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glossary











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It is estimated that some 3.5 million people will live in Perth and Peel – 1.5 million more than our current population – by 2050.

They will want a diversity of homes; apartments, villas, semi-detached houses, traditional three and four-bedroom homes in the suburbs or close to the city; near shops and schools and public transport; within easy commuting distance of their jobs and next to all of those other amenities that make Western Australian communities attractive, vibrant and liveable.

The Perth and Peel@3.5million planning documents consider where people will live and where employment-generating industrial land will be located; how best to utilise existing and proposed social and physical infrastructure; how we will protect our important environmental assets and how we can maintain our unique Western Australian lifestyle.

An estimated 800,000 dwellings will be needed to house our population increase. Almost half will be provided through infill development in strategic locations in existing suburbs and consequently, there will be greater residential density and diversity, particularly around activity centres, station precincts and along public transport corridors.

Appropriate location, scale and design will be crucial to integrate these additional dwellings within the existing urban fabric. The Towards Perth and Peel@3.5million - Diverse City by Design toolkit has been developed to help guide people through the planning process as we work to accommodate this substantial population increase. It demonstrates options for increased residential density that are innovative, achievable and inspiring, and that will enhance amenity and liveability, in both new and existing suburbs.

It can be used by local governments, small developers or anyone interested in planning and development. Importantly, you do not need knowledge of the sector to use the toolkit – it is straightforward and easy to read and includes definitions and explanations to help you understand the sometimes complex language of planning.

The Diverse City by Design resources provide step-by-step guidance through some of planning's complexities and gives outstanding tangible examples of successful infill and residential density developments that have enhanced our communities.

Existing housing in Perth and Peel

In 2011, 80 per cent of dwellings were separate or detached dwellings, 11 per cent semi-detached, terraced houses or townhouses; eight per cent flats, units or apartments; and one per cent other types of dwellings¹.

The Housing We'd Choose: a study for Perth and Peel 2013² suggests the balance of new supply needs to shift from the existing pattern of 80 per cent separate houses to a much more even spread of around 56 per cent separate houses, 35 per cent semi-detached and nine per cent apartments.

Within Perth's central subregion there is a higher percentage of one, two and three bedroom dwellings than its outer subregions:



Dwelling types	Central sub-region	Outer sub-region
One bedroom dwelling	7%	2%
Two bedroom dwelling	24%	8%
Three bedroom dwelling	41%	38%
Four bedroom dwelling	27%	52%

Higher densities and adaptable dwellings can increase the variety of housing to cater for different stages of a person's life and multi-generational households.

¹ ABS, Table Builder, 2011 Census Dwelling Characteristics

² Search www.planning.wa.gov.au for "The Housing We'd Choose: a study for Perth and Peel"

Key housing considerations

There are a number of key considerations people make when purchasing or renting a house including affordability, location, size and type of housing, local environment and safety. The Housing We'd Choose: a study for Perth and Peel 2013 findings showed affordability drives housing decisions for all but the highest income earners. Location is an important consideration for most households, specifically safety and security; easy access to work and schools; and being located near family and friends and public transport. Households are prepared to

make housing type and number of bedroom trade-offs, primarily to access a preferred location.

People have their own unique preferences, lifestyles and requirements. The table below provides some of the housing considerations people make at different stages of their life. It demonstrates the different housing types within a neighbourhood to cater for a variety of needs and budgets.









Close to city and public transport, access to jobs and close to social activities, friends and family.



- Two or more bedrooms
- Storage space for sporting equipment/luggage
- · Balcony or outdoor dining space
- Suitable dwelling types: 'Fonzie flat', apartment, villa unit, and maisonette.



Couples





Close to city and public transport.

Living a short distance from universities, nightlife and friends.

- Three or more bedrooms
- Multiple living spaces and bathrooms
- Suitable dwelling types include semi-detached, townhouse or large apartment.







Suburban living within easy access of schools, sports and shopping.

Access to jobs by public or private transport.

Safe neighbourhood.

- Three or more bedrooms
- Large living spaces
- Double garage/parking spaces
- Garden
- Suitable dwelling types include single house or semi-detached house.







Suburban living within easy access of schools, sports and shopping.

Easy access to jobs by public or private transport.

Safe neighbourhood.

- · Three bedrooms
- Security for single parent and children
- · Small outdoor living space
- Single parking space
- Suitable dwelling types include semi-detached, or terraced home.







Access to public transport.

Close to neighbourhood shops, recreation, medical services, community facilities and family.

- Two or more bedrooms
- Age friendly design and security
- Low maintenance outdoor and indoor spaces
- Suitable dwelling types include villa unit, 'granny flat' or cottage.

Perth and Peel@3.5million promotes medium and higher densities to encourage a greater mix of housing types in a range of locations to meet future population needs.

Single houses

A single or two storey house separated from other dwellings by at least half a metre.

Traditional

Between the 1920s and 1950s the trend was to build 'California' bungalows. These are usually single storey with gabled roofs and large pillars supporting a front verandah. They generally have three bedrooms and a separate living room.

More recently there has been an increase in narrow block housing designs to increase the density of single housing.

Cottage

A small, single storey house with two or three bedrooms and a bathroom with bigger kitchen and living rooms as the main focal points of the house.



Narrow block housing design



California bungalow



Cottage

Semi-detached and attached houses

Semi-detached house

A house on its own grounds, joined to another house on one side only by a common wall.

Villa unit

A small house which may be attached, semi-detached or detached, within a group of similar dwellings usually arranged around a common driveway.

Terraced houses

Individual houses organised in rows with shared walls. Terraced houses are typically one to two storeys. A townhouse is a type of terraced house on multiple floors.



Semi-detached



Villa unit



Terraced houses



Townhouses

Multi-unit housing

An apartment or flat is a self-contained housing unit that occupies one part of a multi-unit, multi-storey building.

A studio apartment is small and combines the living room, bedroom and kitchen into a single large room with a separate bathroom.

A penthouse is a luxury unit on the top floor/s of a multi-storey apartment building.

Walk-up apartments are usually within a building that does not require a lift as it is no more than three storeys high.



Apartments



Image courtesy of Department of Housing, Jonathan Lake
Architects in association with Hassell Architects.



Maisonette

Apartment

A maisonette looks like a two to three storey stand-alone house but actually contains separate dwellings on a single lot. A maisonette is designed to enable

independent dwellings to be built with their own entrances.



Maisonette

Ancillary dwellings

A 'granny flat' is a small scale and selfcontained dwelling on the same lot as, and usually detached from, the primary house.

'Fonzie flats' are small, self-contained dwellings usually located above a garage.

These types of dwellings are additional to a primary house and cannot be subdivided from the primary dwelling.



Ancillary dwelling



Fonzie flat

What is affordable housing?

Affordable housing refers to homes that people on low-to-moderate incomes can afford to rent or buy, while meeting other essential costs such as food, healthcare, education and transport. Affordability is defined by housing costs being less than 30 per cent of gross household income for low-to-moderate income households. The Western Australian State Affordable Housing Strategy 2010-2020 defines housing affordability as:

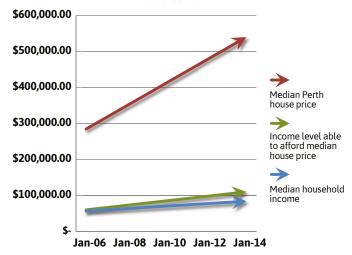
"........ dwellings which households on low-to-moderate incomes can afford, while meeting other essential living costs. It includes public housing, not-for-profit housing, other subsidised housing under the National Rental Affordability Scheme together with private rental and home ownership options for those immediately outside the subsidised social housing system."

Many Western Australians pay more than 30 per cent of their income on housing and face affordability pressures. The graphic below shows the annual rental or mortgage repayment costs of a median-priced home in Perth and compares it to the 30 per cent 'housing stress' benchmark for a number of key worker occupations. None of the key workers are able to afford the annual mortgage for a median-priced unit or house in Perth without exceeding 30 per cent of their annual expenditure on housing.

Declining housing affordability

In 2006, the Perth median house price was approximately \$285,000 and increased to \$546,500 by January 2015. Over this time, median house costs have moved out of reach of median household incomes. Today, many moderate income households are finding it difficult to buy or rent a house that meets their affordability needs and other costs of living.

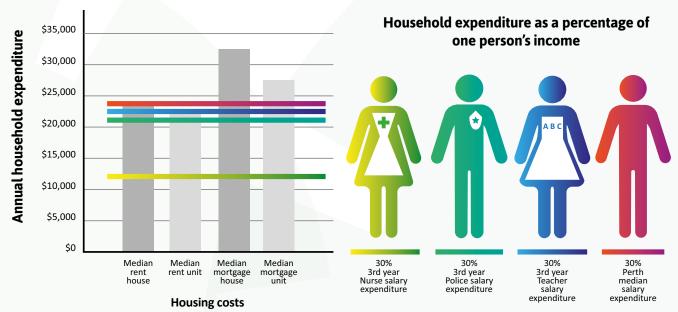
Perth's median household incomes and house prices 2006 to 2014



Source: Department of Housing

Between the 2006 and 2011 ABS Census, Western Australia's median monthly mortgage repayment increased by 78 per cent from \$1,213 to \$1,950. By 2011, mortgage repayments were \$150 per month above the national average. Between 2006 and 2011, the median weekly rent increased from \$170 to \$300.

Example of annual housing costs against affordability: metropolitan Perth 2014



Sources: REIWA, ABS, Reserve Bank of Australia

fact sheet housing affordability

Housing affordability is impacted by a number of key demand and supply drivers. Demand is influenced by factors such as population growth, income levels, tax concessions and cost and availability of finance.

The supply of affordable housing is affected by availability of land and infrastructure, construction costs, property-related taxes and interest rates.

State and territory governments have provided grants and stamp duty concessions which can make home ownership more accessible for first homebuyers.

What is affordable living?

Affordable living means households finding cost-effective ways to meet the essential costs of living. It considers all of a household's essential costs including rental or mortgage payments, utility bills, property fees and taxes, transport costs and food. In some cases the additional costs of living in a low-quality or poorly-located dwelling such as increased transport, energy and water costs, can outweigh the benefits of lower mortgage or rental payments.

Housing affordability and planning

There is a requirement to provide 15 per cent affordable housing in all developments on government land. The planning system can play a role in encouraging housing diversity and increasing choice and affordability of housing available in different locations.

The Residential Design Codes include provisions to encourage the development of smaller single-bedroom or aged and dependent person dwellings. A one-third reduction in the minimum site area is applied for these dwelling types, which is an incentive to the developer as a greater number can be built.

The planning system can increase housing diversity and provide incentives including:

- increasing housing supply in locations close to public transport and employment centres;
- offering incentives for developments that include a mix of dwelling types;
- allowing smaller minimum site areas for dwellings to allow for a variety of dwelling sizes;
- ensuring an efficient approval process to reduce timelines and cost for developers; and
- ensuring an adequate supply of urban land for new housing developments.

Urban renewal and affordable housing

The Metropolitan Redevelopment Authority requires developments over 10 units to provide 12 per cent of dwellings for affordable housing programs.

Department of Housing

The State Affordable Housing Strategy is 'opening doors' to increase the supply and diversity of affordable housing across Western Australia. By partnering with industry and the not-for-profit sectors, the Department of Housing is increasing affordable housing options for households on low to moderate incomes.

A core function of the Department of Housing is to provide a shared equity scheme. Properties are only available from the Department of Housing which may co-own up to 30 per cent of the property. All properties under the scheme are purchased with a loan from Keystart, the Government's lending agent.

The Somersault and Stella Orion developments in the Diverse City by Design case studies are examples of housing provided under the Department of Housing Key Start shared equity scheme.



Density bonuses for affordable housing

LandCorp's Mandurah Junction development is close to the Mandurah train station, giving people easy connections to employment.

The Outline Development Plan includes a minimum of 15 per cent affordable housing, which is to be provided through one and two bedroom dwellings.

A density bonus is available for development that complies with design criteria and includes an affordable housing component.

Planning documents often refer to residential density and differentiate between greenfield and infill development. There is often confusion surrrounding these terms and the types of housing that are built as a result of different densities.

What is greenfield and infill development?

Greenfield is undeveloped land which is zoned for urban development and located on the fringe of an urban area. These areas generally require a structure plan to be prepared as a prerequisite to development. (See the glossary fact sheet for an explanation of a structure plan).

Infill, also described as urban consolidation, is the development of sites within existing urban areas. Infill includes disused industrial sites, institutional sites and under-utilised properties located in the suburbs such as vacant buildings and single houses on large sites. The two main types of infill development are:

- Redevelopment of large disused educational or institutional sites that enable higher density housing to be developed without negatively impacting surrounding neighbourhood properties.
- Incremental infill is the redevelopment of under-utilised properties within existing urban areas including vacant blocks or older, poorly maintained houses on large lots. These sites can have challenges such as fragmented land ownership, inadequate existing infrastructure and difficulty in coordinating the assembly of land areas suitable for development. Renovation of large, older properties can also allow for increased housing stock.

What is residential density?

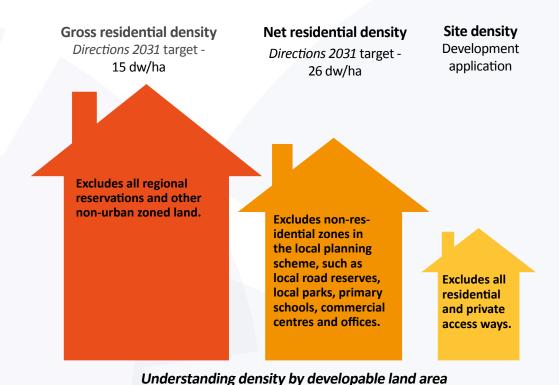
Residential density measures the number of dwellings in a particular land area and is usually expressed as **the number of dwellings per hectare** (dw/ha).

The difference between the residential density measures is the size of the land area used. The three most common density measures are:

Gross residential density: the number of dwellings on all land zoned urban and city centre in the Metropolitan and Peel Region Schemes. This measure is used when calculating the density of large areas such as regions, hence it is applied in regional and sub-regional structure plans.

Net residential density: the number of dwellings on land zoned residential in the local planning schemes. This measure is used for areas of land between 20 and 300 hectares and is applied in district or local structure plans.

Site density: the number of dwellings achieved on an individual lot zoned residential in the local planning scheme. This is applicable for a development application.



A mix of densities facilitates housing choice and diversity

Below is a guide to what constitutes low, medium and high density. The Residential Design Codes (R-Codes) use net residential density.

Density	Net residential density (dw/ ha)
Low	Less than R30 (<30 dw/ha)
Medium	R30 to R80 (30-80 dw/ha)
High	Greater than R80 (>80 dw/ha)

A local structure plan with a net residential density of 26 dw/ha could include densities ranging from 10 to 60 dw/ha. Planning for a mix of different densities in an area allows for different housing types and creates neighbourood character.

Housing types produced from different densities



Traditional houses on narrow lots, Watermans Bay - R2O. Image courtesy of WBN builders



Townhouses, Swanbourne - R30 Image courtesy of Mirvac WA P/L



Attached houses, The Vale - R40 Image courtesy of APG builders



Townhouses, Clarkson - R80 Image courtesy of Satterley



Attached houses, Quinns Rocks - R40.
Image courtesy of WBN builders



Apartments, Northbridge - R160+ Image courtesy of CODA

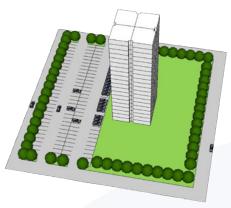
Common density misconceptions include:

Medium and high residential densities result in large population increases: medium and high density often provides smaller sized units with smaller household sizes.

Higher density means high buildings: higher density can result in a range of different building heights designed to consider the surrounding built form and open space requirements. Higher density can be achieved through lower rise developments to fit in with the character of an established neighbourhood.

The design of public open space, the streetscape, the design of buildings and how they 'sit' in the landscape cannot be quantified through density measurement alone.

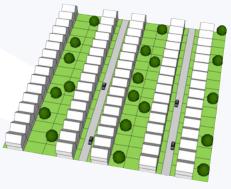
The examples below represent one hectare of land developed at 80 dw/ha using different heights, site layout and coverage.



R80 High rise 9+ storeys



R80 Medium rise 3 to 9 storeys



R80 Low rise 1 to 3 storeys

Medium and high density housing should be concentrated close to public transport, mixed use neighbourhoods, employment locations (except heavy industrial areas), public open spaces and schools. Increasing housing in and surrounding activity centres, station precincts and along urban corridors can reduce the need to travel, create community hubs and efficiently use existing infrastructure.

Activity centres

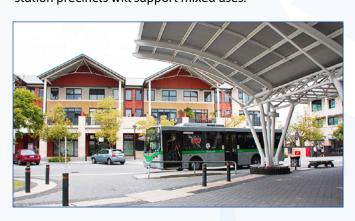
Activity centres are hubs for activities associated with commercial, retail, entertainment, tourism, civic and community, higher education and medical services. Activity centres vary in size from the local or neighbourhood centre to large city centres. Increased residential densities and housing types both in and surrounding these areas can provide a local population to support businesses and provide employment opportunities.

Increased housing will enable centres to become hubs for high frequency public transport to multiple destinations.





Station precincts are areas surrounding train stations and bus interchanges suitable for medium to high density mixed use and/or residential development. Higher densities should be concentrated within 800 metres or 10 to 15 minutes walk of any station precinct. Density and activity decrease at distances further from the station. Some of these areas that are close to existing centres will be more suitable for residential development. Other station precincts will support mixed uses.





Leederville is a traditional main street type of activity centre.



Subiaco station precinct is surrounded by high density housing, shops, offices and cafes.

fact sheet locations of medium and high density housing

Urban corridors

Perth's urban corridors are areas along existing and future high-quality public transport routes that link activity centres.

Higher density housing should be provided along urban corridors to benefit from close proximity to nearby centres and good public transport. Urban corridors should have excellent levels of public transport, both in terms of frequencies and destinations. They might have a bus rapid transit service and/or a number of bus routes that combine to provide high frequencies along the corridor. Higher densities along urban corridors will support measures such as bus lanes that prioritise public transport to increase service speeds and reliability.

Focusing higher densities along urban corridors creates vibrant streets, while leaving the character of the established suburbs intact. Transition areas can be used to gradually decrease densities towards established neighbourhoods. Examples of urban corridors include:

- Scarborough Beach Road links the activity centres
 of Mount Hawthorn, Glendalough, Stirling and
 Scarborough. Currently, there are numerous commerical
 and large format retail uses spread along the corridor. It
 is well serviced by public transport including numerous
 high-frequency bus services and Glendalough train
 station. The Perth- Glendalough to Scarborough
 Transperth 990 bus route is Perth's fourth most used
 route with over 1.1 million passengers per year. Due to
 the existing urban uses and transport services, planning
 for this corridor focuses on improving the streetscape for
 pedestrians, increasing residential densities and mixed
 uses.
- Morley Drive is an urban corridor connecting district centres Dianella and Main Street with Morley and is serviced by Transperth buses 887 and 889. Currently, it is predominantly low-density residential development between these centres. There is opportunity to increase residential densities along this corridor and facilitate improved local amenity.



A section through an urban corridor showing the relationship of the buildings to the streets and laneways.



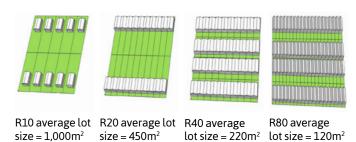
An artist's impression of the Glendalough light rail activity corridor, courtesy of the Scarborough Beach Road Activity Corridor Framework (WAPC 2013)



State Planning Policy 3.1 - Residential Design Codes sets out general requirements and standards controlling the density, siting and design of residential development in Western Australia. This policy should be referred to when preparing a development or subdivision application.

Residential site density

The R-Code number provides a guide to the number of dwellings allowed on a lot/area/block of land. In general, the higher the R-Code, the higher the density e.g. R20 = 20 dwellings per residential site hectare¹. The example below shows one hectare of land developed at different R-Codes. The higher the R-Code the smaller the lot size required for dwellings and therefore the more dwellings can be developed. Careful design is required for dwellings on small lots to reduce conflict with neighbours.



Local governments regulate density

Local planning schemes set out each local government's planning aims. Schemes set aside land as reserves for public purposes; zone land for specified uses (such as residential and commercial); and apply the R-Codes to control the density and form of residential development. The particular R-coding applied to any area of land is shown on the scheme map.



A typical local planning scheme map showing R-Codes and other land uses

The broad objectives of the R-Codes are to provide a range of different housing types and densities; protect the amenity of adjoining residential properties; and encourage appropriate design.

While the R-Code refers to a maximum density of development, it is still permissible to develop at a lower density.

Dual coding

Dual coding or split coding such as R30/R40 is used to allow the higher density if certain criteria are met such as:

- · amalgamation of lots to co-ordinate development; or
- · compliance with design guidelines.

Residential dwelling types

The R-Codes use the following residential categories:

Category	Description
Single dwellings e.g. traditional houses	A house that stands on its own freehold or survey strata lot.
Grouped dwellings e.g. terraced homes or villa units	A group of two or more dwellings on the same lot where no dwelling is placed wholly or partly vertically above the other. Includes common property.
Multiple dwellings e.g. apartments or maisonettes	A group of more than one dwelling on a lot where any part of a dwelling is vertically above part of any other dwelling and includes any dwellings above the ground floor in a mixed use development.
Special purpose dwellings e.g. granny flats or aged person dwellings	Includes ancillary dwelling, aged or dependent persons' dwelling or a single bedroom dwelling.

R-Code requirements for single and grouped dwellings

The R-Codes outline requirements for minimum site area, streetscape, building envelope and height, open space, boundary set-backs and privacy, amongst others.

Medium density codes apply to single or grouped dwellings			
R-Code	Average site area	Minimum % open space	Minimum setback from primary frontage
R40	220m²	45	4m
R50	180m²	40	2m
R60	150m ²	40	2m
R80	120m²	30	1m

Table is adapted from R-Codes: Table 1 – General site requirements for all single houses, all grouped dwellings and all multiple dwellings in areas coded less than R30.

¹ Dwellings per residential site hectare is explained in Fact sheet 4



Part 6 of the R-Codes: Multi-unit housing codes

Part 6 of the R-Codes outlines development standards for multiple dwellings in areas with a coding of R40 or greater and within mixed use developments or activity centres.

The R-Codes seek to encourage the development of multiple dwellings, particularly on land zoned R40-R80.

The R-Codes seek to improve the design standards and allow for proposals to be assessed on merit against performance criteria for increased flexibility. Plot ratio is used to guide density instead of minimum site area per dwelling.

Medium density R-Codes			
R-Code	Maximum plot ratio	Minimum % open space	Minimum setback from primary frontage
R40	0.6	45	4m
R50	0.6	45	2m
R60	0.7	45	2m
R80	1.0	as per LSP*	2m

Table is adapted from R-Codes: Table 4 – General site requirements for multiple dwellings in areas coded R40 or greater, within mixed use developments and/or activity centres. (*) Local structure plan.

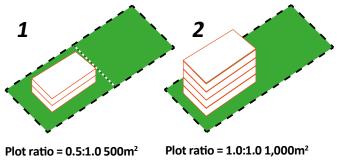
Plot ratio

Plot ratio compares a building's total floor area to the size of land it sits on. The formula for calculating the total allowable building floor area is:

Building's total floor area in square metres = Area of plot in square metres X plot ratio

Examples:

- A plot ratio of 0.5:1.0 indicates the floor area of the building is half the gross area of the lot.
- A plot ratio of 1.0:1.0 indicates that the total floor area of the building is equal to the gross area of the lot.



building: 1,000m2 lot (250m² per floor)

building: 1,000m2 lot (250m² per floor)

The R-AC codes regulate residential development within mixed use activity centres. An

activity centre is a planning

term used to describe either a city centre, town centre, local or neighbourhood centre. R-AC 0 allows for the highest buildings

R-AC zones for activity centres





URBAN CORE Heights as per structure plans







URBAN 6 to 9 storeys 3 to 6 storeys

1 - Image courtesy of Mirvac WA P/L

2 - Image courtesy of Ben Price/Gresley Abas Architects

What are the common types of ownership in Western Australia?

The three types of private residential land ownership in Western Australia are freehold, survey strata and strata lots. Landgate maintains the State's official register of land ownership.

Local government authorities and the Western Australian Planning Commission (WAPC) are responsible for the zoning, planning, subdivision and approval process.

Residential land ownership

Freehold title

The most common form of lots are freehold which are individually owned, generally totally independent from one another and issued with a certificate of title.

A freehold title, also referred to as green title, creates an individual land title for each lot. One lot, one title.

The lot usually contains a single dwelling, but can comprise grouped dwellings under the R-Codes.

Survey strata lots

Survey strata lots are individually owned but may or may not include common property such as driveways and communal open space (common courtyards).

A survey strata creates a number of individual land parcels on one freehold title.

The main difference between a survey strata and a freehold title is that common property and services can be shared between the lots.

- A dwelling on a survey strata lot without any associated common property is generally classified as a single house.
- A dwelling on a survey strata lot with associated common property is classified as a grouped dwelling.

Strata lots

Strata lots are individually owned and include common property. Strata lots include the building parcel and the land around the building parcel. A dwelling on a strata lot is classified as a grouped or multiple dwelling.

See Fact sheet 6 for a description of single, grouped and multiple dwellings in the R-Codes.



These apartments and townhouses in the The Maltings complex in Northbridge are strata titled and contain common property such as pool, access pathways and grounds.

Image courtesy of Australand

fact sheet ownership and subdivision

A lot may be subdivided in order to divide land into smaller ownership parcels. A subdivision application must be lodged with either the local government or the WAPC, depending on the type of subdivision.

The basic steps required to subdivide for purposes of a grouped dwelling or multiple dwelling development and create survey strata or strata titles are as follows:

- Check the local planning scheme for zoning. The minimum and average lot size requirement of the applicable R-Code is referenced in the Residential Design Codes, Table 1.
- Check that there are no restrictive covenants applying to the land, and if there are, attend to the resulting liabilities and obligations.
- Seek approval of the proposed development (usually both planning and building) through the local government. Construction of the development cannot commence until approval is in place and a building permit is issued.

- Once the buildings, fences and driveways have been fully completed, the strata plan is prepared by a licensed surveyor.
- If the proposal to strata title residential development contains a maximum of five lots and is 2,500 square metres or less, a preliminary application is made to the local government. Otherwise, the application is made to the WAPC.
- The local government or WAPC (as appropriate) may approve an application with or without conditions, or refuse an application.
- If approved, and once any conditions have been satisfied, the strata-survey or strata plan is lodged at Landgate.
- The local government and the WAPC (if applicable) will endorse a subdivision that has been certified correct by Landgate.
- The applicant can apply to Landgate for new titles.

Please note that other factors can complicate the process so it is advisable to always seek appropriate professional advice.

Adapted from Landgate's A Guide to Strata Titles in Western Australia. For more information on strata title, please consult Landgate to obtain a copy of the strata plan and seek advice.



A townhouse development in Claremont on a large lot showing common property including visitor parking and common driveway.

Image courtesy of Lime Street Projects

Public and communal open spaces are important for people living in medium to high density residential development. Private spaces tend to be smaller than the traditional backyard and people require larger areas for sporting, social and recreational needs.

Public open space

Public open space is required to be provided as part of the subdivision process. Shortfalls in the types of public open space within walking distance of the proposed development should be examined. Where public open space is difficult to accommodate on site, a cash-inlieu allocation may be accepted by local government. Opportunities for high-quality spaces and facilities to be shared with other local developments should be considered, rather than treating each development as a stand-alone entity.



The Maltings in Northbridge - communal open space overlooked by balconies.

Image courtesy of Australand

Private and communal open spaces

Open spaces should be designed to ensure they are useable and functional.

Communal open space design

The R-Codes encourage a percentage of the site for communal open space in higher density development. Rooftop gardens, terraces or pools can be designed for use by all residents. The function and size of communal open space will depend on the size of the development and the age and needs of the users. There is an opportunity to provide facilities that are unavailable in the surrounding area. Spaces need to be easily accessible and not 'left over' areas on a site. Communal open space should be:

- a sufficient size to allow a range of activities and uses throughout the year;
- located to provide a pleasant outlook for apartments and increased surveillance and safety;
- landscaped to allow for screening of pools and separation of different functions and planting should provide shade and shelter;
- designed for water cycle management and permeable areas for rainwater absorption;
- located to allow daylight access including roof gardens which provide access to sunlight not always available at lower levels or in a mixed use development;
- designed to consider ongoing maintenance of spaces; and
- · accessible to people of all ages and capabilities.



Public open space in Subiaco, with accessible walkways and seating.

Private open space design

The R-Codes require minimum private open space areas for dwellings. Private open space provides a place to relax, eat and entertain. It can be designed as an extension of living spaces. Courtyards, balconies, gardens and terraces should be of sufficient size and shape to be functional.

Design considerations include:

- balconies at least 2.4 metres deep to provide sufficient space for a table and chairs;
- overlooking communal space, the street or other view to improve passive surveillance;
- ensuring privacy through plantings, screens or fences;
- responsive to the climate and if possible, oriented to the north for winter sun; and
- balconies should have screens, sun shades or be recessed or partially recessed to provide weather protection, daylight control and visual privacy.



A private courtyard and balcony in a townhouse development, Quinns Rocks.

Image courtesy of Webb and Brown-Neaves.



Communal facilities such as swimming pools and gyms, shuttered balconies to allow for privacy and landscaping contribute to the amentiy of the open space in higher density developments.

Image courtesy of Brookfield Claremont P/L and SPB (Australia) P/L.

Infill development is more intensive than existing adjacent development so design and location need to be considered with sensitivity. Protecting amenities and privacy of existing dwellings needs to be balanced with opportunities to provide higher density.

All new development proposals must consider the site context and respond to local character through architectural features and setbacks that contribute to the streetscape. In areas undergoing change, there is a need to examine how the development will fit into the emerging pattern of development, or future streetscape.

Context is the character and setting of an area in which a proposed development will be located. Context includes the natural environment, buildings, spaces, streets and landscape.



Neighbourhood context

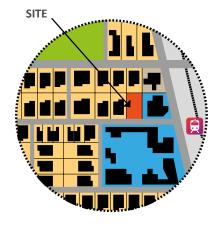
Consider the proposed development within the planning framework of the locality including:

- · zoning in the local planning scheme;
- · existing and proposed land uses;
- local planning scheme clauses, local planning strategies and any existing structure plans;
- any detailed planning undertaken previously; and
- infrastructure capacity and potential for augmentation.

Height and context

Higher building heights can be designed to suit the local character and surrounding built form. For example, in an area where there is generally three storeys, the built form can respond with a street frontage of three storeys and set back additional storeys.

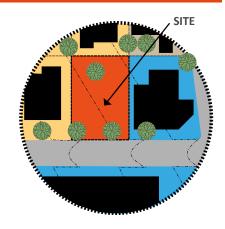
Similar setbacks as surrounding developments should be adopted to help integrate the new development and add to the urban character. Variations in setback can be justified if the design makes a positive contribution.



Street context

Consider the existing character and features of the immediate area including:

- · distribution and mix of uses;
- subdivision pattern;
- scale and setting of adjoining built form;
- impacts from and to adjoining land uses:
- building form, materials and finishes;
- street design and proportions;
- public spaces; and
- distinctive heritage features or character.



Site context

Investigate the site and the relationships with the adjoining lots and assess:

- building setbacks and separation;
- · open space and landscaping;
- orientation to sunlight, views etc.;
- existing topography and vegetation;
- views to and from public spaces;
 and
- location of existing car parking including on-street parking.



Streetscape

Streetscape refers to the visual elements of a street, including the road, adjoining buildings, street furniture, trees and open spaces that combine to form a particular street's character.

The design of medium to high residential development should reinforce the streetscape character by creating a strong connection to the street and its surroundings.

Larger sites should be designed to interconnect streets and allow for pedestrian and cycle movement through the site.

The streetscape can be enhanced by providing active frontages which contribute to a pedestrian-friendly environment. Active frontages are those facades of the building which face the street and exhibit the following built form:

- · frequent entries and windows with minimal blank walls;
- · legible entries from public streets and places;
- Balconies and windows overlooking the streetscape

 Well-lit footpaths and low plantings allow for site lines to remain clear

 Building Footpath On street parking

Surveillance and sight lines - maximising casual surveillance increases a sense of safety and can deter criminal activity.



Street surveillance is maintained in these terraced homes in Nedlands through windows and balconies overlooking the street.

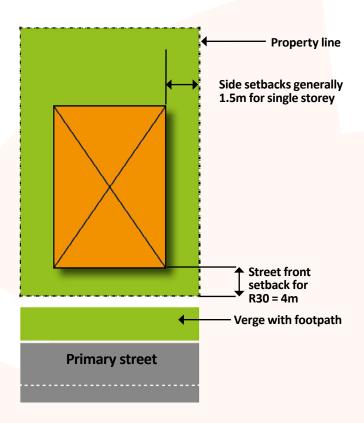
- a highly transparent division between public and private domain;
- a high degree of visibility from and into the building allowing for passive surveillance; and
- minimise the prominence of car parks.

Buildings should be designed to provide features such as balconies and windows which overlook the street and laneways and allow for casual surveillance. Clear sight lines provide an individual with both a perception of safety and adequate space to react to possible threats¹.

Street setbacks

The R-Codes regulate the distance the building has to be setback from the street and lot boundaries to the side and rear of the property. A consistent front setback ensures an orderly streetscape. Overlooking and overshadowing are avoided by setbacks from side and rear boundaries.

Setbacks vary according to the wall length, openings for window or doors and building height. The diagram below shows setbacks for multiple dwellings in areas coded R30:



¹ Designing Out Crime Guidelines (WAPC 2006)

An ancillary dwelling or 'granny flat' is self-contained accommodation on the same lot as a single house, which may or may not be physically attached. 'Fonzie flats' are ancillary dwellings over existing or planned garages.

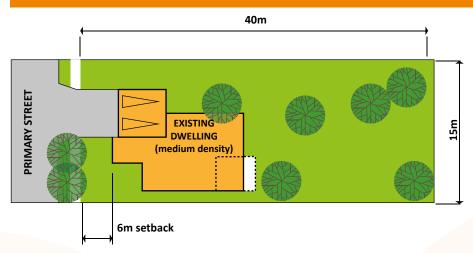
In the past, planning regulations restricted occupancy of ancillary dwellings to family members only. The 2013 Residential Design Codes (R-Codes) removed occupancy restrictions and also increased the maximum allowable floor area to 70 square metres. In some cases, where the local government planning scheme allows, ancillary dwellings can be built without the need to gain planning approval.

Ancillary dwellings provide opportunities for owners of the existing home to down-size or create a source of rental income. These dwellings can be designed to suit aged occupants allowing people to remain living in a familiar suburb and surroundings while maintaining their independence. Ancillary dwellings can be pre-manufactured or built to specifications onsite.



Granny flat

Example of 600 square metre lot



Before development

Existing 600 square metre lot, zoned R20 with a single house fronting a primary street.

Planning requirements for an ancillary dwelling

- · Minimum 450 square metre lot required.
- Maximum floor space allowed is 70 square metres.
- Setback from primary street by six metres, 1.5 metres from the secondary street and 1.5 metres from side and rear boundaries.
- Six metres maximum height to the top of the external
 wall

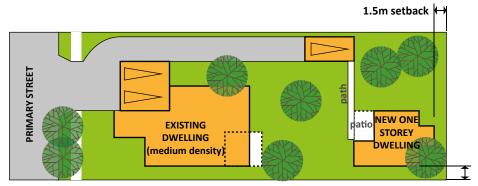
Considerations

- Universal access for occupation by disabled or aged persons.
- · Design similar to the primary house.
- Access is needed from either a laneway or from the street at the front of the property.
- Adequate private outdoor living space for occupants of ancillary dwellings.

Planning process

If the proposal meets the deemed-to-comply provisions of the R-Codes for ancillary dwellings then planning approval may not be required. This should be verified with the local government at the outset of the process. All proposals will still require a building permit from the local government.

'Fonzie flats' or ancillary dwellings located on the first level of a garage would require planning approval from local government to ensure adverse impacts such as overlooking are avoided.



1.5m setback

After development

A 600 square metre lot zoned R20 with an existing single family house and a 70 square metres granny flat located at the rear of the property.

Granny flat

This layout includes access by an extension to the existing driveway and one car space. A one storey, two bedroom, one bathroom granny flat shares some site facilities and services such as open space, sewerage, electricity and local government waste services.

The ancillary dwelling has independent living spaces consisting of living and dining area, kitchen, laundry and private patio for occupants.





Image courtesy of Granny Flats WA



Interior layout for 70 square metre granny flat with two bedrooms, one bathroom, kitchen with laundry cupboard and combined living and dining.

(Not to scale)



Interior layout for 40 square metre 'Fonzie' flat over two car garage with one bedroom, one bathroom, kitchen and living room and exterior access stairs.

(Not to scale)

fact sheet how to develop a laneway lot in an established area

Laneway lots can accommodate the development of small dwellings that maintain the primary character and feel of the neighbourhood while providing diversity and lower-cost housing. Comprehensive planning is needed prior to the redevelopment of infill laneways to ensure high-quality outcomes. Local government should consider the coordination and staging of lane upgrades for additional dwellings. The following key elements would need to be addressed:

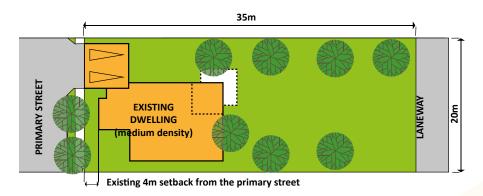
- · laneway condition, upgrades required and maintenance;
- · laneway provision for utilities and emergency services;
- · public street lighting;
- laneway traffic design/ speed control for vehicles, cyclist and pedestrian accessibility and safety; and
- · limiting laneway houses to one car bay.

Laneways in established residential areas may range from 3.5 metres to six metres wide and may be subject to several different ownership arrangements. Housing can make laneways safer by providing living spaces which increase surveillance. Large dwellings on laneways are not encouraged, as the scale and bulk is too intensive with the potential to cause issues such as overlooking.



Laneway development

Example of 700 square metre lot with rear laneway access



Before development

A 700 square metre lot zoned R30 with a single house facing a primary street with rear laneway, five metres wide.

Planning requirements for laneway house

- Minimum lot size of 260 square metres is required for a new dwelling and minimum open space of 45 per cent.
- A setback of 1.5 metres from laneway and 1.5 metres from side and rear boundaries.
- Six metres maximum height to the top of the external wall.
- · Three metres maximum height for a built-to-boundary wall.

Considerations

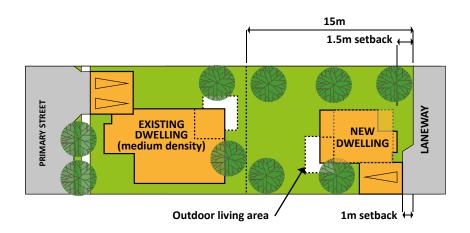
- Maintain modest building envelope with relief from boundaries and edge heights to avoid undue bulk; consistent with typical rear outbuildings; and avoid undue overshadowing.
- Windows or balconies should be overlooking the laneway.
- · Lighting outside housing for safety purposes.
- Front doorways should be set back so residents can walk onto the laneway without stepping into traffic.
- Upper level side windows facing gardens should be designed to increase privacy and reduce overlooking.

Planning process

This development would require a subdivision application to create two lots. The application is to be made to the WAPC in the case of a freehold subdivision.

If the subdivision application is approved, a development application for the laneway house would need to be lodged with local government

A building permit from local government would be required for construction.



After development

Development could result in two lots, one 400 square metre lot (the existing house) and one 300 square metre lot (the new laneway house).

A two storey house with three bedrooms, two

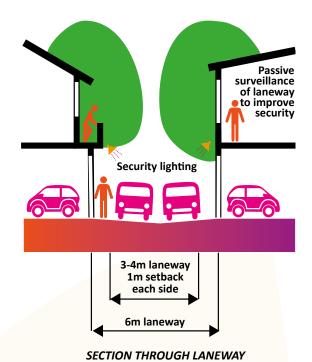
bathrooms and a one car garage with access off the laneway could be developed. This house could be built to the boundary with the garage side stepping down to one storey with walls not higher than 3.5 metres.

One car space would be appropriate for development on short laneways, where residents can easily walk to on-street car parking in adjacent streets.

Achieved density is R35.



Laneway development in Doubleview



Vehicle access arrangements in three to four metre-wide lanes have challenges in terms of two-way movement and manoeuvring vehicles. Design must allow for adequate vehicle movement and garage access. For example, a one metre setback can be required on each side of the laneway.

Corner lots offer a unique opportunity to develop multi-units without imposing on neighbouring developments. Corner lots have access from two streets which makes provision of multi-unit parking requirements much easier than mid-block developments. Well designed corner lots can create notable local landmarks and provide a means to orientate the neighbourhood.

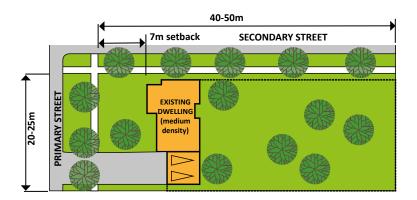
This example shows how a corner lot zoned R40 could be developed using *Part 6 of the R-Codes* i.e. the multi-unit housing codes, to achieve greater housing diversity in an established suburban setting.

Local government could provide dual coding for large corner lots to encourage holistic development of the entire block at a higher density rather than battleaxe subdivision (development of a lot behind an existing dwelling).



A 'modern' maisonette in Perth.

Example of quarter acre corner lot



Before development

A 1,012 square metre (quarter acre) lot zoned R40 with a single house fronting the primary street.

Planning requirements to develop a maisonette

- Minimum open space of 45 per cent.
- Maximum plot ratio is 0.6 and maximum floor space of development is 607 square metres under Part 6 of the R-codes.
- Minimum of four metres setback from the primary street and 1 metre from the secondary street.
- Six metres maximum height to the top of the external wall.
- Address both street frontages with balconies and windows for visual amenity and security.
- Provide a built form which fits into the suburban neighbourhood. For example, a maisonette style building looks like one house but is made up of multiple units.

Considerations

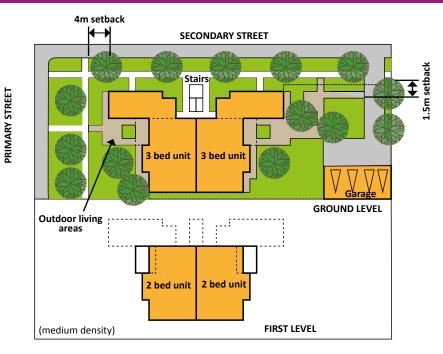
- Architectural features which wrap the corner, appropriate landscaping on both street frontages and visually transparent fencing is necessary.
- Locate garages off the secondary street and combine crossovers to allow for street trees and setbacks which conform to existing neighbourhood character.
- Landscape common areas to provide for private spaces and public spaces to be easily identified.

Planning process

For development of a maisonette, demolition would be required and development applications to be lodged with local government. If approved, a building permit from local government would be required to commence construction.

After construction, an application to the relevant authority for strata title would be required to sell the apartments.

See Fact sheet 7 for information about ownership and subdivision.



After development

Development could result in a two storey maisonette building with:

 two 200 square metre three bedroom units on the ground level and two 100 square metre two bedroom units on the first level;

Maisonette development

- shared garaging for up to four cars;
- communal open space, private open space in the form of courtyards on the ground floor and balconies for the first floor; and
- common facilities such as site access and waste services are provided.
- · Achieved density is R25.



An example of a traditional maisonette building in Nedlands.



An example of a maisonette floor layout with two, two-bedroom apartments per floor.

fact sheet how to develop amalgamated lots

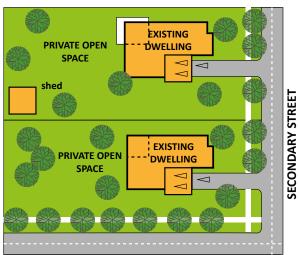
Amalgamating lots to create one large lot in existing suburbs to develop multi-unit housing is gaining popularity. Larger lots provide a larger area for redevelopment which can lead to better overall design outcomes. This can provide an alternative to increasing battleaxe subdivisions in an established neighbourhood. Amalgamation can provide the opportunity to construct a variety of townhouses, terraced homes, walk up apartments or villa units.

Local government could consider dual coding or density bonuses as development incentives. Removing access from primary roads would result in better access arrangements and improve the streetscape.



Townhouse development on amalgamated lots in Claremont, courtesy of Lime St Projects (WA).

Example of amalgamated quarter acre lots



PRIMARY STREET

Planning process

- To amalgamate the two lots into one, an application would need to be submitted to the WAPC.
- If approved, demolition and development applications for terraced houses or apartments would then need to be submitted to the local government.
- A building permit from the local government would then be required before construction could commence.
- Once constructed, application could be made to either survey-strata (terraced houses) or strata (apartments) subdivide the dwellings.

Before

Planning

requirements

Two 1,012 square metre blocks, zoned R60 with existing single houses fronting a secondary street.

To develop terraced homes:

- Part 5 of the R-Codes is used.
- Minimum site area for each house is 120 square metres.
- Minimum public open space of 40 per cent, and 16 square metres of private open space for each house.
- Two metres primary street setback and one metre secondary street setback.
- Six metres maximum height to top of external wall.

To develop apartments:

- · Part 6 of the R-Codes is used.
- Maximum plot ratio of 0.7 is permitted and maximum floor space is 1,416 square metres.
- Minimum area of 10 square metres private open space per unit (courtyard or balcony) is required.
- Two metres primary street setback and two metres secondary street setback.
- Minimum open space 45 per cent.
- Nine metres maximum height to top of external wall.

· Address both street frontages with balconies and windows.

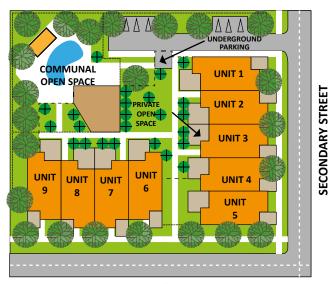
• Provide a built form which fits into the suburban neighbourhood.

Considerations

- Architectural features which wrap the corner, appropriate landscaping on both street frontages and attention to any necessary fencing contribute to a well-designed development.
- Locating parking behind the buildings or underground parking can free up space for open space.

fact sheet how to develop amalgamated lots

Towards Perth and Peel@3.5million DIVERSE CITY BY DESIGN



PRIMARY STREET

After development - terraced homes

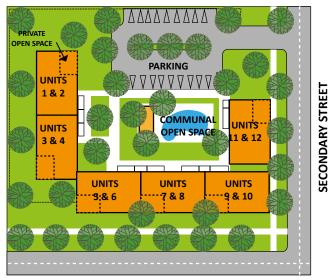
Development could result in nine lots of 135 square metres. Each lot has a 175 square metre two storey, three bedroom terraced home with common walls.

Terraced home development

Open space is provided through communal facilities and private courtyards and balconies for each dwelling.

Underground parking would be preferable dependant on feasibility. Visitor parking is provided at-grade.

Achieved density is R45.



PRIMARY STREET

After development - apartments

Development could result in one lot with 12, two storey apartment buildings. The apartments could contain a mix of four one-bedroom units of 75 square metres each; six two-bedroom units of 100 square metres each; and two three-bedroom units of 150 square metres each.

Apartment development

Communal outdoor living space is provided with private open space provided by balconies and courtyards.

At-grade parking is behind building facades in a landscaped area. Visitor parking is provided. Depending on location and land value, parking could be covered or underground.

Achieved density is R60.



Echo Collection, Swanbourne, terraced homes by Mirvac - developed at R30 using Part 5 of the R-Codes.

Image courtesy of Mirvac WA P/L

Adapted from: 'Housing Options' (Town of Cambridge)

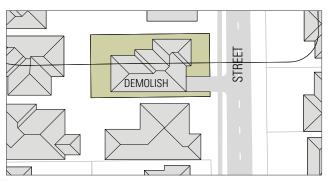
Two in One Home

The concept of a two in one home is a response to growing housing pressures and changinig circumstances in families. The home would be built as a single dwelling but would be designed to accommodate separate living quarters, either now or later on through minor changes to the building. Alternatively, the separate living quarters could be combined to accommodate a larger family. This option provides flexibility for families as they get bigger, intergenerational families or as people wish to downsize.

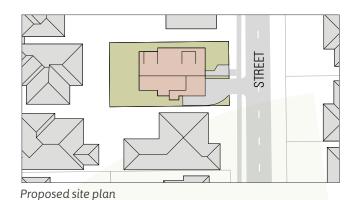
Important note: Certain design features illustrated in these concepts would require a performance assessment and approval by Council.



Artist impression



Existing site plan







The two in one home concept would generally be more suited to a large house on larger sized lots, but the concept can be applied to any suburb of the Town of Cambridge, without any changes to current planning rules. It can apply to both single and two storey developments.

By considering how a large single house can be retrofitted in the future to accommodate a second home, it is likely that future changes to the building would be relatively minor and more affordable. In some cases, an existing house could be converted to create a second home, but ideally the house should be designed to enable such a conversion.

While it may accommodate two homes, the building must remain on a single title and cannot be strata titled or sold as two separate dwellings unless planning rules are changed.

Note:

If a property is not connected to the sewer the WA Health Department may impose restrictions on the number of bathrooms and the number of people living on the property. This is to ensure that waste water can be adequately captured on-site. The land area will have a bearing on the capacity to store waste water.

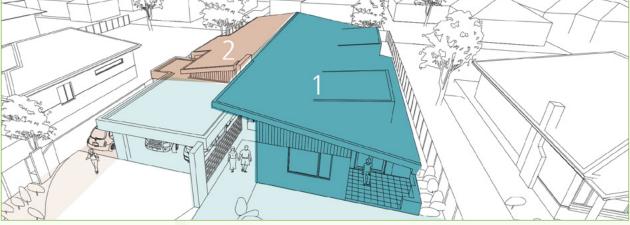
- 1. Entry
- 2. Kitchen
- 3. Living
- 4. Dining
- 5. Bedroom
- 6. Bathroom
- 7. Ensuite
- 8. Powder Room
- 9. Study
- 10. Laundry
- 11. Outdoor Livinig
- 12. Storage
- 13. Parkinig
- 14. Lift
- 15. Bin storage
- 16. Bike storage



Single dwelling - Ground floor plan



Future scenario - Ground floor plan



Future scenario - Diagram showing separate living quarters

Term	Definition
Average household size	Average number of persons living together in one house, also known as household occupancy rate.
Bus rapid transit	Higher frequency bus services with the capacity to move a greater volume of people during peak travel times. These services are given priority over other road users along sections of their route. Priority measures include dedicated bus lanes, traffic lights or bus-only turning lanes.
Common property	Property that is jointly owned by all of the owners in the strata or survey strata scheme and not contained within any individual lot.
Deemed-to- comply	The Residential Design Codes (R-Codes) have a set of standards under Part 5 for single houses, known as deemed-to-comply provisions. The R-Codes do not require planning approval for single houses that fully comply with deemed-to-comply provisions.
Development	 Development or use of any land including: Any demolition, erection, construction, alteration of, or addition to, any building or structure on the land. The carrying out of any excavation or other works on the land. Under the "Heritage Act 1990" which applies to any act or thing that is likely to change the character of that place or the external appearance of any buildings, or, would constitute an irreversible alteration of the fabric of any building.
Development control policy	Development control policies are operational policies of the Western Australian Planning Commission (WAPC) used in determining applications for the subdivision of land and development applications.
Liveable Neighbourhoods	Liveable Neighbourhoods is a WAPC operational policy for the design and assessment of structure plans; subdivision of greenfield sites; and for the redevelopment of large brownfield and urban infill sites. In general, Liveable Neighbourhoods replaces the current development control policies. Where there is conflict with existing development control policies, Liveable Neighbourhoods will prevail unless an applicant can demonstrate why the relevant Liveable Neighbourhoods policy cannot or should not apply.
Local planning scheme	Each local government's local planning scheme sets out the planning rules and aims for the scheme area, and implements the local planning strategy. A scheme will set aside land as reserves for public purposes; zone land within the scheme area; control and guide land use and development; make provision for the administration and enforcement of the scheme; and provide for such other matters as set out in Schedule 7 of the Western Australian Planning and Development Act 2005.
Local planning strategy	A local planning strategy sets out the local government's objectives for long-term future planning and includes a broad framework for local planning and the strategic basis by which to pursue those objectives. It provides the interface between regional and local planning, and is increasingly being seen by other agencies as the means to address economic, resource management, environmental and social issues at a strategic level.
Mixed use	Mixed use development comprises a mixture of two or more land uses such as residential, retail, commercial or community uses, either within a single building (horizontally or vertically) or multiple buildings within a distinct development site.
Open space	Open space is outdoor space, including a driveway or a space that is open for public access or recreation.
Public open space	Public open space is publicly accessible land set aside for the purpose of public enjoyment and protection of unique, environmental, social and cultural values for existing and future generations.

Region planning schemes e.g. Metropolitan Region Scheme.	A region scheme is prepared by the WAPC and sets important directions for local planning by establishing a broad pattern of land use and associated transport infrastructure. Where a statutory region scheme applies, the pattern of land use and any relevant provisions need to be reflected in the local planning scheme.
Reservation	Reservation of land is generally used to identify a significant public use of land, where there is an intention to acquire land for such use or where a level of assurance about the future public use of land is sought such as for schools and hospitals.
Statutory	A requirement stated in written law (e.g. an Act or regulation).
Storey	A storey represents a floor to ceiling measurement which for a residential dwelling, and 2.7 metres is considered a common standard for a ceiling height.
State planning policy	State planning policies are prepared and adopted by the WAPC under statutory procedures set out in part 3 of the <i>Planning and Development Act 2005</i> . The process of preparing a state planning policy also includes public consultation and consideration by the Planning Minister and the Governor. Statements of <i>Planning Policy No. 1</i> : sets out the State Planning Framework which unifies State and regional policies within a central framework and provides context for decision-making on land use and development in Western Australia. State planning policies deal with key sectors of the framework relating to environment and natural resources, urban growth and settlement, economy and employment, transport and infrastructure and regional development. The WAPC and local government must have 'due regard' to the provisions of state planning policies when preparing or amending local planning schemes and when making decisions on planning matters.
Structure plan	A structure plan provides a framework for the coordinated provision and arrangement of future land use, subdivision and development in new urban areas (greenfield sites) and in existing developed/redevelopment areas (brownfield sites). It considers the provision of transport networks, public open space (POS), utility and service networks, urban water management, development standards and community and other infrastructure investment and staging programs. There are four types of structure plans: Sub-regional District Local Activity centre
Universal design	Universal design is the design of products and environments that are inherently accessible to all, including older people and people with disability.
Zone	The 'zone' controls what land may be used for and how it may be developed. In each zone there is usually a range of uses that may be permitted and some that are specifically prohibited.

Acronym	Definition
ABS	Australian Bureau of Statistics
dw/ha	Dwellings per hectare
MRA	Metropolitan Redevelopment Authority
POS	Public Open Space
REIWA	Real Estate Institute of Western Australia
WAPC	Western Australian Planning Commission