



# URBAN DESIGN GUIDE

TE KAUWHATA WEST LIVING ZONE

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*Te Kauwhata Urban Design Guide (Decisions Version)*

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*These guidelines identify a number of important urban design concepts that should to be considered during subdivision design and the resource consent process.*

Council is seeking to foster a collaborative approach with developers to encourage high quality outcomes that maximise benefits to the Te Kauwhata community, future residents and the developer. This can be achieved through the application of good urban design principles rather than simply adhering to minimum technical standards.

The guideline's primarily focus is on subdivision design because of its fundamental importance to achieving a high quality urban environment. It is intended that the guidelines will help to achieve the desired Objectives of the *Te Kauwhata Structure Plan* by promoting the following outcomes:

- *a highly permeable transport network*
- *subdivisions that integrate with the natural environment, and cultural and heritage features*
- *attractive, tree lined streetscapes*
- *section shapes and sizes that create sufficient space for private outdoor living courts, preferably on the sunny side of a house*
- *open spaces and community facilities that have street frontage for surveillance and amenity reasons and*
- *low impact stormwater management integrated with streetscapes and open space.*

The design guide is presented in a hierarchical format, which reflects the relative importance of the urban design recommendations contained within, and the influence that various design decisions will have on overall urban form and amenity. When considering the extent to which a development meets the intent of these guidelines, greater consideration should be given to the higher level guidelines, i.e those that influence large scale and initial site planning matters. By default these affect the overall patterns of urban form, which in turn affect the success or failure of the more detailed design elements relevant at more intimate scales.

The hierarchy is intended to provide clarity and guidance to both developers and council and is reinforced by the assessment criteria of the guide, which give weight to those design issues with the greatest influence on amenity.

For ease of use the guide is divided into sections that overview the urban design philosophy behind the guidelines, provide examples of appropriate and inappropriate design solutions and identify the criteria against which a design will be assessed to determine if it is compliant with the guidelines.

*A responsive environment is one that caters to the needs of its users. The application of appropriate urban design techniques and considerations can be used to ensure that a subdivision provides for both the functional and amenity needs of its users.*

The following table identifies five key factors that should be considered when designing and assessing the appropriateness of a subdivision application.

The decisions made during the initial stages of the subdivision design process, such as the design of the road layout, pedestrian links and block size, will influence future urban amenity issues at both a large scale (i.e. how a development integrates with the wider surrounding context) and a small scale (i.e. the provision of adequate private outdoor space).

In order to clearly identify the design issues with the greatest potential affect on urban amenity, this design guide is presented in a hierarchical format. Four of the five identified factors need particular consideration, with greater importance being placed on those factors further up the hierarchy. The fifth factor (robustness) is less important as the relevant objectives, policies and rules do not currently allow for alternate uses within the zone. However, consideration of robustness is included as there is some scope for its enhancement at the lot level and, in the event that there is greater provision for mixed use development in the future, it can be given more weight accordingly.

Table I

## KEY URBAN DESIGN FACTORS FOR SUBDIVISION DESIGN

Hierarchy	Factor	Definition	Code
1	<b>Permeability</b>	<i>The number of alternative ways through an environment.</i>  The ability to pass through an environment with greatest number of options. A distinction is made between public and private routes, and between vehicle and pedestrian routes.	<b>P</b>
2	<b>Spatial Variety</b>	<i>The number of different experiences in an environment.</i>  The different uses provided by a development, the different spaces they provide.	<b>S</b>
3	<b>Legibility</b>	<i>The ease of understanding of the layout of a place.</i>  The extent to which routes and their junctions are differentiated from one another and how easily people can understand the opportunities they offer.	<b>L</b>
4	<b>Robustness</b>	<i>The number of different purposes an environment can be used for.</i>  The ability to use an environment for the widest possible range of likely activities. Note: This factor is more applicable when considering multiple uses within a zone (i.e. mixed retail/residential) and is included for the sake of completeness. The evaluation of robustness is likely to be of limited use within the Te Kauwhata West Living Zone.	<b>R</b>
5	<b>Visual Appropriateness</b>	<i>The extent to which the appearance of the development reflects the choices offered by the development.</i>  How the detailed appearance of the place makes people aware of the choices. This is distinct from, but related to, the visual appearance of the development. It considers what information is being conveyed by the development rather than how much of the development is seen from particular locations.	<b>V</b>

These factors should be considered within the context of the surrounding environment and relevant objectives, policies and rules contained within the district plan.

The following section identifies key design considerations for each of the above factors.



## Og2.1 | PERMEABILITY

The following urban design considerations influence the extent to which *permeability* is achieved within a subdivision, and between adjacent developments and the wider environment.

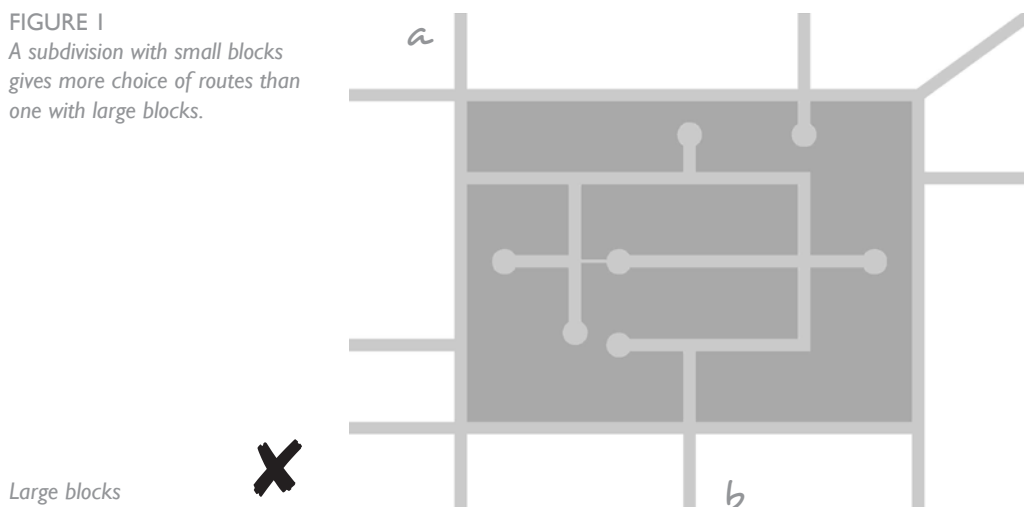
The concept of *permeability* in urban design is based around achieving a balance between maximising alternate routes to the same destination, achieving a hierarchy and efficiency in the linkages (road/pedestrian network) and creating appropriately sized residential blocks.

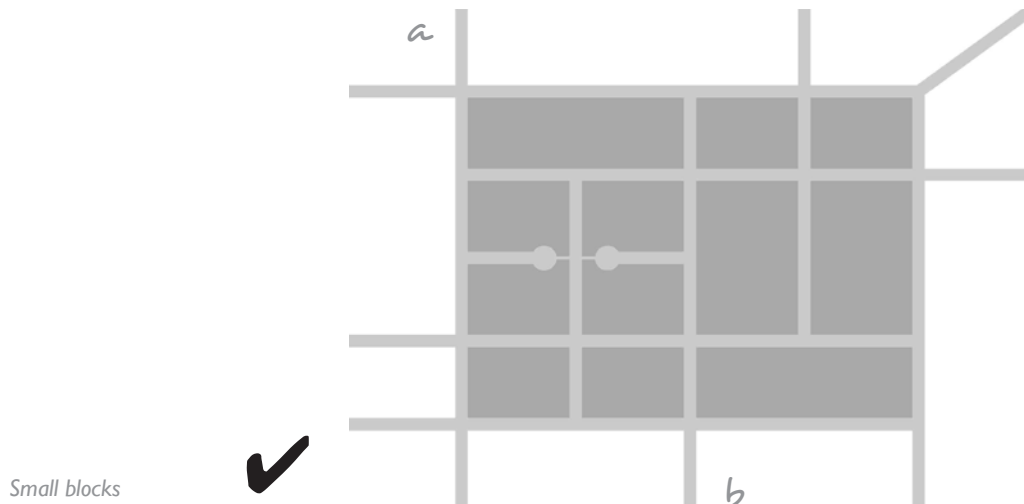
In practicable terms this might mean that neighbours across the back fence have a choice between using a walkway to visit each other, or walking around the block (in either direction). Key to this concept is achieving both visual and physical connections so that people are not only able to see how to get to their destination, but are also able to travel towards it relatively unencumbered and as efficiently as possible.

In general, subdivisions based on a regular or irregular “gridded” roading pattern with small to medium sized residential blocks provide greater *permeability* than large block subdivisions with a high proportion of rear lots, or subdivisions that contain a lot of cul-de-sacs (fewer connections). *Permeability* can be further enhanced through the creation of pedestrian only linkages. However, as addressed later within this guide, these linkages must be carefully designed to provide a safe environment, which is clearly legible as a public space.

*Figure 1* shows the difference in *permeability* options between two different types of subdivision.

FIGURE 1  
A subdivision with small blocks gives more choice of routes than one with large blocks.

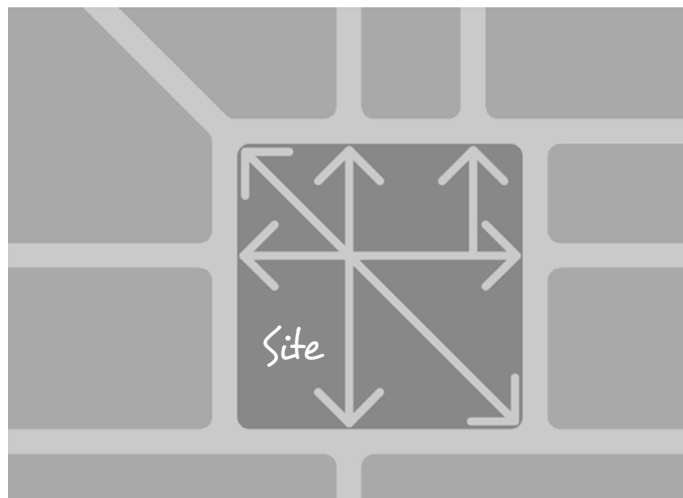




Small blocks

The starting point for the creation of a permeable road network is the surrounding system of links to and through the site. As such, it is important to analyse the streets and blocks of the surrounding area to establish the relative importance of all access points to the site. Consideration must be given to the requirements of pedestrians, cyclists and motorists.

FIGURE 2  
Join the access points across the site, taking account of any existing routes through it.



Fundamental to achieving an appropriate level of *permeability* is the careful consideration of the relationship between the road and pedestrian network and the size and shape of residential blocks. These functions and forms are inherently interlinked. Key aspects to consider include:

- *connectivity*
- *block size*
- *block shape*
- *pedestrian linkages.*

## Og2.2 | KEY DESIGN POINTS TO CONSIDER TO ENHANCE PERMEABILITY

- *Maximise the number of linkages between different destinations.*
- *Allow choice in the route and mode of transport (walking/driving/cycling).*
- *Ensure alternative routes exist.*
- *Try to make linkages visually obvious.*
- *Avoid large residential blocks with a lot of rear lots.*
- *Minimise the use of cul-de-sacs.*
- *Blocks comprising between 10 to 20 lots are preferred. Larger blocks require greater consideration of pedestrian linkages.*
- *Crime Prevention through environmental design considerations should be taken into account when creating permeable networks.*

## Og2.3 | SPATIAL VARIETY

The following urban design considerations influence the extent to which *spatial variety* can be achieved within a subdivision in the context of the wider environment.

*Spatial variety* is a term used to describe variation in terms of size, form, use and meaning. In practical terms this means trying to vary the size of blocks of development and the types of use (recreational, housing, community service, etc). While the types of use are governed by the Objectives, Policies and Rules of the district plan, opportunities still exist to enhance spatial variety in terms of lot size, orientation, and shape; with consequent effects on the variety of building locations, style and size.

At the subdivision level, *spatial variation*, in conjunction with *permeability* considerations, can contribute to enhanced amenity values for residents and visitors by offering experiential choice rather than bland “sameness”. It also helps in way-finding through otherwise similar appearing developments.

Fundamental to achieving an appropriate level of *spatial variety* is the careful consideration of the relationship between the block use (residential or recreational) and the size of lots within. Key aspects to consider include:

- *block use*
- *lot size, ration, frontage, & shape.*

## Og2.4 | KEY DESIGN POINTS TO CONSIDER TO ENHANCE SPATIAL VARIATION

- *Consider the block structure as the starting point for developing variety.*
- *Ensure that the transition between different land uses is carefully designed. For example, avoid abrupt boundaries such as close boarded fences between reserves and private properties (this is discussed further with regards to legibility below).*
- *Consider the widest appropriate range of uses for a development.*
- *Ensure lots are of sufficient size and shape to enable a range of different uses (See also Robustness).*

## Og2.5 | LEGIBILITY

The following urban design considerations influence the extent to which legibility can be achieved within a subdivision, and between adjacent developments and the wider environment.

Legibility is important at two levels. These are the physical forms of development, and what that development is used for. In order to be legible the modernist adage “form follows function” is a good descriptor. People recognise the function and use of a place by the way it looks and what they perceive is likely to occur there. This occurs at many levels. People will go to the door of a house that looks like it should be the main entrance. They will also look for amenities and services in areas that look like they are shopping streets. While this might appear rather obvious, legibility is the quality that makes a place easy to understand and enables users to take advantage of the choices offered by enhancing permeability and variety.

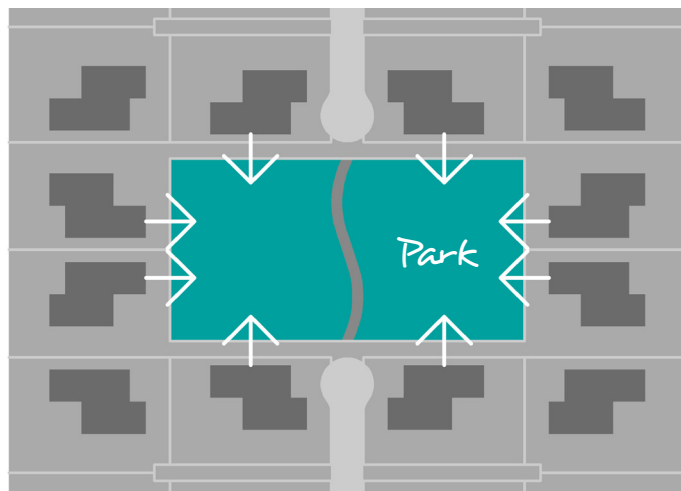
It is particularly important that consideration is given to how a new urban development integrates with the wider environment, particularly if it borders an area with a different use or level of development. For example, if a new urban development neighbours land with a more rural character, it is important that the edge between urban and rural is managed sensitively so that there is a legible transect from one to the other. Abrupt, man-made boundaries between urban and rural environments, which do not relate to natural features or topography, should be avoided.

One way in which the legibility of subdivisions can be enhanced is by establishing a clear road hierarchy. By giving different types of road (local, collector, arterial) a strong visual character, their use and relative importance can be easily distinguished by users, enhancing way finding (Refer to Streetscape Design Section).

When designing a subdivision road network, consideration may be given to the alignment of roads to make the most of existing landmarks. This can involve orienting roads to focus on prominent landmarks, be they buildings or natural features.

Where pedestrian pathways are required between private lots it is important that they are designed to clearly “read” as public thoroughfares. Close boarded fences and dense privacy planting can make these places hard to interpret and potentially dangerous. In general, to enhance legibility and safety, these paths should be relatively straight, short and in view of neighbouring houses.

FIGURE 3  
Access drives and houses overlook walkway/park that links two streets.



## Og2.6 | KEY DESIGN POINTS TO CONSIDER TO ENHANCE LEGIBILITY

- *Ensure the boundaries of new urban developments are designed so that they do not detract from the legibility of the existing wider environment.*
- *Differentiate the design of routes and their junctions so that their functions and relative importance are clearly discernible.*
- *Design the road network of the development to make best use of the legibility potential of existing elements on and around the site.*
- *Establish a design language, which clearly communicates the road hierarchy within a development.*
- *Carefully design pedestrian routes which are bordered by the private backs of residential properties so that they are safe and clearly legible as public spaces.*

## Og2.7 | ROBUSTNESS

The following urban design considerations influence the extent to which *robustness* can be enhanced within a subdivision.

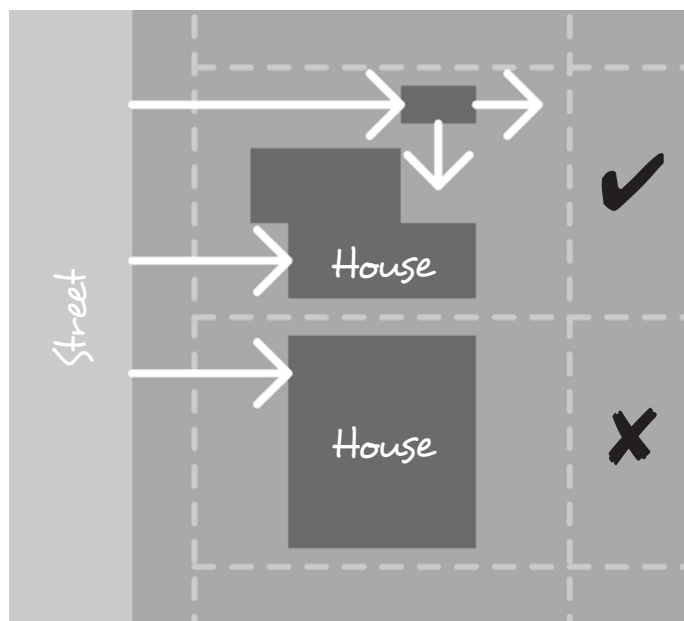
Robust places can be used for many different purposes and offer their users a high degree of choice.

As addressed in the introduction to this section, robustness is largely dictated by the Objectives, Policies and Rules of the district plan, which determine the range of uses within a zone. However, at the lot level there remains some scope for enhancing this value.

The robustness of private outdoor space is affected by broader design issues, such as block size and type, which in turn affect individual lot size, shape and orientation. Lot size significantly affects the range of uses private outdoor space can be put to. While relatively small outdoor areas (50-100 m<sup>2</sup>) can only be used for passive activity, children's play and/or a small garden, larger areas (150 m<sup>2</sup>) can allow a greater range of activities and potentially enable a family to become self sufficient in vegetables (Responsive Environments Design Sheet 4.6).

In addition, lot orientation and dwelling height affect the range of uses a private outdoor area can be put to, based on the amount of sunlight it receives. In general, south facing outdoor areas will need to be longer to receive adequate sunlight.

FIGURE 4  
*Outdoor space which is private, within the perimeter block, greatly increases housing robustness. Rear access - or side access increases the garden's potential for a range of activities.*



## Og2.8 | KEY DESIGN POINTS TO CONSIDER TO ENHANCE ROBUSTNESS (AT THE LOT LEVEL)

- *Consider effects of block size and shape on the configuration of individual lots at the initial site planning stage of a subdivision.*
- *Ensure private open spaces are of sufficient size to accommodate a variety of uses.*
- *Ensure that the majority of private outdoor space is not potentially overlooked from neighbouring dwellings.*
- *Ensure that easy access is provided to private outdoor areas from dwellings.*
- *Ensure lot orientation and dwelling heights and setbacks allow private outdoor areas to receive sufficient sunlight.*

## Og2.9 | VISUAL APPROPRIATENESS

The following urban design considerations influence the extent to which *visual appropriateness* can be achieved within a subdivision, in the context of the wider environment.

*Visual appropriateness* concerns the interpretations people put on a place based on its appearance. For a development to have visual appropriateness it must reinforce the legibility of a place and make people aware of the choices available by the qualities addressed above.

In general, this means that the detailed design of developments should be contextually appropriate to the surrounding environment and communicate the levels of choice designed into a place. For example, this may involve the use of different locally appropriate street trees to demarcate the various road types within a development or the use of locally sourced materials, such as local stone for use within the street furniture.

## Og2.10| KEY DESIGN POINTS TO CONSIDER TO ENHANCE VISUAL APPROPRIATENESS

- *Identify the visual character of the existing wider environment.*
- *Identify what cues can be used to reinforce or contrast with this existing character.*
- *Establish how detailed design will reinforce a developments responsiveness in terms of legibility, variety, and robustness.*



*The following section provides guidance for the design of subdivisions. Each guidance point is coded (as per table 1) to indicate the relative level of importance within the hierarchy of urban design factors and the degree of crossover between each factor.*

Consideration is given to initial site planning matters, which will establish the framework for a responsive environment by enhancing permeability, spatial variation, legibility and robustness. In addition, the importance of integrating natural features into a permeable subdivision design is addressed in terms of enhancing amenity and ecological values. Lastly, the importance of streetscape design is addressed in terms of enhancing character and amenity values and is accompanied by examples of street types, designed to contribute to a legible environment.

## Og3.1 | SITE PLANNING

### Og3.1.1 | CONNECTIVITY [P] [L]

A significant aspect of the structure plan is the requirement for a connected street network. The price of too many culs-de-sac is that all traffic is concentrated on the collector roads the culs-de-sac run off (*Figure 5*). As traffic flows increase the collector roads have to be widened (at rate-payer's expense) and become harder for pedestrians/cyclists to use. A lack of connectivity also discourages walking and cycling because of the greater travel distances and results in disconnected neighbourhoods. Example of disconnected (*Figure 6A*) and connected street networks (*Figure 6B*) are found on the following page.

The road configuration identified in the structure plan demonstrates that a highly permeable network is achievable, whilst working with topographic constraints and the retention of natural features.

FIGURE 5  
 Collector Road links subdivisions  
 but cul-de-sac local roads  
 still leave a disconnected  
 neighbourhood.

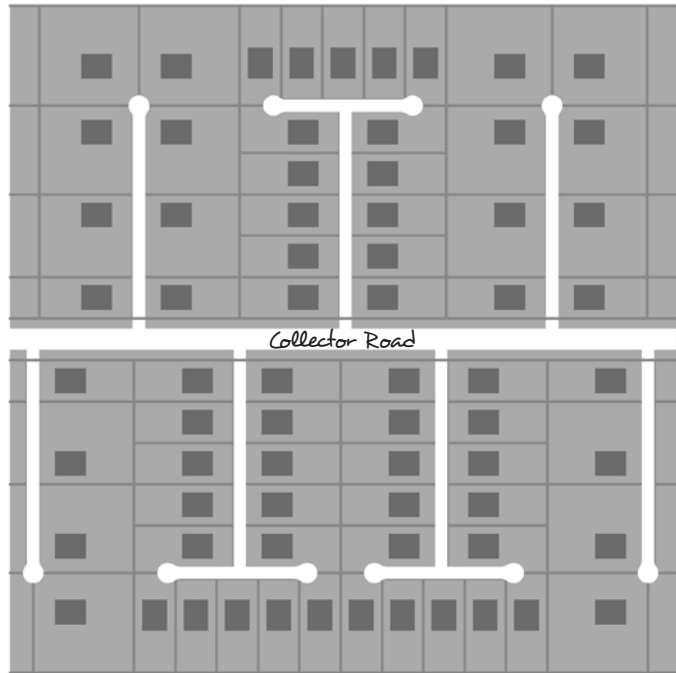
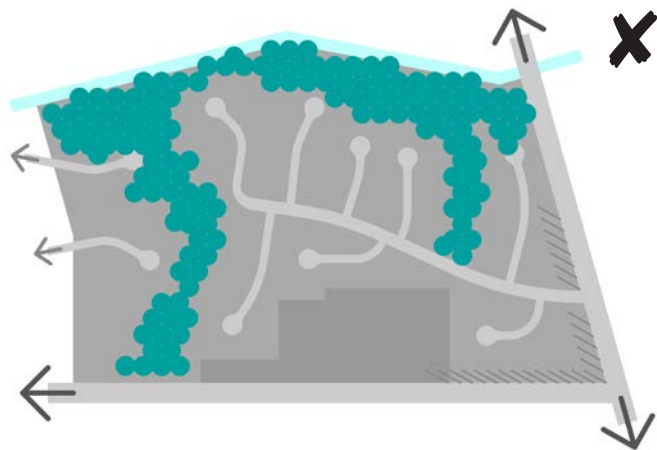
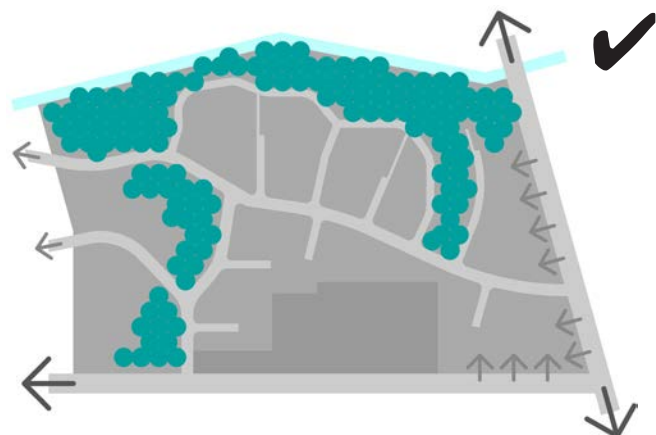


FIGURE 6A  
 Comparison showing how a  
 connected street network provides  
 shorter routes and integrates  
 natural feature.



Non-permeable layout, as shown above, do not provide users with a choice of alternative routes. Offering alternative routes as illustrated below can encourage walking and cycling as well as reducing vehicle kilometres travelled.

FIGURE 6B



### Og3.1.2 | BLOCK SIZES [P] [S] [L] [R]

The residential block is the middle scale of urban design between town layout and individual site design. The block size should be the result of a connected street network and individual sites that create private outdoor space. Block sizes (allied with street connectivity) should be kept to a reasonable size to encourage walking and cycling in a neighbourhood. In the past, some developers have sought to minimise costs by reducing the number of public streets and increasing the number of rear lots and associated rights of way. In response, the *Te Kauwhata Structure Plan* limits the allowable level of rear lots to 10% per neighbourhood block and stipulates that driveways to rear lots shall be shared by a maximum of two adjoining lots.

It is acknowledged that while the number of rear lots should be minimised, they are unavoidable in some locations due to irregular land parcel shapes and steep topography. In these circumstances, short culs-de-sac with good streetscape amenity are considered a better solution (*Figure 7*).

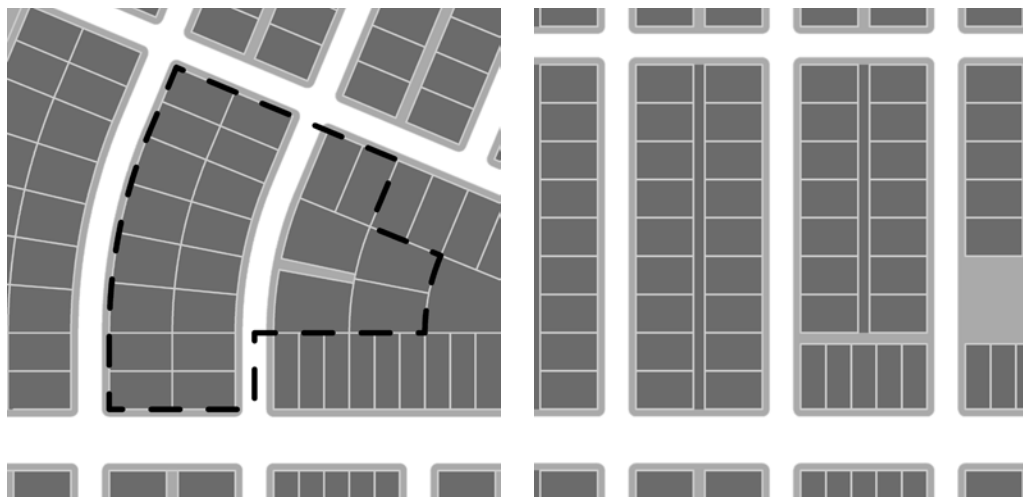


FIGURE 7  
Short cul-de-sac for awkward shaped land parcels.

FIGURE 8  
Rectangular block.

### Og3.1.3 | BLOCK SHAPE [P] [S] [L] [R]

Lot shapes and topography combine to make three main block shapes: square, rectangular and irregular. The block shapes frame vistas down roads and across intersections and affect the open or contained nature of a neighbourhood.

The rectangular block shape with two lots in depth creates a walkable neighbourhood and reduces the number of right-of way driveways (*Figure 8*). The short end of the block should be placed against collector or arterial roads so more houses are on quieter local

roads. Neighbourhood shops can be placed on the end block with a rear service lane as a buffer to houses. Rear lanes (dashed) can be added for medium density housing if garage doors are likely to dominate the streetscape.

This grid pattern creates an open character for the neighbourhood with a long vista down every street, which can become monotonous.

Offsetting local roads or central village green parks maintains a walkable street pattern but closes the view to create a more contained character (*Figure 9*). Medium density housing can be located between the neighbourhood shops and village green. The convenience to shops and outlook across the park offset smaller gardens that suit young childless couples or retired people for example.

Irregular blocks (*Figure 10*) are useful to adapt to rolling ground so earthworks are minimised and the streets generally follow existing contours. The curving streets also close long views that are usually balanced by the views available from the sloping ground across lots.

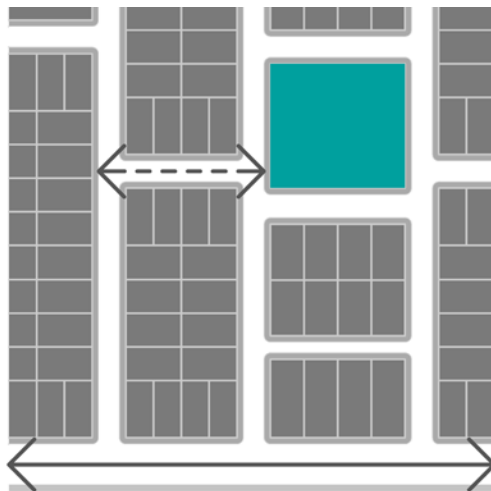


FIGURE 9  
*Closed views with offset.*

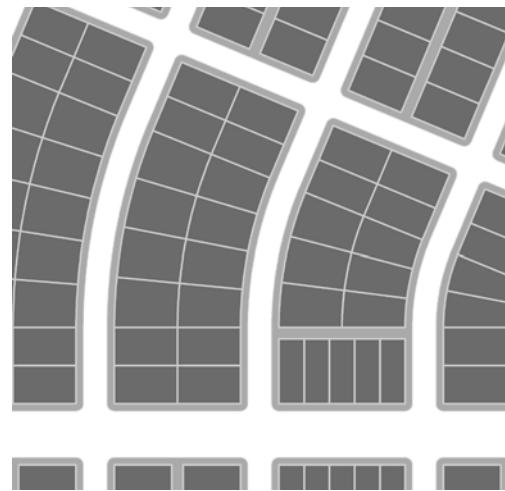


FIGURE 10  
*Irregular shaped block.*

Square blocks (*Figure 11*) were commonly used in the 19th century for low-density allotment housing with vegetable gardens or small paddocks. Examples of this block shape can be seen in Ngaruawahia (*Figure 12*). For today's urban zones square blocks are generally too big or create lots that are too irregular in size. A hollowed out square block is a useful type for medium density housing with a shared private or public open space to offset smaller gardens.

Predominance of one block type creates areas without different character. It is preferable to use the different block types to suit the topography, arterial roads and open/closed neighbourhood character.

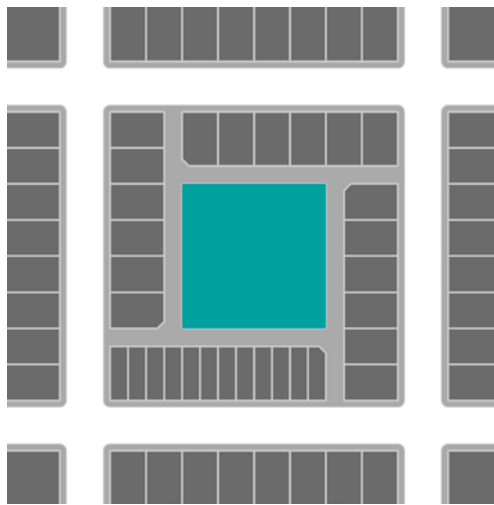


FIGURE 11  
Square block.



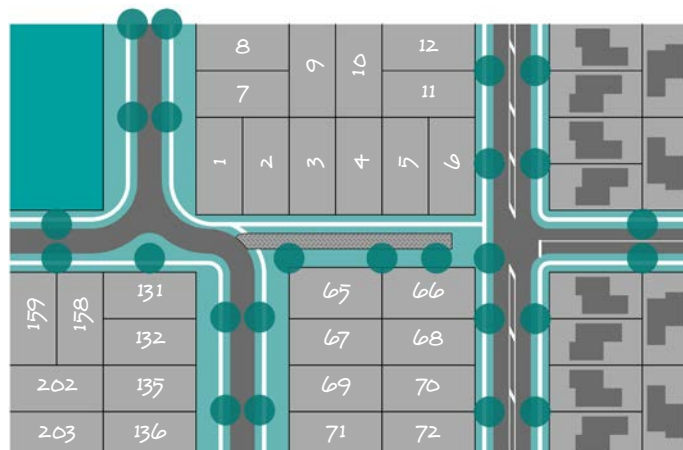
FIGURE 12  
Square blocks in Ngaruawahia.

### Og3.1.4 | PEDESTRIAN LINKAGES [P] [L]

Pedestrian-only walkways and linkages used to connect culs-de-sac or streets are discouraged as they have surveillance and graffiti problems. Walkways will only be accepted where topography or natural features make a street connection difficult. In these situations the walkway should be 8 metres minimum width. Use of access drives and lots that overlook the walkway (Figure 3) avoids close-boarded fences that make the walkway unsafe to use. Walkways should be relatively straight and reasonably short so that people can see along the entire route.

Public lanes can be used in locations where streets cannot be connected due to arterial road regulations. A driveway, house frontages and a footpath create a 'public lane' along a pedestrian desire line from the arterial road (Figure 13).

FIGURE 13  
Where an intersection cannot be formed on an arterial road a shared lane with properly formed footpath creates a better pedestrian/cyclist link.



### Og3.2 | SITE PLANNING KEY POINTS

- Provide a connected street layout, including cycleways and walkways.
- Avoid culs-de-sac as much as possible. Where they do occur, limit their length and keep in a straight alignment.
- Keep blocks to a reasonable (easily walked) size.
- Mix block types to suit topography, views and avoid repetitive neighbourhoods.
- Minimise the number of rear lots.
- Maximise the number of north-south streets and sections with north, east or west facing rear yards. Ensure off-road routes are attractive and highly visible.

## Og3.3 | INTEGRATING NATURAL FEATURES

### Og3.3.1 | INTEGRATING TOWNS INTO THE NATURAL ENVIRONMENT [P] [S] [L]

Urban design should integrate the natural environment into the public realm as a feature in the town's layout to reinforce and enhance character. A key approach to the successful integration of the natural environment with towns and villages is to ensure that these areas have high quality public access that forms part of a wider walkway network with high levels of street interface. Lakes, streams, wetlands and parks should have as much perimeter street frontage as possible so that they function as town landmarks and are over looked and therefore safer to use. Successful examples in the district are the Waikato Esplanade in Ngaruawahia and Cliff Street in Raglan (*Figure 14*).

**FIGURE 14**  
*Waikato Esplanade in Ngaruawahia connects the Waikato River and town more positively than a walkway behind back fences.*



Linking natural character areas/open spaces with good cycling/walking streets creates 'green corridors' that highlight a town's natural character. Over time the mature trees in these green corridors will create urban 'shelter belts' that will keep natural character in new residential areas.

### Og3.3.2 | WATERWAYS AND OPEN SPACE [P] [S] [L]

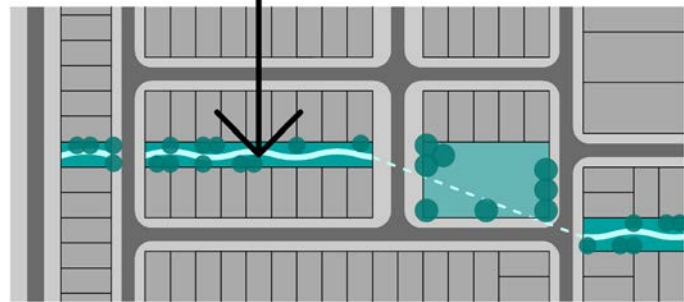
Fragmented and disconnected habitats are an important resource management issue for the ongoing survival of wildlife living near urban areas. In many circumstances there are opportunities to integrate ecological corridors and stands of vegetation into the layout of a town in order to create contiguous areas of habitat particularly along waterways.

Blue and green corridors are a name for natural and constructed waterways and landscaped areas of a certain area. Ideally, the linking of blue and green corridors forms

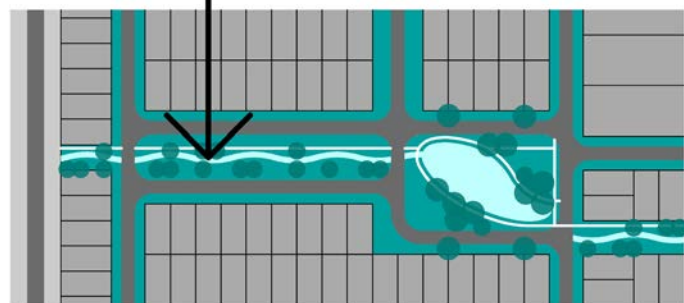
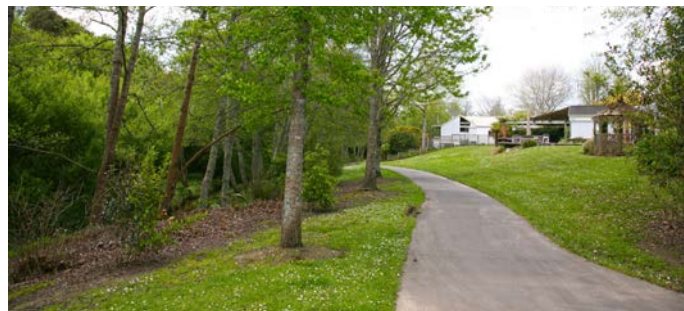


one basis for the design of the street and pedestrian network for a town. Blue and green corridors also help to create interconnected areas of high amenity value and recreation for a community (Figure 15).

FIGURE 15  
Good and bad examples of  
integrating stormwater ponds into  
open spaces.



Existing streams and vegetation are often poorly treated by new developments if they are not integrated into the scheme. In this example much of the development backs onto the existing stream.



With careful integration streams and vegetation can become a valuable natural asset to the amenity of the new development. The site now offers improved pedestrian access (shown in white) with road frontage to open space for passive surveillance.



The blue and green corridors create a framework for other low impact stormwater devices to feed into. These may include constructed wetlands, ponds, rain gardens and swales. Stormwater detention ponds should be located along waterways to reinforce green or blue corridors. If it is not possible to locate a detention pond beside a stream or lake then the detention pond must be located beside a neighbourhood reserve or a collector road to help form public open space with street frontage. Constructed wetlands, stormwater detention ponds (and neighbourhood reserves) located behind houses will not be accepted.

### Og3.3.3 | EARTHWORKS [L]

Earthworks for subdivision and dwelling development can have significant effects on landscape and village character. Developments should be designed to minimize the need for earthworks. This can be achieved through careful selection of road alignment and building platform location. Where retaining walls are needed for building platforms, these should remain low and generally be located at the rear of a property to minimize their visibility from the road.

## Og3.4 | KEY DESIGN POINTS TO CONSIDER WHEN INTEGRATING NATURAL FEATURES

- *Identify natural features and consider how they can be used to enhance the development.*
- *Incorporate natural features and corridors into public open space.*
- *Ensure public open spaces are easily accessible, highly visible and connect to provide recreational as well as conservation objectives.*
- *Enhance the ecological values of natural features.*
- *Use low impact stormwater designs, and retain and restore open stream networks.*
- *Design subdivisions and buildings to minimise the need for earthworks.*

## Og3.5 | STREETSCAPE DESIGN

### Og3.5.1 | IMPORTANCE OF STREETSCAPES

The character of streetscapes contributes significantly to the character and amenity of neighbourhood areas. Engineering standards are a common feature in District Plans and by necessity they focus on vehicle capacity and safety for pedestrians, cyclists and motorists. This Urban Design Guide focuses on streetscape design issues and how adjacent buildings or open space also influence street types.

Trees are often the most important element in improving streetscape character (*Figure 16*). Utility berms to allow service free areas for tree planting are proposed in the street types. Narrowing the perceived width whilst maintaining safe carriageway width is also proposed. Visual narrowing of the street improves character, slows speeds and makes pedestrian crossing easier. Different paving for parking bays, channels between parking/carriageway and street trees on kerb extensions in the parking bay depth are methods to achieve this.

FIGURE 16  
*Trees improve streetscape amenity.*



A range of typical street type cross-sections has been included in Appendix A:Traffic.

## Og3.5.2 | STREET TYPES

### Og3.5.2.1 COLLECTOR ROAD (Figure 17)

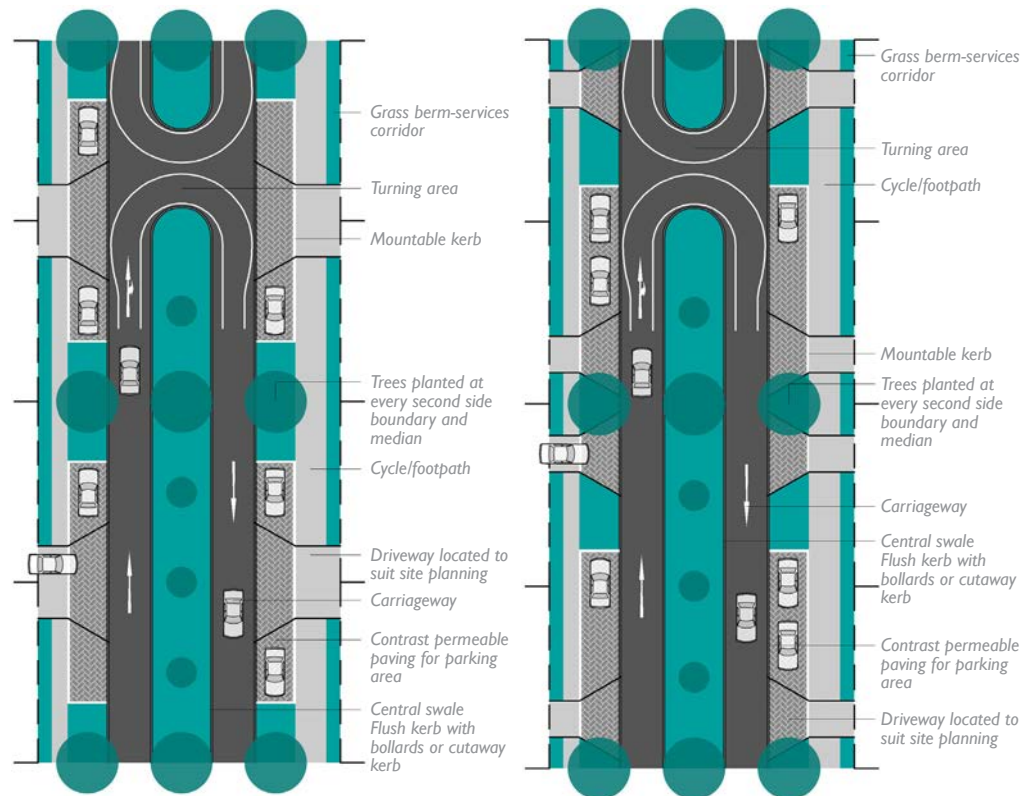


FIGURE 17  
Indicative Collector Road Design.

Refer to Appendix A:Traffic (Figure 4B2) Collector Road Cross Section for more detail.

- Central swale for low impact stormwater management. Flush kerb to allow water to pass into swale.
- Planting in centre swale.
- Permeable carpark paving that contrasts with asphalt to narrow road visually. Flush kerb at carriageway/parking edge and mountable kerb to footpath edge.
- Tree planting at every second property side boundary in carparking bay depth to narrow road visually.
- Root guard to tree pit.
- Driveway crossing anywhere between trees over mountable kerb. One parking bay for every site. Refer plans above for possible combinations of street trees, driveways, parking

and grassed berm. The plans are based on 15 metre wide sections as these are the narrowest allowed and are suggestions. Other layouts that provide the driveways and carparking will be considered.

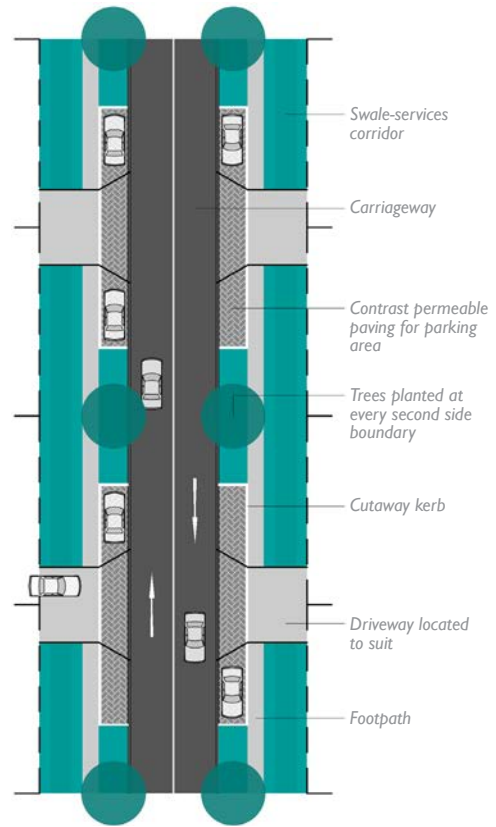
- 1.5 metre footpath on one side of street and 3 metre shared path on other side.
- 1.35 metre planted side berm for services. Services **MUST** be located in this berm to allow tree planting in parking bay depth.

### **Og3.5.2.2 LOCAL ROAD** (Figure 18)

There are two options for carriageway width depending on projected traffic volume. Refer to the Appendix A:Traffic (Figure 4B3) for more detail.

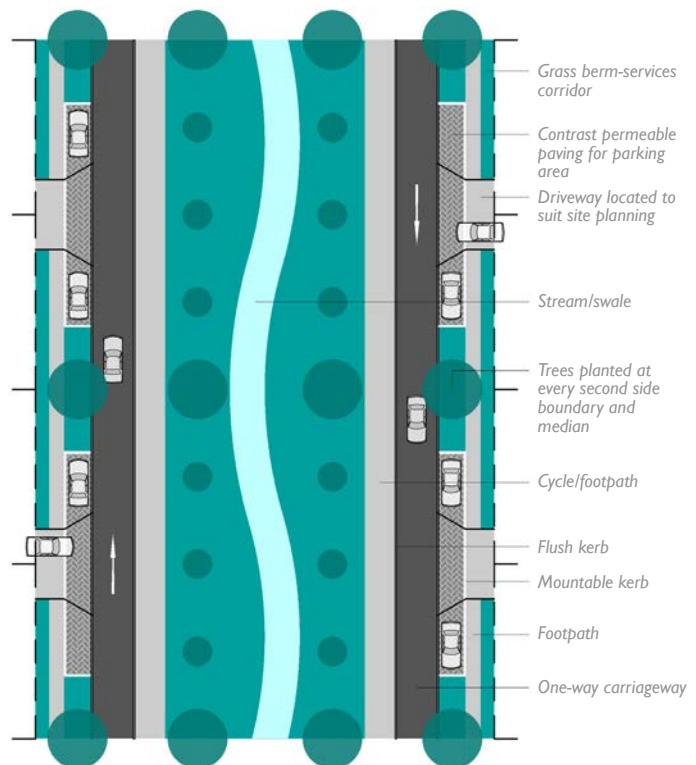
- Permeable carpark paving that contrasts with asphalt to narrow road visually. Flush kerb at carriageway/parking edge and cut-away kerb to footpath edge.
- Tree planting at every second property side boundary in carparking bay depth to narrow road visually.
- Root guard to tree pit.
- Driveway crossing anywhere between trees over mountable kerb. One parking bay for every site. Refer attached plan for possible combinations of street trees, driveways, parking and grassed berm.
- 1.5 metre footpath.
- 3.5 or 4.0 metre wide side swale. Refer to Traffic details for driveway/footpaths crossing the swale. Services **MUST** be located in this berm to allow tree planting in parking bay depth.

FIGURE 18  
Indicative Local Road Design.



**Og3.5.2.3 STREAM MARGIN LOCAL ROAD (Figure 19)**

FIGURE 19  
Indicative Stream Margin Local Road Design.



Refer to Appendix A:Traffic (Figure 4B4) Greenway Corridor for more detail.

- *Local road along stream margins.*
- *One way carriageway pair split on each side of stream or two-way if street only possible on one side of stream.*
- *Permeable carpark paving that contrasts with asphalt to narrow road visually. Flush kerb at carriageway/parking edge and mountable kerb at footpath edge to reduce driveway level transition on house side. Flush kerb on stream margin side.*
- *Tree planting at every second property side boundary in carparking bay depth to narrow road visually.*
- *Root guard to tree pit.*
- *Driveway crossing anywhere between trees over mountable kerb. One parking bay for every site. Refer attached plan for possible combinations of street trees, driveways, parking and grassed berm.*
- *1.5 metre footpath on house side of street and 3 metre shared path in stream margin. Path location in stream margin to be confirmed as part of subdivision consent.*
- *1.35 metre side berm for services on house boundary. Services MUST be located in this berm to allow tree planting in parking bay depth.*
- *Integrate stormwater ponds into central open space (outside flood plain).*

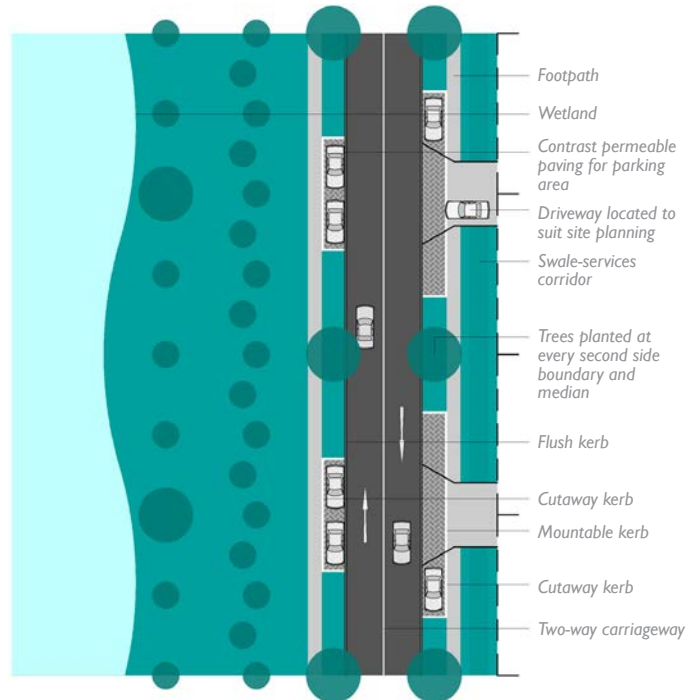
FIGURE 20  
*Possible outcome as an urban park solution. Alternative if more undergrowth required for ecological reasons.*





### Og3.5.2.4 WETLAND EDGE LOCAL ROAD (Figure 21)

FIGURE 21  
Indicative Wetland Edge Road  
Design.



Refer to Appendix A:Traffic (Figure 4B4) Whangamarino Margin for more detail.

- Two way local road carriageway.
- One way lane as option (refer overall examples in residential subdivision section).
- Permeable carpark paving that contrasts with asphalt to narrow road visually. Flush kerb at carriageway/parking edge and mountable kerb at footpath edge to reduce driveway level transition. Flush kerb on wetland side.
- Tree planting at every second property side boundary in carparking bay depth to narrow road visually.
- Root guard to tree pit.
- Driveway crossing anywhere between trees over mountable kerb. One parking bay for every site. Refer attached plan for possible combinations of street trees, driveways, parking and grassed berm.
- 1.5 metre footpath on house side of street and 1.5 metre footpath in wetland margin. Path location in wetland margin to be confirmed as part of subdivision consent.
- 1.35 metre side berm for services on house boundary. Services MUST be located in this berm to allow tree planting in parking bay depth.
- Integrate stormwater ponds into wetland margin open space (outside flood plain).
- Tree planting to suit wetland edge landscape context.

- *Wetland margin to specific design.*

## Og3.6 | STREETScape DESIGN KEY POINTS

- *Recognise that streets play a large part in determining the character of a town, and aim to create an attractive streetscape.*
- *Ensure streets comply with the applicable cross-section type and engineering standards.*



# Og4 SITE DESIGN FACTORS

*As addressed in the subdivision section above, there is scope to enhance spatial variety and robustness at the lot level, with regards to lot size, shape and orientation and this is addressed below in greater detail. In addition, the following factors (Richness and Personalisation) apply to the most detailed level of design and relate to the selection of materials and construction techniques to enhance the sensory experience and unique character of a place. These factors not only affect private amenity, but also wider neighbourhood amenity values.*

Table 1

## KEY URBAN DESIGN FACTORS FOR SITE DESIGN

Hierarchy	Factor	Definition	Code
6	<b>Richness</b>	<i>The level of sensory experience provided by an environment.</i>  A rich environment has a high level of sensory experiences which users can enjoy.	<b>R2</b>
7	<b>Personalisation</b>	<i>The degree to which people have put their own stamp on the environment.</i>  Designed places should leave room for the people who live in the places to put their own mark on their environment.	<b>P2</b>

Richness and personalisation may be considered with regards to conditions of consent for subdivisions, which under some circumstances restrict the type and colour of exterior cladding materials. In this situation, it is worth considering how a balance may be achieved between protecting broader amenity values versus their potential to limit the ability of users to personalise their environment.

## Og5.1 | LOT ORIENTATION [L] [R]

Maintaining a village and/or natural character relies on landscaping of private outdoor space. Therefore it is important that lots within the block types are shaped to create sunny outdoor spaces that relate directly to living, dining and kitchen areas. Lot shapes will be assessed at subdivision consent stage against the following guidelines.

Sites with north, east or west facing rear yards should be rectangular rather than square to maximise the private rear yard.

Sites with east or west facing rear yards can be wider and shallower to allow for north sun into the house itself. Subdivision plans should minimize sites with north facing front yards as the sunny side of the house is open to the street. North/South streets are better than East/West streets as they reduce the number of houses with a north facing front yard (*Figure 22*). The sites with north facing front yards can be designed out as shown in *Figure 23*.

FIGURE 22  
*East-West street and difficult  
South rear yards.*

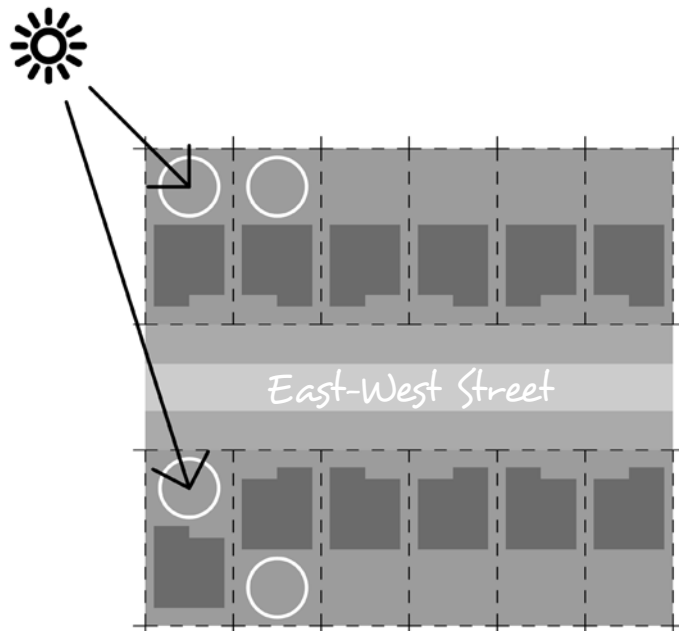


FIGURE 23  
North-South street and East or West rear yards.

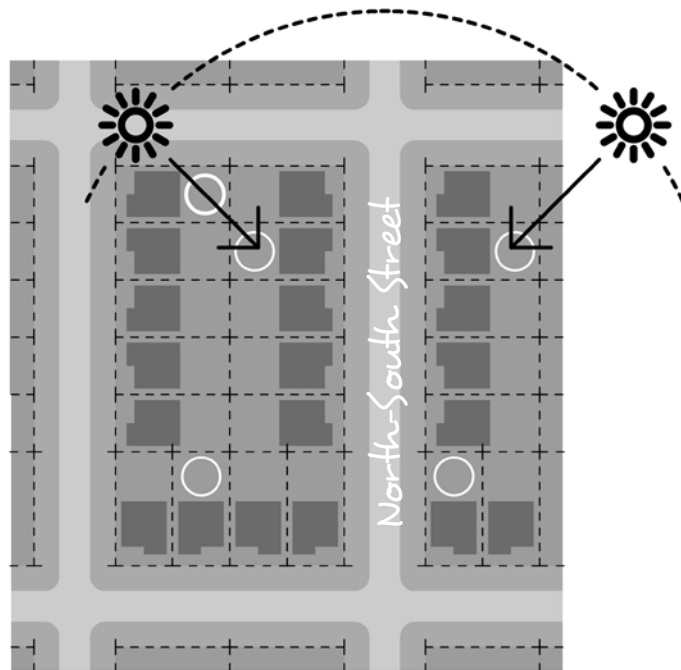


Figure 24 shows 450m<sup>2</sup> sites with a 15 metre frontage as these are the minimum dimensions in the District Plan. They also assume a typical single level 156m<sup>2</sup> house. Two storey houses can ease private open space concerns but they are more expensive.

Figure 24 (top left) shows that, for east/west orientated streets, a good size north facing rear yard is possible even on a 450m<sup>2</sup> site. Figure 24 (top right) is the minimum 600m<sup>2</sup> new residential zone site. This site can be wider for better sunlight at the sides and space between houses, but generally deeper sites are better with north facing rear yards.

Similarly, for north/south orientated streets, private rear yards are possible with east or west facing rear yards. Figure 24 (middle) is a 450m<sup>2</sup> site, and Figure 24 (lower) is the wider 600m<sup>2</sup> site that allows more north sun into the house itself.

A square section loses many of the benefits of the north facing rear yard (Figure 25, top) as the house and driveway occupy the full depth of the site. The outdoor living space is on the side of the section and so is not private from the road.

The square section is a better solution with a north facing front yard (Figure 25, bottom). The open space is on the side of the section and receives sunlight but fencing will be required for privacy. A north-facing site that relies on sunlight passing over the house to an outdoor living area in the rear yard has to be deeper so a larger section is required.

FIGURE 24  
 Lot orientation north, east and  
 west rear yards.

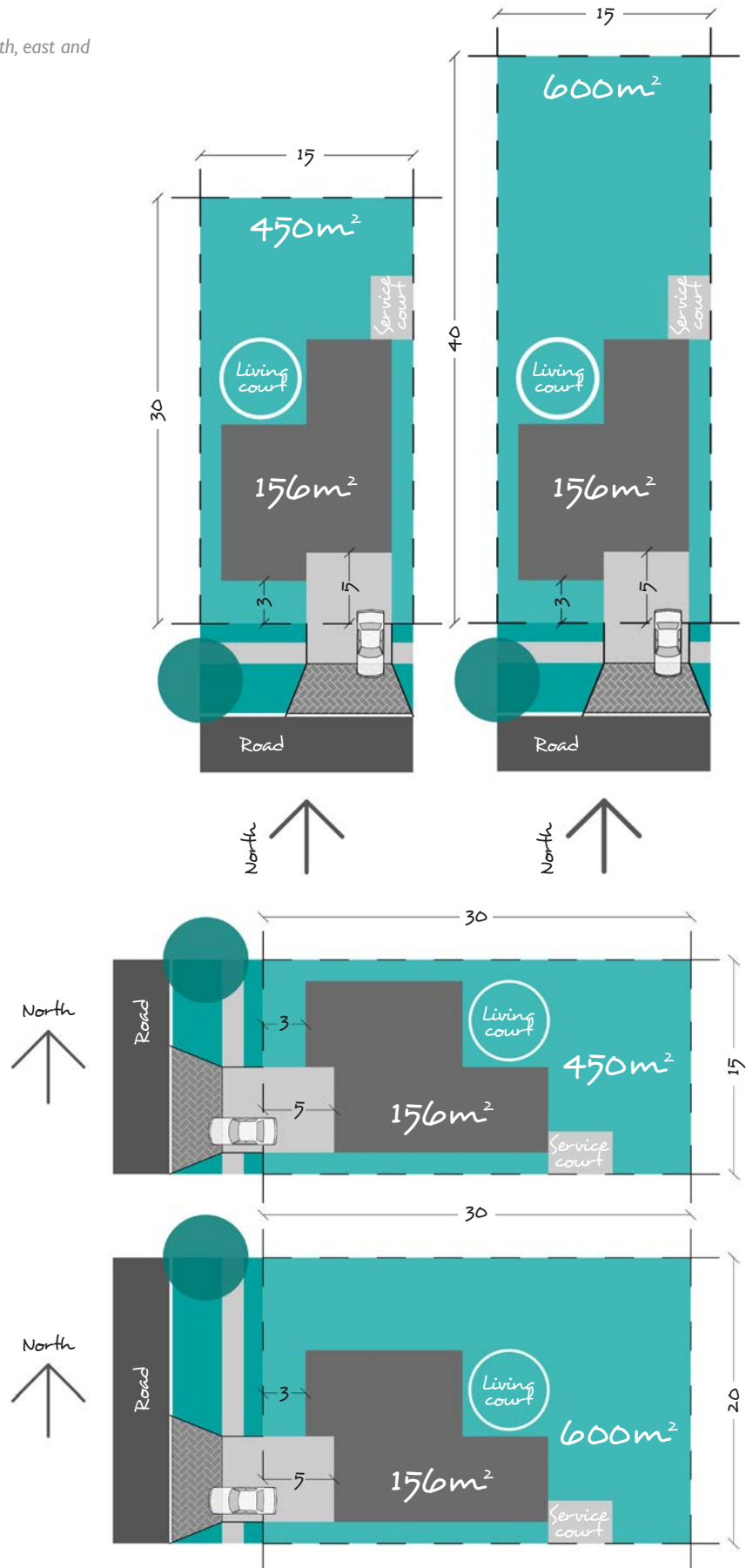
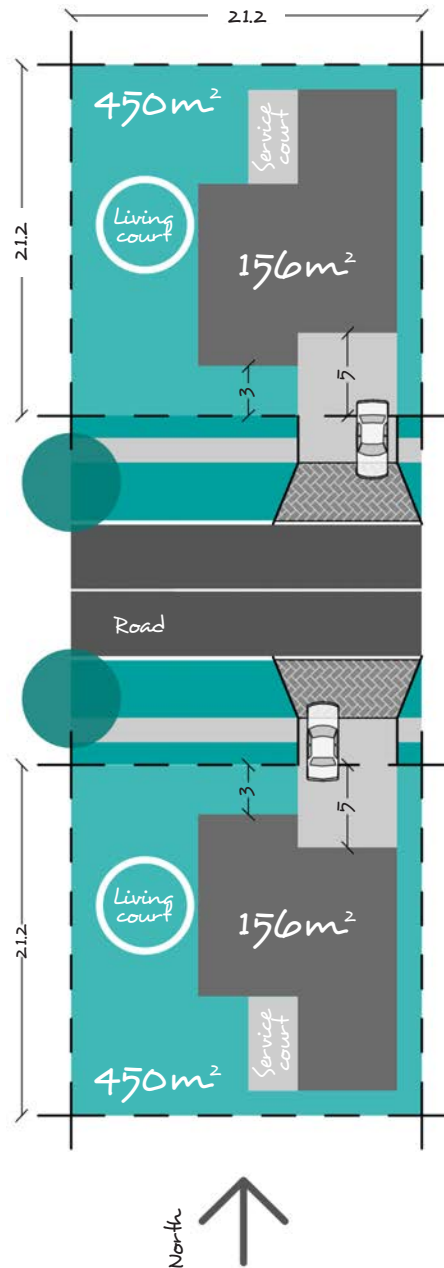


FIGURE 25  
Square shaped 450 m<sup>2</sup> lots.



## Og5.2 | SITE PLANNING [L] [R]

Good site planning of detached houses achieves a balance between quality public domains and private backyards in which to live.

Figure 26 shows how 6 metre front yard set-backs derived from low-density rules are frequently misapplied to smaller lots, severely compromising space in the backyards and privacy. Large setbacks and sweeping front lawns can create the illusion of a grander house, but at the expense of a decent sized backyard if the lot size is too small. Street presentation is important to development, but should not be the determining factor in site layout. The size of the front yard should not compromise a liveable backyard size.

FIGURE 26  
6 metre front yards and no rear yard.



### Og5.3 | BUILDING FRONTS AND FRONT YARDS [S] [L] [R2] [P2]

Houses should have a public front with windows and entries so that they contribute to interesting streets that encourage walking and cycling. ‘Eyes on the street’ also encourages walking and cycling by creating streets with public surveillance.

Onsite vehicle manoeuvring has been a standard requirement for residential sites. Even though the front yard requirement is only 3 metres, standard house plans are generally rectangular in shape so the whole house is pushed back. This can mean a large front yard, with the consequence being the rear yard is reduced in size. Unless the section is large, the private open space is severely reduced for traffic safety reasons (*Figure 27*). High quality outdoor living space is an important part of creating attractive urban amenity, and this typically means having a substantial part of the outdoor space on the side or rear of the section. Therefore onsite manoeuvring is not required for lots on residential roads where low traffic volumes and speeds mean that traffic safety will not be compromised by traffic reversing onto a street.

Garage doors can become visually dominating and adversely affect streetscape amenity (*Figure 28*). If the garage door has to face the street it should be placed 6 metres into the site allowing for on-site parking. The main section of the house can project forward with the minimum front yard of 3 metres and reduce the visual effect of the garage.

FIGURE 27  
Effect of vehicle manoeuvring on small sites.

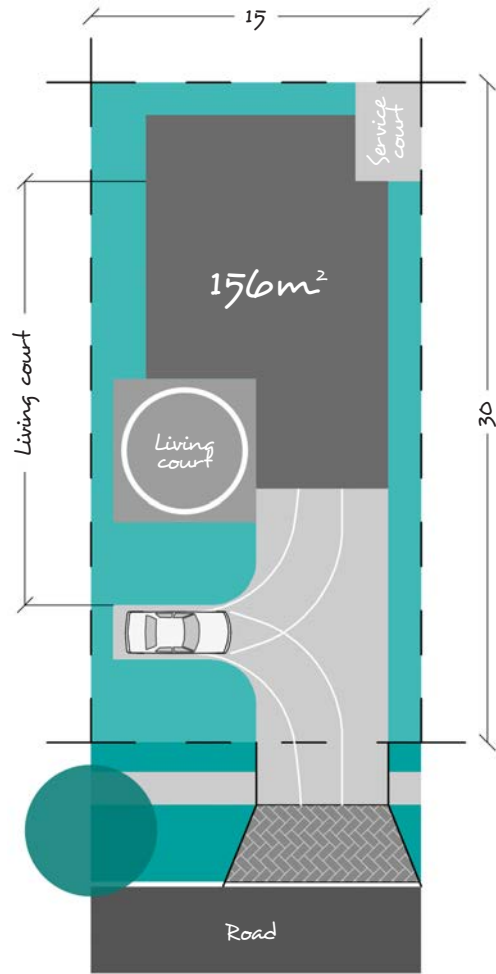
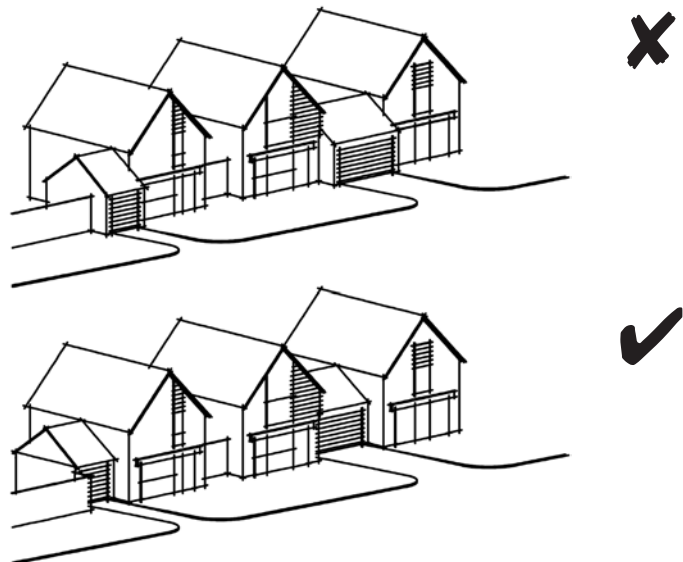


FIGURE 28  
Recessed garage doors (bottom).



If streets run along the contours on sloping sites then retaining walls should be located on rear boundaries.



Minimizing retaining walls in the front yard improves the streetscape. Berms or sloping landscaped areas are preferable in front yards (Figure 29 & 30).

FIGURE 29  
Retaining walls detract from streetscape.

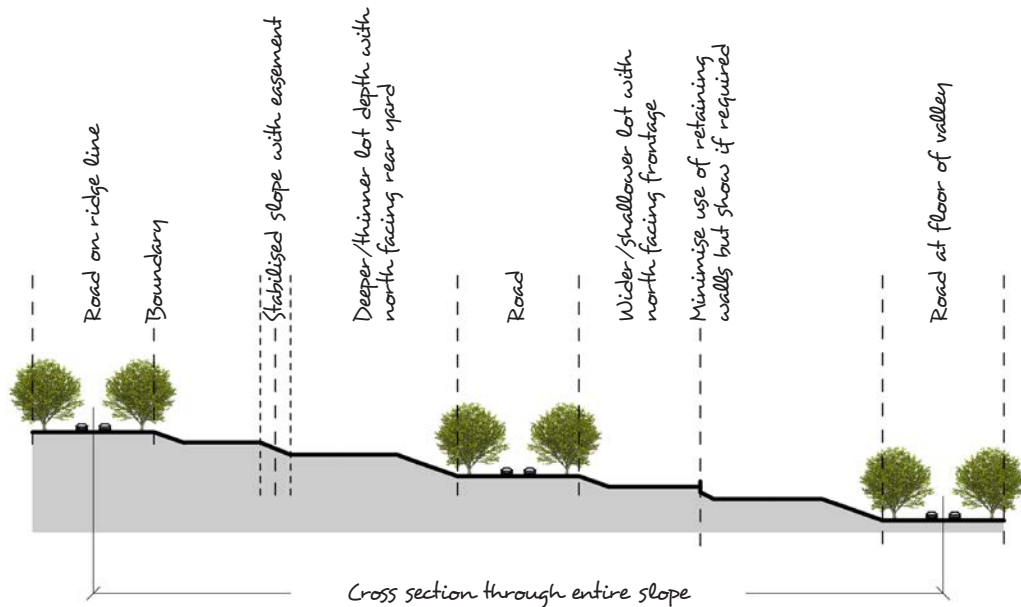


FIGURE 30  
Berms in front yards and retaining walls in rear yards.

On steeper slopes cutting building platforms to most of the section area results in very high retaining walls. Reduced building platforms and two storey housing is encouraged to limit the size of retaining walls (Figure 31). Earthworks designed to provide area of usable quality on dwelling sites while retaining much of the original slope profile can be relatively cost effective to achieve, and still create attractive lots.



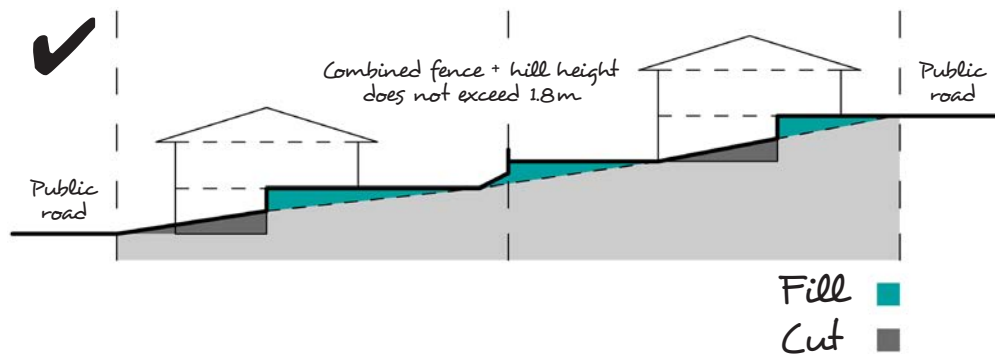


FIGURE 31  
Cutting and filling sites to  
minimise earthworks on steeper  
slopes.

## Og5.4 | DESIGN VARIETY [S] [R2]

Housing companies frequently buy a number of sites in subdivisions and use standard designs. A repetitive design creates a monotonous streetscape. No more than three houses in a row having the same plan and finishes avoids this problem.

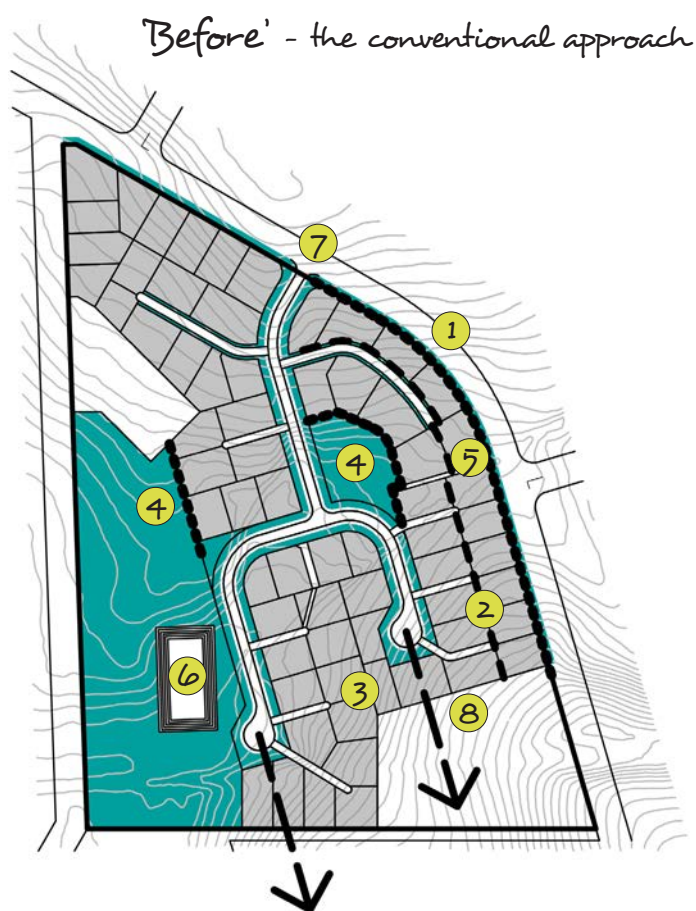
## Og5.5 | KEY DESIGN POINTS TO CONSIDER DURING SITE DESIGN

- Consider lot orientation, size and shape to ensure each house has a sunny outdoor living area in the rear yard associated with living areas.
- Design houses to have 'eyes on the street.'
- Avoid garages dominating the streetscape.
- Avoid repetition of standard house plans next to each other.

# Og6 OVERALL EXAMPLES

The following two sketches illustrate all the above design issues combined into a single subdivision. *Figure 32* shows common solutions that do not comply with the Guideline. *Figure 33* shows an alternative design including guideline recommendations. These examples are reproduced with permission from Kapiti Coast District Council.

FIGURE 32  
Subdivision design options for same site using principles from Guideline.



Key design elements

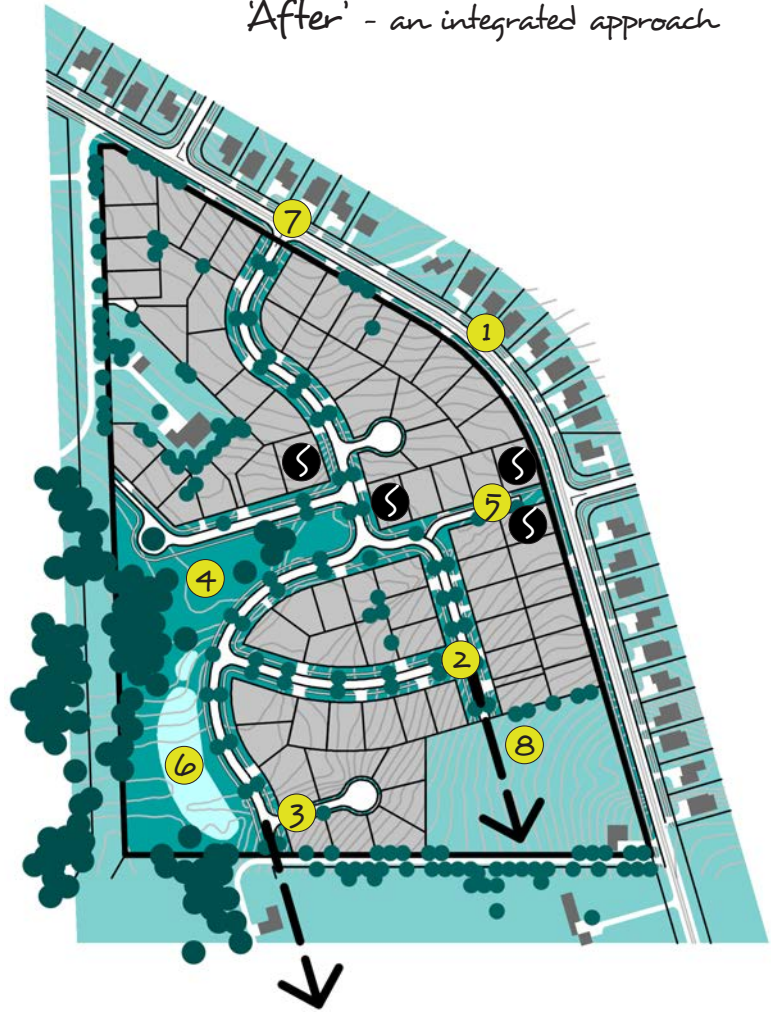
Average lot of size – 600m<sup>2</sup>

1. Existing roading condition precludes direct vehicle access to individual lots, internal access from Right of Ways results in properties 'backing' onto the main road, which will likely result in solid fencing creating a poor interface.
2. Lack of any sense of 'street' or frontage for many lots.
3. Many lots accessed solely by minimum width ROW – no pedestrian connections to street for residents or visitors.
4. Lots 'back' onto reserves, which will likely result in solid fencing creating a poor interface.
5. Poorly integrated open space to main road, solid fencing likely.
6. Heavily engineered stormwater pond.
7. Entrance point from Main Road located poorly in relation to road curve and sightlines.
8. Lack of future connections for adjacent sites.

**No measures beyond Council-imposed conditions put forward to lock in future quality.**

FIGURE 33  
Subdivision design options for same site using principles from Guideline.

'After' - an integrated approach



Key design elements

Average lot of size – 550m<sup>2</sup>; does not materially affect the 600m<sup>2</sup> average size target market for this 'product'.

1. Worked with the Council to improve road interface and allow access to the Main Road. Good frontage now possible at this critical interface.
2. Clear demarcation of fronts and backs for all lots providing a sense of 'street frontage'.
3. Limited use of right of ways and cul-de-sacs to maximise site penetration for lots.
4. Reserves have a clear sense of frontage and surveillance.
5. Open space is integrated with main road through shared use of public lane giving width and surveillance for pedestrians.
6. Stormwater pond designed around existing contours to reduce earthworks.
7. Entrance point from main Road moved away from road curve to improve sightlines.
8. Future connections for adjacent sites provided to boundary.

Measures put forward to lock in future quality:

Covenants over fence height and dwelling interface (garage recessed behind dwelling; glazing from a living room fronting the street; clearly legible front doors) to maximise sense of frontage and public realm interface.

'Spot' covenants on key sites ensuring main glazing provides surveillance over potential conflict areas (S).

*The following assessment criteria are presented in a hierarchical format, which reflects the scale of their application and their influence on overall urban form and amenity. Priority should be given to those criteria at the top of the hierarchy (permeability, spatial variety and integration of the natural environment, and legibility) that have the greatest influence on large scale, initial site planning matters.*

### **1) PERMEABILITY**

- *The road network generally conforms to the configuration shown in the structure plan.*
- *The road network allows multiple routes for pedestrians, cyclists and motorists to destinations within the site and surrounding area.*
- *The road network allows for future expansion if staging is to occur by providing logical connections to future stages, which will maintain permeability.*
- *Block shapes and street alignments respond to natural topography rather than imposing a geometric grid.*
- *Cul-de-sacs are limited to a maximum length of 100 metres and comprise no more than 20% of streets in each subdivision consent.*
- *Pedestrian-only walkways that connect streets are minimized. In general they will only be accepted where typography or natural features make a street connection difficult.*
- *The street environment encourages walking with separation between footpaths and vehicle carriageways and the provision of street trees.*
- *Rear lots make up less than 10% of lots per neighbourhood block with driveways to rear lots shared by a maximum of two adjoining lots.*
- *20 metre wide street reserve included where adjacent land is capable of being divided into 4 or more allotments or where another road can be connected.*
- *The subdivision plan and section shapes maximise north-south streets and sections with north, east or west facing rear yards.*

### **2) SPATIAL VARIETY AND INTEGRATION OF THE NATURAL ENVIRONMENT**

- *Blue and green corridors are linked to create natural habitat for wildlife species.*
- *Permanent streams have a riparian margin with public streets included along the perimeter.*
- *Constructed wetlands or detention ponds are integrated with existing green corridors and/or public open space with ecologically appropriate landscape treatment.*

- *At least 75% of constructed wetland or stormwater detention ponds are bounded by a waterway or public open space.*
- *Reserves and open space areas are bounded with a public street around at least 50% of the perimeter. Natural landmarks such as ridges, valleys or knolls are used to maintain character and differentiate one neighbourhood from another.*
- *Retaining walls are located along the rear and side boundaries and minimized in height with berms.*

### **3) LEGIBILITY**

- *There is a clear visual distinction between the different street types (local, collector, arterial) within the subdivision, which clearly communicates the street hierarchy.*
- *Site planning avoids the requirement for back fences facing collector or arterial roads.*
- *Pedestrian only pathways between private lots are designed to clearly “read” as public thoroughfares, are overlooked by neighbouring properties, and are straight and short.*
- *To enhance safety, visually impermeable close boarded fences and/or dense privacy planting are not used to define the boundary of public pathways and private properties.*
- *Roads are aligned to highlight existing landmarks (this may involve orienting roads to focus on prominent landmarks, be they buildings or natural features).*
- *Streets are visually narrowed by the use of different paving for parking bays.*

### **4) ROBUSTNESS (at the lot level)**

- *The effects of block size and shape on the configuration of individual lots has been considered at the initial site planning stage of a subdivision.*
- *Private open spaces are of sufficient size to accommodate a variety of uses (primarily addressed by maximum building coverage rules).*
- *Private outdoor living courts are located on the northern side of the building platform in the rear or side yard where possible.*
- *Lot orientation, dwelling heights and setbacks allow private outdoor areas to receive sufficient sunlight.*
- *Each section is deep or wide enough, and the building platform is positioned, to allow sunlight penetration into the private open space in the rear yard or side yard for a section with a north facing front yard.*

### **5) VISUAL APPROPRIATENESS, RICHNESS AND PERSONALISATION**

- *Detailed design is contextually appropriate to the surrounding environment (i.e there is a suggested colour palate for building cladding, which reflects the colours of the surrounding landscape or a list of locally appropriate species for reserve and street tree planting).*
- *Garages are recessed from the street frontage of the house.*
- *No more than three houses in a row have the same plan or proposed finish.*



*The overall urban design objective for the Structure Plan is to ensure Te Kauwhata grows in a manner that retains and enhances its village character, and thereby creates an enjoyable living environment. Urban design should integrate the natural environment into the public realm as a feature in the town’s layout to reinforce and enhance character. In Te Kauwhata this includes the gently rolling landform, Lake Waikare, the Whangamarino Wetland and the streams that flow into them. This approach is being used to improve Te Kauwhata’s connections with Lake Waikare and Whangamarino Wetlands and to provide good walking/ cycling streets between these areas.*

All subdivisions in the Te Kauwhata Structure Plan area must take account of the Te Kauwhata Natural Character Plan (Figure 34) to ensure that key natural features are preserved and integrated into the town layout.

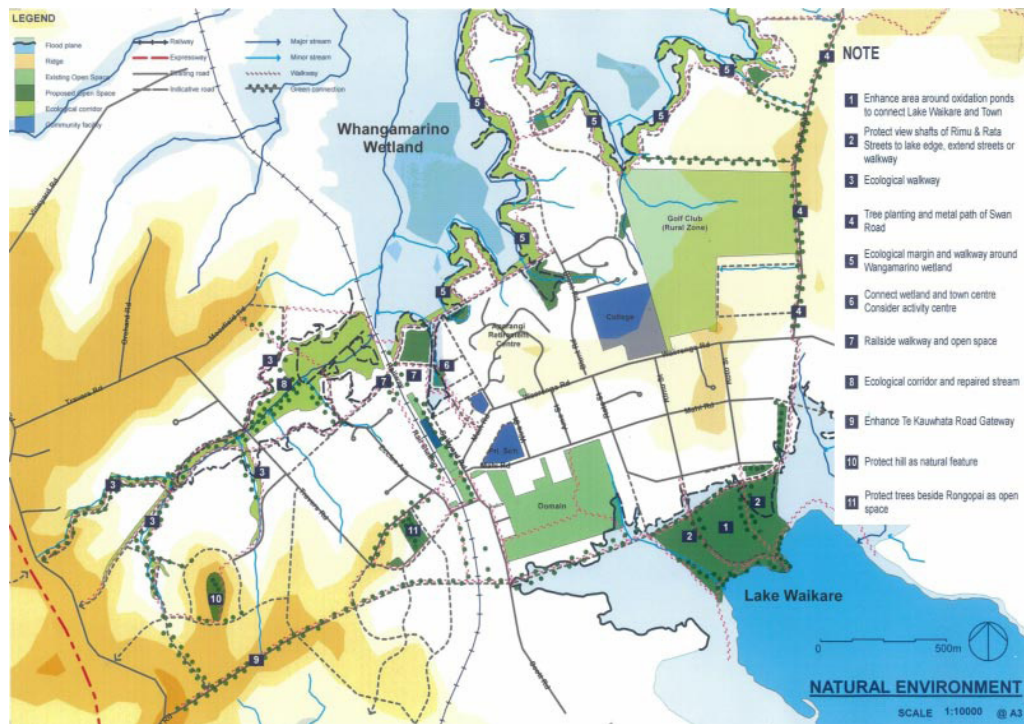


FIGURE 34  
Natural Character Plan.

## Og8.1 | LAKE WAIKARE

Access to Lake Waikare should be enhanced by walkway or road extensions from existing streets and through the bypass development. This sets the framework for intersection design and landscape elements in the bypass design, lake foreshore enhancement and landscaping projects to be included in Council's LTCCP.

## Og8.2 | WHANGAMARINO WETLAND

The Environmental Protection Policy Area applies to the wetland margin. It requires ecological enhancement works to be undertaken and a walkway / cycleway to be developed within the policy area when the property is subdivided. Stormwater management may be integrated into these enhancement works. The Structure Plan requires an edge street along the Whangamarino Wetland margin adjacent to the policy area. An indicative street design, including the shared walkway / cycleway in the policy area are provided in the street types. The street may have to move back from the wetland edge where topography or overland flow paths dictate. This layout will ensure houses look over the walkway / cycleway, which will enhance safety.

On the eastern side of the Blunt Road peninsula an indicative open space reserve is included within the policy area. The exact location is to be determined through the subdivision process. Public open space should also be provided in the new residential area to the north of the golf course.

## Og8.3 | TRAVERS ROAD

The Structure Plan proposes ecologically enhancing the existing stream and creating an associated public reserve from upstream of Travers Road to the Whangamarino Wetland. The stream and the reserve will provide significant open space amenity between the Living and Country Living Zones, as well as providing for recreation, stormwater management and ecology. Upstream of Travers Road, the reserve boundary will correspond with the main flood plain ponding area, and roads will be located on both the northern and southern reserve boundaries to make the reserve highly visible and highly accessible. Downstream of Travers Road, a road is to be built on the northern boundary of the reserve, which also corresponds with the flood plain boundary. The southern parts of the flood plain will remain in private ownership.

## Og8.4 | TE KAUWHATA ROAD GATEWAY

Tree planting and a shared path improve the main entry route visually and form part of the ecological walkway.

## Og8.5 | HILLTOP RESERVE

This proposed reserve keeps the highest point of the Travers/Wayside block as a green feature and preserves natural character in what will become an urbanised area. The reserve is envisaged as a neighbourhood passive open space approximately 1.8 hectares in area with views of the wetland, town centre and Lake Waikare.

## Og8.6 | ECOLOGICAL WALKWAY

The red dashed line shows the street and walkway network that creates a recreational circuit around the town. It links Lake Waikare, Swan Road lookout, Whangamarino Wetland, Town Centre, Moorfield Pond, Travers Road Stream, proposed Hilltop Reserve, Rongopai and Te Kauwhata Domain. The street types include a 'Greenway Street' for this route which includes a requirement for 3 metre shared cycleway/walkway and substantial tree planting.

## Og8.7 | TOWN CENTRE

The main street of Te Kauwhata slopes gently to the southwest, terminating at the Village Green and railway line. Most of the older buildings are built to the street boundary but some of the newer buildings are set back with landscaped and parking areas located in front. The main street is very wide, does not have any large trees and some sites are vacant. The culmination of all these factors is a main street with very little spatial definition and a loss of character. A planted centre median similar to Bow Street in Raglan is proposed to improve pedestrian safety, slow traffic, add character and serve to contain the street space (*Figure 3*). Some development will involve 'filling' the empty main street sites.

The relationship of the town centre, railway and Waikato Expressway to each other is fortunate to support future growth. The railway and potential station lie at one end of the main street so future rail passenger services can support the town centre. The Waikato Expressway passes along the western edge of Te Kauwhata so provides good vehicle accessibility but does not sever the town centre. In the future walking and cycling to the town centre and rail station will become more important for Te Kauwhata. Walkway connections to the town centre and railway station are an important design component.



FIGURE 35  
Existing view of Main Road (top)  
with proposed changes (bottom).



Development will also occur in the Mixed Use Policy Area, which provides for both commercial and residential development between the Main Road and Whangamarino Wetland. Refer to Section 23A of the district plan for a concept plan. An indicative road structure is proposed to link the new area and Main Road. Council will also endeavour to formalize service lanes behind businesses on both sides of Main Road.

Commercial and work/live businesses are to be located immediately beside the town centre and railway. The future park and ride is assumed to be located in the land alongside the railway station site. Medium density (terraced) housing is to be located away from the noise of the railway on higher ground with views.

Active street frontages are promoted within the Business Zone. These typically include shops built up to the road edge with 75% window frontage and with service vehicle access from the rear, continuous building facades, numerous building entries, retail and commercial uses predominating on the ground floor, and commercial and residential uses on the upper floors overlooking the street. Developments that involve blank walls along the street, on-street service doors, multiple driveways across the footpath, or high fences along the street do not create active street frontages. Long frontages should be broken into shorter sections to reflect neighbouring lot widths using changes in materials; negative vertical joins or steps in the building line at upper levels.

Council is interested in locating some open space and recreational facilities at the northern end of the Mixed Use Policy Area. The Whangamarino flood plain passes through the middle of the policy area. It is to be developed and enhanced as a landscaped open space area that incorporates stormwater management and public access.