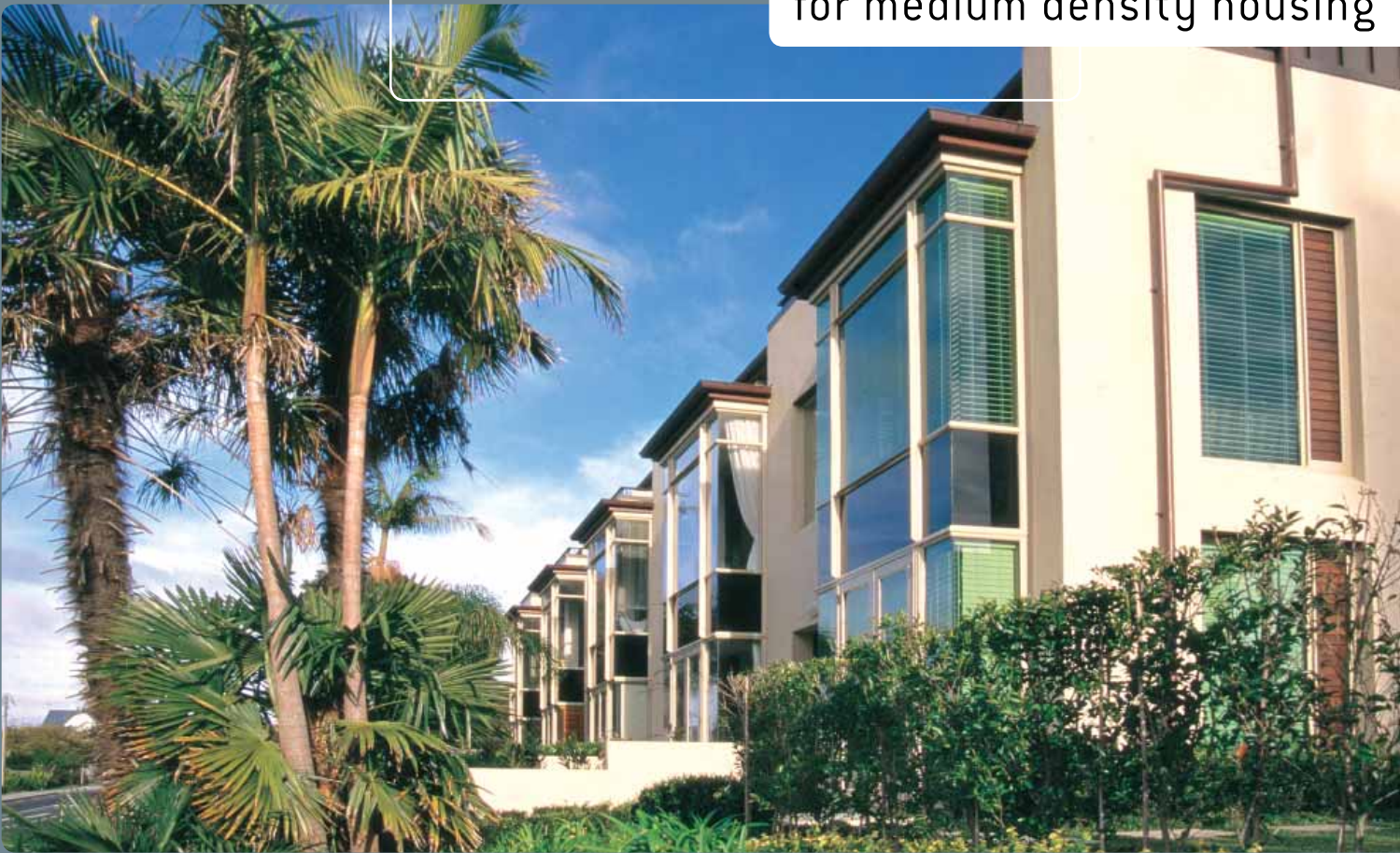


good solutions guide

for medium density housing



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We want to ensure we have a quality built environment that complements the unique and natural environment of our city. We recognise the need for a sustainable approach to urban development, and that

quality of design is imperative.

who should use this guide and why

This guide has been designed to assist developers, designers, architects, planners and builders plan, design and build better quality medium density housing developments. It looks at ways to improve and enhance the initial site design, discusses the advantages and disadvantages of various house types, and suggests ways of improving the design of specific building elements. The guide also suggests a variety of ways to improve the overall visual character of this type of development.

House buyers are demanding increasingly higher standards of design, for example greater privacy, security and access to sunlight. Many people have different incomes and lifestyles, and we need to cater for these distinct needs by offering a variety of housing types.

With a growing population comes a need for more intensive forms of housing. Commitment to the Auckland Regional Growth Strategy means we need to provide sufficient housing to accommodate our growing population. These guidelines are aimed at helping you plan, design and build better intensive residential developments which meet a range of people's needs. Your commitment to high quality and innovative design is important to achieve this and ensure our city continues to be an attractive place to live, work and play.

Combining a high standard of private amenity with a quality public environment is essential to modern day living. Achieving the right balance is the key to good design.

Remember, we are all part of the community when we step out of our front door.

1 site design

guiding design principles

The following principles and means to achieve them form the basis of good site design.

integrating with the wider community

- creating good street links to neighbouring sites
- establishing a network of public streets which provide safe access through the site
- offering a range of house types which meet different needs
- avoiding gated developments which prevent useful links being established between different parts of the neighbourhood

protecting and enhancing the natural environment

- retaining natural features such as bush, trees, landforms and waterways
- introducing diverse native trees and plants
- limiting earthworks and modification of the land
- managing stormwater to protect stream edges and water quality
- introducing designs which minimise runoff

promoting cleaner air through reduced car use

- housing more people closer to shops, schools and jobs
- encouraging people to walk by creating environments which are safe, interesting and easy to walk around
- designing well-connected streets to reduce travel distances for cars and pedestrians

allowing for change over time

- arranging and designing houses which front public streets to enable them to be used for different things over time

creating economically sustainable environments

- building marketable housing in high quality, attractive environments

using energy efficient design

- having most streets running in a north/south direction to allow maximum sunlight access to houses
- adopting passive solar design principles
- attaching houses in a terraced, semi-detached or apartment style to conserve heat

establishing socially active and safe environments

- building houses close to parks and green open spaces for play
- designing houses to overlook the street
- having parks which are clearly visible from streets and houses
- building houses and parking in areas which are highly visible to neighbouring properties to deter burglary and car theft

ensuring good private amenity and design

- providing sunny private outdoor space
- having good access between indoor and outdoor living space

market considerations

Researching and understanding market demands, as well as taking other projects which are currently under way into account, are important factors to consider. There are many potential buyers not being catered for properly. Considering a range of house types and sizes which meet prospective buyers' different needs and values can help you reach a broader market and offer quicker sales.

Testing ideas using outline concept sketches can be useful. Remember innovative design solutions can deliver unexpected value. Cheapest is not always best and higher returns are often gained from offering value for money.

- Who is likely to buy your property?
- In terms of house size, are they moving up or down in scale?
- What are their age groups and likely household composition (singles, couples, families, etc.)?
- Will they want to buy, lease or rent?
- What local facilities and services will they require?
- What type of house would they prefer?

design steps for large sites

1 analysing the site

Showing the constraints and opportunities on a plan at the beginning avoids misunderstandings and can inspire new ways of looking at the project. Cover the area beyond your site, up to at least 400m away (approximately 5 minutes walk in any direction). Indicate and note possible design responses to the following:

- 1 nearest public transport, shops, schools and parks
- 2 natural features, existing trees and streams
- 3 all possible vehicle access points
- 4 opportunities for street links to neighbouring sites
- 5 neighbouring buildings and their outdoor areas – do the fronts or backs of neighbouring buildings face the site?
- 6 stormwater flow paths and possible stormwater management needs

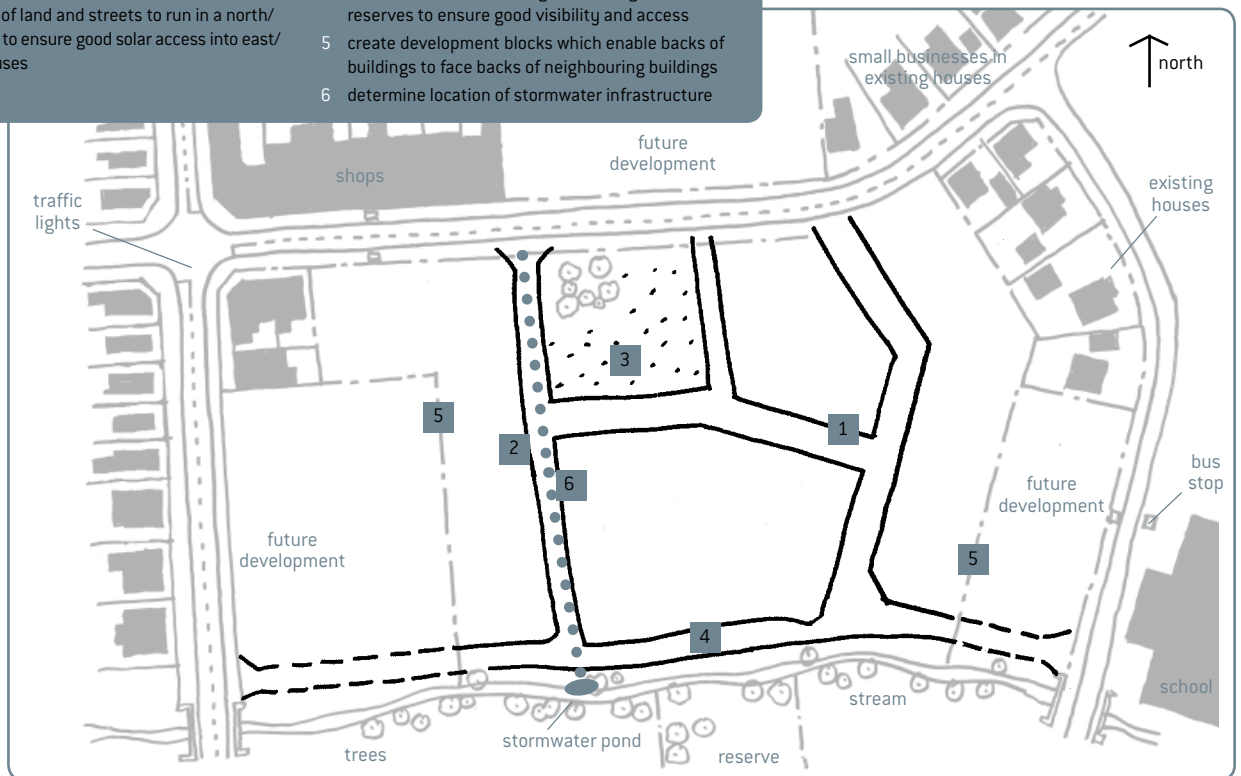
Also consider:

- character and form of surrounding buildings
- heritage or cultural features
- existing pedestrian and cycle routes
- night-time conditions eg. safety and street lighting
- local sources of noise
- topography
- views and orientation
- availability and capacity of site services such as water pipes and roads



2 structuring the site's development

- 1 establish how residents, pedestrians and motorists will move through and around the site. Use a well-connected network of public streets and avoid walkways at the backs of buildings
- 2 arrange blocks of land and streets to run in a north/south direction to ensure good solar access into east/west facing houses
- 3 decide where public open space will go and use existing natural features such as large trees where possible
- 4 locate minor streets along stream edges and reserves to ensure good visibility and access
- 5 create development blocks which enable backs of buildings to face backs of neighbouring buildings
- 6 determine location of stormwater infrastructure

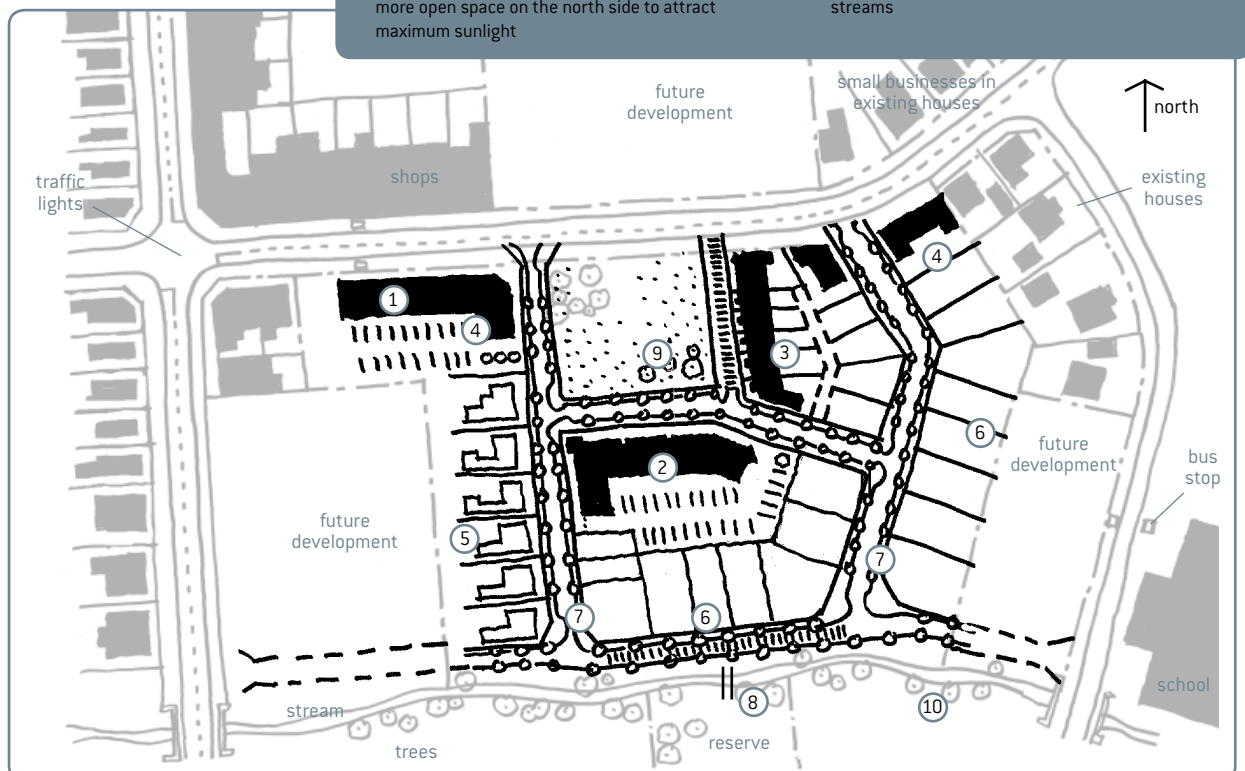


3 developing the site

Design houses with backs facing backs and fronts facing fronts. Houses should face east, west or south, rather than north. Apartment buildings or houses that rely on balconies for sunlight can be an exception to this. Higher density housing should be located closer to centres and public transport.

Consider using the following when designing the site:

- 1 a mix of retail and apartments on main routes close to shops
- 2 apartments facing north onto open space for example parks, reserves or squares
- 3 terraced housing near town/village centres
- 4 mixed use units for living and working along busy streets
- 5 houses located on the southern boundary to allow more open space on the north side to attract maximum sunlight
- 6 lower density housing further away from the centre
- 7 high quality streets with trees, parking and traffic calming measures to restrict speed
- 8 connections for pedestrian access to parks, reserves or shopping areas
- 9 parks with benches, children's play area and mature trees
- 10 quality landscape planting and paths along existing streams



designing for smaller sites

The same guiding design principles apply to smaller sites but additional innovation may be required to deal with the more restrictive scale of development.



If restricted to this lot shape, consider the following when designing the site:

- smaller accessway and driveway areas
- more landscaping
- houses overlooking communal open space
- houses fronting the street

- large accessway and driveway areas
- limited landscaping
- houses not fronting the street
- communal open space which is not visible from the houses



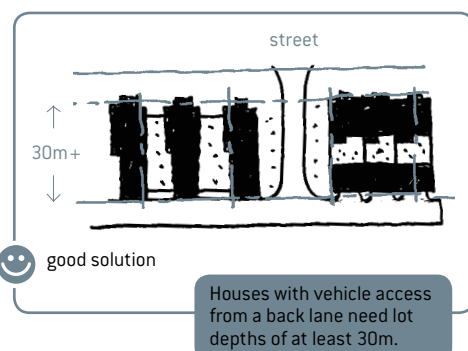
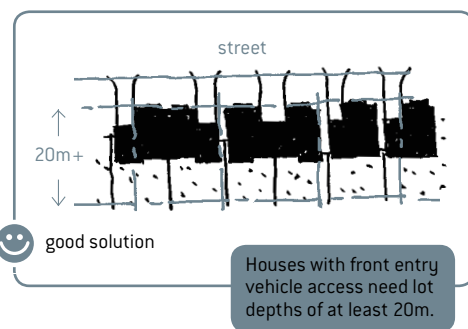
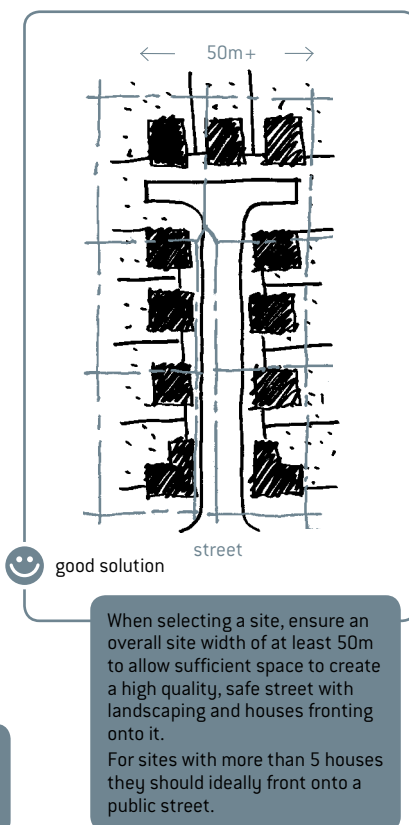
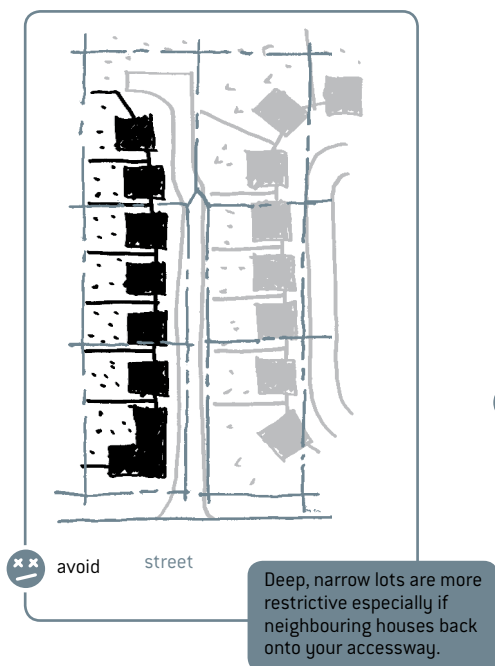
- rear fences backing onto the park
- large accessway and driveway areas
- houses not fronting the street



- house fronts overlooking the park
- smaller accessway and driveway areas
- houses fronting the street

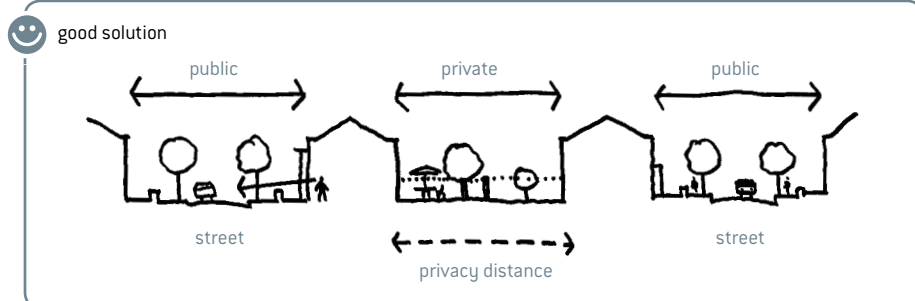
selecting sites from existing subdivisions

Where possible avoid narrow sites as they are generally difficult to develop intensively and achieve a good design outcome.



providing clearly defined public and private space

Successful houses have sunny and private outdoor space with good access between indoor and outdoor living areas. Houses should have clearly defined public fronts and private backs. Interesting fronts and windows, enabling residents to see what's happening in their local community, are also desirable. Ensuring house fronts face other house fronts across a public street, and backyards face other backyards is the best site layout to achieve this.



When this principle is not applied, as in the example here, unattractive and less inviting public space may result. The buildings on the right look onto a blank timber fence which could be targeted by taggers.

refuse and recycling

The storage and removing of refuse and recycling materials from medium density housing developments, where all individual dwellings do not front onto a public street, needs to be carefully considered early in the design process.

Each dwelling should have enough space provided for the storage of refuse and recycling bags or bins.

If shared storage enclosures for refuse and recycling bags or bins are used, they should be located as close as possible to the front boundary. They should be visually screened from the road and nearby dwellings and should be separated enough to ensure that the occupants of the nearest dwellings are

not exposed to any health risk or odour nuisance. Refuse enclosures should also provide for the separation of recycled waste products and have a hose tap and drainage sump installed for washing down.

Check with the relevant council as they may require access on to the development site for rubbish trucks and other service and/or emergency vehicles. If this is the case, then internal roads and access ways will need to be of adequate strength and width and have areas for vehicle manoeuvring.

Contracting a private company to dispose of refuse is another option but ensure they separate recyclable materials as part of their service.



living streets

It is essential to create streets, both public and those internal to the development site, that are attractive, safe and encourage pedestrian activity.

Key elements include:

- a highly connected street network that avoids cul-de-sacs
- street trees
- footpaths
- attractive street lighting
- on-street parking
- carriageway designs which encourage reduced vehicle speeds while still allowing access for emergency vehicles and refuse trucks.


Combining these elements provides all the positive qualities of a cul-de-sac without cutting residents off from the rest of the community.



communal open space

Communal open space should be provided as part of any medium density housing development if there is not easy access and close proximity to a public open space. It should be easily accessible for residents, located on flat land and have some seating, shade, attractive landscape planting and a play area with apparatus for small children. It must not be used for parking.



 A featureless, uninviting communal open space with a plain wooden fence bordering resident's backyards.

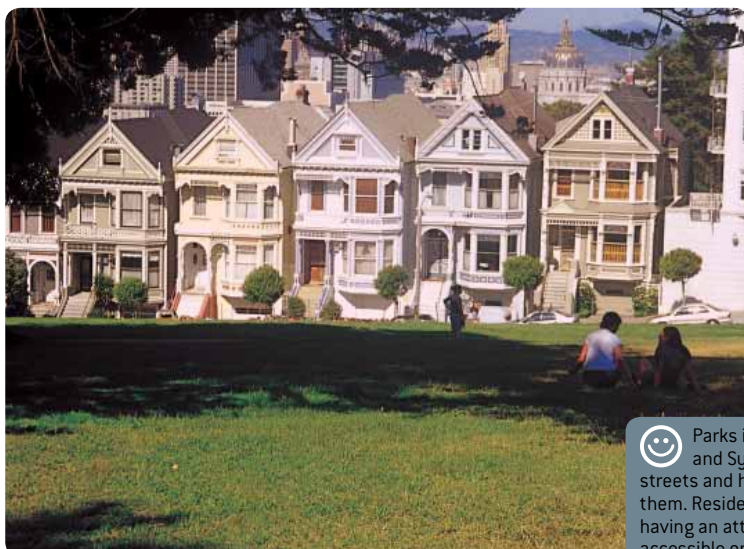
fronting public open space

Where there is public open space a street should run alongside with houses fronting onto it. The presence of people and motorists in the street provides an extra sense of security.

When houses back onto a park they tend to have high walls. This may seem more private to the residents but can be a target for taggers and intruders, and gives a less attractive appearance to the park. Where this situation is unavoidable, visually permeable fences such as pool fencing should be used.



This development has rear fences backing onto a park, which means residents are not able to easily access the park from their homes. Visitors to the park are confronted with a blank unattractive wall.



Parks in San Francisco and Sydney lined with streets and houses overlooking them. Residents benefit from having an attractive and easily accessible open space nearby.



Attractive and easily accessible parkland. Cobbled paths (on the right) lead to the front doors of houses which have a back lane for vehicle access.



access and visitor parking

There are two good ways of providing on-site visitor parking:

- on the driveway directly in front of the garage. Driveways should be reduced in width nearer the footpath and road edge for properties with double garages.
- off a back lane behind the property. For rows of angled parking, a tree should be planted between at least every third or fourth bay, and every second bay for parallel parking. Restrict paving to areas essential for vehicles to manoeuvre and ensure the remainder of the site is well landscaped.



Large areas of parking directly in front of houses can make them less attractive and create a barrier between residents and the street.



Parking on the driveway in front of the garage. Parking bays and garages should be set to the side of the house where vehicle access is from the front.



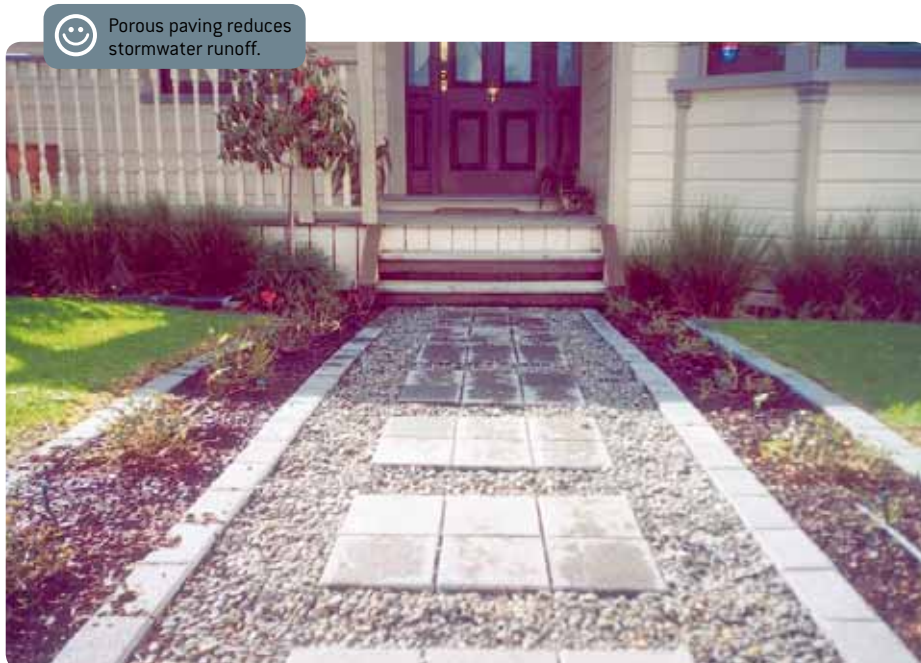
The driveways in this development can accommodate two cars but narrow down to approximately 3.5m nearer the pavement.

high quality stormwater design

Channelling and piping stormwater so that it discharges into our streams and waterways pollutes the environment. Careful consideration should be given to alternative options to channelling stormwater such as establishing ponds, swales, and private and communal open spaces that absorb and filter stormwater runoff.

Good landscape planting and using permeable surfaces allows stormwater to soak into the ground and helps reduce runoff. Care should be taken to understand stormwater overland flow paths and avoid obstructing them when designing the site layout.

On sloping sites, excessive excavations for building platforms can potentially alter ground water tables, change natural stormwater overland flow paths and require extensive retaining. In periods of wet weather, any of these could result in undesirable or unacceptable surface water and/or soakage problems.



Porous paving reduces stormwater runoff.

2 house types

compendium of house types

A summary of common house types is illustrated below. Two categories are described: 'houses with front entry vehicle access' where access to garages is from the street, and 'houses with back lane vehicle access' where access to garages is from a back lane.

houses with front entry vehicle access

	public	private
1. front entry, 2 storey	<p>good front garden, garage set back, good view of street</p>	<p>good access between indoor and outdoor living space</p>
2. front entry, 2 storey	<p>garage set forward, poor view of street</p>	<p>good access between indoor and outdoor living space</p>
3. front entry, 3 storey	<p>dominating garages, modest view of street</p>	<p>good access between indoor and outdoor living space</p>
4. front entry, 3 storey	<p>dominating garages, modest view of street</p>	<p>poor access between indoor and outdoor living space, bedroom next to garage</p>
5. front entry, 3 storey	<p>direct access to indoor living space, garage below street level, good view of street</p>	<p>good access between indoor and outdoor living space</p>
6. front entry, 3 storey	<p>direct access to indoor living space, garage below street level, good view of street</p>	<p>large deck off indoor living space with stairway to garden</p>

houses with back lane vehicle access

	public	private
7. back lane access, 2 storey	<p>good front garden, no garage, good view of street</p>	<p>good access between indoor and outdoor living space, back garden</p>
8. back lane access, 2 storey	<p>front garden with no privacy (high walls would obstruct good view of street)</p>	<p>no back garden</p>
9. back lane access, 2 storey	<p>good front garden, no garage, good view of street</p>	<p>outdoor living space along the side of the house with good access and sunlight</p>
10. back lane access, 2 storey	<p>high blank walls</p>	<p>no back garden</p>
11. back lane access, 3 storey	<p>good front garden, no garage, good view of street</p>	<p>no back garden</p>
12. back lane access, 3 storey	<p>good front garden, no garage, good view of street</p>	<p>large deck off indoor living space with stairway to garden (use screens to ensure privacy)</p>

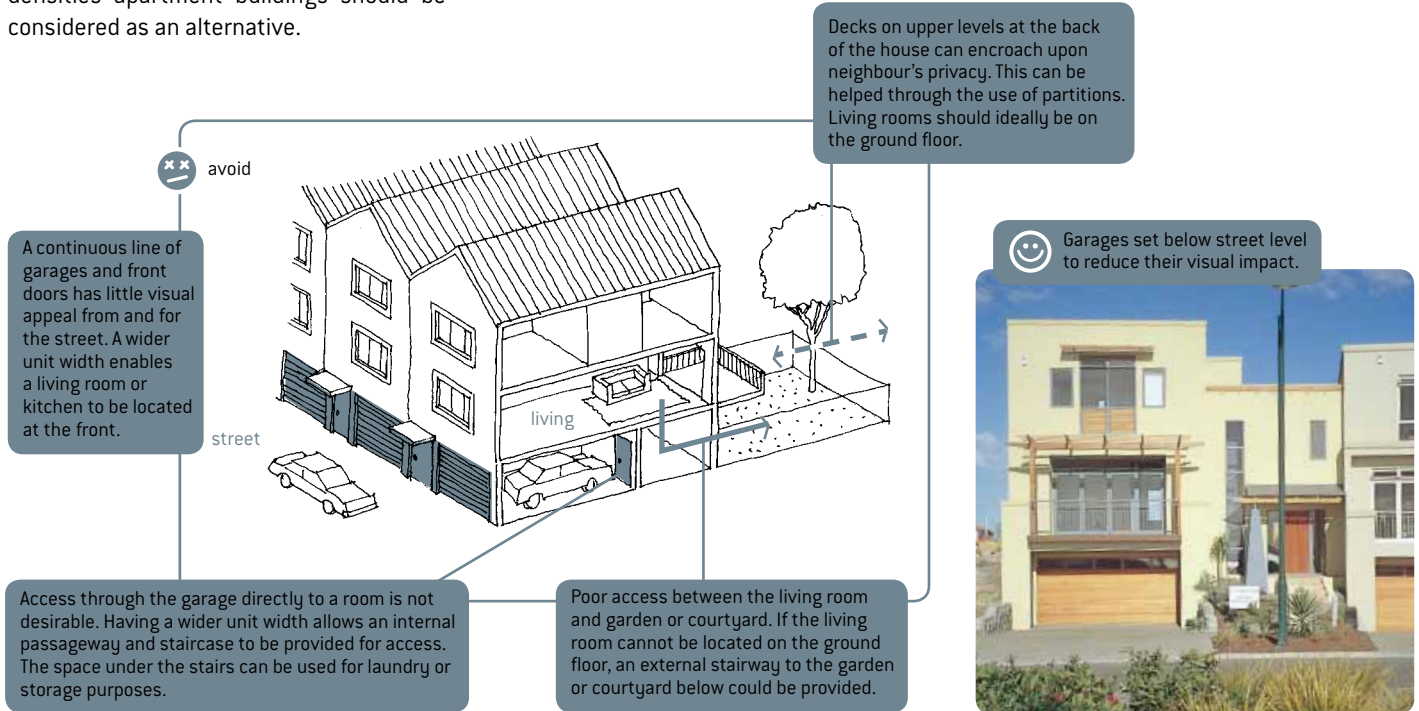
Lots with back lanes are narrower but require more total depth. The amount of land used is similar for both approaches. Designers should test each approach to see which provides the best solution for a given situation. Particular consideration should be given to the orientation of each house.

houses with garages underneath

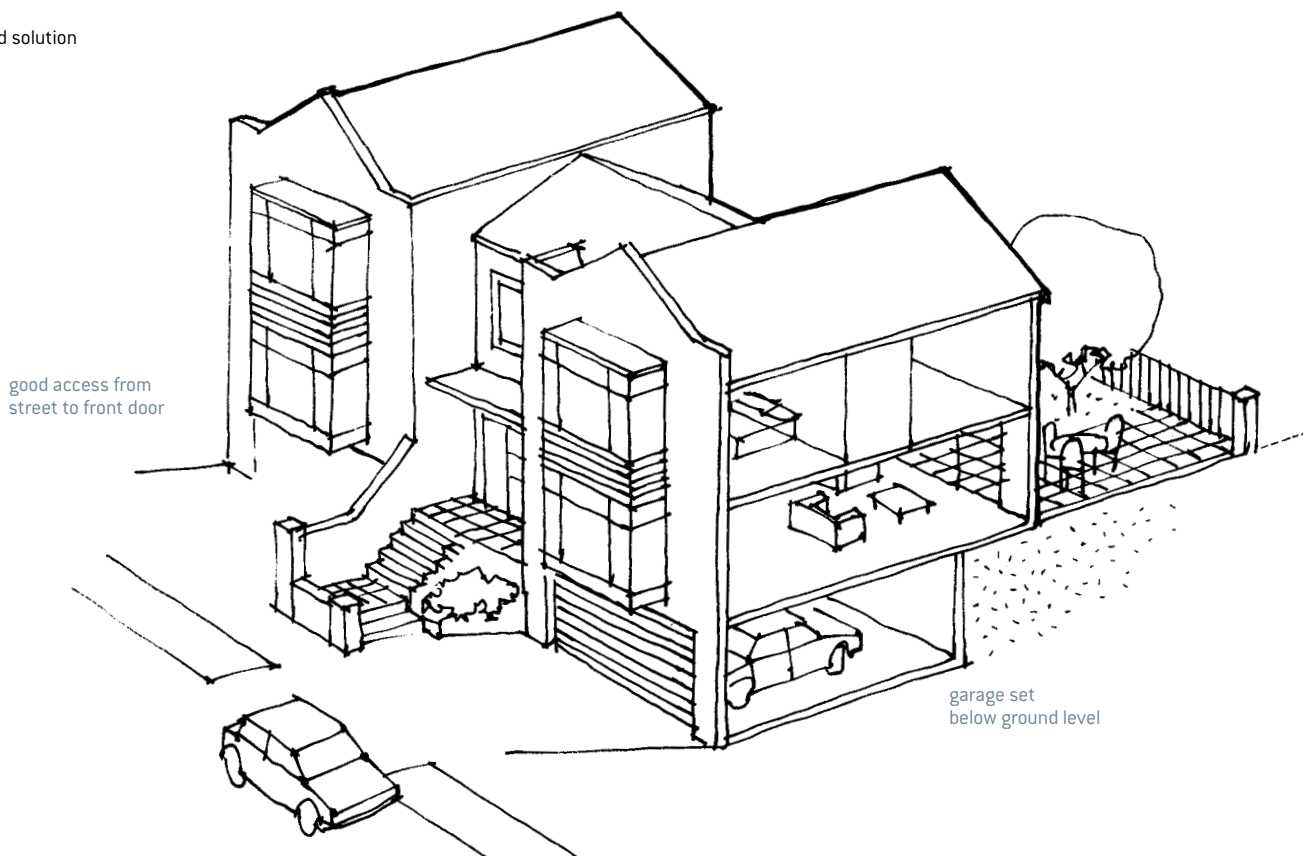
Medium density housing developments which aim for very high densities can have undesirable aspects. They often have poor access to back gardens or no private outdoor space other than balconies. They are effectively apartments on top of garages and front entrances. At these densities apartment buildings should be considered as an alternative.

Houses with garages underneath can work well when the site slopes down towards the garage. Front doors should be on the first floor or set halfway up from ground floor level. Garages can be set below street level to reduce their visual dominance.

Good access to the rear garden or courtyard is possible from the living room. The garage level should be above the nearest stormwater pipe to ensure effective drainage.



good solution



houses without back gardens

Houses without a back garden or courtyard are not desirable, especially if potential buyers have children. Limiting the unit size will not solve the problem. Where it is not possible to provide a rear garden or courtyard, high quality communal open space must be available nearby.



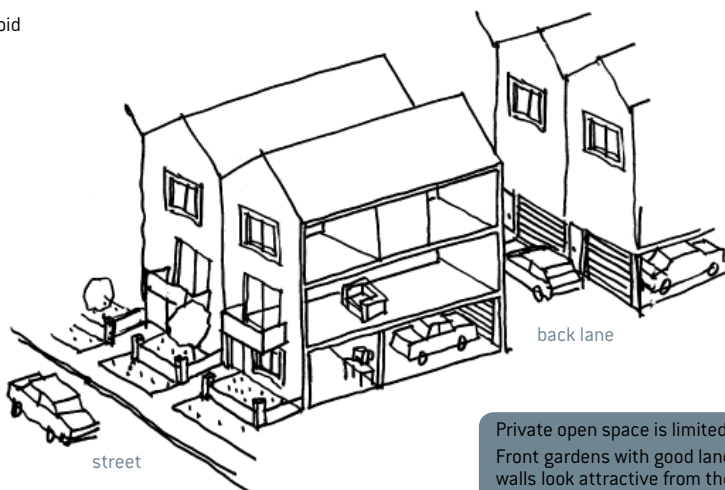
The front garden is the only private outdoor living space in this generally attractive development. The screen indicates a need for privacy but reduces visual contact with the street.



Back lanes can work well although privacy will be compromised if units are too close – while the back lane should be approximately 7-8m, the backs of houses should be 15-20m apart.



avoid



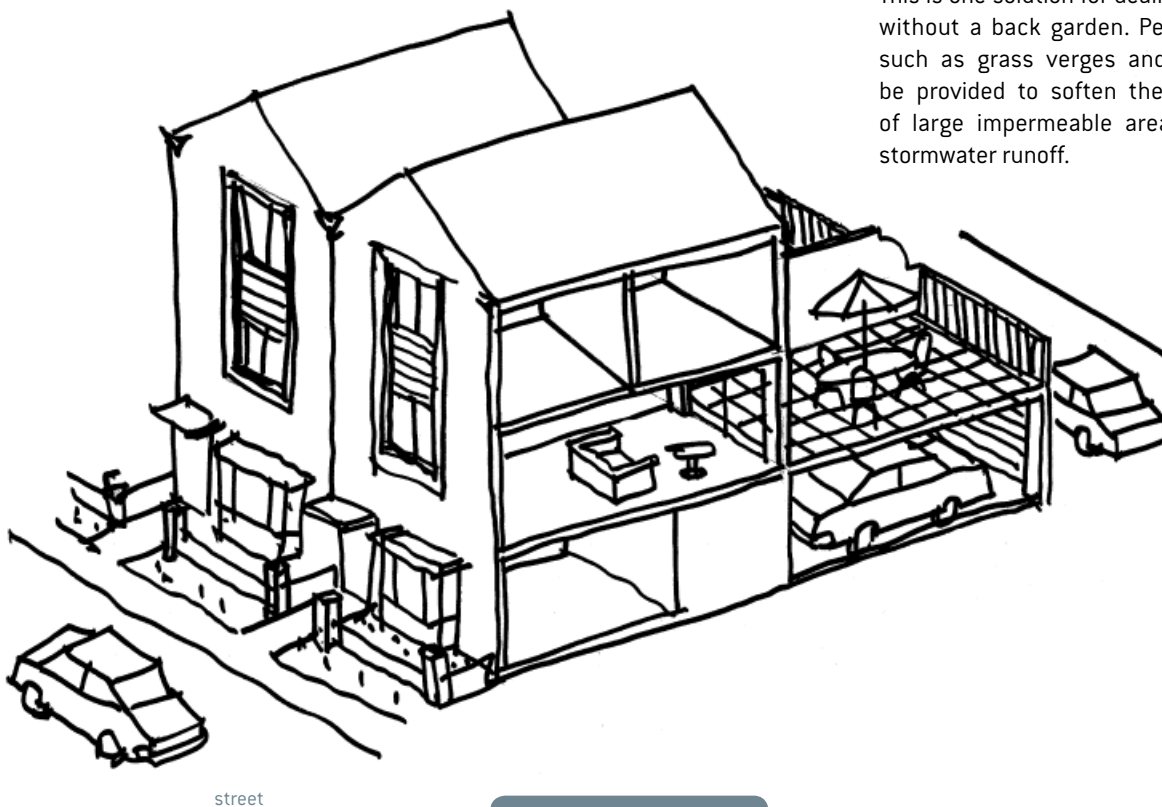
avoid



Private open space is limited to front balconies. Front gardens with good landscaping and low walls look attractive from the street. If there were high walls around the front garden the quality of the street would be downgraded.



good solution



This is one solution for dealing with houses without a back garden. Permeable areas such as grass verges and parks should be provided to soften the visual impact of large impermeable areas and reduce stormwater runoff.

A large deck on top of the garage. The deck may have high external walls for privacy and to create a courtyard effect, and should have good sunlight access.

A high quality street frontage is achieved with landscaping, low walls, interesting and varying façades and front rooms looking onto the street.

north-facing houses

Houses facing north with front gardens next to the street often end up with high walls for privacy. This creates a barrier between houses and the street and is not visually appealing. If the lot is not long enough to provide a sunny outdoor area behind the house, consider the following solutions:



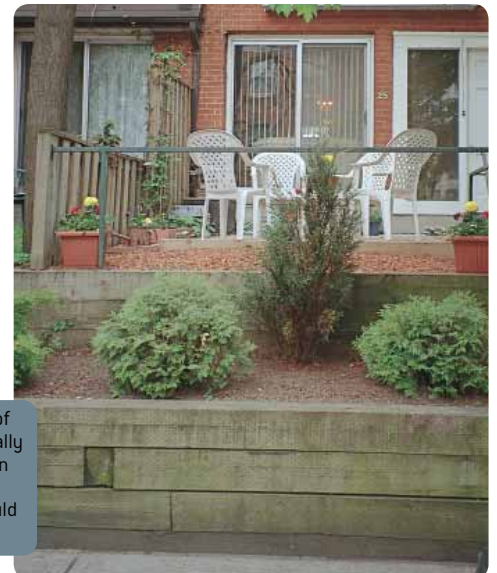
Examples of north-facing houses with side yards. Solutions for vehicle access include back lane access, garage at the front, or front entry access with the garage at the rear. To maximise the useable private space of a desirable side yard, minimise the side yard on the opposite side of the house, and if appropriate, build up to the boundary with the adjacent property.



The traditional porch, of which there are still numerous examples in Auckland, is a good solution and allows maximum sunlight access while ensuring a sense of privacy. A back garden should still be provided.



Outdoor living space is in view of the street but is at a substantially higher level (approximately 1.2m) than the street. This reduces the need for a screen for privacy. A back garden should still be provided.



back lanes and garages

Back lanes are an effective design solution for providing access and garages for houses when vehicle access from a public street is difficult or if vehicle access from the public street compromises the quality of pedestrian amenity along the street frontage. At certain price levels potential buyers may be resistant if there is a lack of internal access from the garage to the house. Compared to other countries with similar weather, this expectation seems overrated and is often reinforced by marketing approaches.

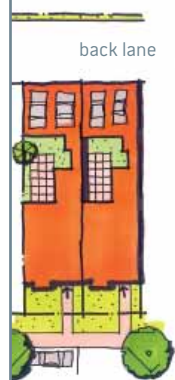
Examples of back lanes with internal access from garages to houses. With these designs, care should be taken to choose a layout that ensures maximum sunlight access to outdoor living space.



street



street



street

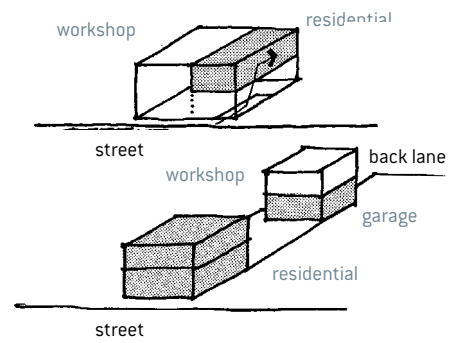
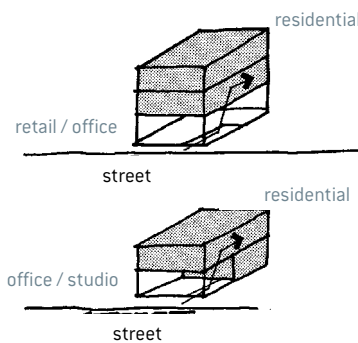
mixed use

Changing work patterns have resulted in an increasing need for developments which allow residents to live and work in the same building. It is good practice to provide separate entrances for living and business purposes and to ensure adequate parking is available. Avoid mixing living requirements with incompatible commercial activities which are noisy, produce odours or require late night hours of operation.

A separate entrance is provided to the front living room of this house which could be used as an office or work space.



Apartments above an office reception, with access to a high stud industrial space at the back. Access to the industrial space can also be gained through roller shutter doors at the rear of the building. The apartments can also be used as offices. A garage is located under the office reception.



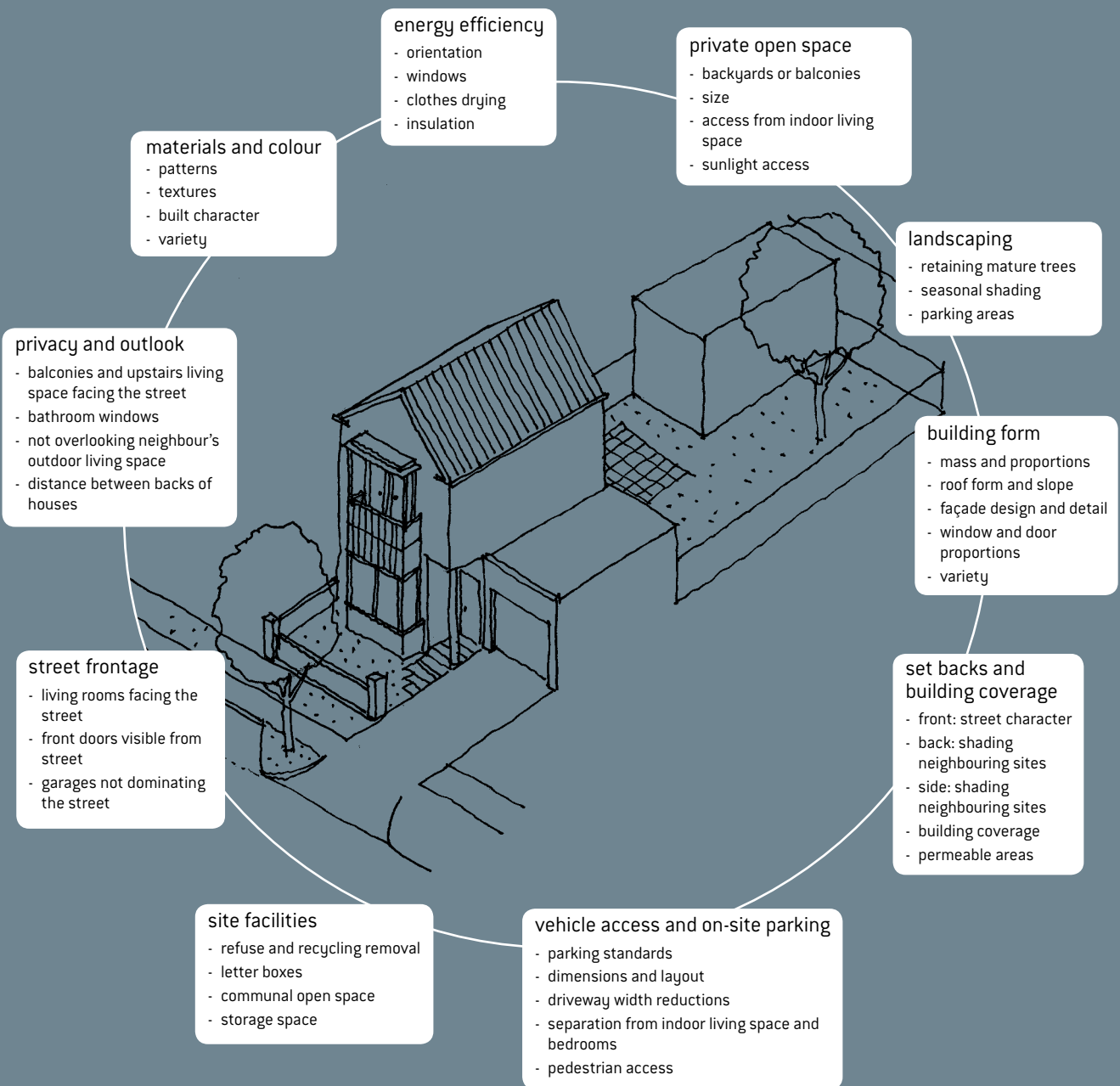
Examples of apartments above offices with separate front doors.



3 building elements

elements to consider

When designing houses consider the following:



active street frontages

Having good visual contact between residents and the street helps create safe and friendly neighbourhoods.

Living room or kitchen windows facing the street with garage doors set back from the front of the house help to achieve this.

Ensure that backyards act as quality, private open space.



Good visual contact with the street from the living room, and front door which adds to the quality of the streetscape.



Garages dominating and obstructing visual contact with the street.



balconies

Gardens or courtyards should be provided for each house but balconies, if designed well, can be a reasonable substitute if residents have access to communal or public open space nearby. When balconies front the street, providing an alternative area for drying clothes is important. Drying clothes outside is preferable as it contributes to energy savings.

Balconies need sunlight access and should be north-facing. If this is not possible, west and then east-facing are alternatives. The balcony should be a sufficient size to provide seating for residents and some guests. Consider using a canopy to enable residents to use the balcony in varying weather conditions. Privacy between neighbouring balconies is possible by using partitions.



Balconies enclosed to provide weather protection.



Attractive, good-sized balconies off upper level living rooms. The bedrooms on the ground floor have limited privacy.



front doors

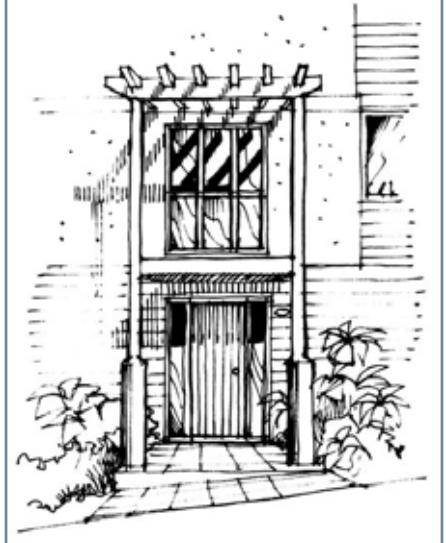
Front doors should be inviting for residents and visitors. They should be in full view of the street to provide a sense of security for residents returning late at night and

to deter intruders. A porch or canopy can add to the visual appearance of the house, while providing shelter for visitors during bad weather.



A canopy over the front door, a window at the side and some landscape planting can make a real difference.

☺ Giving greater emphasis to the entrance with a more visually interesting and substantial structure is a better option.



fences and walls

Using low fences or walls at the front of the house and high walls at the sides and rear is a good solution. Fences which are visible from the street, should be built to a similar quality as the house and with similar materials. They should not dominate or prevent some visual contact with the street. Cheaper materials can be used for back fences as long as they are complemented by landscape planting.

☺ Well-designed low walls add to the streetscape, define boundaries between public and private land, and let houses comfortably sit closer to the front boundary.



☹ Houses fronting the street would reduce the need for continuous high fencing.

☺ Front walls on this sloping street in Dunedin enable good views to the street and help contain the change in level.



private open space

Designing houses with convenient access to high quality, private open space is a vital component of good residential developments, and can help to achieve good returns. Ensuring maximum sunlight with at least 2 hours in winter is also beneficial. Sun angles should be calculated or modelled by computer.

Demand for low maintenance yards is high, as not everyone wants the hassle that can come with traditional landscaped gardens. Large areas of paving are expensive and create more stormwater runoff.

Use minimum paving for outdoor dining areas and apply lower cost, permeable solutions such as pebbles, ground cover planting or bark in other areas.

Avoid site excavations that create private open spaces that are dominated by high retaining walls and/or fences, especially if the space between the house and the retaining wall or fence is narrow. Such spaces are inevitably dark, often damp and provide little or no usable outdoor space or high quality amenity for the occupants.



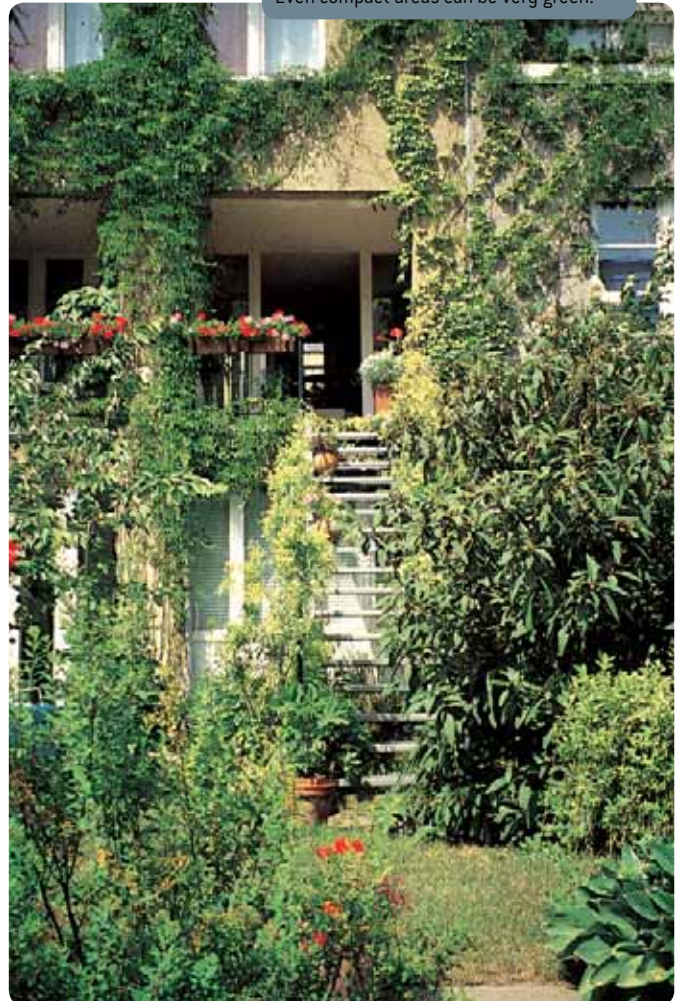
Courtyard with large outdoor dining area, good access to indoor living space, sunlight and privacy.



Private open space dominated by high retaining walls and fences.



Low maintenance outdoor areas do not need to be fully paved. Even compact areas can be very green.



indoor outdoor relationship

Innovative planning achieves a rich variety of relationships with the outdoors.



☺ Clockwise from top left: good access between dining room and sunny courtyard, light flows into the stairway, generous flow between lounge and balcony, good access between kitchen/dining and deck, good outlook onto the street.



4 visual character

good designers create good designs

Guidelines and examples can only go so far. Good designs are produced by good designers. Involving architects or designers with proven track records for creating innovative buildings that integrate well with the surrounding environment and are made of durable materials is strongly recommended.

recognising
neighbourhood built
character, natural
landforms and landscape
features

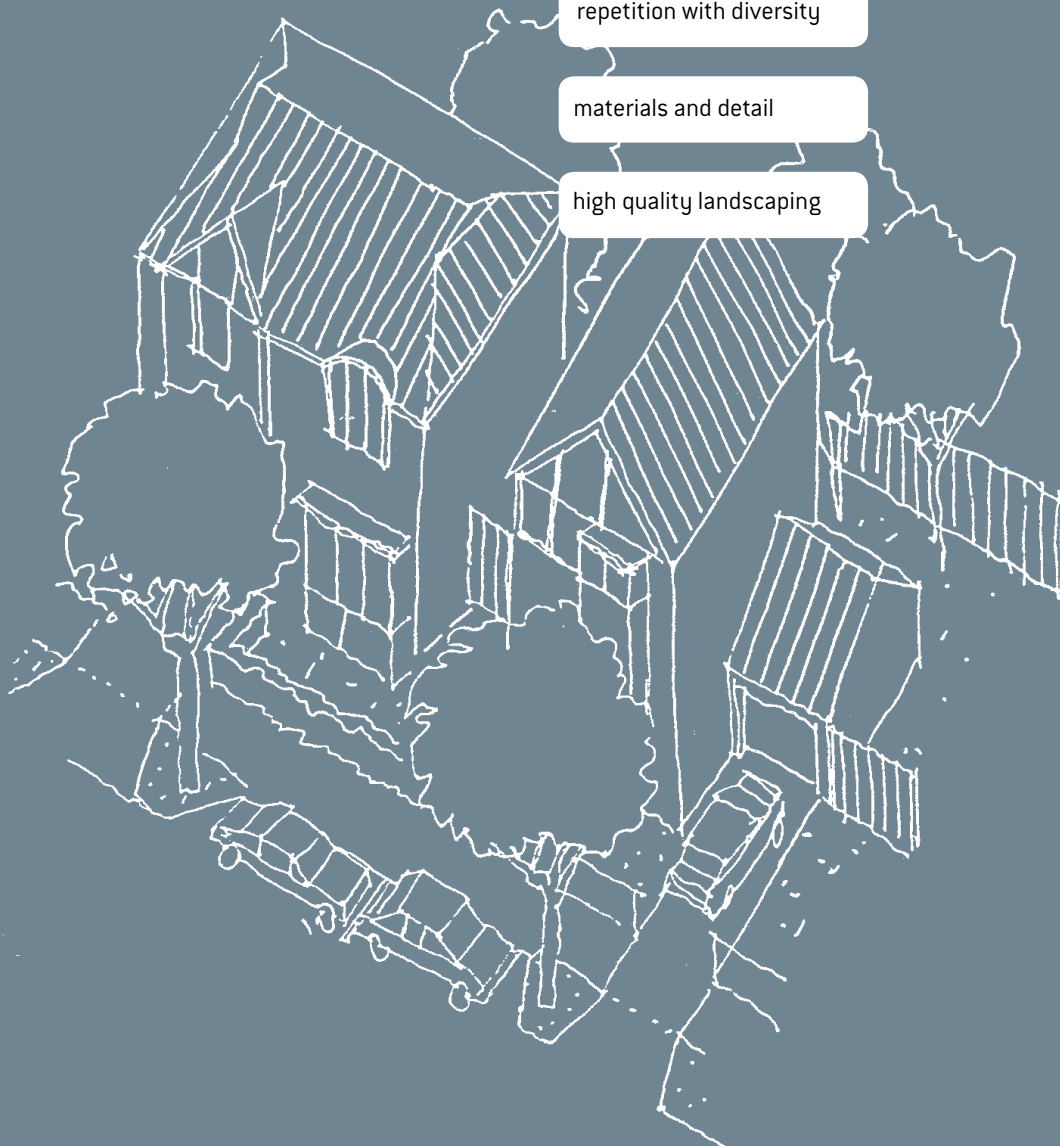
reducing the visual impact
of garages

breaking up building mass

repetition with diversity

materials and detail

high quality landscaping



recognising neighbourhood built character, natural landforms and landscape features

When developing in existing neighbourhoods it is important to identify and preserve heritage qualities and other significant local characteristics. House designs should reflect these qualities, and can be contemporary or resemble traditional styles.

As much as possible, design buildings to "fit" with the local land forms and features of the natural landscape. Where possible keep existing mature trees and special land form features.



Terraced houses echoing the style of traditional local housing.



reducing the visual impact of garages

The visual character of residential streets is greatly enhanced when garages do not dominate. Creating back lanes can remove the need for garages at the front of houses, however the security of these areas needs to be carefully considered. Garages that are at the front of the house should be set back from the façade of the house. Stacked parking with one car behind the other in the same garage is an option for double garages and allows for greater densities to be achieved. Having two separate doors for conventional double garages as illustrated below can also help.



Upmarket houses with stacked garages. Neighbouring garages are set back to varying degrees which softens the impact even more.



Using two single garage doors and design elements to emphasise other aspects of the house reduces the impact of double garages.



breaking up building mass

Terraced houses should be expressed as separate entities to generate a greater sense of ownership and 'street appeal'.



😊 Housing mass is broken up by having two distinct elements. The roof top pergola adds to the visual character, however care should be taken to avoid outdoor areas which infringe the privacy of neighbouring houses.



☹️ Three units combined under one roof form with a solid horizontal element spanning their total width gives the building a commercial look and feel rather than a residential one.



😊 Repetitive housing softened by secondary design elements combining balcony and pergola structures.



😊 Mass broken up into two distinct elements with the lower floors being expressed differently from the upper floors. The double garage has two separate doors.



😊 Mass of 3-storey houses broken up by a variety of smaller building elements.

repetition with diversity

Some historic or older style housing developments which are strictly repetitive do achieve very high levels of visual quality, for example Georgian London and Bath. In modern day developments this is seldom achieved as more economical materials and construction techniques are being used. Even minor variations in building form, colour and materials can present significant benefits.



Different designs and materials applied to repetitive bay widths.



Varied yet cohesive design using minor variations of dormer gables and handrails.



Repetition of building form with subtle variations in the design of façades.



Extensive repetition without variation or secondary design elements which softens the appearance of the development.



Dominating garages heighten the negative effects of repetition.

materials and detail

Careful consideration should be given to design proportions, building form, details and materials for each development. Using durable materials, simple structures and a

good architect or designer usually delivers the best results. The visual character and overall success of a development often relies on the care and attention which is given to

building design at a detailed level. Combining quality construction techniques and finishings with skillful craftsmanship is the best way to achieve this.

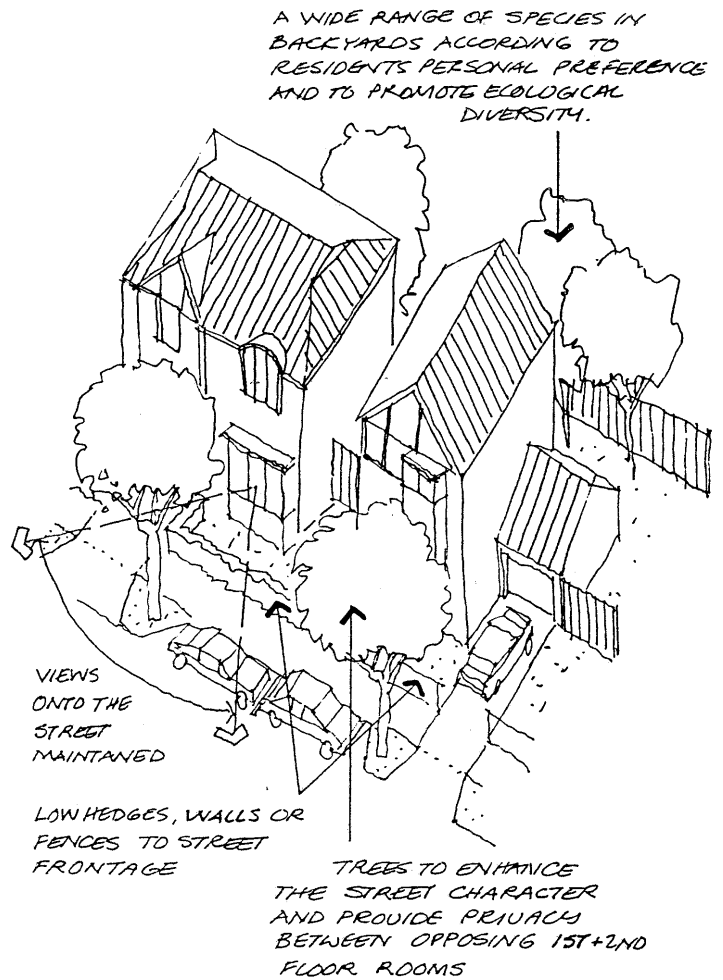


high quality landscaping

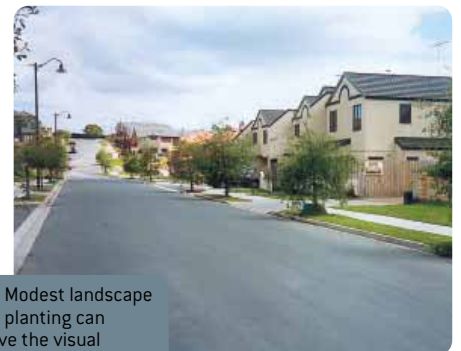
Looking for good landscaping opportunities is essential. Visual contact between residents and the street should however be retained. Planting and other permeable surfaces also help reduce stormwater runoff by allowing stormwater to soak directly into the ground.



Good landscape planting and (above) narrowing the neck of the driveway to allow for more.



Modest landscape planting can improve the visual character of an area over time (a relatively new housing development on the right and after a few years on the left).



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