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ADDI Esign Report

Architectus Australia Holdings Pty Ltd. ABN 90 131 245 684

Nominated Architect Managing Director Ray Brown NSWARB 6359

Adelaide Lower Ground Floor 57 Wyatt Street Adelaide SA 5000 Australia T +61 8 8427 7300 adelaide@architectus.com.au

Melbourne Level 25, 385 Bourke Street Melbourne VIC 3000 Australia T +61 3 9429 5733 F +61 3 9429 8480 melbourne@architectus.com.au

Perth QV1 Upper Plaza West 250 St. Georges Terrace Perth WA 6000 Australia T +61 8 9412 8355 perth@architectus.com.au

Sydney Level 18, MLC Centre 19 Martin Place Sydney NSW 2000 Australia T +61 2 8252 8400 F +61 2 8252 8600 sydney@architectus.com.au

architectus.com.au

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Report contact	Michele McSharry Senior Associate, Urban Design		
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Executive Summary

Vision

Argyll Estate is a mixed tenure residential neighbourhood offering a variety of housing options that suit the needs of a diverse community and that respond to natural hazards, the natural environment and the sub-tropical climate and character of Coffs Harbour.

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Purpose of this report

The Argyll Estate Renewal Urban Design Report (the Report) has been prepared to support a rezoning proposal for the Argyll Estate, Coffs Harbour on behalf of the Land and Housing Corporation.

The rezoning proposal seeks an amendment to the Coffs Harbour Local Environmental Plan 2013 to promote renewal of the site.

Extensive urban analysis, flood and ecological constraints mapping, scenario testing, input from technical experts, consultation with Coffs Harbour City Council and community engagement has resulted in the vision, principles, structure plan and proposed growth scenario for the Estate. This has informed the development of proposed amendments to the land use zoning, height of buildings and minimum lot size controls that form the basis of the rezoning proposal.

The site

The Argyll Estate Rezoning Investigation Area includes approximately 19 hectares of land bound by commercial uses fronting the Pacific Highway, Bray Street, and riparian corridors, referred to as the 'Argyll Estate'.

The area consists predominantly of land owned by the Land and Housing Corporation (LAHC) and the Aboriginal Housing Office (AHO). Interspersed through the Estate area are privately-owned lots. While this report focuses on LAHC and AHO land, the investigation applies to land within the entire Investigation Area.

Renewal opportunities

Dwellinas

Approximately 263 additional new homes comprising social, affordable and private housing.

A mix of building types including single dwellings, dual occupancies (duplex) and small residential apartment buildings.

Building heights range from 1 to 4 storeys and in keeping with the local character in scale and grain.

Homes designed to spatial and amenity standards, and consider response to Coffs Harbour's sub-tropical climate, and environmental hazards including flooding and bushfire.

Open space and landscape

Enhanced open spaces located on Kurrajong and Argyll Streets. This could include an approximate total of 8,100sqm green space with play equipment, seating, picnic tables and other facilities.

Bushland creek corridors with walking and cycling trails, with opportunities to connect to broader active transport connections.

Reinforce the area's landscape character, connection to nature and local biodiversity.

Streets

Streets within the Estate will be improved to create high amenity streetscapes that support walking and cycling, provide visual amenity, and incorporate water sensitive urban design to aid water management.

Planning

Key amendments to the CHLEP 2013 are proposed on the land west of Bradley Street between Kurrajong and Argyll Streets. These include:

- Change of zone to R3 Medium Density Residential;
- Building height of 15.5m; and
- Minimum lot size of 1200sqm.

Clause 4.1B of the Coffs Harbour LEP would also be amended as it applies to the entire site to allow dual occupancies to be developed on sites down to 400sqm consistent with the Low Rise Housing Diversity Design Guide.

The land within the Argyll Estate Investigation Area is also proposed to be nominated as a 'Key Site' within the CHLEP 2013.



Typical street view showing a combination of duplexes and apartment buildings with increased streetscape amenity



Introduction

1

This chapter introduces the Argyll Estate Investigation Area, identifies early feedback from community consultation, and sets the strategic and planning context within which this project seeks to propose renewal opportunities. This chapter includes:

- The Investigation Area, project purpose and structure (p.8)
- Community Consultation (p.10)
- Strategic context (p.11)
- Current planning controls (p.12)

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Argyll Estate Rezoning Investigation Area

116 social housing cottages plus 2 vacant lots owned by Land and Housing Corporation (LAHC)

11 social homes owned by Aboriginal Housing Office

68 privately-owned lots within the Investigation Area

Note: This study focusses on LAHC and AHO-owned lots within the Argyll Estate, however the investigation applies to the whole Argyll Estate Rezoning Investigation Area.

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The Argyll Estate Renewal urban design report has been prepared to guide the future renewal potential for the Estate and support the submission of a rezoning proposal.

Project introduction and purpose

Architectus have been engaged by Land and Housing Corporation (LAHC) to undertake a study of the renewal potential of land owned by LAHC and AHO within the Argyll Estate in Coffs Harbour.

This urban design report has been prepared following collaboration between LAHC and a project team of urban designers, planners and technical experts, as well as consultation with Coffs Harbour City Council and early community engagement. The approach to renewal combines great urban design outcomes with a response to environmental issues, enabling new homes for the community.

This study will help guide and inform the renewal potential of the Argyll Estate, and support the Planning – Proposal submitted to Coffs Harbour City Council.

Structure of this report

- Introduction identifies the Argyll Estate Investigation Area, early feedback from community consultation, and sets the strategic and planning context within which this project seeks to propose renewal opportunities.
- Urban analysis describes key findings based on a detailed analysis of the local character, connectivity, landscape character and open space, and built form character of the Argyll Estate, as well as initial opportunities.
- Site constraints includes a detailed constraints mapping study that identifies flooding, bushfire and ecological constraints.
- **Built form** illustrates the renewal approach to the Estate based on detailed constraints analysis, and investigates potential residential typologies.
- Public domain and landscape describes the approach to improving the streetscape including street trees and street configuration, and public open space opportunities.
- The master plan describes the proposed vision, principles, structure plan and preferred growth scenario for Argyll Estate.
- Proposed planning controls identifies proposed amendments to the existing planning controls, as well as DCP recommendations.



Walking trail between the creek and homes along Argyll Street

1.2 Community consultation

Community and stakeholder consultation was undertaken in early 2022 to inform relevant stakeholders, local residents and the general public about the aspiration to renew the Argyll Estate, as well as to understand the community's opinions, ideas and general feedback on a range of themes and issues in order to help guide the planning and design approach to the precinct. Consultation took the form of stakeholder online briefings, a community drop-in session and an interactive project webpage.

Relevant stakeholders such as community housing providers, service organisations, and community groups were consulted during this process. Key feedback provided includes:

- The majority generally supported the investigation and requested further information and involvement as the proposal and renewal progresses.
- Sought clarification about the impact and management of social housing including relocations through the renewal process.
- Sought clarification around mixed tenure and accessibility, including the provision of social housing, affordable housing and private development.
- Shared insights into the area close-knit communities including a large number of Aboriginal families, significance of local waterways, preservation of flora and fauna, and importance to tap into Aboriginal people's knowledge of Country.
- Concern around how the Aboriginal community may be impacted through the renewal process.
 Suggested need for a culturally sensitive and safe space for Aboriginal people to provide feedback.
- Planning should address climate change. Flooding in particular is considered a major issue.
- Important that new dwellings cater for people with a disability or mobility impairment.
- Potential for increased connectivity and access between the Argyll Estate and adjacent schools.

The community consultation period took place between the February 18th and March 15th 2022, and included a community drop-in on February 26th. Both the interactive and in-person consultation encouraged feedback on a specific range of themes. The following pages describe key feedback from the consultation.



Example of information boards produced for the community consultation drop-in session



Culture and heritage

- Close-knit community and support for neighbours.
- Concern around change and relocation through the redevelopment process being disruptive to the community, and may impact individuals with underlying health and medical conditions.
- Strong Aboriginal community. Potential to share insights and local stories.
- Several people identified as informal community leaders.

Note: The summary of feedback from community and stakeholder consultation is adapted from Argyll Estate Renewal Precinct - Community Consultation Outcomes Report, Jody Connor 2022.

Community facilities and open space

- Connection with local bushland and wildlife that needs to be protected.
- Creek areas at times felt unsafe or lacked accessibility.
- Supportive of retaining and improving existing local parks, open spaces and walking tracks.
- Need for more activities at local park to make them more attractive place spend time particularly for children and young people e.g. kickabout spaces, playground equipment, skate park, bike tracks, dog park.
- Potential for community gardens
- Concerns raised around the impacts of increased population on existing schools, local services and infrastructure.

Community consultation



Important places in the neighbourhood

- Pride in their homes and gardens. Private gardens are an important place residents to spend time and enjoy.
- Children and young people regularly play on front lawns, verges and on streets. This creates a sense of community, fosters social interaction and there is a sense of trust between neighbours.
- Pleased to be located near the plaza, local schools and shops. Need for older people and those with health condition to continue to be close to their doctors and medical facilities in the context of redevelopment.



Getting around the neighbourhood

- Concern around existing traffic volumes and congestion, which may be increased with more local residents.
- Concern over current vehicle speeds on Argyll Street, and support for traffic calming measures.
- Mixed response on streetscape with some residents welcoming the addition of footpaths and street trees, whilst others expressed their preference for grassed verges.
- Separated paths particularly for residents with mobility needs.
- Support for paths and cycle paths.
- Residents would like to use the existing bush tracks but felt that it is unsafe due to rubbish dumping and anti-social behaviour. Also supportive of more accessible pathways.



Different types of housing

- Many social housing residents expressed their preference for living in a cottage with private yard and garden.
- Some residents felt that a target group, such as people over 55, would be best suited to the area given the current demographic.
- Concern that new two to four storey buildings, including apartments, may impact amenity and would not blend with existing homes.
- Extensive concern around the impact, timing and process for relocations.
- Concern around changes to current state of living e.g. number of bedrooms, private open space etc.

Flooding and stormwater management

- Many residents have experienced flooding and severe storms over the years, particularly on Bray Street and at the Argyll Street and Raymond Street intersection, including during the recent flood events in February 2022.
- Some residents felt that new development with additional hard surfaces from roofs, paths, driveways and courtyards could lead to increased stormwater runoff volume and speed and worsen the impacts of flooding.

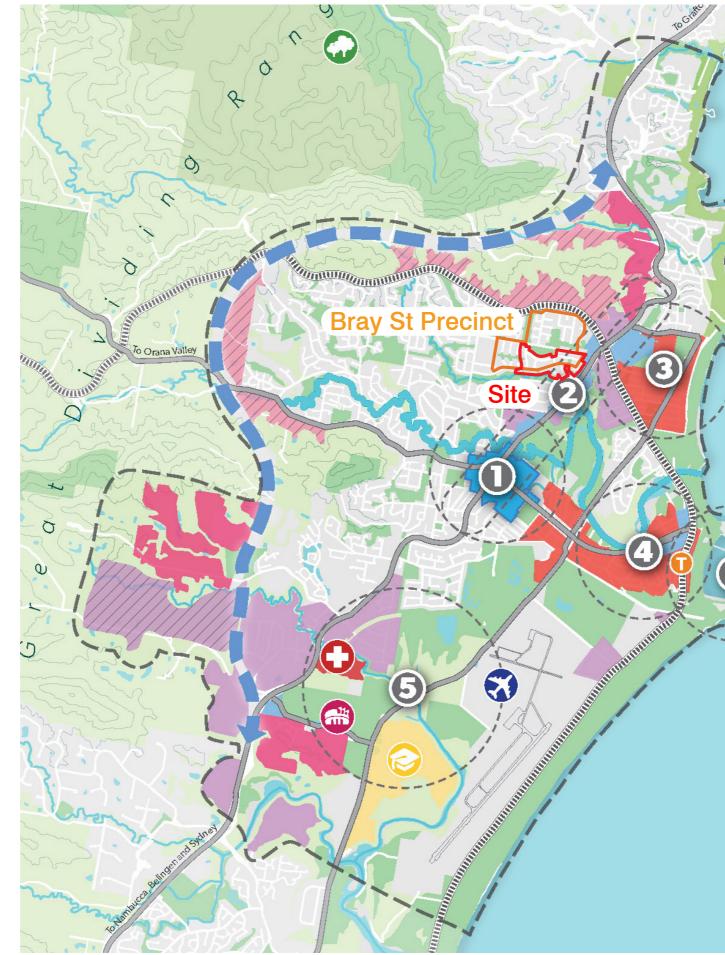
Argyll Estate is an area with low to moderate growth potential. It is situated in close proximity to the Pacific Highway and local centre and has an opportunity to accommodate additional homes for the community.

The Coffs Harbour Local Growth Management Strategy (Coffs Harbour City Council 2022) is the guiding plan for growth for Coffs Harbour and surrounds. A number of directions and principles within the strategy are of relevance to Argyll Estate, including:

- The 'Compact City Program' prioritises new development within the existing urban footprint; infill opportunities rather than sprawl. The key goals of the program is to achieve a connected, sustainable and thriving city.
- Argyll Estate is part of the 'Bray Street Precinct', identified as an area for infill development.
- The 'Placemaking Framework' aims to understand the place values that make Coffs Harbour unique, and ensure that growth supports creating successful and people-focused places. Argyll Estate is part of the Coffs Harbour Central North (precinct).
- Other key objectives include the provision of a diversity of housing types, encourage walking and cycling, create cohesive and well-supported neighbourhoods, and resilience and sustainability through environmental change and impacts.

The Coffs Harbour Regional City Action Plan 2036 (NSW Government 2021) identifies a vision and target areas for change. While the site does not form part of these key objectives, it is strategically positioned adjacent to a future renewal corridor, the 'City Spine', along the Pacific Highway. The role and character of the highway may change in future as the proposed bypass redirect traffic away from the city centre.

The Estate is also located close to urban renewal and urban release areas focused around the small retail and commercial centre along the Pacific Highway.

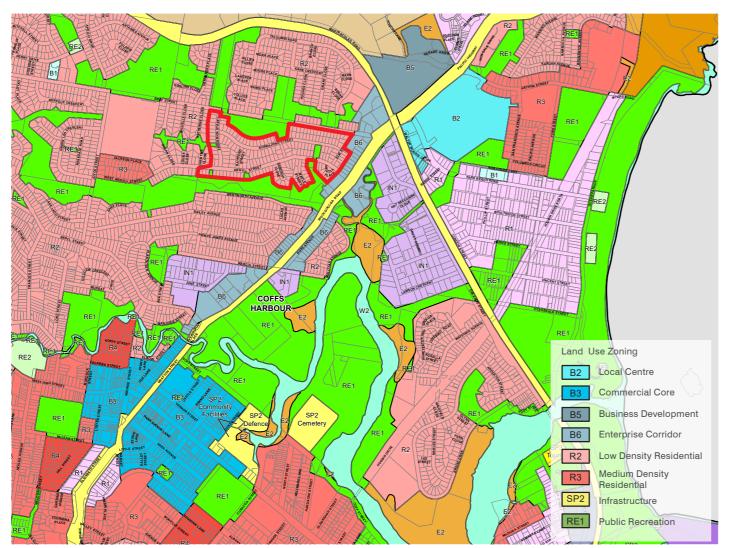


Source: Coffs Harbour Regional City Action Plan (Coffs Harbour City Council)

•		
		City Action Plan Area
	Distinc	tive Place Network:
	0	City Heart
	2	City Spine
	3	Park Beach
	4	Jetty Core
	5	South Coffs Enterprise Area
	6	Jetty Foreshore
	\leftrightarrow	Future Connectivity
1-	01110	Railway
50	—	Main road
-		Distinctive Places
11	\bullet	Environmental
		Parks and reserves
<u>_</u>]		Waterway
		City Centre
	\bigcirc	Commercial
		Employment Land
	\bigcirc	Investigation Area - Employment Land
		Existing Urban Release Area
	\bigcirc	Investigation Area - Urban Release
		Urban Renewal
	T	Train Station
	\bigcirc	Education precinct
	0	Health precinct
	3	Airport
		Stadium
	3	Marina
	\bigcirc	National Park

1.4 Current planning controls

The current planning controls predominantly enable low density residential which generally allows for renewal of existing single dwellings or development of dual-occupancies on lots of 800m² or greater. There is an opportunity for a change to the planning controls, which would support greater diversity of housing types to meet a range of community needs.



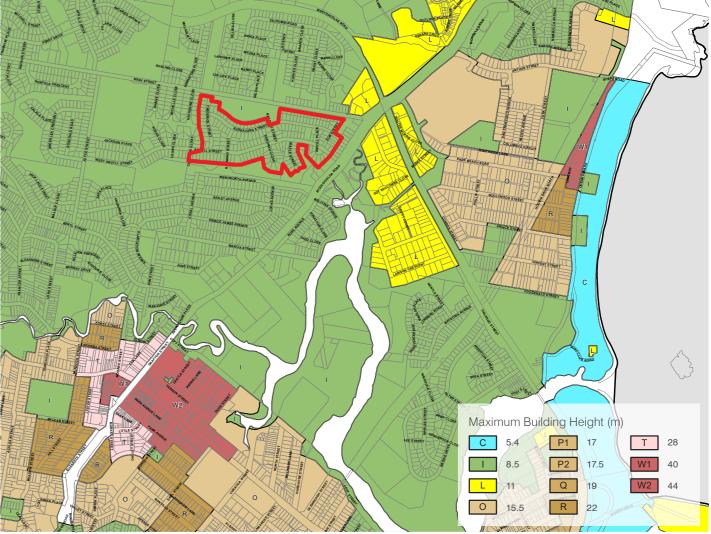
Land Use Zoning map (Source: Coffs Harbour Local Environmental Plan 2013)

Land Use

- Currently zoned R2 Low Density Residential which allows for a minimal increase in dwelling density including attached dwellings, semi-detached dwellings and dual occupancies permitted with consent.
- Some areas within the city centre and pockets of land within the broader Coffs Harbour area, including immediately west

of the precinct, are zoned R3 Medium Density Residential.

- Land to the north and south along the creek is zoned RE1 Public Recreation.
- Adjacent to the B6 Enterprise Corridor along the Pacific Highway as well as small retail/commercial centre northeast of the site.



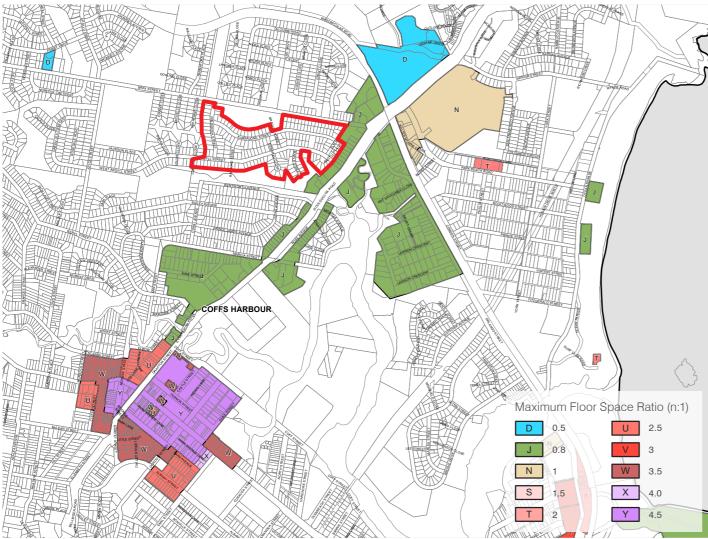
Height of Buildings map (Source: Coffs Harbour Local Environmental Plan 2013)

Building Height

- Currently allow for a maximum building height of 8.5m, which generally allows for a 2 storey building.
- Areas zoned R3 in the city centre and to the southeast of the site permit a maximum building height of 15.5m or approximately 4 storeys.

- The immediate area surrounding the precinct is predominately low in scale, with some taller building height focused to the north and east of the site, of up to 15.5m.

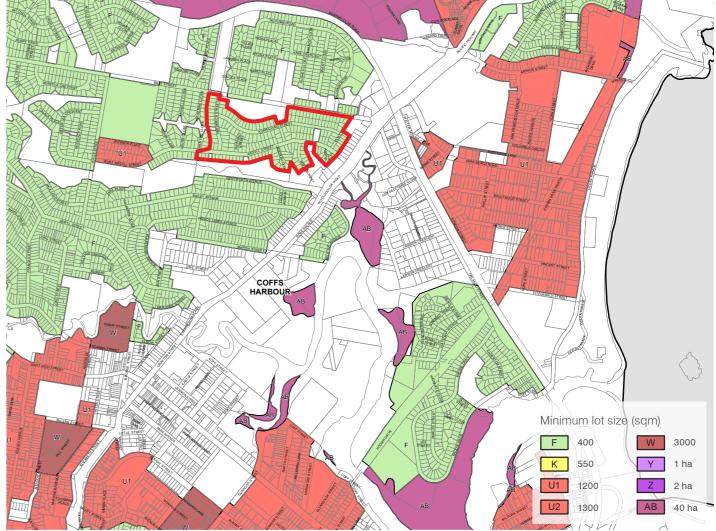




Floor Space Ratio map (Source: Coffs Harbour Local Environmental Plan 2013)

Floor Space Ratio

– Floor Space Ratio (FSR) controls have generally not been applied to land zoned residential.



Minimum Lot Size map (Source: Coffs Harbour Local Environmental Plan 2013)

Minimum Lot Size

- Current minimum subdivision lot size is 400m.
- For areas in the city centre and nearby to the site zoned R3, the minimum lot size is generally 1200m.





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Urban analysis 2

This chapter describes key findings based on a detailed urban analysis that covers:

- Local character (p.16)
- Connectivity (p.17)
- Open space (p.18)
- Landscape (p.20)
- Social infrastructure (p.21)
- Built form character (p.22)
- Opportunities (p.24)

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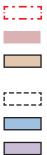
Local context

Argyll Estate is situated at a point of transition in the local character of the area. To the west of the Pacific Highway are predominantly low scale residential neighbourhoods, while to the east are low to medium density precincts with pockets of high density development.

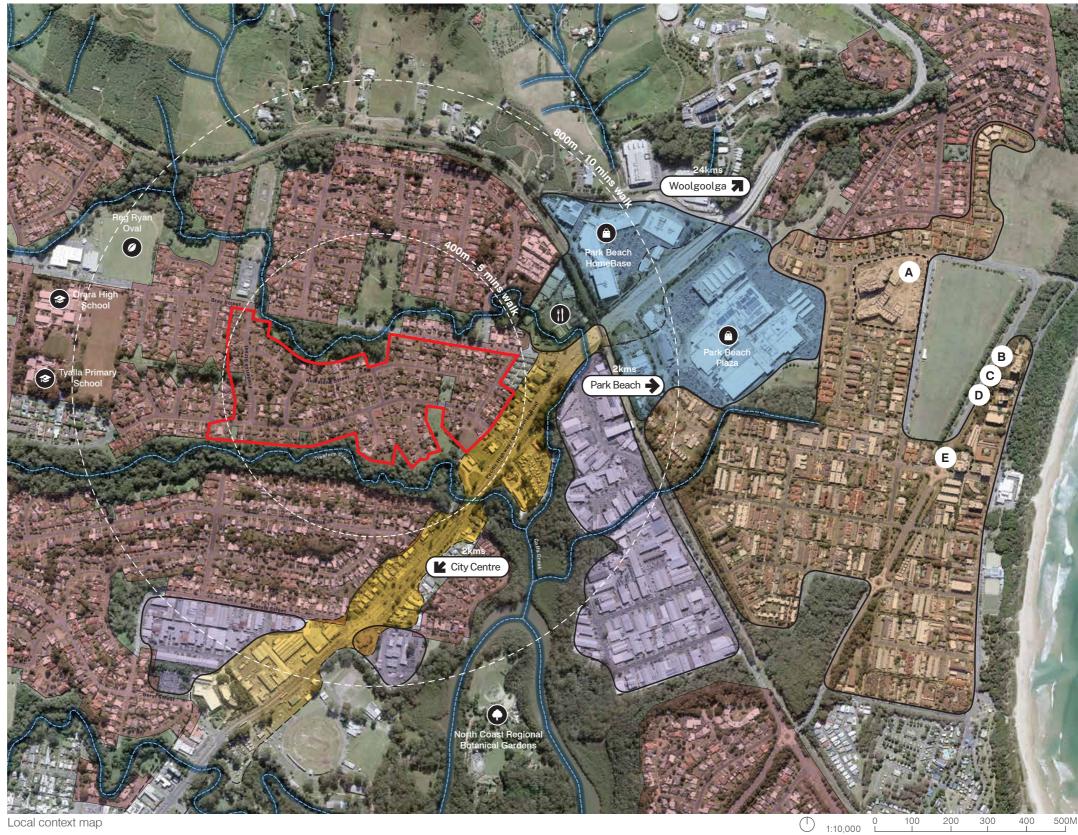
Key observations of the local context includes:

- Generally low scale residential neighbourhoods including single dwellings immediately surrounding the site with some pockets of medium to high density around the city centre and Park Beach.
- Recent 8-storey apartment development on a large site (A) on map. Other taller buildings close to the beach (B), (C), (D) and (E) on map.
- Located adjacent to the Pacific Highway which includes predominantly commercial and light industrial uses.
- Park Beach Plaza is the closest shopping centre, around a 10 minute walk away, although the highway is an uninviting environment for pedestrians. Small shops and restaurants located at the corner of Bray Street and the Pacific Highway.
- Schools, parks and sports ovals located within walking distance.
- Other main attractors such as the city centre, jetty and beaches are approximately 1.5-2kms away.

Legend



- Argyll Estate Rezoning Investigation Area
- R2 zone predominantly single dwellings Existing medium to high density dwellings e.g. townhouses, apartment buildings
- Recent apartment development
- Retail/commercial centre
- Industrial areas
- Highway corridor uses light industrial, bulky goods, commercial



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Connections

The site is within a comfortable walking distance to the local shopping centre and surrounding sporting and community facilities, however pedestrian amenity is poor particularly around the Pacific Highway. There is the opportunity to improve the streetscapes within the Estate and along with Council-proposed share paths, will enhance walkability.

The area includes a number of existing and Councilproposed walking and cycle links. Key findings include:

- The development pattern follows the creek 1 and bushland corridors. These create great opportunities for visual and physical connections to the area's natural assets, however these corridors can also be barriers to movement.
- 2 There are three existing creek crossings along Treefern Creek, two with direct access to Argyll Street, however these lack passive surveillance and safety.
- Opportunity to increase the accessibility and 3 use of the creek corridor through walking trails.
- Council-proposed active transport link in the 4 form of a shared path follows the existing natural corridors (i.e. creek lines) to join the main active transport connection on Pacific Highway.
- 5 Currently no through connections across the precinct. Argyll Street is closed at its western end where it meets with West Argyll Street. Potential to open road and provide east-west vehicular connectivity and improve traffic flow.
- There may be a change in role of Pacific 6 Highway due to the construction of the bypass to one that may carry fewer vehicles and provide a separated cycleway.
- Currently no footpaths on most streets within 7 the Argyll Estate. Potential to provide new pedestrian infrastructure and amenity.



Local movement and connections map

Legend

- Argyll Estate Rezoning Investigation Area
 - Existing public open space
 - School parks/ovals
 - Regional connector road
 - Main east-west connection through precinct
 - Potential to open intersection and connect through to West Argyll Street
 - Other pedestrian connections through precinct

- Potential walking trails
- Existing creek access and crossing
- Potential for new footpath
- Bus routes

Council-proposed

- Main active transport connection
- Existing shared path (off road)

- Proposed shared path
- Proposed pedestrian/bicycle crossing
- Pedestrian access to school to be investigated

Note: Council-proposed refers to 'Active Transport' map (Figure 3) in Request to Amend CH LEP 2013 by Coffs Harbour City Council October 2021.



Open space

There is a large amount of open space within the area, including beaches, bushland, sports ovals and small parks, however those within and adjacent to the study area are underutilised and have the potential to be improved.

Open space access and quantity

The Investigation Area adjoins a creek corridor along its northern and southern boundaries (approximately 9 hectares immediately adjoins the site) and is located 400-800m to active and passive recreational open space. Park Beach is located 1.8km away.

The *Draft Greener Places Design Guide* (NSW Government Architect 2020) identifies parameters around open space access, size and density for medium to low density areas (<60 dwellings per hectare) that are relevant to the Investigation Area. Below are key parameters from the Design Guide, including initial project opportunities and approach.

- To be within a 5 minute walk or 400m of a local park (Note: a local park is generally considered to be minimum 5,000-7,000 sqm)
 Most homes within the Investigation Area are within a 400m walk of the local park on Bray Street, which is approximately 39,500sqm in size. There is also a large park (approximately 95,500sqm) that offers sports and community facilities located just beyond 400m to the northwest of the Estate on Bray Street. Smaller parks are located within and immediately adjacent to the Investigation Area; an existing park 'Kurrajong-Argyll St' open space (2,385sqm), and two underutilised open spaces located on Argyll Street, which have potential for upgrades (approximately 5,800sqm total).
- Small and local parks are deemed to be at capacity if more than 1500 residents to 5,000sqm of parkland are within 500m.
 Given the amount of local parks and parkland within the area (approximately 4 hectares of local open space within a 400m walk, and 9 hectares of bushland adjoins the Estate, it is considered that open space within the area will not be at capacity in a future renewal scenario.



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Open space improvements

In addition to access and quantity, the Draft Greener Places Design Guide also identified quality and diversity as indicators of good open space outcomes. Quality and diversity can increase appreciation and use, and also contribute to meeting the recreational needs of a diverse community.

There are opportunities to enhance the existing open space within and immediately adjoining the Investigation Area.

This is further explored in 5.2 Public open space.



'Kurrajong-Argyll St' open space

'Kurrajong-Argyll St' open space

Within the Investigation Area is an existing neighbourhood park, referred to as 'Kurrajong-Argyll St' open space, located at the eastern portion of the site and approximately 2,385 sqm in size. The open space consists predominantly of a grassed area with some trees and play equipment. The majority of the Estate is within walking distance to this park.

There is the potential for qualitative improvement through further equipment/park furniture and design interventions, to increase activation and use.



Open space between Argyll Street and creek corridor

'Argyll St' open space

There is an existing area of open space, referred to as 'Argyll St' open space, located adjacent to the riparian corridor between 52 and 50 Argyll Street. The open space is approximately 1,300sqm in size and consists of an unprogrammed green space, with rough grass and mature trees. It also supports an informal connection to a bridge crossing over Treefern Creek linking into Wentworth Avenue.

There is the potential for park furniture such as seating and picnic tables to increase use, and formal paths to improve access to creek and future walking trails.

3



Open space south of Argyll Street

'Argyll St' open space

There is an existing area of open space located south of Argyll Street opposite the existing park. It currently consists of a grassed area that is unused. The space is linked further south to the Treefern Creek corridor.

There is the potential for new seating, picnic tables and other design interventions that could be investigated to transform the space into a usable park and support connections to the creek corridor.

Landscape, views and biodiversity

The precinct is landscape-rich, bound by riparian corridors on the north and south, grassed front and rear gardens, and views towards bushland and the peaks of Ulidarra National Park.

Key landscape features of the Argyll Estate include:

- The bushland corridors to the north and south of the precinct are valuable and distinct landscape features that add to the unique character of the area as well as provides amenity and recreational opportunities.
- All streets within Argyll Estate enjoy views to bushland whether using streets as view corridors or have views to the tree canopy above the existing low scale dwellings. Maintaining visual connections to landscape, including the creek corridors and surrounding mountains is important to establishing character. Potential for gaps/separation between built form and considering built form height to conserve views to nature.
- Existing streetscape character consists of large grassed areas with homes set back from the street. Some front yards have vegetation and established front gardens. The streetscape appears 'green' and contributes to the landscape character of the precinct.
- Lack of public domain amenity no street trees or footpaths.
- Local biodiversity swift parrot and koala habitat along the creek corridors.





Lush vegetation along the Treefern Creek.



The tree canopy of the adjoining bushland can generally be seen over homes.

Legend

01213

Argyll Estate

Investigation Area

Creek corridor

Sports fields

Sports centre

Rezoning

Parks

Social infrastructure

While there is currently no community facilities provided within the Argyll Estate, there are a range of community facilities located within an accessible catchment of 800m to 1km, including:

- Orara High School and Tyalla Primary High School are located within walking distance of the Estate accessed via Bray Street and Argyll Street.
- Approximately 1km from the Estate is the PCYC. Clustered within that area is Sportz Central and Reg Ryan Oval.
- A number of preschool and aged care facilities.
- A number of medical facilities located along the Pacific Highway and as part of Park Beach Plaza.

Community centre

School

Child care

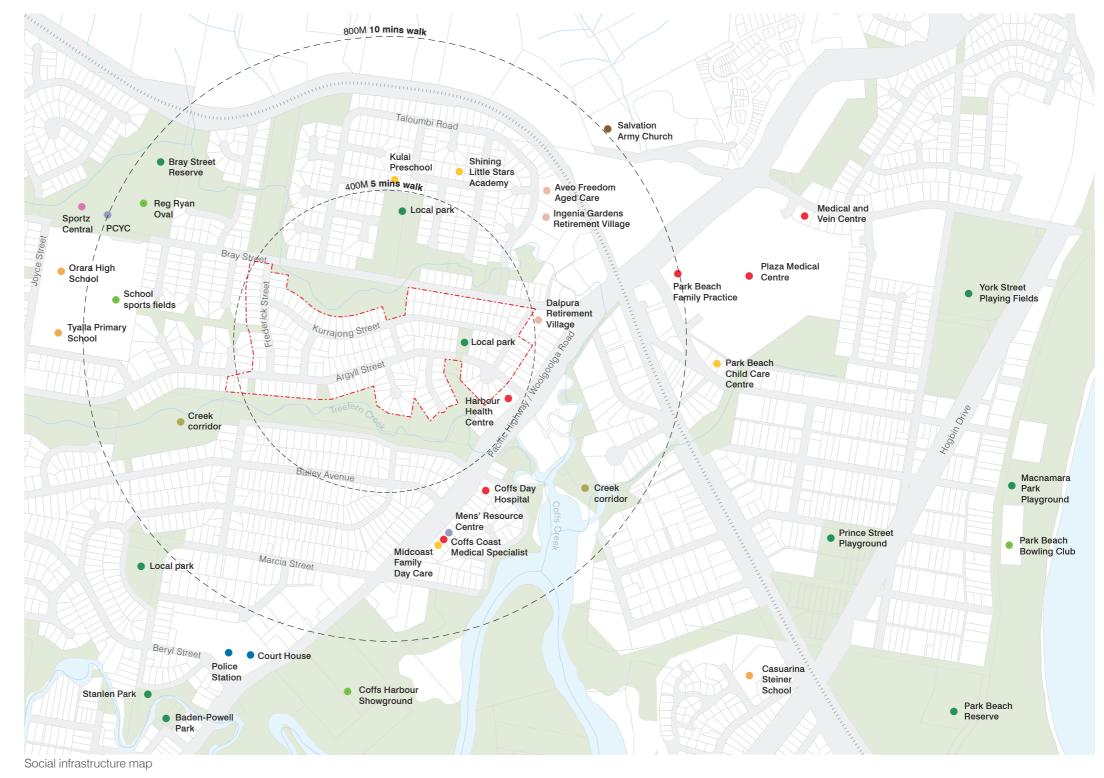
Aged care/

Civic uses

retirement village

Medical facilities

Place of worship



Note: Data extracted form 'Points of Interest' GIS data set and google maps



Built form character

Argyll Estate's existing built form character is made up of one primary typology – single dwellings. Elements of this typology as well as the broader local character will inform desired future character.

Key elements of typology/streetscape character include:

- Single storey brick dwellings with pitched roof.
- Deep front setback (approx. 12-14m from boundary).
- Wide verge (approx. 4.5m), although there is generally minimal to no delineation between private

and public domain. Generally a grassed verge with no footpaths or street trees.

- Some dwellings have a raised ground floor (between 0.5-1m), assumed to be in response to flooding issues. Some dwellings provide steps, ramps or both as access.
- Few fences at front boundary (some plantings, low rock walls, low lightweight fences). Fences generally present within the privately-owned lots.
- Some homes with fences within side setbacks behind building line.
- Few cars parked on street predominately using driveway, front yard or nature strip.

- Several homes back onto bushland although the rear boundaries are generally fenced with minimal access to the creek corridors.
- On-the-ground observations note that front yards are highly utilised including being used for recreation (play equipment set up), providing car parking (up to 3 cars), or working on cars. Front yards are also an opportunity for informal meetings, which foster a sense of community and contribute to passive surveillance.
- Generally tenure blind consistency in built form character and quality.



Key findings



Some homes have been raised from the natural ground level to mitigate flooding impacts

Consistent streetscapes with deep setbacks, grassed front yards and single dwellings.

Some dwellings incorporate ramping to support the needs of residents.







The following connectivity, open space and public domain opportunities have been summarised from the urban analysis. A detailed constraints and opportunities study, and built form approach is described in the following chapter.



Celebrate and build on the unique bushland/landscape character of the area

Support Council-proposed recreational and active transport connections for example the link and crossing at the Pacific Highway

--0--Improve access and use of creek corridor

- Improve streetscape and pedestrian _ amenity - footpaths, street trees
- Argyll Street key east-west pedestrian and vehicle through connection (open intersection with West Argyll Street

Support other key movement corridors through the precinct

- Enhance existing open space
 - Capitalise on bushland edge high amenity, views to nature, access to creek
 - Respond to park interfaces

Site constraints

3

This chapter includes a detailed constraints mapping study that identifies the key environmental issues impacting on renewal. This includes:

- Flooding (p.24)
- Bushfire (p.27)
- Ecology (p.28)
- Combined constraints (p.29)

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3.1 Environmental constraints

Bounded by bushland creek corridors to the north and south, any renewal within the Argyll Estate will need to consider environmental issues - flooding events, bushfire and local biodiversity impacts. Understanding these constraints can guide the renewal approach, both at a precinct scale to identify areas suitable for change, as well as at the building scale to ensure that any new development addresses these environmental concerns.

The following section is a constraints mapping study that includes input from initial technical studies such as flooding, bushfire and ecology.



Flooding event on Bray Street 2021



Flood breakout zone from Treefern Creek

Flooding

Bounded by creeks on the north and south, the study area is susceptible to flooding events. Water levels can reach up to approximately 1.5m above ground level in the worst affected areas during the probable maximum flood event. Careful planning is required to ensure mitigation measures are part of an integrated design response.

Current planning requirements

There are two main flood events that are generally addressed within flood planning and management. These include:

- The 1-in-100 year flood or 1% AEP (Annual Exceedance Probability); and
- The Probable Maximum Flood (PMF).

The Flood Planning Level (FPL), which is the combination of the 1% AEP plus 500mm freeboard, is used to define properties subject to Coffs Harbour City Council's flood policy. This extents of the FPL is shown in the map adjacent.

Coffs Harbour Development Control Plan 2015

The Coffs Harbour DCP Section E4.2 Flooding Planning Requirements - General and Section E4.2 Flooding Planning Requirements - General and Residential and Tourist Development contains key requirements that are relevant to the built form approach of the precinct. Summarised below are key points extracted from the DCP including initial strategies identified as part of this urban design study.

- Buildings are to be designed and located so that they are free from any high hazard flood area and considers impacts on access to development, operation of the development, free from any floodways, and does not result in an increase in flood level on adjoining or surrounding land.
- The minimum finished floor level of all habitable room(s) is to be at the height of the 100-year flood level plus 500mm freeboard. The minimum finished floor level of all non-habitable room(s) is to be at the height of the 100-year flood level.
 Practically this translates to 0.5-1m above ground level for all sites

except a few. The provision of equal access for social housing will involve a minimum 1:14 ramp to this height from street level, translated into 1x7m long ramp (50cm height transition) up to 2x7m ramps (100cm height transition) and 3x7m (150cm height transition).

Safe and reliable access for pedestrians may be required from development to an area of refuge above the PMF, either on or off site.

Given the evacuation constraints in the road network, residents must be able to 'shelter-in-place' above the PMF flood level, particularly in the event that evacuation is not possible. The recommended approach is to raise the finished floor level above the PMF level to ensure shelter-in-place is possible in all flood events. Other options could include the upper storey of a 2-storey dwelling. Ground floor apartments may be required to be 2-storey maisonettes for this reason; or an appropriate communal area of the building be provided to shelter-in-place.



Flood planning level (information extracted from Coffs Harbour City Council online mapping tool

Environmental constraints

Flood conditions

The key conditions and impacts of the 100-year flood and PMF are illustrated in the maps adjacent. Key issues and considerations include:

- Flooding from Treefern Creek significantly impacts lots south of Argyll Street. There are major break out zones at the end of Maple Street, Deborah Crescent, around the open space area near the intersection of Argyll and Raymond Street and at the Kurrajong and Bradley Street intersection.
- The 1% AEP floodway either partially or completely inundates the lots to a depth greater than 0.5m at 10, 12 and 13 Maple Street, 51, 53, 59 and 61 Argyll Street, and 3 Frederick Street. These lots are impacted by the highest flood levels in the precinct. During a PMF event, the flood depth is over 1.5m.
- Flooding from the northern and southern creeks flow into the street network along Kurrajong Street, Argyll Street and Elm Street. Flood depths can range from 0.1 to 1.5m (1% AEP), and from 0.3 to >1.5m (PMF) which may constrain evacuation due to hazardous road conditions. The principle of shelter-in-place within a residence at a level above the PMF is a potential response to ensure safety in the event that evacuation is not possible. Early advice from Cardno (flooding consultants) identified that flooding may recede within 3-5 hours.
- The PMF affects the majority of the precinct, although is only around 0.5-0.6m above the 1 in 100-year flood level in most areas. New built form within the precinct will need to respond to both the 1% AEP and PMF. There is a small portion of sites outside of flooding impacts, highlighted in orange on the maps adjacent.



1-in-100 year flood / 1% AEP constraints map



Probable Maximum Flood (PMF) constraints map

Note:

*Flooding information extracted from Flood Risk Assessment: Argyll Estate, Coffs Harbour (Cardno 2021). *Only lots that form part of the Site (LAHC + AHO lots) are mapped as being impacted on the diagrams adjacent.

Ŧ	Legend -	1% AFP
		Argyll Estate Rezoning
		Investigation Area Flooding Investigation boundary
		1% AEP flood extent
7		Flood depth >0.5m Area with greater than 0.5m flood depth (1% AEP)
		Lots significantly impacted Over 50% of the lot area affected by a flood depth >0.5m (1%AEP)
		Flood affected lots Lots that are impacted by the 1% AEP
		Lots minimally impacted Less than 15% of lot area affected by the 1% AEP
		Lots unaffected by 1% AEP
	-⊣≘⊦≯	Major break out zones and
		flood paths Streets impacted by flooding
		Streets impacted by heavy flooding of more than 0.3m (1%AEP) which constrains evacuation during a flood event
THE REPORT OF TH	Legend -	
	Legend -	PMF Argyll Estate Rezoning Investigation Area
		Argyll Estate Rezoning
		Argyll Estate Rezoning Investigation Area Flooding Investigation
++++++++++++++++++++++++++++++++++++++		Argyll Estate Rezoning Investigation Area Flooding Investigation boundary
		Argyll Estate Rezoning Investigation Area Flooding Investigation boundary PMF flood extent Flood depth >1.5m Area with greater than 1.5 m flood
		Argyll Estate Rezoning Investigation Area Flooding Investigation boundary PMF flood extent Flood depth >1.5m Area with greater than 1.5 m flood depth (PMF) Lots significantly impacted Over 50% of the lot area affected by a
		Argyll Estate Rezoning Investigation Area Flooding Investigation boundary PMF flood extent Flood depth >1.5m Area with greater than 1.5 m flood depth (PMF) Lots significantly impacted Over 50% of the lot area affected by a flood depth >1.5m (PMF) Flood affected lots
		Argyll Estate Rezoning Investigation Area Flooding Investigation boundary PMF flood extent Flood depth >1.5m Area with greater than 1.5 m flood depth (PMF) Lots significantly impacted Over 50% of the lot area affected by a flood depth >1.5m (PMF) Flood affected lots Lots that are impacted by the PMF Lots minimally impacted Less than 20% of lot area affected by
		Argyll Estate Rezoning Investigation Area Flooding Investigation boundary PMF flood extent Flood depth >1.5m Area with greater than 1.5 m flood depth (PMF) Lots significantly impacted Over 50% of the lot area affected by a flood depth >1.5m (PMF) Flood affected lots Lots that are impacted by the PMF Lots minimally impacted Less than 20% of lot area affected by the PMF

Environmental constraints

Approach to flooding

Following consultation with the design team, planners and flood experts, the preferred approach to flooding would consider flood mitigation measures in response to a Probable Maximum Flood event (the worst case scenario). This would include a shelter-in-place strategy, wherein dwellings are raised above the PMF level to support refuge within homes, in all flood events, and if evacuation is not possible.

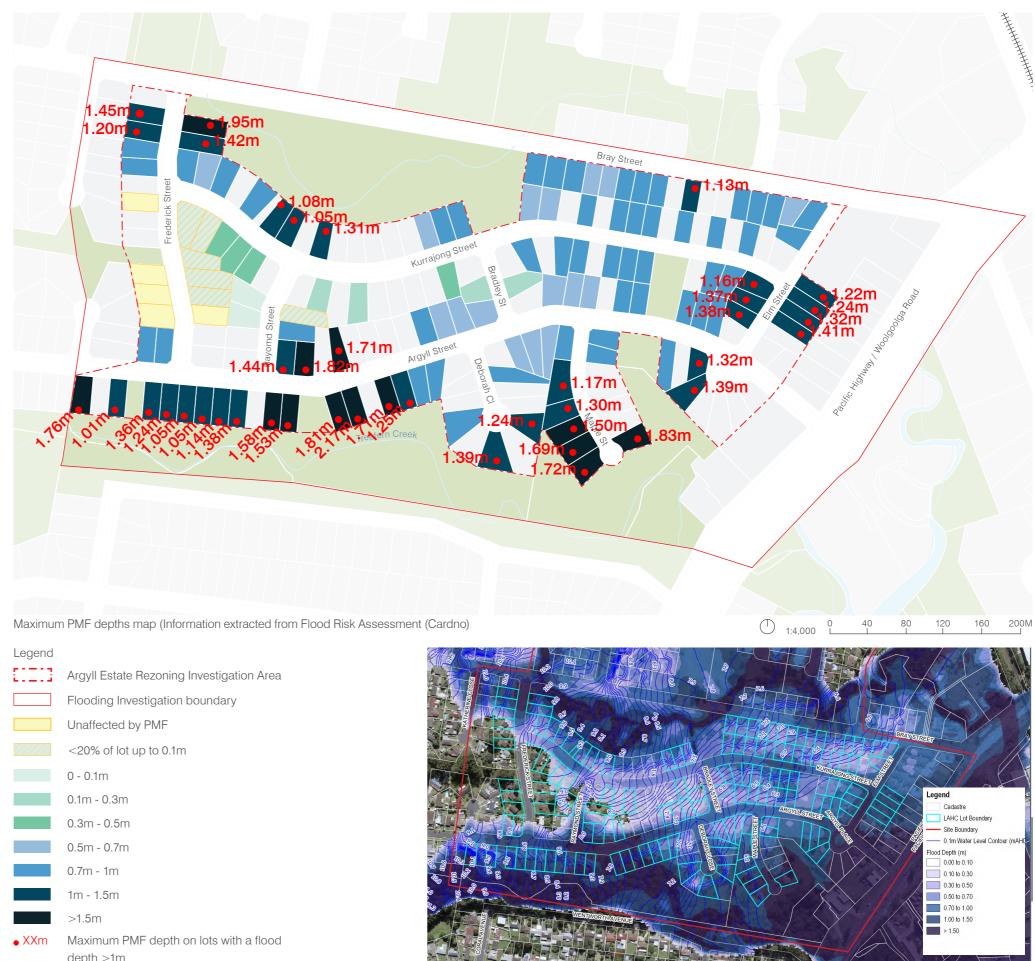
It is also recommended that areas least impacted by the PMF and largely outside of the 1-in-100 year flood, in particular the land west of Bradley Street between Kurrajong and Argyll Street, is most suitable for rezoning to R3 Medium Density Residential.

To further understand the impact of the PMF across the Argyll Estate, the diagram adjacent maps the maximum flood levels per lot (LAHC + AHO lots). Key findings include:

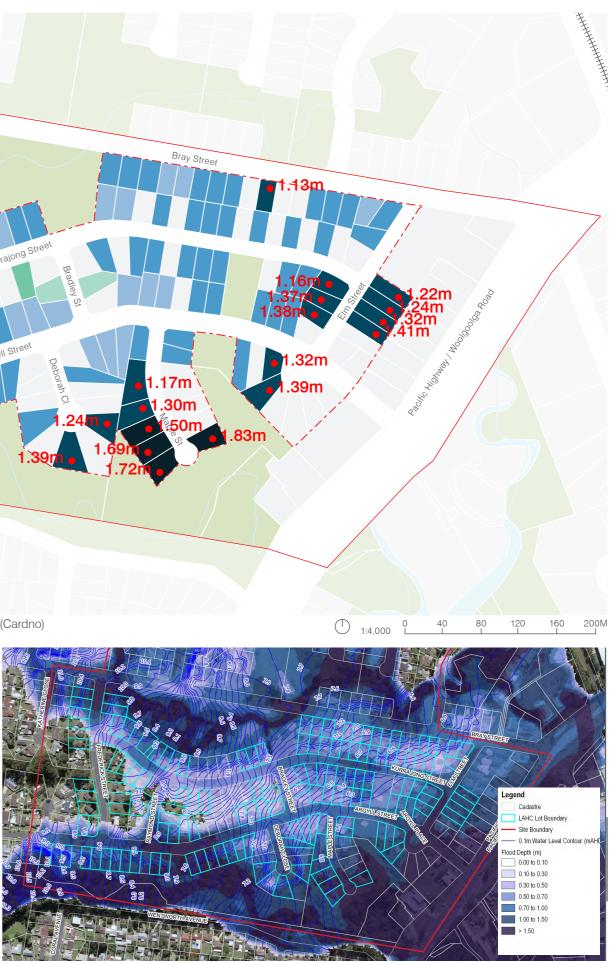
- Lots located along the creek corridor experience the greatest PMF flood depths of 0.5m to over 1.5m.
- Lots at major breakout points such as at the end of Maple Street, at the open space on Argyll Street that leads to the creek and at the northern end of Frederick Street experience flooding over 1.5m. Raising the floor level of buildings over 1.5m impacts urban design and accessibility outcomes.
- Pocket of low-lying land at Elm Street which impacts some lots, up to approx 1.4m flood depth.
- Lots along Frederick Street between Kurrajong Street and Argyll Street are minimally affected to unaffected by flooding, however may be impacted by flooded roadways. These areas may allow for at grade access to homes.

Note:

There is generally a flood gradient across the site. The mapping and levels identified in the diagram refers to the maximum flood depth taken at a point on the lot, based on data provided by Cardno. This maximum flood depths affect the lots to varying extents. See the PMF Flood map (Cardno) for more detailed information on the flood gradients across the site.







PMF depth and extents (Source: Cardno 2021)

Bushfire constraints

Homes are located close to the creek corridors, which consists of dense vegetation and pose a bushfire risk.

The diagram adjacent identifies the bushfire constraints zones mapped as an offset from the tree line (information source: Ecological Australia). Key considerations include:

- The Residential Asset Protection Zone is mapped approximately 25m from the tree line. New development in these areas will need to meet the requirements of the Planning for Bushfire Protection (PBP) 2019. It is recommended that density not be increased within this zone.
- The SFPP Asset Protection Zone is mapped approximately 79m from the tree line and refers to development with special uses such as seniors housing and child care. This generally will not apply to the Estate given residential is the predominant use.
- Fire vehicle access may need to be provided between vegetation and development, including behind homes along the southern edge of the Estate.



Bushland adjoining homes



Bushfire constraints map (Information extracted from Preliminary Bushfire Constraints letter, Ecological Australia 2022)

Legend

- Argyll Estate Rezoning Investigation Area
 - LAHC + AHO lots

Tree line

- Residential Asset Protection Zone
- SFPP Asset Protection Zone
- Impacted lots
 - New development may be possible

Note: *Only lots that form part of the Site (LAHC + AHO lots) are mapped as being impacted.



Ecological constraints

The bushland corridors adjoining the Argyll Estate are important natural assets that supports local biodiversity. The approach to renewal will need to consider ecological impacts.

Key considerations include:

- Vegetation along the creek corridor primarily consists of a mix of turpentine/brush box/flooded gum/blackbutt shrubby moist forest and flooded gum moist open forest, some of which are threatened flora.
- The adjoining bushland supports swift parrot and koala habitats.
- The bushland corridors are generally considered to have high biodiversity values that may be particularly sensitive to impacts from new development or land clearing.

The diagram above maps the combined ecological values, identifying high and medium risk areas (information source: Ecological Australia). The areas most affected are located along the interface with the bushland corridor.

- High constraints area is deemed to have low potential for future development without the implementation of impact management strategies.
- Moderate constraints area is deemed to have a moderate potential for future development without the need for further assessments or implementation of impact mitigation strategies.
- Low constraints area (unmapped) is deemed to have high potential for future development (applied to rest of investigation area).



Combined ecological constraints map (Information extracted from Preliminary Ecological Constraints letter, Ecological Australia 2022)

Legend

- Argyll Estate Rezoning Investigation Area
 - LAHC + AHO lots
 - High constraint area
 - Medium constraint area
- Impacted lots
 - New development may be possible subject to further assessment

Note: *Only lots that form part of the Site (LAHC + AHO lots) are mapped as being impacted.



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Combined constraints map

	Ť.	
	Legend	
		Argyll Estate Rezoning Investigation Area
		Areas with combined
		flooding, bushfire and
		ecological constraints Elm Street flood area -
		PMF impacts over 1m
	Flooding	constraints
		Unaffected by PMF
		<20% of lot up to 0.1m
		0 - 0.1m
		0.1m - 0.3m
		0.3m - 0.5m
		0.5m - 0.7m 🕴
		0.7m - 1m 🛛 🗍
		1m - 1.5m
		>1.5m
	• XXm	Maximum PMF depth on ${ar \mp}$
		lots with a flood depth
m	20	>1m outside of bushfire/ ecological constraints
4	ວັ Bushfire ເ	constraints
000		Residential Asset
000000000000000000000000000000000000000		Protection Zone
1	Ecologica	al constraints
n		High constraint area
		Medium constraint area
1	0 30 L	60 90 120 150M



Built form

4

This chapter illustrates the renewal approach to the Estate based on the detailed constraints analysis, and investigates potential residential typologies and built form character. This chapter includes:

- Lot typology (p.34)
- Areas for renewal (p.35)
- Amalgamation/subdivision strategy (p.36)
- Residential typologies including duplex and residential flat buildings (p.37)
- Flooding and accessibility (p.42)
- Built form character (p.43)

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n strategy (p.36) cluding duplex and p.37) y (p.42)

Renewal approach 4.1

This urban design study adopts a typology approach to investigate and plan for the renewal potential for Argyll Estate. Given the extent of the precinct and regularity of the lot sizes and pattern, this is the preferred method to achieve a wellconsidered and consistent outcome that will help inform the rezoning proposal.

Building on the detailed urban analysis and constraints mapping, this section identifies potential areas for change including testing housing typology options across the Estate. The proposed locations where a specific typology can occur is in response to the flooding, bushfire and ecological constraints identified in the previous section.



Lot typology

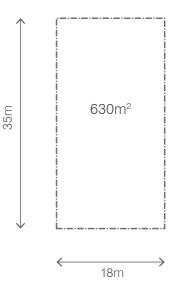
Understanding the lot typology across the Estate has helped to inform the residential typology approach:

 Lot size ranges between 580sqm to 1,025sqm. However the typical lot typology is rectangular in shape, approximately 600-700sqm in area. Lot width ranges between 17-20 meters, and lot depth between 33-40 meters.

For the purposes of the typology study within this report a typical lot size of 630sqm (18 x 35m) is used.

- Some outliers from this typical typology include those that are of an irregular shape.
- There are a number of lots that are less than 600sqm in size - the proposed amendment to allow dual occupancies on 400sqm lots consistent with the Low Rise Housing Diversity Design Guide, will contribute to supporting housing diversity across the Estate.
- Due to the mixed land ownership pattern, privately-owned lots are interspersed between LAHC + AHO-owned lots. As such, there are a number of isolated lots, highlighted in red above, that are unable to be amalgamated.

Typical lot size



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Areas for renewal

Based on the urban analysis and constraints mapping, the above map describes the potential housing approach across the Estate.

- The area through the middle of the Estate between Kurrajong Street and Argyll Street, west of Bradley Street, is the least affected by flooding, bushfire and ecological constraints. This area is considered most suitable for increased density such as residential flat buildings (RFB).
- Areas outside of bushfire and ecological impacts, but still impacted by the 1-in-100 year flood, including along Bray Street, and along Kurrajong and Argyll Street between Bradley and Elm Street, are considered suitable for a moderate density increase e.g. dual occupancies/duplex.
- Areas that have combined flooding, bushfire and ecological constraints are unlikely to be suitable for any density increase. These areas are deemed likely to be retained or otherwise redeveloped for improved detached dwellings.
- The land east of Elm Street is highly impacted by flooding and is unlikely to be suitable for any density increase. These areas are considered suitable for redevelopment into improved single dwellings.





Legend

- Argyll Estate Rezoning Investigation Area
 - LAHC + AHO lots
 - Areas impacted by combined flooding, bushfire and ecological constraints
 - Elm Street localised area impacted by greater flood depths
 - Areas affected by the 1-in-100 year flood, but outside of bushfire and ecological constraints
- Areas least impacted by environmental constraints (minimally impacted by PMF event, outside of bushfire and ecological constraints)
 - Areas unaffected by flooding and minimally impacted by bushfire and ecological constraints



Amalgamation/subdivision strategy

The potential amalgamation and subdivision plan for the area is based on simple principles following typology studies.

- Areas previously identified as being impacted by flooding, bushfire and ecological constraints can accommodate single dwellings.
- Minimum 1,200sqm lot amalgamation is required for a residential flat building (RFB) consistent with Council's LEP controls for the R3 zone. Based on the apartment typology study within this report, a minimum 3-lot amalgamation (approx 1,800sqm) is recommended to achieve an RFB.
- Lots outside of the combined flooding, bushfire and ecological constraints is generally considered suitable for a dual occupancy/duplex typology.
- Lots identified as being suitable for a dual occupancy/duplex typology have the potential to amalgamate (at least 2 lots) to accommodate terraces, however may yield the same amount of dwellings.



Potential amalgamation and subdivision plan

Legend

- Argyll Estate Rezoning Investigation Area Single dwellings
 - Amalgamated lots suitable for RFBs (approx amalgamation of 3 or more lots)
- Isolated lots suitable for dual occupancy
 - Other lots suitable for dual occupancies
- Lots suitable for potential amalgamation for terrace typology



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Residential typologies overview

This typology study explores two different types of housing and addresses the following considerations:

<u>Streetscape</u>

With the existing lot pattern, the streetscape can be dominated by garages - making it difficult to plant street trees around multiple driveways. The typologies seek to minimise the number of driveway crossovers to support front gardens, consistent street trees, footpaths, on-street-parking spaces and landscaping.

The surrounding local character is low scale; the proposed single dwelling and dual occupancy typology compliment this existing character. The apartment typology will need to consider ways to respond to this context, such as articulation and detailing to create short fine grain frontages, particularly at ground level.

Approach to flood affected sites

Flooding constraints require new development to be raised at least to the level of the 1-in-100 year flood plus 500mm freeboard. In most cases this requires homes to be raised up to 1m from the natural ground As part of this study, it is recommended that the finished floor level be raised to meet the PMF level, in some cases up to 1.5m above the natural ground. This will ensure that development can provide shelter-inplace above flood waters if this is required during an extreme flood event.

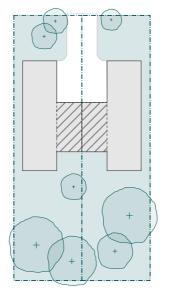
The raising of floor levels more than 1 to 1.5m may impact on urban design and accessibility outcomes. Where DDA access is required, the front setback can account for adequate area for a ramp if needed. This issue is further explored in 4.3 Flooding and accessibility.

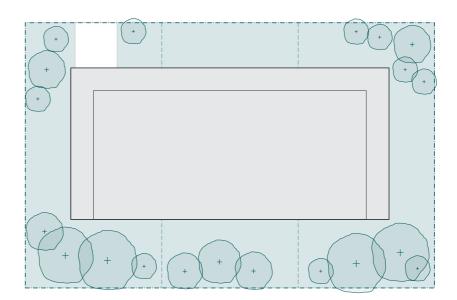
Parking

Currently, parking is predominately located off-street via garages. Proposed parking is to be accommodated via garages at ground level for single dwellings and dual occupancies. In the case of RFBs, where at-grade parking is not able to be provided, generally two levels of basement parking are needed to meet the required parking rates per dwelling. 1 Dual occupancy

e.g. duplex







Typologies

1

Dual occupancy

Dual occupancies, such as duplexes, are a suitable typology for an increase in density where sites adjoin environmentally sensitive areas, interfacing low scale neighbourhoods, or for isolated lots. In developing this typology, precedents from the Low Rise Housing Diversity Design Guide were considered.

The following controls from the design guide are proposed to be incorporated within a site specific DCP if approved.

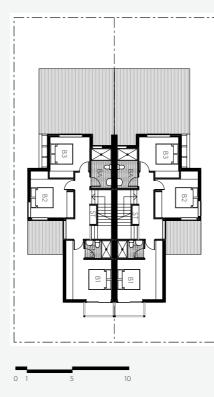
Controls summary

Front setback	6m	•
Side setback	(building height – 4.5m) ÷ 4 + 0.9m	•
Rear setback	8m	
Max. GFA	25% lot area	•
Min. lot size (parent lot) Min. lot size (resulting lot)	400m ² 200m ²	•
Private open space	16m ²	•
Landscaped area	50% lot area minus 100m²	•
Parking	1 space / dwelling Note: The is a deviation from the DCP which requires 1 space for dwellings ≤100m ² (1 space behind front setback), 2 spaces for dwellings >100m ² (at least one space behind the front setback)	

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Ground floor

Precedents



First floor

Legend

38

- Coffs Harbour Development Control Plan 2016
- Low Rise Housing Diversity Design Guide

Source: Low Rise Housing Diversity Design Guide - NSW Government, 2020







Rosebery, NSW - Arkhaus

Overview

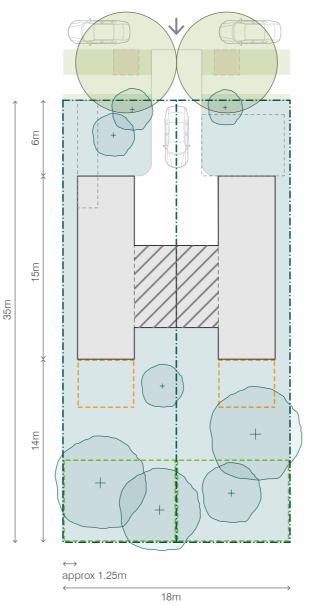
A single typical lot can be subdivided to provide for two 2 storey, 3-bedroom dwellings. This typology allows for garage parking at ground level, accessed either via a shared driveway (option 1) or a separated driveways (option 2). Where required, ramping can be located within the front setback.

Key considerations/outcomes:

- Can be accommodated on most existing single lots (minimum parent lot width \sim 16m).
- Providing ramping to a greater height, particularly in significantly flood affected areas is challenging due to the narrow lot size and building configuration.
 A shared ramp is considered to be the preferred outcome if DDA compliant access is required see 4.3 Flooding and accessibility.
- Generous backyard and front setback are able to provide for adequate deep soil, landscaping and private open space aligned with the *Low Rise Housing Diversity Design Guide.*
- A shared driveway configuration may enable an additional on-street car parking space.
- Dual occupancies are to be designed so as to not be mirror images of each other in accordance with D3.7(1) of the DCP.

General parameters

Lot area	630m ²
Dwellings per lot	2
Building footprint / site coverage	172m² (28%)
No. storeys	2
Street frontage	18m
Lot depth	35m
Front setback	6m
Side setback	approx. 1.25m
Rear setback	14m
Parking	Garage (above ground) 1 space / dwelling
Access	Ramp to FFL if required
Total GFA	230m ²



Option 1 - shared driveway



 \longleftrightarrow

approx 1.25m

18m

Ш

15m

|4m

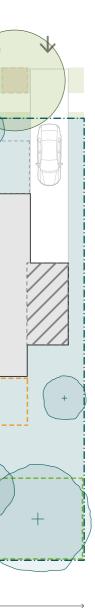
35m

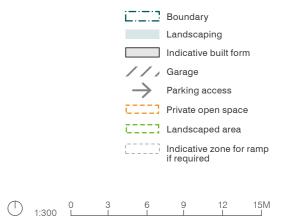
Assumptions

- GFA calculated at 85% GBA

- 3 bedroom (115m² GFA)

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Typologies

2

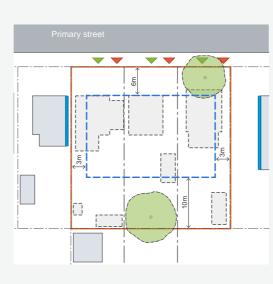
Residential Flat Building

Residential Flat Buildings have been explored as a typology where the amalgamation of three or more sites is possible, and in areas less effected by flooding, bushfire and ecological constraints. Controls outlined within the *Apartment Design Guide* and *Coffs Harbour DCP* helped to provide a framework for developing this typology.

Controls summary

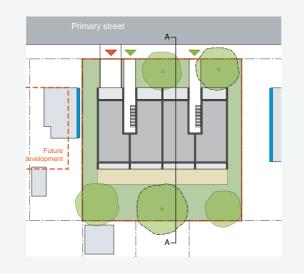
Front setback	9m Note: This study proposes a 6m front setback to align with the front setback DCP control of other potential building typologies (e.g. duplex and single dwellings)	•
Side setback	6m	•
Rear setback	6m	
Communal open space	25%	•
Deep soil	25%	
Parking	 ≤100m² GFA = 1 space >100m² GFA = 2 spaces Visitor parking 1 space per 5 dwellings Note: This study proposes one parking space per dwelling and no visitor parking spaces 	•

Precedents





Building footprint



Ground floor

Source: Apartment Design Guide – NSW Government, 2015

Site boundary
 Proposed development footprint
 Pedestrian access
 Vehicular access
 Deep soil zone
 Significant tree to be retained
 Walls with balconies or windows to habitable rooms



Waterloo, NSW



Legend

- Development Control Plan
- Apartment Design Guide

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South Granville, NSW - LAHC

Overview

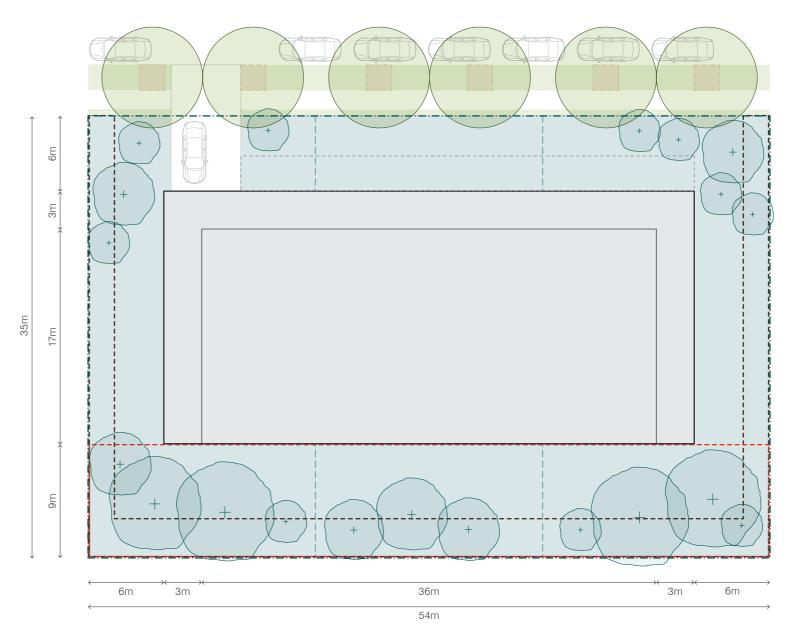
Three or more typical lots can be amalgamated to provide for 4 storey apartments with a mix of 1, 2, and 3-bedroom units. This typology allows for off-street basement parking. Access ramps are accommodated for within the front setback area.

Key considerations/outcomes:

- Requires amalgamation of three or more lots.
- 6m front setback proposed to align with the front setback DCP control of other potential typologies.
- Greater opportunity to consolidate ramping to raised ground floor, integrated with landscaping.
- Greater distance between parking entries allows for consistent street trees and verges, as well as increased on-street car parking spaces. (Approximately 6-7 per 3-lot amalgamated site).
- Basement parking likely to require higher construction costs. A flexible car parking strategy can be adopted for instances where the car parking rates require a 2nd basement level.
 Potential for some parking spots provided at grade.
- Generous side and rear setbacks provides space for deep soil as well as a communal open space at ground level.

General parameters

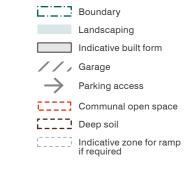
Lot area	min. 1890m ²
Dwellings per lot	30 (3-lot), 43 (4-lot), 56 (5-lot)
Building footprint / site coverage	840m² (45%)
No. storeys	4
Street frontage	54m
Lot depth	35m
Front setback	6m (note: proposed change from 9m stated in the DCP)
Side setback	6m
Rear setback	9m
Parking	Basement- 1 space/dwelling
Access	Ramp to FFL if required
Total GFA	2,350m ² (3-lot), 3,370m ² (4-lot), 4,430m ² (5-lot)



Assumptions

- GFA calculated at 75% GBA
- NLA calculated at 85% GFA
- LAHC: mix of 60% 1 bedroom + 40% 2 bedroom (average 68m² GFA)
- Private: mix of 50% 1 bedroom + 40% 2 bedroom
 + 10% 3 bedroom (average 73m² GFA)
- Parking: 42m² per car space, 1 space per dwelling

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DDA compliant access may be required, particularly in the provision of social housing, as well as in any residential flat building.

Providing DDA compliant access to homes in the form of ramps is a key issue particularly where the finished floor level of buildings may need to be raised over 0.5m above the PMF level. The adjacent map shows the approximate maximum flood depths within the front setback area for each lot. The approach for providing DDA compliant access, if relevant to new development sites, includes:

- 1:21 ramps preferred, which would not require hand rails, and can be integrated with landscaping and terraced planting within the front setback.
- It is recommended that dwellings that require equal access be located in areas with a PMF depth less than 0.5m. Ramping to a height greater than 0.5m begins to affect urban design outcomes and interface with the street. The required length of ramp to a height more than 1 to 1.5m may be constrained spatially within the front setback.
- Dual occupancies which include duplex typologies can be paired to share a ramp and minimise the footprint occupied by the ramping.
- For RFB sites, ramps should be integrated with landscaping/planting. Potential to include a shared front terrace at the top landing, which ground floor apartments can open out to.
- 1:14 ramps are possible, however will require hand rails which may impact visual clutter and presentation to the street.

Ramp configurations tested are described on the following page.



	. max PMF depth front setback area	Number of lots impacted	%
•	>1m	44	34%
•	0.7 - 1m	42	
•	0.5 - 0.7m	17	- 46%
•	<0.5m	26	20%
Total		129	



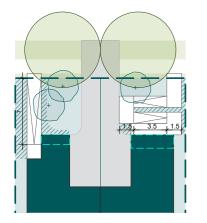
- Argyll Estate Rezoning Investigation Area
- LAHC + AHO lots
- Areas impacted by combined flooding, bushfire and ecological constraints - Potential for single dwellings
- Areas affected by the 1-in-100 year flood, but outside of bushfire and ecological constraints potential for dual occupancy
- Areas least impacted by environmental constraints most suitable for RFBs
- Lots unaffected by PMF at grade access possible
- Approx. max PMF depth within front setback area

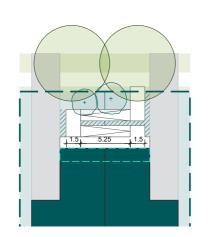
<0.5m	0.7m - 1m
0.5m - 0.7m	>1m

Flooding and accessibility

Both 1:14 and 1:21 ramps were tested to a height of 0.5m and 1m. A 1:14 ramp is less preferred due to hand rails and visual appearance. A 1:21 ramp does not require a hand rail but occupies more space, and therefore is unable to be accommodated in some configurations.

Dual occupancy - ramp to 0.5m



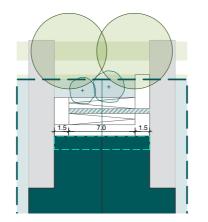


Dual occupancy with shared driveway - 1:14 ramp to 0.5m (two options shown above)

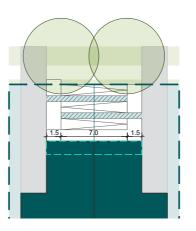
Dual occupancy with shared ramp access - 1:21 ramp to 0.5m

Residential flat building - applies both to ramps to 0.5m and 1m

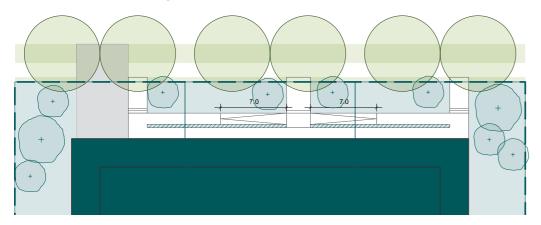
Dual occupancy - ramp to 1m



Dual occupancy with shared ramp access - 1:14 ramp to 1m



Dual occupancy with shared ramp access - 1:21 ramp to 1m

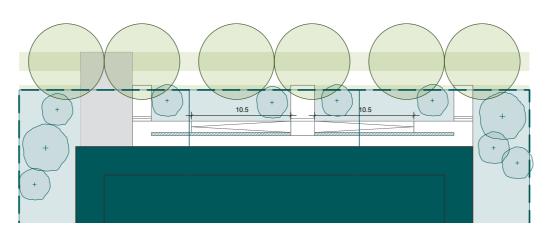


Residential flat building - 1:14 ramp (achievable for both 0.5m and 1m, shown above are 2 ramps to 0.5m height)

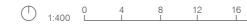
Legend



The above diagrams test spatial requirements identified in the building code for providing ramp access (1:14 and 1:21 ramp) to a height of 0.5m and 1m for typical lots. Spatial and environmental constraints will vary lot to lot.



Residential flat building - 1:21 ramp (achievable for both 0.5m and 1m, shown above are 2 ramps to 0.5m height)



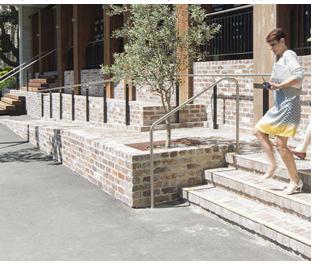
20M



A 1:21 ramp does not require hand rails and can be integrated with landscaping



A 1:14 ramp requires hand rails and may impact visual appearance



Both a 1:14 and 1:21 ramp can apply to apartment buildings. The longer facade length can better accommodate the length of ramp required and can be designed with landscaping and stairs.

The selection and design of colours, materials and architectural form should be responsive to the subtropical climate of Coffs Harbour to ensure that new buildings compliment local character, support thermal comfort and sustainability, and are great places to live.

Guiding principles to achieve this include:

- Open permeable buildings
 - Structures which can be adjusted to suit weather conditions, including allowing air movement and breezes through building orientation, spatial layout, and operable louvred windows.
 - The verandah, in sub-tropical housing design, is the traditional element that is able to mediate between indoor and outdoor living.
 - Provide shaded areas. Awnings, wide eaves and other shading devices over verandah and balconies, responds to the sub-tropical climate, as well as adds to the design and visual character of buildings.
- Connection with the natural environment and landscape
 - Buildings respond to significant features within the landscape.
 - Nature that is accessible both visually and physically.
 - The planting of substantial trees and vegetation within front and back yards and along the street can assist in tempering the micro-climate. This also reinforces landscape character.
- Colours, textures and materiality that harmonise with the local character and climate
 - Utilisation of appropriate materials and construction techniques that respond to microclimate, contribute to thermal comfort and sustainability - lighter materials and colours.
 - Any contemporary design to take its cues from desirable qualities of the traditional vernacular.
 - Consideration of building scale, detailing and articulation that is in keeping with the existing context.













Public domain and landscape

5

This chapter describes the approach to enhancing the streetscape including street trees, landscaping and street configuration, as well as public open space opportunities. This chapter includes:

- Street tree strategy (p.46)
- Water sensitive urban design (p.49)
- Street interfaces (p.50)
- Public open space (p.52)

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Creating great streets can contribute to defining neighbourhood character, encourage walking, promote health and wellbeing, and improve amenity. Through renewal, there is an opportunity for a coordinated and integrated approach towards enhancing the public domain and streets across the Estate.

New development can instigate improved streetscape outcomes. Following on from the typology study, this section describes a precinct-wide approach to streetscape upgrades, including street interfaces and configuration for street tree planting, verges and footpaths, and water sensitive urban design treatments (WSUD).



Existing streetscape, Argyll Street

Street trees and canopy cover

Existing tree canopy

Although the Estate is surrounded by significant bushland and tree canopy, the streetscapes generally lack canopy cover. The diagrams below test sample areas within the Investigation Area for percentage of canopy cover. Key findings include:

- Existing lots consist of young and mature trees and other planting. The tested sample areas showed a canopy cover range between approximately 17% and 24%. Note lots immediately adjoining riparian corridors generally have a greater canopy coverage due to contributory tree canopy from dense bushland.
- Two open spaces tested, the 'Kurrajong-Argyll St', and the 'Argyll St' open space, have a 25% and 85% canopy cover, respectively.
- The streets in the sampled areas have very few existing street trees; approximately 4-6% canopy cover. There is generally a low amount of street trees currently across the Estate.

There is opportunity to build on the existing tree canopy and enhance the landscape character of the area. Improvements to the streetscape, including targeting street tree planting, will contribute to achieving tree canopy standards that align with the Draft Greener Places Design Guide.



Existing tree canopy - Sample area 1



Existing tree canopy - Sample area 2

Draft Greener Places Design Guide

The Draft Greener Places Design Guide (NSW Government Architect 2020) sets principles and parameters for open space planning including urban tree canopy across NSW. Although the design guide does not directly refer to canopy targets for regional areas of NSW, which may have different urban and environmental conditions than Greater Sydney, the indicative canopy target of greater than 25% for 'urban residential (medium- to high-density)' areas is a valuable measure for best practice.

The design guide also describes the key benefits of urban tree canopy including; provides a high quality public domain, contributes to character and sense of place, assists in climate mitigation and adaptation, improves biological diversity, and uses water sensitive urban design (WSUD).



Tree canopy shown on diagrams adjacent have been mapped from google images. Accurate tree location and canopy size would require an arborist study.

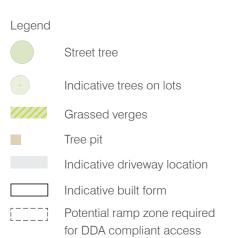
Street tree strategy

The street tree strategy adjacent shows the general approach across the precinct. There are 4 distinct street tree planting character types. These include:

- Type 1 Streets without over head power lines - groupings of 3 trees centred on existing lot boundaries, consisting of a large tree with a 12m diameter in the upper storey, and a middle storey of smaller trees on either side with a 6m diameter. The 12m diameter trees are spaced at minimum 15m intervals (centre to centre). This equates to approximately 1 grouping or 3 trees per lot.
- Type 2 Streets with over head power lines - medium-sized trees with an 8m diameter, approximate maximum 6m height. This generally provides 2 street trees per lot at minimum 7m intervals (centre to centre).
- Type 3 Cul-de-sac (Maple Street and Deborah Close) - Medium-sized trees with an 8m diameter centred on existing lot boundaries.
- Type 4 Bray Street Existing street trees along Bray Street retained. Currently approximately 6m in diameter and centred on each lot.

The following page further describes the landscape approach to Argyll Street which includes water sensitive urban design infrastructure.

Tree selection is to respond to existing species within the area to promote biodiversity, and is to align with Council's Street Tree Masterplan (1999).



Target

Total 25% canopy cover across entire Investigation Area

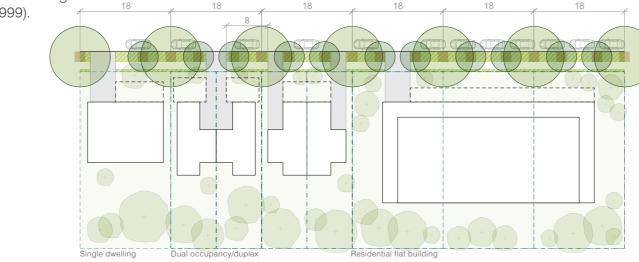
Assumptions:

- Minimum 15% canopy cover on private lots
- Minimum 40% canopy cover on public open spaces
- Minimum 55% canopy cover along streets

415

Approximate number of new street trees





Type 1 - Clustered - groupings of large and small street trees



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Water sensitive urban design

The implementation of water sensitive urban design (WSUD) strategies can aid in stormwater management and water quality, as well as improve street amenity. Given the low-lying nature of the site and potential for flooding during significant rain events, WSUD can assist in managing stormwater flows in the street network.

Raingardens are a useful WSUD treatment, and in addition can contribute to the amenity, attractiveness and character of the street through trees and low scale planting. When used within the roadway it can also contribute to traffic calming and can be integrated with the design of street parking configurations.

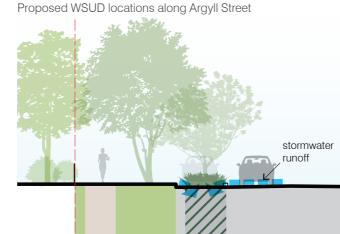
It is recommended that WSUD be prioritised along Argyll Street. The proposed locations for WSUD are:

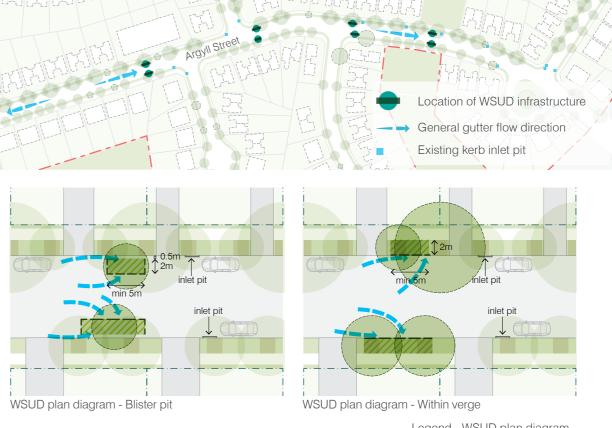
- Upstream of existing kerb inlet pits to maximise the road runoff catchment. This can assist to capture and treat stormwater before it enters the inlet pits and underground drainage system.
- Approximately 70-120m apart to benefit traffic calming and slow speeds along Argyll Street.
- Near potential pedestrian crossing points at intersections and near parks and reserves. This can reduce the amount of 'roadway' that pedestrians need to cross, creating safer and more legible crossings.

The master plan allows flexibility in the approach to implementing raingardens, whether as blisters within the roadway or as part of the verge. There is ample space within the road reserve to accommodate WSUD infrastructure. It is recommended that the raingarden be approximately 2m wide and minimum 5m length depending on location and configuration with driveway crossovers. Locations near parks and reserves may be able to accommodate more generous raingardens.

The raingardens can also include tree planting. The Argyll Street plan above, shows an additional 14 street trees within the blister pits.







0.5 1.5 min $2.0^{0.5}$ 2.0 Footpath Tree/grass Parking/ Planting WSUD blister verge



Corner blister consisting of an in-street raingarden, with street trees and grassed verge adjacent to footpath. Rosebery, Sydney



Legend - WSUD plan diagram			
	WSUD/raingarden		
	Tree planted in blister		
	Stormwater flow		

Planted in-street raingardens - blisters and medians. Harold Park, Sydney



Street interface

The proposed streetscape improvements and built form principles will enhance the character of the Argyll Estate. The adjacent sections describe the typical street conditions and character. There are two key street types:

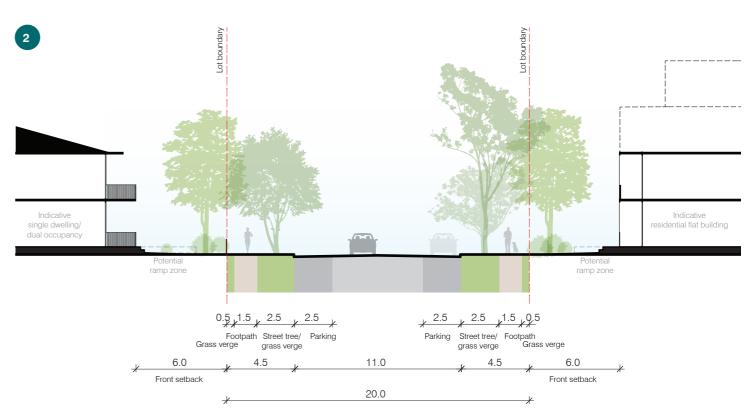
- Type 1: 20m road reserve, 11m carriageway (Argyll Street, Kurrajong Street west of Bradley Street, Frederick Street and Raymond Street). The verge width varies between 4 to 5m. Spatially, this enables a generous area for street trees and a grass verge, a minimum 1.5m footpath, and a 0.5m grass verge adjacent to the lot boundary. Argyll Street can also accommodate WSUD in the form of

in-street raingardens (see previous page for more detail). This would occur at specific locations along Argyll Street, however the typical street condition would generally align with the adjacent section diagram.

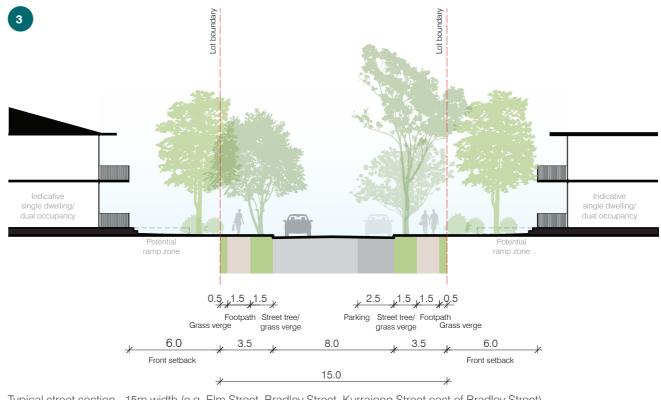
- Type 2: 15m road reserve, 8m carriageway (Elm Street, Bradley Street, and Kurrajong Street east of Bradley Street). Allows for an approximate 1.5m footpath and 1.5m area for planting and street trees. These narrower streets allow for parking on both sides of the street and 'yield-flow' of traffic which contributes to a safer, slow-speed street environment and discourages the use of these residential streets as short-cuts.



Street types key plan



Typical street section - 20m width (e.g. Argyll Street, Kurrajong Street west of Bradley Street, Frederick Street, Raymond Street)



Typical street section - 15m width (e.g. Elm Street, Bradley Street, Kurrajong Street east of Bradley Street)



The community consultation has contributed to providing guidance on what the community wants and needs in relation to open space. Key suggestions from the community include:

- Retain and improve existing open space and walking tracks.
- More activities at local parks to make them attractive places to spend time particularly for children and young people e.g. a place to kick a ball, playground equipment, skate park, bike tracks and dog park.
- Community gardens.

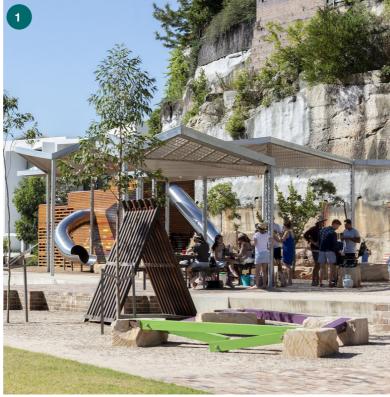
Argyll Estate benefits from a variety of open space types and character. The existing formal playground at 'Kurrajong-Argyll St' open space can be enhanced with additional play equipment, seating, picnic tables and barbecue facilities.

The 'Argyll St' open space has an existing bushland character being adjacent to the riparian corridor. In addition to supporting connections to the creek crossing and future walking trails, this open space can also provide a 'bushland' play space, picnic tables and barbecue facilities.

The large open space on Argyll Street, that sits just outside of the Investigation Area, is a potential area for future open space improvements. Largely grassed with minimal trees, this space has enormous potential to accommodate new activities such as those identified at the community consultation, including a kickabout space, community gardens, dog park or a skate park, in addition to providing access and new walking trails to the creek corridor.



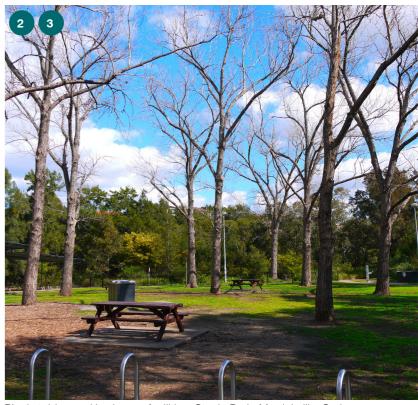
Open space key plan







Community Gardens to promote social interaction, and provides fresh and affordable produce. Whites Creek Community Garden, Lilyfield





Sydney

Picnic tables and barbecue facilities. Steele Park, Marrickville, Sydney

Simple play equipment with similar materiality and character as the natural environment. The Ian Potter Children's Wild Play Garden, Centennial Park,

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The master plan

6

This chapter sets the framework that will help guide the renewal of the Argyll Estate, including:

- Vision (p.54)
- Design principles (p.56)
- Structure plan (p.5Z)
- Preferred growth scenario (p.59)

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01

New homes

Argyll Estate will provide different types of homes to suit the needs of its diverse community. New development will ensure that the height, scale and grain compliments the local character of the area.

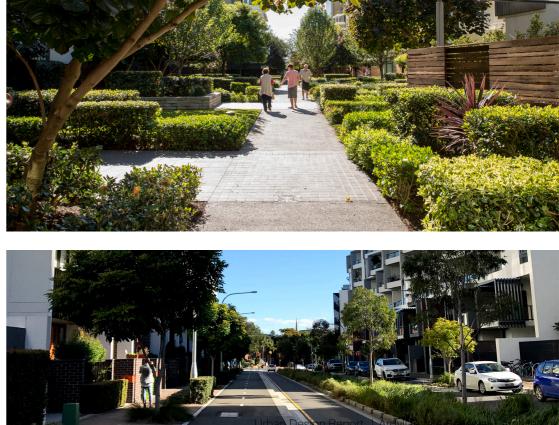
6.1 Vision

Argyll Estate is a mixed tenure residential neighbourhood offering a variety of housing options that suit the needs of a diverse community and that respond to natural hazards, the natural environment and the sub-tropical climate and character of Coffs Harbour.

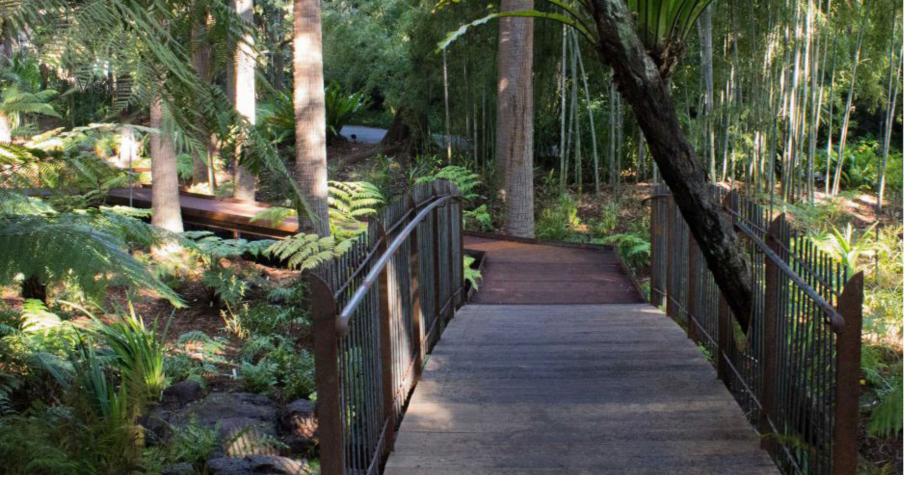
02

Great streets

The streets within Argyll Estate will be improved to provide high quality streetscapes including footpaths, street trees, verges and street parking. This will contribute to defining neighbourhood identity as well as support walking and cycling through the area.









Connection to nature

Argyll Estate will celebrate and encourage connections to the great natural assets right on its door step. It will also seek to build on the area's landscape character to enhance visual amenity.









03

Open space

Parks and communal areas are great opportunities to bring the community together and encourage people to get outdoors. Existing spaces will be enhanced, that will offer a variety of uses.

05

Environmentally responsive Argyll Estate will provide new homes that ensure people are kept safe through weather events such as flooding and extreme heat.

The following design principles have been developed following the urban analysis, constraints mapping and built form investigation, and provide a guiding framework for the proposed master plan for the Argyll Estate.

These designs principles are generally reflected within the Development Control Plan recommendations (see Planning Proposal report for more detail).

The design principles on the following pages are categorised into the following themes:



Streets

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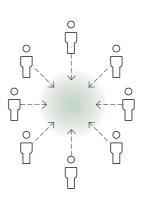
Landscape and open space





ຕໍ່ຕື້ຕໍ່ Community





Community connections

Ensure that the renewal of the Estate protects connections within the community and sense of place.

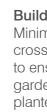






Housing needs

Work with the community to understand who lives there and what they need. A mix of housing options should be provided to suit different types of families and accessibility requirements.

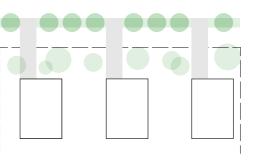




Streets

Great streets

Improve the streetscape and create great places for pedestrians through providing footpaths, street trees, planted verges etc. This will also contribute to establishing local character and community identity.



Building/street interface

Minimise the number of driveway crossovers and basement entries to ensure sufficient space for front gardens, consistent street trees and planted verges.

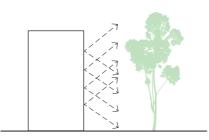


Landscape and open space



Landscape character

Celebrate and enhance the unique landscape character of the area. The design of streets, including street trees and planting, and open space should support a strong and visible identity of the Estate and Coffs Harbour.



Connection to nature

Maintain visual connections to nature by providing views to trees and green from every street and every dwelling.





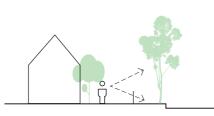
Built form character

New development should respond to the existing character and scale of the local area - fine grain frontages, low to medium density, materiality and construction to reflect local character and respond to the natural environment and sub-tropical climate of Coffs Harbour.

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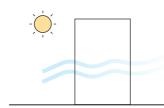
Public open space

Enhance existing open space and improve walking and cycling linkages to surrounding open space assets. These spaces should be well-connected, high quality and provide a range of activities and experiences for residents.



Private open space

Homes to provide front gardens and balconies that face the street. This will activate the street, enable eyes on the street (passive surveillance), encourage incidental conversations and contribute to building a sense of community.



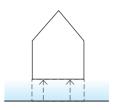
Building design

Building design for a subtropical climate leverages orientation, landscape features, lighter materials and colours whilst engaging with indoor/outdoor transition. New development should also comply with relevant design guidelines and meet or exceed cross ventilation, solar and internal + external spatial provisions.

Water Sensitive Urban Design (WSUD)

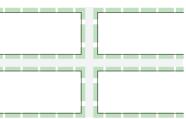
Streets and open space should incorporate water sensitive urban design principles. Permeable surfaces and design treatments along streets and in open spaces will contribute to the response to flooding impacts.





Flooding impacts

Design homes that keep people safe during flood events, including raising the ground level to keep homes out of flood waters. This is combined with ensuring that there is a safe space for people to shelter within their homes in the event that evacuation is not possible.





<-----

Argyll Estate Rezoning Investigation Area

LAHC +AHO owned lots

Privately-owned lots

Celebrate and build on the unique bushland/ landscape character of the area

Support recreational and active transport connections

Improve access and use of adjacent bushland corridors

Argyll Street - key east-west pedestrian and vehicle through connection (open intersection with West Argyll Street

Other key movement corridors through the precinct

Treefern Creek

Kurrajong

		A H H H H H H H H H H H H H H H H H H H
		Improve streetscape/pedestrian amenity - footpaths, street trees, planted verges
		Enhance existing open space to increase use and activation
		Retain as R2 zone - highly constrained
		Retain as R2 zone - suitable for dual occupancies (outside of bushfire and ecological constraints) Proposed R3 zone - potential to accommodate
	7)	diverse housing types including residential flat buildings (up to 4 storeys)
cle		Areas unaffected or minimally affected by flooding (PMF depth of <10cm) and outside of
nct		bushfire/ecological constraints are most suited to supporting more homes e.g. RFBs
and the second sec	actic highway	and the second s

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The proposed growth scenario addresses environmental and urban design considerations while enabling a moderate increase in density across the Argyll Estate. The map and dwelling yield described is one way that renewal can happen across the precinct. This is considered to be a high growth scenario, representing full take up of LAHC and AHO renewal opportunities and 60% take up of private lot renewal opportunities.

Renewal summary

197	Existing dwellings 129 LAHC + 68 privately owned
365	Potential dwellings on lots currently owned by LAHC + AHO
95	Potential dwellings on lots currently privately-owned
460	Total potential precinct dwellings

263 Additional precinct dwellings

Dwelling type / mix summary (LAHC + AHO)

Total		365
	RFB (4-storey)	185*
	Duplex	138
	Single	42
Туре		Total number of dwellings

Assumptions:

- Approximate existing lot size 630sqm (18m x 35m)
- Duplex / Semi-detached Private: 3 bedroom (115sqm GFA)
- *RFB LAHC: mix of 60% 1 bedroom + 40% 2 bedroom -(average 68sqm GFA)
 *RFB – Private: mix of 50% 1 bedroom + 40% 2 bedroom + 10% 3 bedroom - (average 73sqm GFA)
- Renewal on privately-owned lots calculated at a 60% take up rate of potential duplex sites. Full take up 110 dwellings.



Preferred renewal scenario plan

Legend

- Argyll Estate Rezoning Investigation Area
 - Retention or renewal of single dwellings

Duplex typology (2-storey)

- 4-storey residential flat building (RFB) on minimum 3-lot amalgamation
- Privately-owned lots potential for retention or renewal of single dwellings.
- Privately -owned lots potential for duplex typology
- Sites requiring void at ground level to mitigate flooding impacts

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ſ		1.4 000	1	1	1	1	1	1



Proposed planning 7 controls

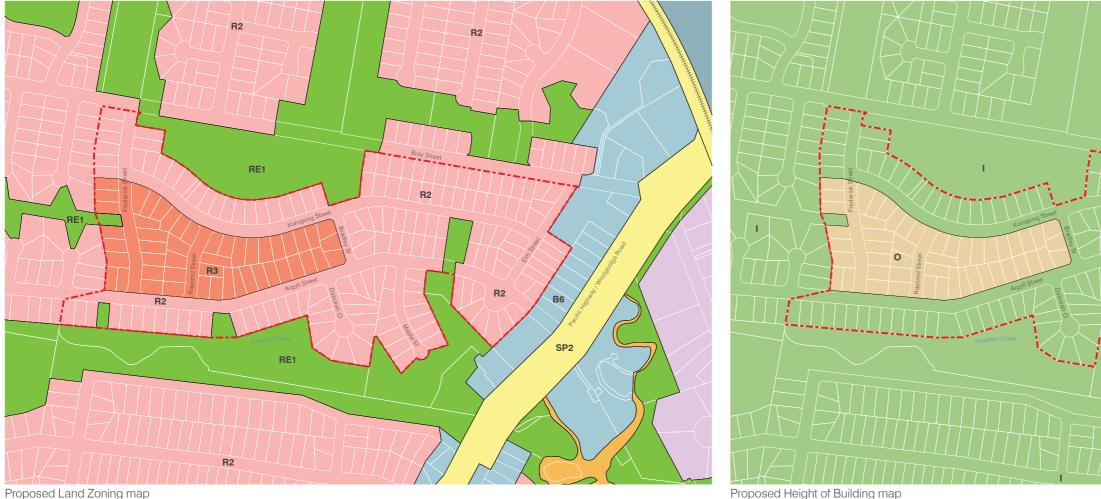
This urban design study culminates in proposed planning changes that forms the basis of the rezoning proposal, including:

- Amendments to the existing planning controls (p.62)
- DCP recommendations (p.64)

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Recommended planning controls 7.1

This urban design report supports amendments to the existing planning controls to enable a moderate increase in renewal potential within the Argyll Estate. The proposed changes apply generally to the land west of Bradley Street, in between Kurrajong Street and Argyll Street. The remainder of the Estate area is proposed to be retained as current. The following planning maps identify proposed changes to the current controls.



Proposed Land Zoning map

Land Use

- Change of zone to R3 Medium Density Residential on land west of Bradley Street, between Kurrajong and Argyll Street.
- Remaining land within the Investigation Area retained as R2 Low Density Residential.

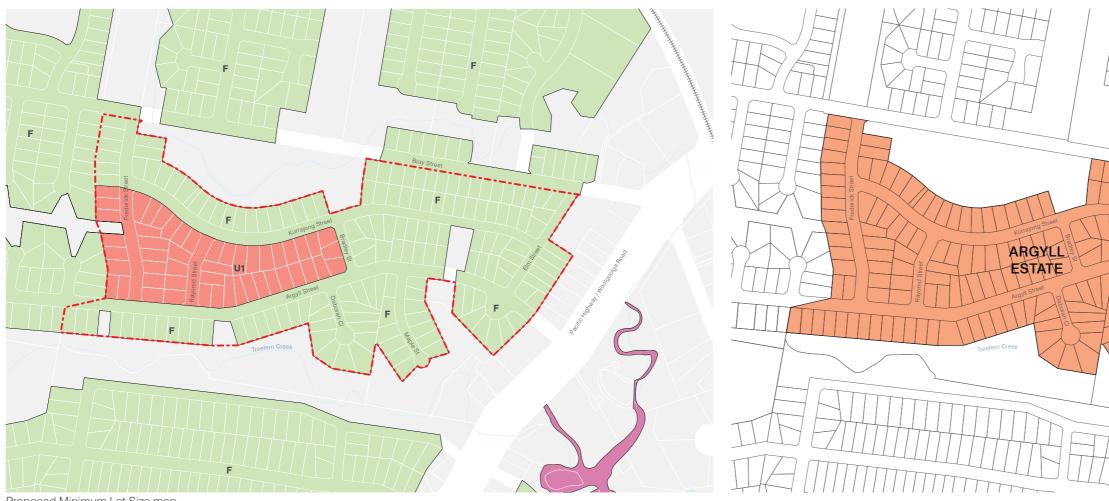


- Height of building
- Proposed change to land west of Bradley Street, between Kurrajong and Argyll Street, to accommodate a maximum building height of 15.5m (approximately 4 storeys).
- 8.5m maximum height of buildings retained on remaining land within the Investigation Area.





Maximum Building					
Height (m)					
L 11					
0 15.5					



Proposed Minimum Lot Size map

Minimum lot size

- Proposed change to minimum lot size on land west of Bradley Street, between Kurrajong and Argyll Street, to 1,200sqm. Along with the proposed amendments to the zoning and building heights. This can enable a diversity of housing types including residential flat buildings.
- Minimum lot size of 400m retained on remaining land within the Investigation Area.
- Amendment of clause 4.1B of the Coffs Harbour LEP to exclude the application of the clause from the site. This will enable dual occupancies to be developed on sites down to 400sqm consistent with the Low Rise Housing Diversity Design Guide.



Key Sites

- Argyll Estate, which includes the entire Investigation Area subject to this Planning Proposal, is proposed to be nominated as a Key Site.



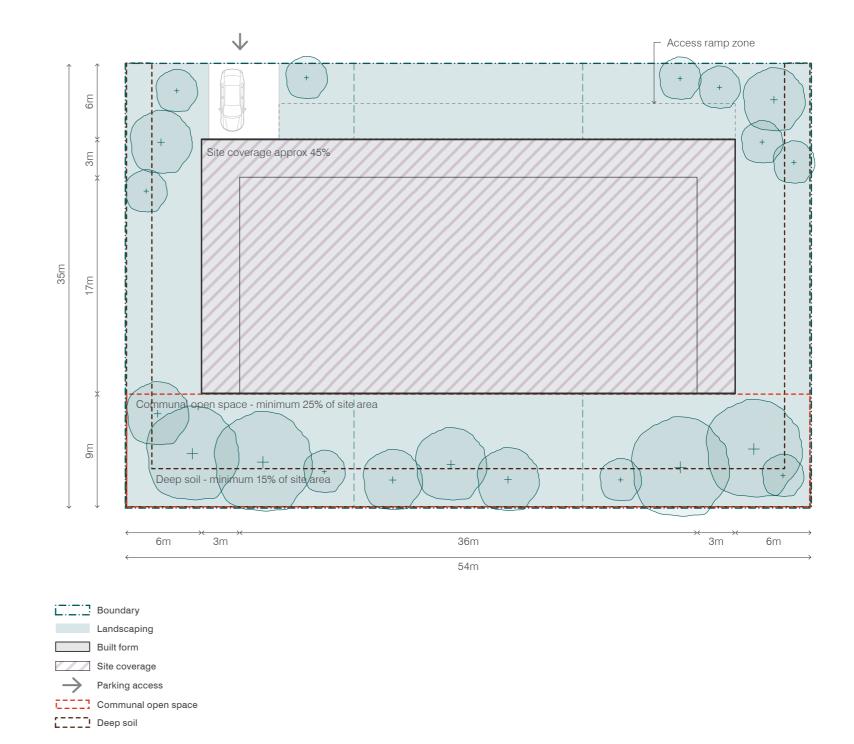


7.2 DCP recommendations

This urban design report supports site specific amendments to the Coffs Harbour Development Control Plan to guide future renewal of the Estate.

Key recommendations to the DCP include:

- A precinct structure plan showing indicative areas for renewal, and potential open space, public domain and connectivity upgrades.
- Proposed controls for residential flat buildings that propose generous building setbacks and landscape requirements. In general the setbacks are consistent with the DCP, with the exception of the front setback which is recommended to be 6m to align with other proposed building types within the master plan.
- Proposed controls for dual occupancies and attached dwellings are generally aligned with the Low Rise Housing Diversity Design Guide, and are further described within the Planning Proposal report. Council will seek to incorporate the proposed controls into the DCP if approved.
- Design requirements seek to manage flood impacts above the Flood Planning Level:
 - All habitable floor levels to be above the Probable Maximum Flood (PMF). This will also allow shelter-in-place above the PMF.
 - Raising of floor levels is to ensure a good urban design and accessibility outcome with ground floors not typically raised more than 1 to 1.5m above ground level.
- Future development within the site to demonstrate that an appropriate level of flood conveyance will be maintained for any overland flow path.
- If access ramps are required, minimise use of hand rails and integrate with landscaping to ensure access ramps do not result in poor presentation of development to the public domain.
- Architectural form, design, materiality, colours and construction to be responsive to the subtropical climate and local character of Coffs Harbour.



General parameters - Residential flat building







0.000

Active transport connections (Council-proposed)

Pedestrian paths through open space -0

> Argyll Street - key east-west pedestrian and vehicle through connection (open intersection with West Argyll Street)

- Other key movement corridors through the precinct
- Streetscape upgrades footpaths, street trees, planted verges
- Potential open space enhancements
 - R2 zone highly constrained

R2 zone - Potential to accommodate dual occupancies

R3 zone - potential to accommodate diverse housing types including residential flat buildings (up to 4 storeys)



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