MAROOCHY SHIRE COUNCIL PLANNING SCHEME POLICY NO. 9

Reconfiguring Lots

Contents

1 Introduction

1.1 Purpose

The purpose of this Planning Scheme Policy is to:

- Support Planning Scheme Code 8.0, Code for Reconfiguring Lots;
- Outline information required to support a development application for lot reconfiguration;
- Provide background information relating to the key considerations influencing subdivision design;
- Provide conceptual design guidance in the preparation of applications for lot reconfiguration; and
- Assist the assessment of such applications by Council.

This policy supports:

1. Volume 1 – Administration & Assessment Requirements;
2. Volume 3 – Planning Areas, Precincts and Precinct Classes; and
3. Volume 4 – Planning Schemes Codes, – 8.0 Code for Reconfiguring Lots

1.2 Scope

This Planning Scheme Policy provides an outline of the information that Council requires to support an application for lot reconfiguration. The policy identifies a number of key design principles relevant to the preparation and development of an integrated subdivision design, and provides further information and guidance on each element of the *Code for Reconfiguring Lots*:

- Neighbourhood/estate design;
- Lots size and dimensions;
- Integrated movement networks;
- Pedestrian and cyclist facilities;
- Public transport; and
- Public Parks infrastructure.

1.3 Definitions

Local Area Structure Plan (LASP): means a schematic plan of an emerging/'greenfields' urban development or rural residential development area showing a conceptual layout of future major land uses, open space, roads, drainage and other infrastructure for the locality as approved by Council. Such a Structure Plan is intended to provide the site planning and design framework for future lot reconfiguration, together with any associated operational work, in the locality and is generally intended to be a component of a preliminary approval for development in such an area.

Neighbourhood Analysis Plan: means a plan or series of schematic plans that identify the design principles that shape the layout of an existing neighbourhood. Such an analysis plan is intended to demonstrate how a proposed lot reconfiguration will take advantage of the existing opportunities and constraints and knit into the existing and preferred pattern and character of a community. (For contents of report refer to Section 2.3). This Analysis is intended for smaller lot applications in lieu of an LASP.

Opportunity and Constraints Analysis: means a diagrammatic representation of all the factors that will determine the outcomes of the design process. It follows a thorough site analysis and is the diagrammatic starting point in the design process. This basic tool is used by the designer to analyse the nature of the design challenge. Once completed it will directly inform and become part of a *Neighbourhood Analysis Plan, Local Area Structure Plan*, or a *Streetscape Concept Plan.*

Streetscape Concept Plan: means a schematic plan which, may form part of, or include a landscape plan, and is intended to demonstrate the compatibility of infill development with the existing streetscape or any statement of future urban character for that area. A *Streetscape Concept Plan* will be required when the uses or pattern (density) of development differ to the existing streetscape. Such an analysis plan will address the following:

(a) Location of adjoining and proposed land uses (e.g. multi-unit development, shops, detached houses);

(b) Proposed building envelopes and street setbacks;

(c) The street reserve and indicative locations of the carriageway, parking bays, footpaths, cycleway systems, speed control devices, utility services and, where practicable, driveways, bus stops and street lighting;

(d) Location of existing vegetation to be removed or conserved;

(e) Location, species and general character of tree planting, and hard and soft landscape treatment; and

(f) Location of street furniture.

1.4 Expertise Required to Prepare Supporting Information

An application involving the creation of 5 or more lots, or the construction of a new road, will require the preparation of either a *Local Area Structure Plan* or a *Neighbourhood Analysis* or *Streetscape Concept Plan*. The preparation of these plans can only be undertaken by a competent person.

As the preparation of these plans requires a strong understanding of design processes, a competent person to undertake a *Local Area Structure Plan* or a *Neighbourhood Analysis* or *Streetscape Concept Plan*, shall:

- Have appropriate tertiary design qualifications; or
- Be a member of, or eligible for membership of the *Royal Australian Institute of Architects*, the *Planning Institute of Australia, the Institution of Surveyors, Australia* or the *Australian Institute of Landscape Architects*.

1.5 References and Guidelines

- *AMCORD: A national resource document for residential development (1995)*
- *Responsive Environments: Bentley Alcock Murrain McGlynn Smith (1985, The architectural Press Limited)*
- *Design Principles for Neighbourhood Centre Retail: Ecological Sustainable Design (2001)*

2 Information Required to Support an Application for Lot Reconfiguration

2.1 General

The level of supporting information required to support an application for the reconfiguration of a lot will vary depending on the location, scale and complexity of the proposal. Generally applications will fall into 3 main categories:

1) Those proposed in established areas with five lots (or less) and not including the construction of a new road;
2) Those proposed in established areas with more than five lots and/or the construction of a new road; and
3) Those proposed in masterplanned communities, which will (by definition) contain more than five lots and the construction of a new road.

The information required to support each category of lot reconfiguration application is outlined below.

2.2 Information to Support 5 Lot (or less) Reconfiguration

The simplest form of lot reconfiguration applications are those involving 5 lots or less in an established area. Whether occurring through the subdivision of larger active lots or the reconfiguration of vacant parcels, such relatively minor infill development do not usually require additional roads or impact on other infrastructure networks. Their impact on the surrounding community is generally easier to establish and assess than with larger subdivisions.

As lot reconfiguration applications involving 5 or less lots are considered relatively minor by comparison to a larger sub-division, the supporting information to demonstrate compliance with the relevant codes will focus more on the proposed lots themselves. *A Local Area Structure Plan* (LASP) or a *Neighbourhood Analysis Plan* will generally not be required.

Unless specifically requested by the assessment manager, the following information will provide the minimum support for this type of application:

(a) Location of the site in its surrounding context;

(b) Identification of existing topographical features (contours, water courses, vegetation, etc);

(c) Location of adjoining land uses and buildings;

(d) An *Opportunities and Constraints Analysis;*

(e) Existing and proposed boundaries and lot sizes;

(f) Proposed building areas (including an indication of any required private open space, driveways, etc);

(g) Indication of likely areas of cut and fill;

(h) Indication of existing and proposed infrastructure; and

(i) Proposed access details.

2.3 Information to Support More than 5 Lot Reconfiguration

The reconfiguring of parent lots involving more than 5 lots in an established area will be required to analyse and demonstrate any likely impact on that surrounding neighbourhood. Such applications usually require additional roads and additional infrastructure.

In demonstrating compliance with the *Code for Reconfiguring Lots*, the supporting information will focus on compatibility with the surrounding lot pattern and character.

In addition to the information necessary to demonstrate the proposed reconfiguration application itself (refer section 2.2, above), the application will also include a *Neighbourhood Analysis Plan* showing, but not limited to, the following:

(a) The existing lot and street pattern within the surrounding area or catchment and demonstration of proposed integration;

(b) The results from the *Opportunities and Constraints Analysis* (local environmental and climatic conditions, local views and vistas, etc);

(c) Location of adjoining and proposed land uses and streetscape treatments for higher density residential developments (e.g. multi-unit development) or non-residential development (e.g. shops);

(d) Existing and proposed open space and pedestrian networks and proposed linkages;

(e) Local transport network (including public transport and cycle ways) and proposed linkages;

(f) Where pattern and uses differ to the existing streetscape, a Streetscape Analysis Plan showing proposed built form envelopes and compatibility with existing forms; and

(g) Location of existing vegetation within the area and indication of vegetation to be removed or conserved.

There will be some circumstances where a lot reconfiguration application will involve a significant parcel(s) of land in an established area. Where such parcels, in the view of the assessment manager, require analysis of the adequacy of local networks to support the proposed development, or such a proposal is likely to change the operation of the established area, an LASP may be required. Refer to section 2.4 for further information on the content of an LASP.

2.4 Information to Support Lot Reconfiguration in a Master Planned Community

As opposed to Sections 2.2 and 2.3, applications involving the creation of more than 5 lots in a Master Planned Community Precinct will have a significant impact on the future form and functioning of that community. In situations where an approved local planning framework does not already give guidance to the layout of the parent lot in question, the preparation of a *Local Area Structure Plan* (LASP) will be required (Refer to definitions).

Such a structure plan is intended to provide the site planning and design framework for future lot reconfiguration, together with any associated operational work in the locality, and is generally intended to be a component of a preliminary approval for development in such an area.

The LASP will include, but not be limited to, the following:

(a) An *Opportunities* (views, breezes, paths, edges etc) *and Constraints* (slope, road noise, land use conflicts, storm paths, flooding, ASS areas, vegetation constraints, etc) *Analysis* plan;

(b) A conceptual layout of future land uses, demonstrating compatibility or where otherwise the location of buffers;

(c) Conceptual lot layout showing lot sizes, indicative slopes, likely building envelopes and site access;

(d) Any significant environmental features of the locality;

(e) Proposed integrated movement networks (cars, buses, bicycles, etc) to service proposed land uses, which also show integration with established networks;

(f) Proposed pedestrian networks and any walkable convenience retail or public transport catchments and proposed integration into existing open space network;

(g) Vegetation and general landscape treatments; and

(h) Drainage, water supply, and other infrastructure networks or items proposed for the locality.

Subsequent applications in the locality will need to demonstrate compatibility with and be assessed against an LASP approved as part of a Preliminary Approval.

2.5 Other Information

In addition to the information outlined above, an application for Reconfiguring Lots may need to be supported by a number of other reports or assessments as required by the relevant Planning Scheme provisions. These may include, but not be limited to:

- Ecological Assessment Report;
- Traffic Impact Assessment Report;
- Erosion and Sediment Control Report;
- Flooding Study;
- Geotechnical Assessment (including percolation);
- Noise Impact Assessment; or
- Stormwater, Water Supply and Sewerage Infrastructure Network Impact Assessment;
- Bushfire Management Plan;
- Site Contamination Investigation Report;
- Visual Impact Report;
- Stormwater Management Plan; or
- Infrastructure Lifecycle Costing Report.

The supporting information that accompanies the application should provide details of the author(s), and should include relevant qualifications and the date of the report.

3 Design Principles

3.1 General

This section discusses a number of key urban design principles that influence the creation of successful places. The design principles discussed in this section are qualitative elements that drive the form of a community or place.

This section is not an exhaustive analysis of subdivision design principles but aims to provide some general guidance on what Council considers to be key qualities of a successful neighbourhood. The matters discussed in this section are relevant to achieving the outcomes expressed in the Performance Criteria of Element

1 - Neighbourhood/Estate Design, of the *Code for Reconfiguring Lots*.

Section 4 (Neighbourhood/Estate Design) of this policy will address a number of more quantitative site-specific considerations. These considerations will overlap with the principles described below and will further influence the design of a subdivision and the location of lots and uses.

The principles discussed below should be identified and addressed in any *Opportunities and Constraints Analysis, Neighbourhood Analysis Plan* or *Local Area Structure Plan* that Council may require.

3.2 Character and Identity

The character of a place is the combination of the qualities that make it interesting or unusual. Character is important because it helps give identity and meaning to a community. This adds additional richness (i.e. greater choice) and variety to the wider Shire.

The character of an area is created by the components of the natural and built environment that form it (types of buildings, trees, widths of roads, the natural setting, climatic variations, etc). Creating the character of a community can be a lengthy process. It requires a strong vision and an understanding of that community and the forces that influence its evolution. It is very difficult to create or impose character on a place, especially in a short amount of time. The strongest character is usually achieved over a period of time and is easiest to achieve when it builds on naturally occurring influences.

In most cases, Volume 3 of this Planning Scheme will determine the preferred overriding character of the existing or future community, as will the requirements of the various Codes within Volume 4. However, within each precinct there is scope for creating a finer grain of local character.

In addition, there are a number of other issues that have a strong influence on the character of an area. Slope, existing vegetation, and views, will all have a huge influence on the types of places that are created. Lot size, density, population mix, surrounding landscape, local history and road widths can all largely determine the 'feel' of a community.

The design and layout of a community will need to recognise and consider how each of these components influences character. These elements should be identified in a *Neighbourhood Analysis Plan or Local Area Structure Plan.*

3.3 Variety

Variety offers choice and makes a place stimulating by providing a range of interesting experiences. This usually occurs in a place over time and can be difficult to design into an area from the start. Variety occurs with varied building types (a mix of uses), or a range of different activities or land uses as it attracts a wide variety of people. Diverse groups of people interpret what they see in different ways and a place takes on many layers of meaning.

Variety in a place increases choice, however choice depends on mobility. If you are mobile you can access a wide range of activities over a wide area. However in communities where mobility is not equitable amongst users (disabled, children, elderly, women with children) variety must be found in a smaller radius. This also helps reduce car-use which impacts on the walkability (see 3.6 below) of an area.

Variety therefore applies to transport options as well as building form and use types. Cars, walking, cycling, skateboarding and electric powered vehicles are part of the palette of transport options that should all be accommodated.

The variety of uses and building scale has to be carefully managed to ensure that incompatible uses or building forms are not colocated. This is usually well understood and the Planning Scheme manages this through the provisions in Volumes 3 and 4. In general, variety in all it's forms should be explored in a subdivision design.

3.4 Legibility

Legibility is the measure of what makes a building or place readable. Historically, if public places and buildings looked important, they were important. Places such as a Town Hall, Library or Post Office could be easily identified. Legibility is often compromised in modern building by:

- Architectural trends or budget driven economics where the detail, character and grain of a building are sacrificed;
- Security and privacy concerns; and
- Car-dominated public spaces that have compromised legibility through the separation of pedestrian and vehicular routes.

It is important that users are able to form clear and accurate images of the layout of a place. When this occurs, users can navigate and move through places in a confident and relaxed manner. Conversely, illegible places cause confusion and stress. Research shows that in successful places there is overlap between different persons shared images. Certain physical features form the basis of these overlaps. These features can be grouped into 5 key elements:

1) Paths
2) Nodes
3) Landmarks.
4) Edges
5) Districts

The successful design and layout of a community or neighbourhood will consider the use, placement, integration and effect of these key features.

3.4.1 Paths

Paths are channels of movement such as alleys, streets, highways, railways, tracks, etc. They feature highly in people's recollections of the city.

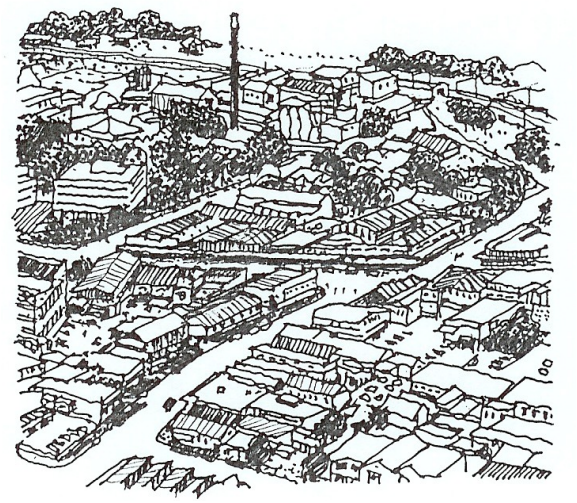

Figure 3.4.1(a) – Paths of Nambour

3.4.2 Nodes

Nodes are focal points, like the junction of paths – such as squares, roundabouts, etc. They are gathering spaces, or things that can be entered or experienced from within.

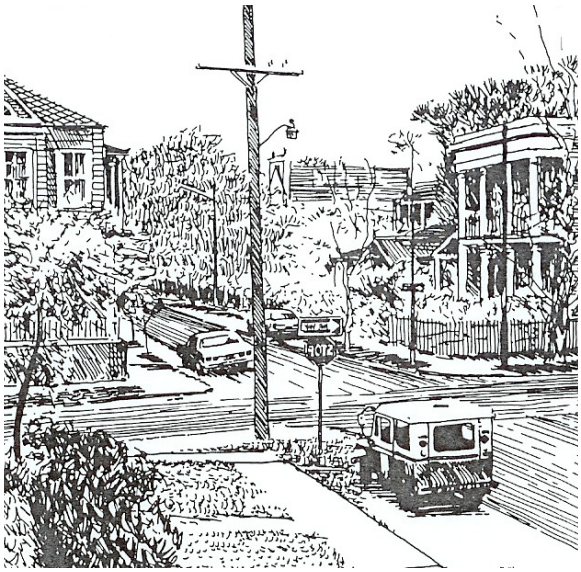

Figure 3.4.2(a) – A Node

3.4.3 Landmarks

These are reference points which people experience from the outside or afar. They are used to help navigate around the place or get bearings. Rather than always creating new landmarks, integrating a new district into and existing area can draw on existing natural or built features as landmarks (trees, landforms, buildings).

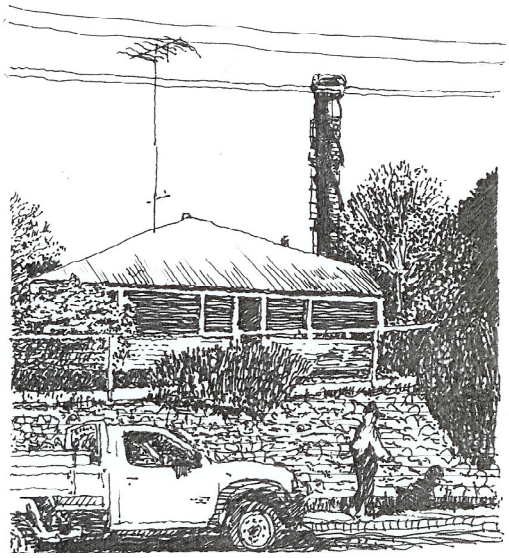

Figure 3.4.3(a) –'The Mill Stack' as a Landmark

3.4.4 Edges

Edges are linear elements that form boundaries to a particular area or district, providing definition. Edges are not used as paths, or their role as a path is obscured from a distance such as rivers, train lines, etc.

Figure 3.4.4(a) – Maroochy River as Edge.

Appendices

3.4.5 Districts

These are clearly bounded areas within a community, which are recognisable as having a particular character. Paths, nodes landmarks and edges are the structural frame supporting a place, whereas the district is everything else that makes the place.

Figure 3.4.5(a) – Districts of Nambour

Under this Planning Scheme, the term district generally equates to a Precinct, although a Precinct may contain more than one district in it, particularly if they are large and have natural occurring edges occur within (creeks, bushland, open space links). A district could also be defined as a walkable catchment or community.

It is important to remember that districts are 'mental' zones that do not always relate to land boundaries.

3.5 Permeability

Permeability is the extent to which an environment allows its users choice of access through it. A permeable area/environment is one that has a system of public spaces with alternative routes from one point to another. A neighbourhood with small blocks gives more opportunities to choose a path of travel (physically permeable) than one with larger blocks. These paths must be visible or people must know that that they can access them (visual permeability). Smaller blocks also increase a person's awareness of the choices available, increasing the visual permeability.

Factors that often impact upon permeability include:

(a) Increasing scale of development;

(b) Use of hierarchical layouts that preclude access options; and

(c) Pedestrian or vehicle segregation.

It is important to recognize and clearly identify the difference between public and private spaces when considering the permeability of an area. This is easily done by identifying the *fronts* and *backs* of buildings and where they interface with public space. This may require screening or other forms of physical separation between the backs of buildings and public space.

3.6 Walkability

Walkability is the measure of pedestrian activity in a place. Increased walkability occurs when it is convenient, safe and desirable for people to walk from one place to another.

The need for and efficient subdivision layout that promotes convenient and equitable access, and therefore increases walkability, is driven by variety, legibility, and permeability, the elements of a successful place. In addition to these quality-based reasons for achieving walkability are the more pragmatic environmental concerns of reducing reliance on vehicle use and the consumption of fossil fuels.

The users of an area cannot be forced to walk, yet through the use of effecive design strategies, a subdivision design can create an environment where people are more likely to walk to their destinations more regularly. This is a design challenge that requires the development of design strategies to reduce the number of factors that discourage people from walking. Some suggestions for increasing the walkability of a place include:

(a) Devise an evenly distributed, and safe network of non car-based transport paths throughout the entire neighbourhood, community or precinct;

(b) Wherever possible, ensure that these paths are on streets and that their function is not compromised by car-based networks;

(c) Ensure that the network leads to a destination or connects to other networks and doesn't just operate as a closed circuit. It is critical that the new network recognizes and links into existing networks;

(d) Ensure that the network leads not just to but directly through as many places (a variety) as possible. Parks, natural features, bus stops, landmarks, lookouts, quiet places, local shops or nodes, steep and flat land, etc;

(e) Ensure that 70% of the network can be overlooked or observed by habitable rooms within houses and public roads to ensure safety and passive surveillance is enabled (possibly consider a covenant limiting fences for 50% of frontage width of houses that front pedestrian networks);

(f) Recognize the different climatic needs of Queensland pedestrians by providing shaded walking spaces (trees) and opportunities to stop, drink water and rest along paths and public meeting areas in shade;

(g) Ensuring that a maximum number of residential dwellings are within a 400m radius (5min walk) of a community focal point, local shop, formal community space, etc;

(h) Ensure that other community uses such as phone booths, community notice boards and post boxes are collocated around this place so that it becomes a meeting place or node;

(i) In Masterplanned Community Precincts, ensure that higher density residential uses are located in areas close to services, public transport and public open space, where this is consistent with the intended character of the precinct;

(j) Ensure that networks align and integrate with public transport networks; and

(k) Locate bustops at recognised nodes that maximise walkable catchments and provide shade or shelter at each stop.

The notion of walkability is not just about limiting car use, but rather about putting the focus of streets back onto people and pedestrians. This means ensuring that streets, once the domain of people, are still pedestrian friendly places. Even where vehicular traffic occurs, every attempt must be made to ensure that pedestrian amenity is protected and pedestrians can be seen, observed and even enjoyed.

4 Neighbourhood/Estate Design

This section outlines a number of design considerations and factors that influence the layout and design of a subdivision. Unlike the principles outlined above, these are more quantitative, site-specific considerations and will overlap with the principles described in Section 3.

The topics discussed also reflect the principal matters addressed in the Performance Criteria of Element 1 Neighbourhood/Estate Design of the *Code for Reconfiguring Lots*.

Although careful consideration will need to be given to each of these more quantitative matters, they should not be viewed as constraints to density. Rather, when appropriately addressed they will provide opportunities to provide character and identity, and therefore increase marketability.

Section 4.5 of this policy (Design Process) outlines a generic design process that may be used in identifying and incorporating these design considerations into an integrated subdivision design.

The matters discussed below should be identified and addressed in any required *Opportunities and Constraints Analysis, Neighbourhood Analysis Plan* or *Local Area Structure Plan.*

4.1 Existing Climatic and Environmental Conditions

Manipulating environmental factors can be the most expensive part of a subdivsion, but if acknowledged, reinforced and incorporated in a subdivsion design, they can deliver significant character and amenity benefits for residents as well as cost savings for developers. It is therefore advisable to identify these factors early through an *Opportunities and Constraints Analysis*. The following sections identify some of these environmental factors.

4.1.1 Slope

Steep land can create difficulty in achieving effective siting for solar orientation and the provision of useable recreational space. Similarly, acceptable traffic access and on-site car turning requirements can also be complicated by steep land.

Most sloped or elevated land is highly visible and usually contains native vegetation. A significant proportion of the Shires vegetation remains on sloping land which makes it important to surrounding areas for visual amenity reasons. The Planning Scheme addresses this by generally requiring bigger lots on steeper land. This makes an appropriate design response more achievable.

Inappropriate development on steep land is that involving:

(a) Excessive cut and fill;

(b) The unnecessary clearing of vegetation;

(c) Inappropriate building forms;

(d) Increased downstream effects;

(e) Avoidable artificial bank stabilisation; or

(f) Excessive retaining walls.

Clearly the operational work involved in mitigating the risk of landslip and all the attendant issues of slope make development on such land expensive.

A subdivision design may reduce environmental damage, and associated financial costs, on steep land by giving consideration to the following:

(a) Avoid development of parts of the site having a slope greater than 25%;

(b) Locate the largest lots and the lowest density development on steep land to minimise development impacts (cut and fill, vegetation clearance);

(c) Avoid creating unnecessary roads by using alternative lot arrangements (use of battleaxe blocks, etc – see Figure 4.3.3(a));

(d) Ensure that road layout respects natural landforms by minimising cut and fill, the need for retaining walls and actively slow down water flows;

(e) Identify and preserve large stands of native vegetation, especially along ridgelines, and consider securing these in registerable covenants or community title ownership;

(f) Locate house sites so that existing and future vegetation does not impact on any views. This lessens the likelihood that this vegetation is removed later to preserve views;

(g) Minimise subdivision earthworks and maintain natural landforms. This gives future landowners greater choice in the type of buildings that can be designed; and

(h) Consider the Operational Works (Refer Vol. 4 - 2.5 Operational Works Code) requirements for later stages, and ensure that they are addressed early in the subdivision design.

Also refer to section 4.2 below for specific guidance on the location of lots on steep land for energy considerations.

4.1.2 Vegetation

The preservation of existing endemic vegetation in a subdivision creates an opportunity to create diversity, character and provide visual amenity. Stands of vegetation help shade buildings, control water runoff, stabilize slope, and help maintain visual privacy between uses and lots, in addition to providing additional habitat. For these reasons, retaining trees in a subdivision, regardless of environmental quality, has become a significant marketing tool for new subdivisions.

The opportunities available to retain existing vegetation will dictate where lots can be located in a subdivision layout. Although, maintaining vegetation does not need to occur at the expense of lot yield. Dedicating non-environmentally significant vegetation in parks is not an option preferred by Council due to on-going maintenance costs. This approach can also affect the yield of the subdivision.

A subdivision design should consider other options for the preservation of such vegetation by using registerable covenants, providing larger lots where vegetation exists, and locating existing vegetation in private yards. By carefully responding to site analysis the designer can ensure the long-term survival of this vegetation by making sure that views and existing vegetation do not compete.

4.1.3 Water Bodies, Creeks and Wetlands

Natural waterbodies such as creeks, ponds and wetlands are not only critical components in the biodiversity of the Shire, but they also provide great opportunities for visual amenity, recreation, and childhood development. Too often these waterbodies become casualties in the need to increase land use density, only to be replaced by an engineered solution, or a park, usually at great expense to the environment and the developer.

Whilst the biodiversity importance of these features will be demonstrated through accompanying reports submitted as part of the development application, a subdivision design can play a role in recognizing the potential of these features by preserving or incorporating them.

Through the identification of appropriate riparian buffers around these features, a subdivision designer can then locate public paths and other access devices along or around the water body (buffers permitting). Water sensitive urban design devices may be incorporated nearby which may provide opportunities for childhood play/ recreation where the ecological values present are maintained. Depending on the suitability of these features, residential lots can then be oriented towards them.

Artificial water management devices (lakes, detention basins, canals, etc) that involve significant operational works are not preferred, particularly if other options that recognise and compliment the environmental values present are possible. A design approach that supports, enhances and celebrates the aesthetic subtleties of such rich environmental systems in our urban areas will result in a beneficial outcome for all.

4.1.4 Stormwater

Further guidance on the appropriate management of stormwater is provided in *Planning Scheme Policy No.5 - Operational Works*.

It is critical that the stormwater issues (opportunities and constraints) associated with a site are identified as part of the initial site analysis. Similarly, the resolution of these matters must be integrated into the design of a subdivision layout. This will allow water sensitive urban design solutions to provide other opportunities in the layout, such as planted medians, recreational drainage lines, etc.

4.1.5 Views

Well understood by the marketplace, views from elevated land are significant drivers of current subdivision design. A suggested approach to maximizing view corridors through lot layout is

outlined below in Section 4.2.

In securing views for future lot owners, a subdivision design should consider the following:

(a) Ensure equitable access to views for a range of properties. This can be achieved by running roads perpendicular to the views;

(b) The ability for future adjoining neighbours to achieve and maintain privacy;

(c) The future visual impact of buildings on existing ridgelines or backdrops when viewed from within and outside a subdivision;

(d) The value of local views, as well as long distance views, to ridgelines, vegetation, etc; and

(e) The climatic impacts associated with accessing views – refer to Figure 4.2.1(b).

4.1.6 Breezes

The importance of breezes is a critical design issue that is usually ignored or misunderstood in residential lot design. Breezes help remove heat from buildings making them more comfortable to live in. Although it is rare that breezes are unavailable in the coastal areas, mechanical methods of cooling, such as the use of fans and evaporative coolers, have become increasingly popular. These appliances are significant energy users and during times of peak usage place great demand on power supply and infrastructure.

Where microclimatic variations are not relevant, the predominant cooling breezes in South East Queensland during the summer months come from either the north-east or the south-east.

North-east winds within the vicinity of the coast are usually afternoon seas breezes, occurring most frequently in the summer months. Although blustery at times, these winds can be pleasant and safe, unless associated with cyclonic conditions or an abnormal weather pattern.

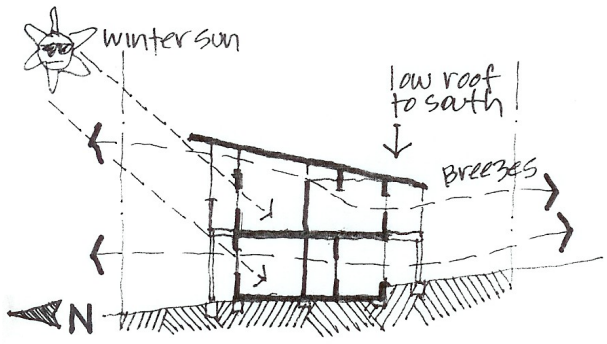

Figure 4.1.5(a) – Building Width and Breezes

Southerly breezes vary in direction depending on location and season on the Sunshine Coast. The most destructive of these occur from the South/South-West generally from November through to March, with high wind-driven rain and hail. However more gentle cooling south and south-easterlies also occur throughout winter and summer.

What is clear from the local weather patterns is that depending on what time of the year it is, buildings in South East Queensland must be designed to capture breezes from all sides, whilst also being able to 'close down' and achieve protection from the north-east and the south.

Local building traditions illustrate that breezes can be better captured by buildings than have a thin cross section (i.e. buildings more rectangular in plan, than square). Lot shape and orientation will largely determine this. This is discussed below in section 4.2 below. In the simplest terms, rectilinear lots with an east-west axis promote a good northerly orientation, and enable a thin cross section to the eastern/western sun and enable southerly/northerly breezes to be filtered through the house.

4.2 Energy Conservation in Subdivision Design

The inefficient use of non-renewable energy sources is unsustainable due to the depletion of fossil fuels and the resulting greenhouse and climate change impacts. For this reason, energy conservation in the design of new development is becoming increasingly important.

Energy conservation is best addressed as early in the development process as possible. It is therefore becoming increasingly important to recognise the opportunities for energy conservation in the reconfiguring of lots, to improve the ability of individual lots and uses to take advantage of natural conditions and reduce dependency on non-renewable energy sources.

There are a number of other benefits associated with improved energy efficiency. One of these is the increased diversity and choice resulting from the increased variety of design in new development. The need for diversity and choice in communities has been identified above.

The need for diversity and choice also extends to the type of buildings we live in. As the cost of energy continues to rise, it will undoubtedly place limits on the building design options available to future residents. More energy consumptive buildings will become more expensive to live in and therefore the level of choice will be reduced. It is therefore inevitable that energy efficient subdivisions and buildings will have greater market desirability, as lifecycle costing becomes an integral part of the real estate and marketing criteria.

An energy efficient subdivision is one that addresses the following considerations:

(a) An appropriately oriented road and street network;

(b) Appropriately orientated lots that enable buildings to be sited and designed to maximize natural heating, cooling and energy efficiency;

(c) Creation of lots that require minimum construction and servicing energy to develop (i.e. minimizing cut and fill, significant retaining walls, materials, service and infrastructure requirements);

(d) Lots that can accommodate water capture and re-use (minimising energy consumption associated with infrastructure and service provision);

(e) The *walkability* and convenience of local needs, including transport, convenience shopping, recreation and social focus points, to reduce vehicle dependency for local trips;

(f) The preservation of existing mature vegetation on lots to assist with the shading of buildings; and

(g) Minimizing the number of lots that require significant vehicle use to access (i.e. long steep driveways).

Some suggested solutions to achieving these issues in the design of the subdivision are addressed below.

4.2.1 Solar Orientation

Mechanical heating and cooling devices are one of the greatest energy consumers. Limiting the use of such devices is a challenge to be considered in subdivision design.

Whilst improved solar access does not stop the use of mechanical heating and cooling systems, it significantly reduces the dependence on heating and cooling devices and resulting peak energy demands.

A subdivision design that maximizes solar access to lots, and allows cooling summer breezes to each lot, can enable individual buildings to be more easily sited and designed so that thermal comfort is maximized.

Successful passive solar street and lot orientation enables a building to be positioned in a manner, that allows the majority of spaces to face toward the north.

A northern orientation allows sunlight to penetrate a building better during the winter months but excludes sunlight during the summer months as the sun climbs higher into the sky.

For residential buildings, areas such as the kitchen, dining and living rooms will ideally have windows that face the north. The south side of the building will therefore be reserved primarily for bedrooms or service functions such as accessways, stairs, bathrooms or laundries. This potentially minimises the number of east and west facing windows that would ordinarily receive the sunrise and sunset and cause the building to overheat.

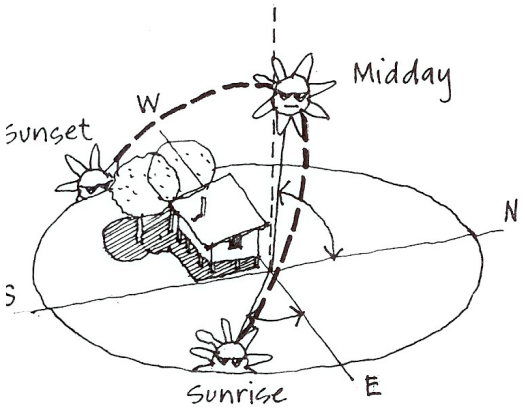

Figure 4.2.1(a) – Summer Sun at Latitude 27.5° S

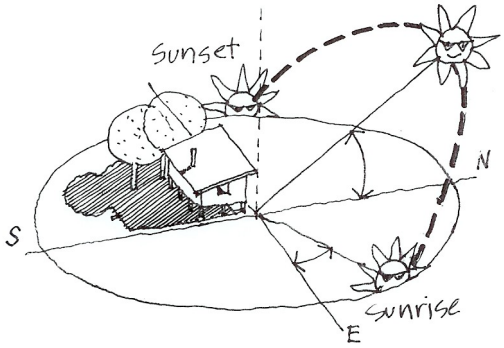

Figure 4.2.1(b) – Winter Sun at Latitude 27.5° S

The benefits of good solar orientation include:

(a) Improved comfort and livability;

(b) Improved opportunities for usable outdoor open space;

(c) Reduced demand for artificial heating and cooling, resulting in reduced energy costs; and

(d) Added resale advantages.

The achievement of good solar orientation should not be compromised by views or slope. Good solar access can occur regardless of slope, although it may require a different solution. If the land slopes to the south, and there are worthwhile views to be accessed, an alternative roof configuration may be necessary to get natural sunlight to habitable rooms.

A number of design measures may be applied to street and lot layouts to maximise good solar orientation. These are discussed below.

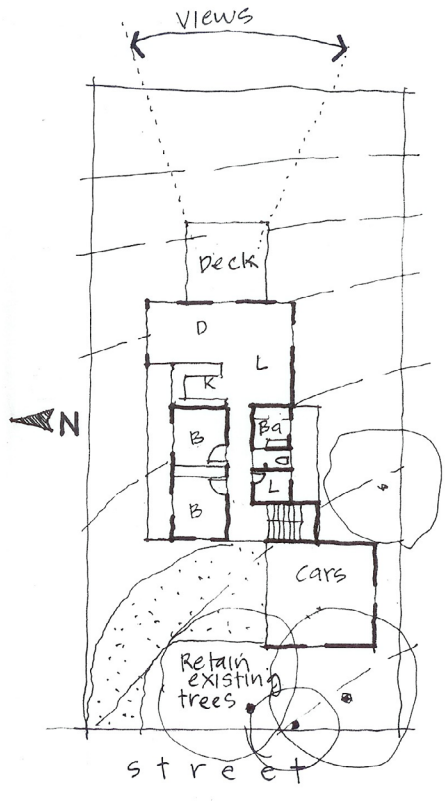

Figure 4.2.1(c) – Building Orientation

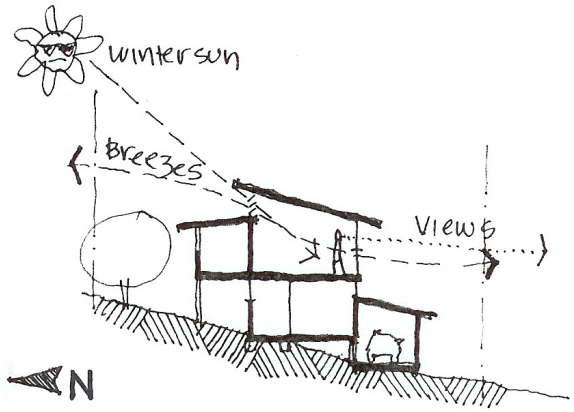

Figure 4.2.1(d) – Solar Access & Southern Views

4.2.2 Solar Street Layout and Design

The orientation and layout of streets is one of the principal factors influencing the ability of lots to achieve good solar orientation.

By designing the street network to take account of lot orientation and solar access, the design constraints imposed upon individual lots are minimised.

As a general principal, streets should be aligned east-west and north-south. The alignment of streets east-west and north-south generally enables lots to be designed to take full advantage of solar access.

Where angled streets (those not on a north/south or east/west axis) are unavoidable it is appropriate that lots are angled to improve solar access to buildings. Otherwise, if the lots cannot be angled, the building envelopes should be aligned accordingly to achieve a better solar orientation.

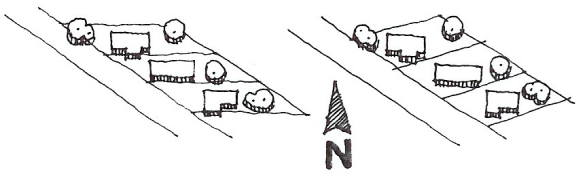

Figure 4.2.2(a) – Problems with Angled Streets

4.2.3 Solar Lot Layout and Design

The number of lots with an orientation that promotes good solar access to buildings should always be maximized.

The lot layout and design of a subdivision must have regard to a number of key factors in maximising the number of lots with good solar access.

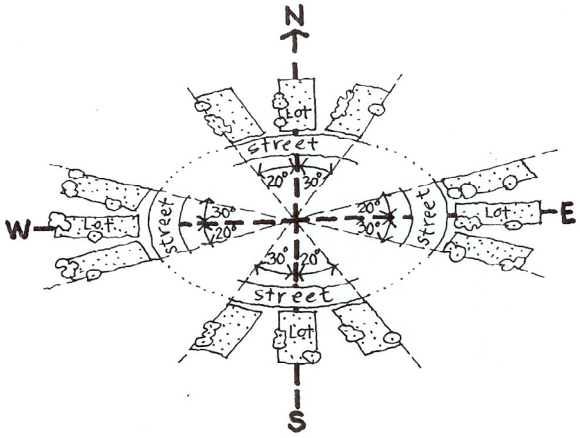

Figure 4.2.3(a) – Desirable Orientation Range for Street and Lot Layout

If solar access to lots is not constrained, buildings can be designed to maximize the use of sunlight for heating in winter, and to minimize the amount of east and west facing walls to reduce heat gain in summer.

In General:

1) For lots having an east-west axis (facing a north-south street):

   (a) Frontages should be narrower to maximize the number of lots having greater solar access from the north;

   (b) The north facing façade of buildings should be maximized;

   (c) The area of east and west facing building facades should be minimized; and

   (d) Buildings should be located toward the southern boundary to prevent overshadowing and to allow solar access from the north.

2) For lots having a north-south axis (facing an east-west street):

   (a) Lots should have wider frontages to maximize the north facing area and to minimize the east and west facing area of buildings; and

   (b) Buildings should be located as close a possible to the southern boundary to allow solar access from the north.

3) Highest density uses should be concentrated on east-west axis lots (north south streets) and on north facing slopes.

4) Attached housing should be allowed only when each dwelling can face north.

5) Deeper lots should be created on south facing slopes.

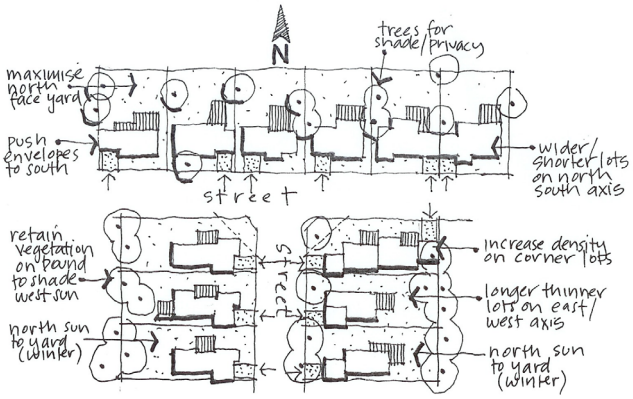

Figure 4.2.3(b) – Lot Width and Layout

4.3 Other Factors Influencing Design and Layout

This section will identify a range of other factors relevant to all sites that influence the design and layout of a subdivision design. As motioned in section 4.1 above, with the consideration of existing climatic and environmental conditions, a proposed response will need to be identified in the *Opportunities and Constraints Analysis*.

The matters outlined below include:

1) Proposed Land Uses;

2) Density of Uses;

3) Vehicle Accessibility; and

4) Noise Mitigation.

4.3.1 Proposed Land Uses

This Planning Scheme outlines the range of preferred uses that are to be located in each of the precincts across the Shire. Some precinct classes such as the 'Neighbourhood Residential' designation require a predominantly single use, i.e. detached housing, while other precincts such as 'Masterplanned Community', allow the possibility of a range of different uses (residential at varying densities, community and some commercial uses).

Whether the range of uses identified can be physically accommodated on a site will be largely determined by the size and form of the site itself. For example some uses such as aged care homes require large areas of relatively flat land whilst other uses (eg; detached houses) can accommodate a range of slopes.

Whilst the precinct descriptions for each area are mostly site specific, often this will require another level of decision making to determine what uses can be physically accommodated by different parts of the site. The *Opportunities and Constraints Analysis* undertaken will assist in identifying where the range of uses in the Precinct can occur. In general:

(a) Locate retail and community uses on flat land; and

(b) Locate residential uses on moderately sloping land, etc.

This process will also include identifying highly constrained or undevelopable land. Occasionally some uses can be accommodated on such land, if biodiversity constraints can be met and if the uses satisfy wider community needs (educational, etc).

However, it is important that a design recognizes which uses can be matched with the constraints

(which are mostly opportunities in disguise). This will require a detailed understanding of how buildings and uses function, and this understanding must be demonstrated as part of the development application.

4.3.2 Density of Uses

The impact of a use is determined in part by its frequency or density (single house on a large rural block has a very different impact on its surroundings than a more dense retirement village). Increased density can be beneficial as it can increase population capacity within a catchment, help with the efficient and convenient supply of services, reduce local vehicle trip activity where public transport is provided, minimise land consumption and pressure on natural systems, open space and resources.

Conversely, increased density can impact on preferred or existing character by changing the pattern of development and built form. The preferred density of a Precinct is determined by Volume 3 of the Planning Scheme, but in Masterplanned Community Precincts some variation in residential densities is encouraged. It is important that some conceptual thought be given to establishing the individual character of the site at the same time as considering the type and distribution of densities. This has been covered above in sections 3.3 Variety and 3.2 Character.

As with 'uses', another level of decision-making is required by the subdivision designer about what densities can be physically accommodated on different parts of a Masterplanned Community Precinct site. The issues relating to the physical capacity of a site have been well covered in Section 4.1.

4.3.3 Vehicle Accessibility

The principal concerns relating to vehicle access are addressed in *Planning Scheme Policy No. 6 – Transport, Traffic and Parking*.

It is critical that access requirements should not compromise safety and as well as the ability of residential buildings to address and activate the street.

The location of access points should be considered and co-ordinated at the reconfiguration stage. Once the movement network issues have been considered, the number and type of access points along a street should be identified and incorporated in the graphic content of the masterplan.

Alternative access to lots can increase yield and decrease the surface area of road construction, but should only be employed where all lots are immediately adjacent to and can overlook and access a street or pedestrian network.

A clear understanding of the impacts of traffic volumes on each particular street needs to be demonstrated in the *Neighbourhood Analysis Plan* or *Local Area Structure Plan*, in addition to any required traffic impact reports.

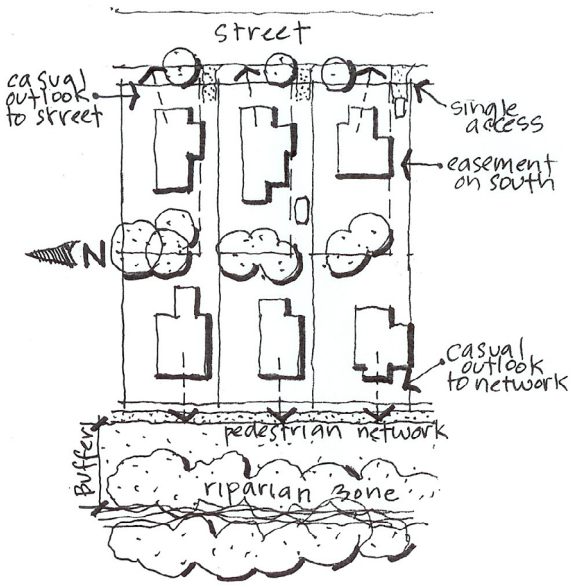

Figure 4.3.3(a) – Alternative Access

4.3.4 Noise Mitigation

Noise is emitted from a number of different sources. Of primary concern in designing a subdivision is the noise created by roads with high traffic volumes. Noise emitted from these roads often impacts upon the amenity of surrounding land uses, particularly residential areas.

Specific mitigation measures that address the adverse impacts of noise emissions are not proposed in this section. Rather, this section identifies the general design responses to noise mitigation and how these can be more transparently incorporated into the subdivision design process.

The principal challenge when addressing noise mitigation in subdivision design is to passively shield noise sensitive uses (such as residential uses) with other less sensitive uses (parks, community uses). However, in most residential communities the variety of uses being created often restricts the design ability to achieve this outcome.

There are a number of site layout and design measures that may be employed in minimizing the adverse impacts of noise emissions[1].

[1] *Element 5.13 of AMCORD, Housing on Traffic Routes, provides some guidance on site planning options having regard to minimising the impacts of road traffic noise.*

Measures taken to address noise impacts generally include two options, the active response, **sound barriers,** or the passive approach, **buffer distances.**

Council's principal concern in the mitigation of noise impacts is that noise attenuation measures should not compromise the ability of uses or buildings to address, view and activate the street. The street is the public focus of all community activity and the quality of street life should always be protected and enhanced in a subdivision design. It is critical that this concern is recognised when starting the design process to ensure that this street quality is not inadvertently compromised.

Sound Barriers

The use of sound barriers such as fences, walls or earth mounds, as a noise mitigation strategy, is usually the result of the failure to foresee the requirement for noise mitigation in an original design. Council's preferred approach to noise mitigation is through solutions that address potential noise impacts through lot layout, design and location. Refer to section 5 of *Planning Scheme Policy No. 7 – Acoustic Environment Assessment* for further information on Councils preferred approach to noise attenuation measures.

The use of sound barriers as a noise attenuation measure (comprising mounds, fences, etc) has a number of adverse impacts on the functioning of a neighbourhood or community. These include:

(a) The creation of amenity issues including overshadowing and incompatibility of scale;

(b) Connectivity and identity problems for adjoining landowners and for the entire community including poor casual surveillance;

(c) Walling of communities, creating no obvious way in or out (May occur with landscape or mounded barriers as well as fences or walls);

(d) Alienating users by the creation of planted bunding along a neighbourhood roads; and

(e) Creation of a reduced sense of location within a neighbourhood, usually resulting in people free zones.

In some circumstances the adverse effects of sound barriers may be outweighed by the impacts of excessive noise levels and the demand for a sound barrier. However, the early consideration of existing and potential future noise impacts in subdivision design can reduce the need for sound barrier treatments.

When sound barriers must be used, their design and location should reduce as much as possible the potential for these adverse effects to occur.

Buffer Distances

Effective buffer distances can only be achieved through subdivision design or expensive retro-design land acquisition. Clearly incorporating buffer distances into a design at its early stages is the most preferred noise attenuation measure. Factors to be taken into consideration when creating buffer separations include:

(a) The location of parks or recreational uses to buffer residential areas from busy arterial roads may compromise the effectiveness of the recreational use, making them unattractive and therefore redundant;

(b) Buffers that alienate or disconnect communities may have a negative impact on communities; and

(c) The extent of buffering (size, distance, etc) required needs to be commensurate with traditional setbacks to road reserves.

Land Use Barriers

The strategic positioning of land uses and the incorporation of building layout and design techniques can be an effective means of noise mitigation.

As opposed to the use of buffer separation distances, the placement of less sensitive uses, or well-designed facades of uses, close to noise sources, can act as a sound barrier.

For example, higher density residential uses may be located adjoining a road that carries high traffic volumes so that the façade of the building nearest the road acts as a sound barrier itself.

In this scenario it would be necessary to design the internal layout of dwellings in an appropriate manner, and incorporate building design techniques, such as roof and wall insulation, thickened glass and double glazing of windows and doors, on the façade of the building closest to the noise source. However, the higher density residential use may create a sound barrier to other noise sensitive places such as private open spaces or other low-density residential uses.

4.3.5 Safety & Security

Feeling safe and secure is a critical requirement of living anywhere. Security not only protects people and property from damage, but also reduces anxiety and fear. This can be achieved through active means (fences, locks and security cameras, etc) or passive (planning and design of places) means.

There is an increase in the acceptance amongst communities of passive methods of crime prevention. Rather than fences and security cameras, which can alienate users and promote mistrust, the passive approach focuses on crime prevention through environmental design (CPTED). The design of streets, public and communal open space, sites and dwellings can all be used as tools to discourage crime and increase residents/users sense of security. This is achieved by arranging them along the concepts of 'defensible space' and 'manageable space'.

'Defensible space' is achieved by arranging buildings, open spaces and access ways so that residents are able to contribute to their own security by collectively observing the public space around their dwellings. For it to work the passer-by must be aware of the potential for resident scrutiny and the residents must to feel a sense of responsibility and ownership for the surrounding space.

The concept of 'manageable space' pays particular attention to the hierarchy of open spaces (public, communal, semi-private and private), group territories, surveillance of paths, parking and open space, the avoidance of ambiguous spaces, buffers between uses, control of non-resident uses, avoidance of us and them situations with the potential for conflict and the 24hr use of non-residential areas.

The sole reliance on active security measures is not preferred under the Maroochy Plan. Whilst such measures may form part of an overall security strategy, they should not be solely relied on to provide residents with a feeling of safety and security. The 'gated community' is one example of an active security strategy, which can have detrimental social consequences. Essentially a walled development, the 'gated community' excludes itself from the wider community ('us and them') by placing security above all other considerations, usually at the expense of wider social interaction. Such exclusion can create social division, and the impression that the wider community is the source of the security problem.

Alternatively, the Maroochy Plan supports the use of passive security measures and it is important that the CPTED principles are incorporated into the design of a subdivision from the outset. Although only applicable to development in a Town or Village Centre Precinct, the *Design Code for Community Safety & Security* (Volume 4, 2.3) outlines some of the measures that development will be required to comply with. Many of these can be incorporated into the wider subdivision design. Some additional ideas that should be explored in subdivision design include:

(a) Divide the whole site into territorial zones or districts (refer section 3.4.5);

(b) Ensure that circulation patterns enhance other security measures;

(c) delineating public space (streets), community space (shared open space, play areas, etc) and private space (dwellings and private open space);

(d) Without violating the privacy of dwellings, limiting the use of fences (over 1.2m high), thick vegetation and other barriers that may restrict casual surveillance of the street. This will also limit opportunities for concealment;

(e) Designing real boundaries or symbolic barriers to discourage strangers intruding into communal spaces intended for use by residents;

(f) Ensure direct access to dwellings from carparking areas, public transport and streets (rather than long alleys);

(g) Making internal streets, courtyards and other identifiable common areas clearly linked and legible (refer to section 3.4). This will assist visitors to easily find addresses reducing confusion frustration and anger.

(h) Ensure that open carparks are small and within view of other dwellings;

(i) Design all lots so that dwellings have habitable rooms and recreation space that can address/ overlook the street; and

(j) Encourage the casual use of public and semi-public open spaces during evening hours so that places can be 'animated' and filled with legitimate activities.

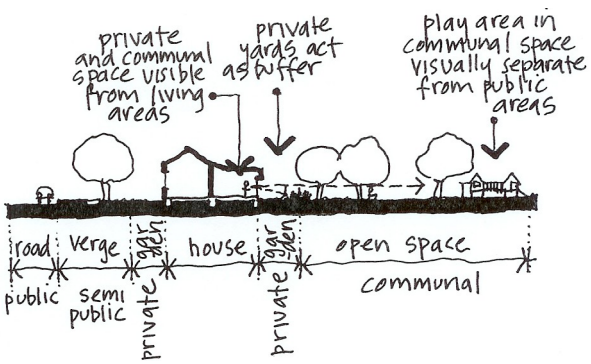

Figure 4.3.5(a) – Space Hierarchy

Demonstration that this issue has been adequately considered in the design of the subdivision will be required as part of the required *LASP, Neighbourhood Analysis Plan* or *Streetscape Concept Plan.*

4.4 Demand and Location for Local Convenience Shopping

The Retail and Commercial Centers Hierarchy, outlined in Volume 2, actively determines the location of retail uses, including shops in Masterplanned Community and Neighbourhood Residential Precincts.

This hierarchy supports the notion of 'local shops' and recognizes that they play an important role in the life of a community. Not only do they offer convenience shopping but they also provide a focus for the community life of a neighbourhood to occur.

Due to this important community function the location and design of the premises must maximise the commercial return and possibilities to ensure it has a viable commercial future within the community it serves.

Ensuring this viability is not just a question of the size of the shop (refer to the *Code for Local Centres and General Stores*). Location plays a critical part of the factors that influence the economic sustainability of a local shop. The following points should be considered when locating local convenience shopping:

(a) Aim for a minimum catchment of 500 dwellings (preferably 750) within a walkable radius (400m), with an additional catchment beyond to ensure 750 –1000 dwellings have the shop as their most convenient local retail outlet. At approximately 15 dwellings per hectare a 50ha hectare neighbourhood (a 400m radius) will contain 750 dwellings;

(b) Design the local street network to focus towards the shop to ensure 60% of dwellings are within a 5 minute safe walk (i.e.: 400m);

(c) Ensure the shop is located on a good through-street and at an important local intersection in the neighbourhood. Aim for locating on a street which carries a minimum of 3000vpd or more (Preferably 5000vpd)

(d) Ensure that the intersection has mechanisms to ensure the easy and safe crossing of pedestrians is provided so that residents on both sides of the road can use the shop;

(e) Ensure that 60-70% of potential customers can easily drive or walk past the shop on daily trips for other purposes. A common mistake is to locate the shop in the centre of the residential neighbourhood, even though most residents don't need to pass through this point regularly;

(f) Where supported by the provisions of Volume 3 of the Planning Scheme, maximise the residential development yield in the 400m radius around the shop and limit the loss of core custom to parkland or other uses providing limited support to the shop. Insert medium density uses where preferred. If a park is necessary, make it a small park (max 2000sqm) unless the park itself is a significant generator of outside users;

(g) Recognize that retail catchments are usually lopsided (particularly for driving customers) with around 2/3 coming from the side furthest from the major destination

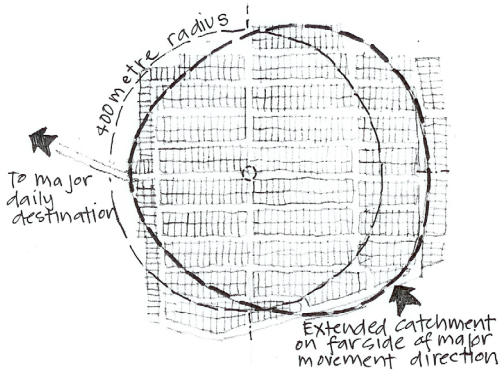

Figure 4.4(a) – Lopsided Retail Catchments

(h) Locate the shop on the 'drive-home' side from work or major destination for the majority of customers, ideally on a corner with good solar access;

(i) Co-locate with other uses (Masterplanned communities only) and public infrastructure such as public telephones, post boxes and other small scale local attractions;

(j) Skew the streets into the intersection slightly to terminate vistas on the shop; and

(k) If locating a school larger than 3 hectares in size, locate it between 2 districts or walkable catchments so that it 'pulls' customers past the nearby shop.

Following the above principles should help ensure the viability of the shop, without compromising the concepts of walkability within a community.

4.5 Design Process

Sections 3 and 4 of this policy outline the design principles of creating a successful neighbourhood and the factors influencing estate design. Many of these are well understood and accepted however the successful consideration and incorporation of each of these factors in a subdivision design is a complex process.

Although the steps required when designing are sequential, they are not always linear. The design process is usually described as 'iterative', or a journey of repetitive decision-making. Decisions must be made, checked, reviewed, remade again, etc. The process is therefore more like a spiral.

To assist, the following diagram (Figure 4.5.1) is an illustration of the steps to be considered in such a design process. For clarity, the diagram does not include the costing or economic feasibility assessments that would be a normal part of the design and decision making process.

This diagram should be considered as a guide only

STEPS IN THE DESIGN PROCESS

1. *Conduct thorough site analysis and map;*
2. *Identify site opportunities and constraints (O & C);*
3. *Map O & C in plan.*
4. *Identify proposed uses/densities.*
   - *Are they consistent with Volume 3 of MP2k?;*
5. *Identify approximate footprint/size for each use;*
6. *Sort new and existing (if infill) uses for compatibility with each other. Consider noise separation, walkability/ convenience, access, etc.*
7. *Using O&C analysis (Step 2) arrange uses on site;*
   - *Are they compatible? Do they take advantage of O&C (slope, views, breezes)?*
8. *Identify preferred walking catchments & maximise dwellings within 400m walk of preferred destinations (shops, bus stops, parks, etc);*
9. *Locate (in diagram) preferred non-car travel networks(PT, pedestrian, bikes, sk8)*
   - *Is there even spread? Is there safe/easy access along public routes/streets with houses fronting?*
10. *Integrate recreational uses into walking network. Co-locate uses next to required green (and other) buffers.*
11. *Identify potential car trips and direction based on surrounding destinations (work, play, shops etc)*
12. *Lay diagrammatic grid of streets. Integrate with existing street network (if any).*
13. *Confirm indicative lot layouts and densities.*
    - *Do lot sizes & densities comply with MP2k? Are they compatible with Step 2?*
    - *Will lots allow building envelopes to face north?*
    - *Do slopes allow likely compliance with Operational Works requirements?*
    - *Do road widths & access options comply with Traffic Transport and Parking Code*
14. *Calculate preliminary traffic volumes (VPD) for higher order streets;*
    - *Are street layouts permeable and legible? Are 60% of residences within 5-10 minute walk?*
15. *Calculate noise levels & identify required noise mitigation options (start with passive options ie: not barriers). Ensure noise levels are consistent with MP2k;*
    - *Do roads require excessive setbacks to meet acceptable noise levels?*
16. *Insert additional less noise-sensitive uses as buffers.*
17. *Where step 16 cannot be achieved, remove higher order roads away from noise sensitive uses (ie: to perimeter of subdivision) or disperse traffic evenly across grid.*
    - *Do noise mitigation options ensure that 90% of houses can be seen from and see the street?*
    - *Do the options encourage pedestrian activity and movement on the street?*
    - *Can noise measures still accommodate a possible future increase in traffic movements?*

    If no, return to Step 12;
18. *Add additional detail to preliminary lot layouts and access requirements., Check that densities suit slope constraints and only minimal cut and fill is required;*
19. *Confirm lot widths comply with relevant codes;*
20. *Review against MP2k and steps 1-20. Refine layout*

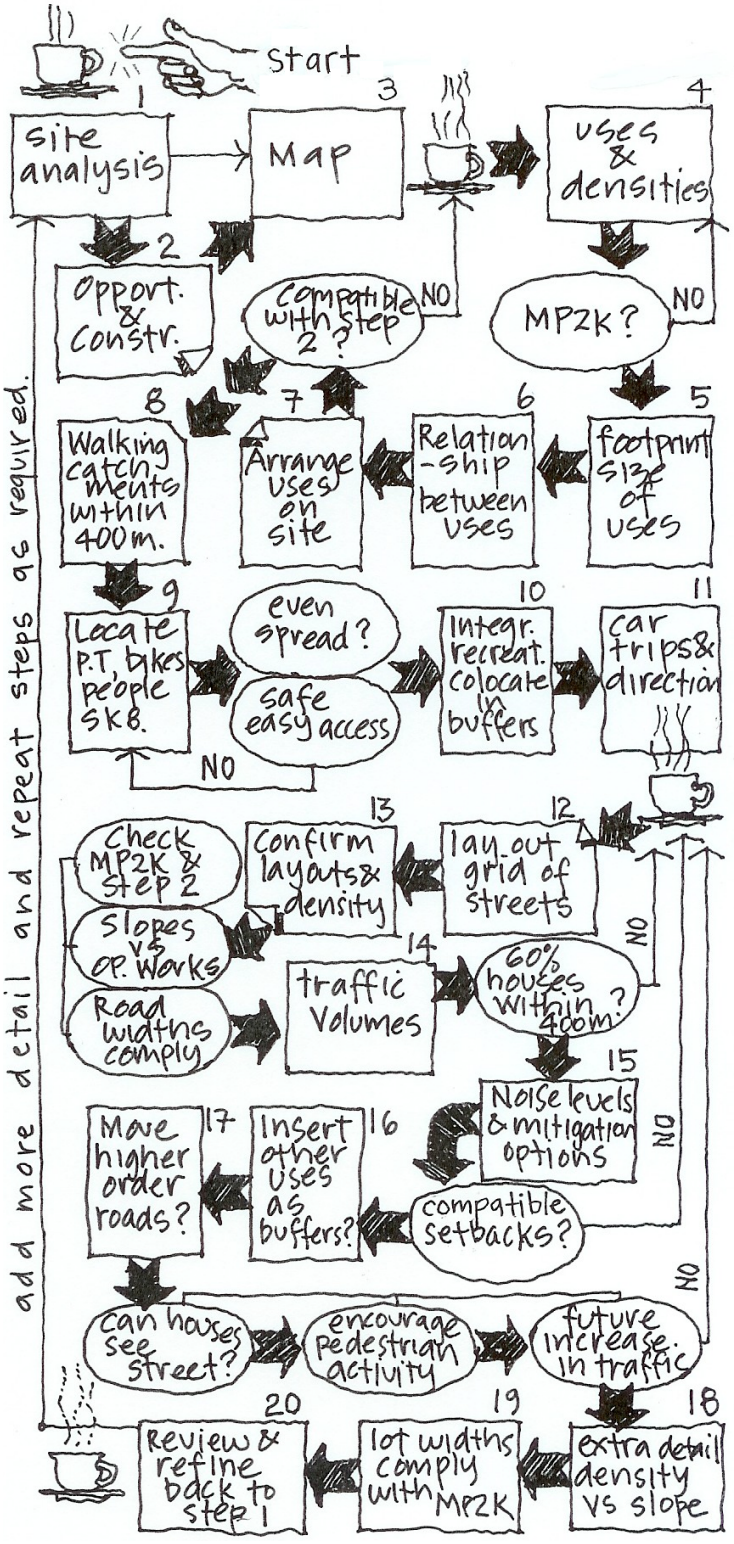

Figure 4.5.1(a) Subdivision Design Process

6 Lot Size and Dimensions

6.1 Determining Factors

Many of the principles that will determine the size of standard detached house lots have been identified above. These same principles have been considered in determining the minimum lot sizes and frontages in Table 8.2 of the *Code for Reconfiguring Lots*.

In summary, these include ensuring that the minimum lot sizes and frontages of lots in subdivision is suitable to:

(a) Preserve existing environmental characteristics of the site;

(b) Locate recreation and service (driveways, garage, and car turning, etc) on useable land that minimizes the need for cut and fill;

(c) Ensure existing vegetation is preserved for visual amenity, privacy screening and sunshading;

(d) Achieve good north orientation for buildings which conserves the use of the use of non renewable energy sources;

(e) Prevent overshading of neighbours and loss of neighbouring views;

(f) Ensure that frontage widths are capable of supporting car turning and the appropriate/alternative siting of carports and garages; and

(g) Enable noise mitigation measures to be included on site, in terms of building placement.

In addition to demonstrating compliance with Element 2 of *The Code for Reconfiguring Lots*, the main task of supporting information should be to demonstrate at the Reconfiguration of Lots Application stage that the lots are capable of complying with the provisions of the *Code for the Development of Detached Houses and Display Homes.*

The solutions selected should be identified and addressed in any required *Neighbourhood Analysis Plan* or *Local Area Structure Plan.*

6.2 Small Lot Design

Small residential lots (ie: lots less than 600sqm) can be an important part of the subdivision designer's palette. The resulting increase in density can maximise the economies of providing infrastructure, help provide variety in density, pattern and built form, can enable a more efficient land use and increased design flexibility to unorthodox shaped blocks of land.

The Maroochy Plan aims to strike a balance between the provision of such benefits and the strong community desire to protect the character and the amenity of existing residential neighbourhoods.

The location and frequency of small lot housing occurrence is determined by Volumes 1-3. As discussed above, the location of small lots, as with all increased density, should occur within easy walking distance of a local shop, centre, public space (node) and public services. Additionally, the location of lots on steeper land is not encouraged due to the concentrated effects, which are generally harder to mitigate on steeper land.

The factors that drive the size of small lots are similar to those that determine the size of traditional lots. However, because of the reduced size of the lots, the issues are perhaps more concentrated, with less margin for error.

Consequently, the *Code for the Development of Detached Houses and Display Homes* contains additional Acceptable Measures for buildings on small lots that do not apply to traditional detached house lots. These measures include:

(a) Maximum site cover provisions;

(b) Minimum size and dimensional requirements for private open space;

(c) Specific screening and privacy requirements for a small lot buildings when within certain proximity to existing neighbours; and

(d) Specific location of mechanical equipment in relation to neighbouring private open space, habitable rooms etc.

It is important that in addition to the principles outlined in this Policy, a subdivision design addresses and demonstrates that these specific matters can be accommodated when small lots are included in a subdivision.

While a minimum small lot size has not been specifically stated in the *Code for the Development of Detached Houses and Display Homes*, it is anticipated that it is unlikely that the necessary issues can be adequately addressed on lot sizes less than 200m^2. This is demonstrated in Figure 5.2.1 (a) (below), which shows a small, complying 2 storey cottage on a small lot of this size. Achievable site cover (27%) and gross floor area not including decks (90m^2) is naturally restricted by required setbacks, minimum frontage widths and private open space requirements. Whilst smaller house sizes are possible, which could in turn bring about a smaller lot size, market demand and commercially viability will provide likely constraint.

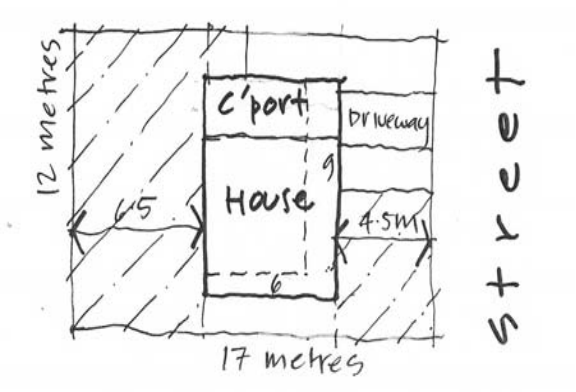

Figure 5.2.1(a) Complying Small Lot – 200m2

As with other areas of this Policy, the various solutions selected by a subdivision designer should be identified and addressed in any required *Neighbourhood Analysis Plan* or *Local Area Structure Plan.*

7 Integrated Movement Networks

Many of the components that form the integrated movement network of a subdivision have been discussed above, where they impact on the form and character of a neighbourhood. For additional information and direction on integrated movement networks refer to *Planning Scheme Policy No. 6 – Transport Traffic and Parking*.

8 Pedestrian and Cyclist Facilities

The general quality and placement of pedestrian and bicycle networks have been well covered above as they play a vital role in determining the form and character of an accessible and equitable neighbourhood. For additional information and direction on the form of pedestrian and cyclist facilities, refer to *Planning Scheme Policy No.6 – Transport Traffic and Parking*, andthe Priority Infrastructure Plan. Demonstration of the relevant requirements of these policies will also need to be provided in the information supporting the reconfiguring of lots application.

9 Public Transport

Once again the discussion above reinforces the importance of public transport in building an equitable community. For additional information and direction on the form of public transport facilities refer to Refer to *Planning Scheme Policy No. 6– Transport Traffic and Parking*. Demonstration of the relevant requirements of this policy will also need to be provided in the information supporting the reconfiguring of lots application.

10 Public Parks Infrastructure

Sections 3 and 4 of this policy touch on the role of parks and infrastructure in the subdivision design process. For additional information and direction on the form of public parks and infrastructure in a subdivision, refer to the Priority Infrastructure Plan. Demonstration of the relevant requirements of this policy will also need to be provided in the information supporting the reconfiguring of lots application.