



Bowral South New Living Area

Urban Design Principles for Master Planning

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Bowral South – Urban Design Principles

Introduction

This report explores the application of key urban design principles for the master planning of the New Living area of Bowral South.

The intention is to develop a master plan which displays the best practice of sustainable, mixed-use, compact urban development as opposed to the trend to develop low density urban sprawl. Given the congested nature of the existing Bowral town centre, the master plan must deliver a new village centre, one which complements the town centre rather than setting up competition with that centre. It does however need to be well-located to give the future local population access to the widest possible services.

Why compact urban development?

Uncontrolled urban expansion creates negative impacts, such as higher infrastructure costs and diminished energy and resource efficiency. It can also result in further encroachment on agricultural land, forests, open space or wetlands, with a corresponding loss of the economic, recreational and ecological values provided by those ecosystems. Maintaining a physical separation of the Bowral township from Mittagong and Moss Vale is a reason to reduce sprawling development in favour of more land-efficient compact urban development. Low density suburban sprawl reduces the viability of a public transport service, entrenching car dependence. Longer commuting times without affordable public transport systems diminishes access to jobs and services for many residents. The Wingecarribee River also forms a physical boundary of the town, avoiding further development.

Compact urban form, characterised by dense and proximate development patterns linked by public transport systems and with accessibility to local services and jobs, can counteract such negative impacts and maximise the economic, social and environmental potential of towns. It is associated with a wide range of urban benefits, including increased productivity due to agglomeration economies, improved accessibility to urban services, reduced travel times, and a smaller ecological footprint due to lower energy and land consumption.

However, if not managed well, compact settlements can result in potentially adverse effects related to increased density such as traffic congestion, air pollution and loss of recreational spaces, and higher land values and housing costs disproportionately affect renters, first time buyers and low-income



Figure 1. The Bowral South New Living area. Bong Bong Picnic Racecourse to the east, the Wingecarribee River to the south, Eridge Park Road to the west, and Kangaloon Road to the north. (Aerial image source: *Nearmap*)

households. To successfully harness the benefits of compact settlements while avoiding trade-offs calls for comprehensive and tailored policy interventions.

1

Principle One – Develop a compact urban structure focussed and supporting a village centre which provides residents with a wide range of services.

A well-located village centre should deliver the widest range of local services and facilities to limit the need for residents to travel elsewhere for these. This will reduce car dependence, and give the future community choices as to how they access services. The urban structure should be designed to ensure that a high level of economic and social activity characterises the activity centre by creating meaningful and regular connections to the centre.

Typical sprawl development entrenches car dependence. Through planning policy, regulation and practice, we have made Australia vulnerable to significant global changes such as climate change, and local challenges such as exponentially increasing budget costs associated with mental health, loneliness and obesity.

The planning of our owns has a direct effect on the potential to reduce these costs to society. We can design and build places which reduce the need for motorised travel, which are compact and walkable. Walking should be a joyful activity and not a chore.

We need to build places which reduce social isolation, and give people a sense of community and belonging.

The development industry responds to exemplars. We need exemplars to demonstrate that there is a better and more efficient way to develop our urban places.

Pragmatic changes to regulation must accompany this effort if we are to escape from entrenched increases in health and climate change-related expenditure.

As mentioned above, a centre with services enables local residents to meet their basic needs without incurring travel. This has many positive social effects beyond reducing mental health challenges and obesity. People are able to remain in their communities without having to spend time travelling. More time in the local community supports family life, sporting clubs, volunteering groups and so on. Reduced need for travel has an obvious environmental benefit.

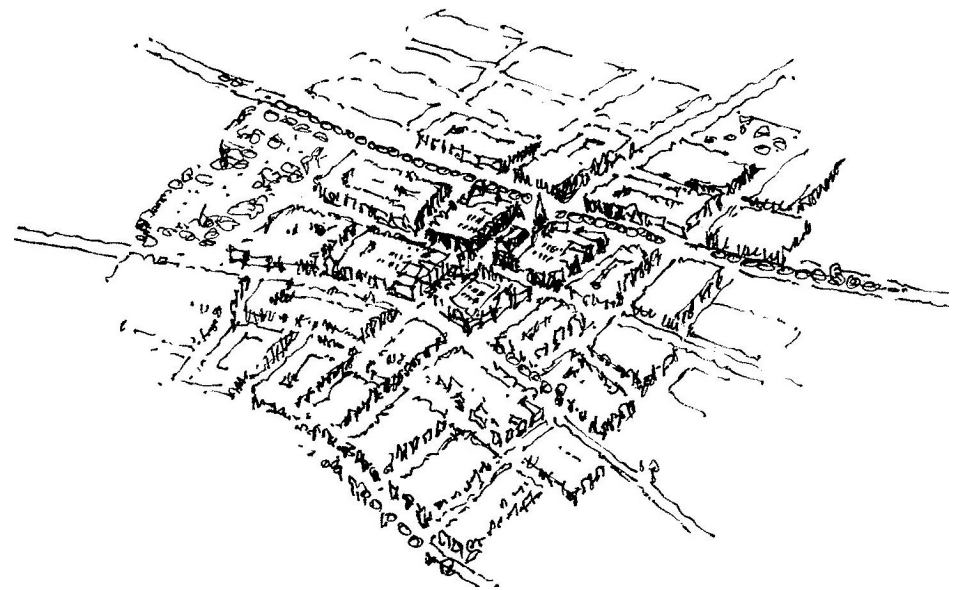


Figure 2. Typical urban structure supporting the efficient function of a compact village centre with streets and a variety of housing types supporting a centre.

2

Principle Two – Ensure that the village centre is well located on or near key movement corridors to attract passing trade as well as serve the local population.

As every retailer knows, footfall is vital to the viability of shops. For this reason, exposure to regional roads, and local collector roads is essential for a centre at Bowral South to thrive. In addition, local connections should serve walking and cycling access to the centre.

Given that retail is the most public of land uses, it is essential that retail performs well, and so location of the centre is critical to its economic, and social performance. The centre should be located where it has the highest possible exposure to movement, so that the widest possible range of viable services is available to the future local residential population.

While the centre will serve a local population, its location must be such that it is exposed to regional movement or “passing trade”. This is important if the widest possible range of services is to be delivered.

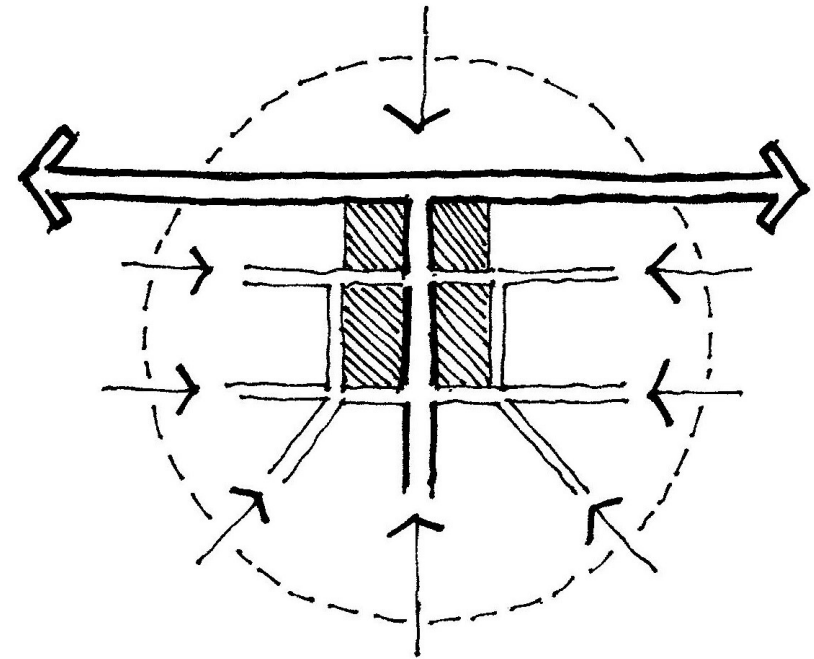


Figure 3. Diagram indicating (hatched) village centre benefitting from exposure to regional movement routes, and with frequent local connections to the centre.



Figure 4. Examples of centers benefitting from location near regional movement routes.

L-R, Bowral, Berry and Picton

3

Principle Three – Opening up the Wingecarribee River front as a public asset for public recreational areas and large open spaces.

The Wingecarribee River is a great asset within the Bowral South New Living Area. It's a great opportunity to bring the river front into public ownership while planning for development in this area. The river front can be used as a public recreational space, promoting active transport by providing bicycle paths along the river and maintaining the views to rural landscape across the river.

This also provides an opportunity to contribute positively to the amenity and liveability of Bowral South and achieve one of Council's long-term aims of providing a cycleway and public open space along the Wingecarribee River to connect with the existing cycleway networks.

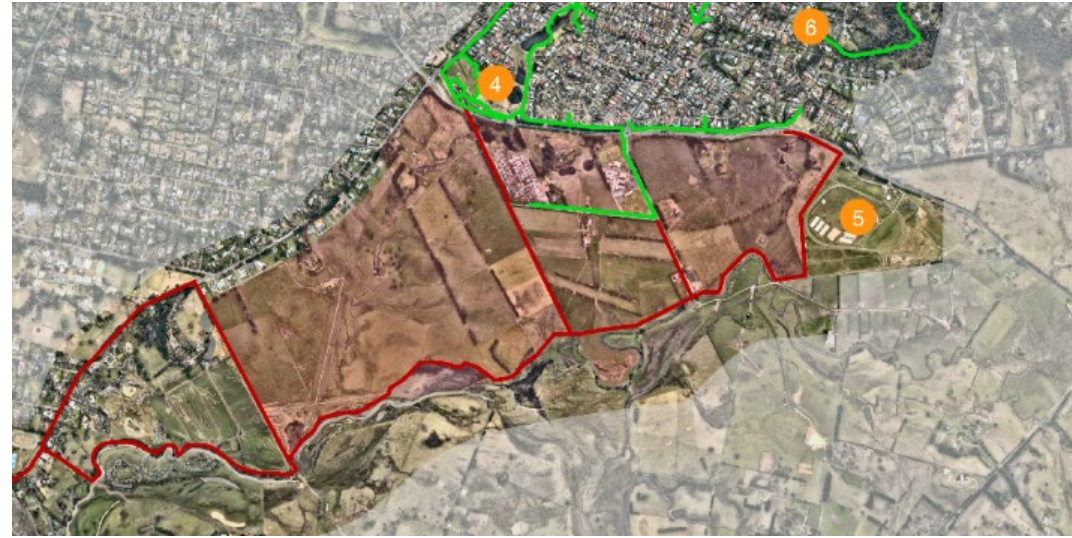


Figure 5. Diagram indicating potential bike paths through Bowral South New Living Area to connect to other parts of the Shire.



Figure 6. Examples of cycleways and Nature Based Play spaces along the river front.

4

Principle Four – Ensure the village centre is well connected to its residential catchment and located to ensure sufficient local movement of all modes of movement, (including walking cycling driving and public transport) to maintain an active and vibrant centre.

Apply the “tail of the comet” principle relating to the location of the village centre relative to its residential catchment.

Local connectivity along safe streets and pathways will enable walking and cycling to be a viable option to car use. This is important if communities have this option, which not only creates the potential for social interaction and the reduction in social isolation, but also contributes towards reducing harmful emissions contributing to climate change.

Development along key connections must provide a high level of “passive surveillance” to not only ensure safety of walkers, but also support the perception of a safe walking environment. Walking should be a pleasurable pursuit rather than a chore. (See also Principle 6.)

Key connecting streets are to be designed to make safe and pleasurable movement along them for all potential users, including people walking, cycling, motorists and public transport users.

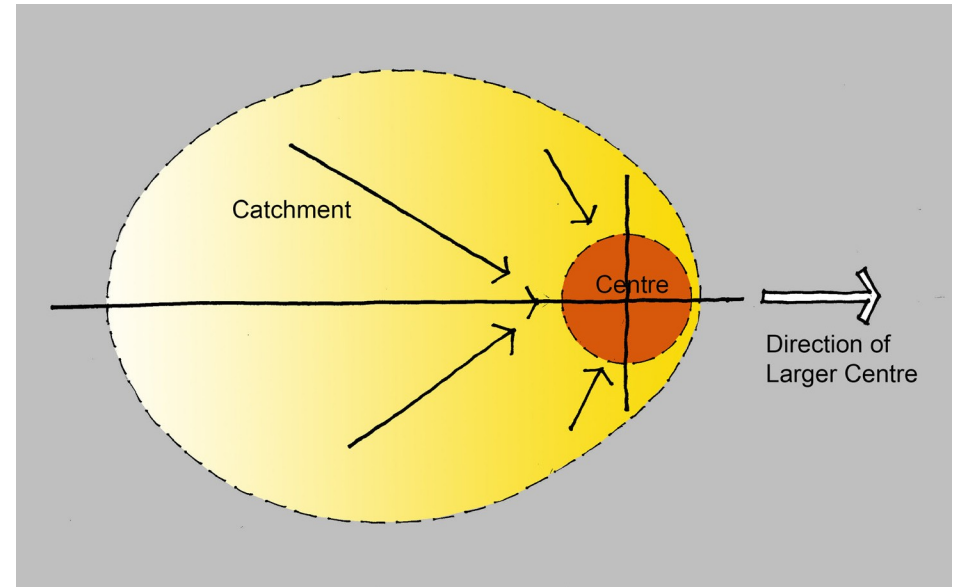
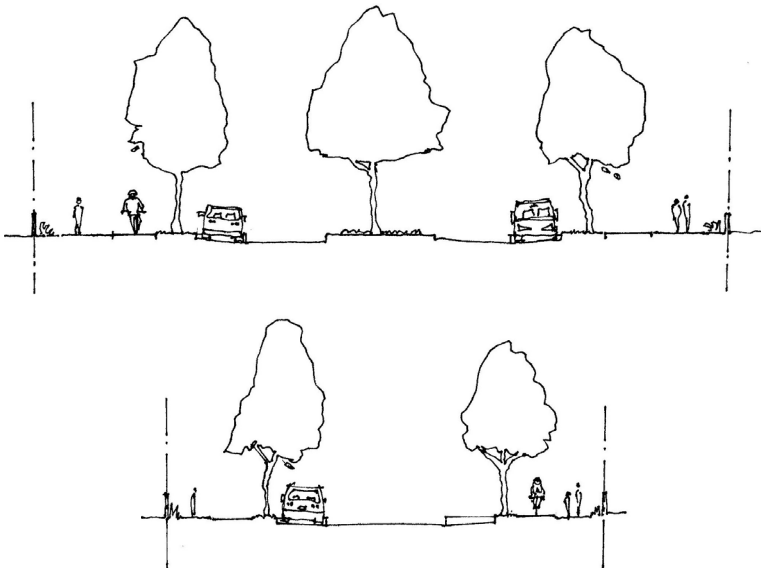


Figure 7. The “Tail of the Comet” concept where the centre is placed strategically within its residential catchment to attract and capture both local and passing trade.

Figure 8. Notional cross-section of a well-balanced connecting street accommodating multiple modes of movement safely and with high natural amenity.

Figure 9. Notional cross-section of a well-balanced local street accommodating multiple modes of movement safely and with high natural amenity.

5

Principle Five – Ensure that the urban structure immediately around the village centre includes provisions to support the delivery of a diversity of housing types.

To achieve a variety of dwelling types, there are a number of factors which induce this variety. This goes beyond conventional housing being delivered in most growth areas across New South Wales. These are:

- Proximity to a village or town centre enabling the potential to walk to that centre to access services and social contact. Typically, this is defined by an area approximately 400-600 metres from the centre, depending on topography.
- Proximity to green open spaces and parks. Typically, these are properties which face directly onto open spaces and parks.

Within 400-600 metres of a town centre, the subdivision of land should support a wide diversity of dwelling types. This should at least include:

- Detached single family homes
- Townhouses
- Studio units above garages, with laneway access
- Courtyard housing
- Duplex homes
- Terrace homes
- Side-yard homes
- Live-work homes
- Multiplex homes, and
- Shop-top" dwellings

Subdivision should go hand-in-hand with urban structure to deliver this diversity. Within 400-600 metres of the town centre, where narrow lots are intended, rear lanes must be provided to ensure vehicle parking is located behind dwellings in order to reduce the visual dominance of garage doors and parked cars in streets.

When rear lanes are provided, garages must be located to the rear of the property with access from the lane, and not the street. Lanes must be dimensioned to prevent parking in the lane which interrupts the efficient collection of waste by garbage vehicles.

To achieve a level of passive surveillance in lanes, studio units above garages should be provided in key locations to contribute to activity and safety in lanes.



Figure 10. Examples of “Missing Middle” house types. (Image source: Daniel Parolek & Arthur C. Nelson)

6

Principle Six – Create an interconnected network of streets which gives people choice of movement, which in turn increases personal safety by reducing predictability of movement – especially for people walking and cycling.

The infrastructure network must make provision for active transport with parallel routes to activity centres, community facilities, sport and recreation venues, and for regional cycling.

The great benefit of a network of streets, is that traffic is not concentrated, allowing development to be characterized by “skinny streets” and not multi-lane roads.

Included in this network of streets should be a variety of spaces for people to pause and gather. This includes small pocket parks, local squares, and town centre plazas.

All streets must be accessible to the widest possible range of users, and be designed to balance the needs of all users.



Figure 11. The centre of Bowral is characterised by an inter-connected network of streets. This is an essential component of the urban DNA of Bowral which should be repeated in the Bowral South New Living area. (Image source: Nearmap)

7

Principle Seven – Ensure that houses on streets which link to the village centre enable social interaction with the people on the street, to support walking and cycling amenity and safety by providing a strong sense of “eyes on the street”.

Houses along key linking streets must maximise activation of those streets by providing occupiable verandahs at the front of the house, and use these architectural features to increase social connections within the community.

The objective is to ensure that informal connection between home occupants and passers-by is possible and not prevented by the design of the dwelling. This possibility is further enhanced when the floor level of verandah is raised above the footpath in the street. This ensures that people seated on the verandah feel comfortable being there as their eye level is above that of passers-by.

When that relationship is inverted, people are reluctant to sit on the verandah, thereby reducing the opportunity for social connection.

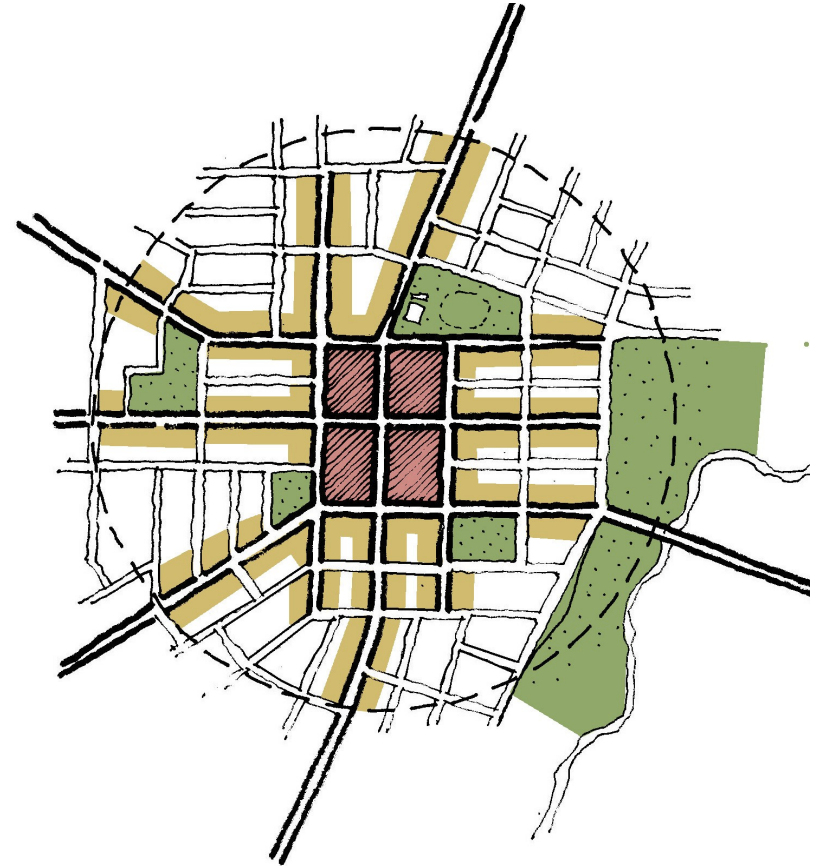


Figure 13. The “Social Neighbourhood” with a mixed use, compact centre as a focus (hatched red) and key connecting streets (coloured yellow) where houses face the street, provide a high level of “eyes on the street” or passive surveillance, and which enable casual connections to be possible between occupants and passers-by.

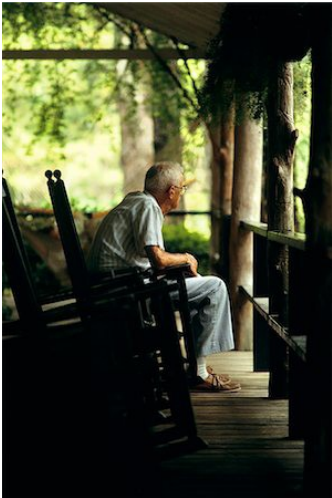


Figure 12. Houses designed to enable social connections between occupants and passers-by. This is critical on streets connecting to a centre to support walking comfort and safety.

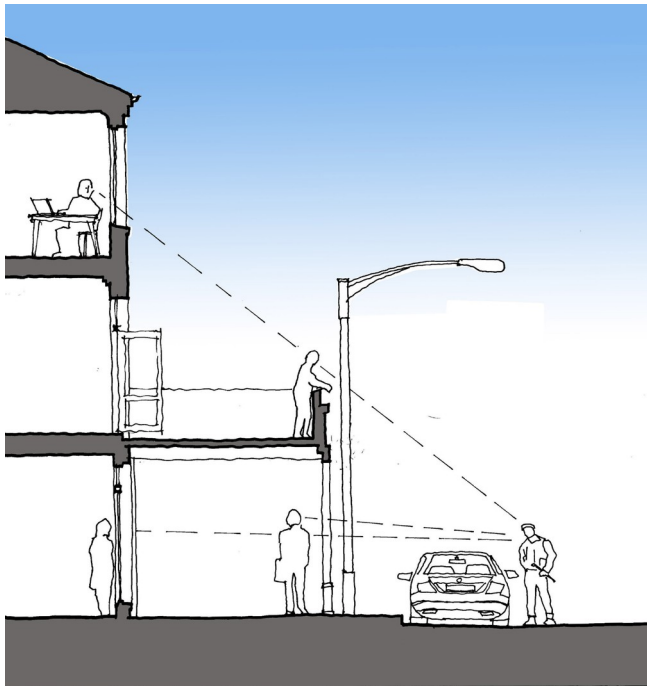


8

Principle Eight – Ensure all streets and lanes enjoy passive surveillance from buildings.

Align lots at the short end of street blocks to the side street, thereby ensuring that all streets have a high level of active frontage and “passive surveillance”. This is often referred to as “end-graining” of the block. This avoids streetscapes dominated by high side fences when lots only face the longer streets.

Where rear laneways are provided include 11.5-12m wide lots to accommodate a triple garage and studio unit built above the garage to ensure passive surveillance in laneways. Place these strategically to ensure long views down laneways.



Natural surveillance or “eyes on the street” add to the perception and reality of safety. Even when not occupied, buildings with many doors and windows facing the street imply surveillance of the street.

Figure 15. The importance of maintaining “eyes on the street” not only in streets, but in lanes and parks.

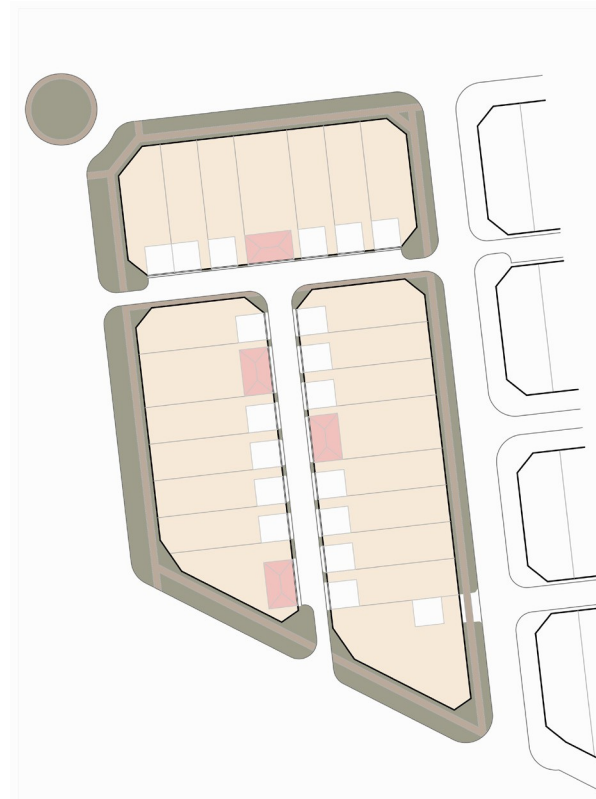


Figure 14. A typical block with rear lanes. Note the “end graining” of the block with lots turned to face the short side street. The buildings shaded red are studio units above garages, with lots approximately 12m wide to accommodate a triple garage at the rear.



Figure 16. Examples of studio units or “Fonzie flats” above garages in lanes

9

Principle Nine – Streets and street blocks are to be generally oriented north-south to ensure good solar access to future houses.

When dwellings are well-oriented, the occupants enjoy sunshine in winter, and shade in summer. If street blocks are oriented more or less north-south, most lots are generally aligned east-west. This allows sun to penetrate back yards, the rear of the dwelling as well as the front. In summer when the sun is at a much higher angle, eaves can easily reduce the sun penetrating dwellings.

This orientation reduces the need to have to use artificial heating and cooling, potentially reducing the cost of living and running homes. Good solar orientation is the first step to ensuring that homes maximise their environmental performance. This is further improved by a variety of additional measures such as good insulation, the provision of thermal mass to balance temperature variation and thermally insulating glazing in dwellings.

Environmental performance of houses should include the avoidance of including gas in favour of electricity for cooking, cooling and heating, and dwellings should include facilities and infrastructure for charging electric vehicles.

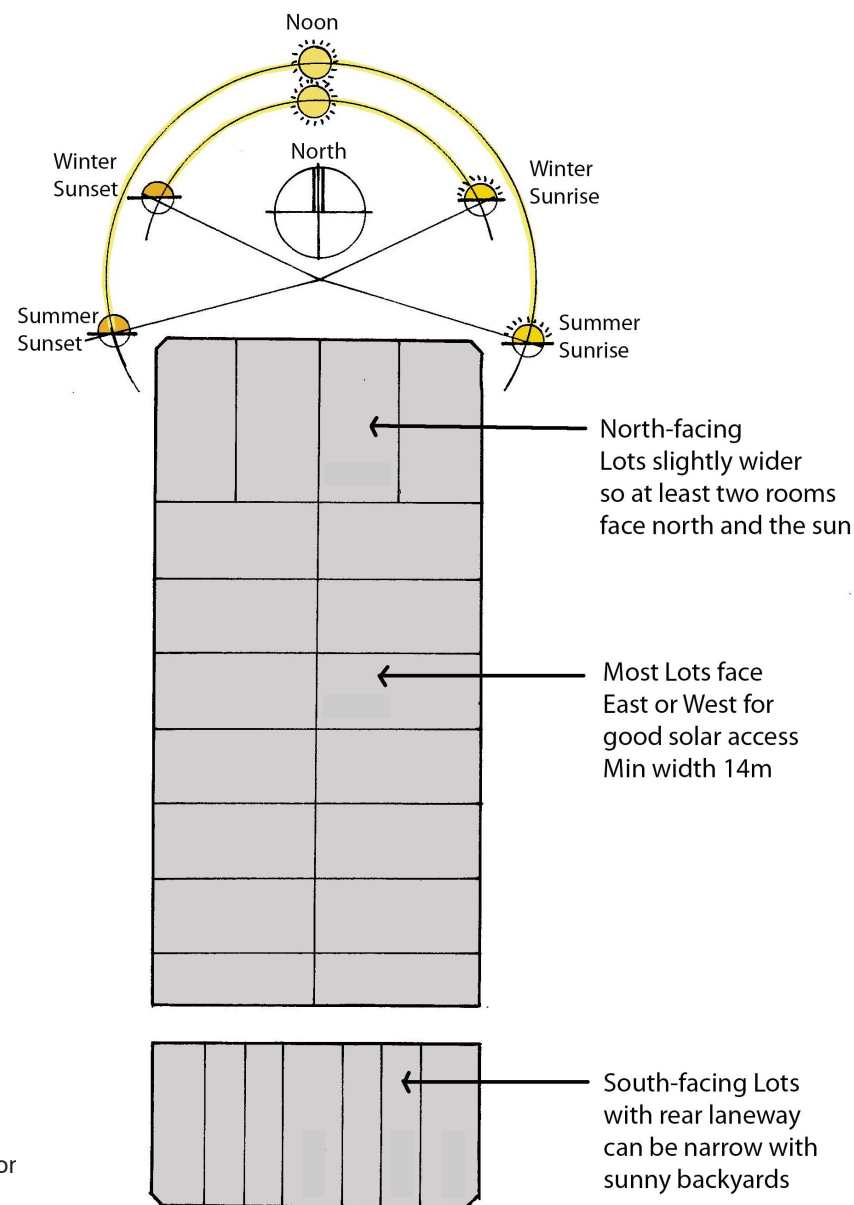


Figure 17. Principles governing good solar orientation

10

Principle Ten – Where lots are narrow, and second storeys are provided, locate the second storey component of the house close to the street, to allow sun to penetrate to neighbours back yards.

Taller components of dwellings are best located closer to the street, with single level components of the dwelling located to the rear to ensure that back yards, and rooms at the rear and front increase the potential to receive good sunlight.

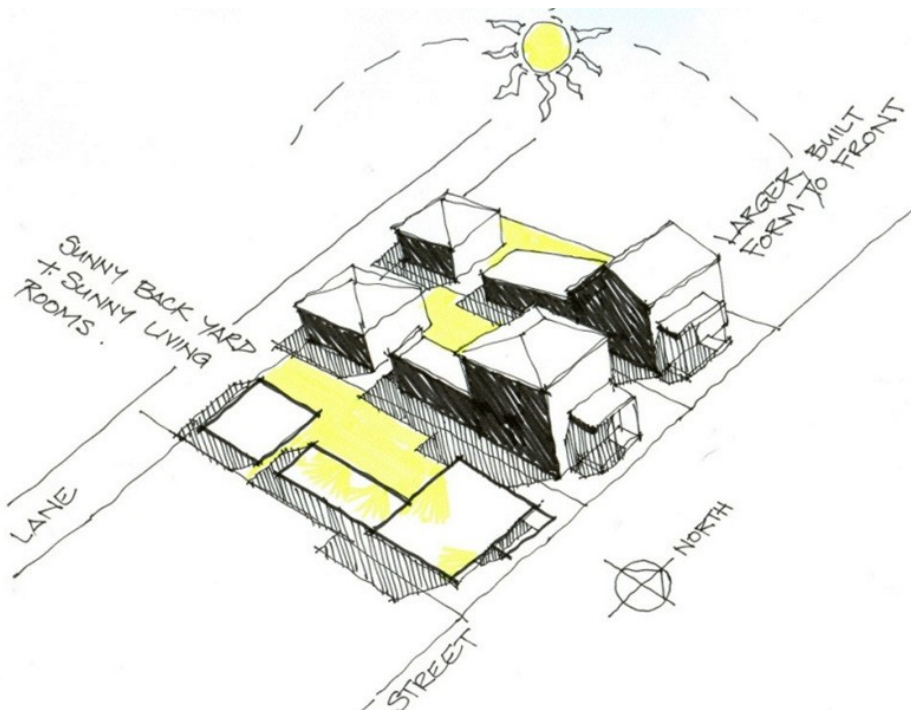


Figure 18. Principles governing good solar orientation with taller elements built towards the street allowing sun to penetrate backyards..

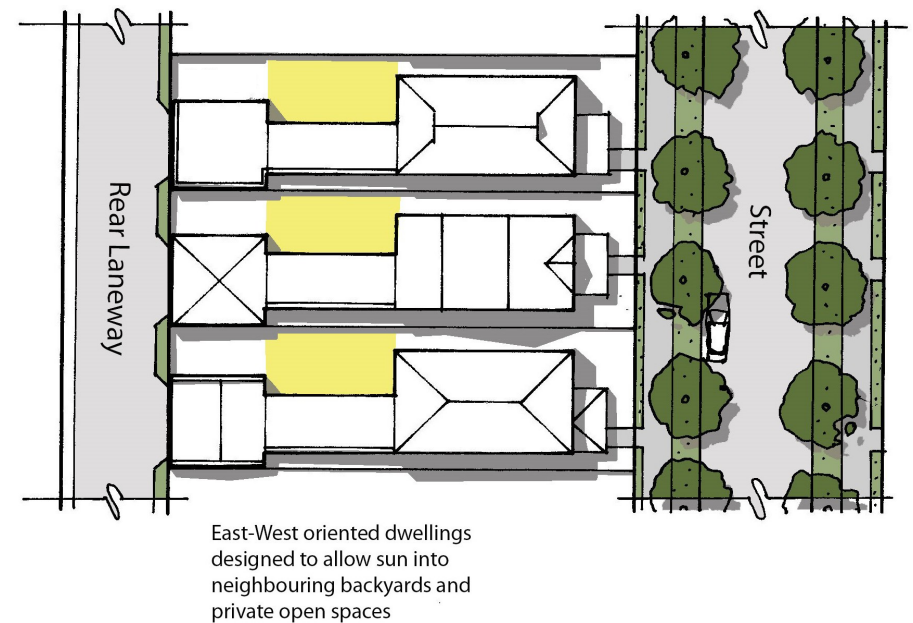


Figure 19. Plan showing sunny backyards with taller elements placed closer to the street

11

Principle Eleven – Urban form and architecture is to reflect local character.

Bowral has a very strong urban and architectural heritage, and this should be extended, rather than introducing generic or inappropriate urban form and architecture. New buildings should reflect the character of Bowral. Amongst the elements contributing to this character are the following:

Town Centre

- Buildings are built to the front boundary
- Proportions of the buildings, and especially doors and windows, are more vertical than horizontal – this includes windows and shopfronts broken up by glazing bars and mullions to express vertical proportions.
- Solid masonry elements are to be provided between shops or within ground floor elevations at approximately 4-6m centres.
- No more than 80% of the ground floor elevation can be glazing.
- Glass is to be clear and without advertising.
- Weather protection is to be provided by every building over the footpath.

Residences

- Simple roof forms
- Houses to include a verandah facing the street
- Windows and doors and their elements to have vertical proportions



Figure 20. Bowral's town centre buildings.



Figure 21. A variety of typical Bowral homes.

12

Principle Twelve – Access to green open spaces should be available to every house within walking distance.

Develop a network of green open spaces which provide well-connected recreation paths as well as maintain biodiversity levels, and a “caring for country” approach to land development.

This should be designed to support human comfort and well-being, as well as contribute to thriving biodiversity.

Creek corridors are key elements in maintaining and enhancing biodiversity and cultural values in the New Living precinct, and must form key links and “spines” for humans, flora and fauna. These corridors should be designed to include the removal of urban pollutants and return high quality water to the Wingecarribee River.

Open space should be used for the production of food and power where appropriate. Community gardens, wind and solar power collection should be evaluated for incorporation into development plans, and all open spaces must include significant planting to enhance existing biodiversity, increase the tree canopy and reverse the stripping of vegetation undertaken as part of the former farming activities on this land.



Figure 22. Diagram showing a spread of local parks as well as continuous parkland along creek corridors.

13

Principle Twelve – Create an integrated development through integrated processes of design and development and maximise “PlaceValue” as per the nine initiatives below.

Assemble and integrate urban elements to add value to the environment, society and to the local economy.

Ensure that the design and development teams approach projects which integrate engineering, traffic management, urban design, landscape design, architecture, green infrastructure disciplines to achieve the urban design objectives outlined in this document.

Many components of “sustainable development” are often provided in isolation, reducing the potential multiplier effect of adding environmental, social and economic value.

Broadly speaking this can be termed “place value” which is allied to the notion of “caring for country”. Place value translates directly to economic, social and environmental value.

What are the elements which should be integrated and delivered to achieve a high level of “place value”? These include the following:

1. Greenery - Frequent green spaces interwoven into the development either as creek corridors, public and private gardens, parks and a wide variety and density of landscaping and street trees.

Bowral is characterised by “leafy green streets” and this characteristic must be continued by anticipating the planting of street trees when engineering design is undertaken, and where rear lanes provide the opportunities for high density street tree planting given the absence of driveways.



Figure 23. Leafy green streets giving shade and high urban amenity

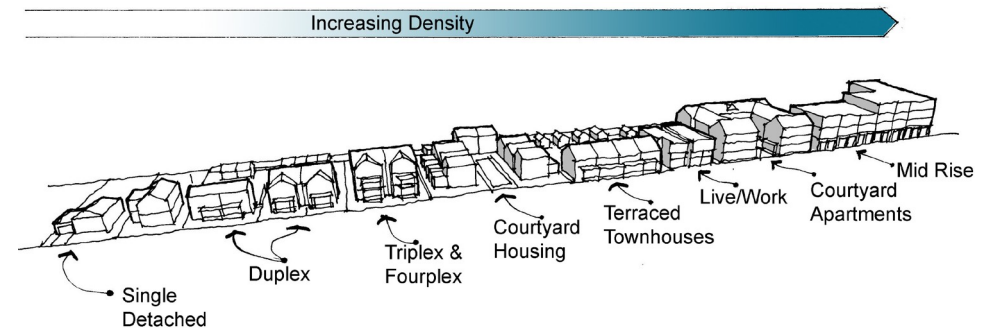


Figure 24. Incorporate a wide range of dwelling types to accommodate a wide range of households

2. Homes – Provide as many houses as possible to reduce the need for further development of Bowral into the countryside. Mix the house typologies to provide housing for the greatest cross-section of society.

3. Height – Most buildings need to be at a human scale, and where key public spaces are provided ensure that buildings are of sufficient height to contribute to a strong sense of containment. Achieve a minimum height to width ratio in the village centre of 1:3. Where homes are located within walking distance of the centre, buildings should generally be two storeys in height to maximise residential density near the centre.

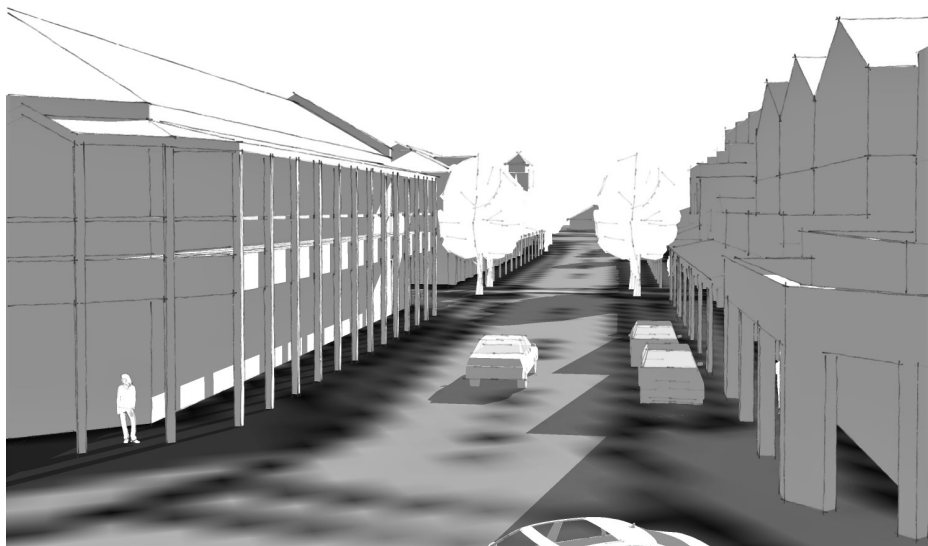


Figure 25. Model of potential buildings and trees combining to deliver a well-proportioned main street in the Bowral South centre.

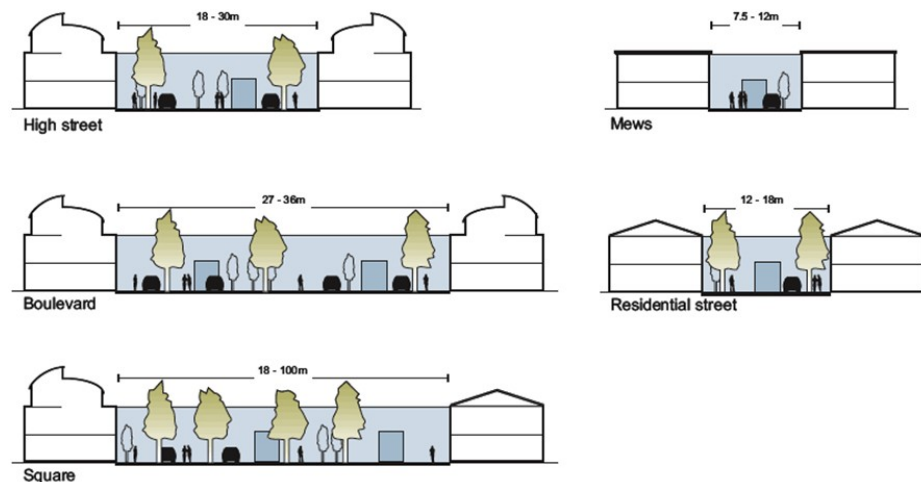


Figure 26. Well-proportioned streets with good height to width ratios (*Image source: English Partnerships*)

4. Land Use - A mix of residential, community, recreation, commercial and retail should characterise this new development area. Land use allocation should be strongly aligned to movement and urban structure, with shops, home-based businesses and offices located on key linking streets.

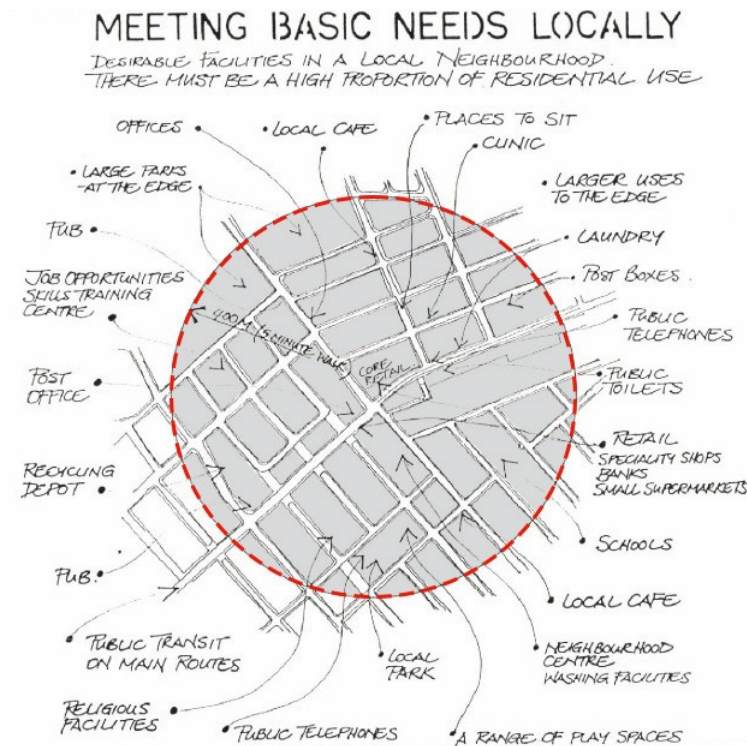


Figure 27. A wide range of land uses and facilities aligned to movement and urban structure.

5. Blocks – Blocks should not be too long, and typically in the length range of 90-180 metres. Buildings on blocks to be designed as individual buildings, and not entire blocks. Narrow fronts with many doors and windows and a strong “sense of the vertical” should be used to break up the scale of terraced blocks. Clear “fronts” and “backs” with clear internal private or communal gardens inside the block.

Block Structure

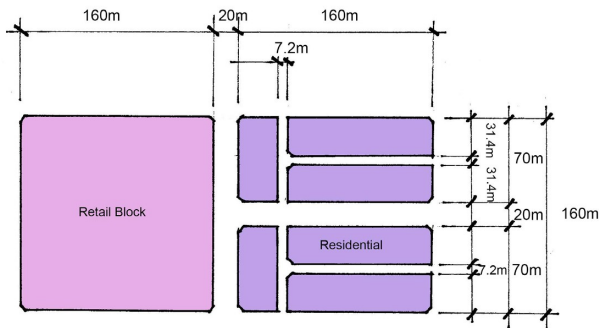


Figure 28. Block and plots sized and proportioned to making walking easy and enjoyable.

6. Space – Within shared or apartment buildings limit the number of doors off internal circulation spaces. Ensure that external public spaces enjoy a high level of ground floor activation and a strong sense of “passive surveillance” or “eyes on the street, park or plaza”.

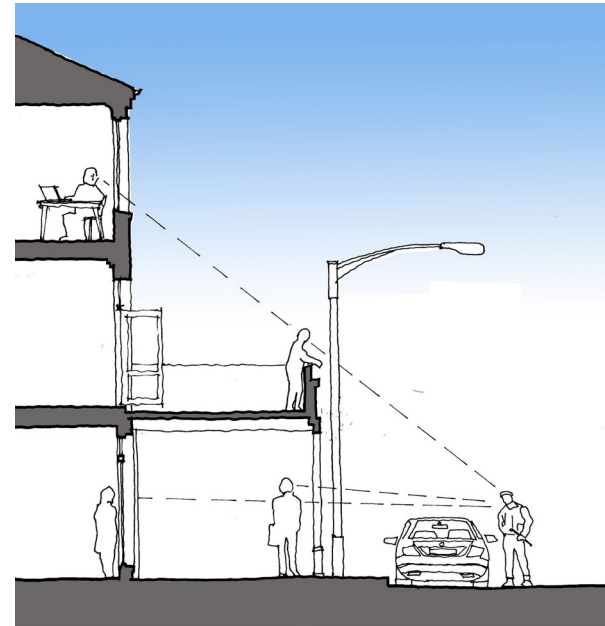


Figure 30. The importance of creating a strong sense of “passive surveillance” to make places “feel” safe.

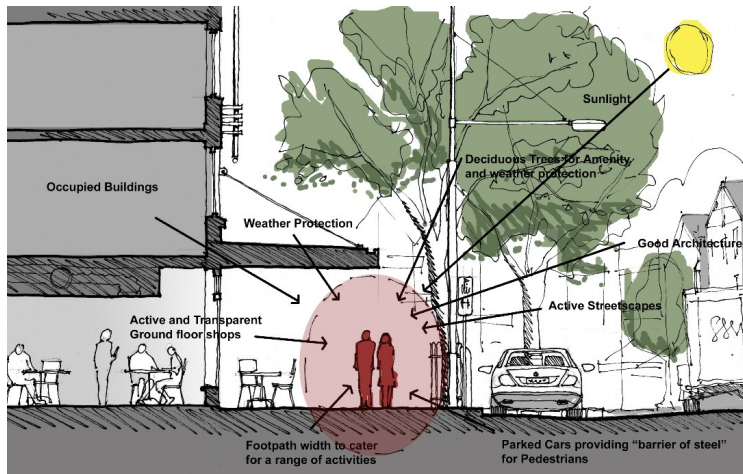


Figure 29. Activation of ground floors of buildings, and other factors making a great walking environment.

7. Beauty and Design – Beauty really matters. Any development that most people don't like is likely to perform poorly from an economic perspective. In time this will translate into poor social performance. The development in all respects must be clearly part of the traditional development of Bowral to achieve a strong sense of place. The style and materials must reference the highly valued parts of Bowral which give it such a strong identity.

8. Facades - Long blank walls are to be avoided, as are long, high side fences. "Walking architecture" is more valuable than "driving architecture" (socially, economically and ultimately environmentally). In other words, there should be frequent doors, windows and verandahs facing streets to support people walking. Walking should be an enjoyable activity rather than a chore.



Figure 31. The core character of Bowral. (Image source: Kenilworth gardens, creator Geoff Ambler)



Figure 32. Walking made enjoyable (Middle Image source: Dreamstime)

9. Density – The development needs to be dense enough to support walking and provide sufficient viability to support shops and other commercial services. Density also supports the viability of public transport. A density gradient from the centre to the edge of the development area should be achieved to ensure a compatible relationship with existing areas, as well as intensify toward the centre to support walking and economic viability of shops. Density should also be achieved around public parks to ensure that these enjoy a high level of passive surveillance and support a strong sense of safety in parks.

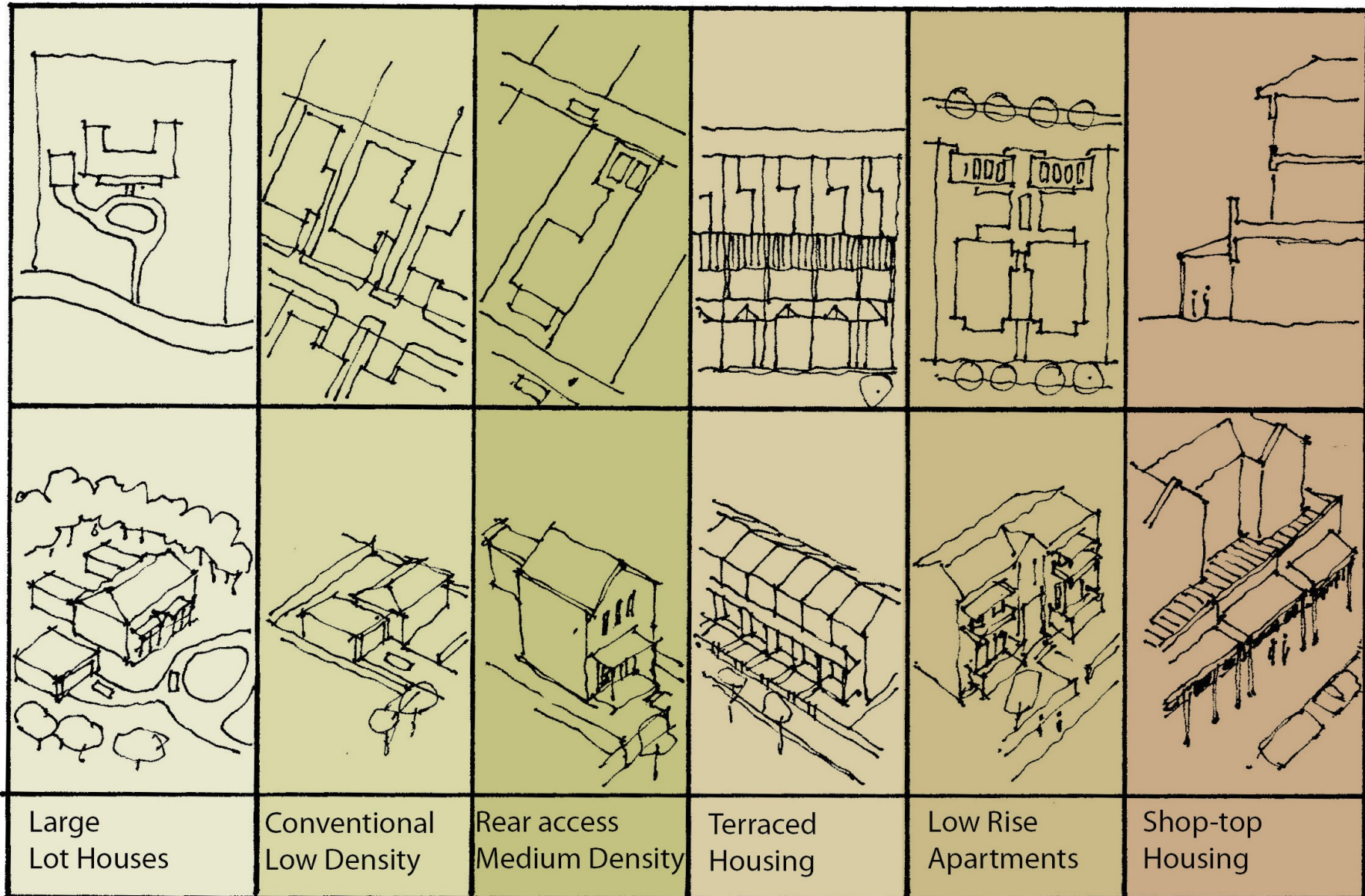


Figure 33. A density gradient from centre to edge can be achieved by delivering a range of housing types, some of which are depicted above. The diagram shows plans and sections above, with axonometric sketches below. Housing types move from low density on the left to higher density on the right of the table.

Conclusion

Above all, the development of Bowral South should be about people, of delivering a high quality of life to people. This includes ensuring that there is a high quality built and natural environment in which people live.

These Urban Design Principles are focussed on the physical components necessary to achieve a high quality of life for future residents, workers and visitors to Bowral South.

References

Parolek, D. & Nelson, A.C, 2020: **Missing Middle Housing**. Island Press, Washington DC.

English Partnerships, 2000: **Urban Design Compendium**, London

Kenilworth Gardens, <http://kenilworthgardens.com.au>

Dreamstime, <https://www.dreamstime.com>

Nearmap, <https://www.nearmap.com>