



design guide

URBAN

INTRODUCTION

The formation of an urban design is a process that works from the large scale through to the detailed. This Guide shows a way of approaching this process.

A logical, clear urban fabric can be achieved by making decisions based on this Guide.

The objectives of the process are:

- *To improve the quality of urban design*
- *To review the existing urban fabric*
- *To determine how to approach urban design for new work (this includes reconfiguring existing and greenfield sites)*
- *To work with TLAs in providing housing to a density that reinforces existing policy where appropriate, and recognises the need to conserve land resources.*

The Urban Design Guide is split into five sections:

- **Urban Analysis**
- **Community Connectivity**
- **Road and Open Space Hierarchy**
- **Block Layout**
- **Lot Layout.**

OVERVIEW OF THIS GUIDE

IN THIS GUIDE...

SECTION 1 URBAN ANALYSIS

A good urban design is generated from its context. The first section shows how to review the existing features of the site to establish this context.

3-10

Outcome: the identification of what is important and significant about the site and the kind of development that is appropriate.



SECTION 2 COMMUNITY CONNECTIVITY

The second section analyses the connections both within and outside the study area. These features will have been identified in Section one.

11-16

Outcome: overall structure for the design, reinforcing neighbourhood connections.



SECTION 3 HIERARCHY

(Road and Open Space)

The underlying structure of all urban designs is based on an interconnected series of hierarchies - streets, open space and buildings all have a hierarchy that reflects their position/function in the urban structure.

17-32

Within this the street hierarchy is the most important as it forms the basic structure of the development. Public open space also has a hierarchy of use and scale.

Outcome: establish the hierarchy of streets and open space - the specific structure of the design.



SECTION 4 BLOCK LAYOUT

The development of the block structure will have been determined to some extent by the roading hierarchy, and this section looks at what qualities the blocks should have. Establishing the blocks will finalise the roading structure.

33-37

Outcome: establish the 'body' of the urban design.



SECTION 5 LOT LAYOUT

The final section looks at the principles of identifying the individual sites within the blocks. The lot layout itself will determine the pattern of development in a block - and the appropriate density will be indicated by the work done in the previous sections.

39-46

Outcome: appropriate lot layout and finalised urban design.

SECTION 1 URBAN ANALYSIS

This section asks questions about the area surrounding a proposed development, to help determine the suitability of its location. No design work is done in this section; it comes before any proposal has been developed. It is a fact finding and gathering mission for the urban environment both within and from outside the site.

What are the important existing conditions of the site? Cultural issues, existing infrastructure and site features are all existing conditions which will determine the site's suitability for development. Once each of these areas are researched, a framework for design is formed, which is generated by the context of the site.

IN THIS SECTION ON URBAN ANALYSIS...

| | | |
|---|-------------------------------------|----------|
| ▼ | | |
| | CULTURAL | |
| | ■ HISTORICAL USE/SIGNIFICANT PLACES | 4 |
| | ■ AREAS OF SPIRITUAL SIGNIFICANCE | 4 |
| | ----- | |
| ▼ | | 5 |
| | EXISTING INFRASTRUCTURE | |
| | ■ TRANSPORT | 5 |
| | ■ URBAN AMENITY | 6 |
| | ■ UTILITIES | 8 |
| | ----- | |
| ▼ | | 9 |
| | URBAN SITE FEATURES | |
| | ■ TOPOGRAPHY | 9 |
| | ■ WATERWAYS | 9 |
| | ■ NATURAL LANDMARKS | 9 |
| | ■ SIGNIFICANT BUILT FORMS | 10 |
| | ■ ENVIRONMENTALLY SENSITIVE AREAS | 10 |
| | ■ ENVIRONMENTALLY SIGNIFICANT AREAS | 10 |
| | ----- | |

CULTURAL

For larger urban redevelopment, consultation with local iwi is an important source of information. Including this in the urban design process will also add credibility to any designed outcome. Refer further to the Starting section of the Development Guide for the consultation process. An urban analysis of the site will need to include this information.

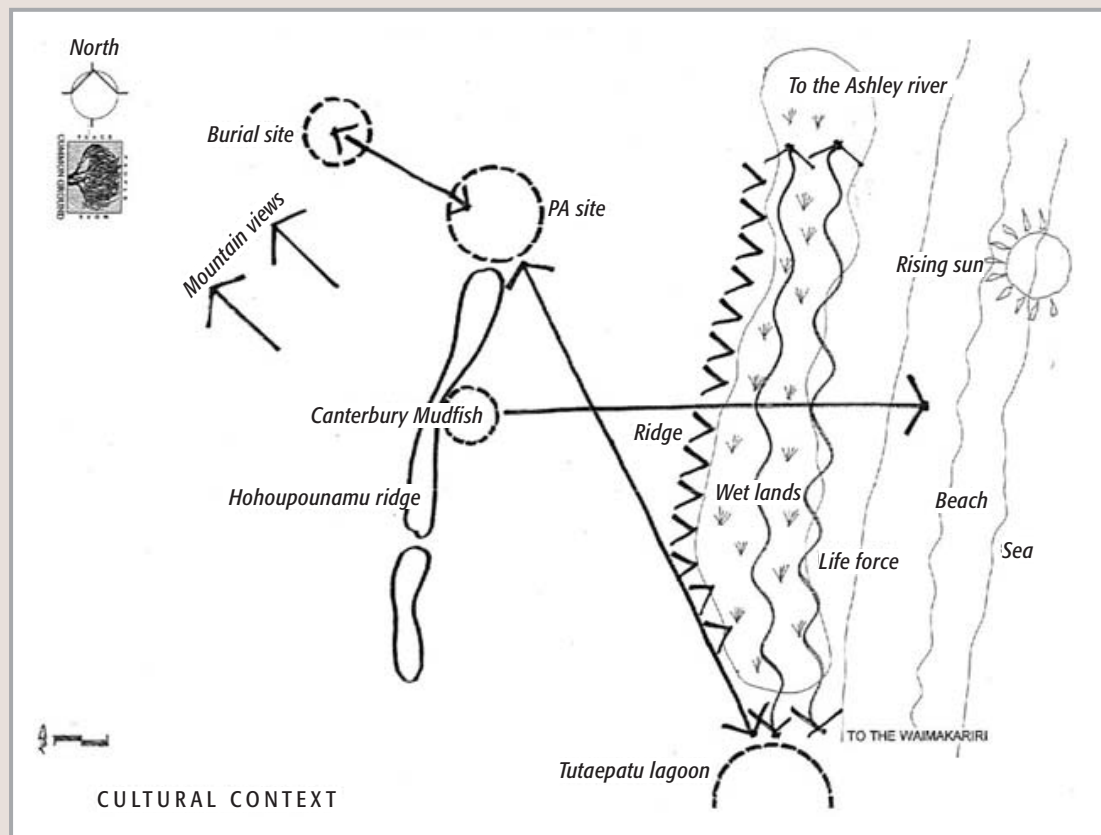
HISTORICAL USE/SIGNIFICANT PLACES

An area may have a significant cultural history. This should not be ignored. Successful urban design will identify and include any areas within the urban site which have had significant events take place, or had an important specific purpose in their past.

AREAS OF SPIRITUAL SIGNIFICANCE

This may include tapu sites, for example an old transport route, or an area of land historically used for growing crops. This research will often identify an overlap of cultural/spiritual significance and topography.

Cultural Analysis. (Pegasus New Town, ©Common Ground.)



EXISTING INFRASTRUCTURE

TRANSPORT

Existing and future transport networks will need to be looked at when considering a development. Transport networks include roading, footpaths, pedestrian crossings, cycle ways, public transport and informal links such as parks. Public transport is of key importance and if housing is close it can mean less reliance on private motor cars.

Existing networks

The existing networks already provide an amenity to any proposed housing project. Most councils or regions have well publicised documentation regarding public transport in their area. Reliance on a future connection being established may in some cases be acceptable to HNZC. The developer will need to:

- 1 Map existing transport networks (public and roading hierarchy)
- 2 Consult with TLAs and current transport service providers to ascertain future developments in the area.

Access to transport

Proximity of any transport system will need to be shown. Using walking distances and other methods, detail the following:

- 1 How close is public transport from the intended development?
- 2 Is there any proposed transport requiring mention?

Proximity to work places

Proximity to centres of employment will need to be shown. Using walking distances and other methods, detail the following:

- 1 How close are work places from the intended development?
- 2 What are the transport options for getting to work?

Acceptable travelling time

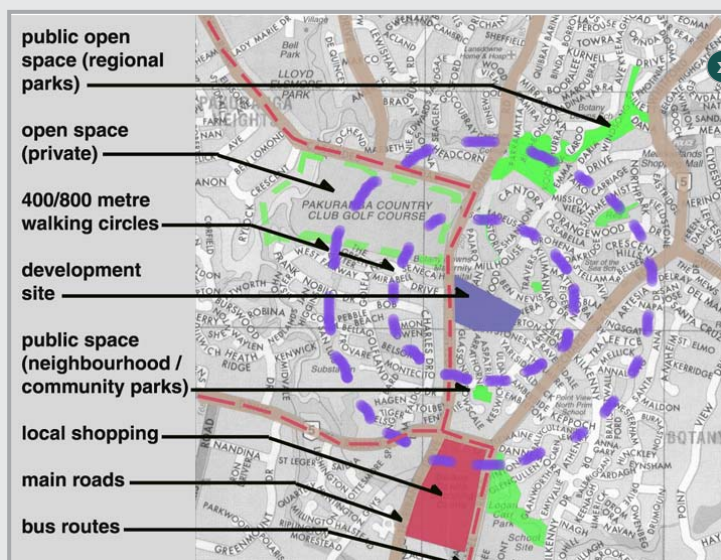
As a rough guide use: walking distances of 5 minutes to walk 400m and 10 minutes to walk 800m. Acceptable travelling times of 5 minutes to local convenience stores and bus stops, and 10 minutes travelling time to a town centre or large transport hub. Driving times can also be important.

Reliance on already crowded roading systems leads to difficulties.



URBAN AMENITY

This section deals with how the proposal accesses local amenities. Walking distances to reach amenities/open space directly, or provision to reach other amenities via public transport is a key factor. Refer to *Acceptable travelling time* on the previous page.



Conclusion: while the site is well serviced with local shops and public transport, there is little public open space in the direct vicinity.

Schools

Schools in an area are often a focus for community activities. Access to local schools is important to consider for any development, especially when the alternative can mean that small children need to travel long distances to a local school.

Retail

Successful suburban planning caters for some degree of mixed-use in an environment in order to accommodate local shopping. A range of building typologies should also be encouraged to allow future use change, ie. home to home and office, or restaurant etc. Refer further to *Mixed-Use* in the *Block Layout Section*.

Medium density mixed use.



EXISTING INFRASTRUCTURE

Medical

Access to a local GP or health service is vital in areas of social housing. While many areas depend on private motor vehicles to access health services, HNZC prefers new developments being located close to these facilities where possible.

Open space

A development needs to be close to, or incorporate a range of public open spaces. See [Road and Open Space Hierarchy](#) section for more detail.

Community facilities

A swimming pool/community centre/pre-school or sports facility could also add to the desirability of any development. It is helpful for new HNZC developments to have access to these types of amenity.

Community facilities such as public swimming pools in the vicinity add to the desirability of a development.



■ UTILITIES

Examination of available infrastructure utilities such as electricity and gas, water, stormwater, and sewerage facilities may determine suitability of site.

Potentially work may also be required to the existing infrastructure in order to create a sustainable housing solution (eg. the existing system is insufficient and will require replacement in order to sustain a larger community).

Necessary work to the existing systems will need to have cost estimates included in proposals.

Another factor is the consideration of how to develop infrastructure in an environmentally conscious manner (eg. to investigate the potential of using low impact stormwater management systems).

The following questions will need to be answered to ascertain the impact of utility development:

- 1 Is there a reliable and free water supply available?
- 2 Is there a reliable electricity supply available?
- 3 Is gas available?
- 4 Is there sufficient capacity in existing stormwater and sewerage systems?
- 5 Are there any additional changes/ongoing costs associated with any particular utility or choice of system?

Suitable utility infrastructure

Provide a report detailing further work required to upgrade the utility infrastructure.

SECTION 1 URBAN ANALYSIS

URBAN SITE FEATURES

■ TOPOGRAPHY

The topography of an area is a significant factor in the development potential of an area. Careful consideration needs to be given to the eventual orientation of streets and lots, responding to the topography by either running along a ridge or along contours. This will minimise eventual cut and fill, and maximise access to views and sunlight. Main streets may also run from high to low points, or along ridges giving them prominence in the area.

■ WATERWAYS

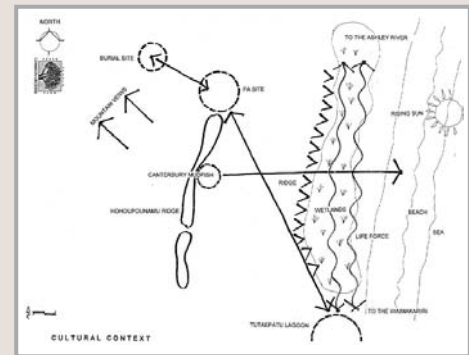
These need careful consideration. Open space is desirable along waterway edges. The bio-diversity of the river system also requires protection from development. The catchment will need to be protected to preserve river water quality.

■ NATURAL LANDMARKS

Natural landmarks include hills, valleys, rivers, waterbodies, rocks or any other form that distinguishes itself from the surrounding landscape.

- 1 Natural landmarks are often already well integrated into the identity of an area, as they are usually part of the reason for settlement in that place. There is an opportunity to recognise the importance of the landmark in the history of an area.
- 2 Ensure that the landmarks are not built out or compromised. They are most effective in adding to the fabric of an area where they are considered in the overall planning of a neighbourhood.

Cultural Analysis. (Pegasus New Town, ©Common Ground.)



Mt Victoria - an example of a natural landmark for Wellington.



■ SIGNIFICANT BUILT FORMS

If an existing building form is significant it can be a successful visual marker and promote an identity for a community.

- 1 A significant building becomes a landmark/focal point and operates as a point of orientation or centre (eg. at the end of a long vista there could be a war memorial, or recognisable community hall).
- 2 Location of existing landmark buildings should be included in an urban analysis. These can form important visual maps in an area.

■ ENVIRONMENTALLY SENSITIVE AREAS

These areas could include seismic hazard zones, floodplanes or areas of unstable soils. These may limit development potential.

■ ENVIRONMENTALLY SIGNIFICANT AREAS

These areas could include significant habitats, landscapes or areas of vegetation and should be protected by being incorporated into the open space network.

Auckland's Sky City Tower features prominently as a landmark for the city.



SECTION 2 COMMUNITY CONNECTIVITY

The previous section established what was significant about the area that surrounds a proposed development site, and what amenities are close.

This section looks at how an area connects to those features - either by reinforcing existing routes or by establishing new connections.

These connections will be from outside the study area, as well as within it. The most significant features of the area and those that generate the most activity need the strongest connections - these need to be direct, but not necessarily a straight line. They can also be connected by open space or even by visual connections.

Successful neighbourhoods also need a centre - any new development should focus on and reinforce any existing centre, or work towards creating a new one.

By the end of this section the underlying structure of the urban design should be established.

IN THIS SECTION ON COMMUNITY CONNECTIVITY...

▼
**CONNECTIONS
 FROM OUTSIDE
 THE URBAN SITE**

| | |
|---|----|
| ■ REGIONAL INFLUENCES FROM URBAN ANALYSIS | 12 |
| ■ LEGIBILITY | 12 |
| | |

▼
**CONNECTIONS
 FROM WITHIN THE
 URBAN SITE**

| | |
|------------------------------|----|
| ■ PUBLIC BUILDINGS AND SPACE | 14 |
| ■ NATURAL LANDMARKS | 14 |
| ■ LANDMARKS | 15 |
| ■ SIGNAGE | 16 |
| | |

CONNECTIONS FROM OUTSIDE THE URBAN SITE

REGIONAL INFLUENCES FROM URBAN ANALYSIS

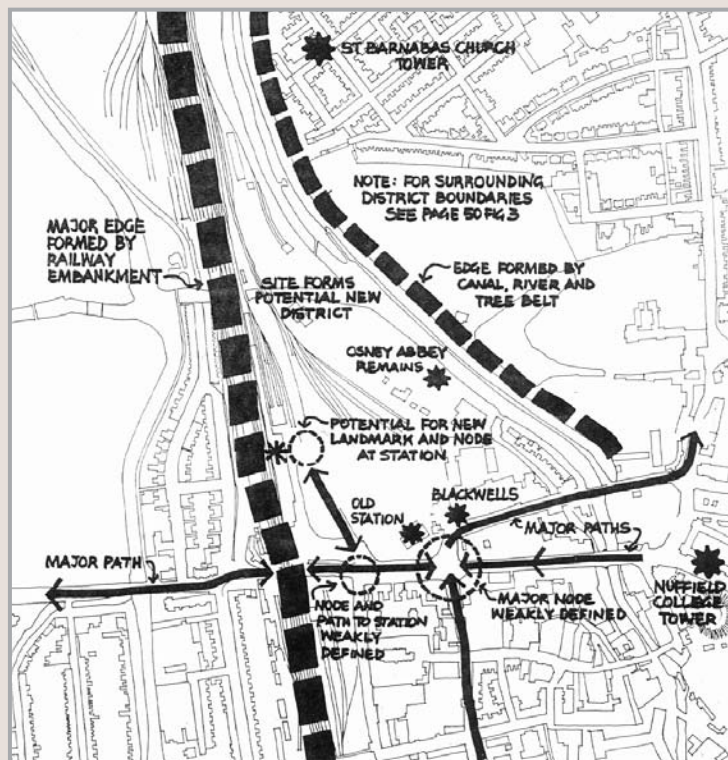
Completing the Urban Analysis section will provide contextual patterns and knowledge. These patterns need to be included into any urban site.

LEGIBILITY

Different factors can contribute to the legibility of the site. Simply put, legibility deals with how easy it is to find your way around the site, and particularly from one important point to another. The illustration below is an analysis of a redevelopment site in an existing urban area, showing various qualities that can contribute to legibility. These are common urban design terms and are defined as the following:

- **Paths:** these are the channels of movement that are the framework for urban design. Establishing what these should connect/where these should be is the aim of the connectivity section
- **Nodes:** nodes are concentrations of movement or activity, and are focal places within a community. They will occur at major intersections of paths, and at neighbourhood centres.

Urban Legibility analysis. (Responsive environments, Bently, et al. 1985.)



CONNECTIONS FROM OUTSIDE THE URBAN SITE

- **Landmarks:** these are a concentration of movement or activity, and are focal points for a community. These will occur at the junctions of paths
- **Edges:** these are elements that can form a boundary to an area - the edge of the district. These can be physical, such as rivers, large road motorways or large areas of open space. They are not necessarily boundaries that restrain physical movement, however - there can be an edge between two areas with different qualities, such as an old and a new residential suburb, or an industrial and a residential area
- **Districts:** these elements should organise themselves into an identifiable urban area, or district/neighbourhood. The framework is the connections and hierarchy of streets and open space, and its body is made up by the block and lot layout (Reference - Responsive Environments, Bentley et al, 1985.)

Note: an analysis such as this should be done on any design, whether in an existing urban area, or greenfield development.

CONNECTIONS FROM WITHIN THE URBAN SITE

■ PUBLIC BUILDINGS AND SPACE

Building form must relate its context. If building form is to be a successful visual marker it must promote an identity that the community itself feels, or can relate to.

- There are two ways that building form can be a visual marker:
 - The **first** is where an area of a community has common building forms, thereby creating an identity for an area (eg. all houses tall and narrow)
 - The **second** is where a single building becomes a landmark/focal point and operates as a point of orientation or centre (eg. at the end of a long vista there could be a war memorial, or recognisable community hall).
- Where building sites are prominent there is an opportunity to create a landmark building. This could be a community centre or church or another public building such as a school. Public buildings should create public space, and should be widely accessible and frequently used.
- Location of landmark buildings should be carefully thought through. When placed at nodal points they can form an important visual map of an area.

■ NATURAL LANDMARKS

Natural landmarks include hills, valleys, rivers, waterbodies, rocks or any other form that distinguishes itself from the surrounding landscape.

- 1 When planning an urban site it is necessary to first check where the existing natural landmarks are. This will have been completed in the Urban Analysis Section.
- 2 Can the urban structure relate to those structural elements in any way? Eg. a street could be lined up with a hill, so that there is a clear view of the hill as you walk down the street - thereby providing orientation.

The monastery overlooking Wellington, an example of significant built form.



CONNECTIONS FROM WITHIN THE URBAN SITE

■ LANDMARKS

Landmarks are interventions that help to add legibility to an area. They can signal an important part of the urban fabric and should be positioned to reinforce nodal points, paths and important public spaces.

- 1 Landmarks can be stone markers or town clocks - anything that can be seen from a number of different points around an area.
- 2 The height and scale of the landmarks need to be relative to the height and scale of the surrounding context.
- 3 Focal points can add to the cultural map of an area, carrying a theme that promotes the history of the area, or its identity.

Note: where focal points are to be incorporated into the urban fabric it is desirable to consult with the community to establish what identity they believe their neighbourhood should have.

- 4 Planting can add to the legibility of an area. It can be a landmark, or to signal different uses or qualities of the urban environment. For example, planting could indicate an area to sit and wait for a bus, or a change from a main road to a residential street.

City to Sea bridge, a focal point that connects the Wellington waterfront to the Civic Square.



Pataka Museum of Arts and Cultures, a focal point for the retail area of Porirua.



Successful street planting.



SIGNAGE

Signage should be used cohesively across an area. Signage is one of a range of tools providing legibility to an area.

- 1 Signage must be clear and visible.
- 2 Signage should be of the same style across the area of the neighbourhood ie. the street names on poles should be the same type of sign, so they are easy to identify.
- 3 Signage should be well lit so that it can be useful at night.
- 4 Style of signage can be used to reflect the character of an area.
- 5 Signage can be of many forms - not limited to street names on poles. A number of different types of signage in an area can be an aid to navigating the urban fabric eg. a sign for a school may be on a board at the school entrance, but it may also be in the footpath at each end of the street frontage, and on a signpost at the nearest street corners or the intersections with arterial roads.

Successful signage - Porirua city. Community representation on this local shopping sign.



Successful signage - Waitakere City. Community effort was used to complete this sign.



SECTION 3 ROAD AND OPEN SPACE HIERARCHY

The previous sections addressed the quality of connectivity - establishing what should be connected and why. The following sections on roading and open space hierarchy describe the qualities of that connection.

For a new urban development, a grid pattern, with a hierarchy from wider arterial routes to narrow community roads, leads to safer communities that are easier to navigate. In narrower roads, traffic calming is achieved by tighter turning circles, control of traffic flows, planned street parking and tree planting.

The existing neighbourhood may already have a clear hierarchy. If so, this should be strengthened to aid the traffic flow through the area in a way that supports the development.

Open space will have its own hierarchy of scale and use. The Urban Analysis section will have identified what open space is already available. This should be complemented and reinforced by new development.

IN THIS SECTION ON ROAD AND OPEN SPACE HIERARCHY...

| | | |
|---|-----------------------------|-----------|
| ▼ | | |
| | ROADING HIERARCHY | 18 |
| | | 18 |
| | ■ ROAD STRUCTURE | 22 |
| | ■ ROADING QUALITIES | 27 |
| | ----- | |
| ▼ | | |
| | OPEN SPACE HIERARCHY | 27 |
| | | 27 |
| | ■ OPEN SPACE ACCESS | 29 |
| | ■ OPEN SPACE QUALITY | 31 |
| | ----- | |
| ▼ | | |
| | SAFETY AND SECURITY | 31 |

ROADING HIERARCHY

ROAD STRUCTURE

The key principle behind the creation of streets is that they should connect at two points. Every street must clearly lead somewhere, and the most important points should have the strongest connection. Streets also need a flow of activity and to be overlooked to ensure their safety. As well as being routes of movement, they are the focus of day to day life for the community. They need to be designed to support cars and people.

Structure

Good roading structure for an urban area is based on an interconnected series of hierarchies. The most important streets are then both the radial routes and the streets linking the smaller centres. This creates a hierarchy of streets which determines the nature of development along that street.

Roads are divided into the following hierarchy structure:

- 1 **High Streets:** the original radial routes into a city, linking sub-centres and main shopping streets within each centre. Eg. Dominion Road in Auckland or Adelaide Road/The Parade in Wellington
- 2 **Secondary Streets:** provide the main circulation routes within communities, rather than between them. They generally include a mix of uses, including local shopping and business, with the balance being residential (usually more of this) eg. Manakau Road in Auckland or Bay Road in Wellington
- 3 **Residential (Tertiary) Streets:** carry only a small amount of traffic and cater for few people other than those who live or work there. These streets serve as a focus for local communities. They also need to accommodate parked cars and community activity (such as children playing). These streets account for the majority of streets in an urban area
- 4 **Lanes:** these are roadways that service a group of houses within a block. Where possible these should have the same qualities as an ordinary street. They should be overlooked, fronted onto and connected at both ends.

ROADING HIERARCHY

Road widths

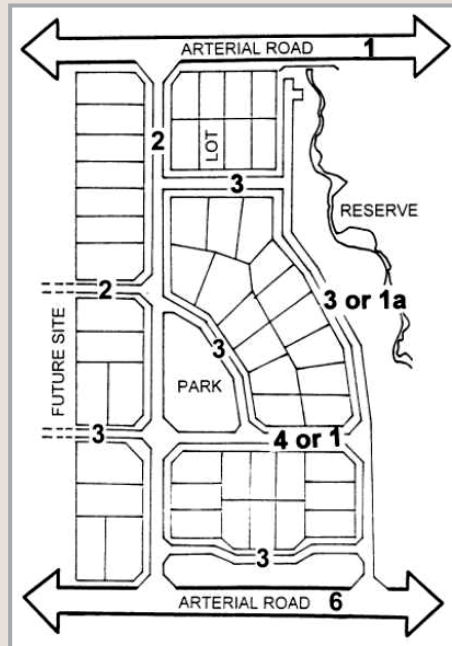
The following minima are typical for roading design.

Road widths table - basic rules for street widths and enclosure.

| | 1 High Streets | 2 Secondary Streets | 3 Residential Streets |
|--|------------------------------------|---------------------|-----------------------|
| Recommended distance between building lines | 21m (max) | 17.5m (max) | 15.5m (max) |
| Recommended building height to eyes | 9m | 7.6m | 5.8m |
| Number of storeys on footprints over 100m ² | 4-6 | 3-5 | 2-3 |
| Carriageway width | 10m (max) | 7m | 6m |
| Minimum footway width | 2.5m | 1.8m | 1.8m |
| Cycle lane where appropriate | 2m | 2m | Within carriageway |
| Additional margin for street trees | 1.2m | 1.2m | 1.2m |
| Designed speed limit | 30mph | 30mph | <20mph |
| Kerb radii | 10m | 6m | 3m |
| Visibility splays | 2.4x70m | 2x60m | 2x33m |
| Minimum distance between junctions | 60m (same side) 30m (opp. side) | 60m 30m | 30m 15m |
| % of frontage complying with enclosure ratio | 90% | 80% | 60% |

(Source: Guide to development, Hulme - Manchester City council.)

Variety of street sizes.



Connectivity

Roads need to be connected in a way that reinforces the roading hierarchy and also adds to the amenity of the area. Connectivity needs to address the following points.

New Developments:

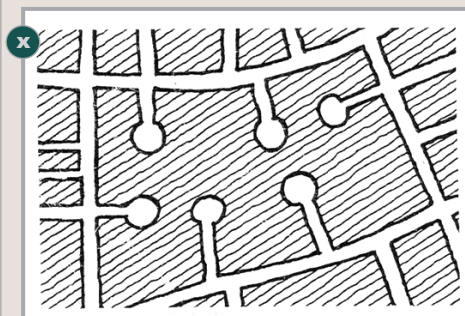
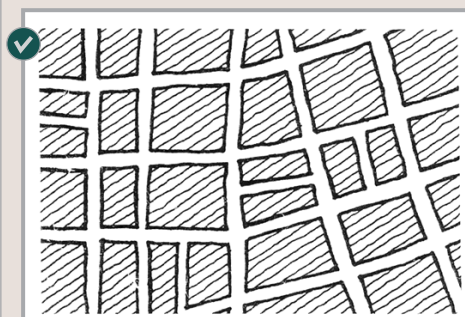
- 1 Good road and block layout should connect existing to future development
- 2 Efficient land use goals, security and requirements for community cross-connectivity for access mean that conventional cul-de-sac street layouts are undesirable. Traditional grid and block layouts add to connectivity and add to the safety of an area.

Note: *In some rural areas, new papakainga cul-de-sacs may be an appropriate response - refer **Maori Housing Design Guide**.*

Are there appropriate access connections for pedestrians to open spaces and have these been designed with security of pedestrians in mind? Housing overlooking accessways and avoidance of long narrow pathways will improve security

- 3 Cul-de-sacs can be used in some cases to open up a larger block for development. They should be short and part of a connected street network
- 4 Permeability also needs to be considered. A connected, permeable street network will offer more choice of pathway and speed of travel
- 5 A traditional grid structure supports higher density and is easier to develop.

Cul-de-sacs create land that is inefficient and impermeable. (Responsive Environments, Bentley, et al. 1985.)



ROADING HIERARCHY

Existing Fabric:

- 1 Can existing connectivity be improved upon? This can be done by including new connection streets or by opening up existing cul-de-sacs to form through roads in larger projects. In smaller projects it may be possible to provide a wider entry to a new area of housing - eg. form a more generous intersection.

Narrow access to back-section park - security risk.



Solid fencing inhibits oversight of park.



Community park well overlooked by street and houses.



Community park well overlooked by street and houses.



- 2 A reconfiguration of housing may be required. Internal parks (without street frontage, or with minimal street frontage) are potentially dangerous and should be opened up to the streets. This can be accomplished by reconfiguring housing stock and/or by including a through road to at least one side of the park.

ROADING QUALITIES

The following section deals with the specific qualities of the streets. Traffic controls, including traffic calming devices may be an appropriate response to slowing cars in a neighbourhood.

- 1 Are cars travelling too quickly through a neighbourhood? Are too many cars using a low-traffic road where alternatives exist? Is this decreasing pedestrian and cycle traffic safety?
- 2 Is it appropriate to narrow the road at points along its length to encourage traffic to slow down? This can be worked together with shaping a kerb to provide on-street car parking bays.

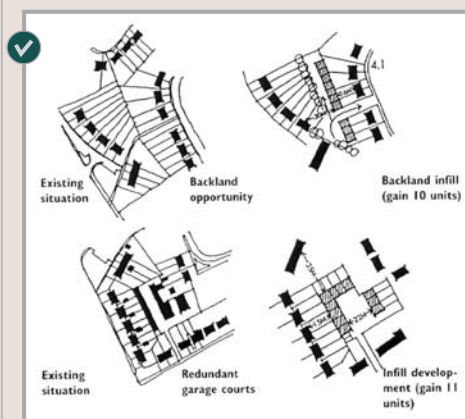
Note: can cycle and pedestrian ways be improved upon in the existing street layout? - refer below.

- 3 Speed bumps can be used together with a raised pedestrian crossing and/or a chicane to slow traffic through an area.
- 4 All traffic calming devices need to be clearly marked with warnings.

Note: it is important to design the planting and the traffic calming devices to work together to slow traffic as this will protect the legibility of the area.

An example of housing reconfigured to allow more units and open up rear sites.

Urban intensification: an example of one of the design exercises undertaken by Urban Initiatives in Hertfordshire to assess housing capacity of existing residential area through intensification. (Building the 21st Century Home.)



Road narrowing with street planting to calm traffic.



Planting and speed humps with edge coloured pavers to alert traffic.



ROADING HIERARCHY

On-street parking

On-street parking can reduce demands for off-street parking, which in turn allows more room on site for open space.

- 1 Is on-street parking currently provided?
- 2 If on-street parking is to be provided local Territorial Local Authorities will have guidelines on the minimum dimensions and setbacks required. These may include information on how to mitigate the visual effects of large amounts of parking. It is necessary to consider the streetscape when providing on-street parking.
- 3 Well designed on-street parking can be a very effective method of traffic calming.
- 4 Vision needs to be clear both from the car and from the footpath. Consider also cars entering and leaving driveways, and the viewshafts required by the TLAs.
- 5 Planting must be considered - refer below.
- 6 Edge delineation of the kerb must be considered. Can the kerb be shaped to keep cars to certain areas for parking? This can add to the visual amenity and safety of the area, as people crossing the road can see beyond the row of parked cars without leaving the safety of the footpath.
- 7 On-street parking must be planned to allow clear vision of pedestrian crossings.

Note: as District Plans often stipulate the number of cars per dwelling unit, this could affect the Resource Consent requirements of a development.

Parking cars on footpath - not a desirable outcome.



Restricting parking to one side of the road, and kerb shaping aids safety and visual amenity.



Pedestrian/cycle ways

- 1 Is it possible to incorporate a cycle lane into the road without compromising safety of the users? This includes considering road width, traffic volumes using the road, and current and predicted levels of cycle use.
- 2 Visibility is very important and should be carefully studied to ensure that both cyclists and drivers have good road awareness.
- 3 While it is desirable that cycleways and pedestrian ways should not be disconnected from car movement routes, the actual surface of the road should be clearly delineated from the vehicle lanes. Eg. change the colour of the surface of the roading.
- 4 Cycle lanes should be clearly marked at ends to ensure motorists and cyclists are aware they are starting or ending.
- 5 Cycle lanes or footpaths should not run through narrow or dark alleyways or unpopulated areas.
- 6 Are existing pedestrian ways safe? The surfaces should not include steps unless absolutely necessary.
- 7 Raised crossings are more desirable than level crossings for residential streets.

Note: street planting should reinforce the layout of the cycle and pedestrian ways - refer to following page.

Well incorporated cycle lane - follows street, well marked out, and not shared.



ROADING HIERARCHY

Street lighting

Street lighting and signage can add to the legibility of the roading and help to reinforce the roading hierarchy.

- 1 Principal streets are to have a higher level of lighting than feeder streets.
- 2 Lighting should be directed away from any residential buildings at the street edge.
- 3 The footpath and kerb should be well-lit. (TLAs will have guidelines on required minimum levels of street lighting.)
- 4 Intersections generally require a higher level of street lighting than the length of the street.

Street planting

Street planting adds colour and definition to a neighbourhood. It is imperative that new developments include street planting. In existing neighbourhoods street planting should be added bearing in mind the following:

- 1 Street planting should be used to reinforce the edge of the street, but the canopy level of trees should be higher than eye level so as not to obstruct vision
- 2 Low street planting should be low enough not to obstruct vision between the footpath and the road
- 3 Where used in conjunction with other structural landscaping elements the street planting must follow or complement the roading hierarchy
- 4 Predominantly low maintenance plants should be used, however it may be appropriate to have a higher maintenance area to mark a specific place in the neighbourhood

High street planting obscures street from view.



Good example of low street planting - not obstructing views from street.



Good example of high street planting - not obstructing views to street.



- 5 Parking bays working with street planting can provide a varied street experience and add to the character of a neighbourhood. The two together reinforce the legibility of the street edge, and create a slower speed zone between the pedestrians and the cars
- 6 Street planting can provide shade in summer and shelter in winter. The local microclimate must be considered when deciding on patterns and type of plants to be used
- 7 Street planting must not endanger personal safety, or lower neighbourhood security.

Street planting summary for security:

- Must not provide places where people can hide
- Growth should not obscure entranceways/pathways
- Plants should be either above or below eye level
- No planting should occur that obscures cars turning off the road
- No planting should physically restrict pathways.

*Parking bays and street planting reinforce legibility, hierarchy and restrict speed.
(Architectus Architects.)*



OPEN SPACE HIERARCHY

The previous section established the roading hierarchy; this section looks at locating the public open space within that hierarchy.

Public open space needs to have the same qualities as a successful street:

- It should connect at least two points
- It must be overlooked
- It needs to generate an activity.

Public open space needs to be accessible to as much of the public as possible. The size and scale will be relative to its location in the roading hierarchy - major parks need to be beside major streets, and residential scale parks need to be beside residential streets.

A range of scales exist for open spaces. They need to provide for the different needs of the community:

- Regional level, ie. big enough to go for a 20 minute walk in
- Community level, ie. big enough to kick a ball in, small enough to be properly overlooked (a 60 metre depth across is the recommended maximum for this to occur)
- Local level, ie. big enough to only sit/picnic in.

■ OPEN SPACE ACCESS

Open space is for the use of the general public, providing a third space between home and work. It can come in the form of parks or playgrounds or areas of seating or car parking.

These spaces should be well defined and reflect the local context where possible. In general this must be located on the best land rather than marginalised to leftover and un-marketable areas of land. Refer to the next section on [Block Layout](#) for ideal location of these spaces.

Note: golf courses, tennis courts and other recreational spaces which require payment or membership do not provide open space, though they do contribute to a mixed use in an area. Other areas such as railway land or the grass verge adjacent to a motorway can not be factored in as open space in a development.

Access

- 1 **Is the public space in an appropriate position?** To determine this we need to answer the following questions:
 - Are the public spaces visible? A public space must be visible. Refer to **Security and Safety** later on in this section
 - Is there community ownership of the open spaces provided? In other words, does the community currently use the public space provided? Ownership in terms of use is a clear determining factor of whether a community feels as though the space is there for them.
- 2 **Can the access to the existing public space be improved?** Does it work for all the members of the community? To determine this we need to answer the following questions.
 - Is there a network of interconnected streets? Do the parks and squares co-exist with the community? Here the question needing to be answered is whether or not the public can access the park spaces provided from the location where development is being planned. Often cul-de-sac suburban areas have parks located close (as the crow flies) but accessible only by long routes.
 - Have you considered areas for those with physical impairments? Wheelchair/elderly walking traffic should have an important part in the design process. Safe paths, smooth kerb transitions, parks within walking distance, and avoiding severed or isolated walking path layouts. Roads or right-of-ways designed solely for traffic should be avoided, and if used need to address traffic calming measures.
- 3 **Are pedestrian safety, car parking and roading adequately provided for in the street area?**
 - Pedestrian safety requirements need to be considered with factors such as car movement, parking provision, personal safety (visual links a priority), signage, lighting, narrower vehicle carriage-ways, trees and utilities. Refer further to **Street Layout** section.

Open space well defined and located on the best land (New American Urbanism, Dutton, 2000).



Parks and facilities within walking/cycling distances. (Pegasus New Town, © Common Ground.)



OPEN SPACE HIERARCHY

■ OPEN SPACE QUALITY

Landscaping

- 1 Do the hard landscaping features (fences, walls, seats, paths etc.) provide the best structure to the public space?
 - By structure we mean the visual way the spaces are read and experienced. Hard landscaping features guide people through the spaces, and provide areas such as basketball courts, which have specific use. Other ways of visually organising spaces include the use of gardens/planting and landscaping/lawns where the land can influence the use of the space.
- 2 Is the level and quality of the vegetation appropriate to the public space?
 - The types of materials and vegetation used, and their layout can reflect specific cultures. (Refer further to the [HNZC Maori/Pacific Design Guides](#).)
 - Landscaping and natural features can be used for stormwater management.
 - It should promote safe accessible linkages between coastlines, waterways, etc. and other public areas, roads etc.
 - Ensure that roads do not dominate new developments. Landscaping can be used to add interest to a street. Trees, planted traffic islands, and parks addressing streets limit the domination of roading.
- 3 Vegetation is an important contributor to the legibility of an area - refer street layout.
 - Vegetation can add legibility through creation of planting hierarchy to reinforce the roading hierarchy. This can be achieved through use of different types of trees to define different spaces eg. big trees for important roads, smaller trees for less important roads, or trees with different coloured leaves for different areas.

Vegetation supporting the street hierarchy. (New American Urbanism, Dutton, 2000.)



Main street into Cannons Creek - Street planting complementing roading hierarchy.



Lighting

Lighting levels need to be adequate to provide both adequate visibility and a feeling of safety to anyone using the space. (Refer also to [Street lighting](#) on page 25 of this Guide.) The following issues need to be addressed.

- 1 Is the lighting level provided enhancing the safety of the public space? (refer to [Safety and Security](#) on the next page.)
- 2 Does the lighting provide amenity? District Plans for each area will indicate lighting levels required for general street and/or park lighting, and local designers should be aware of these levels. However these levels should be regarded as a minimum only. Refer to the [Street Layout](#) section, and point number four relating to alteration below.
- 3 Communal lighting provided by private/body-corporate tenancy bodies or HNZC will obviously need to adequately address the points above.
- 4 If public/street lighting needs to be altered, TLAs will approach this in different ways, but generally observe the following:
 - If the existing street/park lighting is inadequate TLAs can remedy it. They need to be provided with the following information:
 - The exact location of the street light - ie. the house number and street name that the street light is outside/opposite, any identifying feature or landmark
 - A clear description of the problem - eg. insufficient light, light is located badly, or current lights are a nuisance.
 - If moving or removing street lights, you need to remember that:
 - No street light can be removed completely
 - If they are moved, they can usually only be moved a maximum of one metre
 - In some cases the street light cannot be moved at all.

The cost to move the street light usually falls on the person requesting the move.

SAFETY AND SECURITY

SAFETY AND SECURITY

Open space and public roading need to be designed to increase personal safety. The following issues need to be addressed:

- 1 **Good urban design creates a delineation between public and private spaces, protecting private spaces while achieving public space that is overlooked. Do open spaces open onto the street?**
 - Public spaces should have a highly visible boundary that opens onto the street. When public space is incorporated behind housing, a security risk is created. House owners often put up high fencing as a safeguard and for privacy reasons, preventing the space from being overlooked.
- 2 **Does neighbouring private space orient itself towards looking over the public space, thereby providing safer space and supervised play areas?**
 - Housing should overlook reserves and streets. These should not be cut-off by back fences which leave unsafe and unobserved spaces. Any pedestrian only accessways should be short, direct, well lit and signposted.
- 3 **Does the space have adequate lighting?**
 - Security of a public space in darkness will be seriously compromised if lighting is not used to minimise dark corners and potential assembly areas.
 - Pathways require adequate lighting levels, especially at points where heights change and potential dangers/hazards exist.
- 4 **Are the public spaces well designed to account for safety?**
 - Built structures such as toilet blocks, or play-platforms etc. should have minimised enclosed hidden space, and be located adjacent to road frontages for visibility.
 - TLA by-laws, the NZBC and OSH requirements for protection from hazards like falling, slipping, and legibility need to be addressed. Any playground equipment needs to meet the New Zealand Standard for playground safety. These include:
 - Interim safety standards of NZS/ASTM F 1292: 2001 - Surface Systems Under Playground Equipment and NZS/ASTM F1487: 2001 - Playground Equipment, and NZS/ASTM F 1918:2001 - Soft Contained Play Equipment, along with the handbook SNZ HB 5828: 2001 - Handbook for Public Safety
 - Also the current standard, AS/NZS 4486.1: 1997 - Playgrounds and Playground Equipment. Part 1.

- 5 The key to road safety is to tame rather than exclude the car.
Traffic calming and through routes can help achieve this. Public roads should connect the urban fabric so that they are safer than cul-de-sacs or dead end routes.
- 6 What constitutes a safe level of lighting for a community street?
Is this provided currently? Can the lighting provision be improved and therefore improve the safety and amenity of the area?

This series of drawings shows the proposed redevelopment of insecure urban site.



SECTION 4 BLOCK LAYOUT

The previous sections have established the proposed framework and structure, the roading and open space. This defines a series of development sites.

This section looks at the principles of establishing urban blocks - which finalise the position of the roads.

Good urban blocks allow perimeter development that directly addresses the streets. The higher the level of activity on the streets, the more continuous the development, and the higher the density.

The buildings form a distinction between the public and private realms, with the private domain to the rear of the buildings. The blocks should be deep enough to allow parallel rows of houses to back onto each other - usually 60-70 metres. The length of the blocks will depend on the intended permeability of the area - but about 90 metres is considered a good length. Ideally the shortest edges of the block should be on the busiest roads, to maximise permeability, but this may conflict with traffic engineering requirements in some areas. The extent of mixed use and proximity to urban centres will influence the density of urban blocks. Smaller blocks support higher density, so as blocks get nearer to a town centre, they tend to be smaller in size.

IN THIS SECTION ON BLOCK LAYOUT...

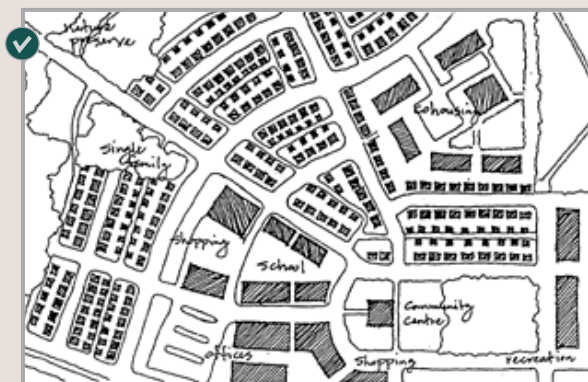
| | | |
|---|--------------------|----|
| ▼ | EFFICIENT LAND USE | 34 |
| ▼ | MIXED USE | 35 |
| ▼ | MIXED OWNERSHIP | 37 |

EFFICIENT LAND USE

Efficient land use is an issue that each development must address. Whether a single house is being provided or a new residential subdivision is being built, it is important to make the best use of the natural land resource we have. There are a number of issues that need to be considered in order to use land efficiently.

- 1 Is the site being used as efficiently as the district plan permits?
- 2 After carrying out the contextual/urban design analysis, it may be identified that the site is appropriate for higher density than is allowed in the district plan. A resource consent or plan change may be necessary. Consultation with HNZC and the TLA should be undertaken as soon as possible. HNZC will support this process where appropriate.
- 3 Does the land fall within areas designated for medium density under the district plan? If so, is redevelopment of the area required to reconfigure an urban layout that supports the density?
- 4 Is the provision of usable private outdoor space going to be possible with medium density housing? It may be that topography or orientation compromises private outdoor space.
- 5 It is important to note that new access roads may be required when intensifying housing levels. These should connect through blocks where appropriate to enhance the use of the area.
- 6 It is also important to note that medium density housing relies more on public outdoor space for amenity in an area. While land must be used efficiently it is also important that public space is not compromised. The object of efficient land use is not to cram as many houses as possible on a site, but to make best use of land resources.

Land use sketch showing cul-de-sac not using land efficiently.



MIXED USE

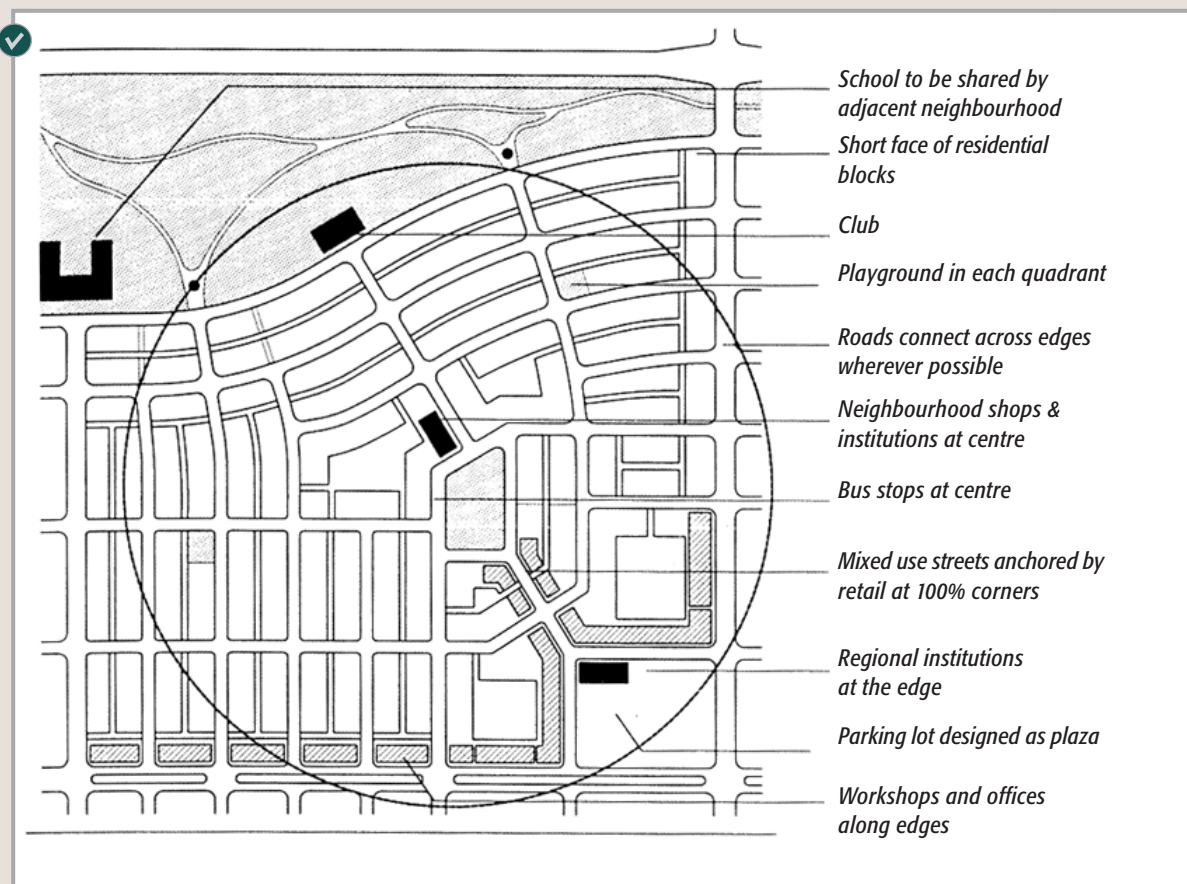
Before deciding that medium density is the appropriate response to provision of housing in a neighbourhood it is necessary to address some issues.

- 1 Are there social service facilities and work opportunities in the vicinity of the development?
- 2 If not, are any work facilities or shops being planned as a part of the development?
 - It is clear from district plans that medium density housing is supported predominantly around town centres (or nodes and corridors in the case of the Auckland Regional Growth Strategy). Therefore it is reasonable to expect that mixed-use development will be encouraged in areas of medium density housing.
 - Another option is to encourage developers who are doing work for or with HNZC to include an amount of mixed use in their developments.
 - House design should also allow for a range of uses. This will mean planning flexible spaces.

The following looks at options for providing flexible use housing:

- 1 Residences can be positioned over workspaces. Note that soundproofing will be extremely important in this situation
- 2 A ground floor space that is easily accessible from the street could be used as an office
- 3 A lobby area that connects to the rest of the building is desirable
- 4 A separate entrance should be provided to dwellings
- 5 A garage could be used as a workspace, as could a semi-detached room
- 6 Off-street parking should be configured in a way that supports visitors.

Mixed use neighbourhood. (New American Urbanism.)



MIXED OWNERSHIP

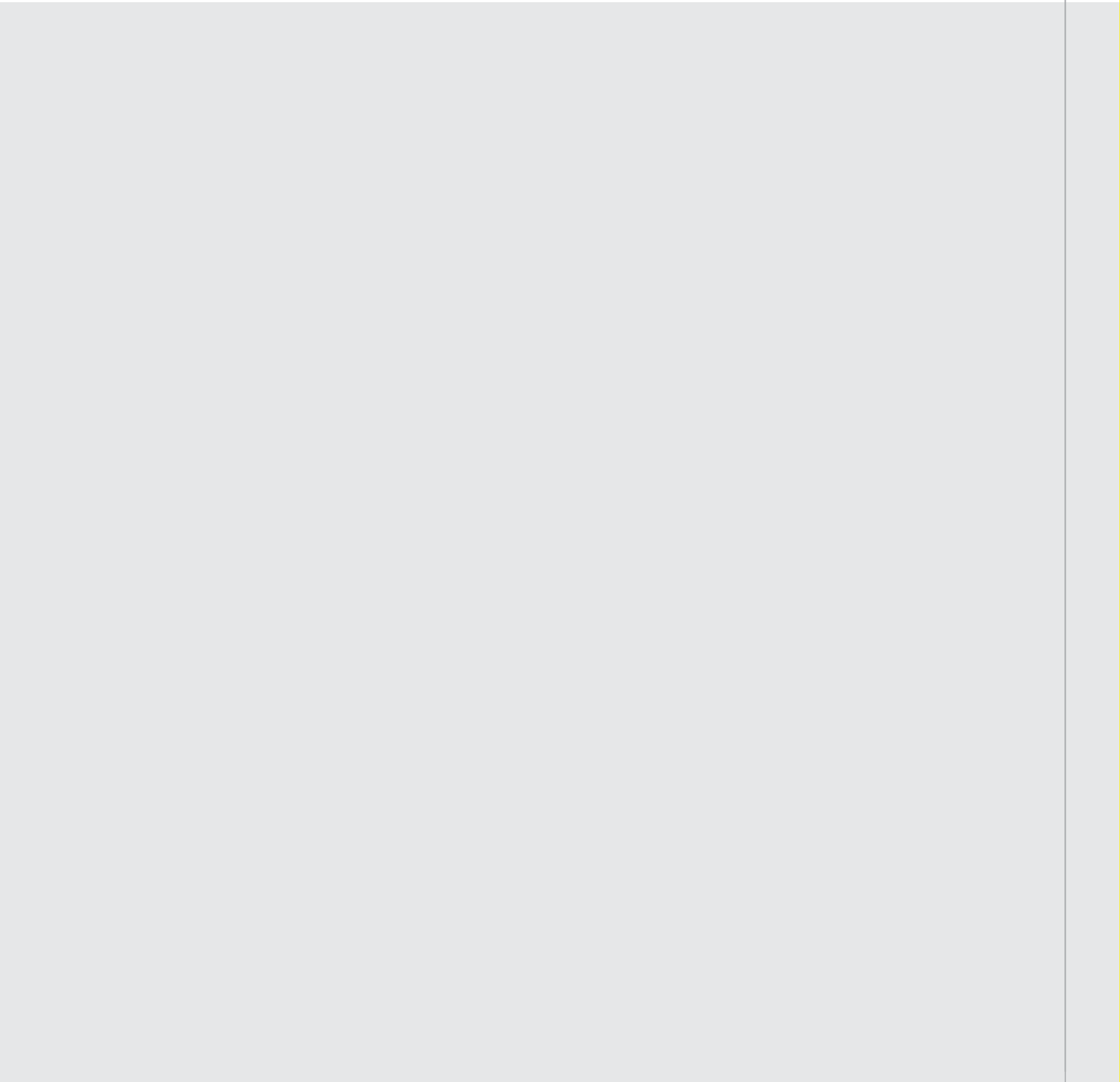
It is important to create a mix of ownership in any development. There should be a range of lot sizes and house types.

It is unlikely that HNZN will encourage future developments where it owns all the housing. In existing areas where HNZN owns large amounts of housing, options for dispersal should be investigated. This is an issue that needs to be addressed in conjunction with HNZN representatives.

In new developments HNZN can use a turn-key model whereby HNZN buys a percentage of a development from a developer, who then sells the remainder of the development to the private market. This percentage is never more than 30% of the housing spread through the development. There are some specific exceptions, such as elderly housing, where HNZN may take all available units.

No mixed ownership.





SECTION 5 LOT LAYOUT

The previous sections have finalised the layout of the street and the dimensions of the block. This section looks at the principles behind establishing the lot. The lot layout will determine the pattern of development within a block.

Well designed lot layout gives the framework for the development of individual buildings. If a street is to play the dual role of a movement route and a focus for the community, it must be framed by buildings and enriched by their activity and life. This section deals with some of the principles of successful subdivision and patterns of intensification.

The key principle is the relationship of the house to the street and achieving the proper relationship of public to private space. Housing should address issues of private and public outside space. As density increases, this issue needs careful consideration - as private space becomes smaller and even more precious.

Lots should be a regular shape. Oddly shaped lots, often a result of an inappropriate block structure, will result in less developable land per lot, and will make intensification difficult. Ideally, all lots should have road frontage. Cul-de-sacs, with right of way development and back-lots are not considered to be acceptable as an overall development pattern.

The final outcome of this section is the formation of development sites within the blocks and the finalisation of the design.

IN THIS SECTION ON LOT LAYOUT...

| | | | |
|---|---------------------------------|-------------------------|----|
| ▼ | LOW DENSITY | | 40 |
| | | ■ AMENITY | 40 |
| ▼ | MEDIUM DENSITY | | 41 |
| | | ■ INCREASING DENSITY | 41 |
| ▼ | REDEVELOPMENT - CASE STUDY 1 | | 43 |
| | | ■ INTRODUCTION | 43 |
| | | ■ EXISTING SITUATION | 43 |
| | | ■ URBAN DESIGN SOLUTION | 44 |
| ▼ | REDEVELOPMENT - CASE STUDY 2 | | 46 |
| | | ■ INTRODUCTION | 46 |
| | | ■ SOLUTION 1 | 46 |
| | | ■ SOLUTION 2 | 46 |

LOW DENSITY

HNZC has many properties that consist of a freestanding dwelling on a large site. While this density is not considered the best use of the land resource in areas where intensification pressures are occurring, this is still considered as a desirable pattern of dwelling distribution for many suburban customers.

For the purposes of this Guide low density is defined as an area where sites are larger than 400m², and generally a site cover of 35% is considered maximum.

AMENITY

A part of the desire New Zealanders have to retain low density housing is the amenity it offers each individual occupier. Where densities of occupation are lower there is more space per person.

There are some amenity issues that need to be addressed when deciding on how to approach low density housing.

- 1 Private outdoor space must be maximised and functionally accessed from the house - refer further to the [Site Design Guide](#).
- 2 Where appropriate, occupiers should be encouraged to use the land they live on, through the use of vegetable gardens etc.
- 3 On-site approaches to mitigating stormwater run-off by limiting impermeable surfaces, or using on site stormwater disposal are desirable.
- 4 Planting should be encouraged to protect the site from prevailing weather conditions.

HNZC tenant vegetable garden.



Permeable parking provides sustainable alternative.



MEDIUM DENSITY

In areas where intensification pressures are occurring, medium density housing is now considered a serious option. Some low density areas support further densification to increase the numbers of units in an area, or provide a good method of mixing the ownership in an area.

The density for the project should have been established through the Urban or Rural Design Guides. For projects that are a single unit in an existing area it is still desirable to establish the existing patterns of development in the locality, and respond to those with the site cover for the proposed project. It is important that any intensification does not compromise quality of living conditions.

For the purposes of this document medium density shall refer to areas where the sites are under 400m². This may vary in different locations due to topography or existing urban fabric, however it is to be used as a guide.

■ INCREASING DENSITY

Zero lot lines

These are introduced in a number of district plans to allow smaller lot sizes to be more effectively utilised. They allow buildings to be built adjacent to the boundary of the site. This can increase the effective amount of outdoor space on the site through diminishing the amount of wastage that was often required under old plans where setbacks from each boundary were required.

Zero lot lines are a way to develop sites for increased density.



Reduced lot sizes

Smaller lot sizes enable higher densities to be achieved and more efficient use of land to occur. Each site should have good sunlight and physical access, and ensure that minimal shading of neighbouring sites occurs.

Redevelopment

HNZC is encouraging a more holistic and comprehensive approach to development and redevelopment. Development must be seen in the context of neighbourhoods and districts - not just single land parcels.

What has commonly been called 'infill', with rear lot developments is no longer seen as an appropriate redevelopment mechanism, and should only occur in very specific and limited circumstances.

With any development, neighbouring landowners should be identified.

There is often the possibility of integrating one development with a neighbouring one - where possible this should be actively pursued. HNZC can facilitate this process.

HNZC sees development adjacent to its own holdings as a positive vehicle for redeveloping its own land - and encourages developers to involve HNZC at initial stages of design, so a comprehensive solution can be reached.

A good example of how to densify a larger block.



- 1 Was 33 units (low density).
- 2 Created 53 units (20 medium density).
- 3 HNZC may use several architects in the development.
- 4 HNZC may retain only half the units, thereby:
 - Providing mixed ownership
 - Funding renewal.
- 5 Achieving opening up of cul-de-sac, promoting permeability.

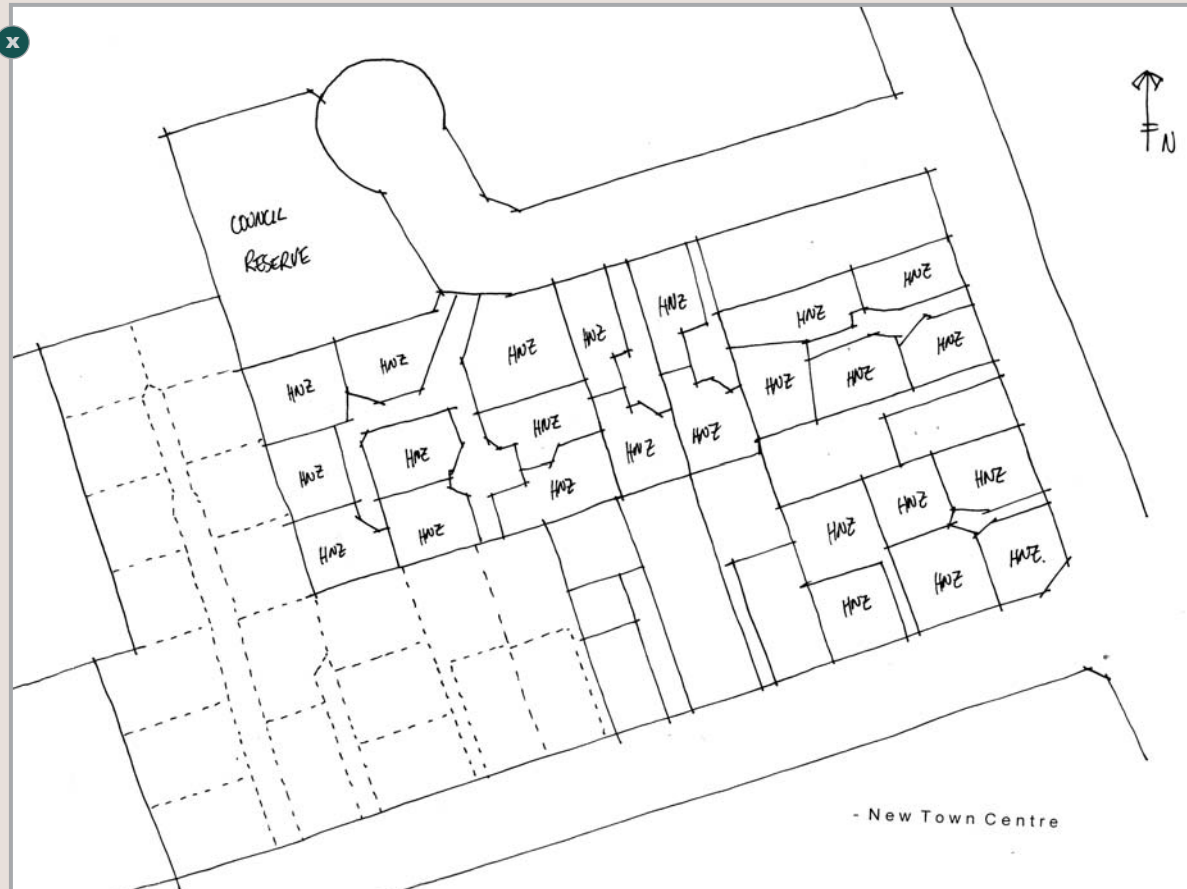
REDEVELOPMENT - CASE STUDY 1

■ INTRODUCTION

- The area is opposite a proposed new town centre, and so is appropriate for increased density.
- The developer has identified contiguous areas of HNZN ownership and the possibility of a comprehensive redevelopment.
- The developer is committed to a partnership approach with HNZN.

■ EXISTING SITUATION

- A cul-de-sac roading pattern and extensive right of way (ROW) development.
- Long driveways and very little private open space.
- Unsafe and unattractive urban layout.
- Initial proposal for new subdivision continues this pattern.
- Multiple lots from single driveways.



URBAN DESIGN SOLUTION

- Through roads have been introduced to open up the inside of the block. These are narrow streets, which restrict traffic speed and maximise the developable area.
- All houses have road frontage; there are no rear lots or right of ways. Private open space is protected.
- The streetscape is overlooked and planted - increasing its safety and definition.
- Public open space is moved to the main road frontage, and is overlooked.
- There is a range of section sizes, with higher density around the park and fronting the main road.
- HNZC has the opportunity to disperse housing through the site.

REDEVELOPMENT - CASE STUDY 1

OUTCOMES

Comprehensive redevelopment results in:

- Better urban layout - no rear lots
- Safer environment
- Increase in land value across the whole development
- Council accepting of higher densities because of a comprehensive approach
- Developer gets HNZC support when dealing with Council.



REDEVELOPMENT - CASE STUDY 2

INTRODUCTION

- The site is flat - in suburban Papakura.
- Current site has 3x950m² lots with a single house on each (numbers 1, 2 and 3).
- Very low density, easily subdividable.

SOLUTION 1

Advantages:

- Simple
- Ownership of driveways
- Direct connection to street.

Disadvantages:

- Doesn't fully utilise possibilities of redeveloping site
- Maximum number of crossings/driveways
- Doesn't upgrade the streetscape
- Gives three rear sites.

SOLUTION 2

Advantages:

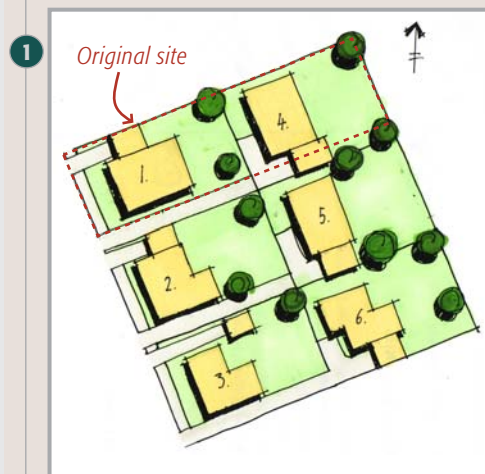
- Can revitalise the streetscape
- Can increase quality of outside space
- Reduces the number of curb crossings
- Very flexible
- Mix of lot sizes allows mix of housing types.

Disadvantages:

- Creation of rear lane - potentially negative space.

Note: Could also be a positive space, if planted etc.

Typical densification of three suburban lots.



A good example showing how to better increase density on the same three suburban lots.



