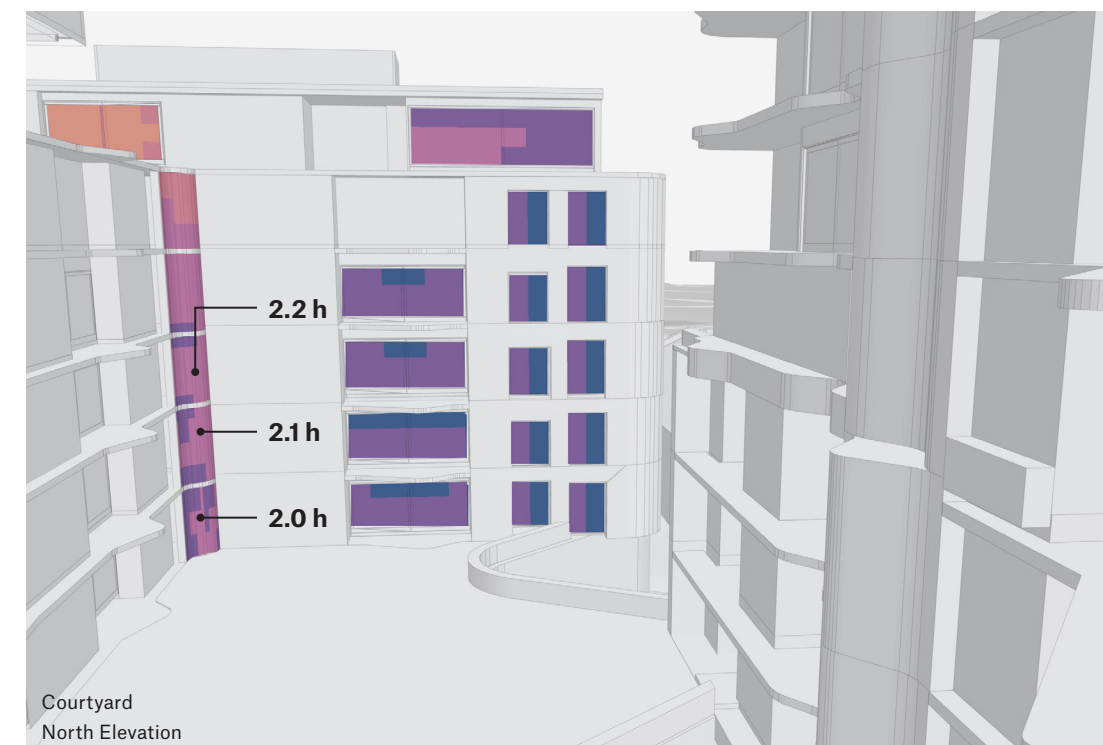
- Existing solar access is 64%
- Compliance is achieved at a precinct scale (South Danks Street precinct) where other buildings over-perform to maintain precinct 70% solar access
- Therefore individual dwellings that presently achieve 2 hrs sun must only be impacted by <20% time reduction
- 3 dwellings of the North facing courtyard apartments impacted by less than 20% of time
- Complies with the City of Sydney's 'Minimising overshadowing of neighbouring apartments - Documentation Guide'



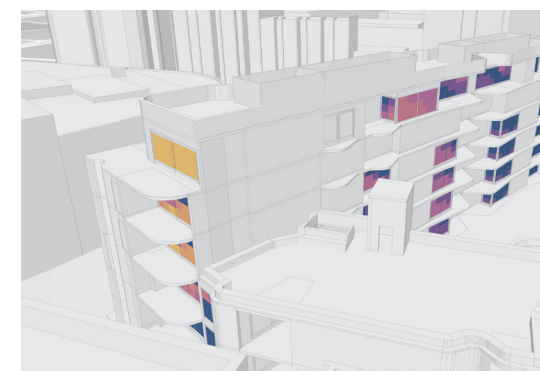
Typical Plan

01

Approved Envelope



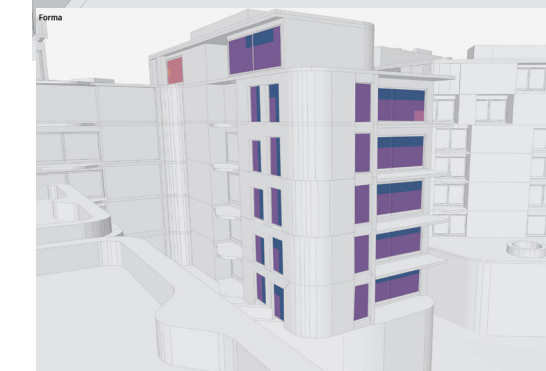
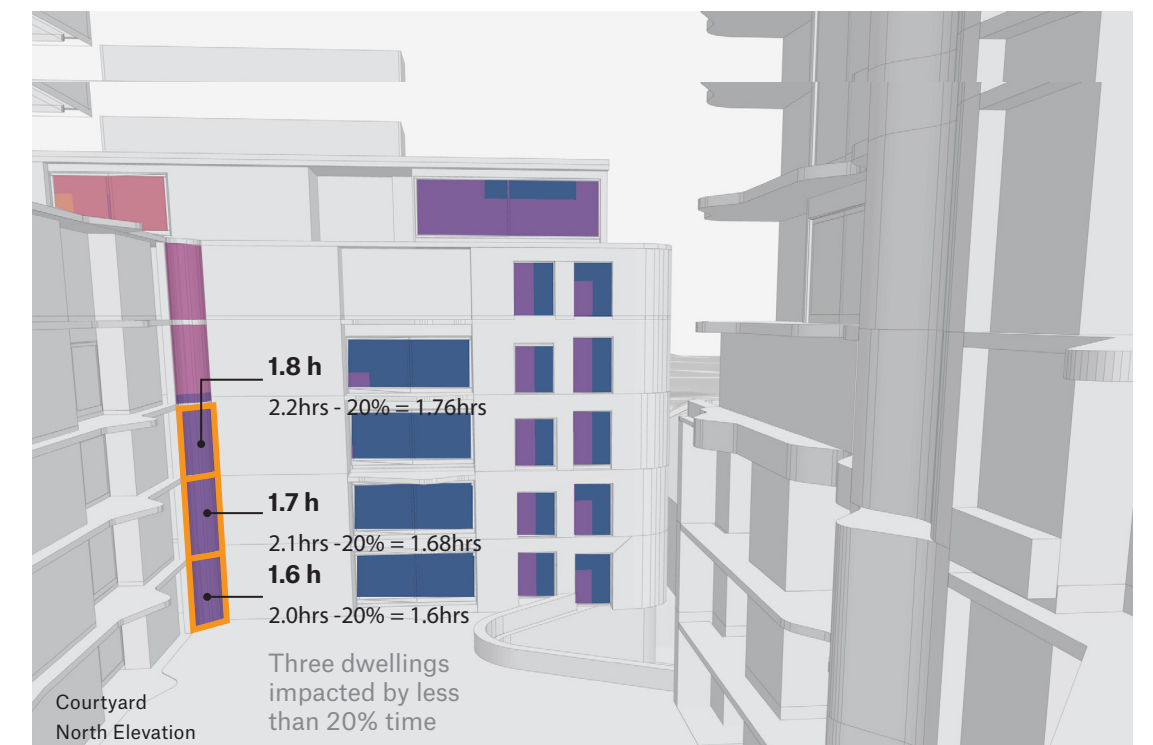
West



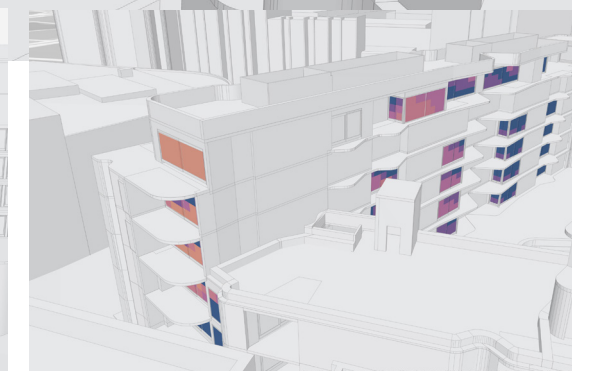
Courtyard West

02

Proposed



West



Courtyard West

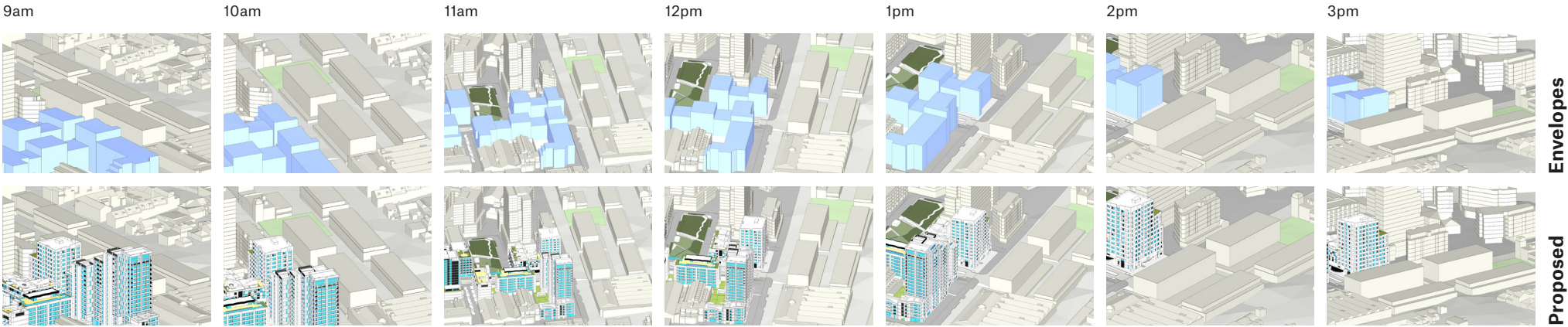


Appendix A2 - Solar Access

Detailed Assessment of Neighbouring Buildings

Young Street DCP

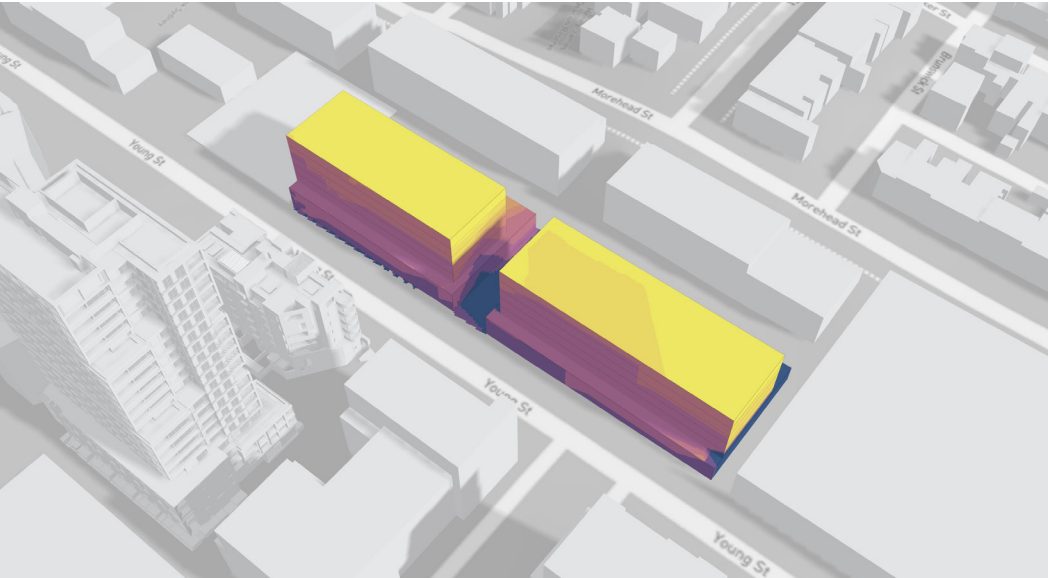
Future Context



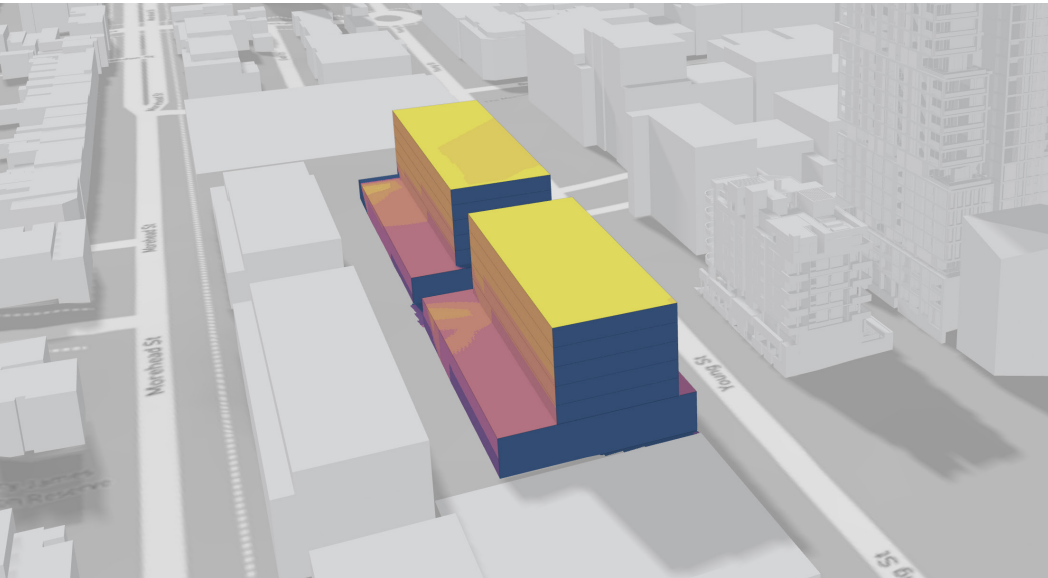
Summary

- No additional impact to Western facade compared to approved envelope
- Western facade has potential to acheive compliant solar access for future development without relying on Eastern facade

01
Approved Envelope

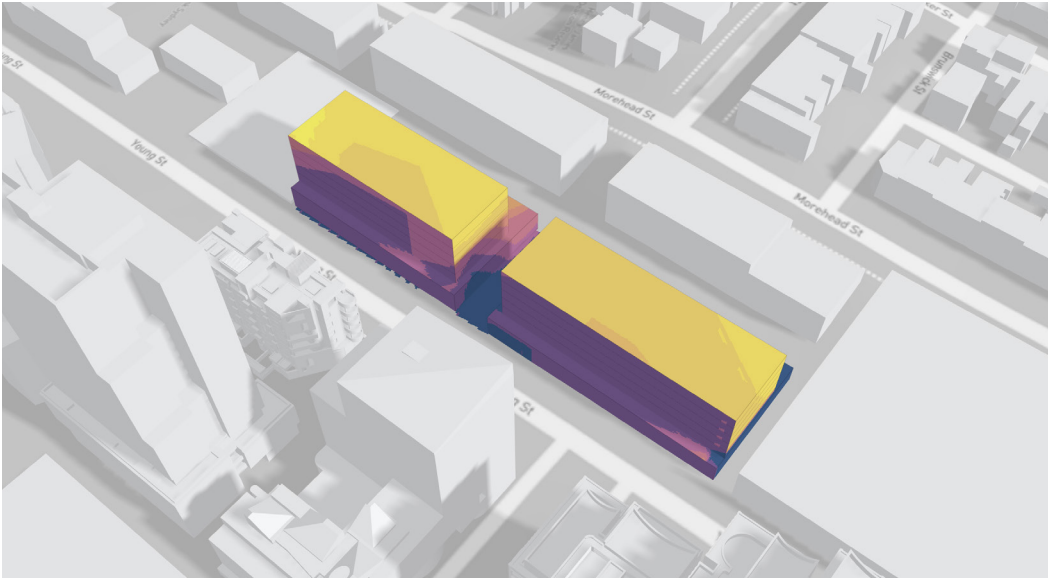


East

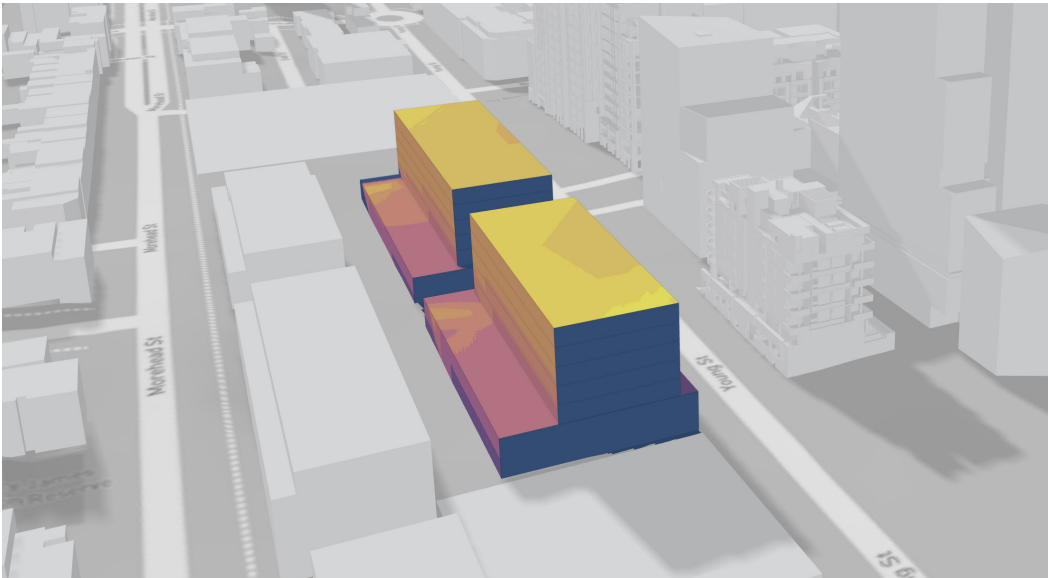


West

02
Proposed



East



West

