

URBAN FORM ANALYSIS CARNEGIE

Prepared by Glen Eira City Council to
support the Carnegie Structure Plan 2018-
2031 and Carnegie Structure Plan
Addendum February 2020.
Version 1: Prepared December 2018
Version 2: Prepared June 2020 (this version)



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Summary Report

This summary report provides an overview of the report analysis and recommendations. For further information, read the appendices. Discussion is separated into seven parts:

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5. Design Analysis & Recommendations
6. Commercial & Mixed Use Areas
7. Residential Areas

Appendices

Appendix A: Existing context

Appendix A outlines the existing strategic and physical context for the Carnegie Major Activity Centre in relation to built form. Discussion is separated into three parts:

- A1. Strategic context
- A2. Glen Eira Planning Scheme
- A3. Land and built form character analysis

Appendix B: Commercial & mixed use areas

Appendix B provides design analysis, rationale and recommendations for commercial and mixed use areas. The analysis is separated into five parts:

- B1. Design Overview
- B2. Building Heights
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- B4. Side & Rear Setbacks
- B5. Open Spaces & Shadow Protection

Appendix C: Residential areas

Appendix A outlines the analysis, rationale and recommendations for proposals within residential areas of the Carnegie Major Activity Centre in relation to built form.

Discussion is separated into three parts:

- C1. Changes to Residential Zones
- C2. Preferred Character Outcomes
- C3. Growth Opportunity Analysis
- C4. Built Form Design Testing

1. Introduction

Purpose

The purpose of this report is to inform and support the *Carnegie Structure Plan 2018-2031* and *Carnegie Structure Plan Addendum February 2020* by:

- Consolidating and documenting all background research, analysis and recommendations that inform the built form aspects of the *Structure Plan*.
- Outlining the rationale for proposed building heights, setbacks, open space protection controls and preferred built form character in support of a planning scheme amendment to implement relevant policy and controls.

Carnegie Structure Plan

In 2017-18, Council prepared, consulted on, and adopted the *Carnegie Structure Plan 2018-2031* (the structure plan). This process involved six stages of consultation with the Carnegie community and received a total of 780 submissions.

In 2018 and 2019, Council prepared draft planning controls and sought authorisation from the Minister For Planning to commence a planning scheme amendment (C184) to implement the structure plan objectives.

In February 2020, Council adopted the *Carnegie Structure Plan Addendum February 2020* (the addendum). The addendum was prepared in order to respond to updated policy context and to respond to directions from the Minister for Planning to facilitate authorisation of Amendment C184 (proposing to implement the structure plan into the Glen Eira Planning Scheme).

Unless otherwise stated, all references to the structure plan in this Urban Form Analysis report are to be taken to include the changes made by the addendum in February 2020.

Structure Plan and Urban Form Analysis

A key aspect of the structure planning process was to create a vision and new urban structure for the centre, incorporating a range of housing, economic, place-making, transport, urban design and public realm project recommendations.

This report documents the process of urban form analysis and provides a summary of the key urban form recommendations.

Key directions of the structure plan, informed by the detailed analysis undertaken in this report, Council will seek to implement as statutory planning controls through a formal amendment to the Glen Eira Planning Scheme.

Limitations of this report

The report is limited to issues affecting planning controls for design and built form, including building heights, setbacks, open space protection, landscaping and built form character

While the report is cognizant of and reinforces other strategic work relating to housing, economy, place-making, transport and public realm projects arising from the structure plan, it is not the source document for these matters.

The report does not address matters of strategic planning assessment, such as adherence to Planning Practice Notes advice, Ministerial Directions or directions and objectives of *Plan Melbourne* as set out by the Victorian Government. The report provides background information for comment on these matters elsewhere through the planning scheme amendment process.

2. Planning for Housing & Economic Growth

Plan Melbourne

Plan Melbourne 2017-2050 (Department of Environment, Land, Water and Planning, 2017) sets out the strategic policy directions required to manage metropolitan Melbourne's growth and change towards 2050

Plan Melbourne identifies Carnegie as a major activity centre, that will be expected to support additional housing and employment growth given its proximity to public transport, services and facilities.

The plan recognises that local strategic planning is required to identify planning controls that support and manage planned growth for the area.

Glen Eira City Plan

The Glen Eira City Plan: Activity Centre, Housing and Local Economy Strategy (Feb 2020) identifies how the City of Glen Eira will accommodate forecast housing and economic growth across the city's network of activity centres.

The Glen Eira City Plan aligns with Plan Melbourne, identifying Carnegie as a Major Activity Centre with a major focus for housing and employment growth.

Growth Forecast

Glen Eira has adequate housing and employment capacity to meet forecast demand across its network of activity centres.

The City Plan references capacity and forecast uptake figures from the Glen Eira Housing and Local Economy Growth Assessment (Dec 2018) prepared by SGS Economics and Planning. Housing and employment data in the following images has been extracted from the SGS report, and shows Carnegie's existing (2016) and forecast (2036) housing and employment figures relative to other activity centres.

Carnegie has an important housing role and will continue to experience strong growth. The structure plan anticipates high demand for new dwellings over the next 30 years and Carnegie will remain one of Glen Eira's largest centres.

Carnegie is also one of Glen Eira's premium shopping strips and largest economic centres. Carnegie will continue to accommodate a mix of retail and commercial growth across its shopping strip and expanded strategic sites and urban renewal areas. While the Carnegie's retail focus is well established, the next 15 years are projected to see a major increase in commercial floor space demand.

Data notes:

For each activity centre:

*The inner circle represents data for 2016.

*The outer circle represents data for 2036.

*the size of the circles represent quantity of housing or floor space, not spatial boundaries.



Relative amount of housing by activity centre, 2016 to 2036



Relative amount of retail floor space (sqm) by activity centre, 2016 to 2036



Relative amount of employment floor space (sqm) by activity centre, 2016 to 2036 (note: employment floor space = retail + commercial floor space)



Relative amount of commercial floor space (sqm) by activity centre, 2016 to 2036

3. Structure Plan Study Area

The report reviews land within the suburb of Carnegie identified as the Carnegie Structure Plan Study Area.

The study area is located in the City of Glen Eira and approximately 11km from the central business district of metropolitan Melbourne.

It is important to note that the study area is not the activity centre boundary. The study area extended beyond the activity centre boundary in order to understand the context of the centre with its surrounding neighbourhoods, and so that the appropriate activity centre boundary could ultimately be determined.



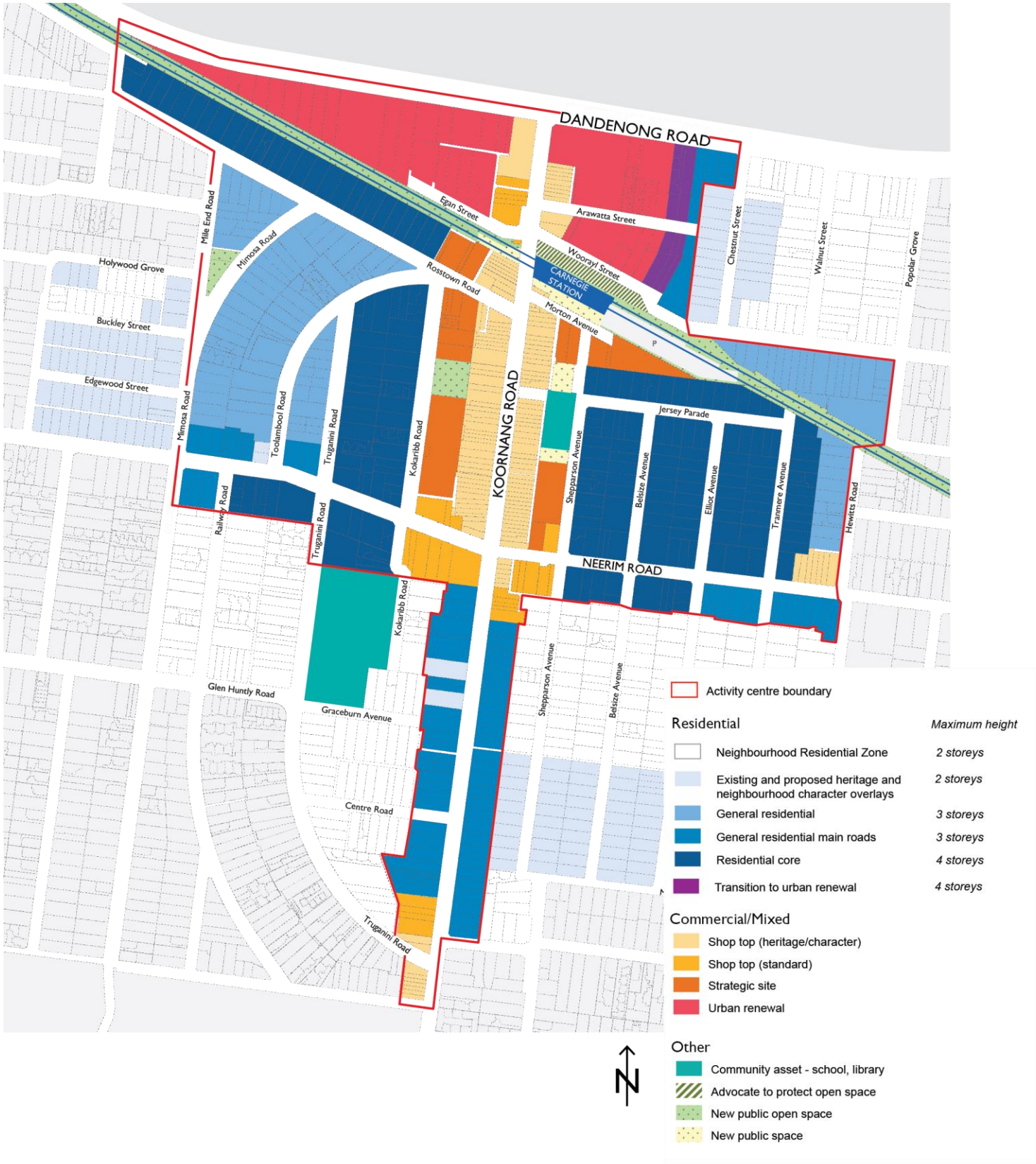
4. Structure Plan Urban Form Overview

This page provides a summary of urban form recommendations from the *Carnegie Structure Plan 2018-2031* and *Carnegie Structure Plan Addendum February 2020*. Refer to the source documents for more information.

The structure plan recommends range of built form precincts with:

- moderate scale (4-5 storeys) mixed use development in shop-top precincts that reinforces the traditional lower scale and fine grain character in the mainstreet context of Koornang and Neerim Roads Road;
- transformational development (8-12 storeys) in identified Strategic Sites and urban Renewal areas beyond the fine grain mainstreet; and
- Taller forms of residential areas (3-4 storeys) are located along main roads and near the train station, with key growth areas consolidated in the inner north.

The structure plan applies character guidance referenced from the *Quality Design Guidelines*, which have been translated into built form policy and controls through a proposed amendment to the *Glen Eira Planning Scheme*.



5. Design Analysis & Recommendations

Key Issues, opportunities and recommendations – This page contains a summary of the key issues, opportunities and recommendations. Appendices to this report contain a detailed analysis, recommendations and rationale underpinning the proposed urban form.

Urban Form Comparison & Capacity – The following page contains two summary maps comparing the existing and proposed form of the Structure Plan Study Area. The next page identifies how the urban form impacts on capacity of the centre.

Issues

Residential areas

- New development has high site coverage, limited setbacks, and limited overall response to local character. Existing controls provide limited character guidance for Housing Diversity and Urban Village Policy areas.

Commercial and mixed use

- Current policy does not provide adequate built form guidance, including preferred character and building height controls.

Employment

- New developments in commercial areas provide low proportions of commercial floor space.

Open space

- There is limited provision of public open space within walking distance of the activity centre, particularly 'green areas' like traditional parks.

Opportunities

Overall

- Revise planning controls to introduce clear guidance and priorities for building height and character.

Commercial areas

- Preserve the low-scale traditional character of the Koornang Road retail core.
- Explore increased building heights in peripheral commercial areas surrounding the retail core that complement but do not prejudice the low-scale character of Koornang Road and surrounding residential areas.
- Explore taller forms north of the railway line forming part of an urban renewal precinct. Ensure these forms respond appropriately to adjoining residential areas and public open spaces.
- Encourage design that supports employment floorspace.

Residential areas

- Explore ways to support growth while retaining local character elements – review residential zone boundaries and design guidance in the planning scheme to balance the need for growth while reinforcing local character.
- Strengthen and clarify the residential character outcomes being sought for each residential area.

Open spaces

- Co-ordinate a network of new open spaces. Provide guidance for developments to enhance activation and protect public spaces from overshadowing.

Recommendations

1. Main street character protection

Moderate scale (4-5 storeys) and characterful built forms will protect and enhance the historic and finegrain character of Koornang and Neerim Roads.

2. Strategic sites adjoining the main street

Taller built forms (8 storeys) adjoining the mainstreet and train station will:

- Provide opportunities for additional growth while respecting the low-scale main street, residential surrounds and identified open spaces.
- Establish a contemporary character and repair the disjointed urban fabric with built-to-boundary requirements and new laneway connections that facilitate a larger grid pattern strengthening the retail core.

3. Urban Renewal north of the railway line

Transformational built forms of 8-12 storeys will be positioned in a new urban renewal area fronting Dandenong Road north of the railway line. These forms will respond appropriately to adjoining sensitive residential areas and public open spaces and accommodate a greater quantity of housing and employment.

4. Shadow Protection Controls

Design controls will protect identified existing and future public realm and public open spaces from overshadowing

5. More employment opportunities in commercial areas

The employment aspect of commercial areas will be reinforced through policy and by accommodating larger floor to floor heights. Height limits will be calculated to support flexibility in the height of floor levels a mixture of land uses.

6. Residential Growth around transport corridors and infrastructure

Higher scale and density residential areas will be positioned towards the heart of the precinct around the retail core, train station, selected main roads and tram routes.

7. Diverse housing and built forms

In residential areas, a greater spread of precinct requirements will provide options that meet housing needs of the community. This includes a more varied mixture residential zones and associated housing policy.

8. Identify preferred built form and character outcomes

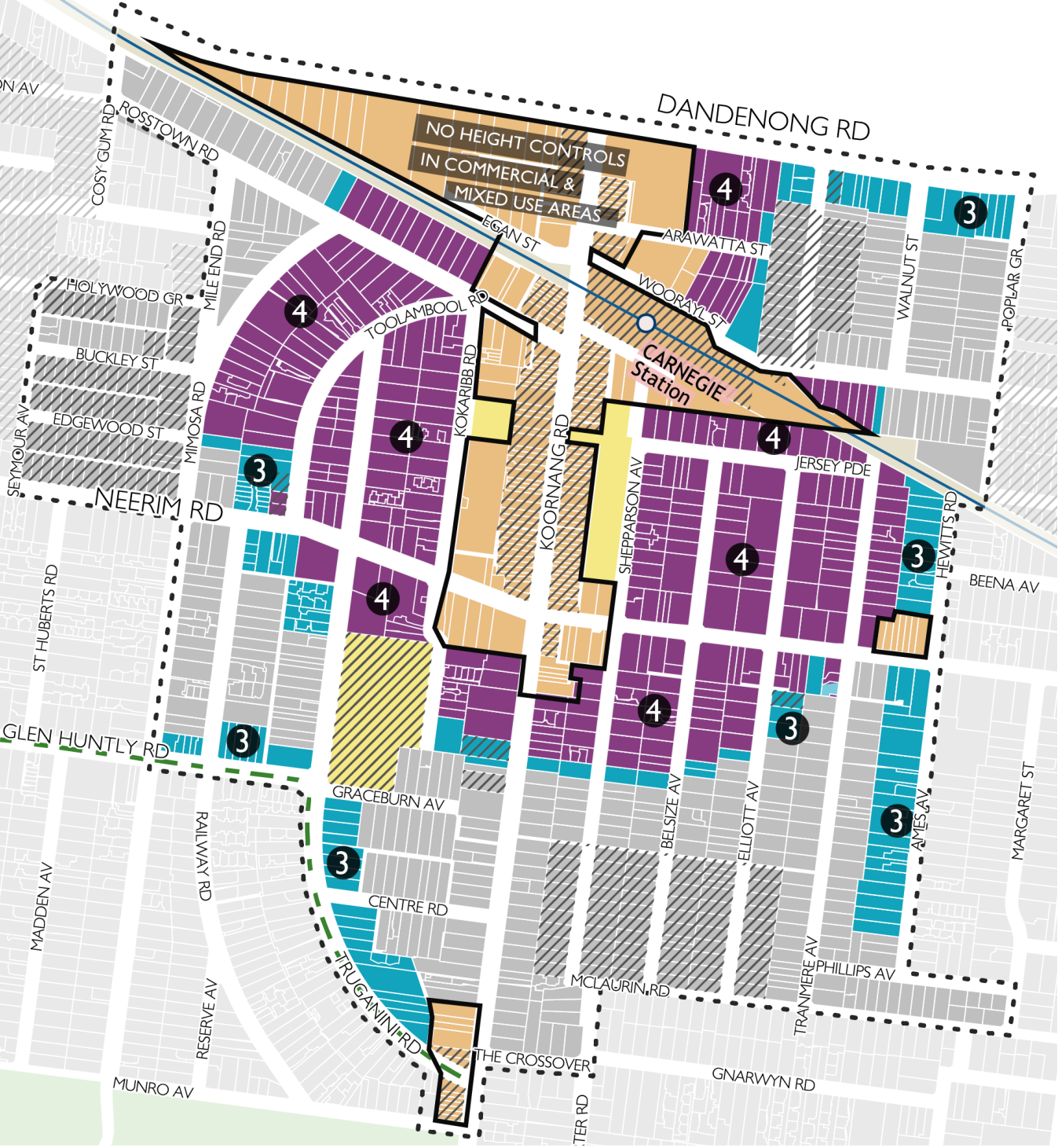
Identifying preferred character outcomes will improve design responses to local character and provide greater clarity and certainty for the community and developers.

9. Manage transition and remove conflict

Redistributing zone boundaries and built form outcomes will help to improve the transition between areas of different development intensities. Where possible, zones will be separated by roads rather than property boundaries.

Urban Form Comparison

Summary of Existing Planning Zones



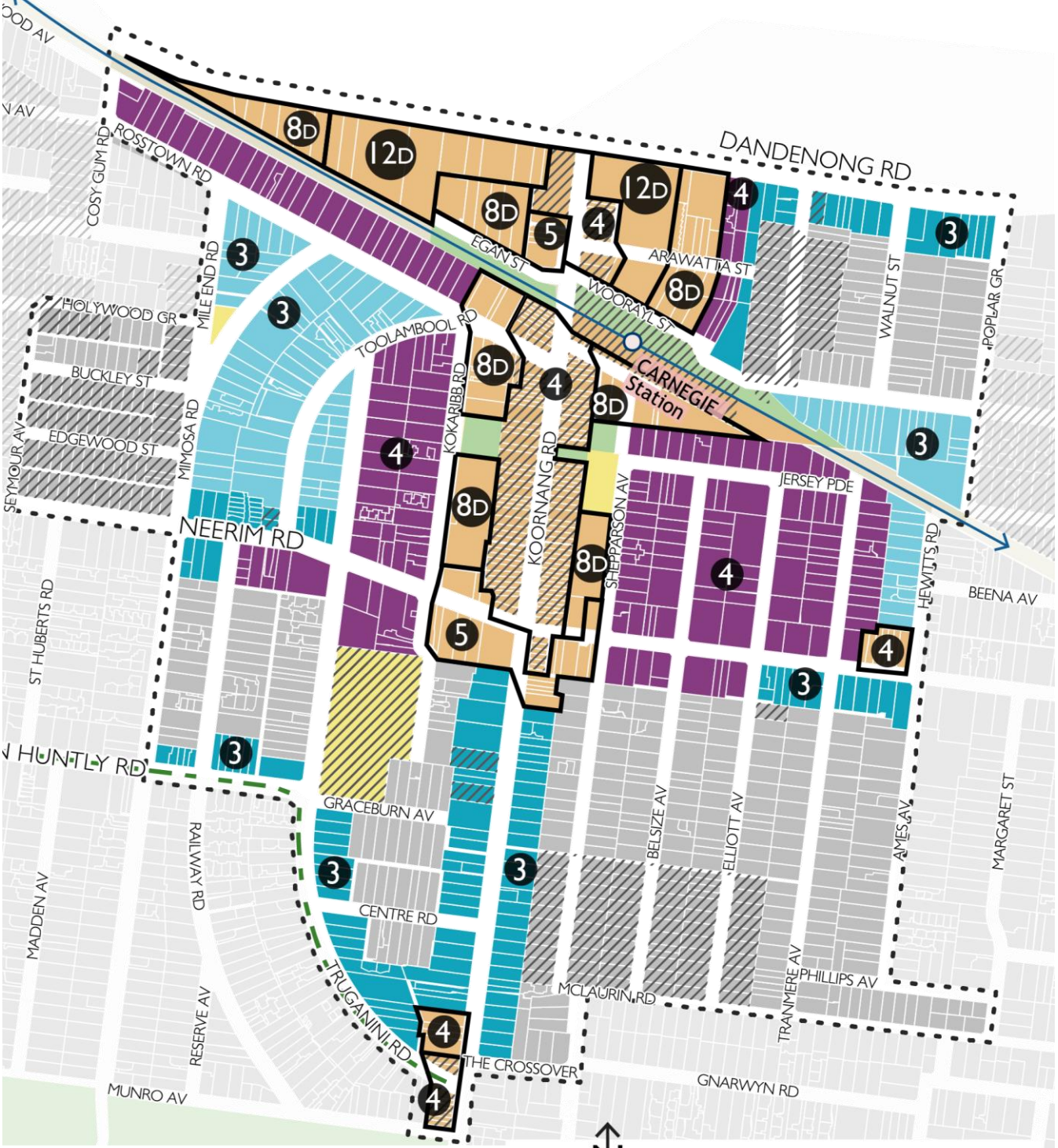
- AREAS**

 - NEIGHBOURHOOD RESIDENTIAL ZONE - 2 STOREYS
 - GENERAL RESIDENTIAL ZONE (APPLIED TO LOCAL STREETS) - 3 STOREYS
 - GENERAL RESIDENTIAL ZONE (APPLIED TO LOCAL STREETS) - 3 STOREYS
 - RESIDENTIAL GROWTH ZONE - 4 STOREYS
- PLACE FEATURES**

 - COMMERCIAL & MIXED USE AREAS
 - PUBLIC USE
 - PUBLIC OPEN SPACE
 - EXISTING & PROPOSED HERITAGE & NEIGHBOURHOOD CHARACTER OVERLAYS
- PLACE FEATURES**

 - TRAIN LINE
 - TRAM LINE
 - STUDY AREA BOUNDARY

Summary of Proposed Structure Plan



- BUILDING HEIGHT (STOREYS)**

 - MANDATORY HEIGHT CONTROL
 - DISCRETIONARY HEIGHT CONTROL
- BUILDING HEIGHT (STOREYS)**

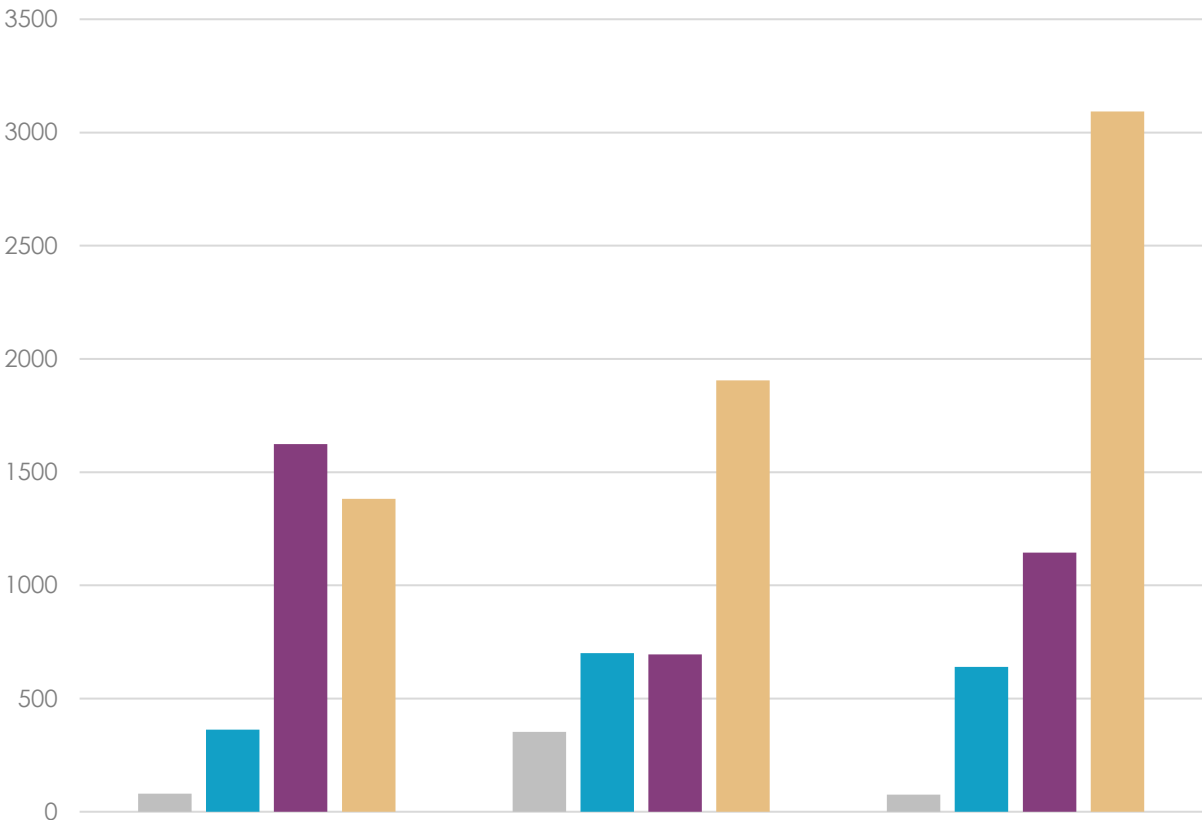
 - MANDATORY HEIGHT CONTROL
 - DISCRETIONARY HEIGHT CONTROL

Urban form capacity

Council commissioned SGS Economics and Planning to prepare:

- Glen Eira Housing and Local Economy Growth Assessment December 2018 (which informed the Glen Eira City Plan 2020); and
- Housing Assessment for Carnegie and Bentleigh Activity Centres December 2018 (informing and aligning with the original structure plan for Carnegie from December 2018)
- Addendum: Updated Housing Assessment For Carnegie And Bentleigh Activity Centres February 2020(informing and aligning with the addendum structure plan for Carnegie from February 2020).

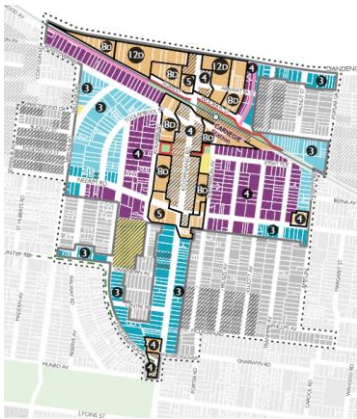
- The addendum SGS assessment noted:
- The Structure Plan (Addendum Feb 2020) provides ample capacity to accommodate forecast housing and employment floor space growth.
 - The Structure Plan (Addendum Feb 2020) allows for substantially more additional housing capacity than existing zones and the original structure plan (Dec 2018).
 - The proposed planning controls are well suited to absorb future growth in the foreseeable future within a 15 and 30 year timeframe.



Additional dwelling capacity based on Existing Planning Zones



Additional dwelling capacity based on Initial Structure Plan (Dec. 2018)



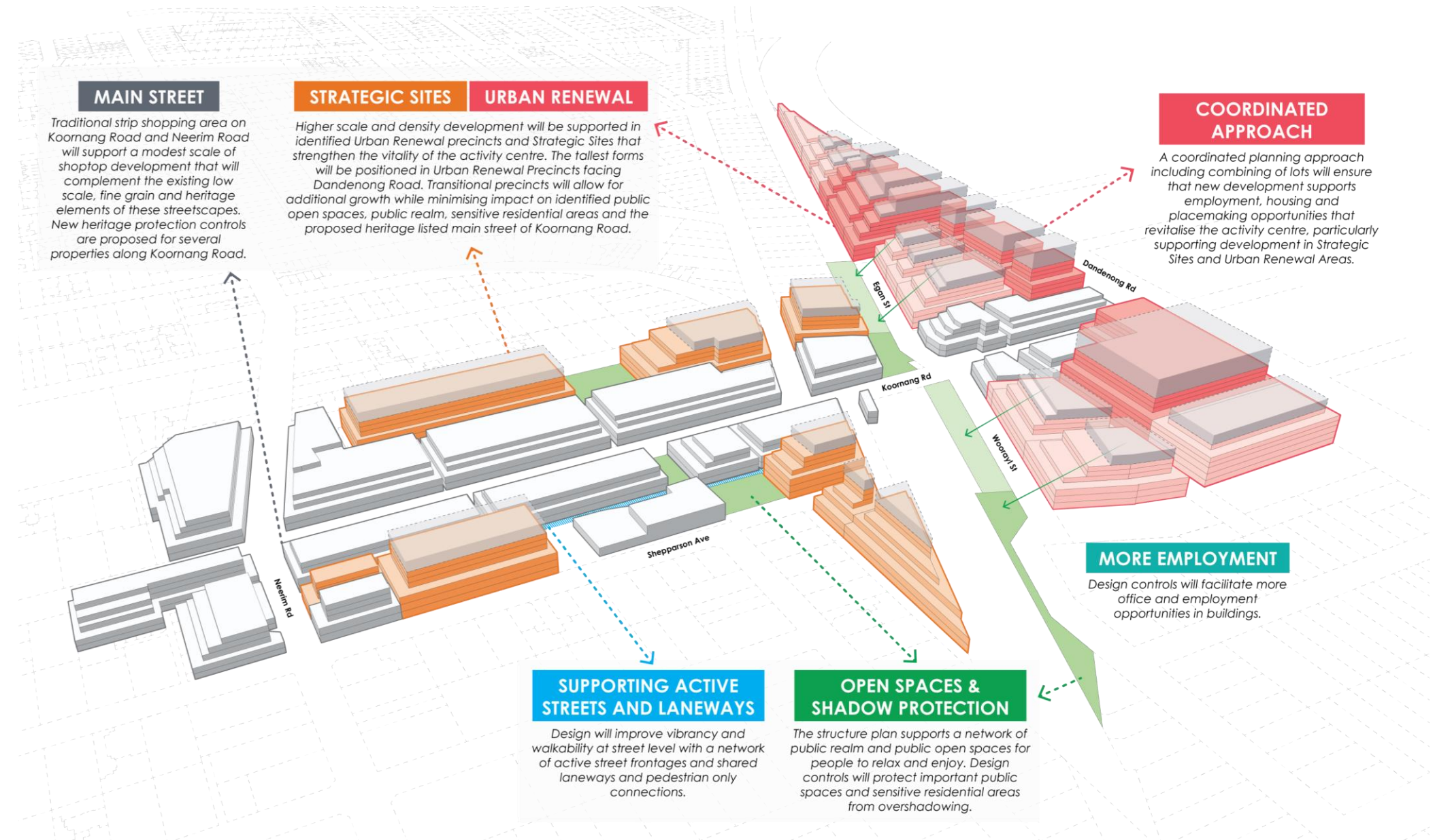
Additional dwelling capacity based on Addendum Structure Plan (Feb 2020)

| | | | |
|---------|-------|-------|-------|
| NRZ | 80 | 353 | 76 |
| GRZ | 362 | 701 | 640 |
| RGZ | 1,624 | 695 | 1,144 |
| C1Z/MUZ | 1,382 | 1,905 | 3,093 |
| Total | 3,448 | 3,654 | 4,953 |

6. Commercial & Mixed Use Areas

Summary of key principles

Refer to Appendix B for detailed analysis and recommendations for Carnegie's commercial and mixed use areas. This image provides a summary of key principles achieved by the recommendations.



Precinct Character Summary

| Ref: | Precinct | Preferred Precinct Character / Vision |
|------|-----------------|--|
| A | Shop-top A | This precinct includes the Koornang Road retail core and part of the local centre at Truganini Road. The Koornang Road retail core is one of Glen Eira's premium historic commercial streets. The local centre at Truganini Road is also of heritage significance. Development will respect and protect heritage and fine grain elements of buildings and retain the open streetscape character. New built form at upper levels will emphasise the established 1-2 storey street wall character. Rear shared and service laneway interfaces will be extended and the Koornang Road retail core shared laneways will also be improved and activated. |
| B | Shop-top B | Local centres outside of the retail core at Truganini Road and Hewitts Road are detached from the core commercial area. New built form will incorporate design elements that emphasise the established 1-2 storey fine grain street wall character. New built form will respect lower scale surrounding residential areas and heritage elements of buildings. The rear service laneways for the local centres will be extended. |
| C | Shop-top C | Commercial areas at the Koornang and Neerim Road intersection, and in Koornang Road north of the railway line serve as a gateway to the historic retail core. Development will have more of a mixed character than the retail core. New built form will emphasise the established 1-2 storey street wall character and heritage elements, where relevant. Rear shared and service laneway interfaces will be extended and the shared laneways also improved and activated. |
| D | Strategic Sites | Strategic sites adjoining the main retail core and train station will provide opportunities for additional employment and housing growth, while respecting the modest scale main street and identified public open spaces and key public spaces. New built form will establish a 6 storey building height and a contemporary three storey built to boundary street wall. Building design will make a positive contribution at street level and from all angles at upper levels when viewed from a distance. New development will occur on consolidated or larger sites, provide active frontages, and contribute to an expanded network of laneways and public spaces that support vibrancy and walkability of the activity centre. |
| E | Urban Renewal 1 | Urban Renewal Areas provide opportunities for significant employment and housing growth in the tallest part of the Activity Centre. In Urban Renewal 1 precinct, new built form will establish a 6 storey building height with a contemporary urban character, active street-level experience and a new network of shared and pedestrian laneways. Building design will make a positive contribution at street level and from all angles at upper levels when viewed from a distance. At podium level, design will complement the fine grain form of the wider activity centre. Building height and setbacks will play a transitional role that mitigates overshadowing of sensitive interfaces, including residential areas, public open spaces and key public spaces. Development will occur on consolidated sites or in a coordinated manner, make a positive contribution to public spaces, improve the vibrancy and walkability of the activity centre and contribute to sustainable transport and parking outcomes for the precinct. |
| F | Urban Renewal 2 | Urban Renewal Areas provide opportunities for significant employment and housing growth in the tallest part of the Activity Centre. In Urban Renewal 2 precinct, new built form will establish an 8 storey building height with a contemporary urban character, active street-level experience and a new network of shared and pedestrian laneways that direct pedestrian movements towards public spaces to the south rather than Dandenong Road. Building design will make a positive contribution at street level and from all angles at upper levels when viewed from a distance. At podium level, design will complement the fine grain form of the wider activity centre. The tallest built form will be positioned towards the northern part of the precinct, fronting Dandenong Road, with separation provided from the modest scale Koornang Road retail core and surrounding residential areas. Development will occur on consolidated sites or in a coordinated manner, achieve high quality urban design outcomes, make a positive contribution to public spaces, improve the vibrancy and walkability of the activity centre and contribute to sustainable transport and parking outcomes for the precinct. |



Building and street wall heights

| Ref: | Precinct | Discretionary maximum street wall height | Discretionary maximum building height | Mandatory maximum building height |
|------|-----------------|---|---------------------------------------|-----------------------------------|
| A | Shop-top A | 9 metres (2 storeys) | n/a | 15 metres (4 storeys) |
| B | Shop-top B | 9 metres (2 storeys) | n/a | 15 metres (4 storeys) |
| C | Shop-top C | 9 metres (2 storeys) | n/a | 19 metres (5 storeys) |
| D | Strategic Sites | 13 metres (3 storeys) | 30 metres (8 storeys) | n/a |
| E | Urban Renewal 1 | 13 metres (3 storeys) | 30 metres (8 storeys) | n/a |
| F | Urban Renewal 2 | Dandenong Road: 17 metres (4 storeys) Otherwise: 13 metres (3 storeys) | 44 metres (12 storeys) | n/a |

Human scale street wall design

The 'street wall' is the front façade of a building, generally built on the boundary or in close proximity. The street wall is important as it defines the public realm and reinforces the character of the street as experienced from pedestrian level.

New development should be in the form of built-to-boundary street walls/podiums with recessed upper floors ('towers').

Providing separation between a low-scale podium and upper level 'tower' assists in grounding taller elements of buildings and integrating them within traditional low-scale streetscapes.

Street wall design should establish a human-scale, fine grain street proportion with active frontages and weather protection.

Building and Street wall heights

Height limits are calculated to support flexibility for a mixture of land uses. The employment aspect of commercial areas will be reinforced through policy and by accommodating larger floor to floor heights within the streetwall.

Street wall heights of 2 storeys will be supported on the main street of Koornang Road, a continuation of the existing fine-grain, low-scale historic built form character that will be preserved along the main street.

Street wall heights of 3 storeys will be supported in strategic and renewal sites that currently have inconsistent streetscape character. This height will reinforce a contemporary urban character while continuing to deliver a sense of openness in the surrounds. Higher street walls of to 4 storeys will be supported along the Dandenong Highway interface due to its proportionate width and separation.



Laneway network and street level activity

The *Structure Plan* proposes to expand Carnegie's existing network of laneways to improve functionality, connectivity and permeability for pedestrians and vehicles. The proposed laneway network requires that new developments activate and extend existing and future laneways. The following plan identifies active frontages, laneways and the pedestrian network in more detail for planning controls. The plan delivers a stronger pedestrian grid with active frontages and through-block connections.

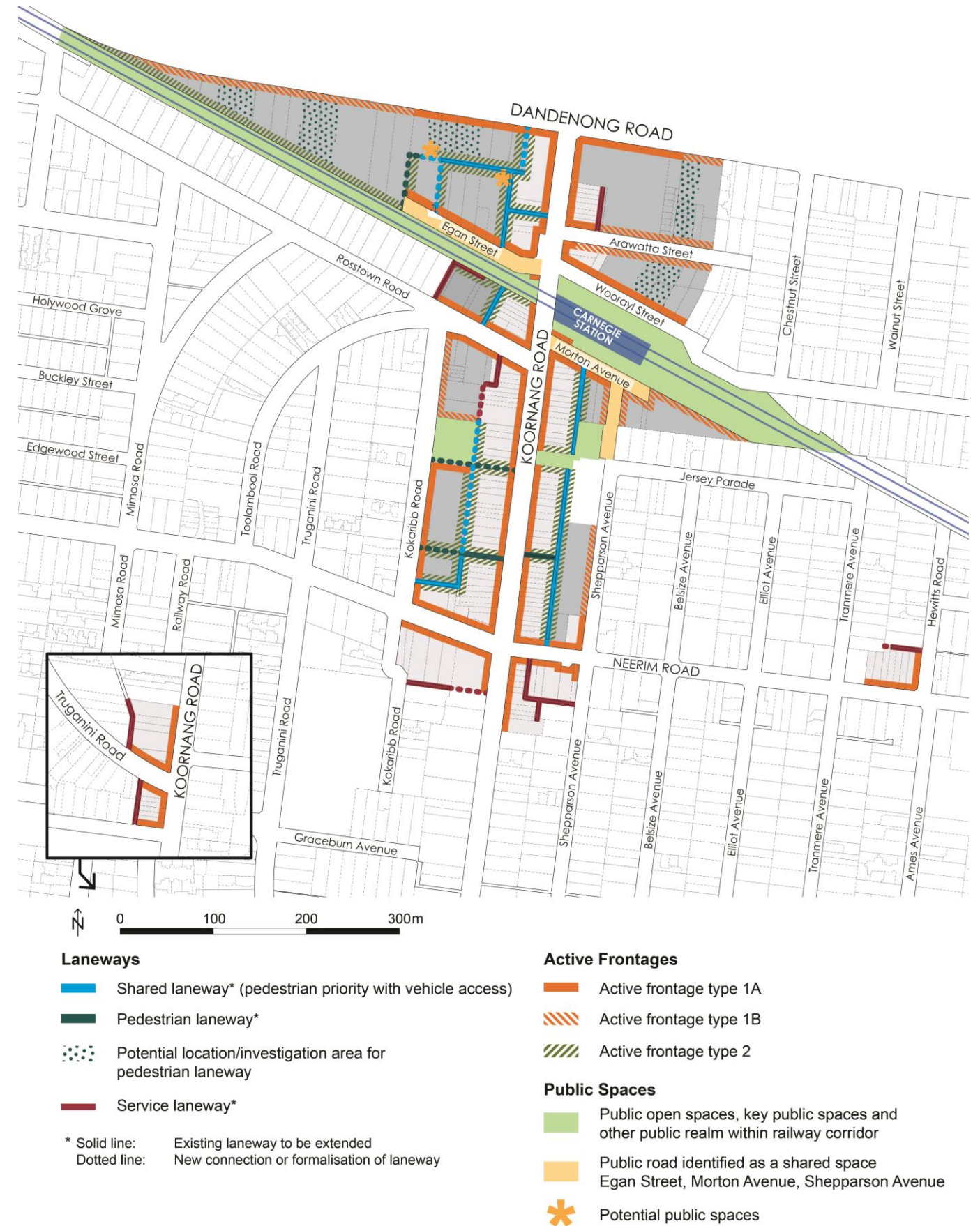
Co-ordinated laneway network

The plan expands the laneway network with a focus on providing active land uses and avoiding parking structures at street level, particularly in primary streets and pedestrian or shared laneways:

- **Pedestrian laneway** means an existing or proposed laneway with active frontages that supports a high level of pedestrian activity (no vehicle access or loading facilities).
 - **Shared laneway** means an existing or proposed laneway with active frontages that supports a high level of pedestrian activity and is shared with vehicle access or loading facilities where practical.
 - **Service laneway** means an existing or proposed laneway that generally serves as vehicular access to the side or rear of buildings to support parking, loading facilities, services and utilities. Service laneways generally do not have active frontages.
- **Active frontage type 1A** has been applied to the primary street network in commercial areas that have a clear focus for active retail and/or other commercial tenancies at street level. These areas will have the most pedestrian and street level activity and provide a traditional commercial design response with high levels of glazing, openings and weather protection above the footpath. Vehicle access will be avoided at these interfaces in favour of better pedestrian outcomes.
 - **Active frontage type 1B** has been applied to the primary street network at the peripheries of the centre, where there is a lesser focus for street level activity than in Active Frontage Type 1A. Vehicle access should be minimised at these interfaces but it is recognised that it cannot always be avoided at these locations.
 - **Active frontage type 2** has been applied to Laneways, non-commercial areas or public spaces, where a more site specific design response is required. Development sites with identified active interfaces should prioritise active uses, passive surveillance of the public realm, and permeable design at ground level (avoiding blank walls and providing through-site connections). However, it is recognised that outcomes will be site-specific. Examples include land abutting a laneway, residential street, public space or railway corridor where activities like retailing and footpath trading may not always be appropriate, or where new development may need to balance requirements for vehicle access and street activation.

Active frontages and weather protection:

Three types of active frontages are noted:



Interface response (setbacks and floor to floor heights)

The following plan identifies the setback requirements for each site interface, with associated setback diagrams on the following page.

Key aspects of the plan are:

Upper setbacks (above street wall)

Providing separation between a low-scale podium and upper level tower assists in grounding taller elements of buildings and integrating them within traditional low-scale streetscapes.

The plan generally nominates an upper floor setback of 5 metres setback on primary streets and 3 metres on secondary streets and laneways.

Extended laneways

The *Structure Plan* identifies a coordinated network of shared, pedestrian only, and service laneways.

The plan seeks to facilitate 6 metre wide laneways to accommodate intensified use of these areas. Realisation of the new network requires new connections and existing laneways be extended as part of future development (most historic laneways are 3 metres wide which will not accommodate intensification appropriately).

The identification process considered which part of each street block is best placed to deliver the laneway extension, generally prioritising larger sites.

Sensitive interfaces

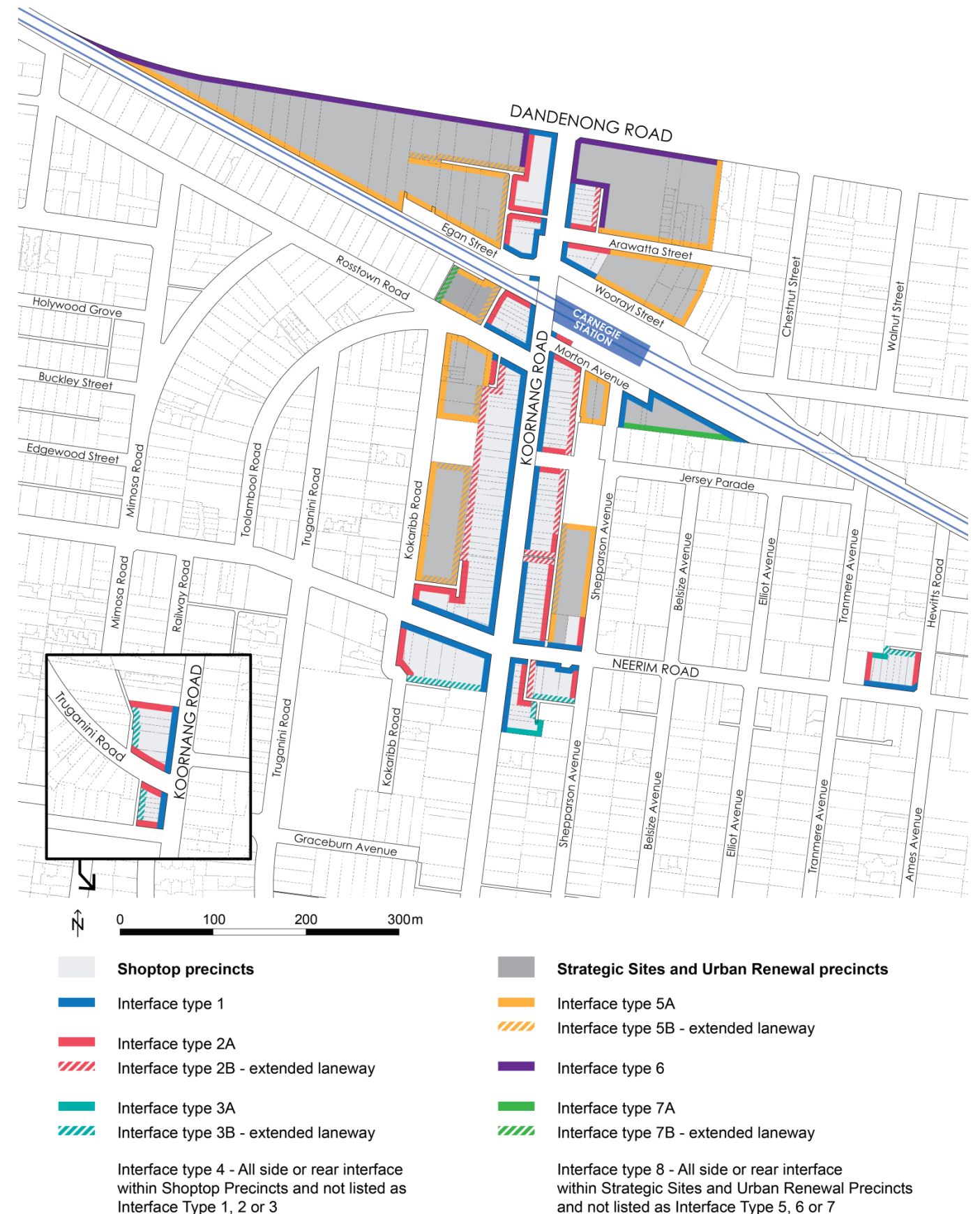
Additional setbacks will be required at sensitive residential interfaces to minimise overshadowing and visual bulk as well as overlooking through setbacks rather than screening.

Privacy and outlook

People should be able to enjoy a level of visual privacy in their own homes. In apartment buildings, where space is often limited, it is also equally important to ensure that new dwellings have a reasonable, unobscured outlook from primary living areas and clear separation from other buildings. Both aspirations can be achieved by identifying minimum separation distances, preferred outcomes for dwelling orientation, and design methods that mitigate direct views between primary living areas while avoiding the use of tall screening.

A key recommendation of the plan is introducing a requirement for side or rear boundary setback for primary outlook:

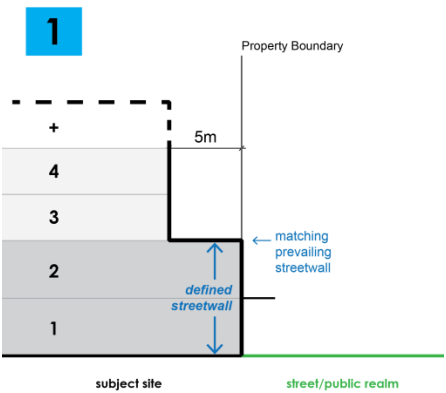
- 6 metres where the primary outlook of a dwelling (eg. living area, balcony or terrace) is oriented towards side or rear boundary at any floor above ground.



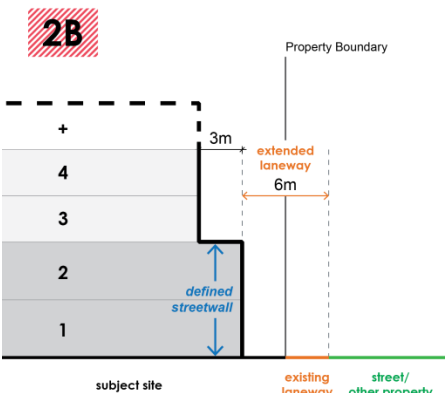
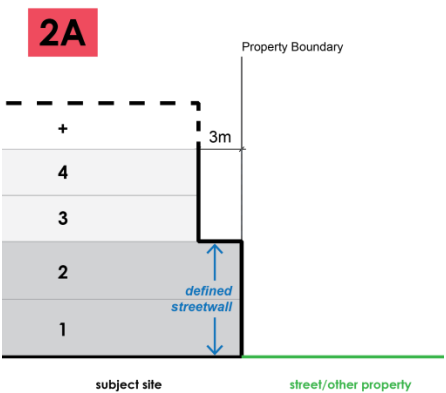
(See following page for setback diagrams for each interface)

Setback interfaces for Shop-top Precincts (A to C)
Map 2 Ref. Interface diagrams

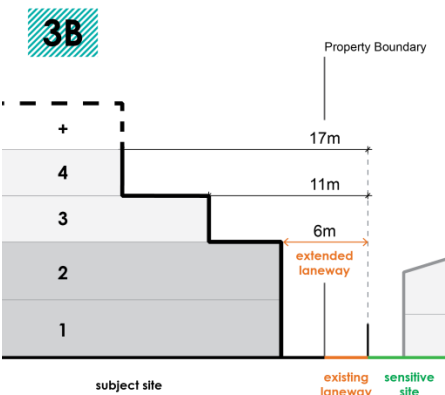
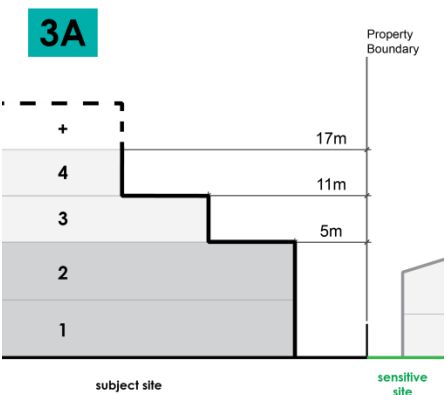
Interface type 1
Primary frontages



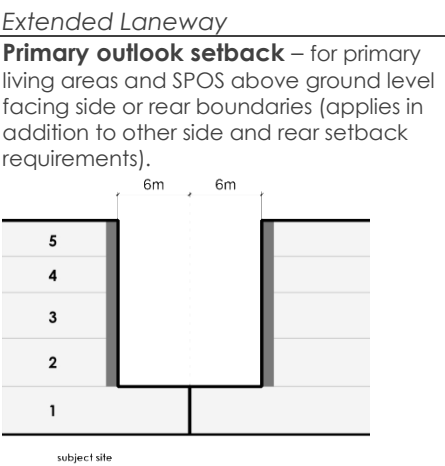
Interface type 2
Secondary/other frontages identified



Interface type 3
Sensitive interfaces

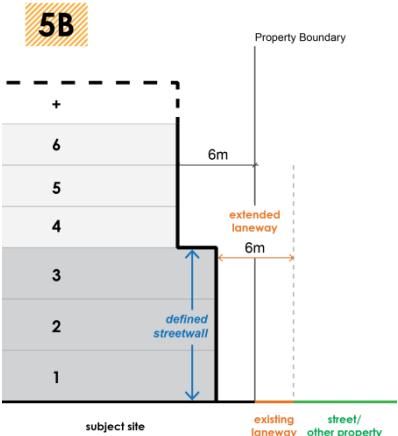
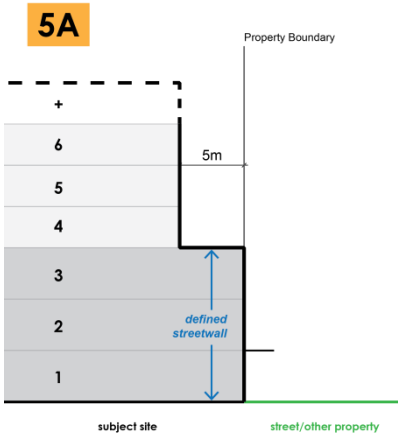


Interface type 4
All side or rear interfaces within Shoptop Precincts and not listed as Interface Type 1, 2 or 3.

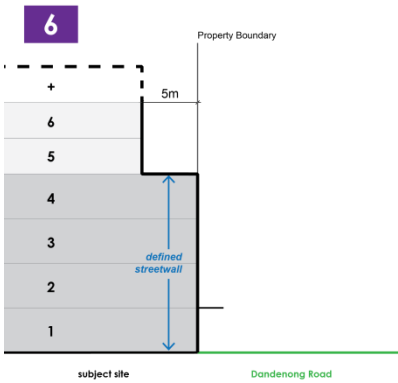


Setback interfaces for Strategic Sites and Urban Renewal Precincts (D to F)
Map 2 Ref. Interface diagrams

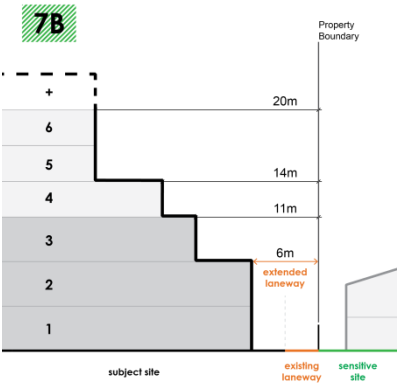
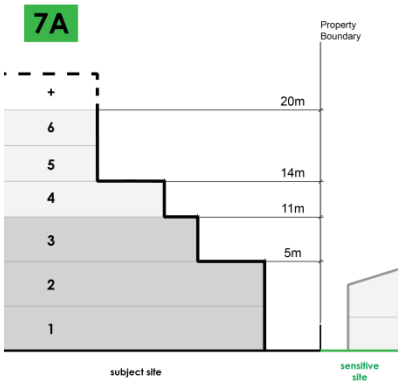
Interface type 5
Frontages except Dandenong Road



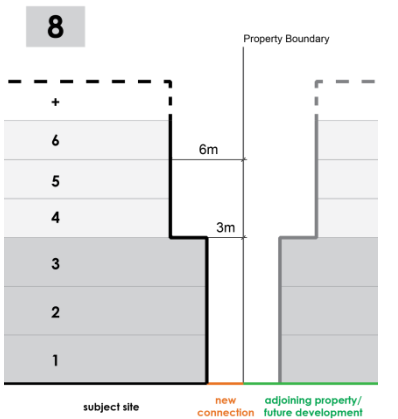
Interface type 6
Dandenong Road frontage



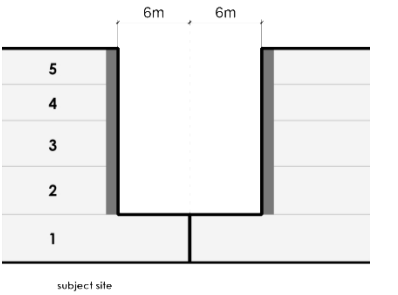
Interface type 7
Sensitive interfaces



Interface type 8



Extended laneway
Primary outlook setback – for primary living areas and SPOS above ground level facing side or rear boundaries (applies in addition to other side and rear setback requirements).



Public & Open Space

Shadow protection

The activity centre contains a network of existing and future public realm and public open spaces. Key spaces have been identified for shadow protection. residential areas around the Urban Renewal Precinct are also protected.

Proposed control

Buildings **must not cast additional shadow** on the mapped areas within the prescribed timeframes, beyond the allowable shadow extent.

| Map Area | Timeframes |
|----------|-----------------------------|
| A | 11am to 2pm on 21 June |
| B | 10am to 2pm on 22 September |
| C | 9am to 3pm on 22 September |

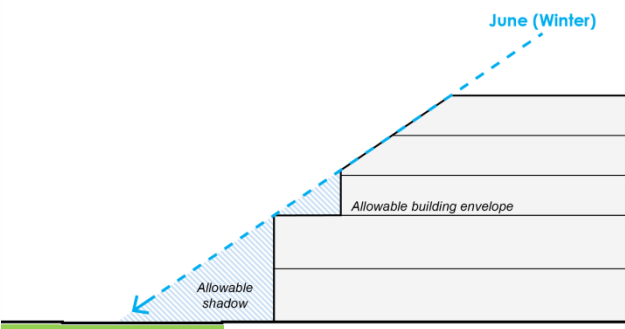
The ‘allowable shadow extent’ is measured as the hypothetical shadow cast by a building measured at the property boundary at a height of 9 metres or the prescribed street wall height of the precinct, whichever is more. Where precinct street wall height is not prescribed in metres, calculate based on 4 metres per storey.

Where existing buildings cast a larger shadow, new buildings must not exceed the existing shadow extent.

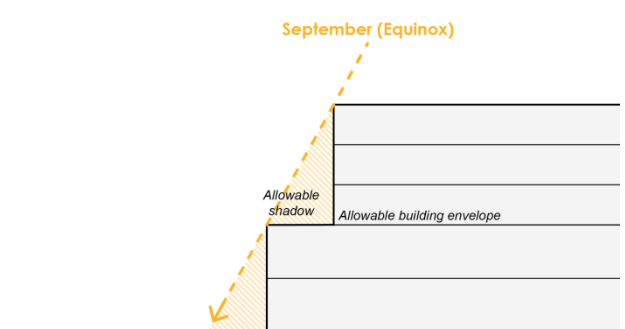
Example of calculation:

These images illustrate the measurement of shadow controls where a two storey street wall height is prescribed for the precinct. The intent is that overshadowing controls should not affect street walls, while upper floors must be modified to mitigate any additional overshadowing.

Map Area A (June shadow)



Map Area B (September shadow)



7. Residential Areas

Managing the transition towards higher densities

Carnegie is a major activity centre with a traditionally low-scale suburban character. Carnegie's residential areas have experienced a significant transformation in recent years, with 3 and 4 storey apartment development replacing single and double storey housing in traditionally low-scale streets. The structure plan aims to improve Carnegie's gradual transition towards higher densities.

Analysis of existing residential zones and development activity (see: Part A of this report) has identified that:

- Improved built form and character guidance is required for areas of substantial change (Residential Growth Zone – RGZ, and General Residential Zone – GRZ).
- The application of zone boundaries for areas of substantial change should be more responsive to local context.

The plan responds to identified issues by:

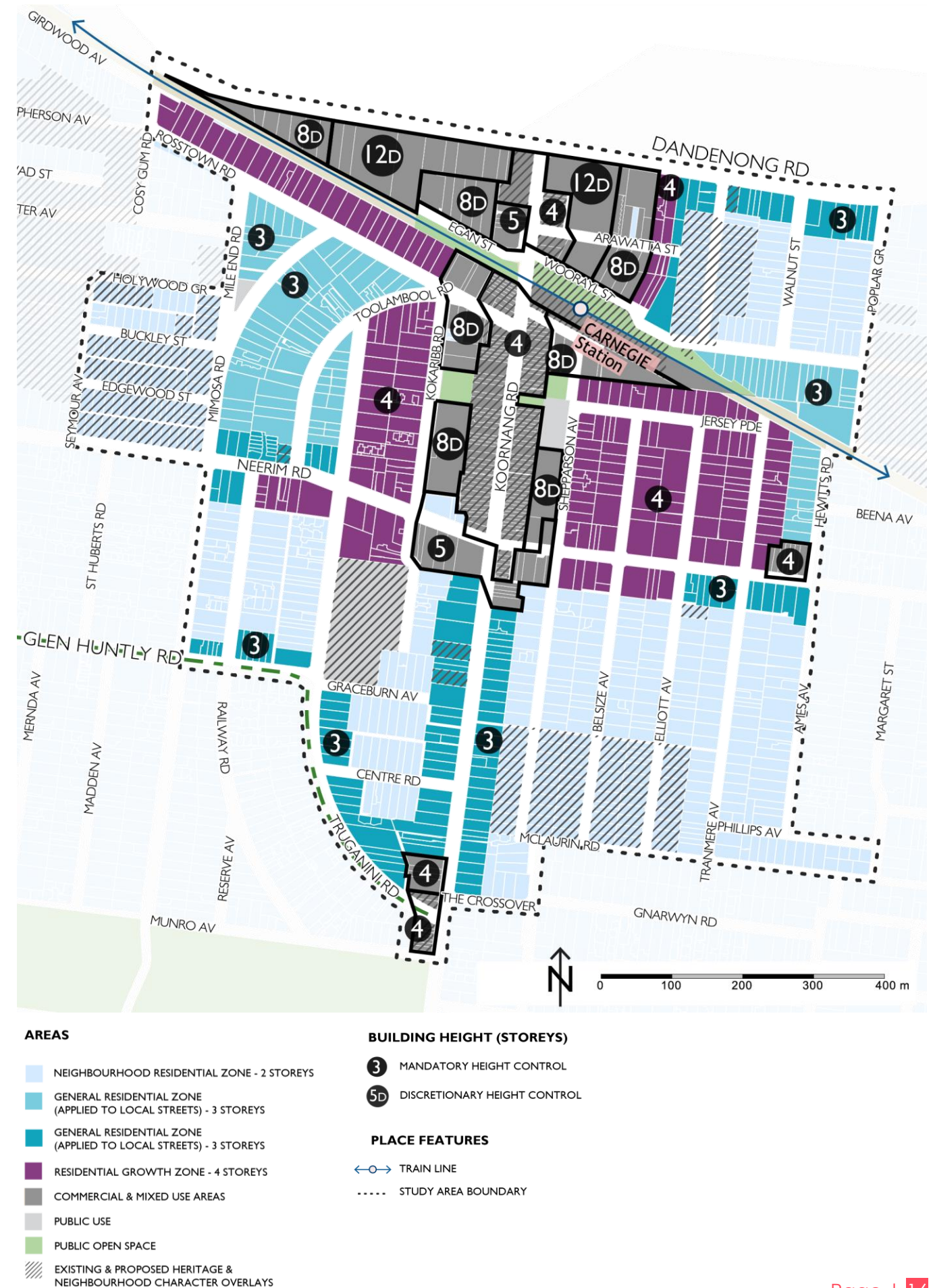
- introducing a transition of housing scale and height across the activity centre to ensure new development better responds to its local context.
- providing better design guidance for new developments, to improve the relationship between new development and the amenity, character and heritage values of existing neighbourhoods.

Updated zone boundaries and built form character guidance support the vision

Key changes to residential areas in the General Residential Zone and Residential Growth Zone include:

- RGZ and GRZ removed from some local streets south of Neerim Road due to conflict with local heritage and neighbourhood character.
- RGZ and GRZ redistributed along main roads, tram routes and focused towards the inner northern streets near the Carnegie station
- Zone boundaries respond more appropriately to local context.
- Better character guidance introduced through built form policy and local variations to zone schedules.

The new plan provides sufficient capacity to support a strong level of housing growth in residential areas well served by public transport, and existing services and infrastructure.



Preferred character outcomes

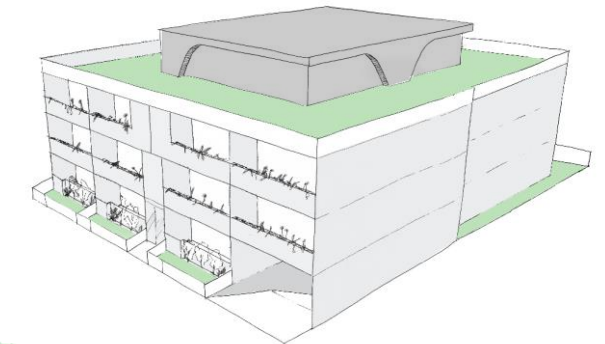
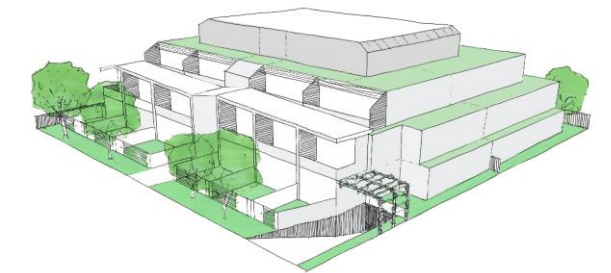
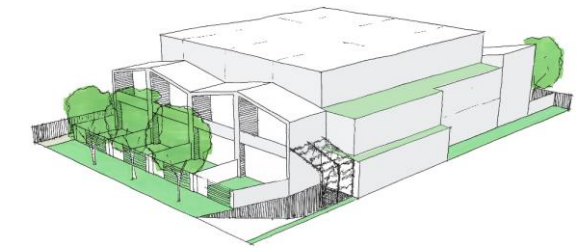
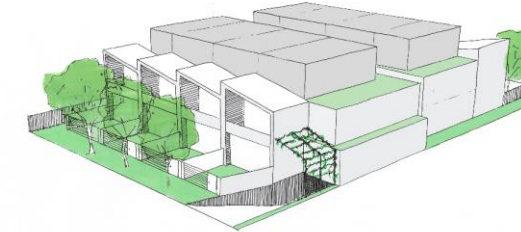
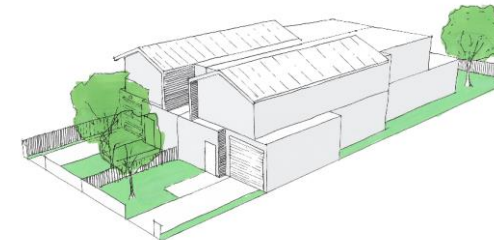
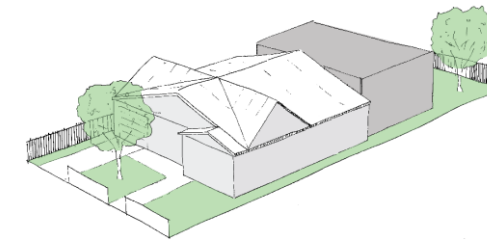
Council's *Quality Design Guidelines: Residential Areas* introduce a range of principles and guidelines that underpin proposed policy and controls for Carnegie's residential areas. These elements will help traditional low-scale neighbourhoods within the activity centre transition towards higher densities while responding to important local character.

The five preferred character outcomes which form the basis of the guidelines are summarised on this page. Appendix C provides further analysis and context underpinning these outcomes.

1. Managing transition and garden 'corridors' at the front and rear

Built form emphasises lower floors to integrate with traditional low-scale streets. Upper levels to be setback from street to maintain streetscape character.

Setbacks incorporate adequate space to provide garden 'corridors' at the front and rear of sites within the street block, as well as usable secluded private open space in these locations.



2. Garden setting (fencing and landscaping)

Well-landscaped green corridor at front and rear with quality planting and canopy trees creates a garden setting that softens the built form.

3. Site consolidation

Consolidating multiple sites and vehicle access points avoids tall skinny buildings, allows more space for landscaping and ensures the visual impact and amenity impacts of the building can be managed within the site.

4. Responsive architectural elements

Quality architecture using materials, colours and feature elements such as roof design and spacing that responds to the development pattern of the street.

5. Dwelling orientation and outlook

The primary aspect of dwellings, such as balconies and living areas, should face the front and rear of the property. Side facing outlooks are discouraged.

Local Variations to
Residential Zone
Schedules

A range of Residential Zones have been applied to the Bentleigh Study Area, each with individual local variations including:

- General Residential Zone – Schedule 5
- Residential Growth Zone – Schedule 3
- Residential Growth Zone – Schedule 4

Clear built form character guidance is required to manage change effectively. Until recently, most of Glen Eira's existing residential building stock has comprised residential development at a scale of 1 to 2 storeys. In this context, new development within the activity centre of 3 or more storeys represents a substantial change.

Clauses 54 and 55 of the Glen Eira Planning Scheme provide the standard residential development provisions that apply across the State for all dwellings in residential zones. There is an opportunity to introduce local variations to some of these standards to facilitate improved design responses for new development to address local context and character.

Appendix C, Section C2 of this report discusses development opportunity and provides justification for the application of varying levels of growth.

Appendix C, Section C3 of this report provides background for local variations to the zones to reflect preferred built form outcomes.

Key residential design outcomes discussed in this report can be supported using local variations and other provisions within the respective zone schedules and local policy.

The proposed variations are underpinned by the precinct analysis, key preferred character outcomes, local context and growth directions provided within this Urban Form Report, the Quality Design Guidelines – Residential Areas and the Carnegie Structure Plan.

These variations will help traditional low-scale neighbourhoods transition towards different scales of higher densities while responding to important local character elements.

It is recommended that three new residential zone schedules are introduced into the Glen Eira Planning Scheme to facilitate the proposed variations, supported by local policy within the Planning Policy Framework.

The proposed local variations are outlined in the following table. Where a variation is not able to be accommodated within the zone schedule, it should be included within local policy within the Planning Policy Framework.

Proposed residential zone
schedules and local variations

| Local Variation | General Residential Zone – Schedule 5 | Residential Growth Zone – Schedule 3 | Residential Growth Zone – Schedule 4 |
|--|---|---|---|
| Zone application | <ul style="list-style-type: none">Peripheral residential areas of the activity centre, providing a transition between higher building scale in the activity centre core and the lower scale neighbourhood residential areas outside the activity centre. | <ul style="list-style-type: none">Majority of the residential core of the activity centre adjacent to the commercial core and well served by public transport. | <ul style="list-style-type: none">Small area of the residential core, north of Carnegie railway station. A modified approach to the RGZ3 is appropriate given its location directly abutting an urban renewal area. |
| Maximum building height | <ul style="list-style-type: none">3 storeys (11 metres) mandatory | <ul style="list-style-type: none">4 storeys (13.5 metres) mandatory | <ul style="list-style-type: none">4 storeys (13.5 metres) mandatory |
| Front setbacks (Standards A3 & B6) | <ul style="list-style-type: none">7 metres front street setback and 3 metres side street setback to a height of two storeys.11 metres front setback and 5 metres side street setback for any third storey. | <ul style="list-style-type: none">7 metres front street setback and 3 metres side street setback to a height of three storeys.10 metres front setback or 5 metres side street setback for any fourth storey. | <ul style="list-style-type: none">3 metres setback to front or side street to a height of three storeys.9 metres for any fourth storey to a front or side street. |
| Side and rear Setbacks (Standards A10 and B17) | <ul style="list-style-type: none">5 metres rear setback to a height of one storey.6 metres rear setback for a second storey.11 metres rear setback for any third storey, with upper floors appearing recessive.A minimum of 6 metres for primary living areas or secluded private open space at upper floors facing the boundary. | <ul style="list-style-type: none">5 metres rear setback to a height of one storey.6 metres rear setback for a second or third storey.8 metres rear setback for any fourth storey, with upper floors appearing recessive.A minimum of 6 metres for primary living areas or secluded private open space at upper floors facing the boundary. | <ul style="list-style-type: none">A minimum of 6 metres for primary living areas or secluded private open space at upper floors facing the boundary. |
| Walls on boundaries (Standards A11 & B18) | <ul style="list-style-type: none">Preference for any walls on boundaries to accord with Standard, but to be built to one side boundary only. | <ul style="list-style-type: none">Preference for any walls on boundaries to accord with Standard, but to be built to one side boundary only. | <ul style="list-style-type: none">Length of walls on the boundary can be 100%, except where the boundary adjoins land in GRZ, where it should accord with Standard A11 or Standard B18 |
| Site coverage (Standards A5 & B8) | <ul style="list-style-type: none">No change to Standards A5 & B8 | <ul style="list-style-type: none">No change to Standards A5 & B8 | <ul style="list-style-type: none">Maximum site coverage of 90%. |
| Permeability (Standards A6 & B9) | <ul style="list-style-type: none">No change to Standards A6 & B9 | <ul style="list-style-type: none">No change to Standards A6 & B9 | <ul style="list-style-type: none">Minimum site area covered by pervious surfaces to be 5%. |
| Open space (Standards A17 & B28) | <ul style="list-style-type: none">Standard A17 – no changeStandard B28: Minimum 40m² private open space with one part to consist of secluded private open space at the side or rear with a minimum area of 25m², minimum dimension of 4 metres and convenient access from a living roomNo change to balcony and roof-top standards. | <ul style="list-style-type: none">Standard A17 – no changeStandard B28: Minimum 40m² private open space with one part to consist of secluded private open space at the side or rear with a minimum area of 25m², minimum dimension of 4 metres and convenient access from a living roomNo change to balcony and roof-top standards. | <ul style="list-style-type: none">Standard A17 – no changeStandard B28: Minimum 40m² private open space with one part to consist of secluded private open space at the side or rear with a minimum area of 15m², minimum dimension of 3 metres and convenient access from a living roomNo change to balcony and roof-top standards. |
| Landscaping (Standard B13) | <ul style="list-style-type: none">One advanced canopy tree for every 8 metres of boundary at front and rear.Minimum mature height of 7m in front and 5 metres in rear | <ul style="list-style-type: none">One advanced canopy tree for every 8 metres of boundary at front and rear.Minimum mature height of 7m in front and 5 metres in rear | <ul style="list-style-type: none">One advanced canopy tree for every 8 metres of boundary at the front.Minimum mature height of 7m. |
| Front fence height (Standards A20 and B32) | <ul style="list-style-type: none">Main roads (Dandenong Road, Koornang Road & Neerim Road: 1.8mAll other streets: 1.2 metresAny fencing above 1.2 metres to be 25% transparent | <ul style="list-style-type: none">Neerim Road: 1.8 metresAll other streets: 1.2 metresAny fencing above 1.2 metres to be 25% transparent | <ul style="list-style-type: none">Dandenong Road: 1.8 metresAll other streets: 1.5 metresAny fencing above 1.2 metres to be 25% transparent |