Hornsby Town Centre Masterplan and High and Ashley Streets (formerly RSL) Planning Proposal

Shadow Analysis and Apartment Design Guide Assessment

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Purpose of the Report

To assist Council in assessing the compliance of the Planning Proposal High and Ashley Streets (formerly RSL) Planning Proposal, Co Architecture were engaged by Council to undertake two distinct, yet interrelated tasks;

1. Provide shadow diagrams clearly labelling the existing shadow footprint and proposed potential shadow footprint. The shadow analysis will be modelled including consideration of the adjacent Hornsby Town Centre site controls to accurately reflect future solar access.

2. Assess solar access and overshadowing and demonstrate that compliance with Apartment Design Guide for residential dwellings can be achieved for proposed residential land uses.

The methodology, assumptions and assessment are contained within the following pages of this report.

Task 1 – Shadow Analysis

The methodology for the shadow analysis was to;

- Model the contextual building envelopes around the High and Ashley Street site. This includes both the existing built form and the potential future built form under the Draft Hornsby Town Centre Masterplan that was exhibited from 20th July to 30th September 2022.
- Geolocate and appropriate the architectural model supplied by Altis Architecture on the 14th October 2022
- Model the Planning Proposal architectural drawings supplied by Altis Architecture on the 6th October 2022
- Prepare shadow analysis diagrams based on the proposed built form within the Planning Proposal at the required standards of;
    - December 22nd – 9am, 12pm and 3pm
    - March 20th – 9am, 12pm and 3pm
    - June 21st – 9am, 12pm and 3pm
    - September 23rd – 9am, 12pm and 3pm

The assumptions associated with the shadow analysis are;

- Existing built form is sourced from a third party
- Future built form of the surrounding sites represents just one just one of many permutations of what may be developed under the existing planning controls and those proposed under the Draft Hornsby Town Centre Masterplan.

Findings

The findings of the Shadow Analysis are that the overshadowing impacts of the proposed built form within the High and Ashley Streets (formerly RSL) Planning Proposal considered against the existing built form on the Town Centre and surrounds are;

- 3 Ashley Street; minor overshadowing of the northwestern façade in the morning during the summer solstice, autumn equinox, winter solstice and spring equinox
- 1 Forbes Street; minor overshadowing of the western façade in the afternoon during the winter solstice;
- 3-5 Forbes Street; significant overshadowing of the northwestern dwelling's western façade and private open space in the afternoon during the winter solstice;
- 1B, 1C, 6 Forbes Street; minor overshadowing of the private open space during in the middle of the day during winter solstice
- 1-4, 1A Webb Ave; moderate overshadowing on the northern façade, balconies, driveways and entries in the morning during the winter solstice
- 1 Webb Ave; significant overshadowing of the eastern façade, common property and driveway in the morning during the winter solstice
- 3-5 Webb Ave; moderate overshadowing of the northern dwellings, common property, driveway and private open space of the northwestern dwelling in the morning during the winter solstice
- 6 Webb Ave; significant overshadowing of the dwelling and private open space in the morning during the winter solstice
- 7-11 Webb Ave; moderate overshadowing of the northern dwellings, common property, driveway and private open space in the morning during the winter solstice
- 14-18 Ashley Street; moderate overshadowing of the common property, driveway and lawn in the morning during the winter solstice
- 21 Ashley Street; moderate overshadowing of the dwelling and private open space in the morning during the autumn equinox, winter solstice and spring equinox
- 23 Ashley Street; moderate overshadowing of the dwelling and private open space in the morning during the autumn equinox, winter solstice and spring equinox
- 25 Ashley Street; moderate overshadowing of the dwelling and private open space in the morning during the autumn equinox and winter solstice

The modelling has identified that the majority of the overshadowing impacts are attributable to the High and Ashley Streets (formerly RSL) Planning Proposal, however there are some contributory impacts from future built form on the western side of Hornsby Town Centre based on the permissible building heights.

The following pages identify which shadows are attributed to which proposal.

Summer Solstice (22/12)

Current built form and RSL Proposal

09:00

12:00

15:00

Future built form and RSL Proposal

09:00

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Autumn Equinox (20/03)

Current built form and RSL Proposal

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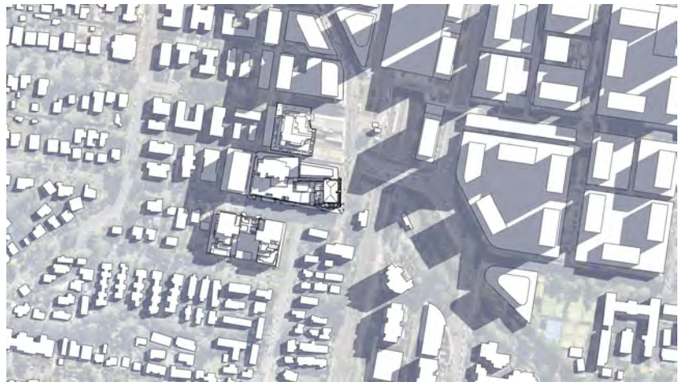
Future built form and RSL Proposal



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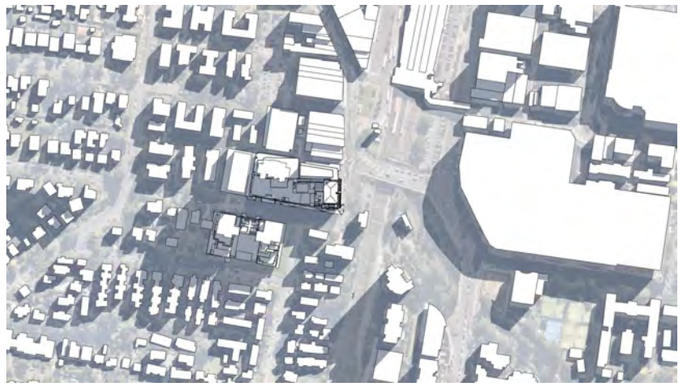
Winter Solstice (21/06)

Current built form and RSL Proposal



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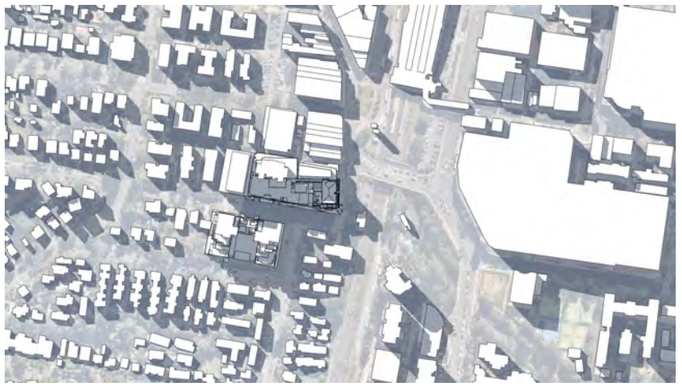

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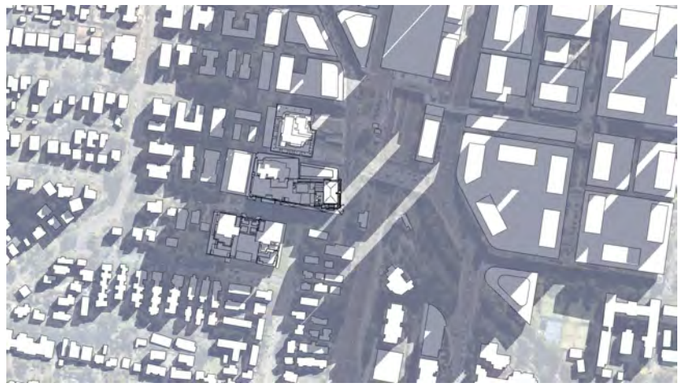
Future built form and RSL Proposal



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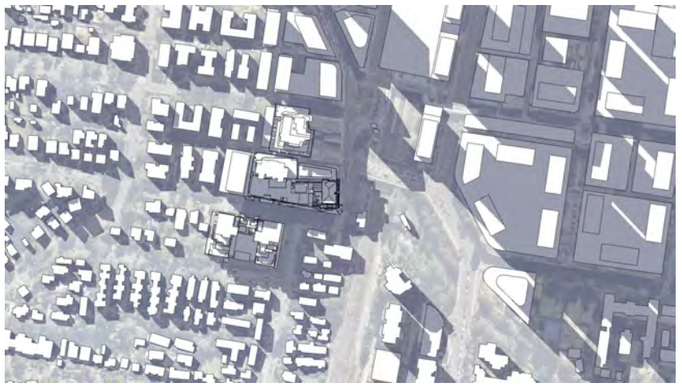

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Spring Equinox (23/09)

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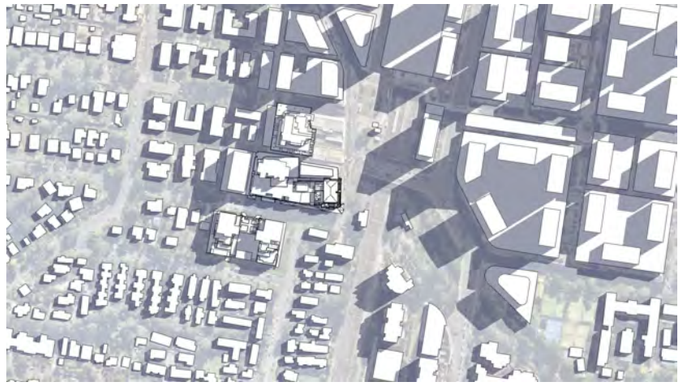
Future built form and RSL Proposal



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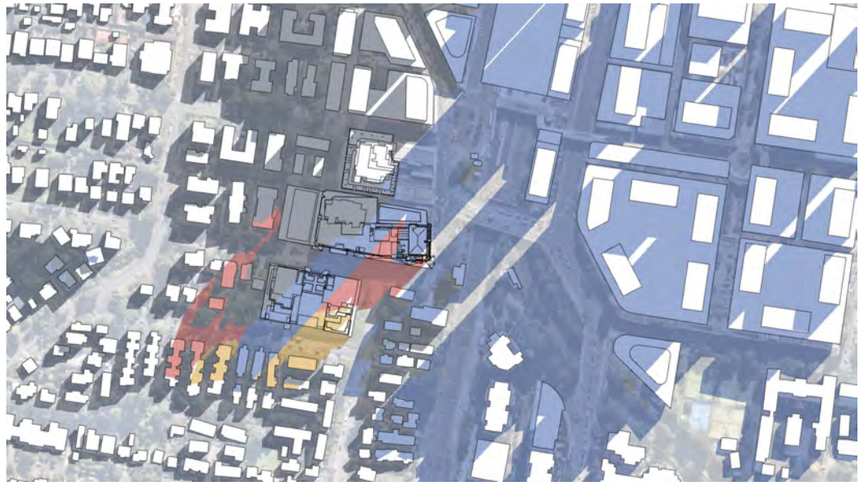

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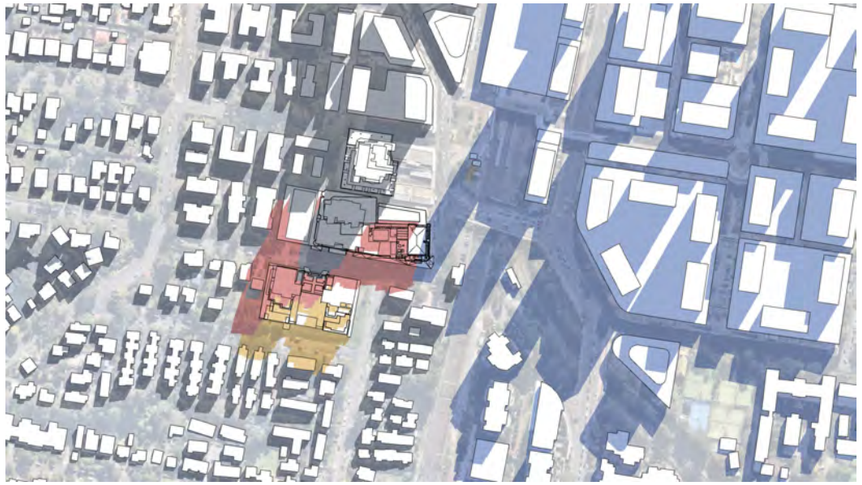

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Shadows in order of layering

- Permissible building heights West of Hornsby station
- Proposed building heights for Hornsby Town Centre - East of Hornsby Station
- Site 1: Proposed Hornsby RSL
- Site 2: Proposed Seniors Living

13:00

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Shadows in order of layering

- Permissible building heights West of Hornsby station
- Proposed building heights for Hornsby Town Centre - East of Hornsby Station
- Proposed Hornsby RSL
- Site 2: Proposed Seniors Living

Task 2 – Apartment Design Guide Solar Access Assessment

The methodology for the Apartment Design Guide (ADG) and Housing SEPP solar access assessment was to;

- Model the contextual building envelopes around the High and Ashley Street site. This includes both the existing built form and the potential future built form under the Draft Hornsby Town Centre Masterplan that was exhibited from 20th July to 30th September 2022.
- Geolocate and appropriate the architectural model supplied by Altis Architecture on the 14th October 2022
- Model the Planning Proposal architectural drawings supplied by Altis Architecture on the 6th October 2022
- Testing the proposed layout against the solar access requirements that;
    - Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight between 9 am and 3 pm at mid winter
    - A maximum of 15% of apartments in a building receive no direct sunlight between 9 am and 3 pm at mid winter

The assumptions associated with the shadow analysis are;

- Existing built form is sourced from a third party
- Future built form of the surrounding sites represents just one just one of many permutations of what may be developed under the existing planning controls and those proposed under the Draft Hornsby Town Centre Masterplan.

Findings

The findings of the Solar Access Assessment are that the solar access impacts of the proposed built form within the High and Ashley Streets (formerly RSL) Planning Proposal considered against the future built form on the Town Centre can meet or exceed the solar access requirements for private dwellings within the ADG.

The analysis shows that for the Hornsby RSL residential apartments:

83% - 25/30 apartments receive at least 2 hours of direct sunlight during the winter solstice

63% - 19/30 apartments receive at least 3 hours of direct sunlight during the winter solstice

All apartments could be designed and configured during the DA stage to receive some direct sunlight during the day to living areas as well as private open space. The easternmost apartments of the lower levels 1-4 receive some direct sunlight for a short duration of time around 9:08 AM and 1:41PM on the winter solstice

The analysis shows that for the Seniors Living apartments:

60% - 64/106 apartments receive at least 2 hours of direct sunlight during the winter solstice

However, there are significant opportunities that could be explored at later design stages or through a Development Application process to further improve solar access. This includes, but is not limited to;

- Reducing the amount of cut and apartments that are below the ground level of Ashley Street
- Reorienting some of the "wings" of the buildings
- Relocating balconies and living areas
- Redistributing the location of 1/2/3 bedroom apartments within the floorplate
- Reconfiguring the built form for the RSL site that casts shadows on to the Seniors Living

With some, or all of those, considerations above achievable, we are confident that the Seniors Living proposal could comply with at least 70% of the dwellings receive at least 2 hours of direct solar access between 9am and 3pm at mid-winter in living rooms and private open spaces.

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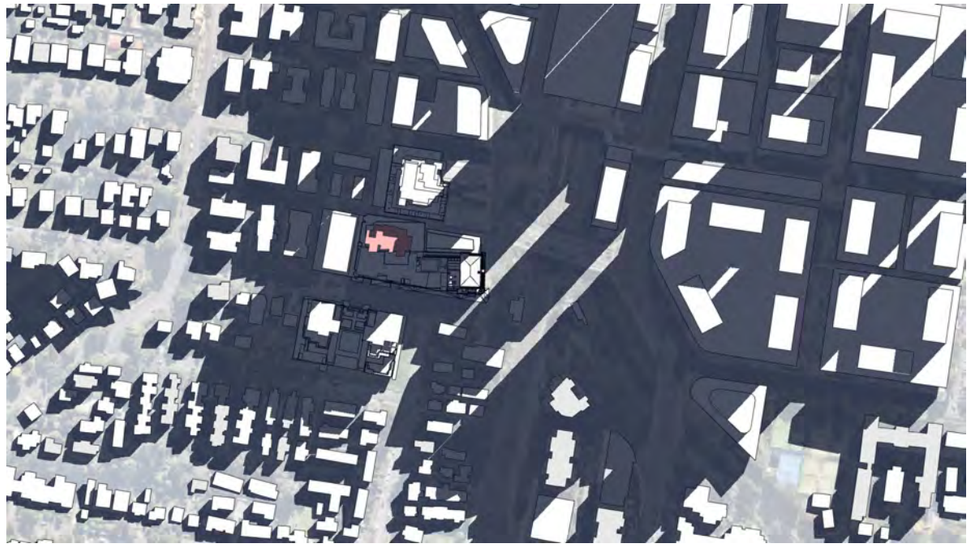

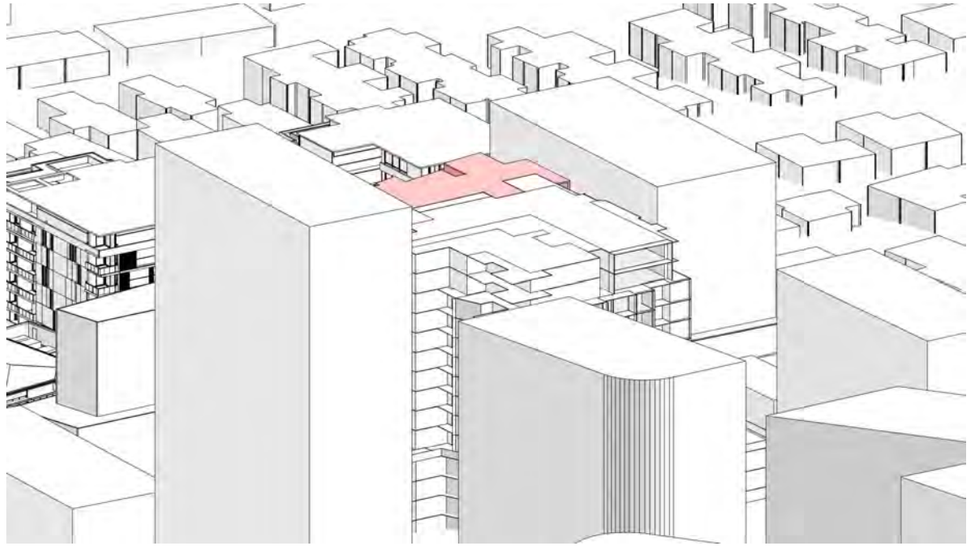

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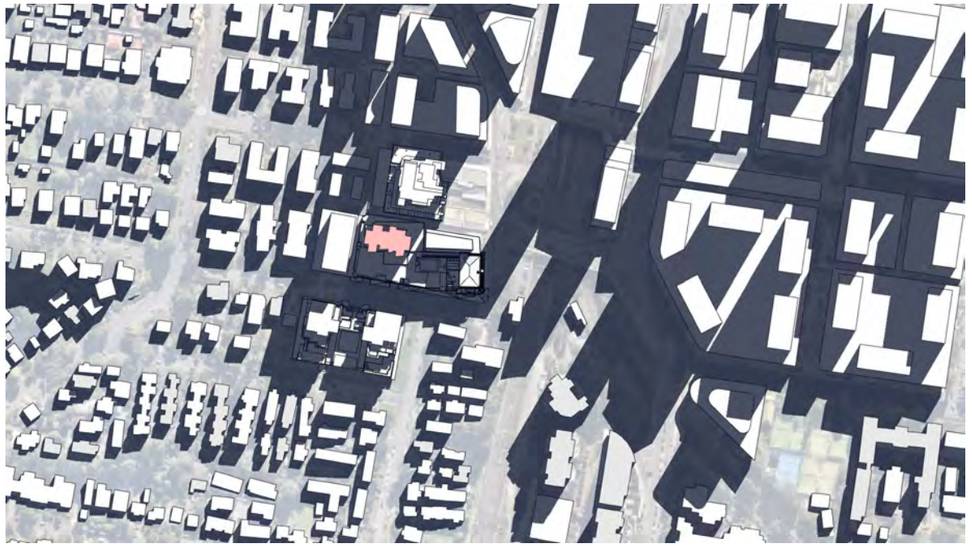

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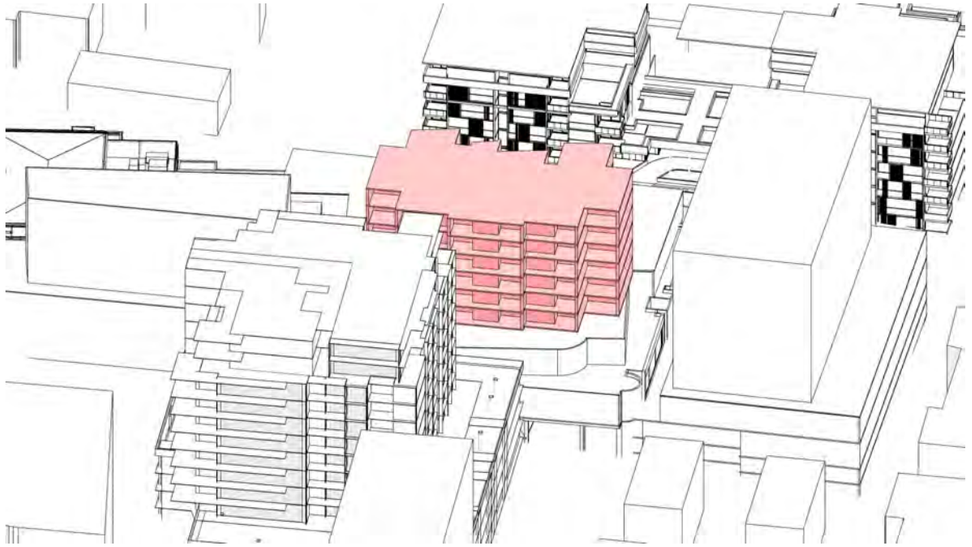

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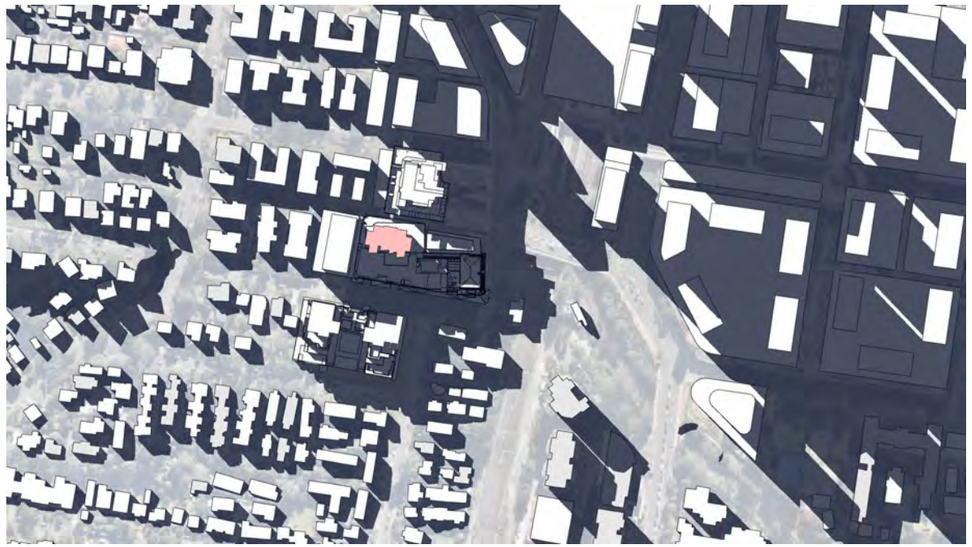

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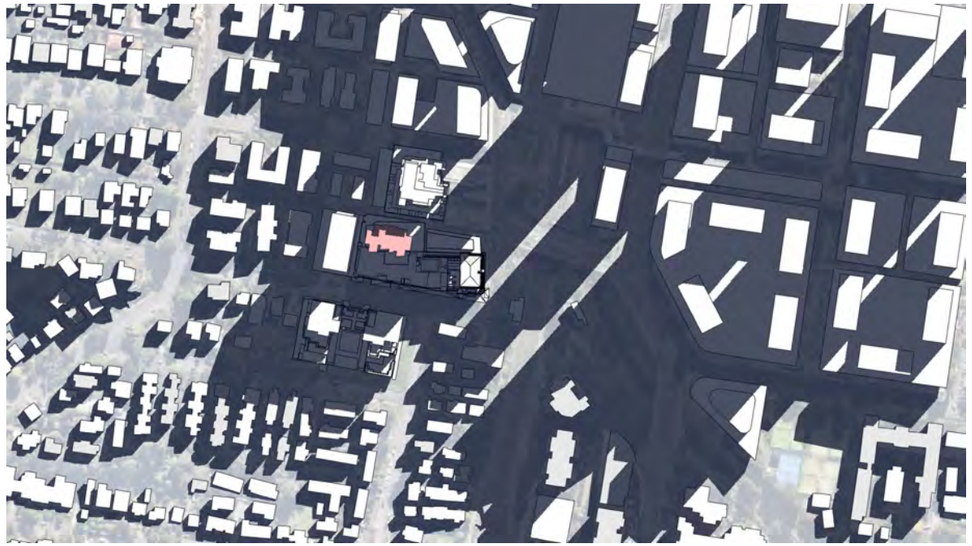

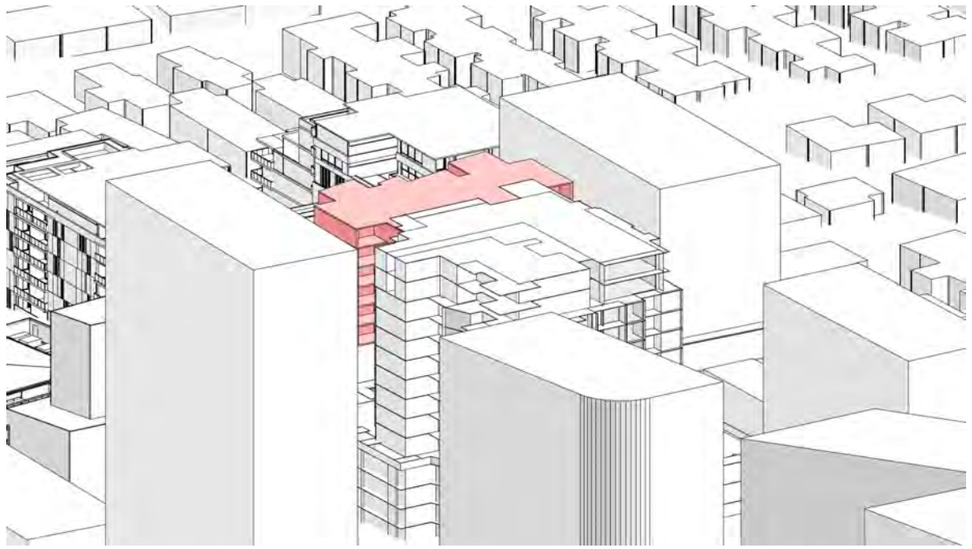

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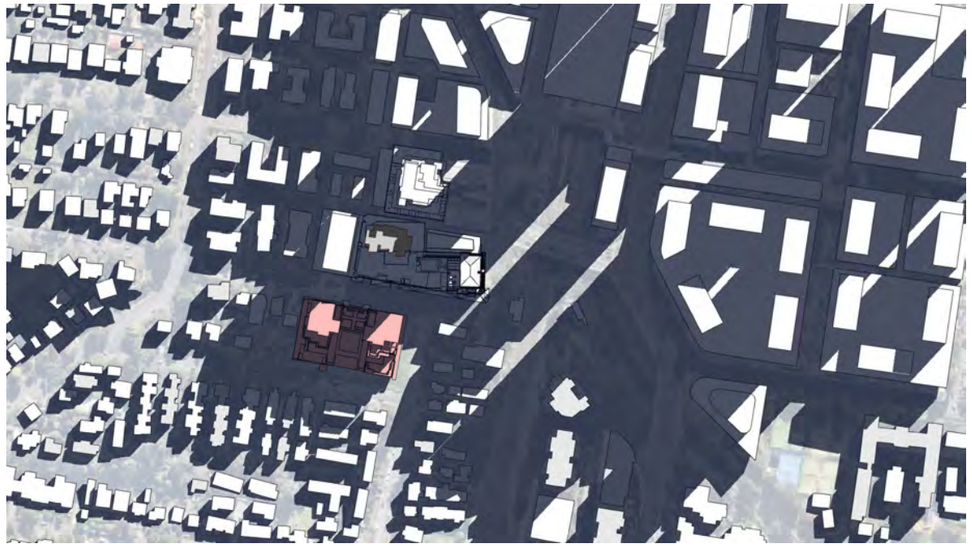

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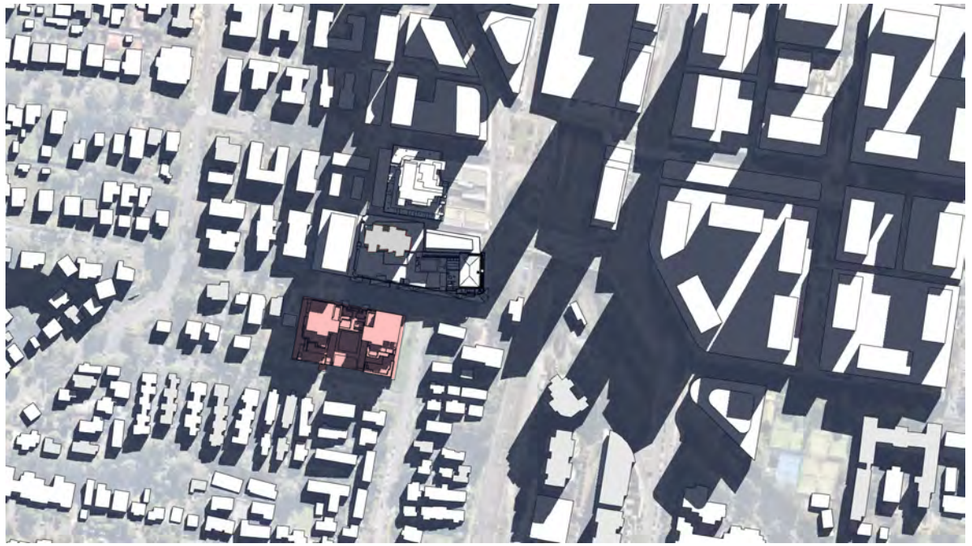

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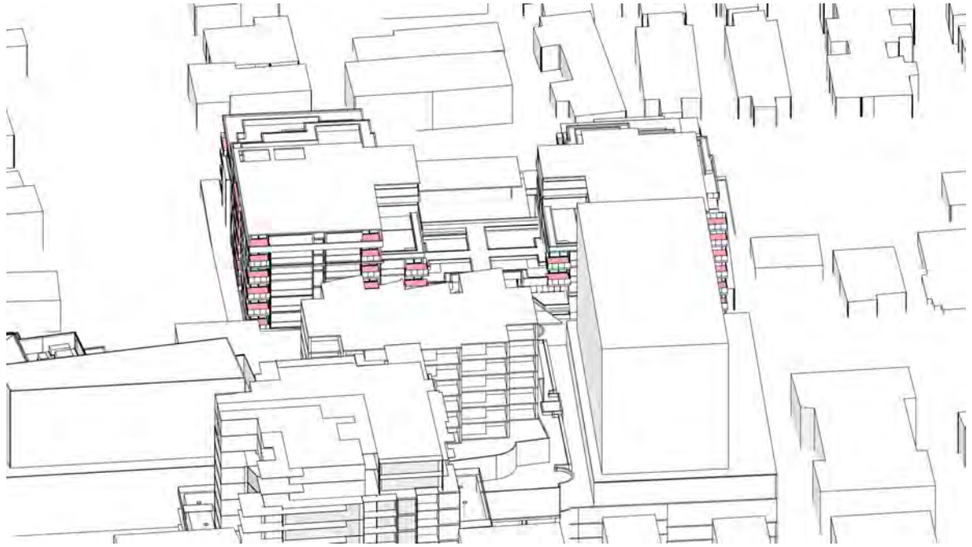

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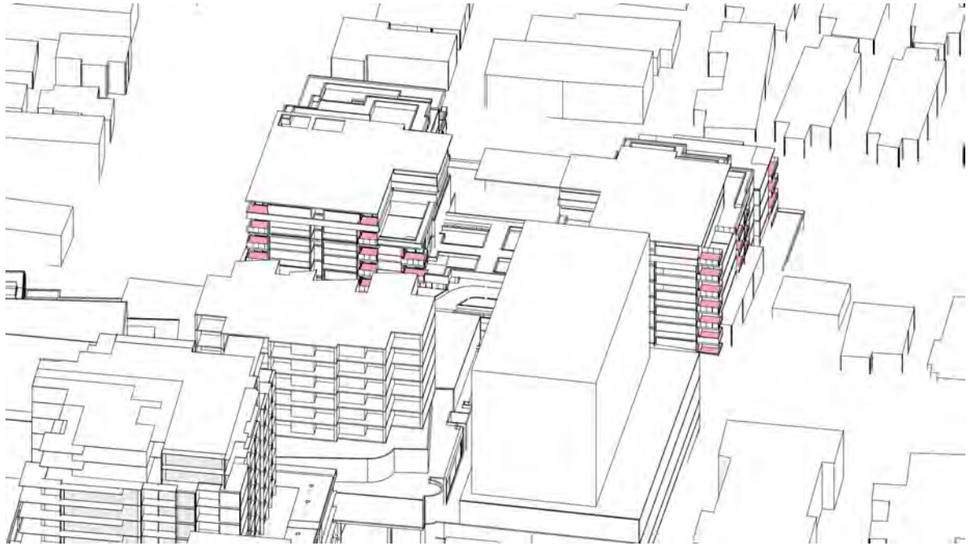

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