City of GLEN EIRA

GLEN EIRA CITY COUNCIL

Urban Form Analysis

CARNEGIE

December 2018

Contents

Report

Appendices

1. Introduction

Purpose

This report documents the built form elements of the *Carnegie Structure Plan 2018-2031*, seeking to:

- Consolidate and document all background research, analysis and recommendations that inform the built form aspects of the *Structure Plan*.
- Outline 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.

Context

In 2017-18, Council prepared, consulted on, and adopted the *Carnegie Structure Plan 2018-2031*. To inform the development of the *Plan*, Council completed six stages of consultation with the Carnegie community and received a total of 780 submissions.

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

Aspects of the plan will be implemented as statutory planning controls through a formal amendment to the *Glen Eira Planning Scheme*. This report documents the process of urban form analysis and provides a summary of the key urban form recommendations and rationale in support of the Planning Scheme Amendment.

Study Area

The report reviews land within the suburb of Carnegie identified as the Carnegie Activity Centre study area (see map).

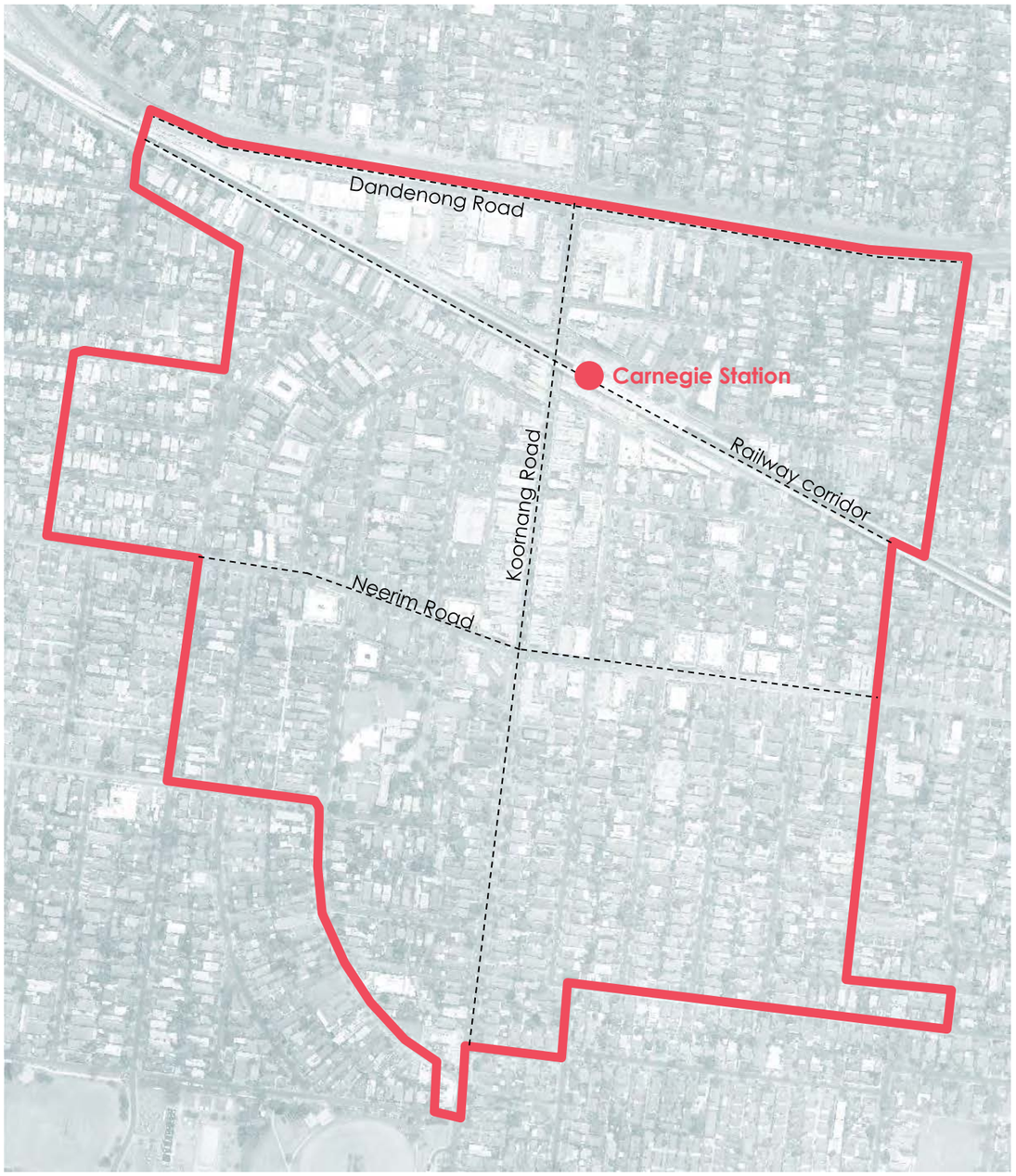
The study area is located in the City of Glen Eira and approximately 11km from the central business district of metropolitan Melbourne. The study area has been extended since original adoption of the *Structure Plan* to include land between Truganini Road and Munroe Avenue, which was the subject of further heritage analysis included in the *Structure Plan* implementation process.

Limitations of this report

The report is limited to issues affecting planning controls for building height, setbacks, open space protection controls and preferred built form character

While the report is cognisant of and reinforces other strategic work relating to housing, economy, place-making, transport and public realm projects for 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. Existing context

Issues and opportunities

Appendix A contains a detailed review and analysis of the existing context in Carnegie. The following provides a summary of key issues and opportunities identified.

Key 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 and often fail to deliver a measurable community benefit.

Open space

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

Key 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 retail core.
- Explore increased building heights in abutting surrounds 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.

Heritage

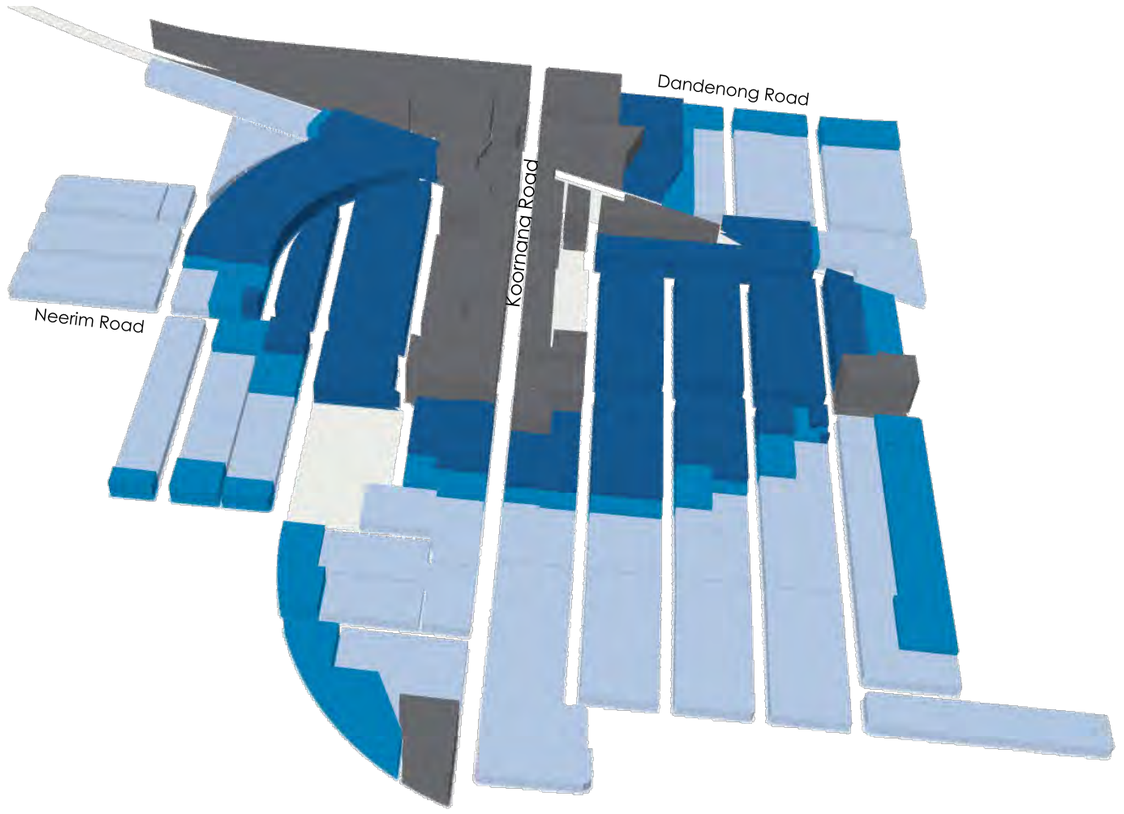
- Review heritage opportunities and introduce Heritage Overlay controls in identified locations such as the Koornang Road retail core.

Residential areas

- Explore ways to support growth and a diversity of housing options while retaining local character elements – rearrange residential zone boundaries and revise design guidance to balance the need for growth while reinforcing local character.
- Define preferred character requirements.

Open spaces

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



Plan shows maximum height of existing zones / precincts:

Residential

NRZ – 2 storeys
GRZ – 3 storeys
RGZ – 4 storeys

Commercial/Mixed Use

C1Z & MUZ1 – No height controls
**model shows 6-8 storeys based on current trends in major activity centres.*

Note: interim controls were introduced in 2017-18 in conjunction with structure planning. This model shows the original context, before structure planning or interim controls.

3. Design response

Creating a new urban form

Appendices B & C contain detailed discussion and rationale for the proposed urban form. The following provides a summary of key 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 (6-8 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 6-12 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

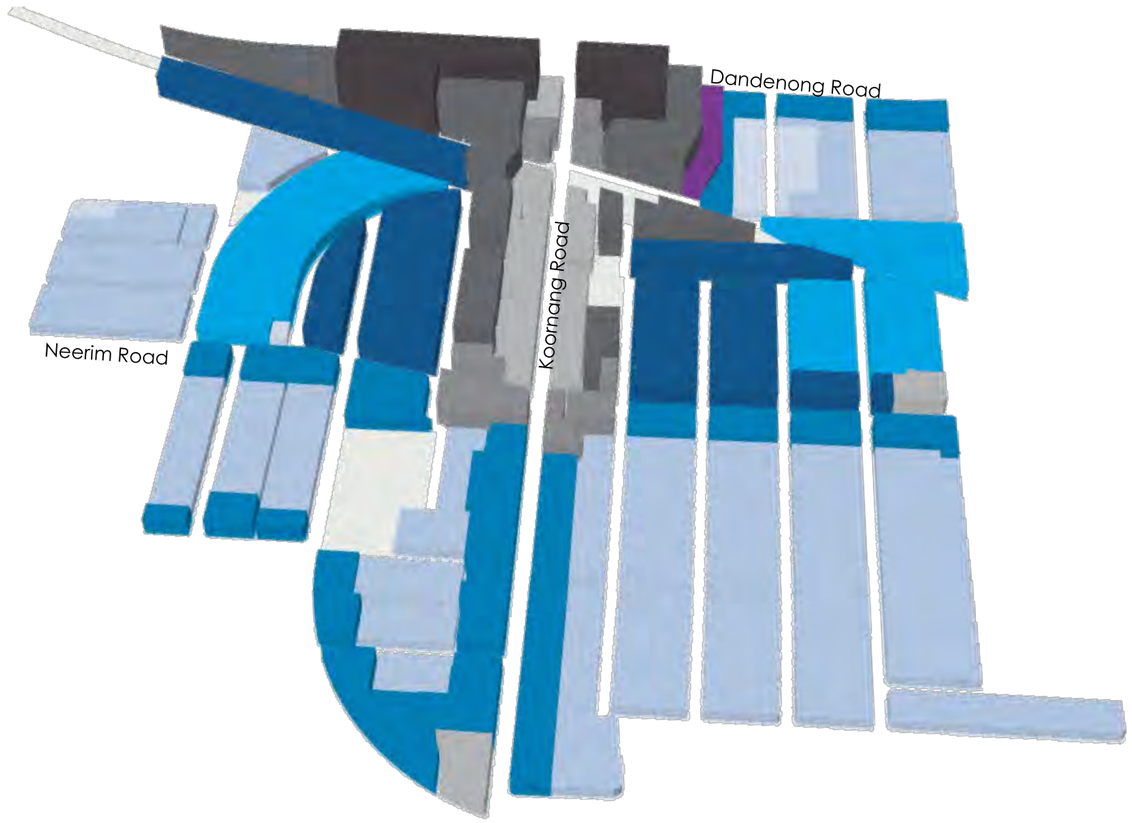
5. **More employment opportunities in commercial areas**
   The employment aspect of commercial areas will be reinforced through policy and by introducing minimum floor to floor heights in commercial precincts.

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 building typologies (precinct requirements) will provide options that meet housing needs of the community. This includes a more varied mixture of low to medium density town housing and apartment options.

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.



Plan shows maximum height of proposed zones/precincts:

Residential	Commercial/mixed use
2 storeys	4 storeys
3 storeys	5 storeys
3 storeys	6-8 storeys
4 storeys	8-12 storeys
4 storeys	

4. Recommendations

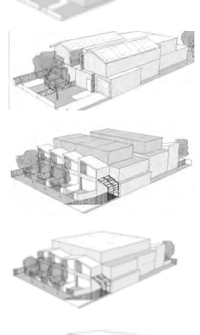
4.1 Summary

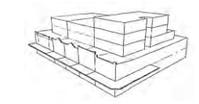
Building typologies

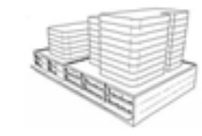
The activity centre applies building typology recommendations from the *Quality Design Guidelines*. Each building typology will be applied as a built form precinct in the *Planning Scheme*.

Precincts/Building typologies

HC	Heritage character housing
MC	Minimal change area
GT	Garden townhouse
TA	Townhouse and apartment mix
GA	Garden apartment
UA	Urban apartments
A	Shop-top (standard)
B	Shop-top (heritage)
C	Shop-top (standard)
D	Strategic sites
E	Urban Renewal
F	Urban Renewal







Public open space, key public spaces and public realm in the railway corridor

Building height

The activity centre has a range of building heights with:

- moderate scale development in shop-top precincts that reinforces the traditional lower scale and fine grain character in these areas; and
- taller forms in identified Strategic Sites and Urban Renewal Precincts, with prescribed ranges representing preferred (lower) and maximum (upper) height expectations.

Taller forms of residential areas are located near the station and along key transport routes.

Building height in residential areas

2	2 storeys – Heritage and character housing
2	2 storeys – Minimal change areas
3	3 storeys – Garden townhouse
3	3 storeys – Townhouse/apartment mix
4	4 storeys – Garden apartment
4	4 storeys – Urban apartment

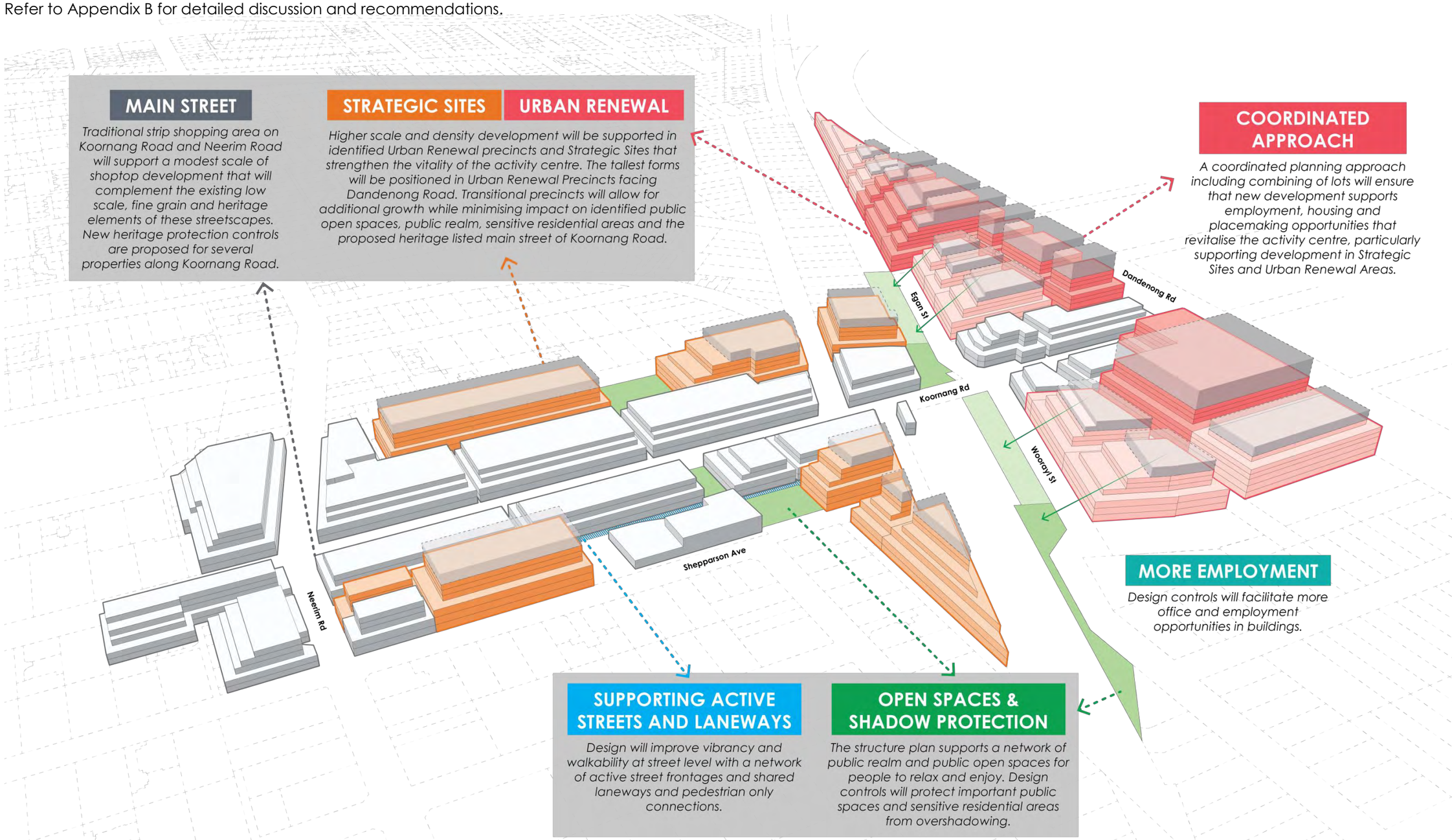
Building height in commercial/mixed use areas

4	4 storeys
5	5 storeys
6-8	6-8 storeys
8-12	8-12 storeys

4.2 Commercial areas

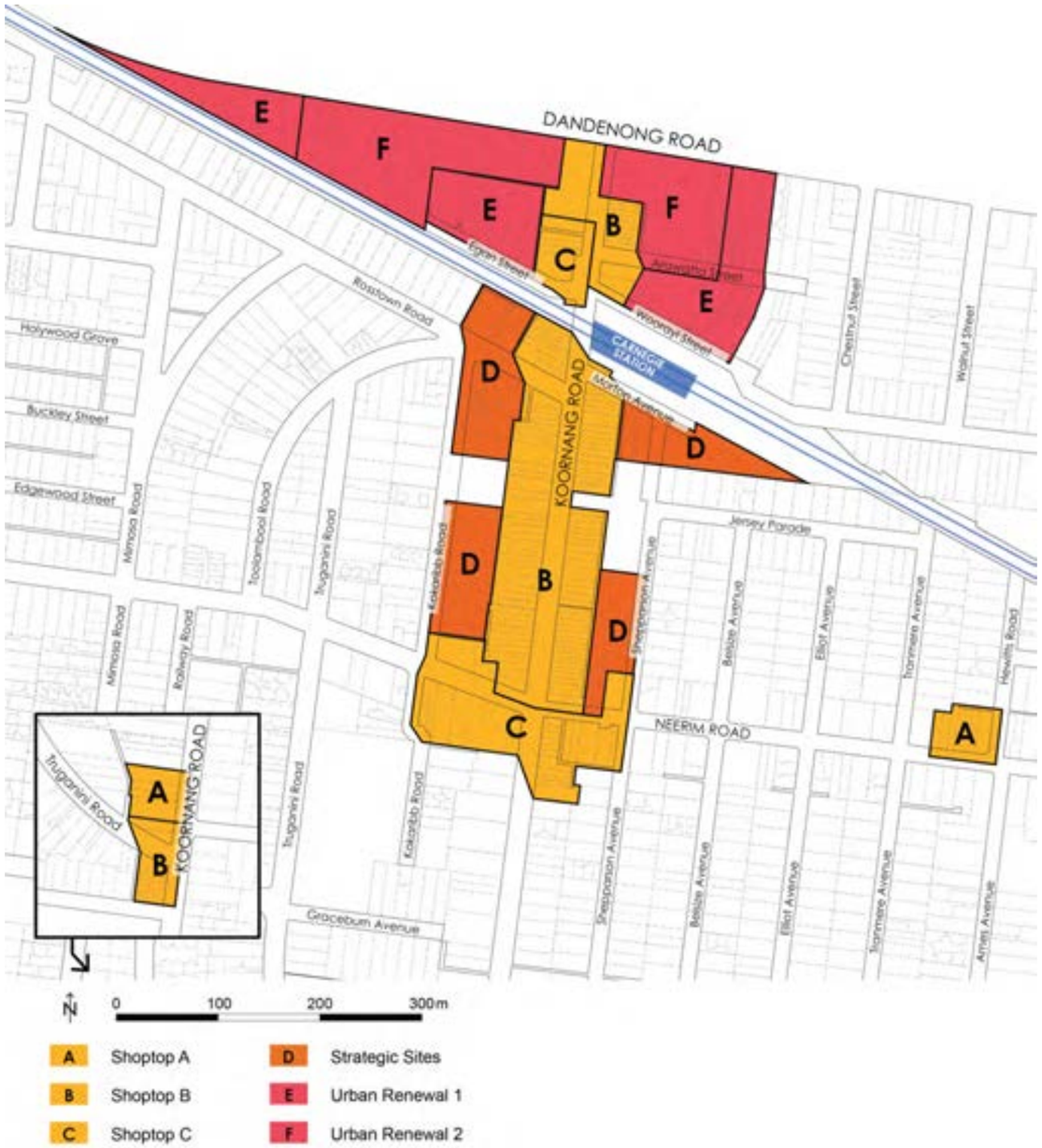
Summary of key outcomes

Refer to Appendix B for detailed discussion and recommendations.



Preferred precinct character/vision

Ref:	Precinct	Preferred Precinct Character / Vision
A	**Shop-top A**	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.
B	**Shop-top B**	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.
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 transitionary 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	Preferred maximum street wall height	Preferred maximum building height	Upper 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)	23 metres (6 storeys)	30 metres (8 storeys)
E	**Urban Renewal 1**	13 metres (3 storeys)	23 metres (6 storeys)	30 metres (8 storeys)
F	**Urban Renewal 2**	Dandenong Road: 17 metres (4 storeys) Otherwise: 13 metres (3 storeys)	30 metres (8 storeys)	44 metres (12 storeys)

Podium and tower forms with emphasis on fine grain, 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.

Street wall heights

Street wall heights of 2 storeys will be acceptable 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 acceptable 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 acceptable 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

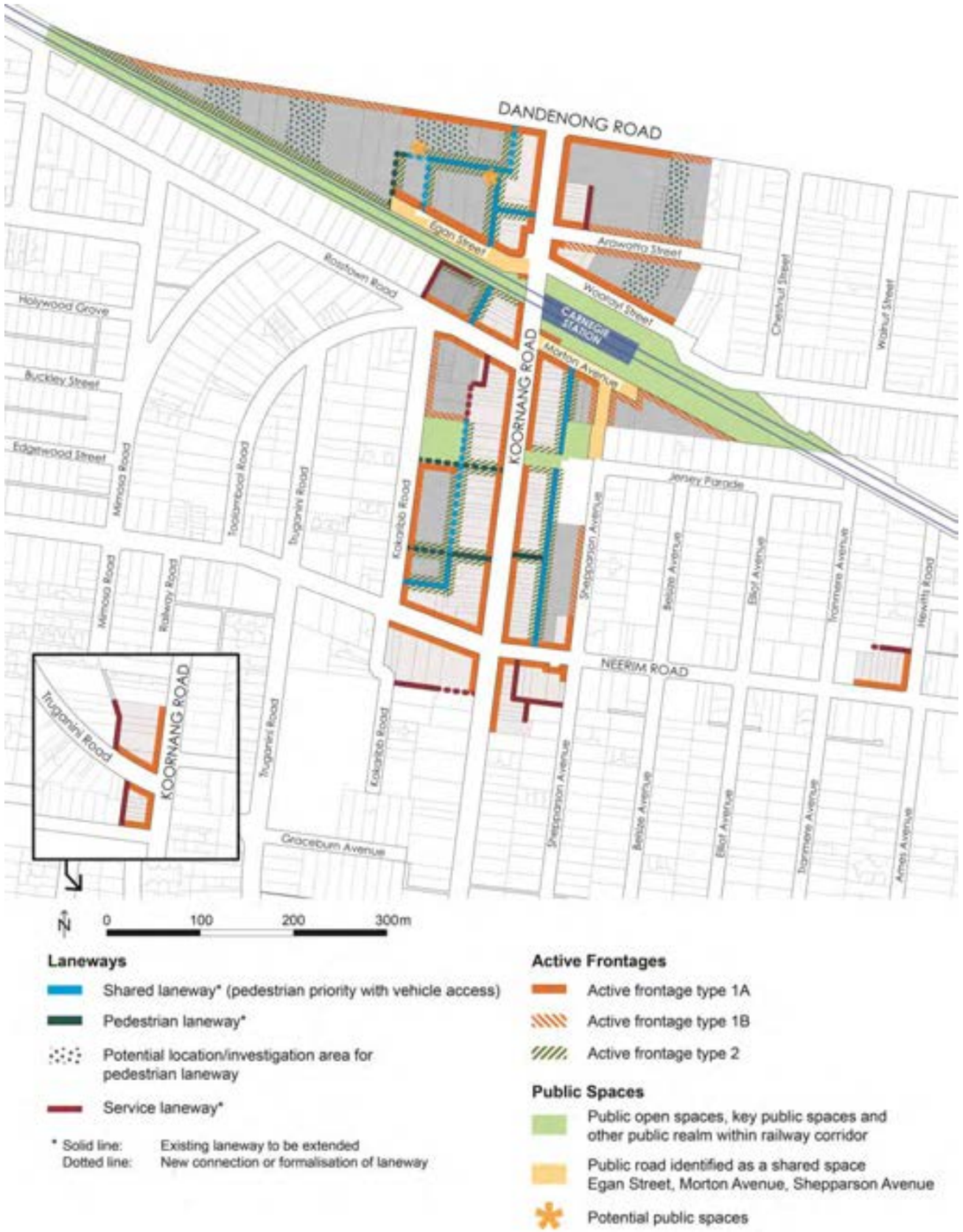
The plan expands the laneway network with a focus on providing active land uses and avoiding parking structures at street level, particularly in primary streets and pedestrian or shared laneways:

- **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 frontages and weather protection:

Three types of active frontages are noted:

- **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.



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.

Floor to floor heights supporting employment uses

Building design should strengthen the retail and employment function of the activity centre with building design that supports employment uses. This will be supported by implementing minimum floor to floor heights in the street wall/podiums of buildings of:

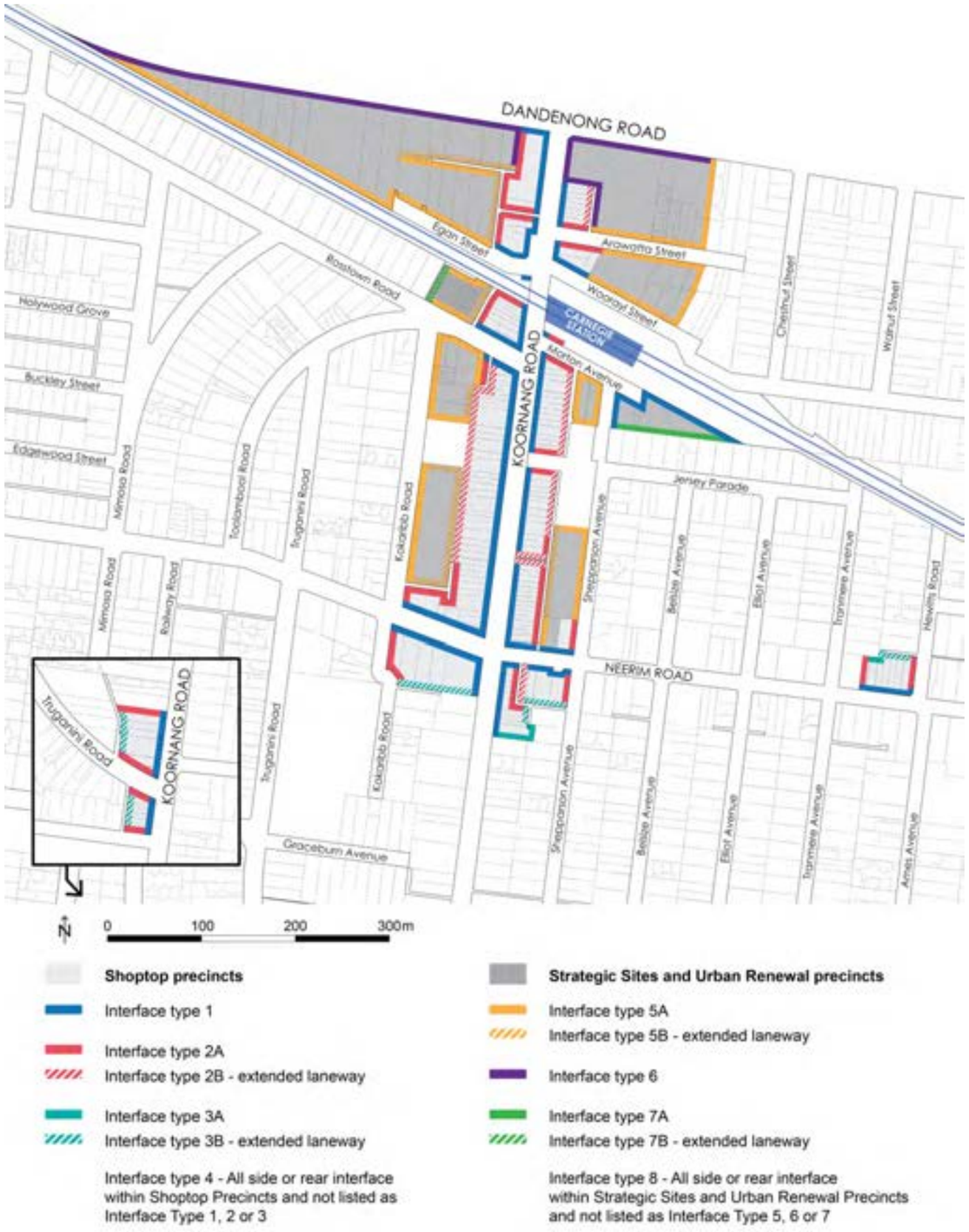
- 4m at ground floor; and
- 3.8m at upper floors within the defined street wall/podium of buildings.

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.



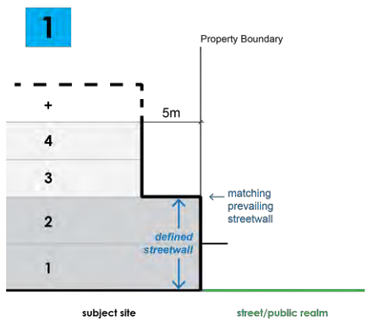
(See following page for setback diagrams for each interface)

Setback interfaces for Shop-top Precincts (A to C)

Map 2 Ref. **Interface diagrams**

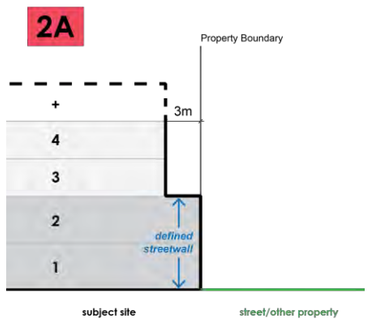
Interface type 1

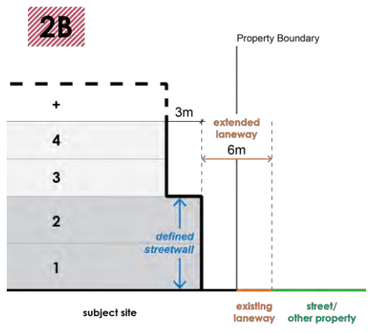
Primary frontages



Interface type 2

Secondary/other frontages identified

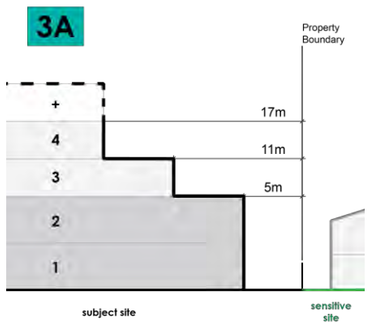


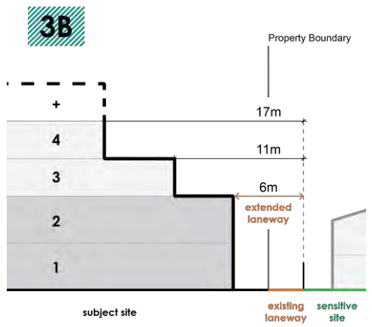


Extended Laneway

Interface type 3

Sensitive interfaces

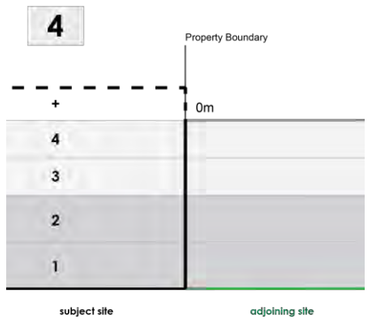




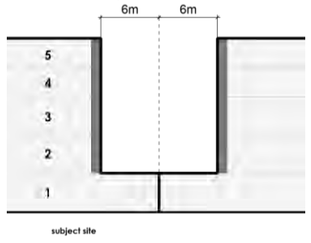
Extended Laneway

Interface type 4

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



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).

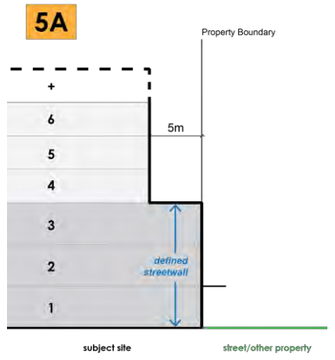


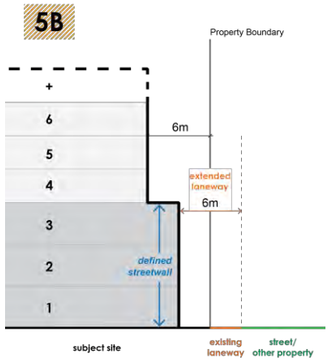
Setback interfaces for Strategic Sites and Urban Renewal Precincts (D to F)

Map 2 Ref. **Interface diagrams**

Interface type 5

Frontages except Dandenong Road

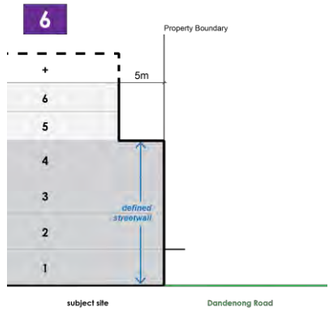




Extended Laneway

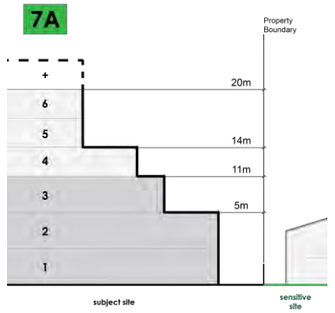
Interface type 6

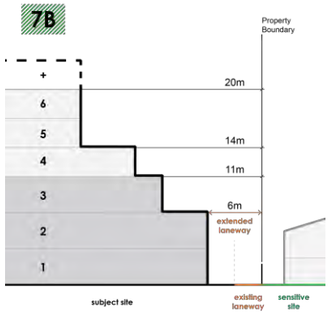
Dandenong Road frontage



Interface type 7

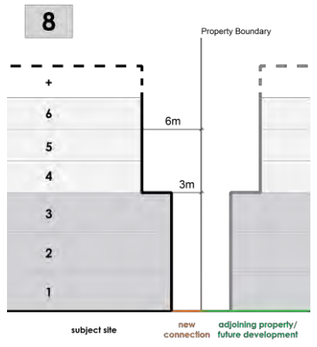
Sensitive interfaces



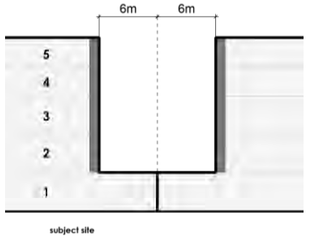


Extended laneway

Interface type 8



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).



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

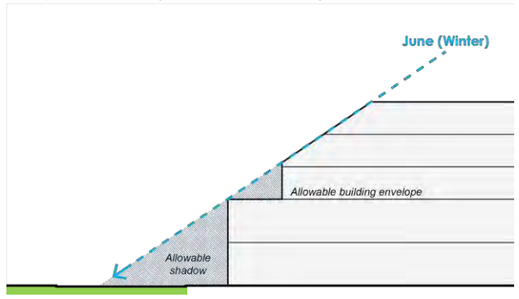
The 'allowable shadow extent' is measured as the hypothetical shadow cast by a building measured at the property boundary at a height of 9 metres or the prescribed street wall height of the precinct, whichever is more. Where precinct street wall height is not prescribed in metres, calculate based on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

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

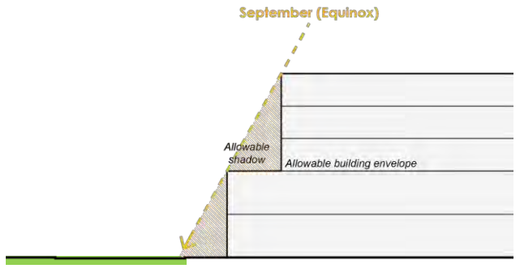
Example of calculation:

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)



4.3 Residential areas

Built form precincts

The plan introduces a range of precincts with detailed preferred character outcomes.

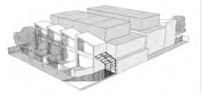
Growth opportunities

- Redistributed along main roads, tram routes and near the station.
- Removed from local streets south of Neerim Road.
- Better character guidance.

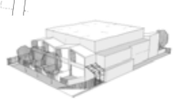
HC Heritage character housing

MC Minimal change area

GT Garden townhouse



TA Townhouse and apartment Mix



GA Garden apartment

UA Urban apartments

Key built form character elements

The preferred character elements for each building type (precinct) are identified in the *Quality Design Guidelines – Residential Areas*.

The outcomes sought are best explained through five design elements. These elements underpin development of the planning controls and will help traditional low-scale neighbourhoods transition towards higher densities while responding to important local character.

1. **Managing transition and garden corridors**
   Built form emphasises lower floors to integrate with traditional low-scale streets. Setbacks incorporate adequate space to provide garden corridors and usable secluded private open space in front and rear setbacks.
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 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.

A greater spread of buildings and housing

The plan introduces a range of buildings types with planning controls that will deliver a greater spread of housing and development opportunity in accordance with directions set in the *Carnegie Structure Plan* and *Activity Centre, Housing and Local Economy Strategy*.

HOUSING DENSITY (DPH = Dwellings per hectare)	20-30 DPH	75-100 DPH	100-125 DPH	150-175 DPH	200-225 DPH	250+ DPH
Development size examples (Note: depends on lot size)	*1 lot = 2 dwellings* *2 lots = 4 dwellings*	*1 lot = 4+ dwellings* *2 lots = 8+ dwellings*	*1 lot = 6+ dwellings* *2 lots = 11+ dwellings*	*1 lot = 7+ dwellings* *2 lots = 14+ dwellings*	*1 lot = 9+ dwellings* *2 lots = 22+ dwellings*	*1 lot = 10+ dwellings* *2 lots = 26+ dwellings*

Original policy setting
(pre-2017)

NRZ	GRZ	RGZ
Minimal Change Areas Outcome: Two dwellings/lot	**GRZ in Housing Diversity Areas and Urban Villages (peripheries)** Outcome: Transformational, Apartment development, limited diversity.	**RGZ in Urban Villages** Outcome: Transformational, Apartment development.

New Garden Requirement & Better Apartments Design Standards

New Better Apartments Design Standards

Current policy setting
Key changes introduced by State Government in 2017 included the Minimum Garden Area Requirement and Better Apartment Design Standards. These changes have affected built form and housing outcomes within existing policy settings.

NRZ	GRZ	RGZ
Minimal Change Areas Outcome: Two dwellings/lot	**GRZ in Housing Diversity Areas and Urban Village (peripheries)** Outcome: Transformational, Apartment development and some townhousing.	**RGZ in Urban Villages** Outcome: Transformational, Apartment development.

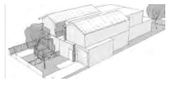
New Character Guidance and addressing housing diversity

New Character Guidance and removed Garden Requirement

New Character Guidance

New Character Guidance

Proposed Policy Setting (Structure Plan and Quality Design Guidelines)

NRZ	GRZ	GRZ	RGZ	RGZ
Minimal Change Areas Intent: Two dwellings/lot	**Garden Townhouse** Intent: Townhouses in a garden setting on local streets.	**Townhouse and Apartment Mix** Intent: Managed transition, A mix of Townhouses & Apartment development in a garden setting on Main Roads.	**Garden Apartments** Intent: Managed transition, Apartment development in a garden setting.	**Urban Apartments** Intent: Dense apartment development in an urban renewal setting.
				

Traditional Dual occupancy, villas and townhousing protecting the character of local streets

Transition to higher densities on main roads and identified growth precincts near transport infrastructure

Key planning control recommendations

Key requirements are noted in this table. For detailed design guidance refer to Council's *Quality Design Guidelines – Residential Areas.*

PRECINCT REF. – QUALITY DESIGN GUIDELINES BUILDING TYPOLOGY	HC – HERITAGE / CHARACTER	MC – MINIMAL CHANGE	GT – GARDEN TOWNHOUSE	TA – TOWNHOUSE & APARTMENT MIX	GA – GARDEN APARTMENT	UA – URBAN APARTMENT
						
PROPOSED ZONE	NRZ	NRZ	GRZ	GRZ	RGZ	RGZ
HEIGHT	2 storeys (9 metres)	2 storeys (9 metres)	3 storeys (11 metres)	3 storeys (11 metres)	4 storeys (13.5 metres)	4 storeys (13.5 metres)
SETBACKS – Streets	**N/A** (ResCode)		**Primary frontage** • Up to a height of 2 storeys: minimum 7 metre setback. • At the third storey: minimum 11 metre setback. **Secondary frontage (corner sites):** • Up to a height of 2 storeys: minimum 3 metre setback. • At the third storey: minimum 5 metre setback.		**Primary frontage:** • Up to a height of 3 storeys: minimum 7 metre setback. • At the fourth storey: minimum 11 metre setback. **Secondary frontage:** • Up to a height of 3 storeys: minimum 3 metre setback. • At the fourth storey: minimum 5 metres setback.	**All streets** • Up to a height of 3 storeys: minimum 3 metres setback. • At the fourth storey: minimum 6 metres setback.
SETBACKS – Side & Rear	**Side:** • **N/A** (ResCode) **Rear:** • 5m at ground floor. • 9m at first floor.		**Side:** • **N/A** (ResCode) **Rear:** • Up to a height of 2 storeys: minimum 5 metre setback. • At the third storey: minimum of 11 metre setback.		**Side:** • **N/A** (ResCode) **Rear:** • Up to a height of 3 storeys: minimum 3 metre setback. • At the fourth storey: minimum 5 metre setback.	**Side & rear (abutting non-residential or Urban Apartment)** • Up to a height of 3 storeys: 0 metres setback. • At the fourth storey: 6 metre setback. **Side & rear (abutting other residential typologies)** • **N/A** (ResCode)
SETBACKS – Primary Outlook	A minimum of 6 metres for primary living areas or secluded private open space (eg. Balconies, terraces) at upper floors facing the boundary.					
WALLS ON BOUNDARY	**N/A**	Walls on boundary provided on one side only.				• **Abutting non-residential or Urban Apartments:** 100% of the boundary. • **Abutting other residential typologies: N/A** (ResCode)
MINIMUM GARDEN AREA REQUIREMENT	Applies	Applies	Applies	Does not apply		Does not apply
SITE COVERAGE	50%	**N/A** (Rescode - 60%)	**N/A** (Rescode - 60%)	**N/A** (Rescode - 60%)		90%
PERMEABILITY	25%	**N/A** (Rescode - 20%)	**N/A** (Rescode - 20%)	**N/A** (Rescode - 20%)		5%
PRIVATE OPEN SPACE (POS) & PRIMARY SECLUDED PRIVATE OPEN SPACE (SPOS)	**Applies to all POS & SPOS:** POS: 60 sqm SPOS: 40 sqm with minimum dimension of 5 metres. SPOS location: ground floor at the side or rear, and with convenient access from a living room. **Balconies/roof-top areas:** Primary SPOS above ground discouraged.	**Applies to all POS & SPOS:** POS: 25 sqm (same as SPOS) SPOS: 25 sqm with minimum dimension of 4 metres. SPOS location: ground floor, with convenient access from a living room. **Balconies/roof-top areas:** Primary SPOS above ground discouraged.	**Ground floor dwellings:** POS: 25 sqm (same as SPOS) SPOS: 25 sqm with minimum dimension of 4 metres. SPOS location: ground floor, with convenient access from a living room. **Balconies/roof-top areas:** To accord with Rescode requirements.	**Ground floor dwellings:** POS: 25 sqm (same as SPOS) SPOS: 25 sqm with minimum dimension of 4 metres. SPOS location: ground floor, with convenient access from a living room. **Balconies/roof-top areas:** To accord with Rescode requirements.	**Ground floor dwellings:** POS: 15 sqm (same as SPOS) SPOS: 15 sqm with minimum dimension of 3 metres. SPOS location: ground floor, with convenient access from a living room. **Balconies/roof-top areas:** To accord with Rescode requirements.
LANDSCAPE	A minimum of 1 tree per ground floor dwelling and 1 advanced canopy tree for every 8 metres of boundary at the front and rear. The advanced canopy tree requirement under the boundary length calculation can include the 1 trees per ground floor dwelling requirement. If the result is not a whole number, round up to the nearest whole number. One advanced canopy tree for every 8 metres of boundary at the front; and one per ground floor dwelling. (Exceptions: for HC and MC precincts, provide 2 trees per ground floor dwelling, and for UA rear planting requirements should not apply).					
FRONT FENCE HEIGHT	Main Roads: Maximum fence height of 1.8m with at least 25% visual transparency above 1.2 metres. All other roads: Maximum fence height of 1.2 metres. ** Except where a Neighbourhood Character Overlay states otherwise.					Main Roods: 1.8m Local streets: 1.5m At least 25% visual transparency above 1.2 metres.

N/A: *No variation to ResCode Standards at Clause 54, 55 or 58 as relevant. This includes any existing Neighbourhood Character Overlay requirements.*

A.

Appendix A: Existing Context Review

A1.

Strategic City Context

This section outlines the location and strategic context of Carnegie in the broader scope of Metropolitan Melbourne and the City of Glen Eira.

Metropolitan Melbourne

Carnegie is located approximately 11km from the CBD of Metropolitan Melbourne, within the City of Glen Eira.

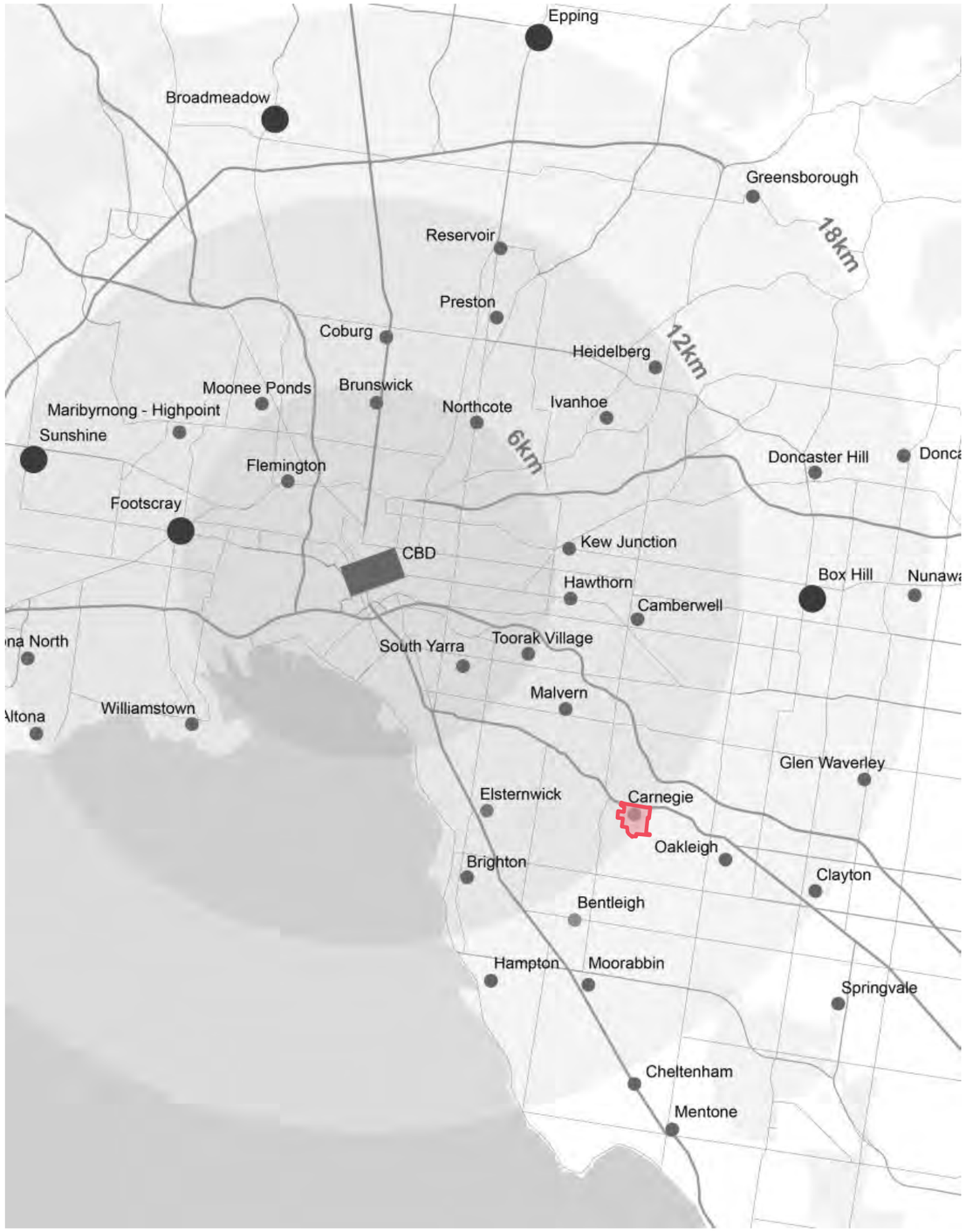
Plan Melbourne sets out the strategic policy directions required to manage the metropolitan Melbourne's growth and change towards 2050.

The plan identifies six new metropolitan regions: Inner Metro, Inner South East Metro, Western Metro, Northern Metro, Eastern Metro and Southern Metro.

The City of Glen Eira is located in the Inner South East Metro Region, alongside the cities of Bayside, Stonnington and Boroondara.

The plan identifies Carnegie as a Major Activity Centre.

The plan recognises that planning controls for the area should be identified through local strategic planning.



City of Glen Eira

Glen Eira's *Activity Centre, Housing and Local Economy (ACHLE) Strategy July 2017* provides a new framework for planned growth across Glen Eira's activity centres. The *Glen Eira Quality Design Guidelines (QDG) March 2018* action the detailed built form aspects of the strategy. Together, these documents provide a new urban structure for the city that will be implemented through local area strategic planning across each centre. The new urban structure provides capacity and opportunity for new housing and economic growth to meet Plan Melbourne forecast expectations.

Glen Eira — city vision

The strategy identifies a vision for our Glen Eira's activity centres:

- *Glen Eira will be a city of walkable neighbourhoods that are centred on a network of vibrant, socially inclusive and well designed activity centres, providing for the needs of and reflecting the character of their communities.*

Activity Centre Framework

The *Strategy* identifies a network of activity centres in Glen Eira (as shown in the following image), each with unique policy directions.

The strategy identifies **Carnegie is nominated as a Major Activity Centre with Urban Renewal** and that local strategic planning will be completed through a structure plan or similar process.

Vision for Carnegie

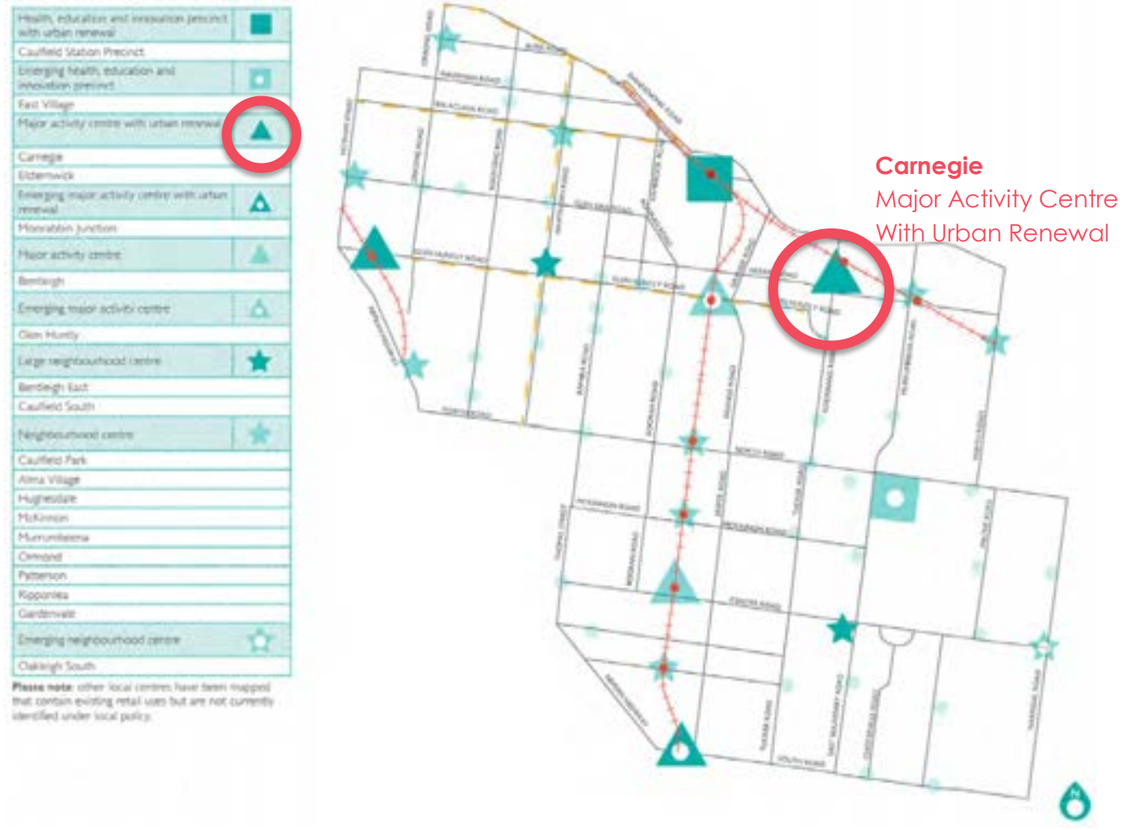
The *Strategy* sets a vision for Carnegie that was created with the community as part of preliminary stages of developing the *Strategy* and *Carnegie Structure Plan*:

- *Carnegie will be a safe, connected and welcoming centre that embraces its authentic urban character and cultural identity. The centre will be a destination for night-life, shopping and employment, supporting a range of businesses and interconnected spaces that meet the needs of the local community.*

Key Directions:

The *Strategy* identifies broad policy directions for Carnegie (Major Activity Centre with Urban Renewal) including but not limited to:

- Major focus for employment growth opportunities, particularly professional employment, retail and hospitality to a lesser degree.
- Retail should provide for the weekly needs of an approximate 800 metre to two kilometre residential catchment.
- Major focus for housing growth opportunities.
- Major focus on new family, single, aged care and affordable households.
- Centre should be well serviced by public transport, particularly fixed transport. There is opportunity to create new street networks to ensure a high level of walkability and accessibility.
- Major focus for implementation of new open space preferably with walking and bicycle linkages.
- Opportunity to create new street networks to ensure a high level of walkability and accessibility.



Structure Planning

A key action of the Strategy is to undertake structure plans (or similar precinct planning approach) for Glen Eira's Activity Centres, as well as deliver on objectives for three themes:

1. Well connected and distinctive neighbourhoods;
2. Vibrant Activity Centres with a thriving local economy;
3. Quality housing and buildings for the future;

This was completed in 2017-18 in development of the *Carnegie Structure Plan* and associated Glen Eira *Quality Design Guidelines* for residential, commercial and mixed use areas.

Carnegie Suburb Profile

Carnegie is an established residential suburb with commercial areas along Koornang Road and Neerim Road. Major features of the suburb include the Koornang Road retail core shopping strip, Carnegie Swim Centre, Koornang Park, Lord Reserve, Packer Park and a number of schools. The Koornang Road shopping strip is a vital economic anchor with a mixture of restaurants, shops and offices. Settlement of the area dates from the mid 1800s, although population was minimal until the late 1800s following the opening of the railway line in 1879. Carnegie was developed in stages from the 1880s to the 1950s, with early development focussed around the railway line. The opening of the tramline to Koornang Road in 1927 encouraged development in the southern areas of the suburb, which continued through to the post-war period. Many of the original larger lots were redeveloped for flats and units in the 1960s and 1970s. The population gradually increased from the early 1990s as new dwellings were added to the area, particularly medium and high density housing.

The Study Area

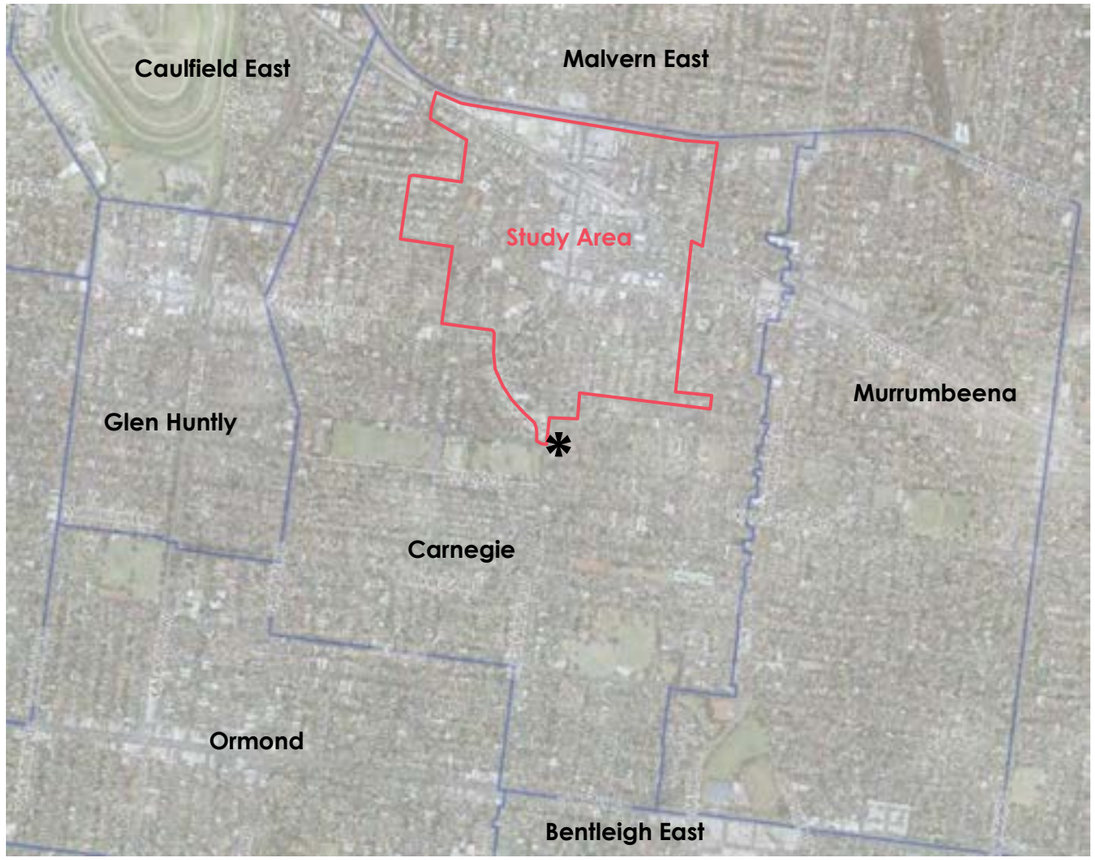
This report reviews land within the suburb of Carnegie identified as the **Carnegie Activity Centre Study Area**.

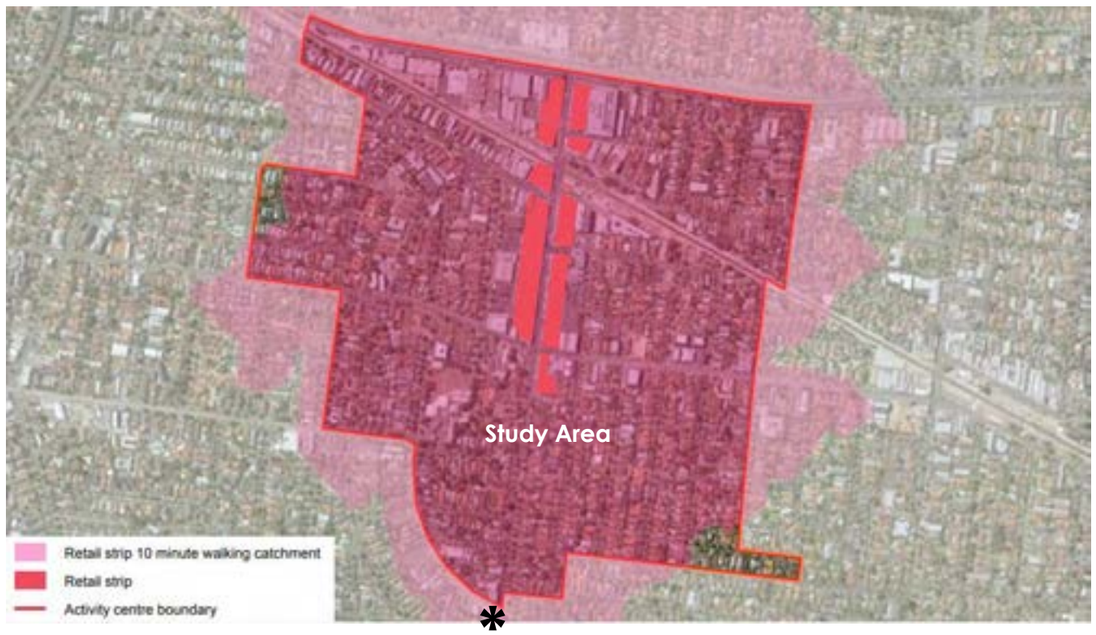
The study area is bounded by Dandenong Road to the north, Mile End Road, Seymour Avenue, Mimosa and Truganini Roads to the west, The Crossover and McLaurin Road to the south, and Margaret Street, Ames Avenue, Hewitts Road and Poplar Grove to the east.

The boundary was identified in 2017 for the structure planning process around the commercial core of Koornang Road with a catchment size of an approximate 800 to 1000 metres (10 minute walking distance) and generally rounded to the nearest road boundary.

The activity centre benefits from its proximity to Dandenong Road and the accessibility this provides for visitors living to the east and west of the centre. The recent removal of the level Koornang Road level crossing will increase the benefits to the Koornang Road shopping strip. Public transport access to the centre is available via train, tram and bus.

* The Study Area boundary was extended in 2018 after adoption of the structure plan to incorporate additional commercial land as part of a Heritage Review.





A2.

Glen Eira Planning Scheme

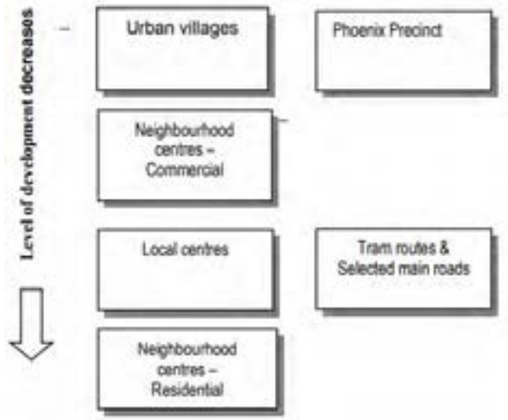
This section outlines the existing requirements of the Glen Eira Planning Scheme applicable to the Carnegie Activity Centre Study Area.

Existing Local Policy Framework

Activity Centre Hierarchy

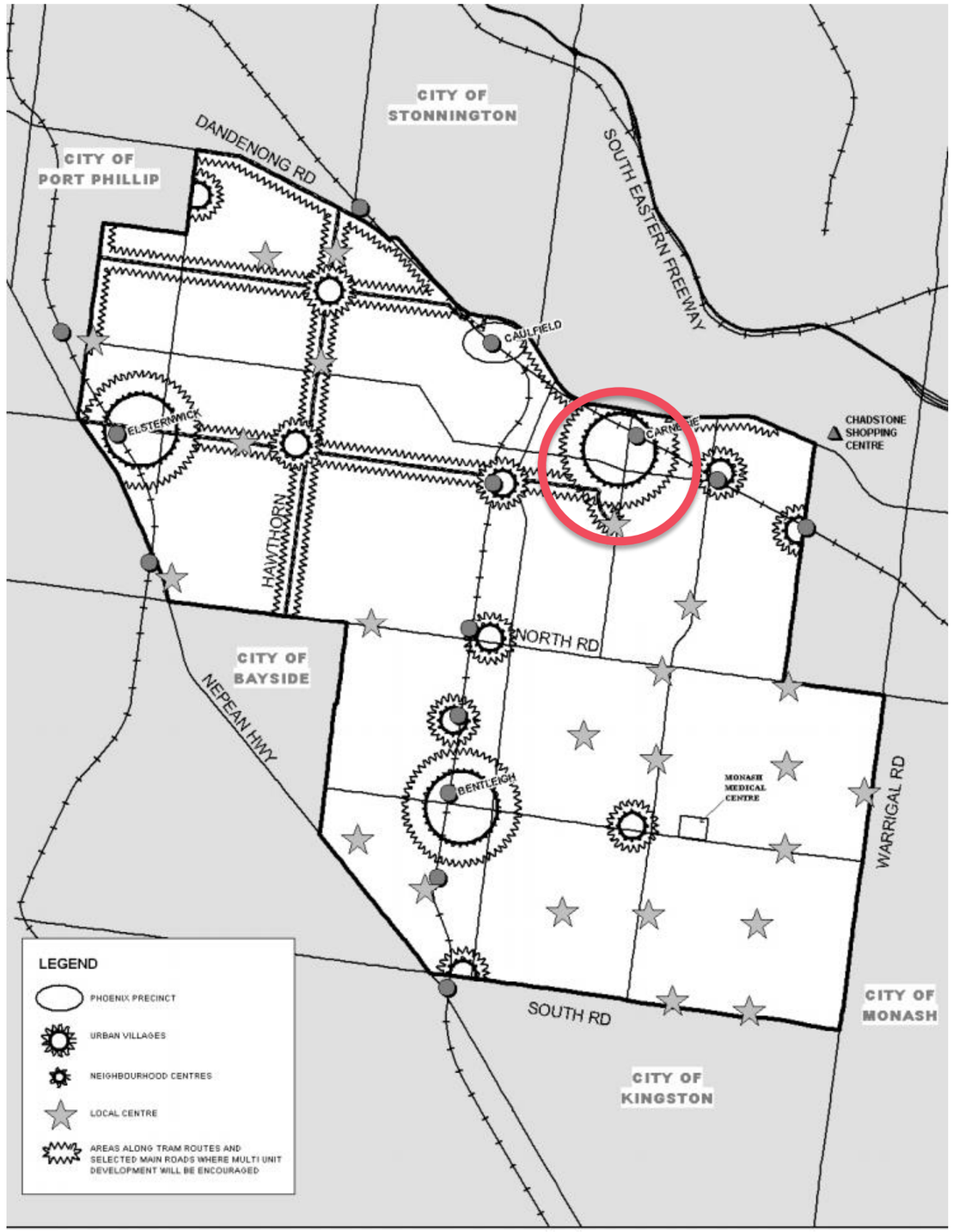
Clause 21.04 of the Glen Eira Planning Scheme provides Glen Eira's Housing and Residential Development Policy framework.

The framework sets out a hierarchy of housing diversity areas. A different density, mass and scale of development is sought for each type of area and different issues should be taken into account. This hierarchy is expressed in the diagram below



This hierarchy is implemented through local policy:

- *Clause 22.06 Phoenix Precinct*
- *Clause 22.07 Urban Villages*
- *Clause 22.05 Housing Diversity Areas.(Neighbourhood Centres, Local Centres, Tram Routes and Selected Main Road)*
- *Clause 22.08 Minimal Change Areas(all other areas)*



Carnegie Urban Village

The study area contains a number of Policy Areas and is centered on the existing Carnegie Urban Village.

Urban Villages are identified as preferred locations for the municipality's highest densities of residential development.

The policy is based on key objectives and strategies of the Municipal Strategic Statement including:

Business

- *Enhance and further develop urban villages as the focus for community life.*
- *Encourage competitive retail outlets in viable, lively and interesting strip shopping centres.*

Housing diversity and density

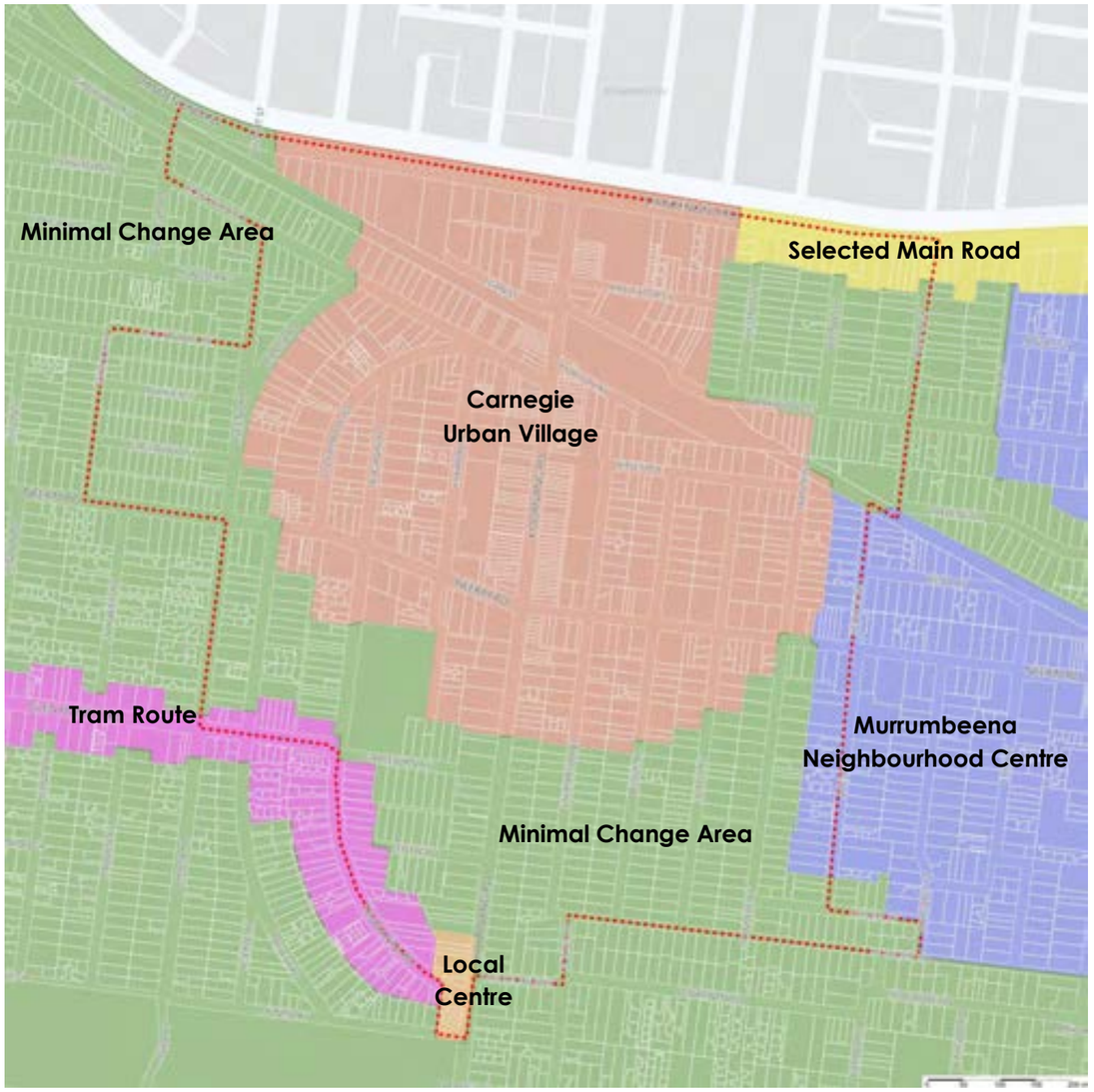
- *Encourage highest residential densities in preferred strategic locations such as urban villages.*
- *Promote the urban village concept in locations identified on the Framework Plan.*
- *Encourage densities of development which increase as proximity to the preferred strategic location increases and which decline as proximity declines (i.e. a higher density would be encouraged for shop top housing within a commercial centre than would be encouraged in a conventional residential street immediately surrounding the centre).*

Carnegie Urban Village Precincts:

Built form guidance and zoning is implemented by 8 precincts in the policy.

Urban Villages Structure Plan (1999)

Precincts are broadly based upon the *Urban Village Structure Plan, Glen Eira City Council, June 1999*, which reviewed areas within a circular walking catchment around the retail core of approximately 500 metres.



Zones

Zones align with policy area boundaries for residential and commercial/mixed use precincts.

RGZ1 **Residential Growth Zone**

The RGZ1 (max height of 13.5 metres, 4 storeys) is applied to the Phoenix Precinct and Urban Villages. In Carnegie, the RGZ is applied in a radial fashion around the Carnegie train station, primarily to the south of the railway line. The application of this zone represents a radius of approximately 500m (on average), being a short walkable distance from the retail core.

GRZ1 **GRZ2** **General Residential Zone**

The GRZ1(max height of 11 metres, 3 storeys) is applied to Neighbourhood Centres. The GRZ2 (max height of 11 metres, 3 storeys) is applied as a transitional area to the periphery of Urban Villages as well as to Tram Routes and Selected Main Roads. The GRZ2 schedule contains additional rear setback requirements for transition.

NRZ1 **Neighbourhood Residential Zone**

The Neighbourhood Residential Zone (max height of 9 metres, 2 storeys) applies to all land located within a Minimal Change Area.

RDZ1 **Road Zone Category 1**

This zone is applied to State Controlled Roads and provides additional requirements for adjoining development.

C1Z **Commercial 1 Zone**

MUZ1 **Mixed Use Zone**

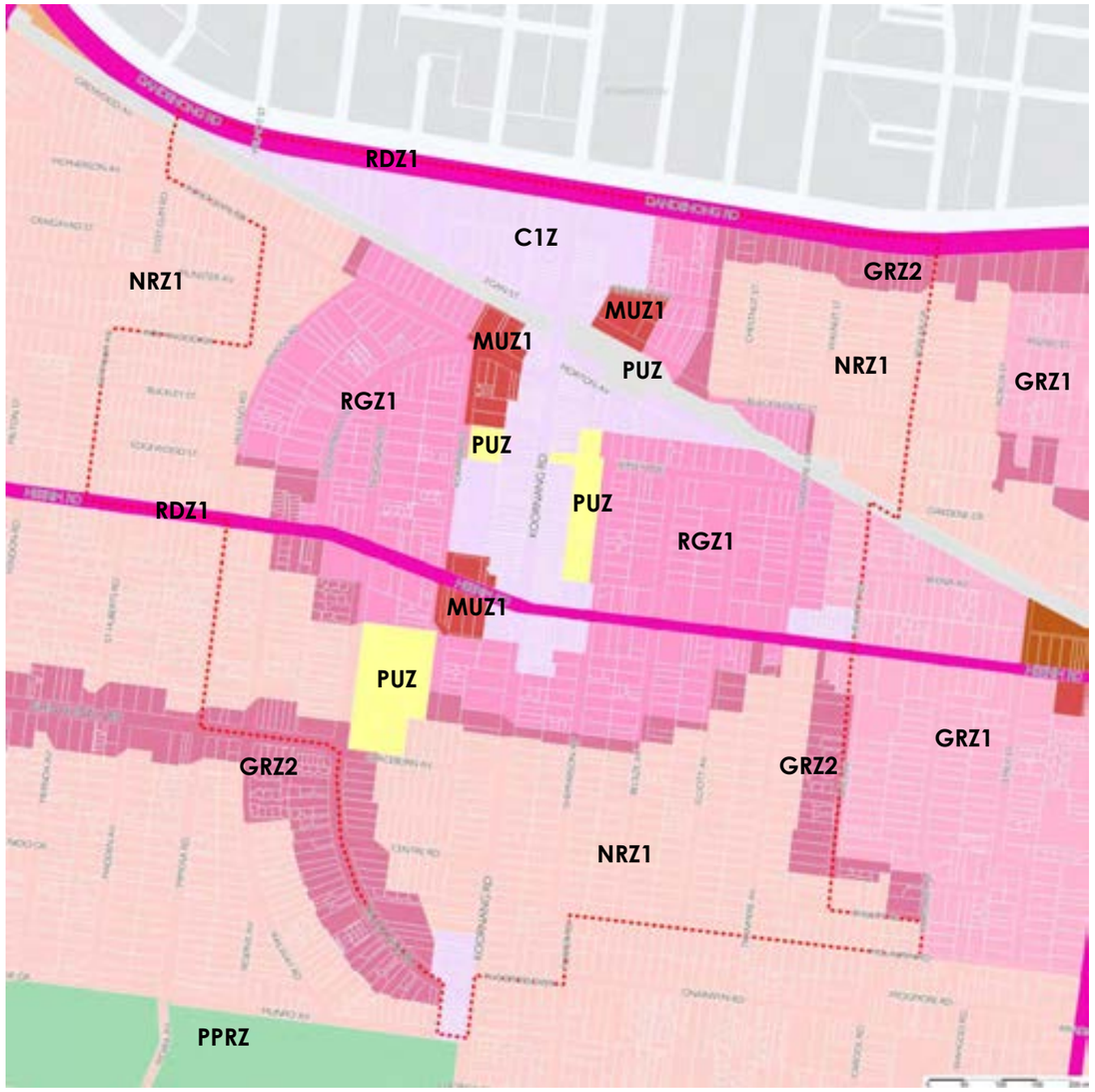
Existing commercial areas are nominated within the Commercial 1 Zone. The Mixed Use Zone is applied in areas of transition from commercial areas.
Building scale and intensity for these areas is broadly aligned with Local Policy. However, specific height requirements remained undefined until 2017 when interim height controls were introduced at part of structure planning (see: DDO9 on the following page).

PUZ **Public Use Zone**

Public land is nominated within the PUZ. This includes the Railway Corridor, Carnegie library site, and carparks along Shepparson Avenue and Kokaribb Road. The Carnegie Primary School is a government school and is also nominated within the Public Use Zone. The Railway Corridor is also subject to the Caulfield Dandenong Rail Upgrade Project, Incorporated Document April 2016 – The purpose of the control in this document is to allow the use and development of land for the purposes of the Caulfield Dandenong Rail Upgrade Project.

PPRZ **Public Park and Recreation**

This zone is applied to public recreation and open space areas. In Carnegie, this includes Lord Reserve, Koornang Park and the Carnegie Swim School.



Overlays

Permanent Overlays

NCO2 **Schedule 2 to the Neighbourhood Character Overlay**

This overlay applies to Chestnut Street & Holywood Grove to facilitate detailed neighbourhood character built form requirements protecting Edwardian and early California Bungalows.

DDO3 **Schedules 3 and 4 to the Design**
DDO4 **and Development Overlay**

This overlay applies to front fencing controls associated with Neighbourhood Character Overlay areas.

SBO **Special Building Overlay**

Identifies land liable to inundation. See 'topography and flooding' section in the following pages.

EAO **Environmental Audit Overlay**

Applies to the traditionally commercial/industrial areas where environmental assessments will be required prior to future development.

PAO **Public Acquisition Overlay**

Applies to properties on Mile End Road that Council has identified for acquisition to create a new open space.

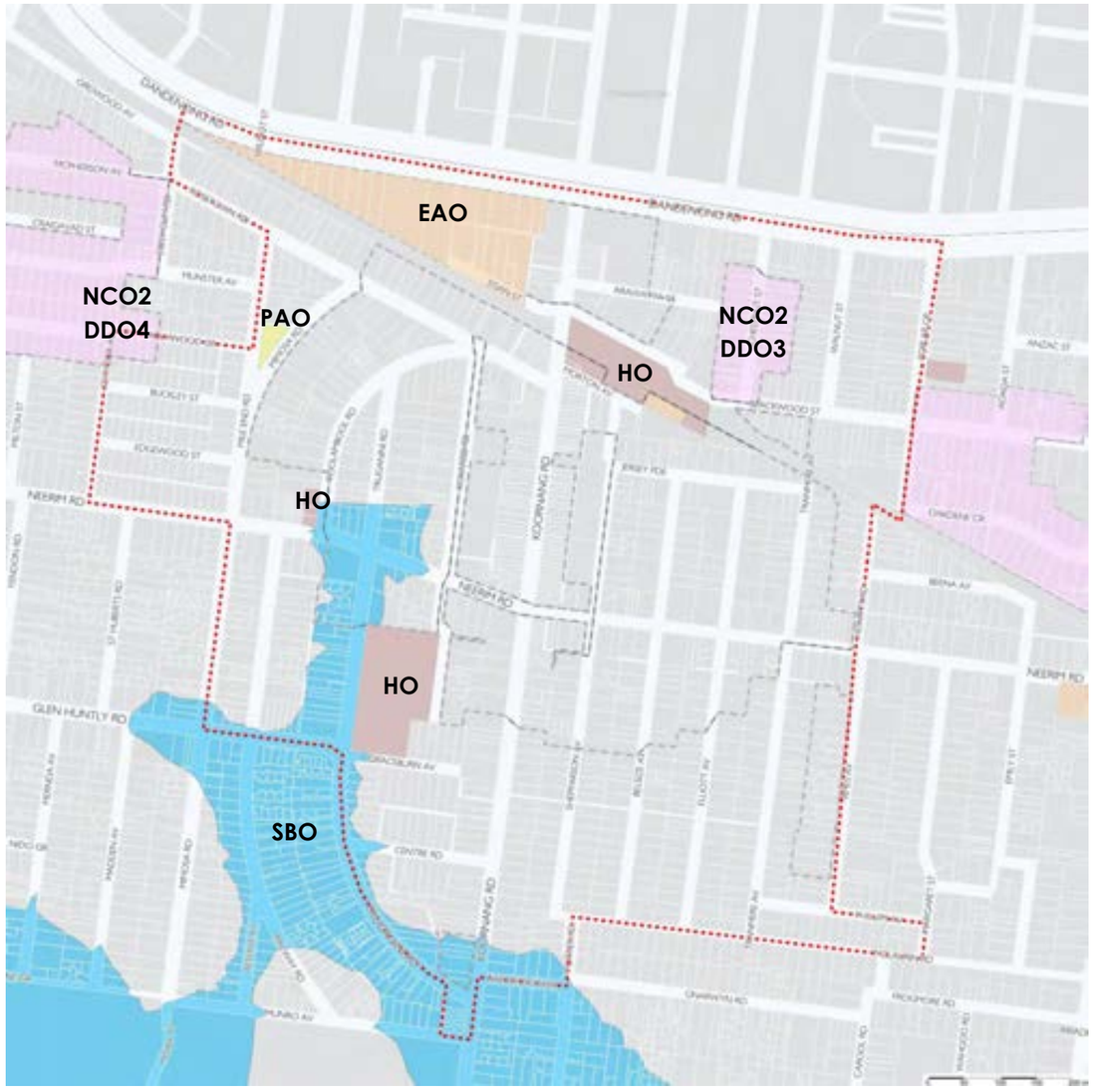
PO **Parking Overlay (not shown)**

Applies to Urban Village and Housing Diversity Area Policy areas in Carnegie. The overlay allows reduced parking requirements for student housing.

HO **Heritage Overlays**

Applies to individual sites. Note: new precincts are nominated as shown on the following page.

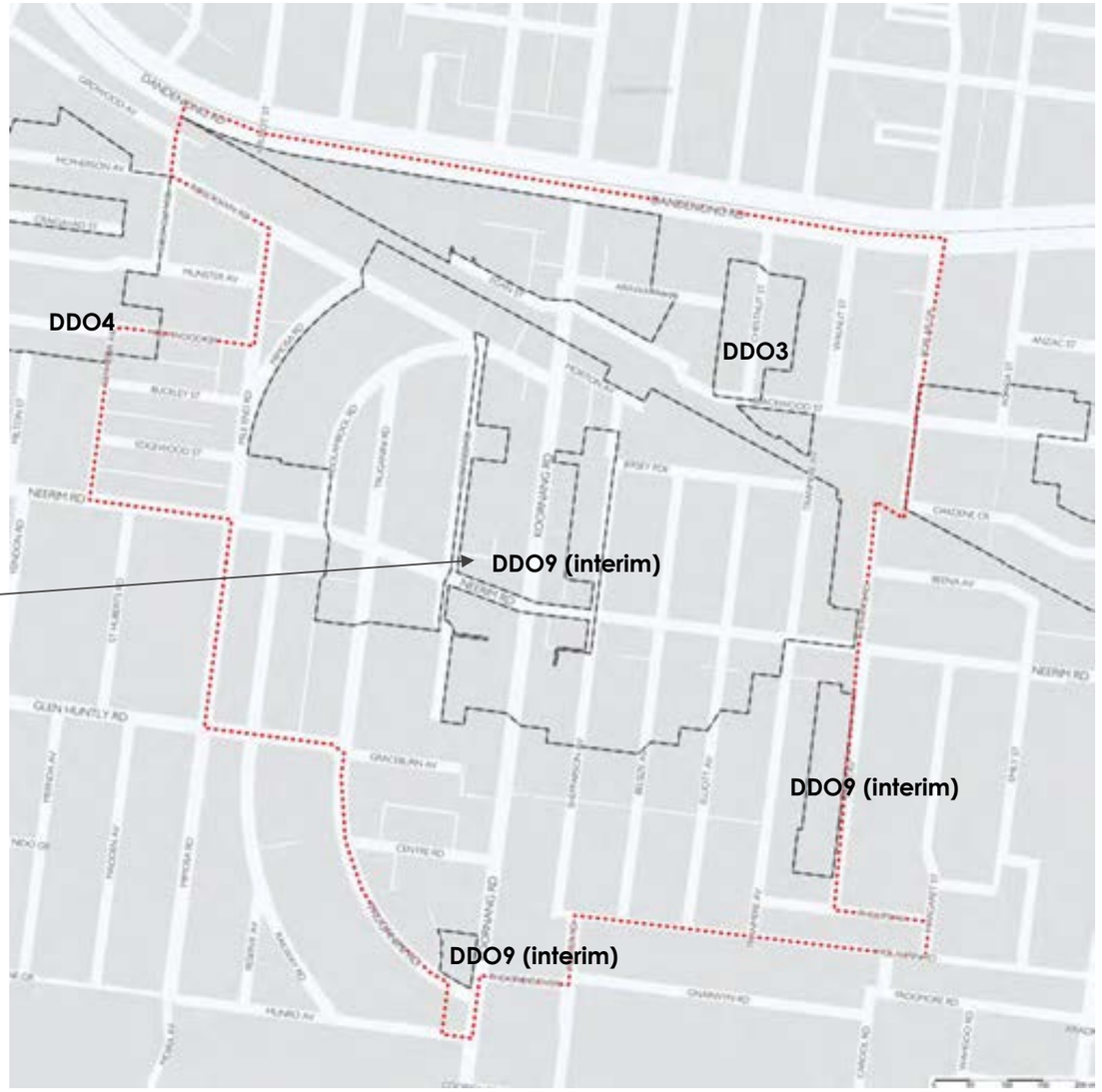
- **HO67** – Heritage Overlay for 51 Truganini Road, Carnegie (Carnegie Primary School).
- **HO47** – Heritage Overlay for Former Uniting Church 254 Neerim Road, 1 and 1A Toolambool Road, Carnegie.
- **HO80** – Heritage Overlay for "Athole" 18 Poplar Grove, Carnegie (abutting the activity centre boundary)
- **HO123** – Heritage Overlay affecting the original Carnegie Station (now demolished) and surrounds, including significant trees.



Interim Overlays (Structure Plan)

DDO9 **Interim Schedule 9 to the Design and Development Overlay**

Interim DDO9 applies to the existing Carnegie Urban Village and part of the Murrumbeena Neighbourhood Centre located within the new Carnegie Activity Centre Study Area for structure planning. The DDO provides interim height controls and design guidance to reflect key *recommendations* of the structure plan where current policy varies. Prior to structure planning, built form guidance was provided in the form of local Policy only and building heights were not prescribed.



Proposed Overlays (Heritage)

Heritage Review

The Structure Planning process for Carnegie recognised that further work needed to be undertaken to identify areas of heritage significance. In particular, to:

- *Investigate the potential heritage significance of the Koornang Road commercial strip.*
- *Protect low scale heritage character of the commercial strip on Koornang Road and encourage the continuation of a lower-scale retail corridor.*

Council commissioned RBA Architects in 2018 to prepare the *Glen Eira Heritage Review – Bentleigh & Carnegie Structure Plans Stage One (Commercial)*.

This process has nominated three new heritage precincts that are identified on the following map:

1. Precinct listing for Interwar and post-war heritage buildings in the Koornang Road Retail Core.
2. Precinct listing for Interwar and post-war heritage buildings at the corner of Truganini and Koornang Roads.
3. Rosstown Hotel (individual listing).

Note: Existing Heritage Overlays are not shown. See Permanent Overlay map previously in this section for existing heritage areas.

A3.

Land Analysis

This section outlines the topography, subdivision pattern and open spaces available in the Carnegie Activity Centre Study Area.

Topography & Flooding

The topography of the study area is relatively flat, with no notable slopes or other topographical land features. There are limited implications for built form as no particular sites will appear less or more dominant based on contours of the land.

Land towards the south-east is identified within the Special Building Overlay (**SBO**) of the Glen Eira Planning Scheme. The SBO identifies land in urban areas liable to inundation by overland flows from the urban drainage system as determined by, or in consultation with, the floodplain management authority (Melbourne Water). Flood mitigation is managed on these sites through the planning permit process.

Subdivision Pattern

The study area has a mixed subdivision pattern allowing for a variety of lot sizes and building types:

Residential Areas

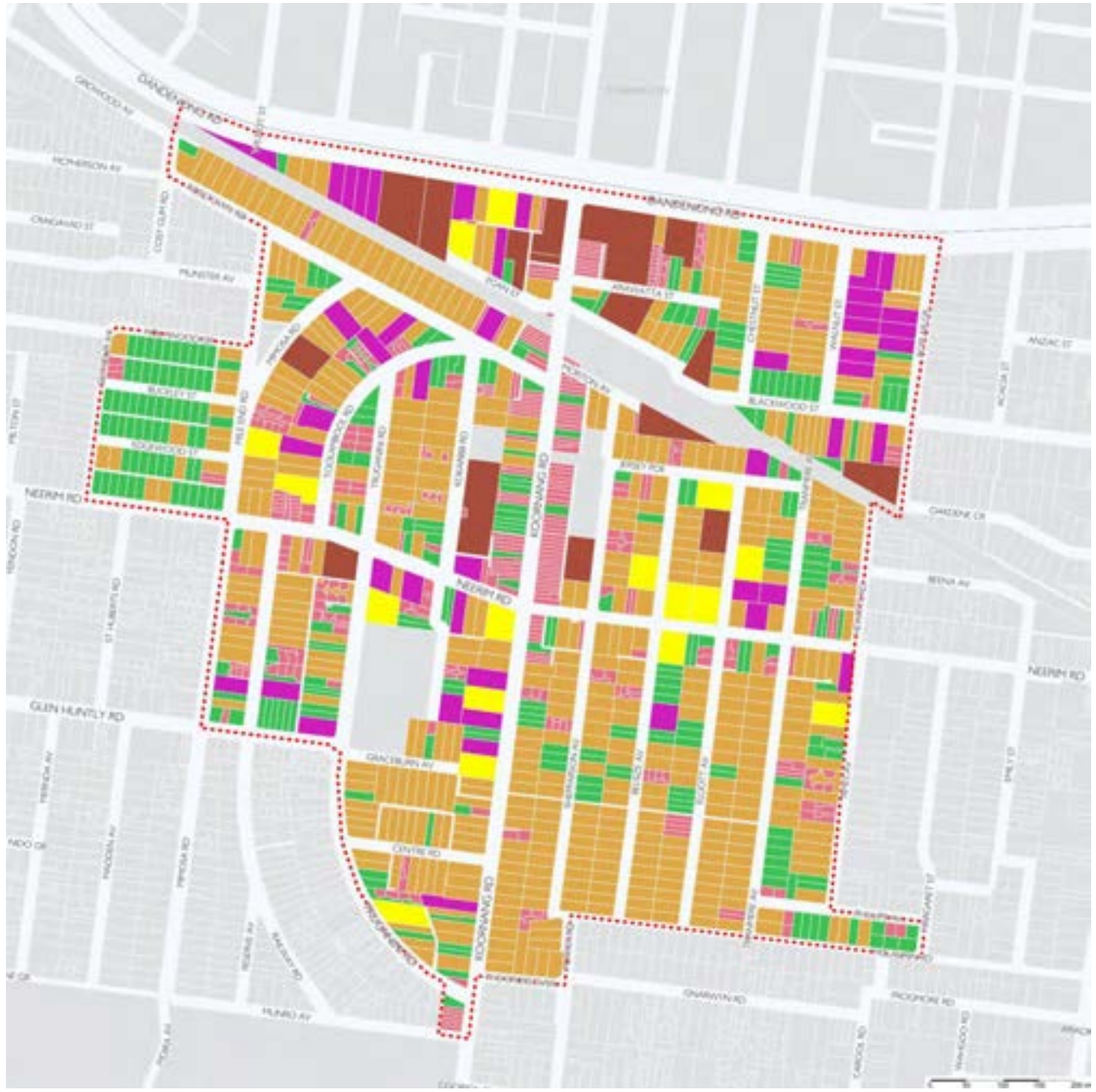
Subdivision pattern reflects the time of initial development. Residential land generally ranges from 400 to 700 square metres, with the majority around 600 square metres.

Larger lots mostly represent properties that have already been consolidated and developed for apartment buildings.

Commercial & Mixed Use Areas

The Koornang Road retail core contains a fine grain lot pattern, with lots generally ranging from 200 to 400 square metres and street frontages commonly between 5 and 7 metres wide. Building frontages within this catchment reflect a historic fine grain character.

The commercial surrounds abutting the retail core contain medium to larger sites, with major strategic opportunities to the east and west of the Koornang Road Retail Core and north of the railway line



Lot Size

- 0-299 sqm
- 300-499 sqm
- 500-1000 sqm
- 1000-1500 sqm
- 1500-2000 sqm
- 2000+ sqm

Open Space

The *Glen Eira Open Space Strategy 2014* outlines the existing open spaces in the suburb of Carnegie and their relative walking catchments, with gaps identified in the north west and the south east of the study area.

A new network of Open Spaces

Structure planning has provided an opportunity for Council to coordinate a network of existing and future open spaces. The State Government's recent Level Crossing Removal Project has contributed significantly within the railway corridor and station surrounds. Open spaces include:

A. Jersey Parade Reserve - Existing civic forecourt connecting Koornang Road to the Carnegie Library (**existing**)

B. Mile End Road Park (**proposed by Council**)

C. Kokkaribb Street Park (**proposed by Council**)

D. Egan Street linear public realm connections and community spaces (**proposed by State Government**).

E. Woorayl Street station forecourt (**proposed by State Government**).

F. Woorayl Street open space (**existing**)

Note: State Government has recently proposed a development opportunity site over this park and Council is campaigning for its retention.

Level Crossing Removal – LXRA Open Space concept plans

Woorayl Street Open Space – Council's 'Every bit counts campaign'

A4.

Built form and Character Analysis

This section outlines the physical built form features of the Carnegie Activity Centre Study Area, including placemarkers, building heights, permit activity and character

Place Markers and Important views

There are many unique characteristics present within the study area that contribute to its sense of place and identity. These include:

1. The northern gateway to Koornang Road, comprising Rosstown Hotel and Carnegie Shopping Centre as important corner sites, and the southern gateway intersection at Koornang Road and Neerim Road.
2. The revitalised Carnegie Station and surrounds, including a new elevated rail over Koornang Road and future community activity areas and linear parks under the railway.
3. Heritage buildings along Koornang Road, particularly south of the railway line.
4. Carnegie Primary School heritage buildings.
5. Carnegie Library.
6. Woolworths on Kokaribb Road.
7. Chestnut Street and McPherson Avenue Neighbourhood Character Overlays.
8. Tram route along Truganini Road.
9. Carnegie Swim Centre (south of the study area).

Existing & Approved Building Heights

The activity centre has experienced rapid transformation in the past 5 years. In addition to Melbourn'e recent housing boom, this targeted transformation in Carnegie could be seen as a flow-on effect of the new residential zones introduced in 2013 (amendment C110), which provided clarity for growth in Urban Villages.

Commercial/Mixed Use Areas

The historic Koornang Road retail core remains intact with no recent permit activity.

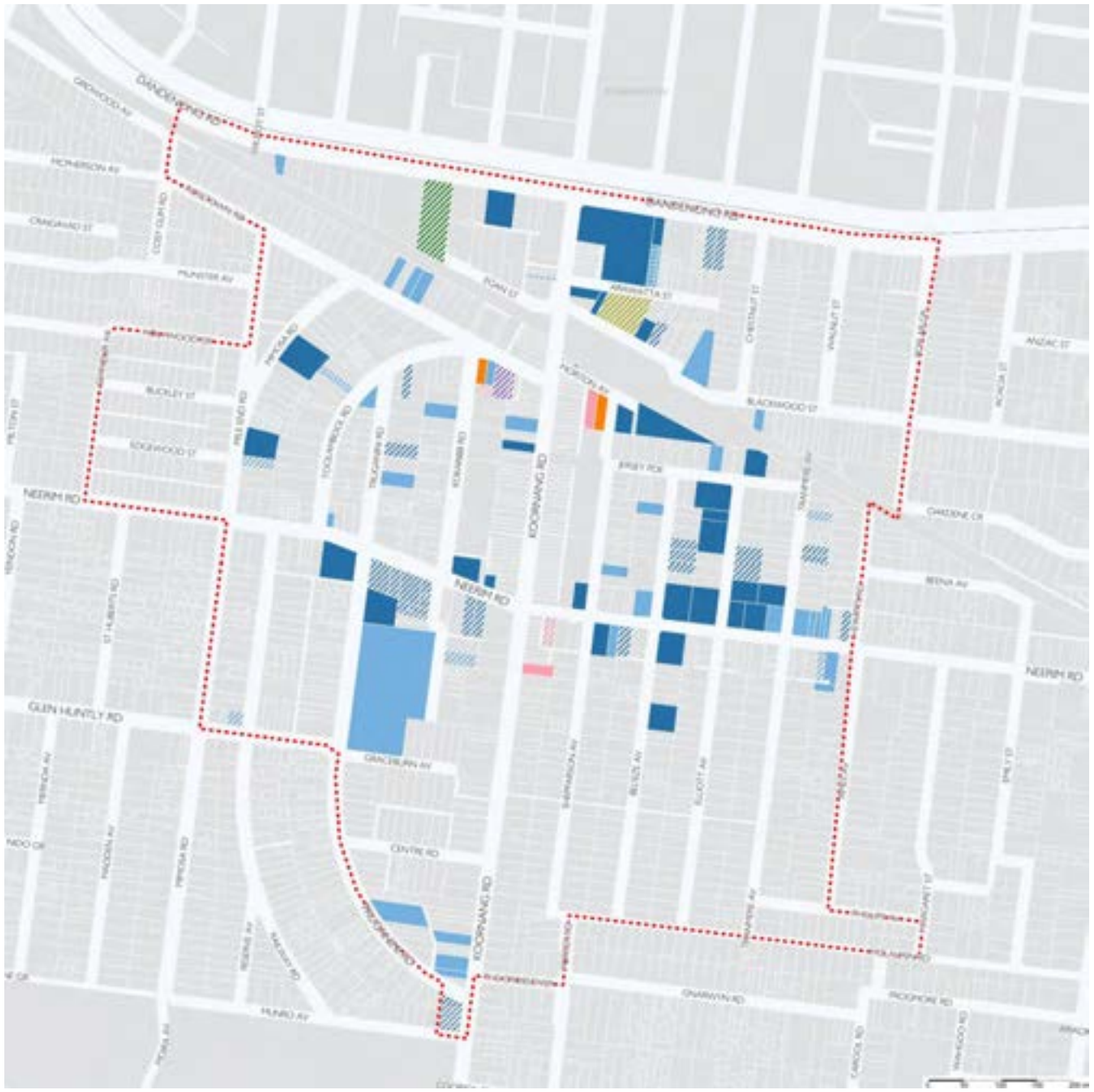
Development activity has occurred in the immediate surrounds, with taller buildings approved or constructed around the southern intersection of Neerim and Koornang Road (4-6 storeys) as well as around the Carnegie Station (4-13 storeys).

Residential Areas

There is a clustering of 4 storey apartment buildings within existing RGZ sites along Neerim Road and to the east of the retail core at Belsize Ave, Elliott Ave and Jersey Parade.

Limited permit activity is present in RGZ areas west of the retail core. This is likely due to these properties largely containing existing two-storey multi-unit developments.

Limited permit activity is present in RGZ areas south of Neerim Road on the local streets of Belsize Ave, Elliott Ave and Jersey Parade. Future development in these areas is likely under current policy as these streets contain single dwellings with large sites sufficient for consolidation.



Existing/Approved Building Height (storeys)

- Up to 2 storeys
- 3 storeys
- 4 storeys
- 5 storeys
- 6 storeys
- 8 storeys
- 12 storeys
- 13 storeys

Approved development that is not constructed. For example, striped pink identifies an approval at 6 storeys, while solid pink shows a constructed development at 6 storeys.

Data caveats: *Height (storeys) data is based on a visual site survey conducted over May-June 2018. The data represents total floor count as visible from the street and does not equate to height in metres. Permit data is based on a review of new planning permits issued within the study area within the past 5 years (Aug 2013 to mid-June 2018). Permit data does not account for permit amendments when original permits were issued prior. Data excludes buildings in public open spaces or public use zone.*

Residential Zoned Areas

Carnegie is an inter-War garden suburban area with modern infill development. The suburb's traditional built form character is defined by a mix of 1 to 2 storey detached or semi-detached dwellings along with intermittent blocks of 1960's and 70s era flats. Buildings are generally constructed with brick or weatherboard facades and pitched, tiled roofing. Buildings traditionally have low site coverage and substantial front and rear setbacks, with greenery and canopy trees contributing to a valued garden setting. The earliest residential development occurred close to the Carnegie Railway Station, formerly known as the Rosstown Railway Station, which was opened in 1879. Victorian and Edwardian (late 19th and early 20th century) residential development occurred in areas closest to the station with inter-War dwellings providing the most dominant wave of development for the area. During the 1960s, many dwellings in this location were demolished to make way for double storey walk-up flats, while this century has seen a new wave of apartment and dual occupancy development.

New developments in recent years have rapidly transformed Carnegie's traditional streets in the General and Residential Growth Zones, establishing a dense urban environment of 3 to 4 storey apartment buildings with high site coverage and reduced setbacks.

New developments adopt a contemporary architectural approach with geometric or 'box' styled rendered facades combined with timber, brick or stone feature elements.

Transformation

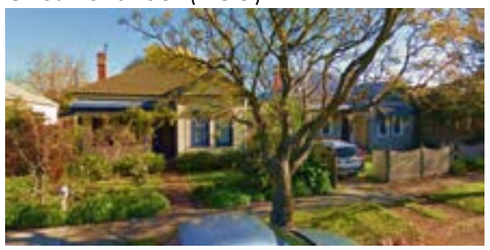
The following imagery demonstrates the significant transformation of Carnegie's residential areas (2011 vs 2018)

Examples of Traditional Character

Tranmere Avenue (southern)

Mimosa Road

Chestnut Street (NCO)



Shepparson Avenue

Truganini Road

Examples of Emerging Character

90 Mimosa Avenue

8 Elliott Avenue

7-11 Belsize Avenue

259-261 Neerim Road

316 Neerim Road

339-341 Neerim Road

Commercial, Mixed Use & Public Use Areas

Commercial & Mixed Use areas have been split into four parts for description:

- Koornang Road Retail Core
- Koornang Road Surrounds
- Local Centres
- North of the Railway Line

Koornang Road Retail Core

The core retail area along Koornang Road, between the railway line and Neerim Road, has a strong Interwar-era character, with many older shopfronts of one to two storeys in scale. This low scale, together with the characterful older buildings, creates a retail core that is highly distinctive and attractive. Limited permit activity within the streetscape has ensured that the traditional low-scale and open character is maintained. Council commissioned RBA Architects in 2018 to prepare the *Glen Eira Heritage Review – Bentleigh & Carnegie Structure Plans Stage One (Commercial)*. Refer to that report for further comment on proposed heritage buildings along Koornang Road.

The road has an approximate street width of 21 metres from building to building, typical of the era. The majority of the street is comprised of historic buildings with 2 storey parapet heights, maintaining a low-scale and open streetscape character. Buildings are built to the street frontage with a fine grain development pattern reflecting the 5-8m street frontage widths of properties. The majority of buildings provide an active frontage with a mix of shops, offices and restaurants spilling into the street.

The street layout incorporates wide footpaths and awning coverage along the majority of the street. There is limited urban greenery. Challenges exist regarding block permeability, however a few laneways and private properties provide pedestrian access between Koornang Road and adjoining surrounds. Vehicle access is provided at the rear of lots via existing laneways, therefore avoiding driveway access from the main street.

Koornang Rd (from Neerim Rd Intersection)

Koornang Road Streetscape

Koornang Road Streetscape

Public realm on Koornang Road

Carnegie Library forecourt

Koornang Road Surrounds

Original buildings in the surrounds are generally between 1 to 2 storeys in height. There is a mixed building character with a range of street frontages and property sizes that are less consistent than within the Koornang Road Retail Core. Recent permit and construction activity is establishing a strong emerging built environment of 4 to 6 storeys.

Council commissioned RBA Architects in 2018 to prepare the *Glen Eira Heritage Review – Bentleigh & Carnegie Structure Plans Stage One (Commercial)*. Refer to that report for further comment on proposed heritage buildings along Koornang Road.

Neerim Rd intersection

This 'gateway' intersection has a mixed building character with some parts conforming to the built form pattern of the Koornang Road Retail Core. The older buildings generally have a consistent parapet height of up to two storeys, creating a strong and consistent visual element in the streetscape.

This is particularly evident for the sites at the south-eastern part of the intersection of Koornang and Neerim Roads, providing a very attractive gateway to the centre from the south.

Across the road (south-west of the intersection) a large petrol station dominates the corner site that can be accessed from both roads. A new development at the southern tip of the commercial area is 6 storeys in height, providing an end-cap to the precinct that unfortunately dominates the lower-scale surrounds.

Developments south of Neerim Road will have a transitionary role towards abutting residential areas and should adopt a deliberated approach that manages this transition.

Carnegie Station & Level Crossing Removal

The Koornang Road Level Crossing removal project by the Victorian Government has transformed the northern end, establishing a revitalised and distinctly urban character.

- B*efore level Crossing Removal* – Koonang Road maintained a continuous low-scale open character from north to south of the railway line.
- *After Level Crossing Removal* – The new structures establish a clear separation between the north and south of Koornang Road, and reinforce a more urban character in the surrounds.

East & West of Koornang Rd

Existing laneways and carparks to the east and west of the retail core should serve as the basis for the activation of the rear of shops. Redevelopment of these sites would transform the linear retail core into a larger grid, enabling a vibrant and connected pedestrian network within the activity centre. A number of strategic opportunities are identified in the Structure Plan with a mix of land use and open space opportunities in these areas. Recent development sites around Morton Avenue and Rosstown Roaddemonstrate that taller buildings in this area will contribute to the urban character established by the new station.

Koornang Rd (from Neerim Rd Intersection)

Koornang Rd (from Neerim Rd Intersection)

New Carnegie Station

Carpark on Kokaribb Street

Level Crossing Removal

Morton Ave & Rosstown Rd developments

Local Centres

Two local centres are located within the study area. Both have an existing historic character of 2 to 3 storeys.

The Truganini Road intersection contains a cluster of buildings with distinctive historical architecture that should be further investigation to determine heritage value.

The design and era of these buildings creates a link with the Koornang Road Retail Core.

Corner Neerim & Hewitts Road

Corner Truganini & Koornang Road

North of the railway line

The area north of the railway line has a commercial /industrial character, which can be seen along Egan Street, Woorayl Street and Arawatta Street, and sites with a frontage to Dandenong Road. The area north of the railway line provides a strong visual contrast with the historic retail core of Koornang Road. The area is in a transitional stage and is dispersed with intermittent apartment style developments.The low-scale Koornang Road Retail Core (discussed previously) continues towards Danenong Road, with a mix of historic interwar and post-war era shopfronts combined intermittent new developments. The built environment along Koornang Road is largely of a two storey scale. However, the northern entrance to the activity centre is marked by a four storey shopping centre complex, creating a gateway from the Dandenong Road intersection. The surrounding areas east and west of the retail core primarily consist of one and two storey industrial buildings or warehouses of brick construction on large sites. The area provides a strong opportunity for renewal and transformation, with large properties in prime locations near the Carnegie Station. Recent permit activity has demonstrated renewal opportunity, with examples of 12 and 13 storey buildings approved in the station surrounds.

1060 Dandenong Rd
12 storeys

18 Woorayl St
13 storeys

Koornang Rd (view north from station)

Corner Egan St and Koornang Road,

Egan Street

Dandenong road commercial areas

Corner Koornang & Dandenong Roads

Key Design Issues

Community & VCAT Feedback – Planning Scheme Review 2016

In 2016, Council completed an extensive community engagement process to review the Glen Eira Planning Scheme. More than 430 people participated in the discussion with 247 attending the scheduled meetings and 68 participating via Council's *Have Your Say* online forum. A total of 122 submissions were received. The *Glen Eira Planning Scheme Review Report 2016 contains the analysis, findings and work plan recommendations from this process.*

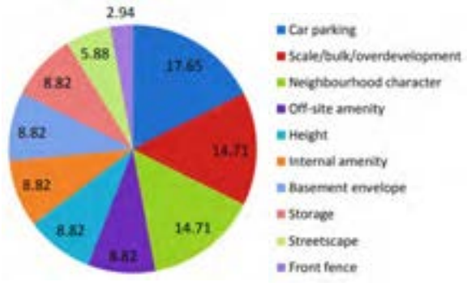
The report contained an analysis of key VCAT issues to determine the leading planning and policy issues disputed at VCAT for Glen Eira City Council.

A sample of 50 appeals were analysed from the 2014/2015 financial year, after the implementation of the reformed residential zones. Each appeal was investigated to determine the 'broader issue' that was in dispute. Key issues included: basement envelope; building transition; car parking; first floor extent (minimal change areas); front fence height; internal amenity; neighbourhood character; off-site amenity; scale/bulk/overdevelopment; storage; and streetscape appearance & integration.

The findings were then broken down into Local Policies Areas. The majority of VCAT Appeals for land affected by the Urban Villages Policy were related to:

- Car parking (17.65%);
- Scale/bulk/overdevelopment (14.71%);
- Neighbourhood character (14.71%);
- Off-site amenity (8.82%); and
- Height (8.82%).

The full breakdown includes:



These trends indicate that further policy guidance is required for greater clarity on neighbourhood character outcomes for areas of increased density. It is also apparent that scale, bulk and overdevelopment are linked to issues regarding Neighbourhood Character.

Consultant Feedback

In 2017, Council appointed Planisphere consultants to review the urban context of Glen Eira's Activity Centres and provide recommendations for Council's strategies, guidelines and structure plans to improve built form and character outcomes. Plansiphere prepared the two reports, being the Glen Eira Urban Context Report (June 2017) and Activity Centre Urban Design Guidelines (July 2017).

The Design Guidelines informed development of Council's adopted Quality Design Guidelines. The Urban Context Report highlighted a number of development issues and opportunities across commercial and residential areas:

<u>Commercial areas:</u>

- **Ground level activation** – providing active frontages on main streets, and minimising vehicle access points and building services.
- **Interface response & Amenity** – overshadowing, overlooking, building bulk, and equitable development issues resulting from minimal upper floor setbacks.
- **Podium Expression** – Commercial development often has limited streetwall consistency. Defined podium and tower forms with upper floor setbacks will help to emphasise the lower parts of the building and transition visual bulk and volume away from the streetscape).
- **Design Quality** – designs should be well articulated (vertically and horizontally) with visually interesting facades and treatments to break up the visual bulk of upper floors and respond to street rhythm.
- **Rear Transition to Residential** – development should respond better to sensitive interfaces, particularly addressing overlooking, overshadowing, vehicle movement and noise.

<u>Residential Areas:</u>

- **Excessive site coverage & limited front setbacks** – High density development often disrupts the residential scale and rhythm of the streetscapes. The large development footprint leaves very little area for the vegetation and landscaping associated with traditional front yard areas. The vegetation in front setbacks is just as important as street trees in creating a sense of greenery in the streetscape. Greater setbacks will achieve more greenery while allowing for secluded privte open space in front yards.
- **Street presentation** – Design detailing can improve the way a development integrate with the streetscape. Designs should incorporate vertical and horizontal articulation and visually interesting facades to break up larger extents and respond to street rhythm.
- **Side interfaces –** Boundary to boundary site coverage creates apartments with outlooks to the adjacent residential dwellings along the entire side boundary, with minimal side setbacks. Dwelling orientation should avoid this.
- **Dominant vehicle access ways** – vehicle accessways should be designed to be visually appealing with landscaping and articulated elements in the surrounds.

B.

Appendix B: Commercial & Mixed Use Areas

B1.

Summary

Appendix B outlines the key design aspects that influenced proposed controls for commercial and mixed use areas.

Discussion is separated into nine parts

B1. Summary

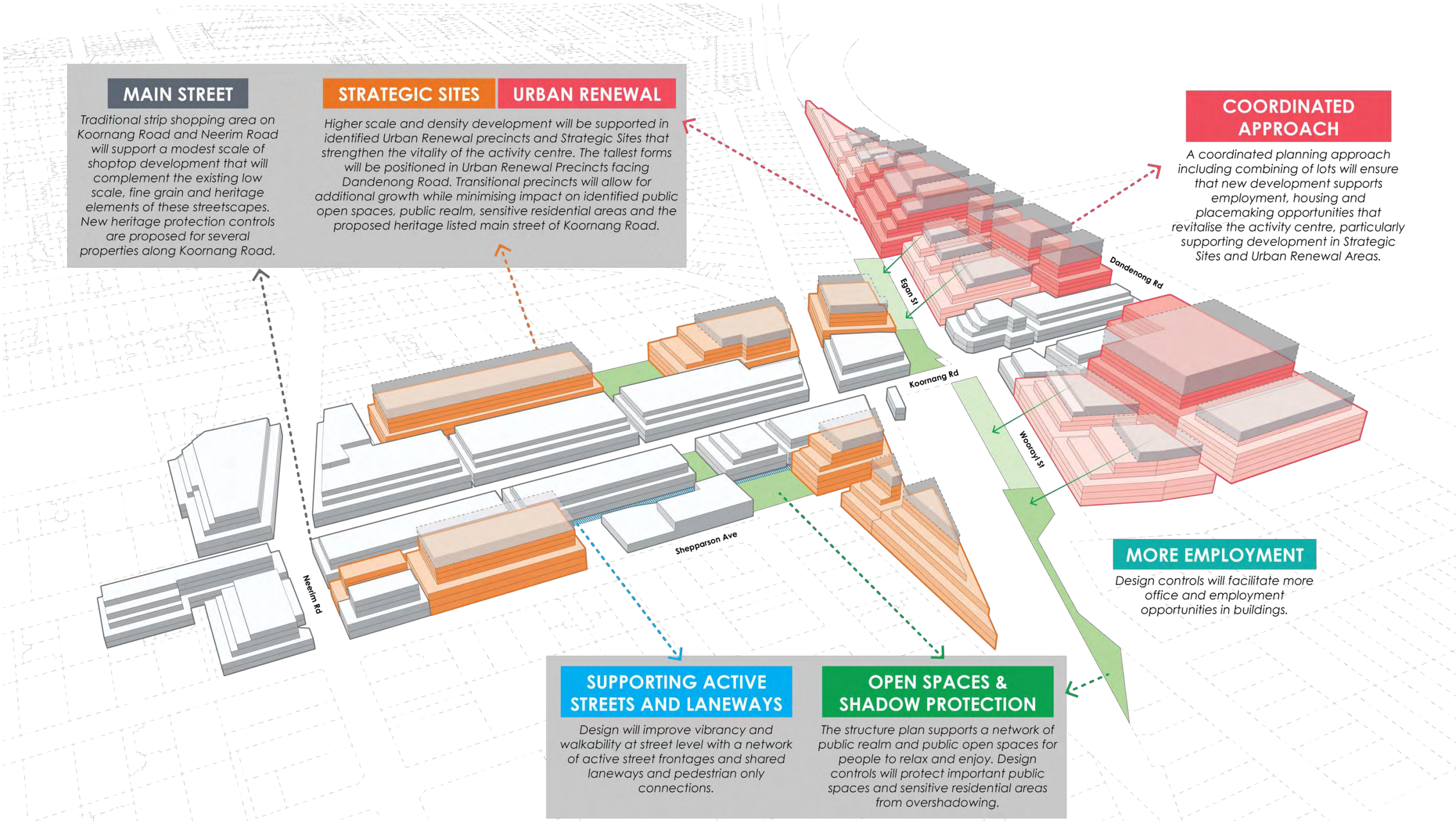
Theme: Activity and local employment
B2. Active streets and laneways
B3. Supporting employment by design

Theme: Human-scale street design
B4. Street wall height and design
B5. Setbacks above the street wall

Theme: Building height in context
B6. Building height

Theme: Protecting amenity
B7. Building separation, outlook & privacy
B8. Responding to sensitive interfaces
B9. Shadow protection

Design summary



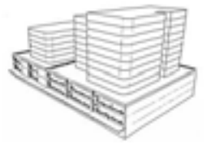
Precincts

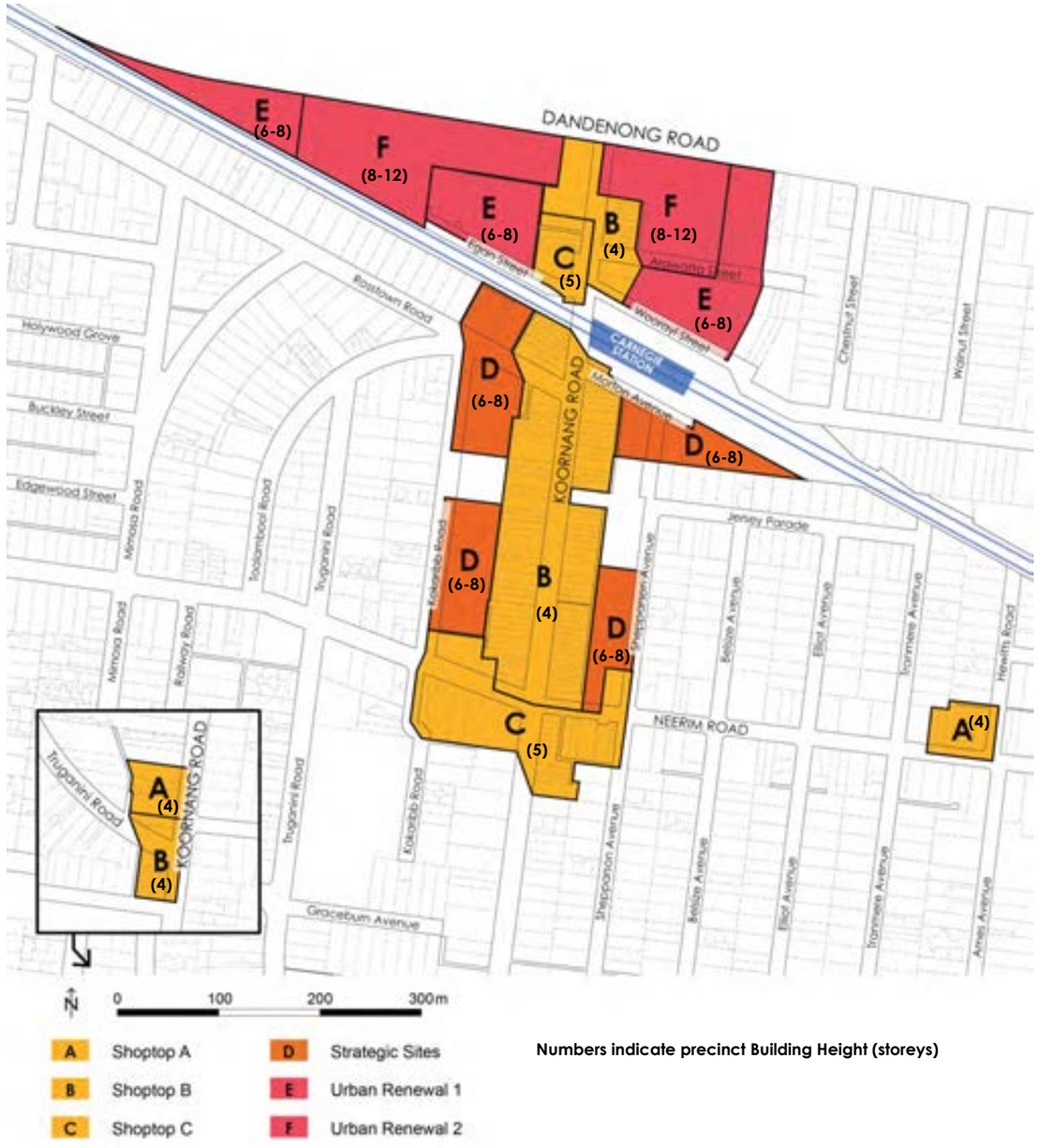
The activity centre applies building typology recommendations from the *Quality Design Guidelines*. Each building typology will be applied as a built form precinct in the *Planning Scheme*.

A Shop-top (standard)
B Shop-top (heritage)
C Shop-top (standard)

D Strategic sites

E Urban Renewal
F



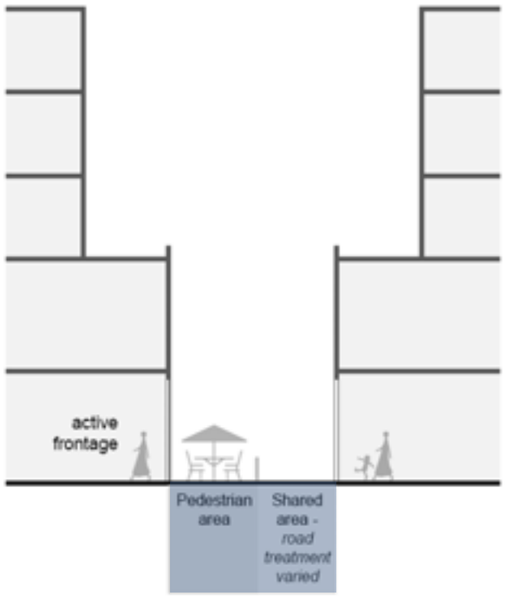


Numbers indicate precinct Building Height (storeys)

B2.

Active streets and laneways

"A co-ordinated network of walkable streets, laneways and public spaces"



Context

The pedestrian and street network is a key element of the urban structure in Carnegie that involves coordinating transport and urban design objectives.

The *Carnegie Structure Plan* proposes to expand Carnegie's existing network of laneways to improve functionality, connectivity and permeability for pedestrians and vehicles.

In conjunction, Council's *Quality Design Guidelines* seek to ensure that that construction of new buildings reduces the impact of vehicles on main streets by:

- Minimising the number and width of vehicle crossings and driveways.
- Locating vehicle crossings and driveways on secondary streets or lanes. In order of priority, access is preferred from:
    - a laneway/right of way;
    - a secondary street; or
    - a primary street (if no other access is available).

These matters will be resolved by providing clarity through a proposed laneway plan and requirements for minimum laneway widths in new developments. An upgraded and connected laneway network will require extended laneways and quality design responses at street edges.

Types of laneways

The *Structure Plan* seeks to create a network of active laneways – pedestrian focused urban spaces that foster social interaction and activities such as outdoor dining, live music and art appreciation. These laneways generally include active frontages, a pedestrian focus, and architectural detailing that provides interesting or surprising experiences for people. Depending on the particular location and requirements for vehicular access, active laneways may be pedestrian only or shared spaces.

Broadly, a laneway means an existing or potential future street or right of way identified in mapping on the following page. Laneways are generally streets less than 9 metres wide and located to the side or rear of buildings.

Carnegie's laneway network will be allocated based on three types of 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 and include any laneway that is not nominated as a shared laneway or pedestrian laneway.

Recommendations

The following plan identifies active frontages, laneways and the pedestrian network. This section identifies:

- Principles behind selection of these laneways and interfaces.
- Key requirements for planning controls that deliver the laneway network and provide guidance for addressing each type of Active Frontage street level interface.

Principles: Identifying locations for pedestrian, shared and service laneway types

Pedestrian laneways have been identified where:

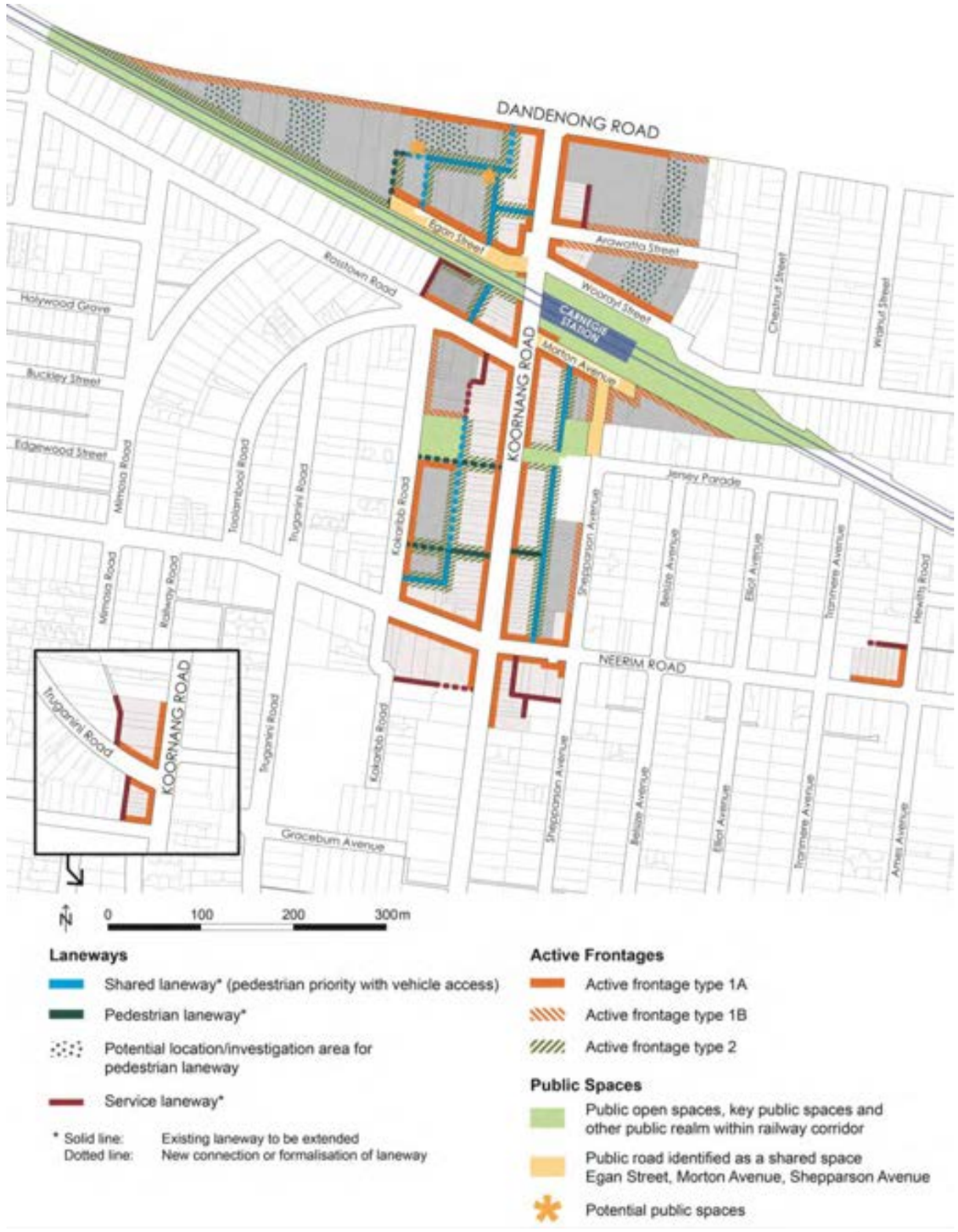
- There is an existing pedestrian connection.
- There is opportunity to create a new pedestrian connection within the street block street, to establish minimum intervals of 60 to 100 metres from the next intersection or pedestrian connection and where vehicle access is not required.

Shared laneways have been identified where:

- The laneway abuts a Strategic Site, Urban Renewal Precinct, or important public space.
- There is an existing laneway or short practical connection required to create a new laneway for the block in a Strategic Site and Urban Renewal Precinct.

Service laneways have been identified where:

- A commercial/mixed use area abuts a residential area and there is an existing public laneway connection or established parking area on a private site in a logical location for future access should redevelopment occur.
- There is an existing laneway or short practical connection required to create a new laneway for the block that would re-direct vehicle access from streets.



Recommendations for Laneway extensions

The proposed laneway network requires that new developments activate and extend existing and future laneways. The following control should be applied to selected parts of laneways identified for extension:

- **New buildings and works abutting an existing or identified future laneway must be setback to facilitate a 6m laneway width.**

Why 6m wide?

The purpose of this control is to provide clarity about how to achieve the expanded network of future laneways in the activity centre.

Historically, laneways were established as 3m wide service laneways to the rear of commercial properties. In service laneways, a 6m wide laneway allows for dual vehicle carriageway and safe vehicle manoeuvring within service laneways.

Orderly development intensification will mean that laneways will evolve over time to take pressure off of main streets as the primary access point for vehicles. The space also helps to accommodate relevant building services, waste management, deliveries (loading/ unloading) as well as vehicle access.

Creating wider laneways and cross-block links will improve vehicular manoeuvrability and safety, and increase opportunities for pedestrian movement, business activity and vibrancy at the street level.

The plan introduces a network of active laneways and pedestrian connections to improve the vibrancy of the centre. A 6m wide laneway allows for shared access arrangements or footpath trading to be introduced into the space.

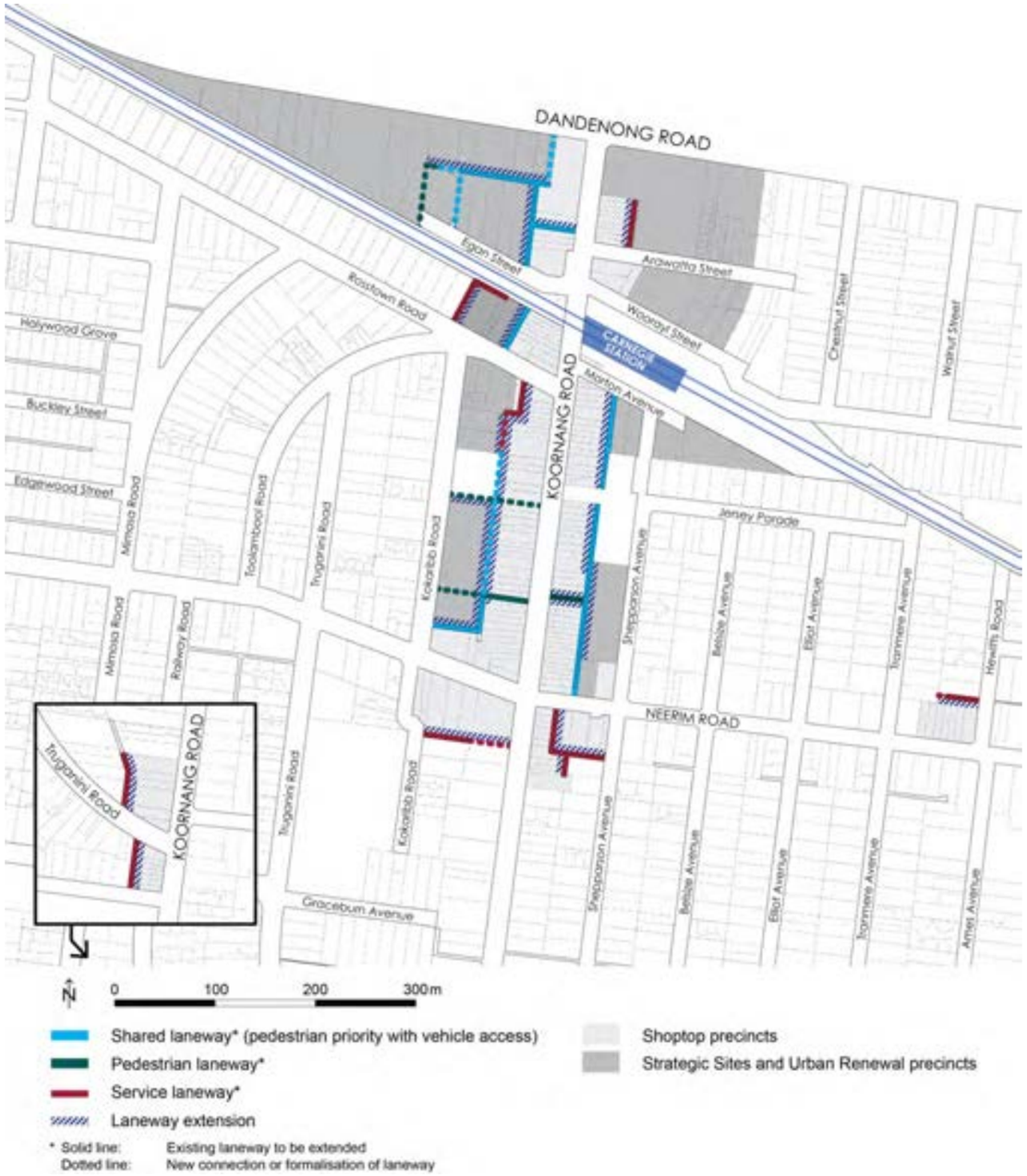
Which properties will contribute to laneway extensions?

The interface (setbacks) plan identifies properties that will contribute to a laneway extension. These interfaces are marked with a '**hatched line**' on the following plan.

The identification process considered which part of each street block is best placed to deliver the laneway extension:

- Nominating the extension on larger sites with highest propensity for redevelopment (prioritising strategic sites or urban renewal precincts over fine grain, shop-top precincts).
- Accounting for existing development and likelihood for redevelopment of sites abutting the laneway.

Setbacks above the laneways should deliver a 6m wide laneway and continue to define nominated street walls. A 3m setback above the street wall is recommended.



Principles: Identifying locations for 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.

Recommendations for active frontages

Recommendations are based on a hierarchical approach, with some requirements applying broadly to all active frontages (general requirements) and others establishing differences specific to a particular active frontage type (specific requirements).

General requirements

- Provide active frontages at ground floor, with façade detailing in the street wall including windows, entrances, doorways and fenestration that provide street level interest, lighting, promote activity at ground level and facilitate passive surveillance of public spaces.
- Provide direct pedestrian access to ground floor uses. Ground floor design of buildings should facilitate through-site pedestrian connectivity between streets, shared laneways, pedestrian laneways and public spaces.
- Avoid blank facades.
- Where abutting a Key Public Space (eg. an existing or future park or important public space), provide an inset to facilitate active uses with a strong connection between the building and the outdoors (such as outdoor seating for a food and drink premises).

Specific Requirements

For **Active Frontage Type 1A**:

- Provide weather protection (fixed cantilevered verandahs) over the footpath on all streets.
- Provide at least 80% of the building façade at ground level as an entry or window with clear glazing.
- Avoid vehicle access and crossovers.

For **Active Frontage Type 1B**:

- Provide weather protection (fixed cantilevered verandahs) over the footpath on all streets.
- Provide at least 65% of the building façade at ground level as an entry or window with clear glazing.
- Minimise vehicle access and crossover widths as much as practical.

For **Active Frontage Type 2**:

- Provide at least 50% of the building façade at ground level as an entry or window with clear glazing.
- Minimise vehicle access and crossover widths as much as practical

B3.

Supporting employment by design

"Creating more local employment space"

Context

The *Carnegie Structure Plan* vision seeks to create a destination for entertainment, shopping and employment, supporting a range of businesses.

Economic objectives include to: boost evening activity and support quality local shopping, dining and entertainment options; and encourage offices and employment opportunities.

New developments in commercial and mixed use areas are not fully supporting this outcome – with approvals containing high residential densities and low proportions of retail and commercial floor space. As a broad theme, mixed use developments are replacing or reducing existing quantities of commercial space over time.

Planning controls should encourage true mixed use buildings with a greater focus on delivering employment uses where demand is identified and prioritised.

The *Glen Eira Housing and Local Economy Growth Assessment* completed by SGS Economics and Planning identified high demand for additional commercial floor space and some demand for additional retail floor space in Carnegie.

Built form policy should ensure that ensuring new development delivers greater employment opportunities that meet this demand.

Recommendations

Building design should strengthen the retail and employment function of the activity centre with building design that supports employment uses.

Within the street wall podium of a building, design requirements should support employment uses to align with economic objectives and demonstrated employment demand by providing:

- Minimum floor to floor heights of at least 4 metres at ground level, and at least 3.8 metres for all other levels within the preferred street wall height for the precinct (expect where heritage considerations make this impractical).

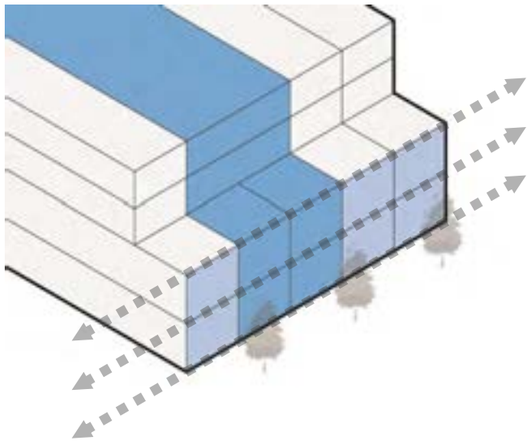
Where non-commercial use is proposed in the upper floors of the podium, building design should provide for future conversion to support employment uses incorporating:

- The minimum floor to floor heights identified above.
- Floor plan layouts allowing for future consolidation of dwellings or small tenancies into larger tenancies.
- Minimal load bearing walls in opportune locations to facilitate future consolidation.
- Wide entries and foyers around lifts or stairwells.

B4.

Street wall heights

"Creating a consistent street wall that reinforces local character"



CONTEXT

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 seen 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 fine grain street proportion with active frontages and weather protection. Street walls should be designed to achieve a human scale and an attractive and active street level experience.

Summary of recommendations:

- Street wall heights of **2 storeys** will be acceptable 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 acceptable 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 acceptable along Dandenong Road dues to its proportionate width.

Shop-top Precincts

Existing character

Appendix A contains a detailed land and built form character analysis for the area that underpins considerations and recommendations.

Design Testing

- 3D street wall modelling for shop-top precincts (main streets) is provided at the end of this section.

Comments

Koornang and Neerim Road have a strongly defined two-storey street proportion and historic fine grain character. 'Shop-top' infill development is encouraged for these areas.

Original buildings reinforce a 2 storey street wall and fine grain detailing, with shopfronts between 5 and 7 metres in width. These characteristics should be reinforced as design controls to reflect the important established character of the precinct.

The height of street walls in traditional shopping strips is not always related to floor count (storeys), as commercial requirements will vary and design trends have changed over time. Historic shopfronts along Koornang Road were predominantly built as 2 storey buildings with large decorative parapets creating an apparent 2-3 storey visual scale in modern terms.

It is important that new designs match the prevailing floor count and design detailing to facilitate visual continuity in street wall character. This can be achieved in new buildings with raised floor heights and architectural detailing at lower floors as shown in the 'reinforcing the street wall' example imagery. In Koornang Road mandatory street wall height controls (listed in storeys) should be considered to ensure that new developments do not disrupt the historic street wall character. -

Recommendations

- Two storey street wall heights.
- Street wall design to match predominant two storey floor count and established fine grain vertical and horizontal alignments.

Koornang Road Retail Core

Reinforcing the street wall

This example shows a recent development in the Caulfield North Neighbourhood Centre. The design demonstrates how a three storey podium in a predominantly two storey street can appear discordant and transformative. Design should match and facilitate visual continuity in street wall character, with setbacks at upper floors to reinforce this outcome.

Strategic sites and urban renewal areas

Existing character

Appendix A contains a detailed land and built form character analysis for the area that underpins considerations and recommendations.

Design testing

- 3D street wall modelling for strategic and urban renewal precincts is provided in the following pages.
- Also see (see 'shop-top precincts' model) on the previous page for design and commentary on taller street walls.

Comments

Sites surrounding the Koornang Road retail core do not have a consistent streetscape character. There area is comprised of street-facing surface car parks, and ad-hoc building setbacks and street walls, which reduce the attractiveness of the street and public realm.

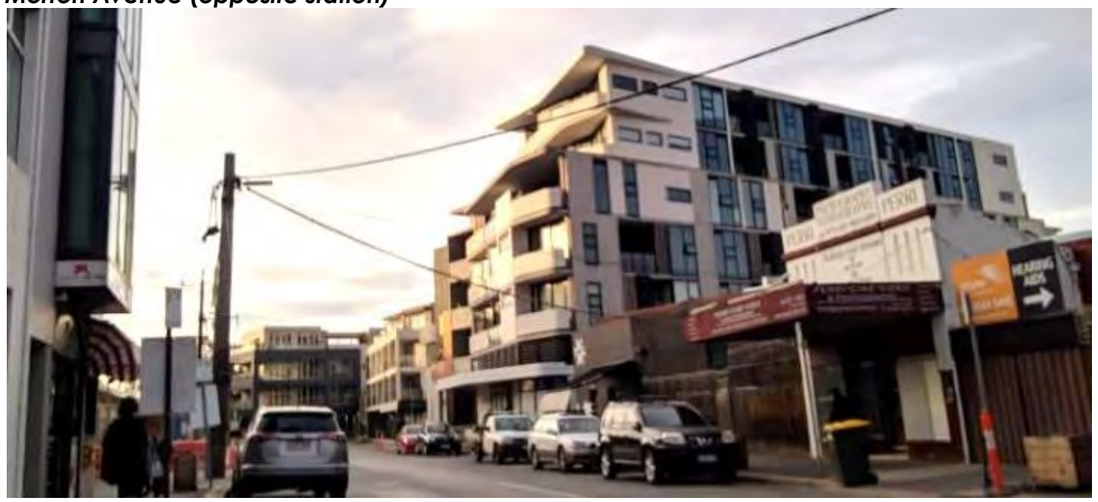
Given these circumstances, the area represents a 'blank canvas'. Redevelopment provides an opportunity to repair the urban fabric and identify a preferred future character outcome with a strong special definition. This will help to create a more coherent street edge and enhance the amenity, activity and human scale of the streetscape.

The Koornang Road Level Crossing removal project by the Victorian Government has transformed the Station and surrounds, establishing a revitalised and distinctly urban space. Strategic and renewal sites will benefit from and contribute towards revitalisation of this area. Recently constructed developments in Morton Avenue and Rosstown Road have established an emerging character with street walls ranging from two to four storeys.

Recommendations:

- Strategic and renewal areas will establish a podium and tower form reinforcing a contemporary urban character.
- Preferred 3 storey street walls encouraged in strategic and renewal sites.
- Preferred 4 storey street walls supported along the Dandenong Highway interface due to its higher proportionate width and separation.

Morton Avenue (opposite station)



Rosstown Road (south side)

Rosstown Road (north side abutting railway)

Design testing

Street wall heights in traditional main streets

The following 3d model demonstrates the visual impact of different street wall heights on a typical main street like Koornang Road, which is approximately 20 metres wide.

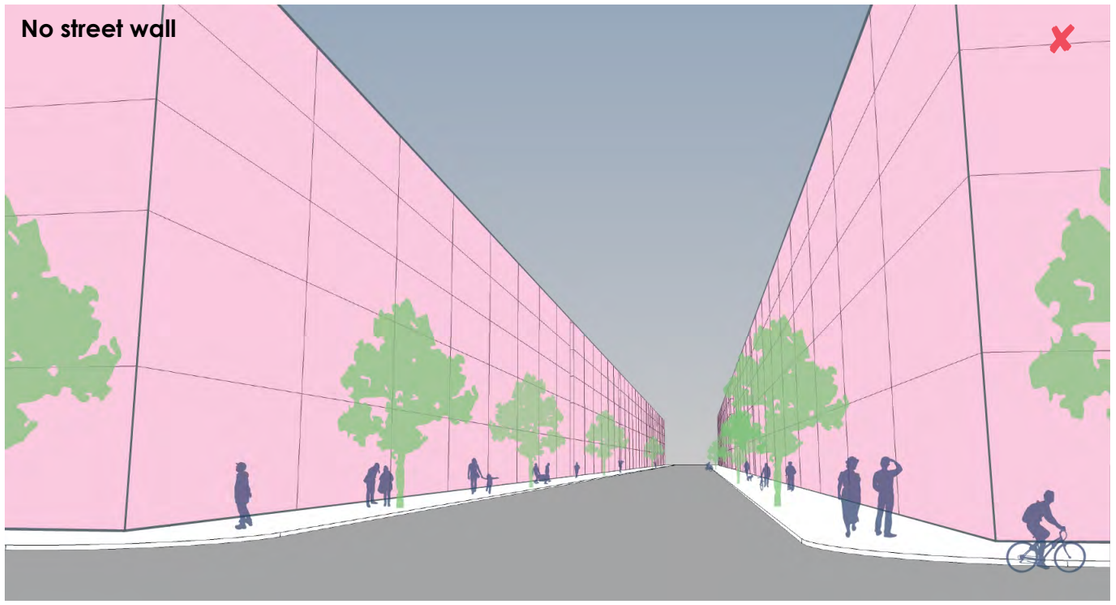
Main streets in Glen Eira commonly have a street-width of around 20 metres, which is representative of the late 19th and early 20th century in which they were established.

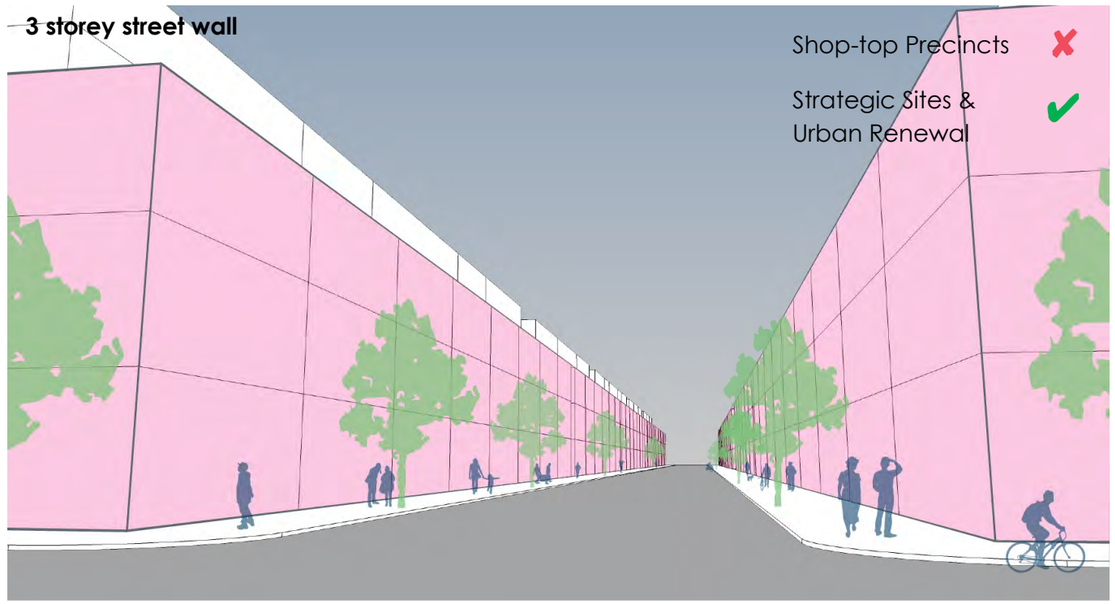
The first image demonstrates a high level of enclosure that stems from no defined street wall.

The second and third images demonstrate that street wall heights of 2-3 storeys are broadly acceptable in most contexts as they maintain an open character.

The height and detailed design of a street wall should respond to any valued built form character, including heritage fabric. In some cases, this means that the street wall should reinforce a lower or taller form.

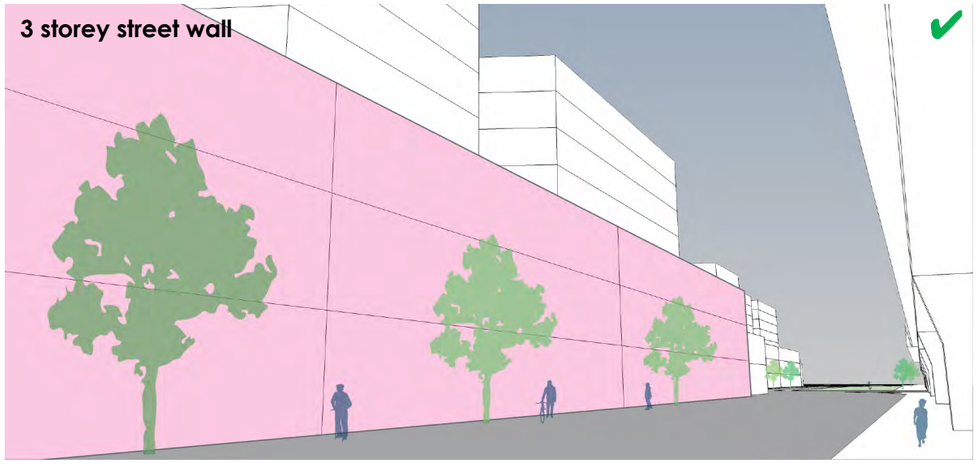
In Carnegie, a 2 storey street wall will match the predominant form on Koornang and Neerim Roads (shop-top precincts), while a 3 storey street wall will be acceptable in strategic and urban renewal precinct settings where controls seek to establish a new preferred character.

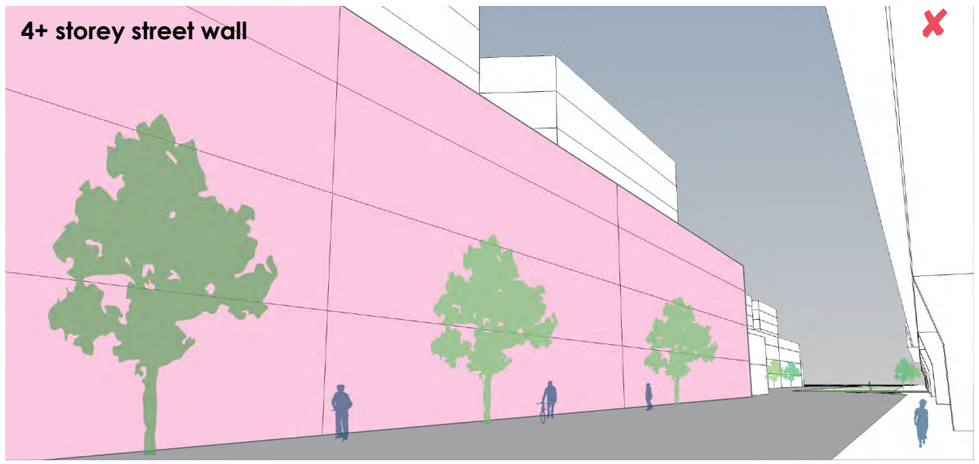




Street wall heights in strategic and urban renewal precincts

Around the railway corridor (Egan St)



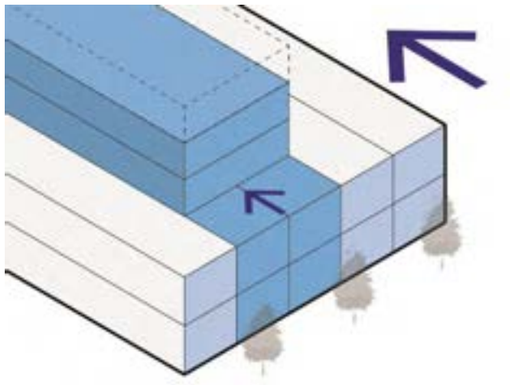


Views from Dandenong Road

B5.

Setbacks above the street wall

"Creating a human scale pedestrian environment with recessed upper floors"



Context

New development will be in the form of built to boundary street walls that are designed to achieve a human scale and an attractive and active street level experience, with upper floors recessed.

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.

Separation ensures that larger buildings do not visually dominate the street or public space and that the dominant street wall scale is maintained.

Existing character

Appendix A contains a detailed land and built form character analysis for the area that underpins considerations, design testing and recommendations.

Comments

A review of planning permit outcomes, development trends and 3D design testing has determined that a **minimum setback of 5 metres will adequately define the street wall** and clearly separate the upper floors. This delivers a human-scale streetscape environment that maintains the rhythm of traditional streets, with upper floors appearing more as background elements at close range.

Built form modelling and numerous site visits have helped to determine that lesser setbacks of 3-4 metres (as commonly proposed) do not adequately achieve this outcome.

Heritage listed streets (Koornang Road)

Council's new *Heritage Policy* at Clause 22.01 of the planning scheme provides guidance for development in commercial areas seeking to:

- *Ensure any new upper level additions and works are respectful to the scale and form of the heritage place or contributory elements of the place and, where relevant, the heritage precinct as a whole.*
- *Encourage higher building additions to be well set back from the front wall of the building.*
- *Encourage the retention, restoration or reconstruction of original shopfronts and verandahs*

The new *Policy* does not define specific building heights, street wall heights or setback distances.

Council's Quality *Design Guidelines* includes a recommendation for setbacks based on view line assessments.

However upon detailed review in the local context, this recommendation should be varied for Carnegie.

A prescribed minimum setback of 5 metres will provide sufficient definition of the heritage street wall, with other recessive design elements being sufficient to emphasise the heritage elements of buildings along Koornang Road.

Design testing

- 3D upper setback modelling is providing on the following page.

Recommendations:

General streets

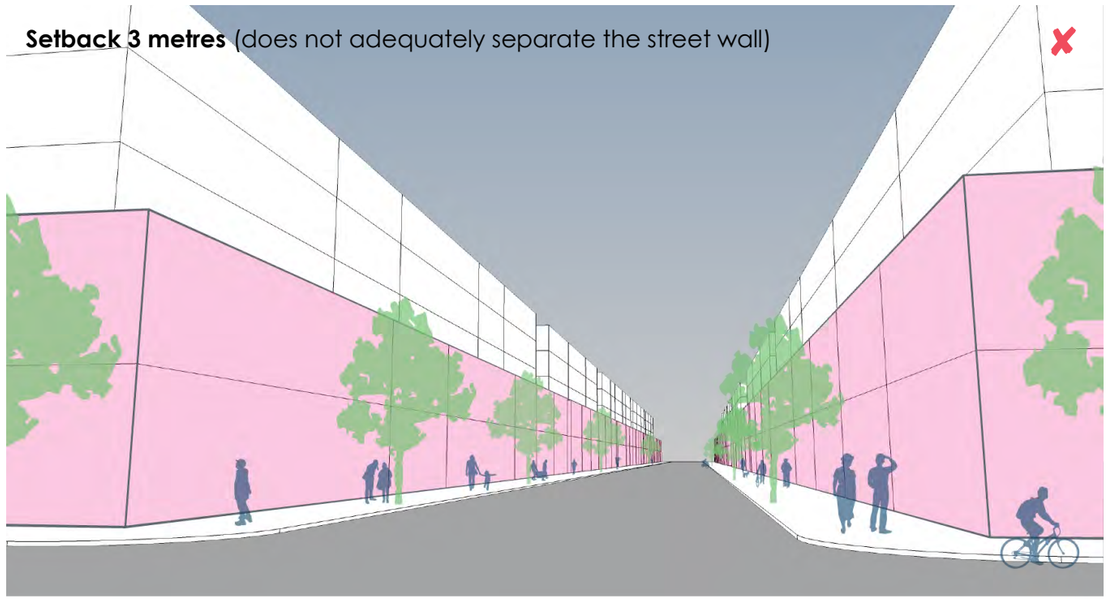
- Minimum 5 metre setback above the street wall on primary street frontages.
- Minimum 3 metre setback for laneways or secondary streets (for corner sites). Application of these setbacks is site specific and should be identified on a plan.

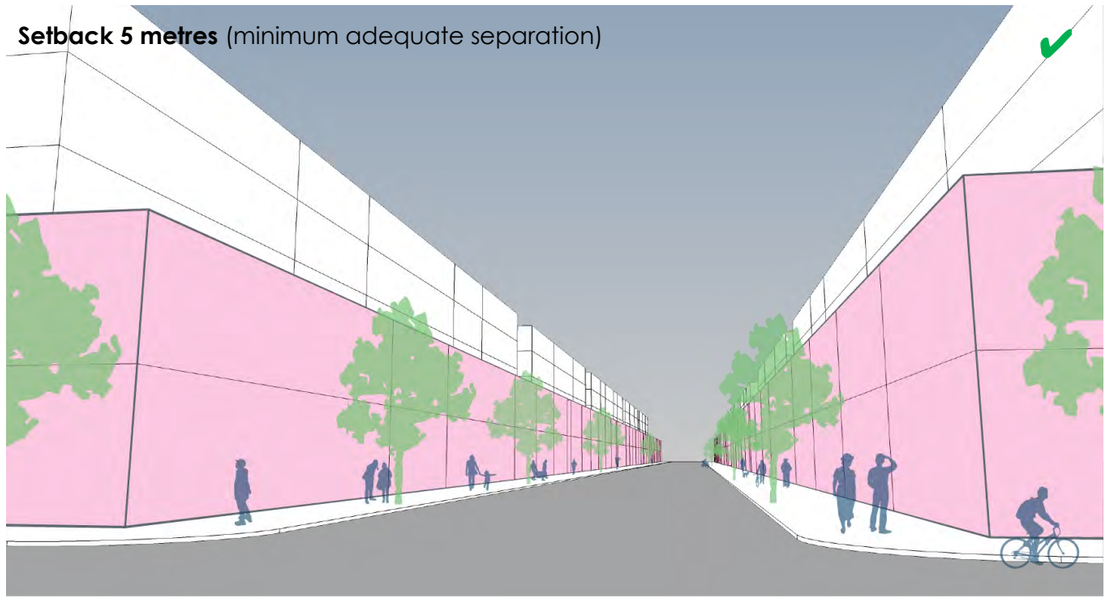
Heritage areas

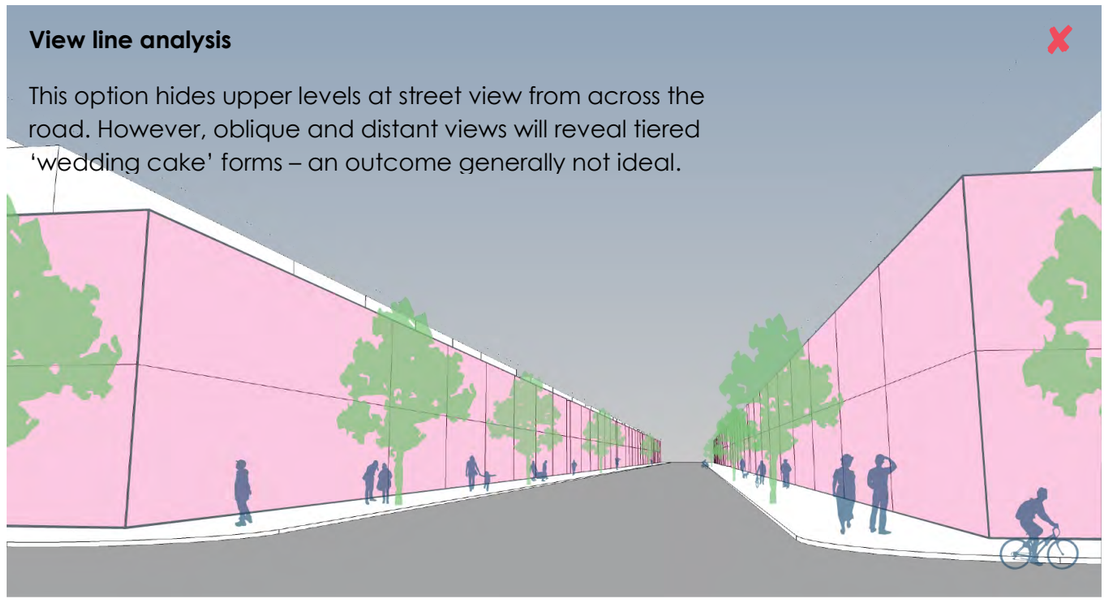
- Minimum 5 metre setback above the street wall.
  Note: original QDG recommendation for greater setbacks based on view line assessment is not recommended for Carnegie.

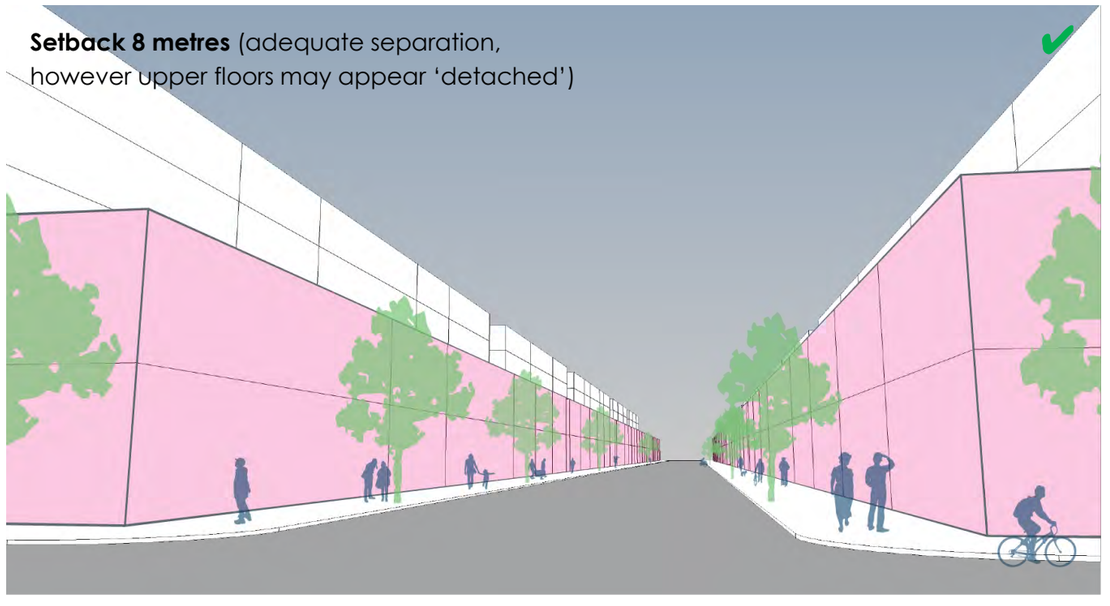
Design testing

Setbacks above the street wall





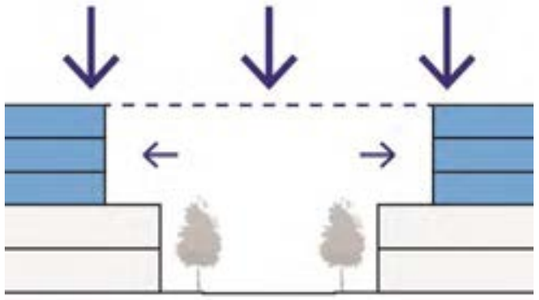




B6.

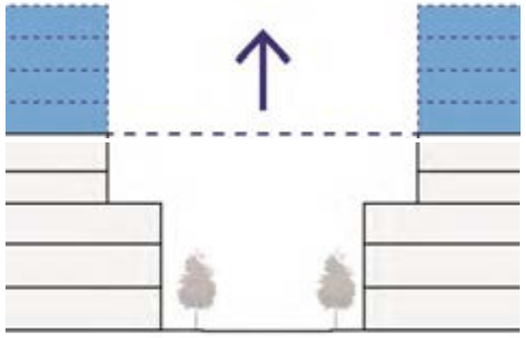
Building heights

"A range of building heights responding to physical and strategic context"



Main street character protection

Low-scale characterful built forms will protect and enhance the historic and fine grain character of Koornang and Neerim Roads. Building heights of 4-5 storeys are nominated.



Tallest forms in strategic sites and urban renewal precincts adjoining the main street

Taller built forms in strategic sites (6-8 storeys) adjoining the main street 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.

Transformational built forms of 6-12 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.

Shop-top precincts (precincts A to C)

Existing character

Appendix A contains a detailed land and built form character analysis for the area that underpins considerations and recommendations.

Design testing

- 3D building height modelling is provided on the previous page.
- Findings note that 3 to 5 storey buildings will provide an appropriate proportion on most traditional main streets. In some cases, local character assessments will determine that higher or lower scales are more appropriate.

Comments

Street proportion and **design testing** in the following pages have indicated that 3 to 5 storey buildings will provide an appropriate building height range and proportion for the centre's traditional commercial shopping strip areas.

Other factors such **heritage protection, strategic location, and sensitive abuttals** have determined where lower heights have been applied.

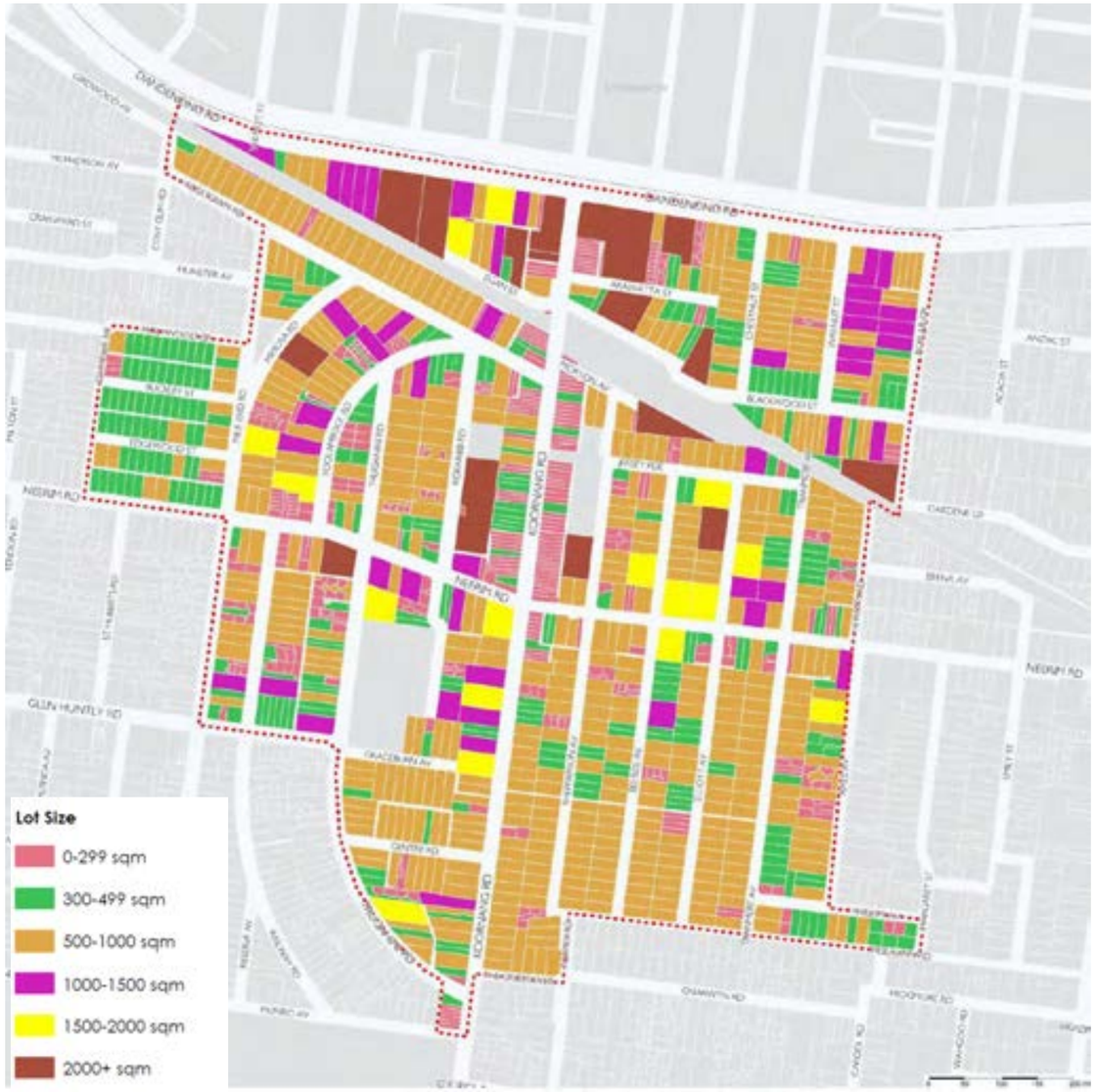
The expansive surface car parks behind the shops provide a buffer between residential neighbourhoods and commercial development. However, in many parts of the centre, residential sites have a direct interface (or just laneway separation) to commercial sites. Lower heights should be implemented to reflect these sensitive interfaces.

Any future development on commercial sites or within the car parks could impact upon adjoining residential sites. Significant scale buildings within the commercial zone that have a direct interface with residential dwellings will need to consider visual bulk, overshadowing and overlooking.

Mitigating design measures should include setbacks at ground and upper levels, careful orientation and screening of windows and quality of design and choice in colour and materiality. Street proportion and design testing has indicated that 3 to 5 storey buildings will provide an appropriate building height range and proportion for the centre (see discussion on the following pages).

The subdivision pattern of the street is also important when ascertaining the appropriate building height, as there is a connection between a site capacity and size (lot width and depth). The Koornang Road retail core contains a fine grain lot pattern, with lots generally ranging from 200 to 400 square metres and street frontages commonly 5 to 7 metres wide. Building frontages within this catchment reflect a historic fine grain character.

The consistency of narrow lots along the commercial strip limits transformative redevelopment, directing the focus towards infill at moderated heights. While lot-widths are narrow, a benefit of the shopping strip is that lot depths are relatively long, in the range of approximately 33 to 44 metres. This ensures that setbacks can be accommodated at the front and rear (street walls, upper setback requirements and setbacks at sensitive abuttals), while delivering a dense developable footprint.



Street proportion

The Carnegie activity centre is a busy strip shopping centre that runs along Koornang Road and is dissected by the railway line, which has recently undergone a level crossing upgrade.

It is comprised of three main areas: north of the railway line, south of the railway line along Koornang Road to the Neerim Road intersection and the small area south of Neerim Road.

The core retail area along Koornang Road, between the railway line and Neerim Road, has a strong Interwar-era character, with many older shopfronts of one to two storeys in scale. This low scale, together with the characterful older buildings, creates a retail core that is highly distinctive and attractive.

Larger sites located behind the Koornang Road shops, north of the railway line and along the Neerim Road intersection, have a strong emerging and transforming character, due to the development of higher scale apartment buildings of up to 6 storeys. This provides a strong contrast with the historic retail core.

The rear of the Koornang Road shops currently has a poor interface with the adjoining laneway network and surface carparks. This is evident on both the east and west side of Koornang Road.

There is currently minimal infill development within the Koornang Road Retail Core with the existing built form and dominating character being a mix of one to three storey buildings, with some including a parapet.

The low scale of existing buildings in the retail core allows for a higher level of pedestrian interaction with the built environment. This is evident through the provision of breakout plazas such as the library forecourt and cafes that spill out onto the footpath.

Given that Koornang Road has a well-established low scale character and many sites are small and/or have a direct residential interface there is generally limited scope for significant redevelopment, above a mid-rise building scale.

Community feedback has demonstrated a clear priority to protect the character, heritage and lower scale that defines the shopping strip. The street's historic buildings and low-scale character contributes to the valued historic character of local and broader Melbourne's late 19th and early 20th century settlement history.

Council's *Quality Design Guidelines* recommend shop-top style development of 3 to 5 storeys for traditional main streets like Koornang Road.

Buildings heights of 3 to 5 storeys achieve a desirable street proportion with a general height to width relationship of up to 1:1 (approx. 20m street width to 18m building heights).

This aligns with a commonly accepted urban design principle for defining appropriate building heights – exploring the relationship between building height and street width.

Local character assessments will determine where higher or lower scales are more appropriate.

The following imagery shows Carnegie's traditional character of 2-3 storeys, establishing a traditional level of openness enjoyed by the community.

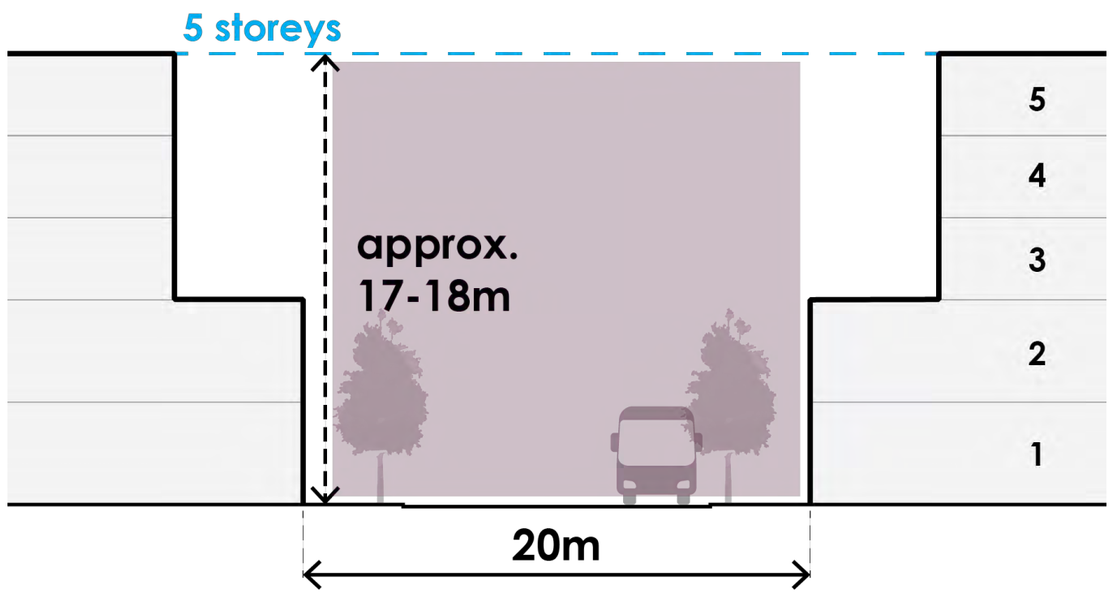
Main streets will look and feel more urbanised when there is a strong sense of enclosure created by taller buildings– a characteristic supported in transformational contexts such as strategic sites and urban renewal areas.

Recommendations for maximum building heights of 4-5 storeys in Carnegie's traditional commercial strips seek to reinforce this established character — allowing moderate scale development that respects the existing low-scale setting of the centre. Taller areas are nominated for the surrounds in Strategic sites and Urban Renewal Precincts.

Koornang Road Streetscape

Public realm on Koornang Road

building height to street width ratio up to 1:1



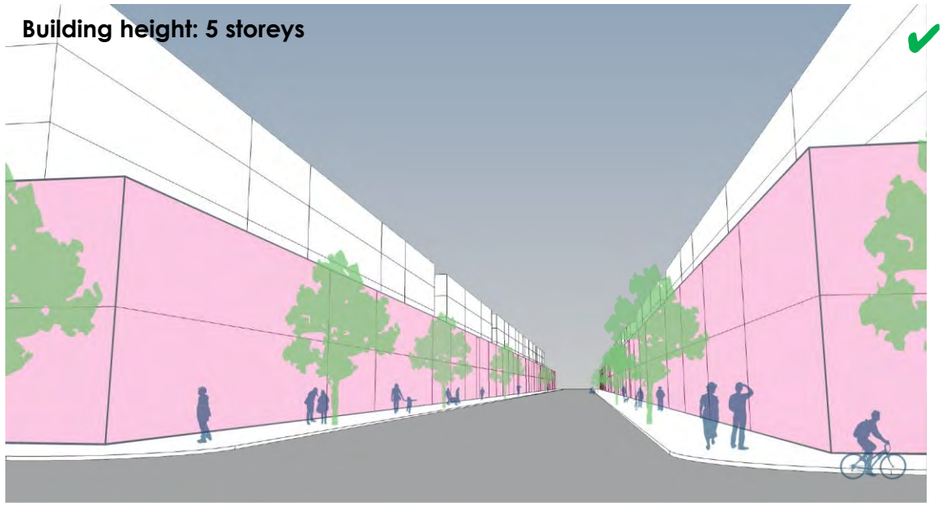
Design testing

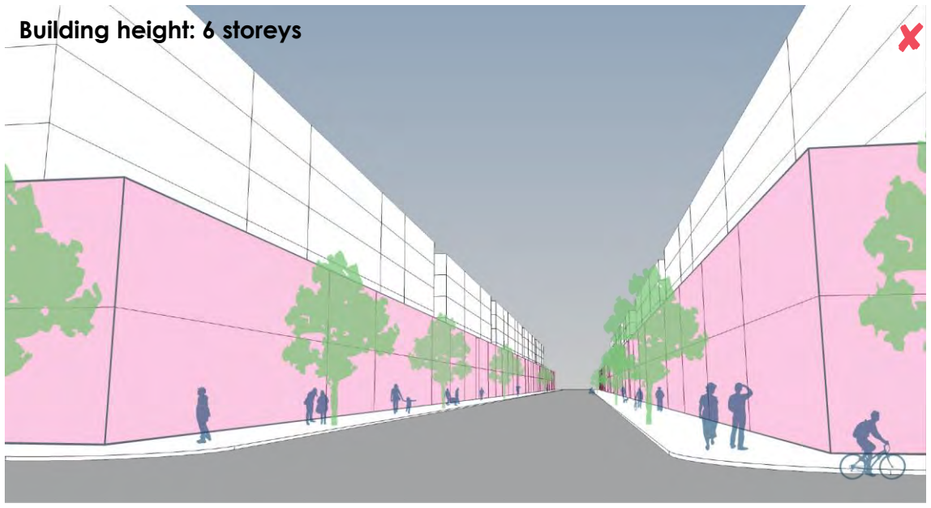
Koornang Road is approximately 20 metres wide. The following 3d model reflects this proportion.

The model also reflects a typical main street in Glen Eira – where a street-width of around 20 metres is representative of the late 19th and early 20th century in which these areas were established.

The model demonstrates that buildings could comfortably range from 3 to 5 storeys while maintaining a traditional open feel. Site context and character will determine the appropriate height locally.

The sense of enclosure markedly increases at 6 to 8 storeys which is not a characteristic sought for Koornang or Neerim Road. Taller heights and greater enclosure is supported in transformative areas like strategic sites and urban renewal precincts.





Recommendations

The built form proposition for Koornang and Neerim Road commercial areas is straight-forward. The development model encompasses buildings of 4 to 5 storeys in height, set behind a two storey street wall matching traditional parapet heights.

Taller buildings will be accommodated in surrounding areas as shown in the 3D model.

Koornang Road retail core (B)

A lower overall scale of 4 storeys is proposed for the Koornang Road Retail Core.

As one of Glen Eira's premium historic streets, Koornang Road requires a stronger level of character protection and is identified for Heritage Overlay protection.

Four storey buildings will retain the open character of the precinct and ensure that any new built forms will appear subservient to the established 1-2 storey street wall character.

Taller buildings, regardless of other design elements, will begin to dominate and transform the streetscape's character.

Neerim Road Intersection (C)

The Koornang and Neerim Roads intersection serves as a gateway to the retail core.

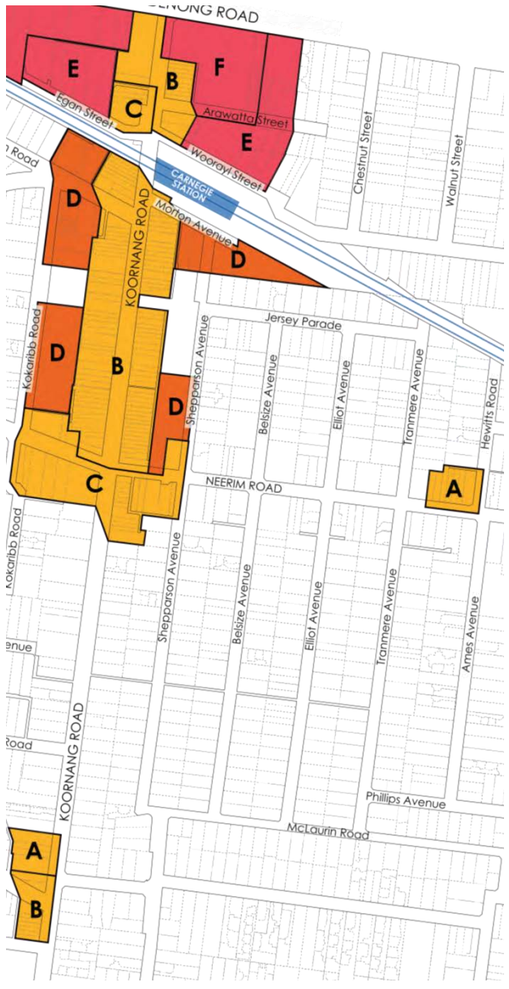
A recent 6 storey building constructed at the southern end-cap of the precinct appears visually dominant and disrupts the local character in this location to an extent considered unreasonable.

Buildings have a mixed character and will sit comfortably at a maximum of 5 storeys.

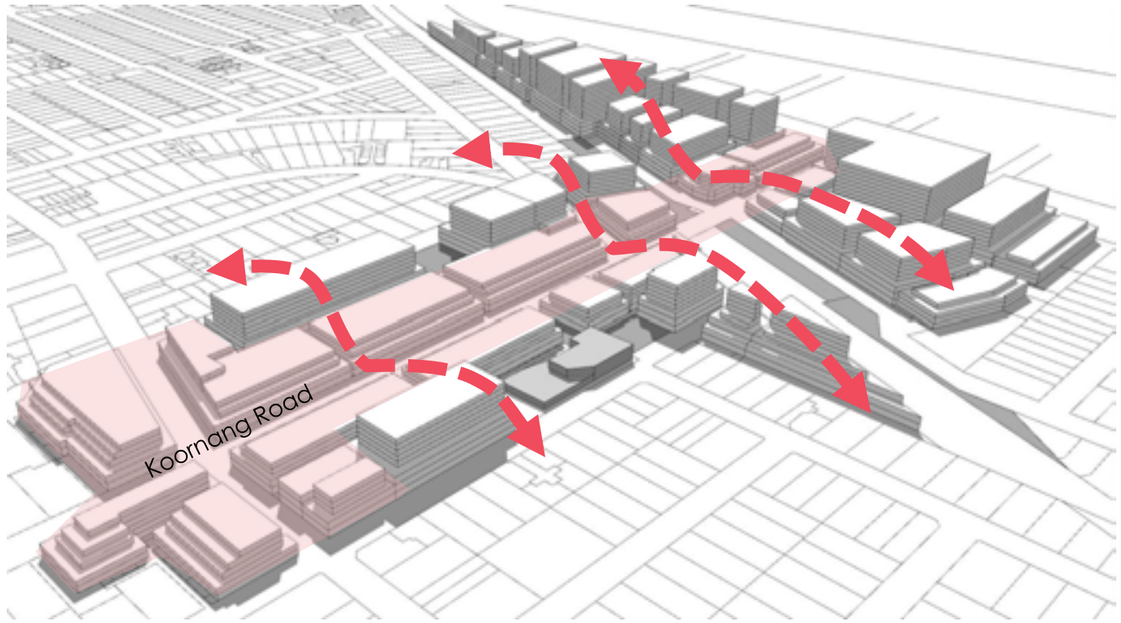
Periphery sites (A/B)

Commercial areas at the periphery of the activity centre (Truganini and Hewitts Roads) will sit comfortably at 4 storeys, acknowledging clear separation from the core of the activity centre and integrating with lower scale residential surrounds.

Sites on the corner of Truganini Road also require stronger protection associated with new heritage overlay requirements.



Low-scale traditional streets surrounded by taller strategic sites and urban renewal areas



4 storey buildings retain the open feel of the street and prominence of heritage street walls

Strategic sites (precinct D)

Existing character

Appendix A contains a detailed land and built form character analysis for the area that underpins considerations and recommendations.

Comments

A number of sites east and west of the Koornang Road retail core have been identified as **Strategic Sites**. Redevelopment of these sites will transform the linear retail core into a larger grid, enabling a vibrant and connected pedestrian network within the activity centre.

These areas offer an opportunity for taller buildings up to 6-8 storeys in height. Buildings of this scale will balance the need for growth without overwhelming the low-scale main street character or residential surrounds.

Proposed heights in strategic sites seek to minimise visual dominance and impact on the existing low-scale character of Koornang Road.

Fine grain sites in Koornang Road have low propensity for redevelopment due to a combination of proposed building heights (4 storeys) and site consolidation requirements required to achieve a reasonable development floor print.

For this reason, heights in the surrounding area should be determined in consideration of existing buildings (currently 1-2 storeys) rather than future envelopes (4 storeys), which have a low propensity to be delivered.

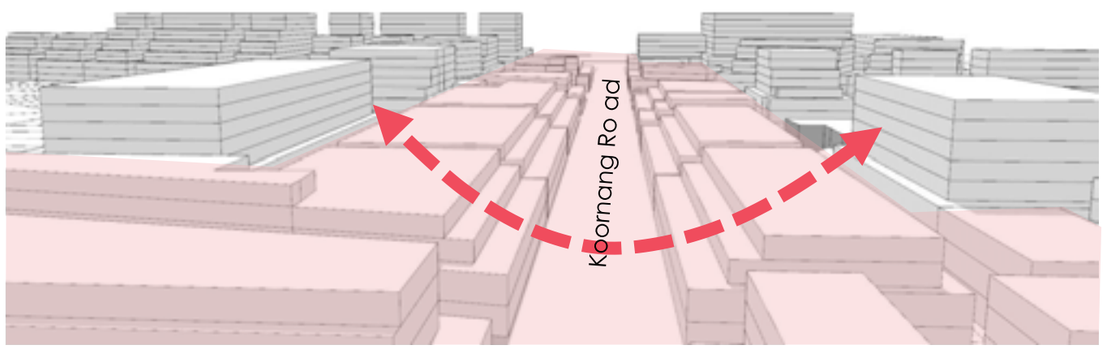
As shown in the following imagery:

- The existing building is 6 storeys, which sits comfortably behind the main street's 1-2 storey buildings without overwhelming the street.
- A building envelope in the range of 6-8 storeys in height will not prejudice the low-scale main street of Koornang Road or residential surrounds.
- Taller forms will be visually dominant, overwhelming the area.

Recommendations

- Preferred Height of 6 storeys.
- Upper Maximum height of 8 storeys.

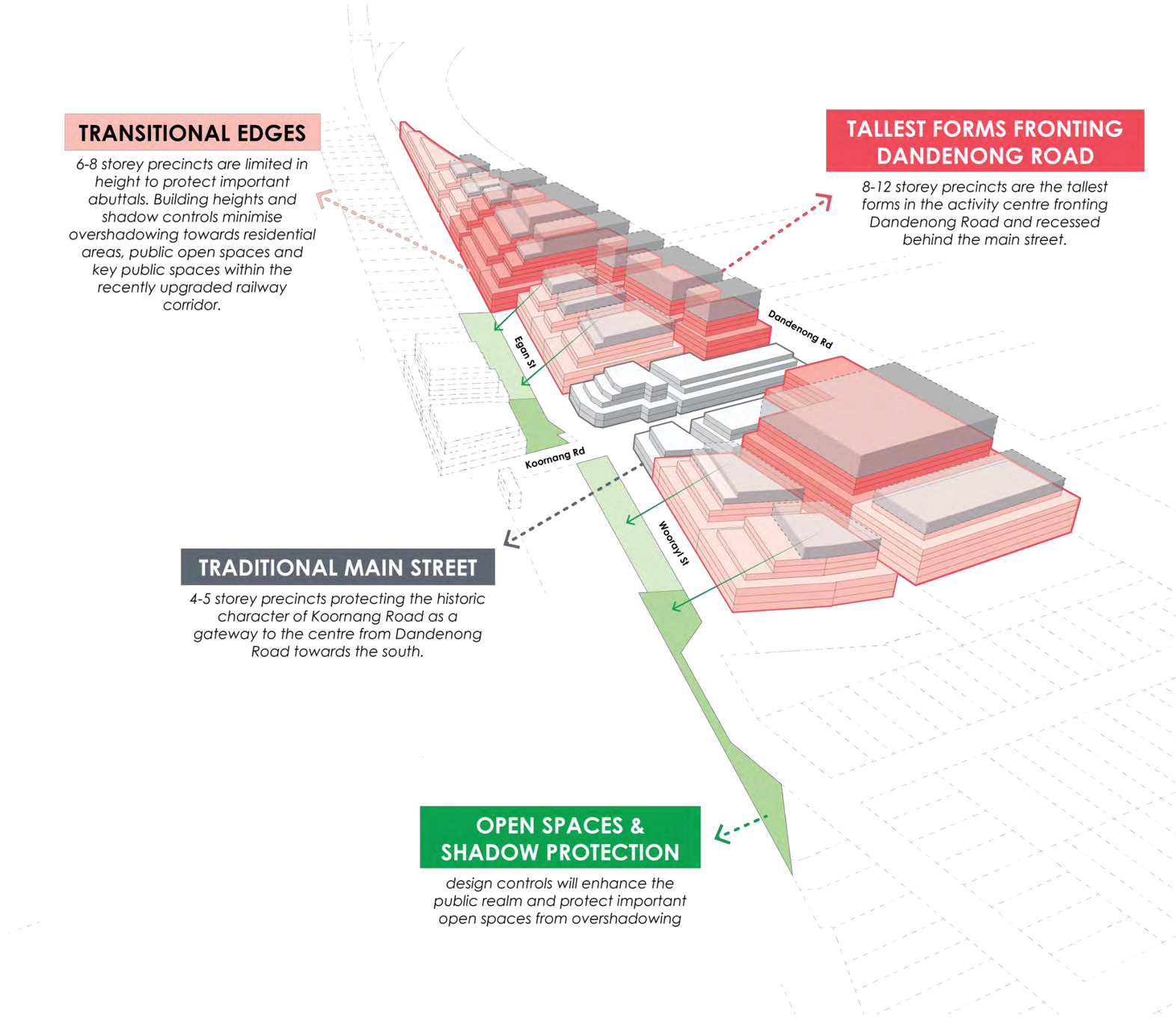
Strategic sites recessed behind the main street (Koornang Road)



Strategic site behind the main street
(Original building is 6 storeys, with up to 8 storeys being the upper extent)

Urban renewal (precincts E-F)

Design summary



Approach

Building height in Carnegie's Urban Renewal area has been determined based on a combination of 5 built form considerations:

1. **Context**:
   Physical and Strategic Context Analysis (see Appendix A) and built form guidance for taller buildings (see Council's *Quality Design Guidelines for Commercial and Mixed-Use Areas* – Urban Renewal building typology).

2. **Expectations:**
   A review of expectations for major activity centres across metropolitan Melbourne including State Government directions and existing planning scheme requirements in similar activity centres in middle Melbourne.

3. **Commitments:**
   Community consultation for the *Structure Plan* resulted in commitments that affect building height and setbacks (ie. adopted Urban Renewal Principles).

4. **Visual impact:**
   How tall is too tall visually?

5. **Shadow analysis:**
   Protecting key residential areas and public spaces from overshadowing.

These matters are each viewed separately before conclusions drawn in the recommendations.

1. Context

Appendix A contains a detailed land and built form character analysis (**physical context)** for the area that underpins considerations and recommendations. The area presents a strong opportunity for urban renewal.

Strategic context for Carnegie's role within Metropolitan Melbourne is outlined within the Council's strategic assessment report: *'Bentleigh and Carnegie Structure Plans Land Use and Development Implementation Strategic Assessment Report'*.

2. Expectations

Built form identified in the *Structure Plan* has been informed by State Government directions under *Plan Melbourne*, relevant Planning Practice Notes, and relevant urban design guidance, particularly the Urban Design Guidelines for Victoria (and predecessors to these documents).

In summary, while these documents identify considerations, processes and guidance for form and content, none identify specific building heights or preferred height ranges based on activity centre types or hierarchies.

Plan Melbourne 2017-2050

Carnegie is nominated as a major activity centre under *Plan Melbourne*.

The overall intent is that major activity centres will provide greater growth opportunities than local and neighbourhood centres.

However, there is no specific direction for building height under *Plan Melbourne* or the Planning Policy Framework for major activity centres.

Plan Melbourne Direction 2.2 seeks to "deliver more housing closer to jobs and public transport". *Plan Melbourne* notes there are "*opportunities for more medium- and higher-density development in middle suburbs close to jobs and services including […] areas identified as metropolitan and major activity centres*".

The plan notes that each major activity centre "*has different development potential and is subject to local strategic planning*".

Planning Practice Notes

'Bentleigh and Carnegie Structure Plans Land Use and Development Implementation Strategic Assessment Report' provides an assessment of practice note requirements, in particular for:

- Planning Practice Note 59 – The Role of Mandatory Provisions in Planning Schemes
- Planning Practice Note 60 – Height and Setback Controls for Activity Centres
- Planning Practice Note 58 – Structure Planning for Activity Centres

While these documents identify considerations, processes and guidance for form and content, none identify specific (numerical) building heights or preferred ranges of building heights for activity centres.

Urban Design Guidelines for Victoria (UDGV)

The UDGV provides advice on the design and layout of cities, towns and neighbourhoods. This document has informed the *Structure Plan* and development of Council's *Quality Design Guidelines*, which seeks to build upon and identify local character elements beyond the scope of State Guidelines.

The *Guidelines* encourage medium and higher density housing within 400m of the centre. Again, they do not stipulate activity centre building height recommendations (except for key considerations such as important views).

Design themes across major activity centres

A brief review of major activity centres across Metropolitan Melbourne (inner and middle suburbs) was completed as part of this project to ascertain trends in built form typologies and controls). Overall it is clear that built form controls are context specific and vary across activity centres based on a variety of considerations. There are, however, some common themes for commercial/mixed use areas as identified below.

Major activity centres similar to Carnegie with large urban renewal opportunities in similar proximity to the CBD of Melbourne generally accommodate building heights of **6 to 13 storeys**. The Carnegie Structure Plan nominates a range of 8 to 12 storeys which aligns with this trend, as well as outcomes envisaged along the major transport route of Dandenong Road upon which the activity centre is located.

Key built form findings of the investigation included:

Fine grain main streets

- Most inner and middle Melbourne activity centres contain a clear 'main street' with an identified traditional character or heritage protection. Building height controls in these areas tend to range **between 3 and 6 storeys**, with built form objectives seeking to retain an open character in streets with low-scale podiums and recessive upper floors. Particular recommendations are site-specific.
- Activity centres with a stronger grid pattern provide more flexibility for taller forms that have limited sensitive interfaces and ability to transition across the centre. Traditional strip centres are constrained by abutting sensitive uses. In these areas, lower building heights and additional residential interface requirements tend to be prescribed.
- On traditional main streets, the preferred podium heights range between 2 and 3 storeys (or matching the prevailing parapet height in tightly regulated areas). Prescribed upper floor tower setbacks range between 3 metres and 6 metres

211 Sydney Road, Brunswick

405 High Street, Northcote

146-148 Lygon Street, Brusnwick

Images: Examples of development in fine grain main streets, sourced from Urban Melbourne website.

Identified strategic/renewal sites

- Most centres contain strategic opportunity sites where major transformation is expected. Built form controls in these areas generally range **between 6 and 13 storeys, with the majority around 6 to 10 storeys.**
- Taller developments adopt a podium and tower built form, seeking to provide a human-scale design at lower floors with more differentiated upper floors. Prescribed upper floor tower setbacks range between 3 metres and 6 metres

1228 Nepean Highway, Cheltenham

7-21 Station Road, Cheltenham

Images: Examples of renewal development, sourced from Urban Melbourne website.

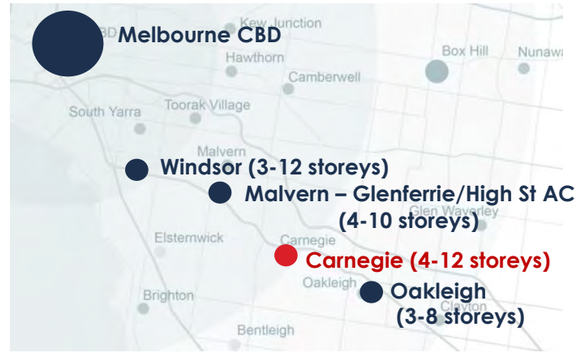
Activity centres similar to Carnegie

These following centres are located within a similar radius of the CBD to Carnegie, with fine grain main streets, defined renewal opportunities, and access to a train station and major road.

Along Dandenong Road

These Activity Centres 'set the tone' along Dandenong Road in proximity to Carnegie:

- Glenferrie Road and High Street Activity Centre in City of Stonnington (maximum of 6-10 storeys in strategic sites near Dandenong Road and the Station)
- Windsor Village in City of Stonnington (maximum 12 storeys in ACZ1 precinct abutting Dandenong Road near Windsor station)
- Oakleigh Major Activity Centre in City of Monash (maximum 8 storeys).



Note: Larger development is occurring in higher order centres of Caulfield (Major/Education precinct for Monash university) and Chadstone Commercial Centre. These have university and commercialised contexts and overall strategic intent that is more intensified than Carnegie.

Elsewhere

- Glenferrie Major Activity Centre in City of Boroondara (approx. 13 storeys max).
- Brunswick Activity Centre – Sydney Road precinct in City of Moreland (approx. 8 to 10 storeys max).

3. Commitments

Carnegie Structure Plan – Built form principles for urban renewal precincts

The *Structure Plan* establishes a high level framework for the Carnegie urban renewal area with built form principles that guide future development as commitments identified through community consultation:

- Minimise overshadowing to existing residential sites.
- Minimise overshadowing to public open space.
- Protect significant open spaces from overshadowing.
- Minimise overlooking to existing residential sites.
- Minimise traffic and parking impacts on existing residential streets.
- Appropriate transition to existing residential areas.
- Develop high quality, well-articulated buildings.
- Create a high quality public realm.
- Create high quality open spaces.
- Incorporate environmentally sustainable design.
- Respond to the adjoining neighbourhood character area.

A large proportion of these principles require an understanding of building bulk and shadows cast by taller buildings as explored in the following sections.

7.0 URBAN RENEWAL

The tallest buildings in Carnegie will be accommodated in a new urban renewal precinct to the north of the railway line.

Given its prominent location on Dandenong Road, this Urban Renewal Precinct is important from a local and regional perspective offering precinct wide opportunities for growth close to jobs services and public infrastructure. It will rejuvenate existing underused land and accommodate growth with a major focus on diverse housing and employment opportunities in transformational built forms of 6 to 12 storeys.

All development must facilitate an appropriate transition to existing residential and commercial areas.

Development which exceeds the preferred building height in the urban renewal precinct will be required to provide significant community benefits.

URBAN RENEWAL PRINCIPLES

The *Structure Plan* establishes a high level framework for the urban renewal area, and establishes principles to guide future development. Future development within the urban renewal area must be consistent with the following preferred strategic direction and built form principles.

PREFERRED STRATEGIC DIRECTION

Prioritise employment generation

Significant developments within the urban renewal precinct must include employment generation land uses. As a benchmark provide one square metre of leasable commercial space per one square metre of developable site area.

Provide significant community benefit

Developments that exceed the preferred height will be considered in the context of benefits provided to the broader community. Examples of community benefit may include, but are not limited to, provision of a diverse mix of housing, new street or pedestrian connections, community uses and facilities and public open space above the minimum statutory requirement.

Create high quality open spaces

Actively explore opportunities for additional open space and improve existing open spaces as recommended in Council's *Open Space Strategy*.

BUILT FORM PRINCIPLES

Minimise overshadowing to existing residential sites

The form and scale of new development must be guided by minimising overshadowing impacts on existing residential sites. Development must satisfy the overshadowing objectives and standards of the *Glen Eira Planning Scheme* and may need to step down in scale towards residential sites to minimise overshadowing impacts.

Minimise overshadowing to public open space

The form and scale of new development must be guided by minimising overshadowing impacts on public open space in accordance with Council's *Open Space Strategy*.

Protect significant opens spaces from overshadowing

The form and scale of new development must be guided by protecting significant open spaces from overshadowing. Development may need to step down in scale towards open spaces in order to protect the significant open spaces such as the open space on Woorayl Street from overshadowing.

Minimise overlooking to existing residential sites

Buildings should be designed to minimise overlooking to surrounding residential sites, while not relying solely on privacy screening. Building design should demonstrate how overlooking impacts will be mitigated through design measures and building orientation.

Minimise traffic and parking impacts on existing residential streets

Development should contribute to sustainable transport and parking outcomes across the urban renewal area. Significant development must demonstrate how car parking will be accommodated within the urban renewal area and how to keep impacts on surrounding residential areas low. Consideration of existing and future pedestrian cycle and vehicular movement networks must form the basis of future development.

Appropriate transition to existing residential areas

Taller buildings are encouraged on major roads/ transport routes and commercial streets. Development must step down to interfaces with residential areas and provide a landscape buffer where possible.

Develop high quality, well-articulated buildings

Buildings should be designed to make a positive contribution both at street level and when viewed from a distance. Consolidation of smaller lots is encouraged to ensure appropriate setbacks and building articulation can be achieved.

Create a high quality public realm

Development at the street level should support vegetation and greenery and should reflect a human scale. Ground floor uses should foster community connections and employment opportunities, and interfaces adjoining existing and new laneways should be activated.

Incorporate environmentally sustainable design (ESD)

Development should incorporate ESD measures that address energy efficiency, water efficiency and stormwater management, construction materials and waste management.

Respond to the adjoining neighbourhood character area

New development must respond to the broader residential context of Carnegie. The design and scale of new development should have regard to the impact on streetscapes, when viewed from the adjoining Neighbourhood Character Overlay area (Chestnut Street), located east of the urban renewal areas. An appropriate transition will need to be achieved to minimise impacts on Chestnut Street while accommodating growth within the urban renewal area.

4. Visual impact

Visual impact (building bulk) analysis seeks to determine an appropriate building envelope that allows for growth and respects the role of Carnegie in context of the adjoining suburban context.

Given its prominent location on Dandenong Road, this Urban Renewal Precinct is important from a local and regional perspective and therefore the height and architecture must respond appropriately and contribute to the broader character of Melbourne.

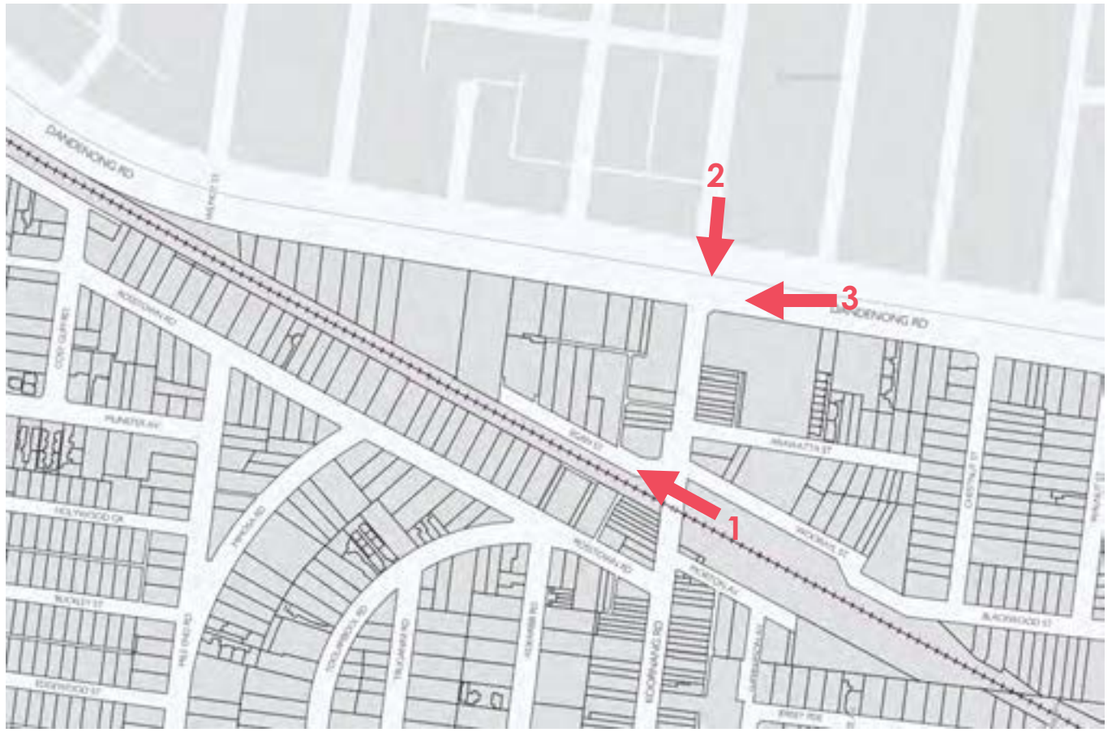
Viewpoints

Three viewpoints have been documented in the following pages. A range of heights were explored, with three noted visually in this report (8, 12 and 16 storeys).

Viewpoint 1: Carnegie Station surrounds
(View from the Carnegie Station forecourt towards the public realm on Egan Street)

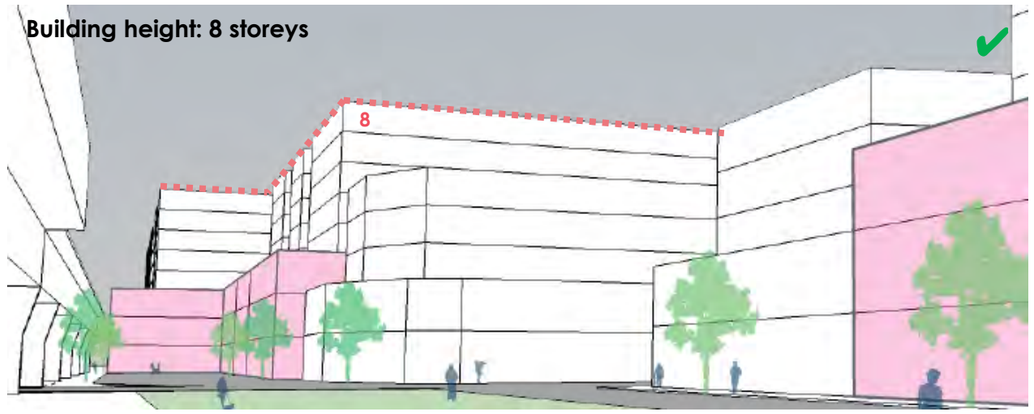
Viewpoint 2: Gateway to Koornang Road
(View down the main street, with urban renewal areas either side)

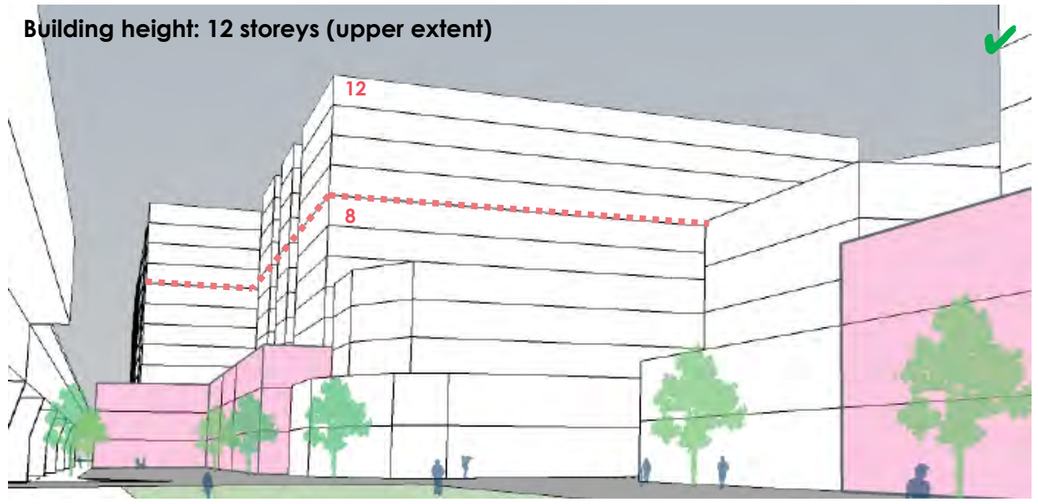
Viewpoint 1: Dandenong Road
(Passing the activity centre)

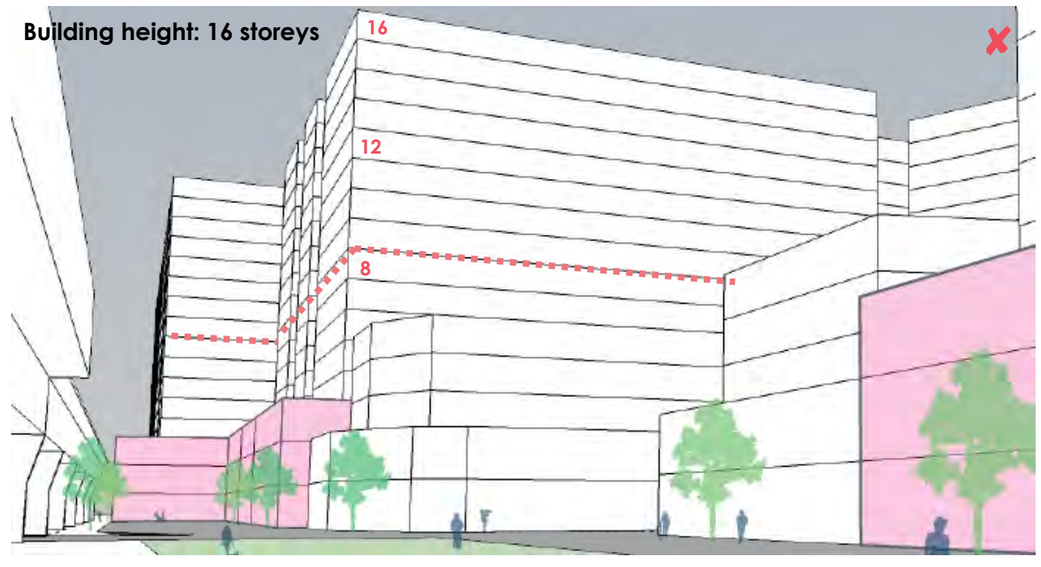


Viewpoint 1:
Carnegie Station surrounds

View from the station forecourt on Woorayl Street, looking towards Egan Street.





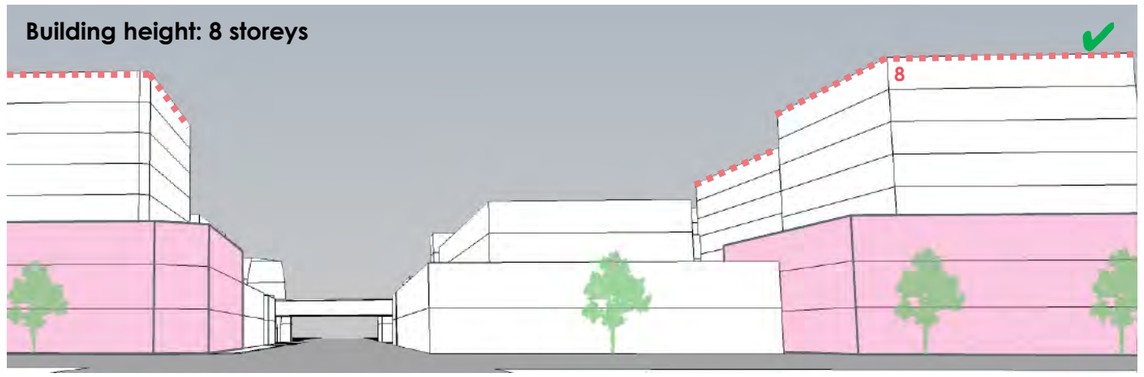


Viewpoint 2:
Gateway to Koornang Road

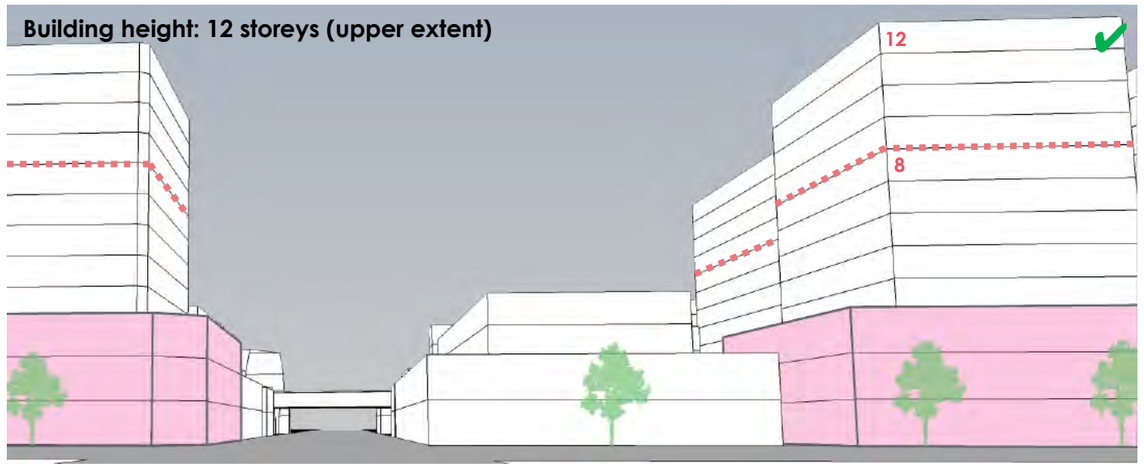
View at the 'gateway' to the precinct down Koornang Road (proposed 4-5 storey main street, with urban renewal areas to the east and west).

Current view

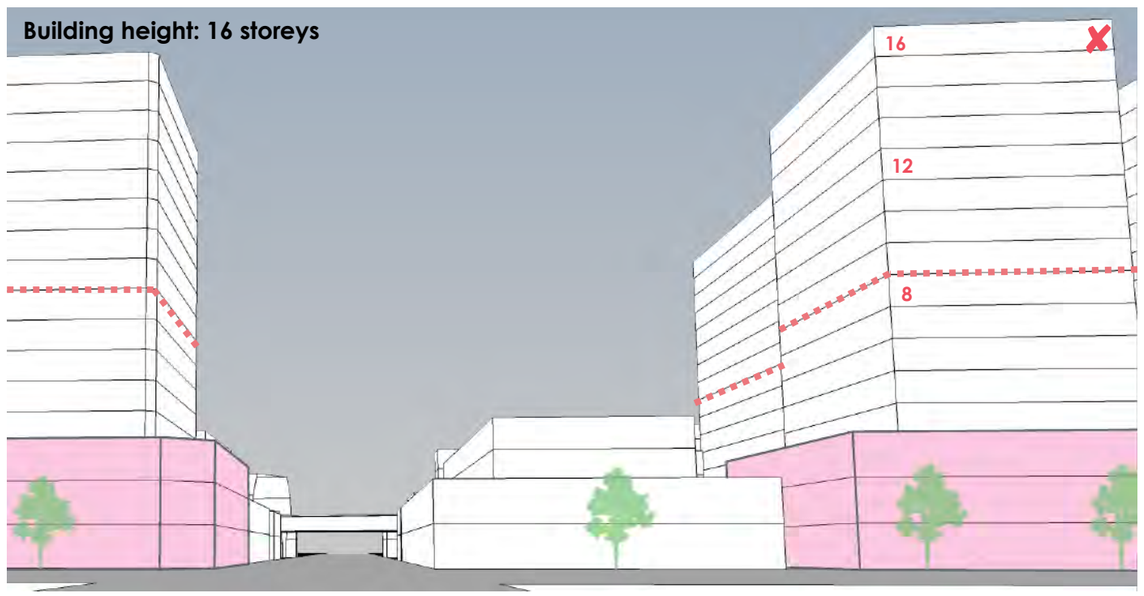
Building height: 8 storeys



Building height: 12 storeys (upper extent)

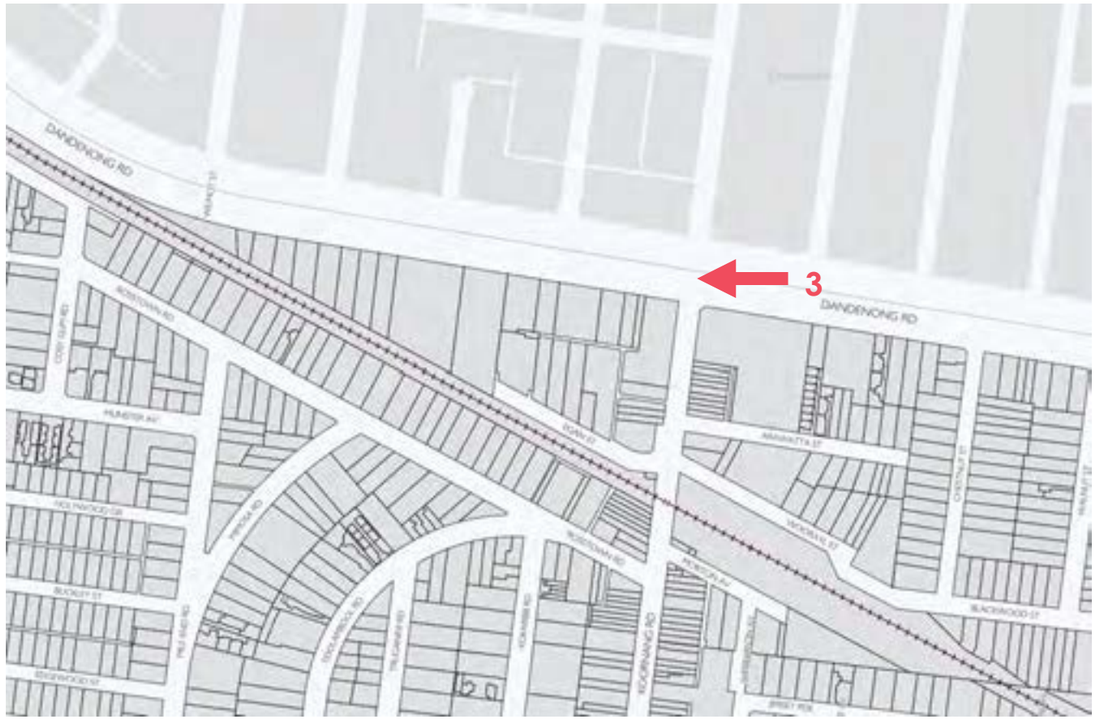


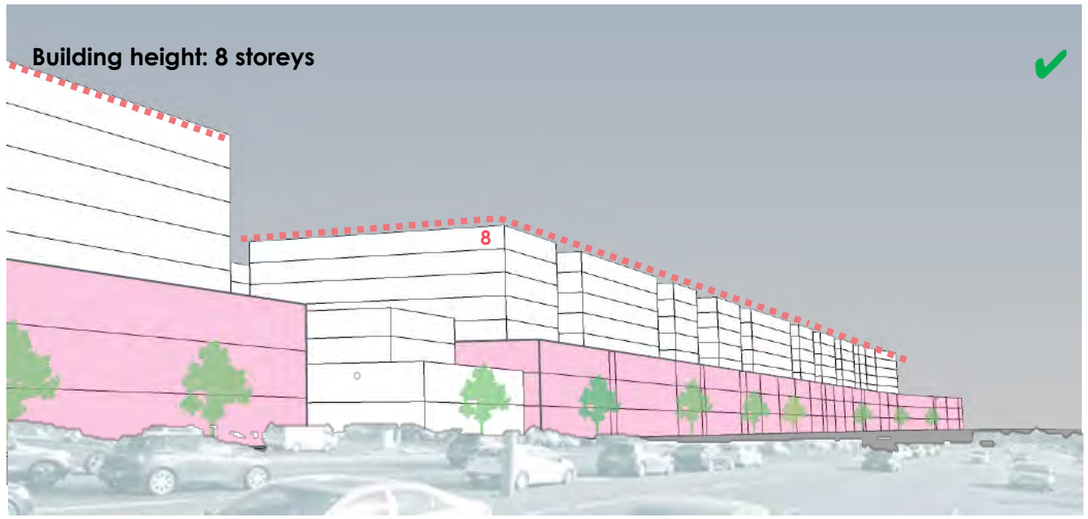
Building height: 16 storeys

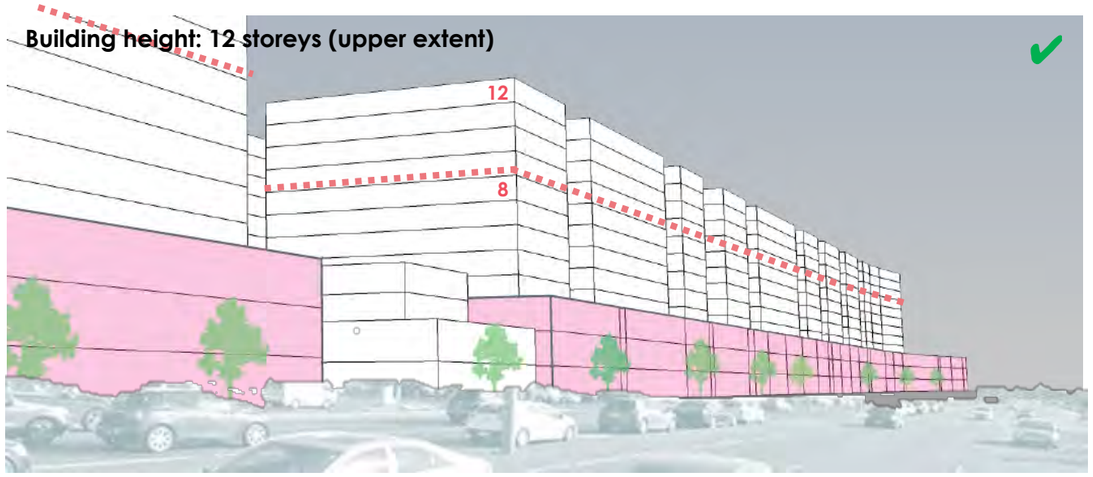


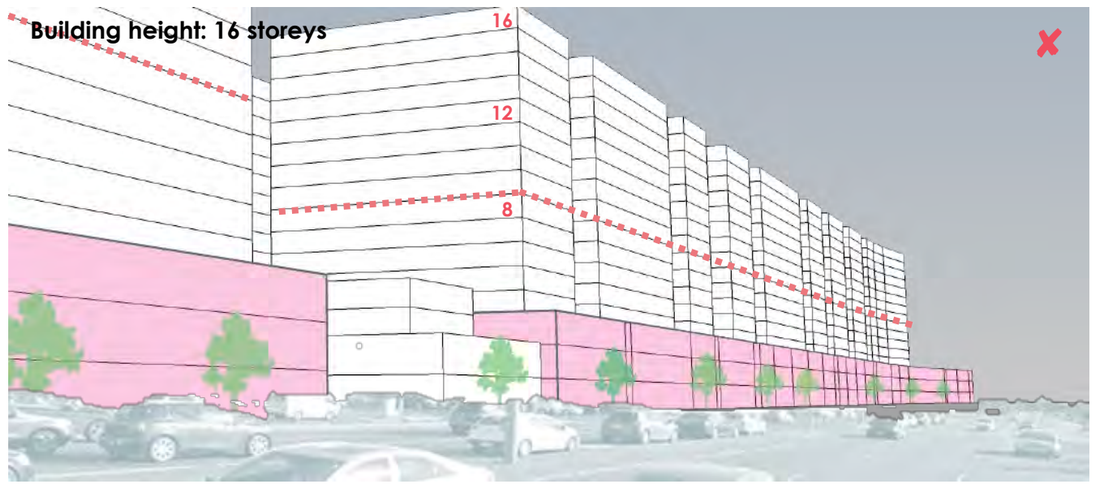
Viewpoint 1:
Passing by on Dandenong Road

View of the activity centre as drivers pass by the Carnegie towards the CBD.









5. Shadow analysis

Refer to section 9 – **Shadow protection**' of this report for context, proposed controls and detailed shadow modelling informing Urban Renewal.

Shadow analysis assessed built form against the following requirements:

- No overshadowing of adjoining residential areas between 9am and 3pm on 22 September.
- No overshadowing of existing or proposed public open spaces and key public spaces beyond that cast by the proposed 3 storey street wall of urban renewal precincts:
  - Between 11am and 2pm on 21 June for areas public open spaces (marked blue).
  - Between 10am and 3pm on 22 September for key public spaces (marked orange).

The analysis demonstrates that the buildings around 5-8 storeys will meet these parameters at the peripheries where fronting Egan and Woorayl Streets and residential interfaces.

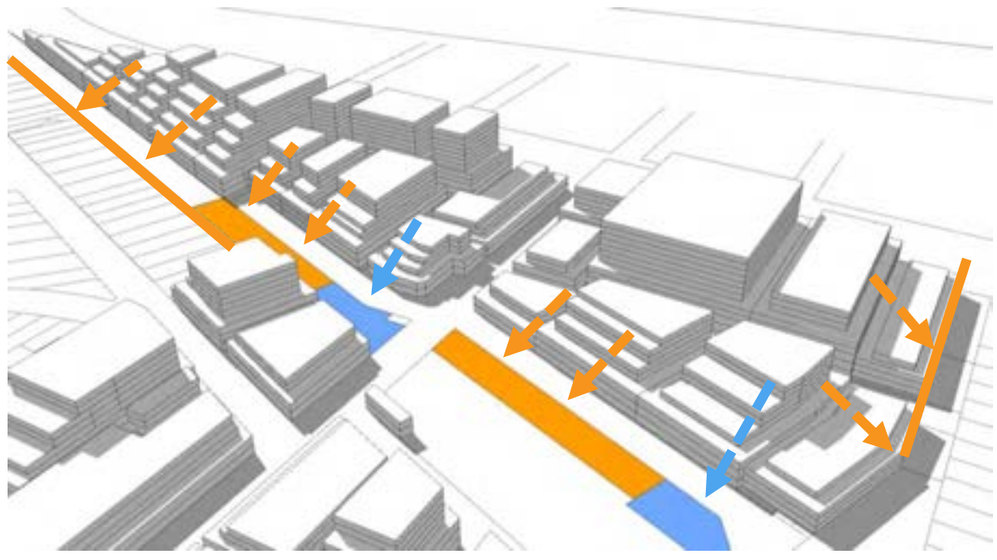
While taller buildings (12 storeys) were assessed as visually acceptable on the previous page, overshadowing and interface constraints abutting the public realm around the railway corridor require that lower building heights be accommodated.

Taller buildings will be achievable along Dandenong Road, which is not constrained by sensitive abuttals or open spaces.

Note: floor plates with dimensions less than 12 metres are unlikely to be developed and have been removed from the shadow model to illustrate a 'realistic' maximum building height.

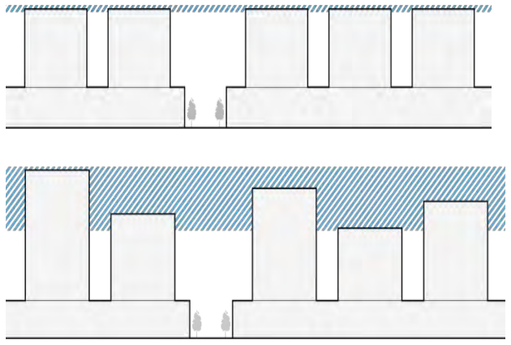
Proposed building heights

Impact of shadow requirements on proposed building heights



Recommendations

Prescribing height ranges



Tall buildings will be seen from greater distances and a range of building heights may be appropriate for a particular precinct.

Community feedback has demonstrated a clear preference for mandatory building height controls to provide consistency and certainty.

An important part of planning for taller buildings is to ensure that controls will enable interesting and varied city skylines from surrounding viewpoints.

Providing flexibility for a range of heights is more likely to facilitate interesting design outcomes that accommodate contextual variations and innovative design.

For this reason, a height range has been identified across the centre with preferred and upper maximums.

Where a preferred height is nominated, this is the height considered most appropriate for the precinct. Prescribed upper maximums encourage variation over time that rewards innovative architectural outcomes while ultimately providing certainty about the maximum acceptable extent of development for all involved.

Recommendations

Tallest areas fronting Dandenong Road (precinct F).

- **Preferred maximum of 8 storeys.**
- **Upper maximum of 12 storeys**

Along Dandenong Road, buildings at a height of 8 storeys will sit comfortably within the surrounds. Buildings up to 12 storeys will form the upper extent of what is considered reasonable.

Buildings above 12 storeys will create long-range views that transform the precinct beyond that which is expected or acceptable, particularly given Carnegie's middle Melbourne context and aligning with expectations for other Major Activity Centres along the Dandenong Road corridor.

Transitional areas around the railway line, public spaces and sensitive abuttals (precinct E).

- **Preferred maximum of 6 storeys.**
- **Upper maximum of 8 storeys**

Buildings around 6 storeys will be the preferred maximum heights along the railway line, Egan and Woorayl Streets.

Whilst taller buildings up to 12 storeys may be visually acceptable for an urban renewal setting of this kind, these perimeter sites play a transitional role and are constrained by overshadowing requirements that protect important public realm/open spaces and sensitive residential abuttals.

It is important that building height controls do not conflict with shadow protection controls. Shadow requirements will mean that buildings above 8 storeys are not viable. The 6-8 storey building height proposition provides clarity and certainty for developers with developable floorplates within the envelope restricted by shadow protection controls.

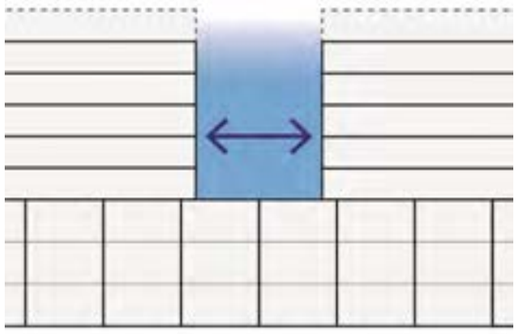
Main street (Precinct B and C)

Shop-top precincts on the main street of Koornang Road will provide continuity towards the south of the precinct with moderate scale development from 4-5 storeys. Refer to shop-top precinct discussion and recommendations previously in this report.

B7.

Building separation, outlook and privacy

"Creating space between towers of buildings"



Context

Improving liveability in urban environments

The *Carnegie Structure Plan* supports high density development with a proportion of the future community likely to be living in mixed use apartment buildings.

As more people choose to live and work in dense urban environments, it is important that developments provide adequate separation between buildings. If tall buildings are constructed too close together, some negative impacts may include:

1. Cumulative visual bulk with reduced sky views and creation of a 'canyon effect' along streets with taller buildings over time.
2. Shadowing of important streets, parks, and other public spaces;
3. Reduced privacy, outlook and daylight access for residents;
4. Limitation of equitable development opportunities on adjoining sites.

Better Apartments Design Standards

In 2017, The Victorian Government introduced the Better Apartment Design Standards (BADS) to improve the liveability and sustainability of apartment buildings across Victoria. While the standards generally focus on internal amenity, they also identify the importance of building separation and its impact on character and external design elements.

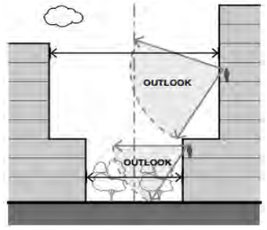
Clause 58.04-1 (building separation), contains objectives seeking:

- To ensure the setback of a building from a boundary appropriately responds to the existing urban context or contributes to the preferred future development of the area.
- To allow adequate daylight into new dwellings.
- To limit views into habitable room windows and private open space of new and existing dwellings.
- To provide a reasonable outlook from new dwellings.
- To ensure the building setbacks provide appropriate internal amenity to meet the needs of residents.

Urban Design Guidelines for Victoria

The Victorian Government has also released the Urban Design Guidelines for Victoria 2017 (UDGV), which includes further guidance about considerations for building setbacks.

The following extracted imagery from the guidelines demonstrates how building separation helps to improve residential amenity by creating space and limiting direct views.



Local implications

The BADS and UDGV identify an overall intent but do not prescribe specific building setbacks and separation distances.

Instead, it is intended that these be established at a local level that considers the physical and strategic context of individual areas.

On this basis, Council has developed an adaptable control that aims to deliver clarity around minimum separation distances between buildings, striking a balance between dwelling amenity, streetscape character and site consolidation requirements without limiting development opportunity.

Primary outlook (all precincts)

What is Primary Outlook?

Primary outlook means the primary view angle from the main internal living area and secluded private open space (SPOS). Where there are multiple living areas and SPOS, the primary outlook is associated with the primary living area. Where a primary living area or SPOS faces multiple boundaries, the primary outlook is the main direction where indoor and outdoor living areas are connected (such as the primary living area and a balcony). For the purpose of this control, each dwelling is considered to have only one primary outlook.

Comments

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 of these 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.

The intent of the proposed control is to:

- Prioritise the primary outlook of dwellings to face the front or rear of the development site. Primary outlooks towards side boundaries should be avoided (except for side street or laneway boundaries).
- Achieve dwelling privacy through considered building design and separation rather than screening.
- Deliver high quality amenity within buildings having regard to outlook and overlooking.
- Offset direct views between existing or future buildings within the same site or adjoining sites.

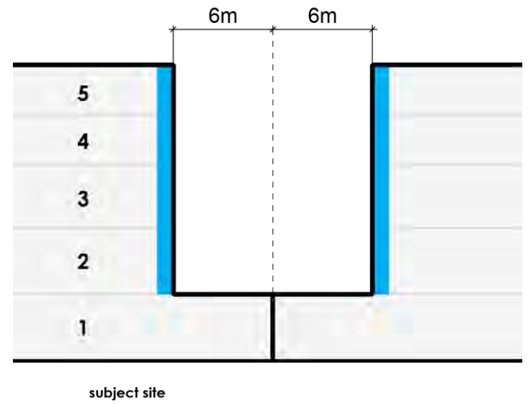
The control will deliver:

- A minimum separation of 6 to 12 metres for balconies facing an existing or future development site.
- A minimum separation of 12 metres for two side-facing balconies, which is equivalent to the distance across a small street.

Prescribing a minimum 6m setback for balconies will ultimately discourage this outcome of side-facing balconies on small sites or, at minimum, deliver reasonable separation if there is no other option for the design.

The intent is also to increase the current industry baseline for balcony separation of 9 metres (4.5m either side of the boundary), which is commonly applied in other areas of Melbourne based on a legacy of existing ResCode standards for overlooking. A 9 metre separation between abutting balconies does not provide efficient privacy or amenity and outlook.

Proposed control



Primary outlook from balcony/living area above ground floor

Side or rear boundary setback for primary outlook:

- 6 metres where the primary outlook of a dwelling (e.g. living area, balcony or terrace) is oriented towards side or rear boundary at any floor above ground. Balconies must not extend into this setback.

Strategic sites and urban renewal precincts

Comments

Strategic sites and urban renewal precincts present opportunities for major developments on large sites.

Building separation at upper floors contributes to streetscape character at pedestrian scale.

Tall buildings with high blank walls can leave a streetscape appearing 'unfinished' and in a place of constant transition for extended periods. Built-to-boundary blank walls should be avoided above 3 storeys in these precincts.

Building separation also:

- helps to preserve solar access and avoid a 'canyon effect' at street level in taller precincts; and
- encourages designers to provide façade treatments and articulate individual buildings to ensure they are 'read in the round', providing a level of interest at oblique and distant views.

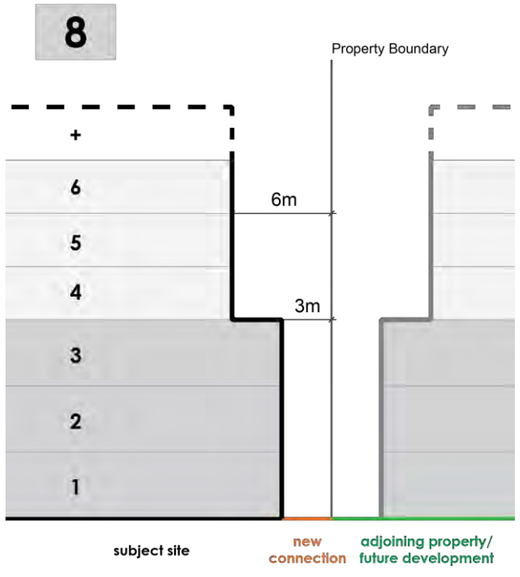
Lack of building separation can negatively affect the sense of pedestrian scale from the street and can also impact of local microclimates (e.g. wind/solar access).

The ability to retain adequate sky views between building masses is essential to maintaining the character, usability, and quality of local streets, parks, open space, and neighbouring properties.

The control also incorporates considerations for 'primary outlook' from balconies as outlined on the previous page.

The Structure Plan and Quality Design Guidelines seek to encourage site consolidation and avoid tall skinny forms built to boundary as priority matters to protect street character. Skinny sites that cannot provide adequate separation distances may not be appropriate for taller buildings. It is also commonly accepted that as buildings get taller they should provide larger separation distances from adjoining properties to manage the transition.

Proposed control



Shop-top precincts

Comments

Building heights up to 5 storeys are recommended in shop-top precincts.

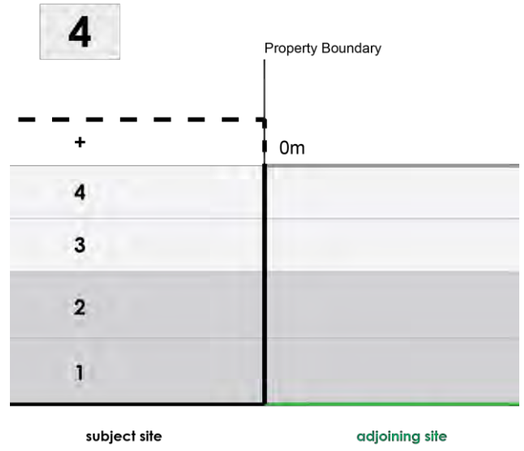
In shop-top precincts character-based setbacks at the front and rear of sites will be the priority (requirements for street walls, upper setbacks and addressing sensitive abuttals).

On side boundaries, controls will allow walls on boundaries to strike a balance, recognising that infill development in fine grain sites is already constrained and that front and rear setbacks are the priority.

Walls on boundaries should incorporate varied materiality, colours and spacing to provide visual interest assuming that development will not occur on the adjoining lots for some time.

The development site example below could be improved with greater variation in materials and/or inscribed concrete patterning to break up the blank wall on boundaries.

Proposed control



B8.

Responding to sensitive interfaces

“Respecting sensitive residential areas”

Comments

The plan identifies a number of sensitive interfaces where commercial areas adjoin a residential site (including across a laneway).

The following controls are recommended to ensure that new development does not adversely dominate (through excessive building bulk), overshadow or compromise the amenity of adjacent dwellings and the character of existing residential areas.

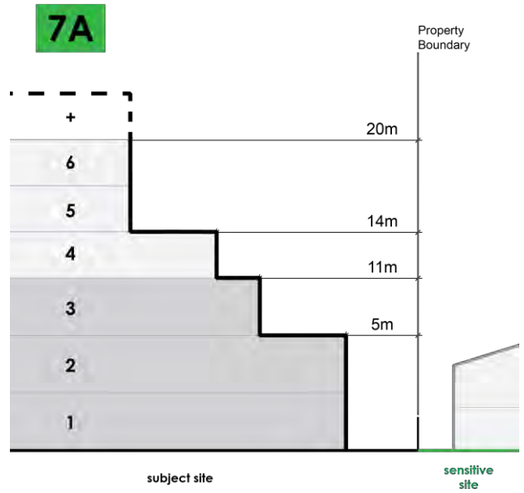
The intent of these control controls are to:

- Provide a suitable transition to sensitive residential areas. Building design and setbacks should provide separation that assists in reducing building bulk and overlooking (without reliance on tall privacy screens to maintain outlook from active living areas for future residents).
- Minimise the impact of overshadowing on existing sensitive residential areas including heritage areas.

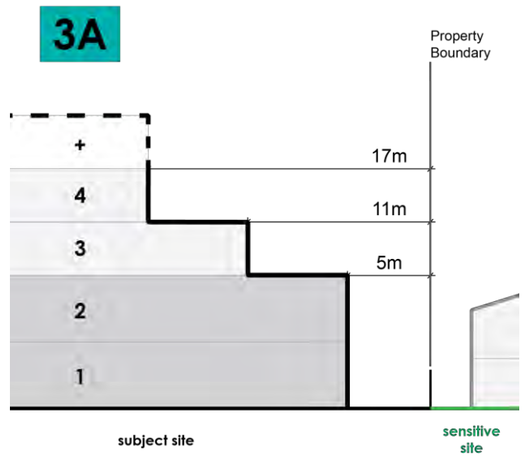
The control transfers minimum setback requirements established for residential areas (rear setback corridor of 5 metres), establishes a lower scale building in closer proximity, with the tower element visually recessed into the background as viewed from adjoining properties

The control anticipates commercial uses at lower floors, with residential uses above. Overlooking issues will also be avoided through appropriate setbacks rather than screening.

Proposed control for strategic sites and urban renewal precincts



Proposed control for shop-top precincts

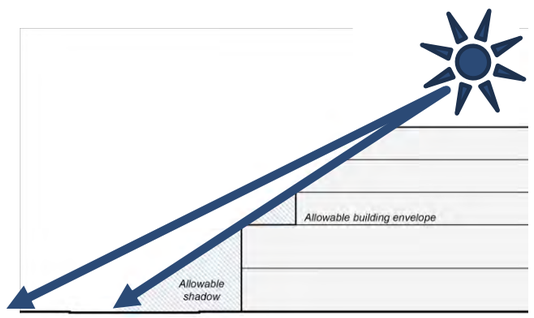


Note: variations will be required at Floors 1 and 2 where a laneways interface applies. Refer to report section on laneways below.

B9.

Shadow protection

"Protecting important public spaces and sensitive interfaces from overshadowing"



Context

Developing Shadow controls

Public open space is highly important for communities in dense neighbourhoods, as free and accessible to everyone and therefore makes it an equitable space in which to guarantee acceptable levels of sunlight access, particularly in higher density urban environments.

Carnegie will be a dense urban environment with tall buildings in close proximity to important public open spaces. Tall buildings will inevitably cast long shadows. Accordingly, bespoke shadow controls have been developed for the precinct to ensure reasonable protection of open spaces from overshadowing while balancing objectives for growth.

Shadow protection controls should provide a commitment to the community about Council's open space priorities and clear direction for future development proposals.

Shadow protection controls have been rigorously tested through Structure Planning for Carnegie to understand associated impacts on the precinct, and to develop bespoke controls for the site that provide certainty and clarity about how development should occur around public open spaces.

Open Space Strategy 2014

Council's *Open Space Strategy 2014* identifies how and where to deliver open spaces based on an open space hierarchy that is linked to location, park size and gap areas across the city.

The *Strategy* nominates guidelines for development abutting open spaces, which includes shadow protection:

- *The open space must receive a minimum of 3 hours of direct sunlight between 9am and 3pm during mid-winter and at least 5 hours of direct sunlight between 9am and 3pm on September 22. Where this minimum is not currently met, the development must not create additional shadowing of the open space.*

Council is in the process of refreshing the *Strategy* with further clarity and winter shadow protection controls being important aspects.

Importance of winter sunlight

Over the past 10 years more research has emerged linking the importance of public open space to community health and wellbeing. This has combined with increasing population growth across metropolitan Melbourne and Glen Eira, meaning that more people are living in higher density housing with less access to private open space and greening.

A key aspect of the health and wellbeing is access to sunlight particularly during winter when research has shown that people can suffer from vitamin D deficiency. In winter, people need to spend longer in sunlight to absorb adequate levels of vitamin D and therefore it is of greater importance to emphasise the need to protect public open space from overshadowing during the winter months specifically. Public open space is free and accessible to everyone and therefore makes it an equitable space in which to guarantee acceptable levels of sunlight access, particularly in higher density urban environments such as East Village.

One of the key source documents of research supporting the positive health and wellbeing benefits of access to natural features and green open space along with sunlight access includes the *Inquiry into Environmental Design and Public Health in Victoria (2012).*

Council is in the process of refreshing Council's Open *Space Strategy 2014*, with further clarity and winter shadow protection controls being important aspects.

Based on the review of the sun angles in mid-winter, a three hour period from 11am to 2pm has been selected as the minimum timeframe for shadow protection in high density areas like East Village, when the sun angle is at its steepest. During this time period the angle varies from 26 degrees at 11am, to 28 degrees between Noon and 1pm and 24 degrees at 2pm. This is considered the minimum window of time in which it is reasonable to provide people with the opportunity to be in open space with direct sunlight during winter.

Recommendations

The *Carnegie Structure Plan* co-ordinates a network of public open spaces to serve varying needs. Key spaces have been identified for shadow protection. Residential areas around the urban renewal precinct are also protected.

The proposal adopts a tiered approach that helps to balance priorities depending on the context of the public Space. Importantly, the control ensures that street walls of buildings are as-of-right and can cast an 'allowable shadow extent, while upper floors will be setback to ensure no additional impact.

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 3pm on 22 September
C	9am to 3pm on 22 September

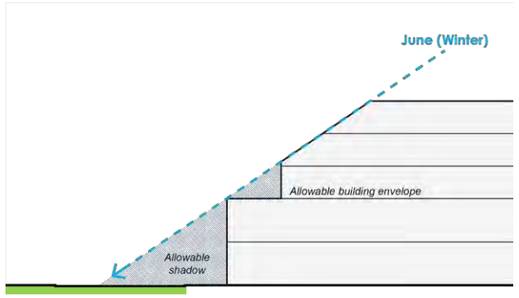
The 'allowable shadow extent' is measured as the hypothetical shadow cast by a building measured at the property boundary at a height of 9 metres or the prescribed street wall height of the precinct, whichever is more. Where precinct street wall height is not prescribed in metres, calculate based on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

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

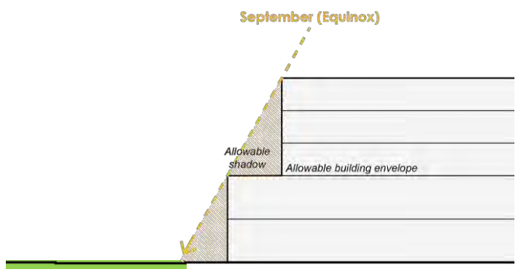
Example of calculation:

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 overshadowing.

Map area A (June shadow)



Map area B (September shadow)



Outcomes

The following imagery summarises the impacts of proposed shadow controls on surrounding built forms with affected interfaces highlighted green.

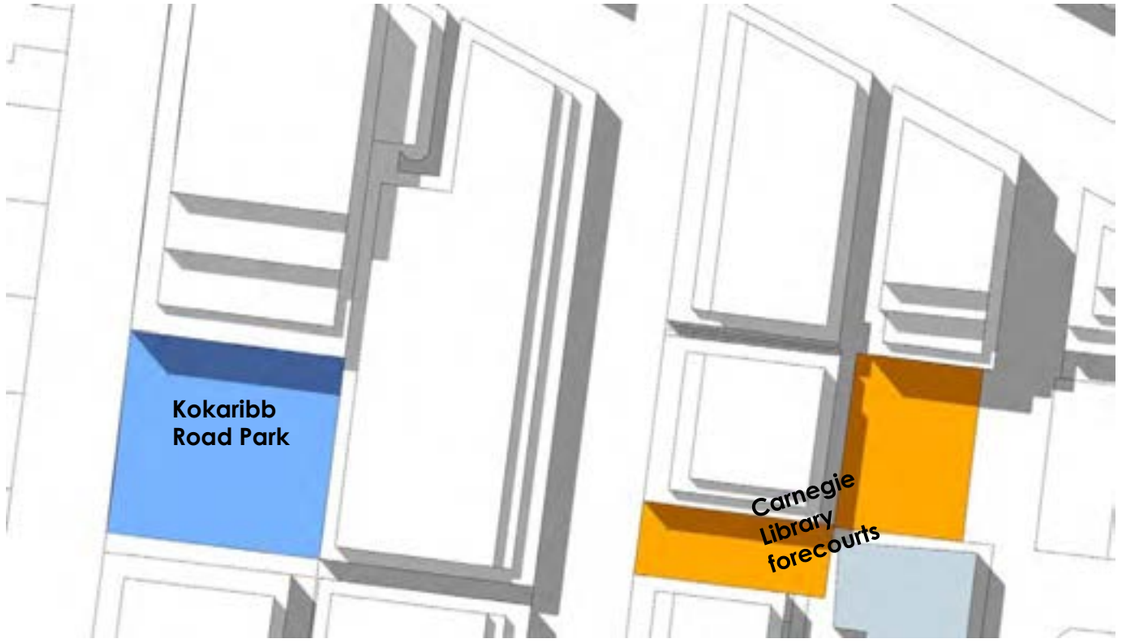
Overall, there is a minor impact on the built form capacity of the centre.

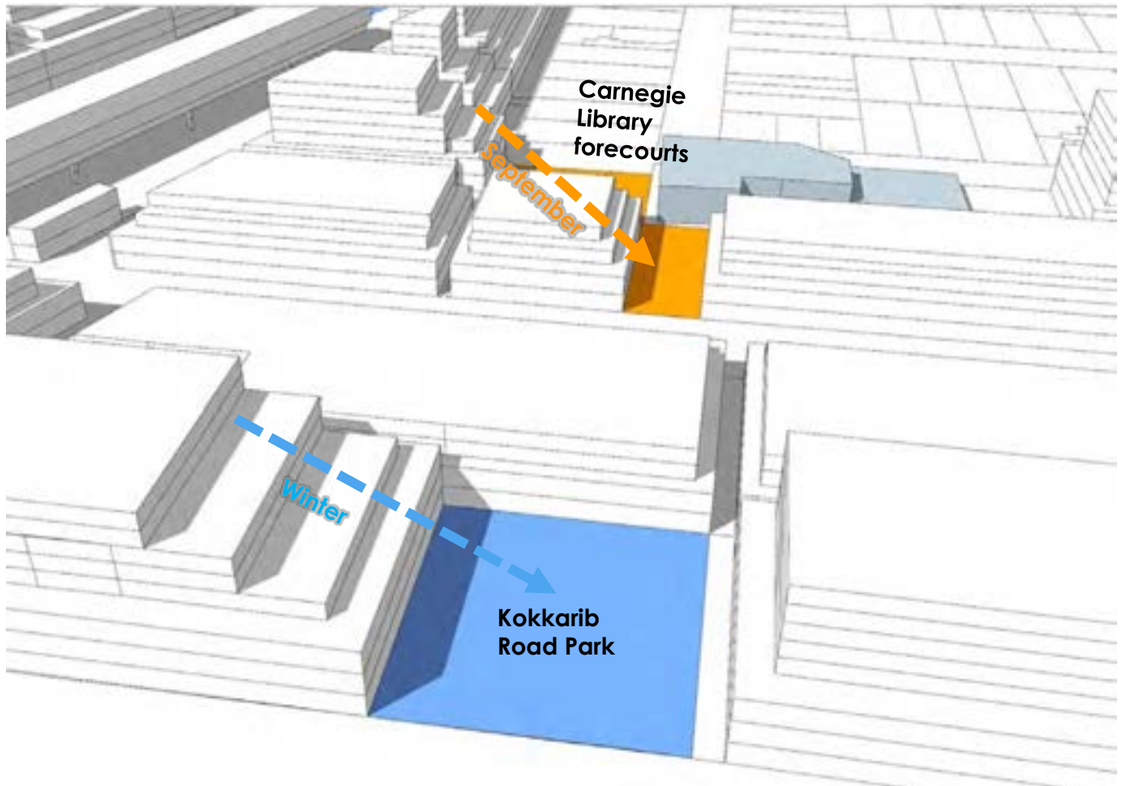
All buildings maintain a developable floor print that balances the need for protecting open spaces from overshadowing with broader objectives for growth.

Kokaribb Road Park and Carnegie Library Forecourts

The Koornang Road surrounds contains two public spaces identified for protection from additional overshadowing.

The controls ensure a prescribed podium heights can be built abutting the public space ‘as of right’ – where an active frontage is anticipated. The remaining built form must be setback to ensure no additional shadows within the prescribed timeframes, protecting the recreational values of the space.





Woorayl and Egan Street parks

Tall buildings in the Urban Renewal Precinct North of the Railway line will shadow the railway corridor.

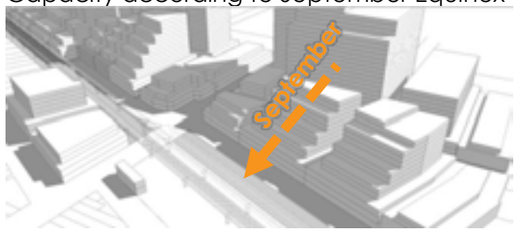
Shadow controls have been designed to balance the use of these key public spaces with opportunities for growth in the renewal area.

Design testing has shown that winter shadow protection across the entirety of this space will reduce the development capacity of the renewal area to an extent considered unreasonable.

The corridor has been divided based on proposed uses within the corridor, with highest priority allocated to Woorayl Street Park and the active community space at Egan Street where winter controls will be applied. The remaining public realm areas will have September Equinox shadow controls.

Design testing maximum capacity

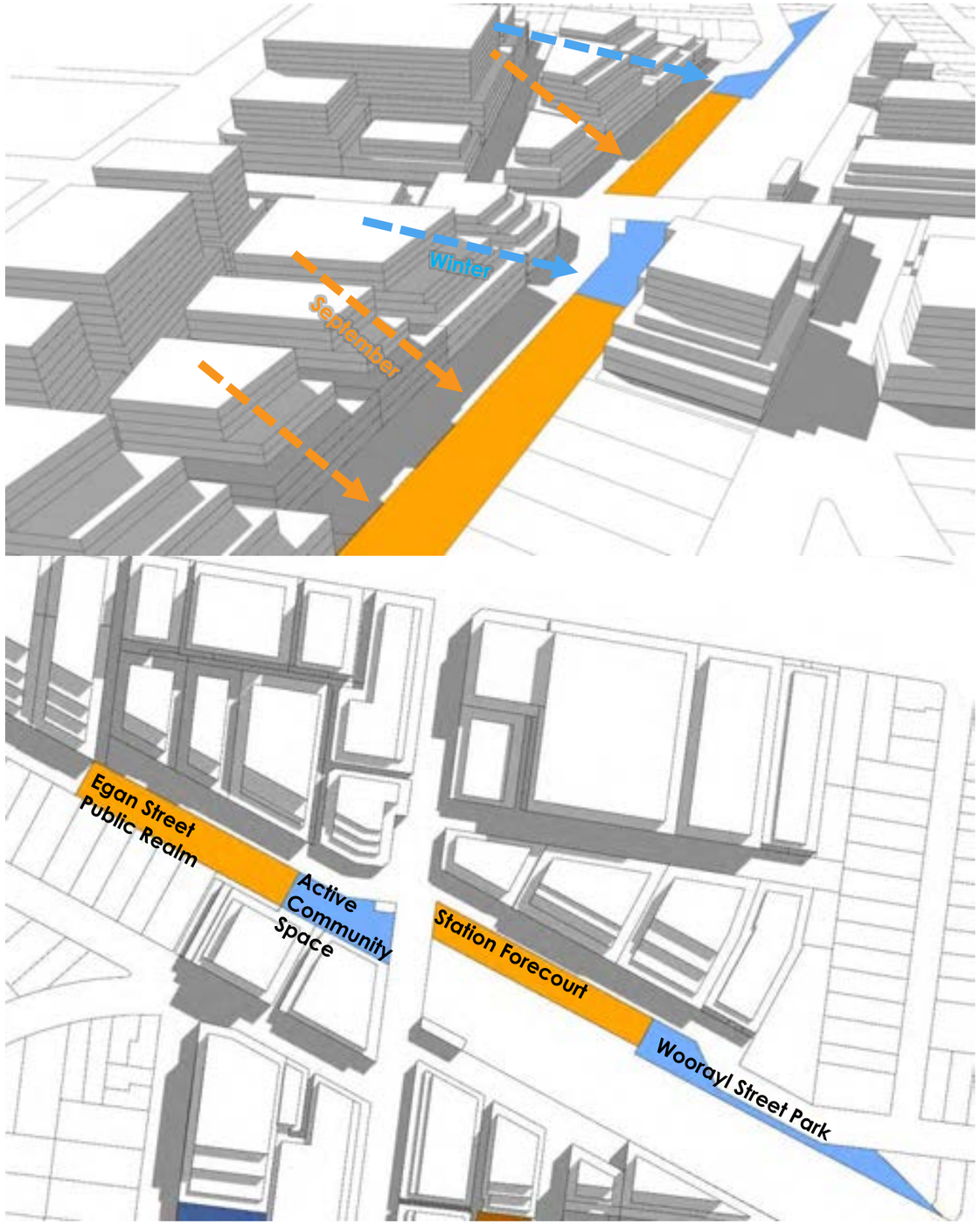
Capacity according to September Equinox



Capacity according to Winter Solstice

.

Proposal

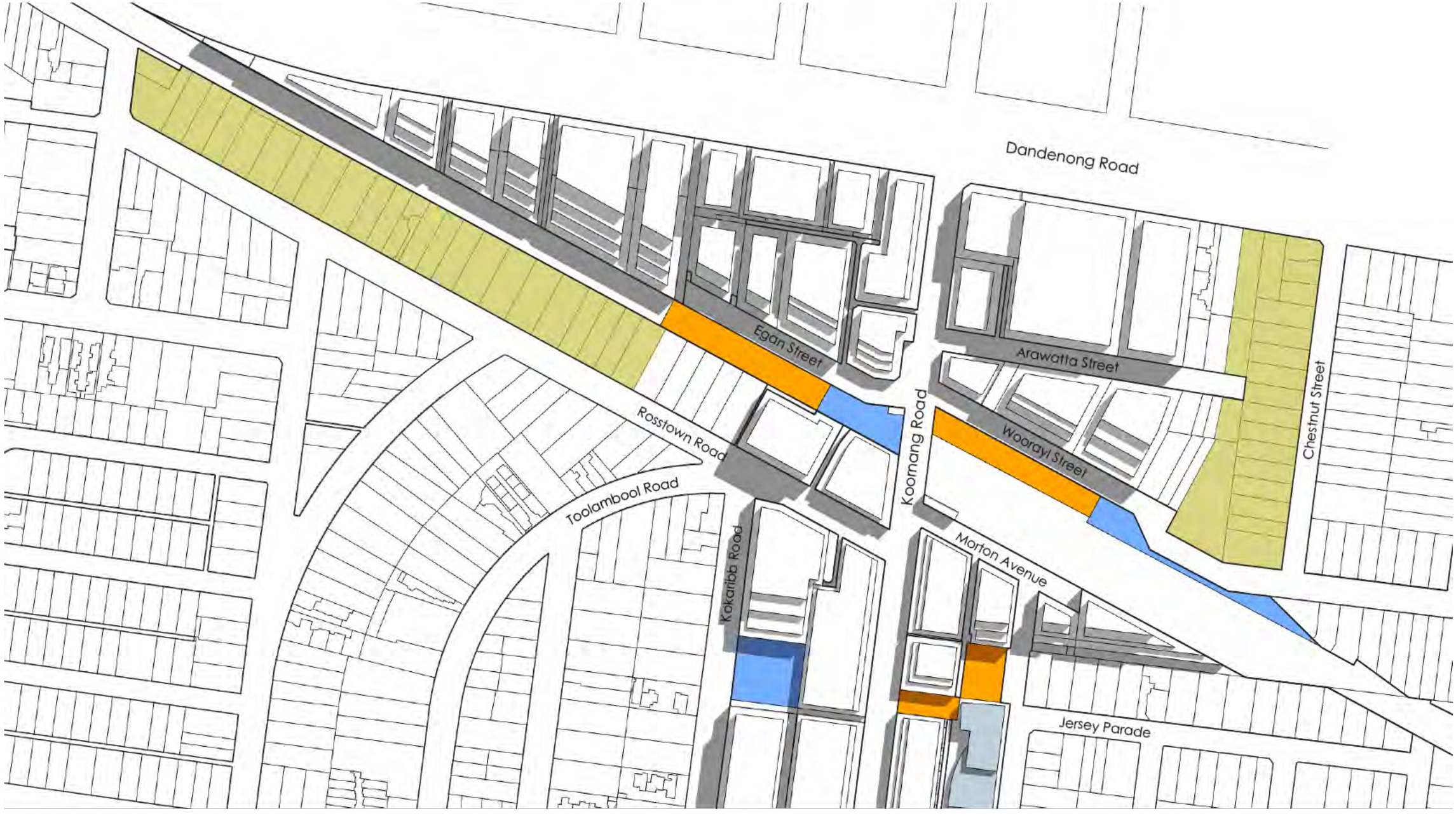


Shadow diagrams

22 September (Equinox), 9am

Shadow Diagrams

22 SEPTEMBER (EQUINOX), 10AM



Shadow diagrams

22 SEPTEMBER (EQUINOX), 11AM

Shadow diagrams

22 SEPTEMBER (EQUINOX), 12PM

Shadow diagrams

22 SEPTEMBER (EQUINOX), 1PM

Shadow diagrams

22 SEPTEMBER (EQUINOX), 2PM

Shadow diagrams

22 SEPTEMBER (EQUINOX), 3PM

Shadow diagrams

21 JUNE (WINTER), 11AM TO 2PM

Three parks have winter shadow protection controls:

- Active community space (corner Egan Street and Koornang Road).
- Woorayl Street park.
- Kokaribb Road park.

These diagrams show the impact of controls, with shadows cast by allowable 3 storey street walls (13 metres) of buildings only.

Winter represents the 'worst case' where shadows are longest. See diagrams on previous pages for impact at the September Equinox.

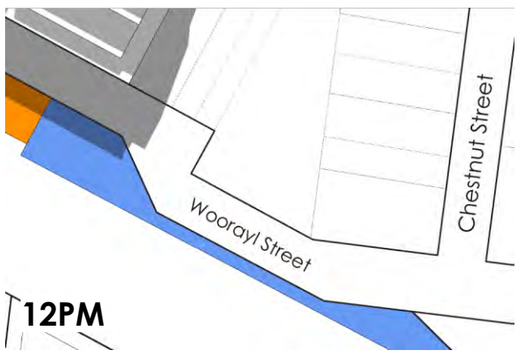
<u>*Shadow Model Caveats:*</u>

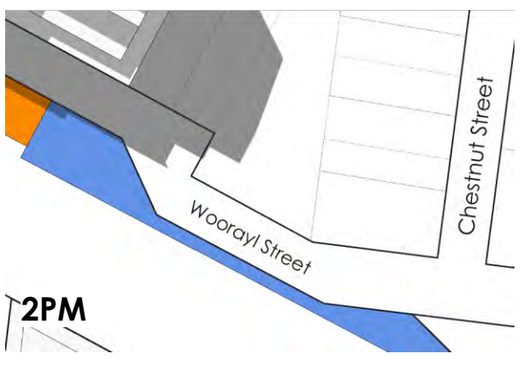
This shadow model:

- *illustrates a maximum capacity built form envelope that complies with proposed shadow controls with:*
  - *Street wall heights matching proposed precinct controls (9m in shop-top precincts and 13m in Strategic Sites and Urban Renewal Precincts)*
  - *Buildings heights modelled based on 4m per street wall level and 3m per upper level and the number of storeys matching precinct controls.*
- *does not depict 'real buildings' and does not account for other design requirements.*
- *does not include existing or approved building envelopes, including the upgraded Carnegie Station and elevated rail.*
- *is created on a 'flat land base'. A flat land base is considered sufficient for strategic planning purposes given that topography across the centre has minimal variance as shown in Appendix A of this report.*

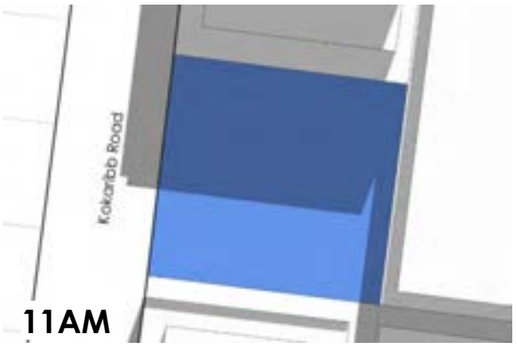
Active community space

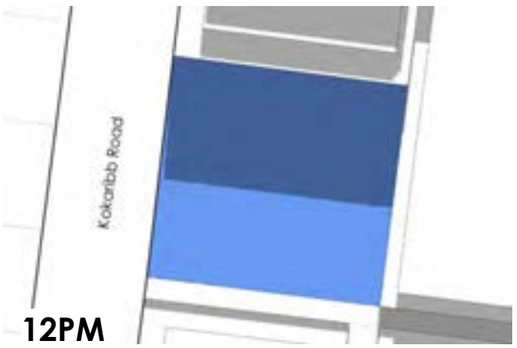
Woorayl Street park

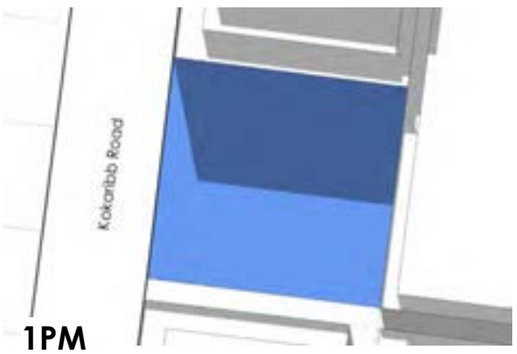


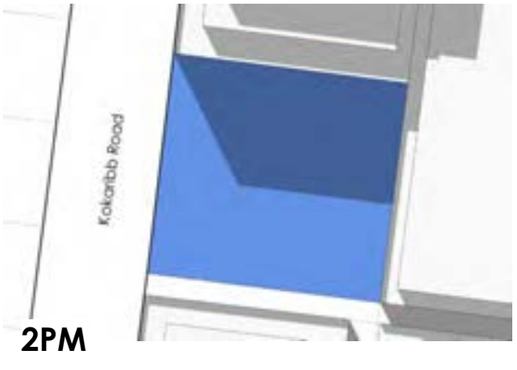


Kokaribb Road park









C.

Appendix C: Residential Areas

C1.

Summary

Appendix C outlines the key design aspects that influenced proposed controls for Residential Areas.

Discussion is separated into three parts:

C1. Summary

- Residential precincts
- Precinct approach
- Key planning control Recommendations

C2. Key preferred character outcomes

- Managing transition and garden corridors
- Garden setting (fencing and landscaping)
- Site consolidation
- Local character elements
- Dwelling orientation and outlook

C3. Impact on development opportunity (housing yield)

- A greater spread of buildings and housing
- Built form testing: Testing the built form controls on local sites

Precinct design approach

Carnegie has experienced a significant transformation in recent years with most developments being at a medium-high density scale. Previous policy provided limited character guidance and housing diversity. The structure plan responds to building and housing issues by:

- introducing **a greater spread of building typologies**, including a more varied mixture of townhousing and apartment buildings that provide an appropriate transition between housing of different types and densities; and
- providing **better character guidance for new developments**, including preferred character outcomes and detailed design guidance.

Under existing policy the Residential Growth Zone is applied in a radial fashion around the Carnegie train station, primarily to the south of the railway line. The application of this zone represents a radius of approximately 500m (on average), being a short walkable distance from the centre. There are also some General Residential Zones along main roads at the peripheries fronting Truganini Road, Dandenong Road and Ames Avenue.

While the radial shaped zoning makes sense at plan view, the result creates inconsistency and conflict in local streets. Some areas have multiple zones, allowing four storey apartment buildings and low-scale detached housing in close proximity.

In the new plan, growth areas will remain near to the Carnegie Station and along selected main roads and tram routes. The plan nominates the majority of growth areas in the middle belt between the Railway line and Neerim Road.

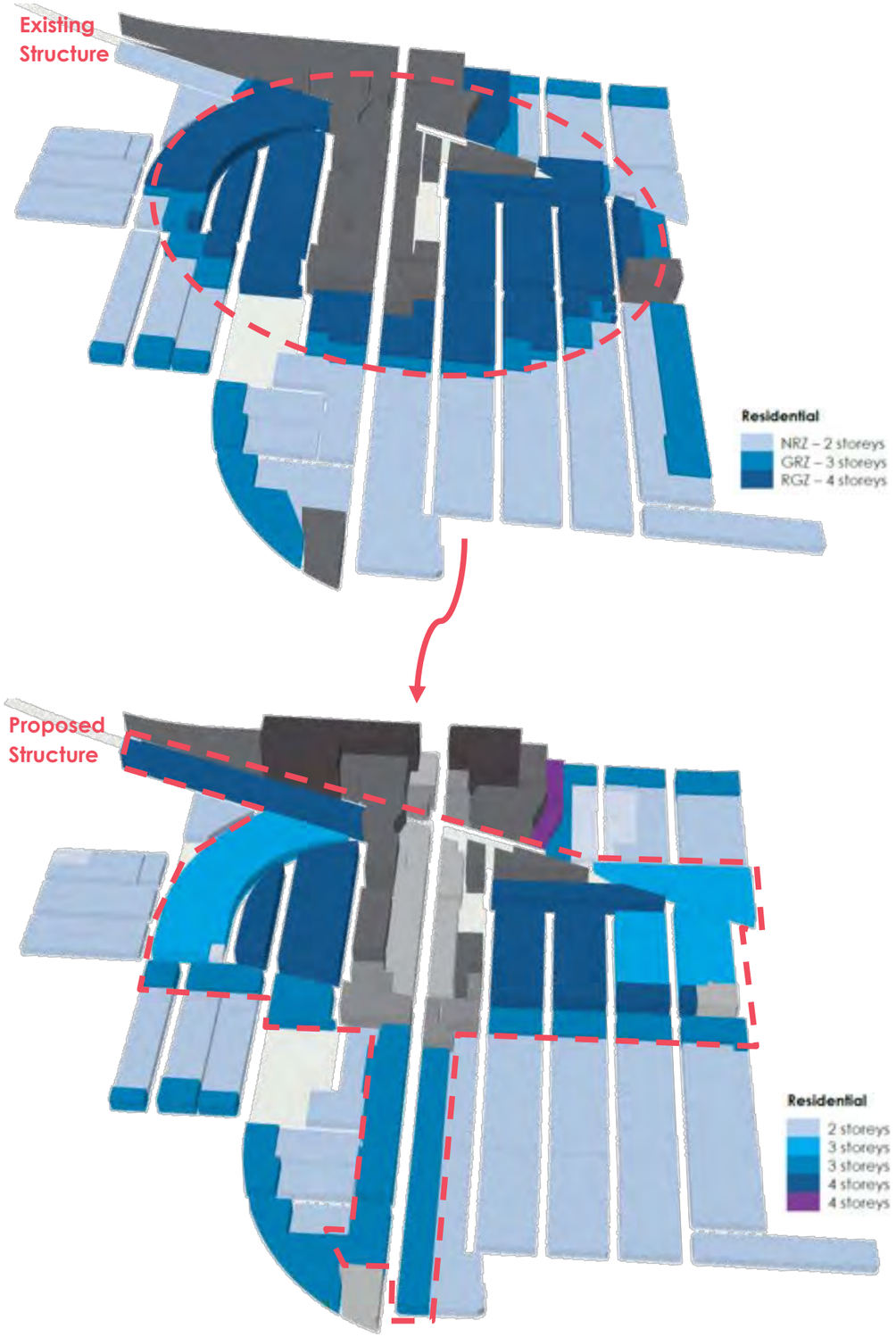
Growth areas south of Neerim Road have been removed from local streets and redistributed towards the main road (Koornang Road).

Reducing the development capacity on local streets south of Neerim Road will leave a limited built form legacy as this part of Carnegie has experienced limited change through planning permits. There is only one existing permit issued for taller development in this area, with the remaining building stock being 1-2 storeys in height.

The new plan improves the transition between areas of different development intensities. Where practical, the plan uses the road network as a border between building types in order to best manage transition between growth areas and minimal change areas.

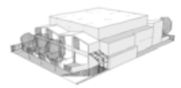
This ensures that different development intensities are separated by roads rather than individual property boundaries. In some circumstances a rear boundary or mid-street border has been used as the transition point – in these situations built form controls will be introduced to manage transition between zones.

Overall, the proposed changes will continue to deliver a strong level of growth, which supports Council's *Activity Centre, Housing and Local Economy Strategy*.



Residential precincts

The activity centre applies building typology recommendations from the *Quality Design Guidelines*. Each building typology will be applied as a built form precinct in the planning scheme. The Key Built Form outcomes sought by are discussed in this appendix under Key preferred character outcomes.

HC	Heritage and character housing (Zone: NRZ)	
MC	Minimal change areas (Zone: NRZ)	
GT	Garden townhouse (Zone: GRZ)	
TA	Townhouse and apartment mix (Zone: GRZ)	
GA	Garden apartment (Zone: RGZ)	
UA	Urban apartments (Zone: RGZ)	

Key planning control recommendations

Key requirements are noted in this table. For detailed design guidance refer to Council's *Quality Design Guidelines – Residential Areas.*

PRECINCT REF. – QUALITY DESIGN GUIDELINES BUILDING TYPOLOGY	HC – HERITAGE / CHARACTER	MC – MINIMAL CHANGE	GT – GARDEN TOWNHOUSE	TA – TOWNHOUSE & APARTMENT MIX	GA – GARDEN APARTMENT	UA – URBAN APARTMENT
						
PROPOSED ZONE	NRZ	NRZ	GRZ	GRZ6	RGZ	RGZ
HEIGHT	2 storeys (9 metres)	2 storeys (9 metres)	3 storeys (11 metres)	3 storeys (11 metres)	4 storeys (13.5 metres)	4 storeys (13.5 metres)
SETBACKS – Streets	**N/A** (ResCode)		**Primary frontage** • Up to a height of 2 storeys: minimum 7 metre setback. • At the third storey: minimum 11 metre setback. **Secondary frontage (corner sites):** • Up to a height of 2 storeys: minimum 3 metre setback. • At the third storey: minimum 5 metre setback.		**Primary frontage:** • Up to a height of 3 storeys: minimum 7 metre setback. • At the fourth storey: minimum 11 metre setback. **Secondary frontage:** • Up to a height of 3 storeys: minimum 3 metre setback. • At the fourth storey: minimum 5 metres setback.	**All streets** • Up to a height of 3 storeys: minimum 3 metres setback. • At the fourth storey: minimum 6 metres setback.
SETBACKS – Side & Rear	**Side:** • **N/A** (ResCode) **Rear:** • 5m at ground floor. • 9m at first floor.		**Side:** • **N/A** (ResCode) **Rear:** • Up to a height of 2 storeys: minimum 5 metre setback. • At the third storey: minimum of 11 metre setback.		**Side:** • **N/A** (ResCode) **Rear:** • Up to a height of 3 storeys: minimum 3 metre setback. • At the fourth storey: minimum 5 metre setback.	**Side & rear (abutting non-residential or Urban Apartment)** • Up to a height of 3 storeys: 0 metres setback. • At the fourth storey: 6 metres setback. **Side & rear (abutting other residential typologies)** • **N/A** (ResCode)
SETBACKS – Primary Outlook	A minimum of 6 metres for primary living areas or secluded private open space (eg. Balconies, terraces) at upper floors facing the boundary.					
WALLS ON BOUNDARY	**N/A**	Walls on boundary provided on one side only.				• **Abutting non-residential or Urban Apartments:** 100% of the boundary. • **Abutting other residential typologies: N/A** (ResCode)
MINIMUM GARDEN AREA REQUIREMENT	Applies	Applies	Applies	Does not apply	Does not apply	
SITE COVERAGE	50%	**N/A** (Rescode - 60%)	**N/A** (Rescode - 60%)	**N/A** (Rescode - 60%)	90%	
PERMEABILITY	25%	**N/A** (Rescode - 20%)	**N/A** (Rescode - 20%)	**N/A** (Rescode - 20%)	5%	
PRIVATE OPEN SPACE (POS) & PRIMARY SECLUDED PRIVATE OPEN SPACE (SPOS)	**Applies to all POS & SPOS:** POS: 60 sqm SPOS: 40 sqm with minimum dimension of 5 metres. SPOS location: ground floor at the side or rear, and with convenient access from a living room. **Balconies/roof-top areas:** Primary SPOS above ground discouraged.	**Applies to all POS & SPOS:** POS: 25 sqm (same as SPOS) SPOS: 25 sqm with minimum dimension of 4 metres. SPOS location: ground floor, with convenient access from a living room. **Balconies/roof-top areas:** Primary SPOS above ground discouraged.	**Ground floor dwellings:** POS: 25 sqm (same as SPOS) SPOS: 25 sqm with minimum dimension of 4 metres. SPOS location: ground floor, with convenient access from a living room. **Balconies/roof-top areas:** To accord with Rescode balcony requirements.	**Ground floor dwellings:** POS: 25 sqm (same as SPOS) SPOS: 25 sqm with minimum dimension of 4 metres. SPOS location: ground floor, with convenient access from a living room. **Balconies/roof-top areas:** To accord with Rescode balcony requirements.	**Ground floor dwellings:** POS: 15 sqm (same as SPOS) SPOS: 15 sqm with minimum dimension of 3 metres. SPOS location: ground floor, with convenient access from a living room. **Balconies/roof-top areas:** To accord with Rescode balcony requirements.
LANDSCAPE	A minimum of 1 tree per ground floor dwelling and 1 advanced canopy tree for every 8 metres of boundary at the front and rear. The advanced canopy tree requirement under the boundary length calculation can include the 1 trees per ground floor dwelling requirement. If the result is not a whole number, round up to the nearest whole number. One advanced canopy tree for every 8 metres of boundary at the front; and one per ground floor dwelling. (Exceptions: for HC and MC precincts, provide 2 trees per ground floor dwelling, and for UA rear planting requirements should not apply).					
FRONT FENCE HEIGHT	Main Roads: Maximum fence height of 1.8m with at least 25% visual transparency above 1.2 metres. All other roads: Maximum fence height of 1.2 metres. ** Except where a Neighbourhood Character Overlay states otherwise.					Main Roods: 1.8m Local streets: 1.5m At least 25% visual transparency above 1.2 metres.

N/A: *No variation to ResCode Standards at Clause 54, 55 or 58 as relevant. This includes any existing Neighbourhood Character Overlay requirements.*

C2.

Key preferred character outcomes

Summary of key preferred character outcomes

Council's *Quality Design Guidelines* introduce a range of building types that will be applied as new zones and built form character precincts.

The planning control recommendations for residential precincts are best explained through five design elements.

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

Each element is rationalised and linked to proposed precinct controls in the following pages.

1. Managing transition and garden corridors

Built form emphasises lower floors to integrate with traditional low-scale streets. Setbacks incorporate adequate space to provide garden corridors and usable secluded private open space in front and rear setbacks.

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

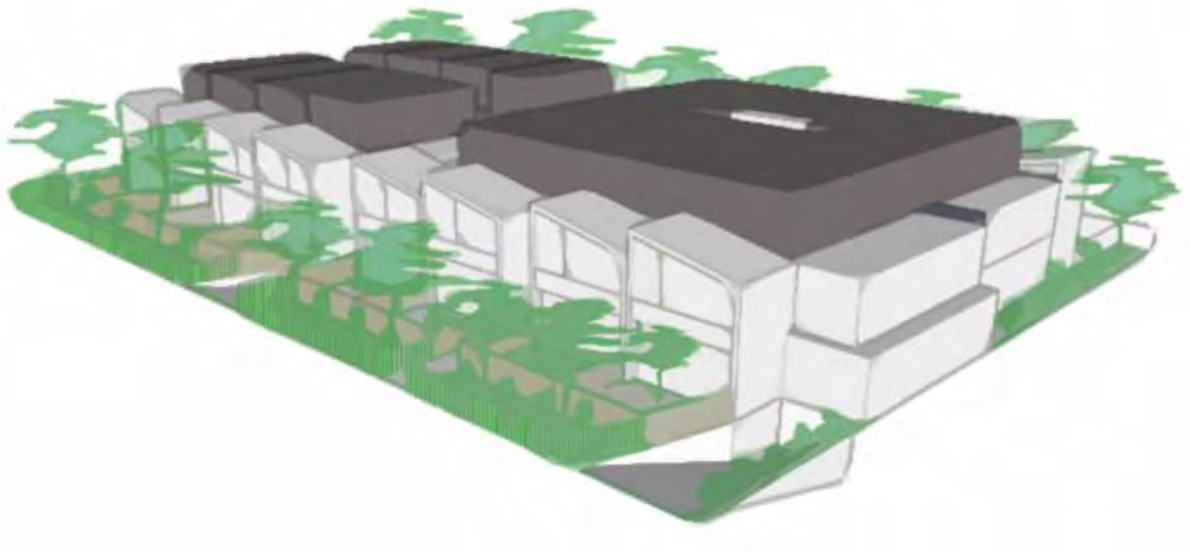
Consolidating multiple sites and vehicle access points avoids tall skinny buildings, allows more space for landscaping and ensures the visual impact of the building can be managed within the site.

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.



1. Managing transition and garden corridors

Development occurs over time. Activity centres will experience substantial periods of growth and incremental change. Higher density development can reinforce traditional garden suburban characteristics while managing the transition in the meantime by responding to key characteristics of the local area.

Setback requirements are the best way to set neighbourhood character expectations and will underpin other requirements for:

- Landscaping and front fencing
- Private open space location
- Materials, colours and roof forms
- Dwelling orientation

Front setbacks:

Proposed requirement:

- **GRZ (Garden townhouse and townhouse/apartment mix):** 7m to a height of two storeys. A further 4m above, with upper floors appearing recessive.
- **RGZ (Garden apartment):** 7m to a height of three storeys. A further 3m above, with upper floors appearing recessive.

Intent:

- Provide a well-landscaped garden setting including substantial front setbacks that accommodate deep planted canopy trees.
- Manage transition on existing streets by contributing to a low scale streetscape character, with upper floors recessed.

Rear setbacks

Proposed requirement:

- **Garden townhouse and townhouse/apartment mix** – 5m, to a height of two storeys. A further 6m above, with upper floors appearing recessive.
- **Garden apartment** – 5m, to a height of three storeys. A further 3m above, with upper floors appearing recessive.

Intent

- Minimise the visual the impact of new development on residential sites to the rear.
- Achieve a well-landscaped backyard corridor that can accommodate canopy tree planting.

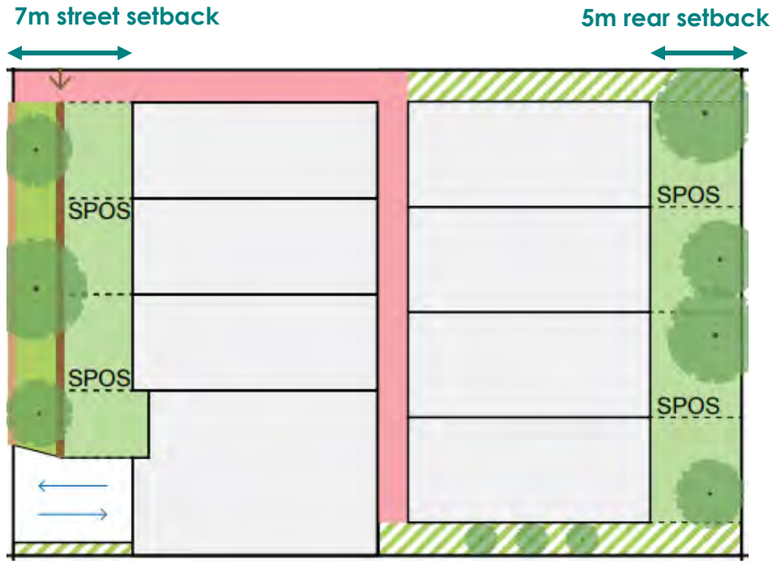
Side setbacks

Proposed requirements for dwelling orientation, outlook and balcony separation is addressed later in this report.

Except for side-facing balconies – No variations to ResCode are proposed in side setbacks as front and rear setback recommendations are prioritised instead.

Example:

The following imagery illustrates how additional setbacks will encourage developments to provide a true garden setting with canopy trees at the front and rear of the property and landscape setting emphasised in the front setback before SPOS.



2. Garden setting
(fencing and landscaping)

Landscaping and front fencing are core aspects of creating a garden setting.

Landscape design can assist in reducing the bulk and scale of buildings by softening the built form and re-introducing a connection to natural surrounds. Landscaping should contribute to and enhance the streetscape character and public realm, incorporating planting, landscape treatments and materials that are consistent with the prevailing streetscape or reflect the preferred strategic significance of surrounds.

Fencing contributes to the overall streetscape appearance of a development, and significantly influences how developments are perceived and interact with the public realm. Fencing should balance the need for privacy with passive surveillance, activation of the public realm and contribution to a garden setting. In local streets, there is an expectation that developments will maintain an open, landscaped character with low front fencing. On main roads, taller fencing is acceptable to reduce amenity impacts such as noise from traffic.

Landscaping

- **Requirement (except urban apartment):** A minimum of one advanced canopy tree for every 8 metres of boundary at the front and rear; and 1 tree per ground floor dwelling. The advanced canopy tree requirement under the boundary length calculation can include the one tree per ground floor dwelling requirement (variants of this applied to each typology).
- **Guidance:** Prioritise the low-scale, open and landscaped character of residential streets and back yards. This is best achieved by providing green corridors at the front and rear of sites (rather than sides) with large setbacks, attractive greenery (soft landscaping) and adequate basement footprints that do not impede the planting of canopy trees that will grow to full size at maturity. Prioritise canopy trees in front and rear setbacks. The prescription of 8 metres is a guide to calculate the number of trees only – while the location of each tree should be site responsive.

Fencing on local streets

- **Requirement (except urban apartment):** Maximum height of 1.2m within 3m of the front boundary, or 1.8m beyond. Provide at least 25% visual transparency above 1.2m.
- **Requirement (urban apartment):** Maximum height of 1.5m.
- **Guidance:** In GRZ and RGZ, if ground floor SPOS is proposed within the street setback (requiring a taller fence) the fence should not encroach within 3m of the front boundary to encourage provision of a garden corridor fronting the street with significant landscaping (See image below).

Fencing on main roads

- **Requirement:** Maximum fence height of 1.8, with at least 25% visual transparency above 1.2m.
- **Guidance:** Tall fencing should be designed to incorporate landscaping and permeability to contribute greenery and provide a level of passive surveillance. Ground floor SPOS is supported in the front setback.

Image 1: Poor example of fence design in residential areas, with building services and solid fencing dominating frontage.
Images 2 and 3: Tall front fencing on main roads could be designed to incorporate landscaping.

Image 4: If tall fencing is required on local streets, provide adequate space for canopy tree planting fronting the street (noting image 4 is a recent development – landscaping will eventually grow to provide a strong landscape setting).

3. Site consolidation

Site consolidation

Site consolidation is strongly encouraged to deliver an efficient built form with adequate landscaping, setbacks, consolidated car parking and a reduced number of crossovers and hardstand areas.

Building design on consolidated sites should continue to respond to the rhythm and pattern of development on the street. Break up long extents using a combination of varied setbacks, articulation, materials and colours. Divide the building into single lot sized proportions from street view.

4. Local character elements

Materials, colours and textures

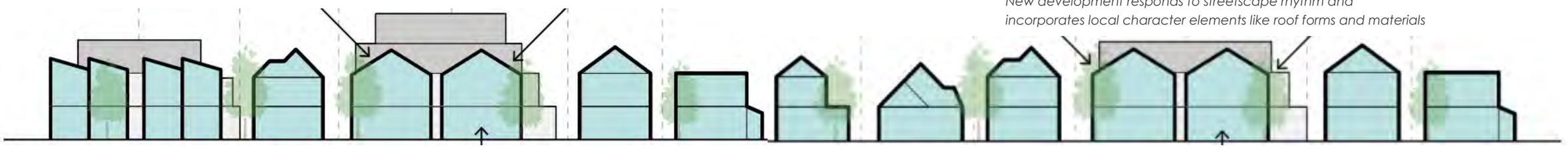
Use integral and long-lasting materials, textures and colours that reflect a residential palette and integrate elements of the existing streetscape. Bricks and durable timber cladding are strongly encouraged.

This example shows a range of design treatments elements incorporated into façades and fencing.

Roof forms

Roof design should positively respond to and enhance the residential streetscape.

Contemporary architectural interpretations of traditional roof forms are encouraged to assist with streetscape integration. For example, in streets where traditional angled roofing is the predominant form (eg. pitched, hipped or skillion styles), integrate angled roofing elements fronting the street.



5. Dwelling orientation and outlook

Buildings should be designed to prioritise outlooks and views from dwellings while balancing the need for privacy. Buildings should not rely on separation and outlook provided by adjoining lots.

Visual privacy is an important aspect of residential amenity. Visual privacy allows residents within a development or adjoining property to enjoy use of their private spaces without being overlooked. Each development site will have a variety of visual privacy concerns that should be accommodated.

Building separation is defined by local character in residential areas. However, a principle that carries through the activity centre is a defined minimum separation for balconies from side or rear boundaries of 6 metres (also applies to commercial/mixed use areas).

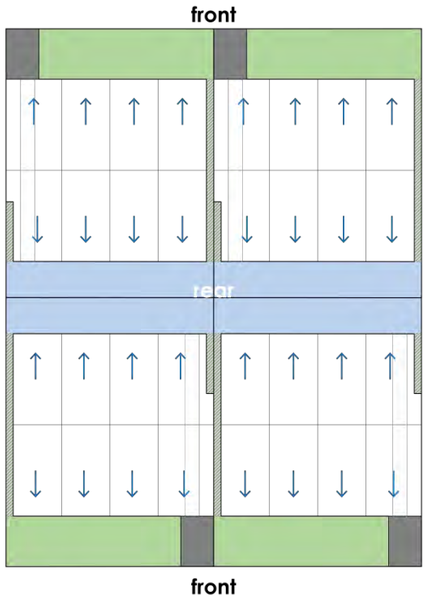
Primary Outlook (balcony/living area separation) is introduced as a requirement in addition to matters of character for side and rear setbacks.

Primary outlook (balcony and living areas setback) – recommendation:

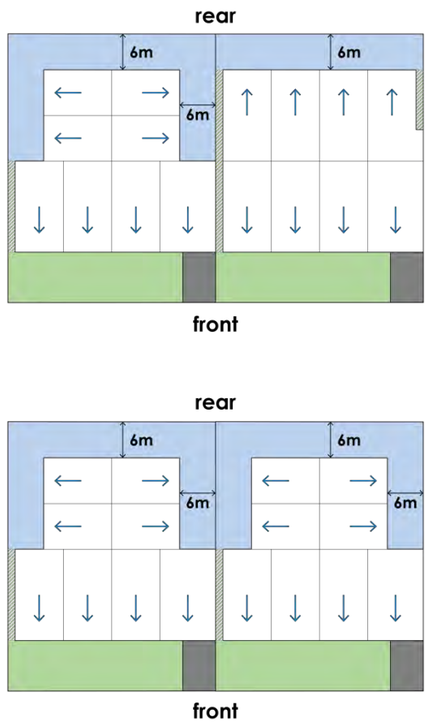
- Minimum side setback of 6m for secluded private open spaces or living areas at upper floors directly facing a side or rear boundary (side-facing balconies strongly discouraged). Otherwise, side setbacks in accordance with standard requirements of the *Glen Eira Planning Scheme* (ResCode).
- This outcome may be varied if an existing apartment building (that is unlikely to be redeveloped) or non-residential zone abuts the proposal site and a considered design response addresses direct views and outlook.

Potential design responses

1. Preferred outcome with balconies facing front and rear of the site.



2. Alternative outcome with one or both lots having side-facing balconies. A minimum level of outlook and amenity continues to be achieved.



Note: These diagrams plan show layouts for upper levels (not ground floor).

C3.

Impact on development opportunity (housing yield)

A greater spread of buildings and housing

Built form policy changes will affect housing. The plan introduces a range of buildings types with planning controls that will deliver a greater spread of housing and development opportunity. The impact is visualised in the following table and key sites are tested in this report section.

HOUSING DENSITY (DPH = Dwellings per hectare)	20-30 DPH	75-100 DPH	100-125 DPH	150-175 DPH	200-225 DPH	250+ DPH
Development size examples (Note: depends on lot size)	*1 lot = 2 dwellings* *2 lots = 4 dwellings*	*1 lot = 4+ dwellings* *2 lots = 8+ dwellings*	*1 lot = 6+ dwellings* *2 lots = 11+ dwellings*	*1 lot = 7+ dwellings* *2 lots = 14+ dwellings*	*1 lot = 9+ dwellings* *2 lots = 22+ dwellings*	*1 lot = 10+ dwellings* *2 lots = 26+ dwellings*

Original policy setting
(pre-2017)

NRZ	GRZ	RGZ
Minimal change areas Outcome: Two dwellings/lot	**GRZ in housing diversity areas and Urban Villages (peripheries)** Outcome: Transformational, apartment development, limited diversity.	**RGZ in urban villages** Outcome: Transformational, apartment development.

New Garden Requirement & Better Apartments Design Standards

New Better Apartments Design Standards

Current policy setting
Key changes introduced by State Government in 2017 included the Minimum Garden Area Requirement & Better Apartment Design Standards. These changes have affected built form and housing outcomes within existing policy settings.

NRZ	GRZ	RGZ
Minimal change areas Outcome: Two dwellings/lot	**GRZ in housing diversity areas and Urban Village (peripheries)** Outcome: Transformational, Apartment development and some townhouses.	**RGZ in urban villages** Outcome: Transformational, Apartment development.

New Character Guidance & addressing housing diversity

New Character Guidance & removed Garden Requirement

New Character Guidance

New Character Guidance

Proposed policy setting (Structure Plan and Quality Design Guidelines)

NRZ	GRZ	GRZ	RGZ	RGZ
Minimal change areas Intent: Two dwellings/lot	**Garden townhouse** Intent: Townhouses in a garden setting on local streets.	**Townhouse and apartment mix** Intent: Managed transition, A mix of Townhouses & Apartment development in a garden setting on Main Roads.	**Garden apartments** Intent: Managed transition, Apartment development in a garden setting.	**Urban apartments** Intent: Dense apartment development in an urban renewal setting.

Traditional Dual occupancy, villas and townhouses protecting the character of local streets

Transition to higher densities on main roads and identified growth precincts near transport infrastructure

Built form testing

The proposed precinct planning controls for residential areas will represent a clear departure from current policy outcomes in some cases.

The controls have been tested to ensure development viability, both economically and in terms of development yield.

Site testing also confirms housing yield assumptions for testing the impact of controls on housing capacity and uptake for the activity centre.

Economic viability

In 2017, Council commissioned the *'Peer Review of Glen Eira's Draft Quality Design Guidelines and Strategic and Urban Renewal Development Plans Analysis'* prepared by AECOM & HillPDA (Oct. 2017). The report tested and confirmed housing yield and financial viability for proposed built form controls using random test sites. Since then, certain parameters in the controls have been 'relaxed'. While the final controls have not been economically tested, it is assumed that improved development opportunity would improve the previously confirmed economic viability.

Development yield

To understand the impact of final precinct controls on housing yield, key sites were tested in the Garden Townhouse (GRZ), Townhouse & Apartment Mix (GRZ), Garden Apartment (RGZ) and Urban Apartment (RGZ) Precincts. Sites were selected at random and are representative of sites and contexts in which new development within each precinct may occur. Built form capacity testing seeks to understand:

- Current trends in the zone (without proposed new character guidance)
- Proposed changes to the zone (new precinct control recommendations)
- Likely outcomes in both single lot and consolidated site developments.

Test sites

1 **Urban apartment precinct – Residential Growth Zone**
24-26 Arawatta Street, Carnegie (two lots, 1014 sqm)

2 **Garden apartment precinct – Residential Growth Zone**
2-4 Shepparson Ave, Carnegie (Two-lot, 1067 sqm site)

3 **Townhouse and apartment mix – General Residential Zone**
192-194 Koornang Road, Carnegie (Two-lot, 1074 sqm site)

4 **Garden townhouse precinct – General Residential Zone**
19-21 Tranmere Avenue, Carnegie (Two-lot, 1012 sqm site)

Results

Key findings:

- Recommended controls achieve the key built form outcomes and principles sought by the *Quality Design Guidelines*.
- No changes required to Garden Townhouse and Townhouse/Apartment Mix and Urban Apartment Precinct controls.
- Changes required to relax upper floor setback controls for Garden Apartment precinct.

Built form testing of the same controls yielded similar results on test sites in the Bentleigh Activity Centre.

Built forms were not tested for Minimal Change Areas (NRZ) as this policy setting exists across Glen Eira and is accepted as viable.

RGZ

Review of current trends in the Residential Growth Zone (RGZ)

Council's experience is that proposals in the Residential Growth Zone tend to be buildings with high site coverage, limited setbacks and with a highly built-out appearance (tall fencing, limited landscaping opportunities). Key design issues are discussed in Appendix A (Existing Context Review and Analysis) of this report.

New developments adopt a contemporary architectural approach with geometric or 'box' styled rendered facades combined with timber, brick or stone feature elements.

The following permits were reviewed to understand the impact of the zone on built form outcomes and housing opportunity. Most selected permits are approved and constructed in Carnegie and Bentleigh Urban Villages, allowing for a review of permit outcomes and against constructed developments.

Permit	Property Address	Height	Site Area (SQM)	Dwellings	Density (Dwellings per hectare)
GE/PP-27023/2014	22-26 Bent Street BENTLEIGH	4	1876	41	219
GE/PP-27334/2014/A	14-18 Bent Street BENTLEIGH	4	1996	55	276
GE/PP-27935/2015	10-12 Bent Street BENTLEIGH	4	1345	35	260
GE/PP-26034/2013/B	15 Bent Street BENTLEIGH	4	846	19	225
GE/PP-27635/2015/A	23 Bent Street BENTLEIGH	4	1057	29	274
GE/PP-28566/2015/B	15-19 Vickery Street BENTLEIGH	4	2100	47	224
GE/PP-29007/2016	24-26 Vickery Street BENTLEIGH	4	1357	36	265
GE/PP-28916/2015	79-83 Mitchell Street BENTLEIGH	4	1785	41	230
GE/PP-27003/2014	29-33 Loranne Street BENTLEIGH	4	2088	42	201
GE/PP-27020/2014/D	24-26 Mavho Street BENTLEIGH	4	1376	28	203
GE/PP-27683/2015	40 Mavho Street BENTLEIGH	4	701	24	342
GE/PP-28182/2015	21-25 Nicholson Street BENTLEIGH	4	1871	44	235
GE/PP-29497/2016	37-39 Nicholson Street BENTLEIGH	4	1248	26	208
GE/PP-28180/2015	6-8 Blair Street BENTLEIGH	4	1492	35	235
GE/PP-27737/2015/A	110-114 Mimosa Road CARNEGIE	4	2462	50	203
GE/PP-29061/2016	90-94 Mimosa Road CARNEGIE	4	1753	41	234
GE/PP-28072/2015	9 & 9A Truganini Road CARNEGIE	4	920	20	217
GE/PP-26254/2013/A	21-25 Truganini Road CARNEGIE	4	1905	41	215
GE/PP-27552/2014	247-251 Neerim Road CARNEGIE	4	2072	48	232
GE/PP-26350/2013	259-261 Neerim Road CARNEGIE	4	1143	28	245
GE/PP-29702/2016	323 Neerim Road CARNEGIE	4	976	24	246
GE/PP-27300/2014	339-341 Neerim Road & 19-21 Belsize Avenue CARNEGIE	4	1605	35	218
GE/PP-29294/2016	322-326 Neerim Road & 17 Elliot Avenue CARNEGIE	4	1880	38	202
GE/PP-28186/2015	3-9 Elliott Avenue CARNEGIE	4	2208	41	186
	AVERAGE		**1586**	**36**	**233**

The following imagery demonstrates the significant transformation of Carnegie's Residential Growth Zone areas in recent years (first image shows 2011 and the second shows 2018).

90 Mimosa Avenue

8 Elliott Avenue

7-11 Belsize Avenue

259-261 Neerim Road

316 Neerim Road

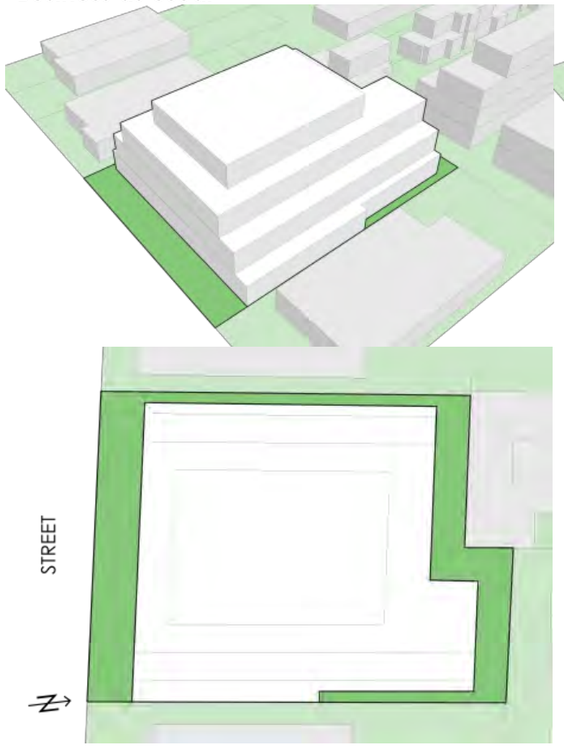
339-341 Neerim Road

Test Site:	1 – Urban apartment precinct (RGZ)
Test Case:	**“Business as usual” vs “Proposed controls”**

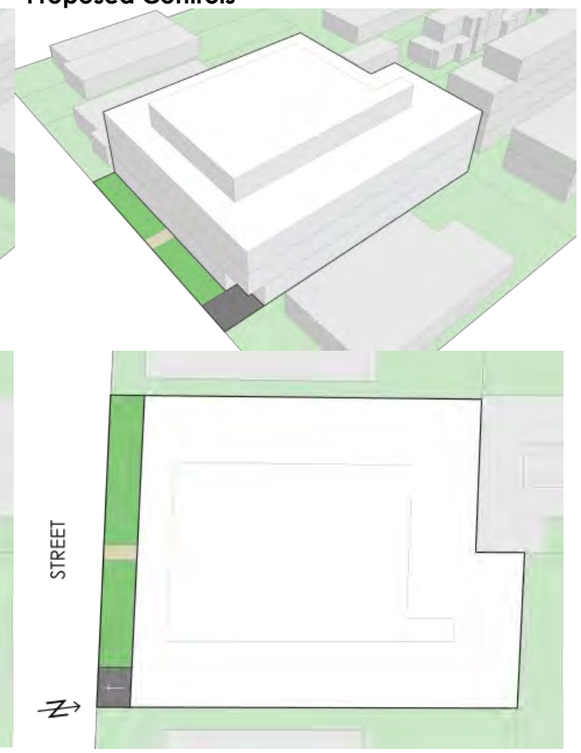
Address	24-26 Arawatta Street, Carnegie	
Area	1014 sqm	
Assumptions	**“Business as Usual”**	**“Proposed controls”**
Height	4 storeys	4 storeys
Street setback	L1 – 4m L2 – 4m L3 – 4m L4 – 7m	L1 – 3m L2 – 3m L3 – 3m L4 – 6m
Rear setback	L1 – 3m L2 – 3m L3 – 3m L4 – 7	L1 – 0m L2 – 0m L3 – 0m L4 – 6m
Side setback	RESCODE	L1 – 0m L2 – 0m L3 – 0m L4 – 6m
SPOS	RESCODE	RESCODE
Parking Layout	Basement	Basement
Results		
Floor space in building envelope	L1 – 751sqm L2 – 677 sqm L3 – 533 sqm L4 – 274 sqm Total – 2235 sqm	L1 – 909 sqm L2 – 916 sqm L3 – 916 sqm L4 – 354 sqm Total – 3095 sqm
Dwelling Yield*	**22 Dwellings**	**31 Dwellings**
Density	**220 Dwellings per HA**	**305 Dwellings per HA**

***** Dwelling yield assumes 75 sqm per dwelling and 75% development envelope efficiency. Development envelope efficiency accounts for 10% external building envelope reduction to meet other design requirements (building articulation, site coverage, overshadowing, north-facing windows, etc) and 15% reduction to account for internal non-dwelling areas (foyers, corridors, lifts, etc).

“Business as Usual”



“Proposed Controls”



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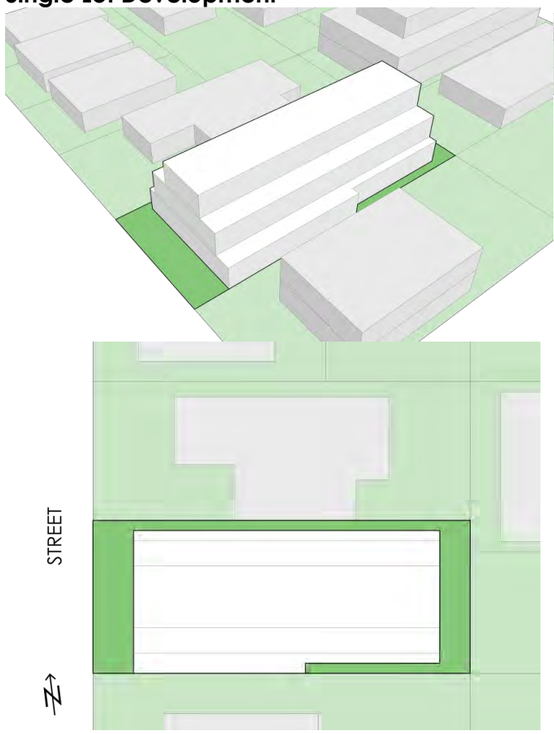
Comments
• Built form responds to dense urban context near the proposed Urban Renewal Precinct and train station. • Greater housing yield than existing policy setting.

Test Site:	2 – Garden apartment precinct (RGZ)
Test Case:	**"Business as usual"** (Current trends in RGZ)

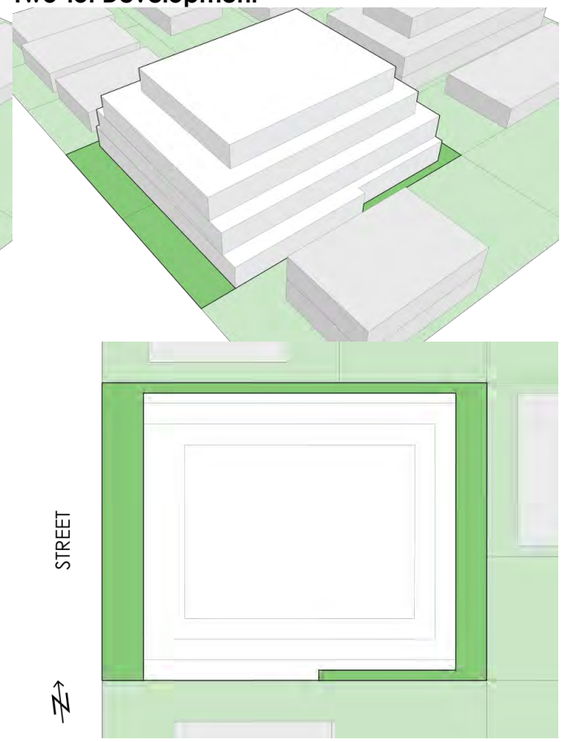
	Single lot development	Two lot development
Address	4 Shepparson Avenue, Carnegie	2-4 Shepparson Avenue, Carnegie
Area	557 sqm	1067 sqm
Assumptions (all)		
Height	4 storeys	
Street setback	L1 – 4m L2 – 4m L3 – 4m L4 – 7m	
Rear setback	L1 – 3m L2 – 3m L3 – 3m L4 – 7	
Side setback	RESCODE	
SPOS	RESCODE	
Parking Layout	Basement	
Results		
Floorspace in building envelope	L1 – 413 sqm L2 – 336 sqm L3 – 184 sqm L4 – 0 sqm Total – 933 sqm	L1 – 828 sqm L2 – 751 sqm L3 – 588sqm L4 – 374 sqm Total – 2541 sqm
Dwelling Yield*	**9 Dwellings**	**25 Dwellings**
Density	**168 Dwellings per HA**	**238 Dwellings per HA**

* Dwelling yield assumes 75 sqm per dwelling and 75% development envelope efficiency. Development envelope efficiency accounts for 10% external building envelope reduction to meet other design requirements (building articulation, site coverage, overshadowing, north-facing windows, etc) and 15% reduction to account for internal non-dwelling areas (foyers, corridors, lifts, etc).

Single Lot Development



Two-lot Development



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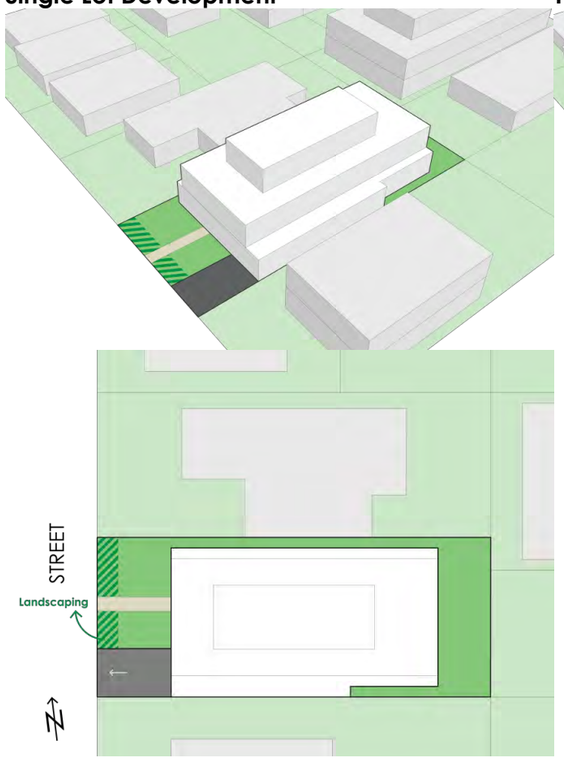
Key issues	
• Limited front and rear setbacks and high site coverage (beyond the prescribed 60% requirement under current policy setting). • Tall front fencing is required in the front setback for privacy, resulting in a highly developed form with limited greenery.	• Landscaping and greenery is not prioritised and the development has a limited response to existing garden character. • Dwellings oriented to front, side and rear boundaries. High amounts of screening required on primary balconies to enforce overlooking requirements, which limits outlook/amenity for residents.

Test Site:	2 – Garden apartment precinct (RGZ)
Test Case:	**Original proposed controls (superseded)**

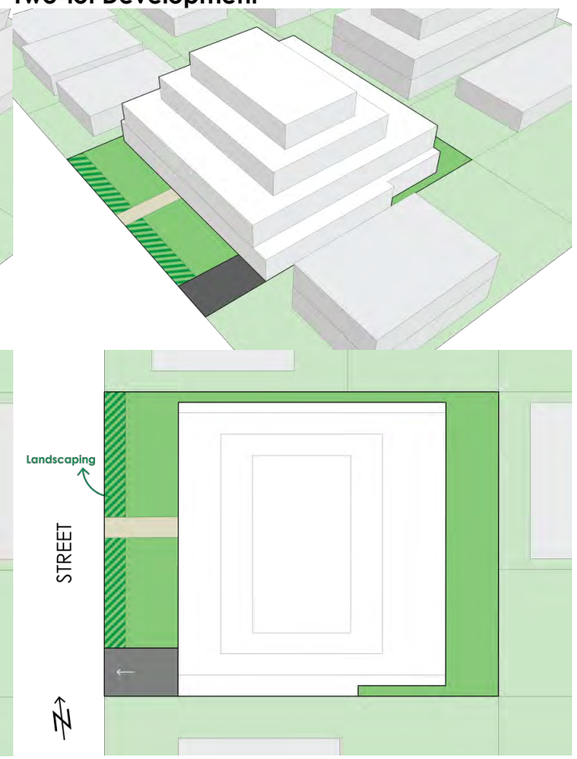
	Single lot development	Two lot development
Address	4 Shepparson Avenue, Carnegie	2-4 Shepparson Avenue, Carnegie
Area	557 sqm	1067 sqm
Assumptions (all)		
Height	4 storeys	
Street setback	L1 – 7m L2 – 7m L3 – 11m L4 – 14m	
Rear setback	L1 – 5m L2 – 5m L3 – 11m L4 – 14m	
Side setback	RESCODE	
SPOS	RESCODE	
Parking Layout	Basement	
Results		
Floor space in building envelope	L1 – 348 sqm L2 – 280 sqm L3 – 93 sqm L4 – 0 sqm Total – 721 sqm	L1 – 694 sqm L2 – 627 sqm L3 – 317 sqm L4 – 156 sqm Total – 1794 sqm
Dwelling Yield*	**7 Dwellings**	**18 Dwellings**
Density	**129 Dwellings per HA**	**168 Dwellings per HA**

***** Dwelling yield assumes 75 sqm per dwelling and 75% development envelope efficiency. Development envelope efficiency accounts for 10% external building envelope reduction to meet other design requirements (building articulation, site coverage, overshadowing, north-facing windows, etc) and 15% reduction to account for internal non-dwelling areas (foyers, corridors, lifts, etc).

Single Lot Development



Two-lot Development



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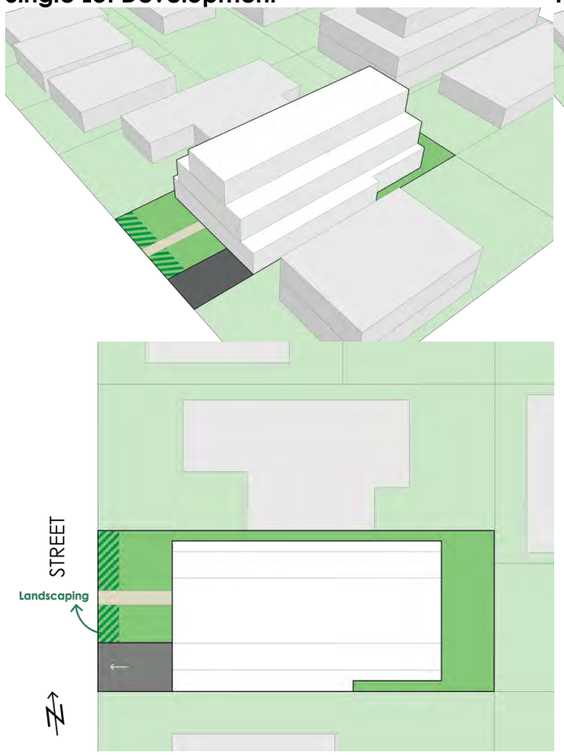
What issues have been resolved?	
• Substantial setbacks at the front and rear enable well-landscaped garden corridors with quality planting and canopy trees that soften new built forms. Larger front setbacks enable an option for low front fencing at the site frontage or taller fencing setback behind a landscape buffer to integrate with garden character.	• Built forms contribute to a low scale (two-storey) streetscape character. • Dwellings oriented to front and rear boundaries. **Issues with this original QDG recommendation** • Upper floor setbacks (particularly 4th floor) are too restrictive, reducing development opportunity/dwelling yield unreasonably for a growth area. Fourth floor unlikely to be developed, • Tiered 'wedding cake' form is not ideal. • **The Quality Design Guidelines recommendations should be revised to address these issues (see following page).**

Test Site:	2 – Garden apartment precinct (RGZ)
Test Case:	**Proposed controls (new version)**

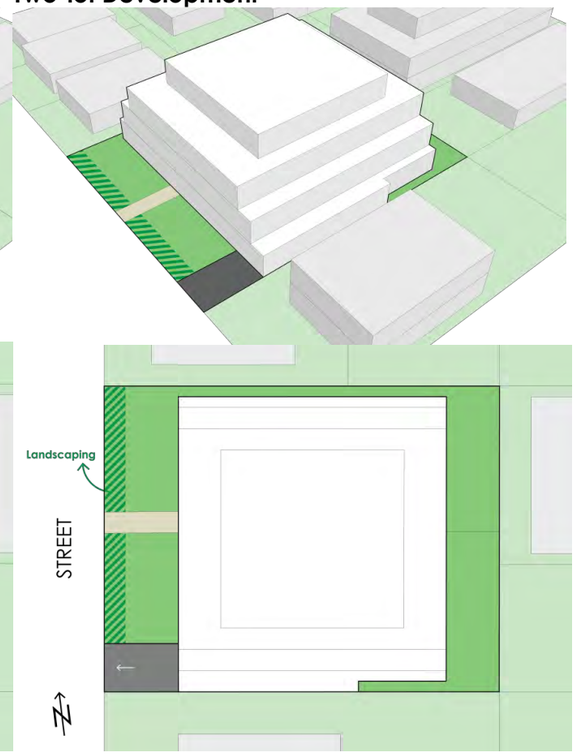
	Single lot development	Two lot development
Address	4 Shepparson Avenue, Carnegie	2-4 Shepparson Avenue, Carnegie
Area	557 sqm	1067 sqm
Assumptions (all)		
Height	4 storeys	
Street setback	L1 – 7m L2 – 7m L3 – 7m L4 – 10m	
Rear setback	L1 – 5m L2 – 5m L3 – 5m L4 – 8m	
Side setback	RESCODE	
SPOS	RESCODE	
Parking Layout	Basement	
Results		
Floor space in building envelope	L1 – 348 sqm L2 – 280 sqm L3 – 154 sqm L4 – 0 sqm Total – 782 sqm	L1 – 694 sqm L2 – 627 sqm L3 – 525 sqm L4 – 290 sqm Total – 3136 sqm
Dwelling Yield*	**8 Dwellings**	**21 Dwellings**
Density	**140 Dwellings per HA**	**200 Dwellings per HA**

***** Dwelling yield assumes 75 sqm per dwelling and 75% development envelope efficiency. Development envelope efficiency accounts for 10% external building envelope reduction to meet other design requirements (building articulation, site coverage, overshadowing, north-facing windows, etc) and 15% reduction to account for internal non-dwelling areas (foyers, corridors, lifts, etc).

Single Lot Development



Two-lot Development



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What issues have been resolved?	
• Substantial setbacks at the front and rear achieve key objective to enable a garden corridor – an improvement compared with existing trends. • Dwellings oriented to front and rear boundaries.	• Relaxed upper floor setback enables greater development opportunity at upper levels than originally proposed. • Three storey 'podium' frontage better aligns with current architectural trends and avoids a tiered 'wedding cake' built form. • **The Quality Design Guidelines recommendations should be revised to include these new setback controls.**

GRZ

Review of current trends in the General Residential Zone (GRZ)

The General Residential Zone is applied to land in areas where growth and housing diversity is anticipated in a way that is responsive to garden character. Council's experience has been that General Residential Zoned developments deliver limited housing diversity, with a focus on medium density apartment developments. Key design issues are discussed in Appendix A (Existing Context Review and Analysis) of this report.

The following permits were reviewed to understand the impact of the zone on built form outcomes and housing opportunity. Most selected permits are approved and constructed, allowing for a review of permit outcomes and against constructed developments.

Permit	Property Address	Height	Site Area (SQM)	Dwellings	Density (Dwellings per hectare)
GE/PP-28065/2015	29-31 Prince Edward Avenue MCKINNON	3	1450	19	131
GE/PP-26721/2014/A	289 Grange Road ORMOND	3	1040	17	163
GE/PP-27994/2015	24-26 Cadby Avenue ORMOND	3	1394	12	86
GE/PP-28065/2015	29-31 Prince Edward Avenue MCKINNON	3	1450	21	145
GE/PP-30199/2016	30-32 Prince Edward Avenue MCKINNON	3	1394	17	122
GE/PP-27839/2015	10-12 Station Avenue MCKINNON	3	1449	21	145
GE/PP-27463/2014	64-66 Bent Street MCKINNON	3 to 4	1524	31	203
GE/PP-23132/2010	61 Lees Street MCKINNON	3	1461	26	178
GE/PP-28020/2015	6-10 Claire Street MCKINNON	3	1744	36	206
GE/PP-24181/2011/A	127 - 129 Murray Street CAULFIELD	3	1350	28	207
GE/PP-25837/2013/C	93-97 Truganini Road CARNEGIE	3	1890	28	148
GE/PP-24624/2012	1044-1044A Glen Huntly Road CAULFIELD SOUTH	3	779	14	180
GE/PP-29903/2016	35 Kokaribb Road CARNEGIE	3	850	5	59
GE/PP-28183/2015	14 Vickery Street BENTLEIGH	3	834	10	120
GE/PP-27173/2014	85 Robert Street BENTLEIGH	3	595	10	168
GE/PP-29325/2016	9-13 St Georges Avenue BENTLEIGH EAST VIC	2	2016	15	74
GE/PP-23160/2010	276 Hawthorn Road CAULFIELD	3	686	10	146
GE/PP-25104/2012	286 Hawthorn Road CAULFIELD	3	696	13	187
GE/PP-26664/2014	288 Hawthorn Road CAULFIELD	3	697	10	143
GE/PP-23962/2011	290 Hawthorn Road CAULFIELD	3	696	10	144
GE/PP-28065/2015	29-31 Prince Edward Avenue MCKINNON	3	1450	19	131
	AVERAGE		**1199.75**	**17.65**	**148**

343 Balaclava Road, Caulfield North
32 dwellings

460 Dandenong Rd, Caulfield North
12 dwellings

130 Murrumbeen Road, Murrumbeena
16 dwellings

44 Lillimur Road, Ormond
24 Dwellings

818 Glen Huntly Road, Caulfield VIC
18 dwellings

91 McKinnon Road, McKinnon
8 dwellings

30 Prince Edward Avenue, McKinnon
17 Dwellings

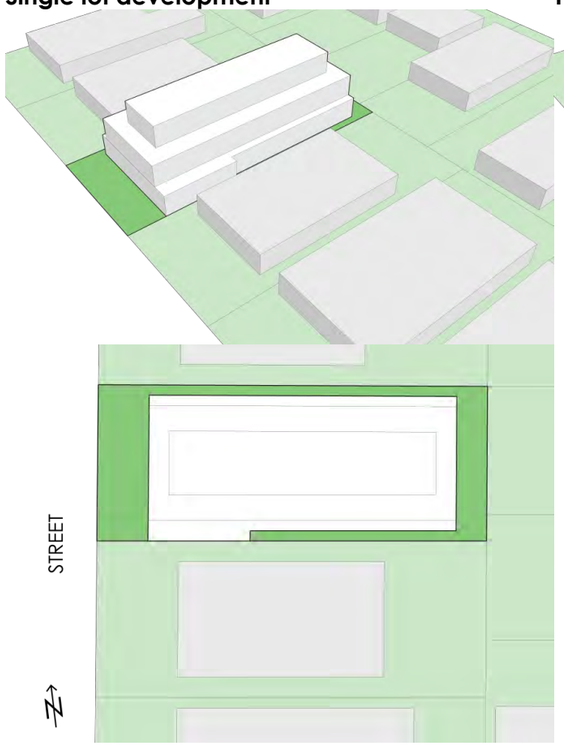
2 Graham Avenue, McKinnon
22 Dwellings

Test site:	3 – Townhouse & apartment mix precinct (GRZ)
Test case:	**"Business as usual"** (Current trends in GRZ)

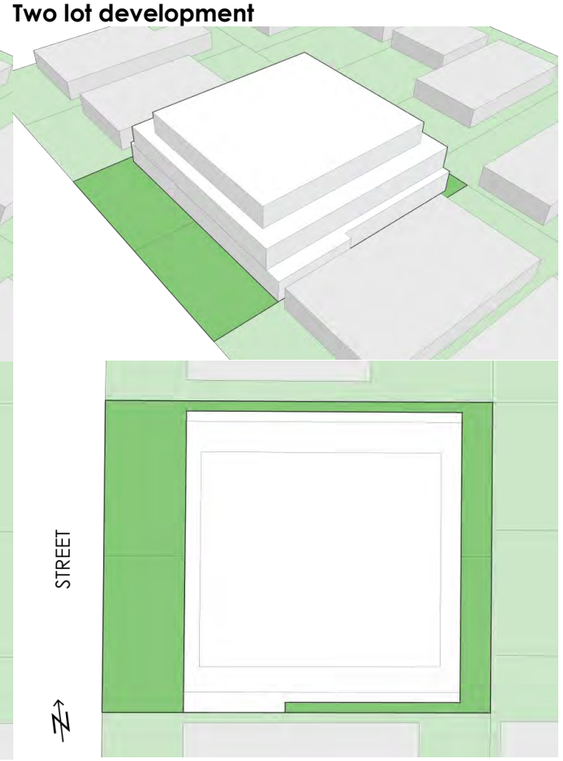
	Single lot development	Two lot development
Address	194 Koornang Rd, Carnegie	192-194 Koornang Rd, Carnegie
Area	579 sqm	1074 sqm
Assumptions (all)		
Height	3 storeys	
Street setback	L1 – 5m L2 – 5m L3 – 7m	
Rear setback	L1 – 3m L2 – 3m L3 – 5m	
Side setback	RESCODE	
SPOS	RESCODE	
Parking Layout	Basement	
Results		
Floor space in building envelope	L1 – 408 sqm L2 – 337 sqm L3 – 162 sqm Total – 907 sqm	L1 – 785 sqm L2 – 721 sqm L3 – 498 sqm Total – 2004 sqm
Dwelling Yield*	**8 Dwellings**	**19 Dwellings**
Density	**146 Dwellings per HA**	**174 Dwellings per HA**

* Dwelling yield assumes 75 sqm per dwelling and 70% development envelope efficiency. Development envelope efficiency accounts for 15% external building envelope reduction to meet other design requirements (building articulation, site coverage, garden area, overshadowing, north facing windows, etc) and 15% reduction to account for internal non-dwelling areas (foyers, corridors, lifts, etc).

Single lot development



Two lot development



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Key issues	
• Limited front and rear setbacks and low contribution to established garden settings. • Tall front fencing is required in the front setback for residential privacy, resulting in a highly developed form with limited greenery.	• Landscaping and greenery is not prioritised and development has a limited response to existing garden character. • Dwellings oriented to front, side and rear boundaries. High amounts of screening required on primary balconies to enforce overlooking requirements. Restricted outlook/amenity for residents.

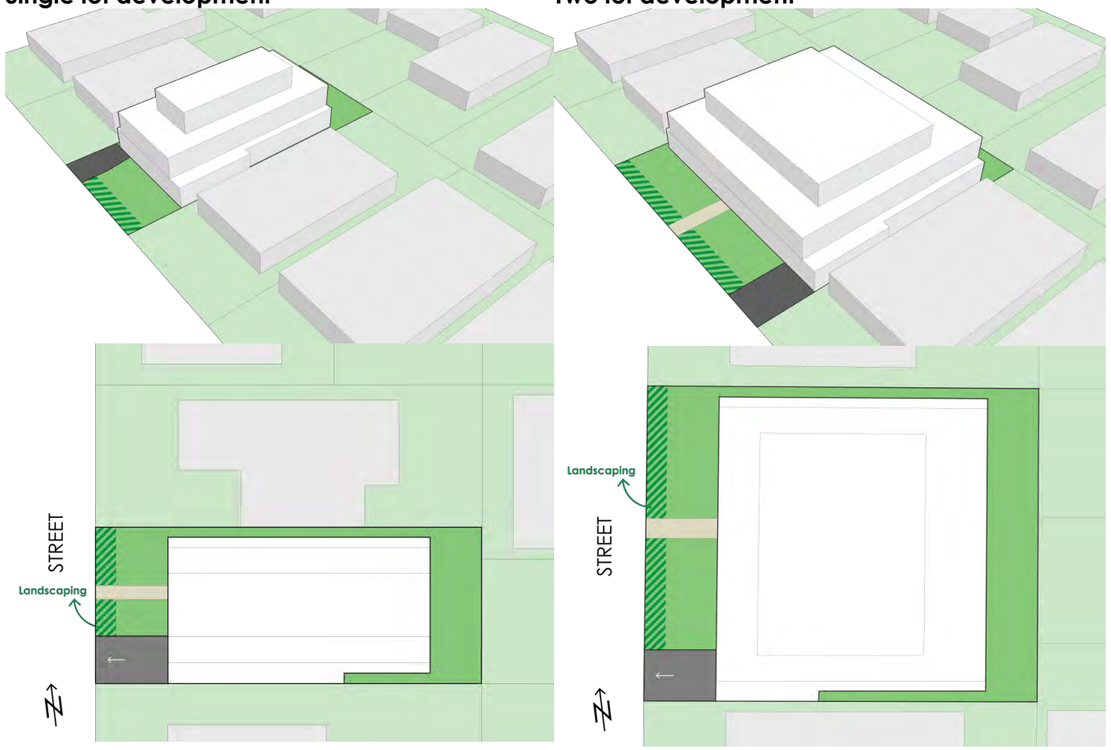
Test site:	3 – Townhouse & apartment mix precinct (GRZ)
Test case:	**Proposed controls**

	Single lot development	Two lot development
Address	194 Koornang Rd, Carnegie	192-194 Koornang Rd, Carnegie
Area	579 sqm	1074 sqm
Assumptions (all)		
Height	3 storeys	
Street setback	L1 – 7m L2 – 7m L3 – 11m	
Rear setback	L1 – 5m L2 – 5m L3 – 11m	
Side setback	RESCODE	
SPOS	RESCODE	
Parking Layout	Basement	
Results		
Floor space in building envelope	L1 – 328 sqm L2 – 270 sqm L3 – 100 sqm Total – 698 sqm	L1 – 756sqm L2 – 694 sqm L3 – 348 sqm Total – 1798 sqm
Dwelling Yield*	**7 Dwellings**	**17 Dwellings**
Density	**121 Dwellings per HA**	**167 Dwellings per HA**

***** Dwelling yield assumes 75 sqm per dwelling and 75% development envelope efficiency. Development envelope efficiency accounts for 10% external building envelope reduction to meet other design requirements (building articulation, site coverage, garden area, overshadowing, north-facing windows, etc) and 15% reduction to account for internal non-dwelling areas (foyers, corridors, lifts, etc).

Single lot development

Two lot development



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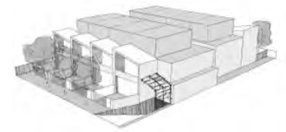
What Issues have been resolved?	
• Substantial setbacks at the front and rear enable well-landscaped garden corridors with quality planting and canopy trees that soften new built forms. • Larger front setbacks enable an option for low front fencing at the site frontage or taller fencing setback behind a landscape buffer.	• Built forms contribute to a low scale (two-storey) streetscape character that reinforces existing character as the precinct transitions towards higher densities. • Design requirements establish clear direction for medium densities in this GRZ scenario that is intended for Main Roads. Lower densities are supported on local streets in accordance with "Garden Townhouse" typology recommendations.

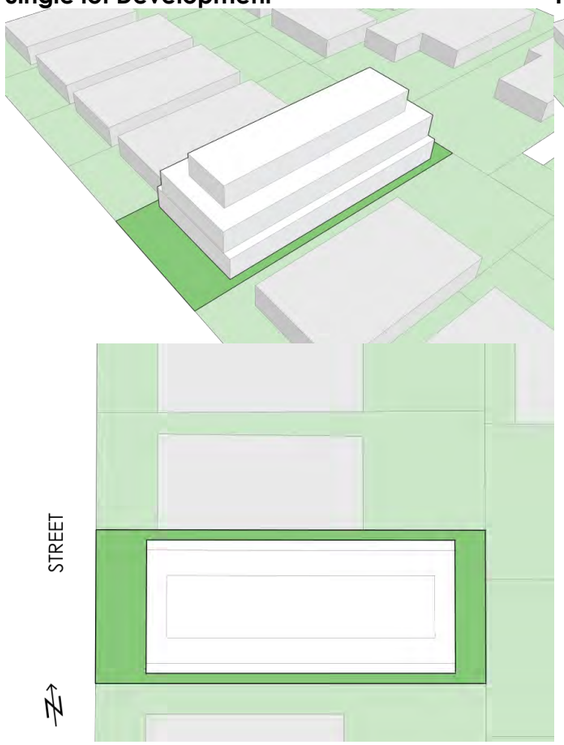
Test site:	4 – Garden townhouse precinct (GRZ)
Test case:	**"Business as usual"** (Current trends in GRZ)

	Single lot development	Two lot development
Address	21 Tranmere Avenue, Carnegie	19-21 Tranmere Avenue, Carnegie
Area	535 sqm	1012 sqm
Assumptions (all)		
Height	3 storeys	
Street setback	L1 – 5m L2 – 5m L3 – 7m	
Rear setback	L1 – 3m L2 – 3m L3 – 5m	
Side setback	RESCODE	
SPOS	RESCODE	
Parking Layout	Basement	
Results		
Floor space in building envelope	L1 – 400 sqm L2 – 339 sqm L3 – 162 sqm Total – 901 sqm	L1 – 741 sqm L2 – 681 sqm L3 – 460 sqm Total – 1882 sqm
Dwelling Yield*	**8 Dwellings**	**18 Dwellings**
Density	**157 Dwellings per HA**	**174 Dwellings per HA**

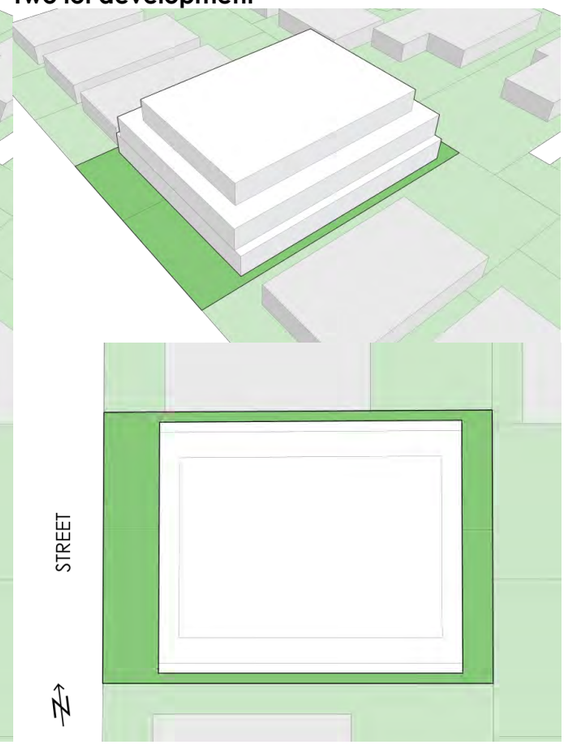
* Dwelling yield assumes 75 sqm per dwelling and 70% development envelope efficiency. Development envelope efficiency accounts for 15% external building envelope reduction to meet other design requirements (building articulation, site coverage, garden area, overshadowing, north facing windows, etc) and 15% reduction to account for internal non-dwelling areas (foyers, corridors, lifts, etc).



Single lot Development



Two lot development



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Key issues	
• Review of permit history has identified that application of front and rear setbacks is inconsistent in the GRZ. In some cases, setbacks respond to standard RESCODE requirements (matching the average setback of adjoining sites), while in others a 'growth area' approach is taken, with substantial variations provided to allow a more transformative and urbanised form. Setbacks should be prescribed to identify preferred character, particularly in activity centres.	• Developments often do not integrate effectively with low-scale surrounds. A greater balance should be achieved that continues to support greater housing densities. • Despite seeking a diversity of housing, Council's experience is that the GRZ is interpreted as a growth area anticipating medium-high density apartment buildings not dissimilar to the Residential Growth Zone. Prescribed requirements should identify where low or medium density housing is preferred.

Test site: 4 – Garden townhouse precinct (GRZ)
Test case: **Proposed controls**

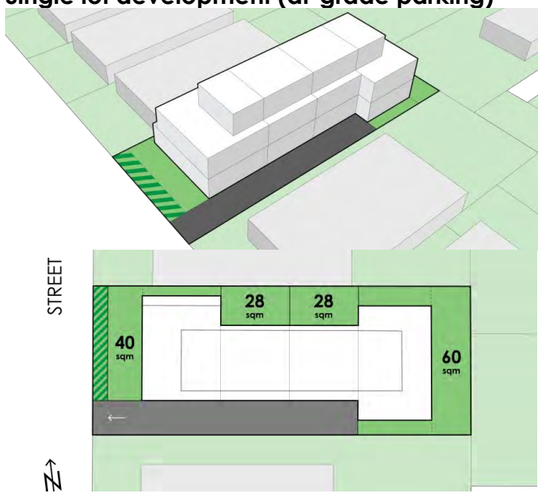
	Single lot development	Two lot development
Address	21 Tranmere Avenue, Carnegie	19-21 Tranmere Avenue, Carnegie
Area	535 sqm	1012 sqm

Assumptions (all)	
Height	3 storeys
Street setback	L1 – 7m L2 – 7m L3 – 11m
Rear setback	L1 – 7m L2 – 7m L3 – 11m
Side setback	RESCODE
SPOS	25sqm at ground floor
Parking Layout	Basement and at grade tested

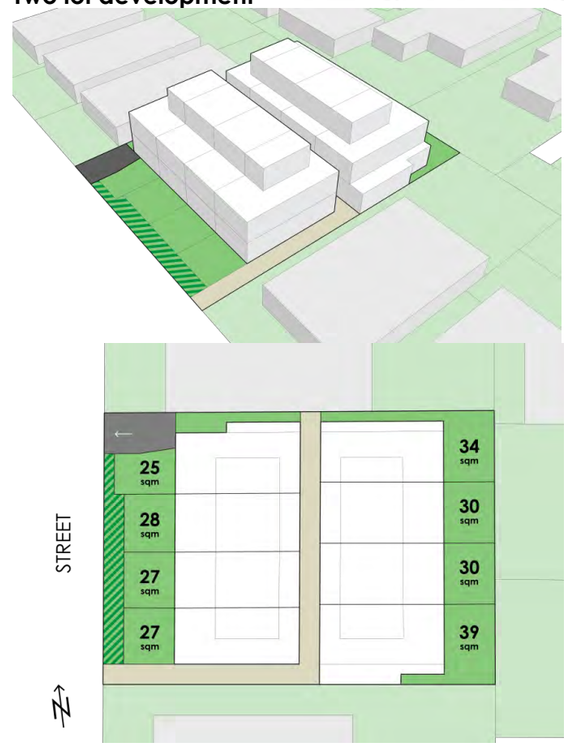
Results				
	At-grade	Basement	Basement	
Floor space per townhouse	T1 – 189 sqm T2 – 148 sqm T3 – 148 sqm T4 – 215 sqm Average: 175 sqm	T1 – 98 sqm T2 – 115 sqm T3 – 163 sqm T4 – 167 sqm T5 – 181 sqm Average: 145 sqm	T1 – 174 sqm T2 – 173 sqm T3 – 168 sqm T4 – 150 sqm Average: 169 sqm	T5 – 145 sqm T6 – 180 sqm T7 – 183 sqm T8 – 182 sqm
Dwelling Yield*	**4 Dwellings**	**5 Dwellings**	**8 Dwellings** (9 dwellings if dwelling incorporated facing one side – more complex floor plan required)	
Density	**75 Dwellings per HA**	**93 Dwellings per HA**	**79 Dwellings per HA**	

***** Dwelling yield reflects floor plans shown. Detailed design testing was completed to understand realistic impact of ground floor SPOS requirement.

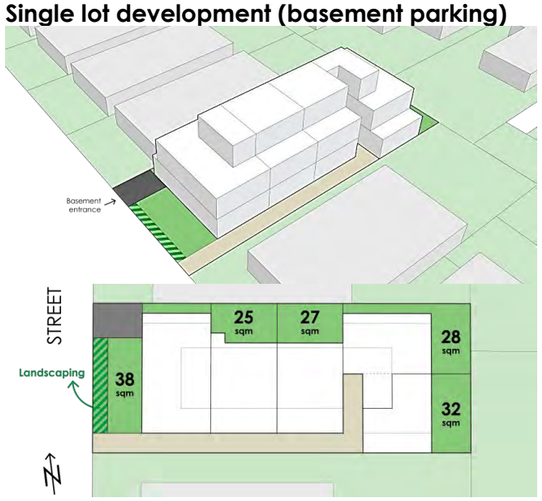
Single lot development (at-grade parking)



Two lot development



Single lot development (basement parking)



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What Issues have been resolved?	
• Substantial setbacks at the front and rear enable well-landscaped garden corridors with quality planting and canopy trees that soften new built forms. • Larger front setbacks enable an option for low front fencing at the site frontage or taller fencing setback behind a landscape buffer.	• Built forms contribute to a low scale (two-storey) streetscape character that reinforce existing character as the precinct transitions towards higher densities. • Design requirements establish clear direction for lower densities in this GRZ scenario that is intended for local streets. Greater densities are supported on Main Roads for the "Townhouse & Apartment Mix" recommendations.

NRZ

Neighbourhood Residential Zone (NRZ) – built forms not tested

A large proportion of Glen Eira's residential land is located in the Neighbourhood Residential Zone, which is subject to the Minimal Change Area Policy (Clause 22.08 of the *Glen Eira Planning Scheme*). Some of these areas also have heritage or neighbourhood character overlay protection.

Council's existing policy setting generally supports developments with one or two dwellings with a substantial focus on response to existing neighbourhood character. The *Quality Design Guidelines* reinforce this policy setting with two building type variations applicable to the NRZ.

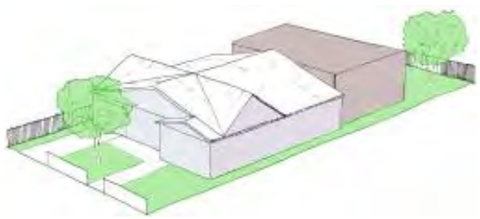
Building setback recommendations for NRZ building types have not been tested on the basis that these typologies are currently present across a large proportion of Glen Eira and are commonly accepted as viable and achievable development outcomes within the Minimal Change Area Policy setting.

The *'Peer Review of Glen Eira's Draft Quality Design Guidelines and Strategic and Urban Renewal Development Plans Analysis'* prepared by AECOM & HillPDA (Oct. 2017) also confirmed this view.

Minimal change areas

A number of minimal change areas have been identified in Carnegie. These will be implemented as revised schedules to the Neighbourhood Residential Zone and accord with the current Minimal Change Area Policy setting at Clause 22.08 of the *Glen Eira Planning Scheme*.

Heritage and character housing



A number of heritage character housing areas have been identified in Carnegie. These areas will be implemented in accordance with existing Heritage Overlay or Neighbourhood Character Overlay Requirements of the *Planning Scheme* and Minimal Change Area Policy as relevant. The purpose of this building type is to protect existing identified character with no change proposed to planning controls.