Peacocke tree selection and planting guidance

April 2024

Hamilton City Council
Te kaunihera o Kirikiriroa

The following information is intended as preliminary guidance for tree and plant selection and planting. It is not intended as a comprehensive guide, but rather to identify relevant considerations when establishing a landscape. Due to the variety of environments and potential range of suitable species, further research and investigation into any selection is encouraged.

Tree selection

When considering the planting of specimen trees within a site, several factors both within the site and in terms of the tree itself need to be considered. These reflect the function and mature form of the tree, as well as where it will be placed within the site. The function you intend the tree to perform within your landscape will determine what tree you choose. Consider whether the tree is intended to screen views into private space, or whether it is solely for amenity.

Evergreen/deciduous

Evergreen and deciduous trees can perform different functions.

Plant deciduous trees where shade is required in the summer and sun/light is required during the winter months. Often deciduous trees provide autumn colour, but the leaves can collect in gutters and block drains. Consider the size of the leaf. Larger, thicker leaves take longer to decompose and are more prone to creating these problems.

Plant evergreen trees where you require permanent year-round screening and where blocking light is not detrimental to the residents. Evergreen trees provide a good windbreak. Because evergreen trees shed their leaves throughout the year, the seasonal impact on gutters and drains is lessened.

Size and shape

A tree's size and shape vary considerably between species. Match the tree size and shape with the space available and be aware that the mature size of trees will often be much larger than is specified in plant books/catalogues. Check multiple sources when choosing tree species to identify their mature size. Where there are space constraints, a more upright tree form should be selected. A number of species have now been cultivated to have a narrow columnar form which may be more suitable.

Figure 1. Deciduous trees loose their leaves in winter.

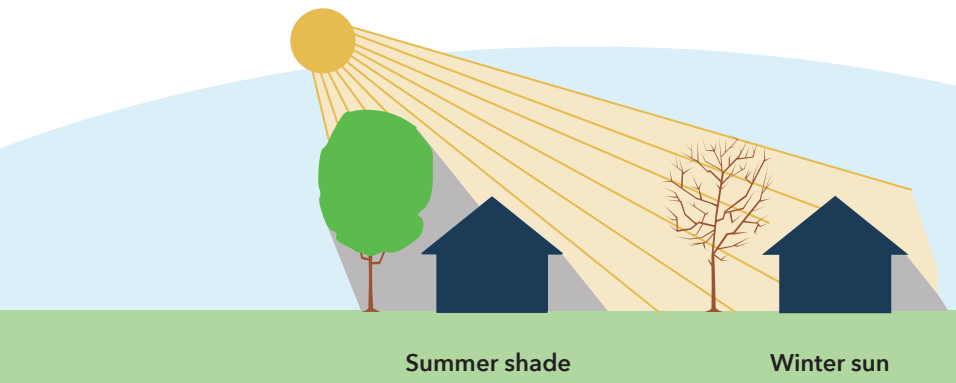
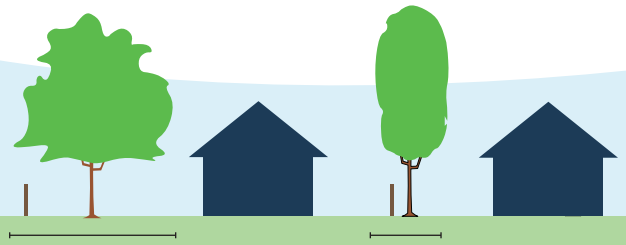


Figure 2. Selecting the right size and shape.



Quality of the nursery stock

Specimen trees shall be planted at a minimum size of 80l.

Choose healthy, well-grown trees which have:

- a straight trunk with well-spaced branches that has a dominant central leader
- an exposed trunk free of wounds and damage
- roots that grow straight out from the trunk not circling, or damaged
- free of pests and diseases.

Low-quality trees may become more costly with increased maintenance and reduce the benefits the tree can provide.

District Plan tree requirements

District Plan Change 12 requires trees to be planted at the rate set out below:

Detached residential unit	Two per residential unit
Duplex residential unit	Two per residential unit
Terrace housing unit	One per residential unit
Apartment buildings	Minimum of one tree per site with an additional tree for every 200m² of site area.
All other activities	Minimum of one tree per site with an additional tree for every 200m² of site area.

Site factors

Not all trees are equally well-suited for every site. Identifying the site's conditions and constraints and choosing a tree to fit the conditions is key to the tree's survival.

Site conditions

Choose a tree for the right site conditions. Consider the following:

- soil type
- exposure to the sun and wind
- drainage
- ability to provide water during dry seasons
  i.e if there is a low chance of being watered frequently during summer, choose a dry-tolerant tree species. backs of homes.

Height and width constraints

Consider how tall and wide your tree will grow. Do not plant large trees under overhead services or the eaves of a building. Choose trees with a low spreading form that, when mature, will not cause problems.

Consider how wide your tree will grow. Ensure the tree will not impinge on the building at full maturity. It is a good idea to allow a one metre gap between your tree canopy at maturity and the building, to allow for maintenance and avoid potential damage to exterior cladding.

Consider the screening on windows, whether that is desired, or will it obscure a view, or block light.

Site boundaries

When planting close to boundaries, consider how far the tree will extend over the boundary at full maturity. Your neighbour has the legal right to trim any planting that extends into their property.

Underground services

Where possible, plant trees away from any underground services. Where this is not possible, install root barrier or root directors (available from most nursery suppliers) which will direct roots downward and away from the utilities.

Time of planting

Ideally plant late autumn or early winter (after leaf fall) or early spring (before bud break). Do not plant when the soil is waterlogged, in a drought, frosty, or windy conditions.

Planting within areas of paving or concrete

In some instances it may be desirable to plant trees within or bordering paved areas (i.e. roads, driveways and pathways). In these instances install root directors / root barriers. They are designed to prevent tree roots from uplifting paved surfaces, encourage deep root growth, improve drought tolerance, and enhance overall tree stability.

If a tree is desired in an area intended for vehicle movements, special additional consideration is required to support the soil around the tree. Vehicles should not be able to drive up to tree trunks without additional treatment as they compact the soil, reducing oxygen supply to the root system which extends to the edge of the tree canopy. If trees are required to be planted close to vehicular movement, install structural soil cell modules beneath the pavement (e.g. Citygreen StrataCell) to allow space for the healthy establishment of tree roots, while giving adequate support to the pavement. (This approach can also be used where vehicles occasionally park on lawn under trees.)

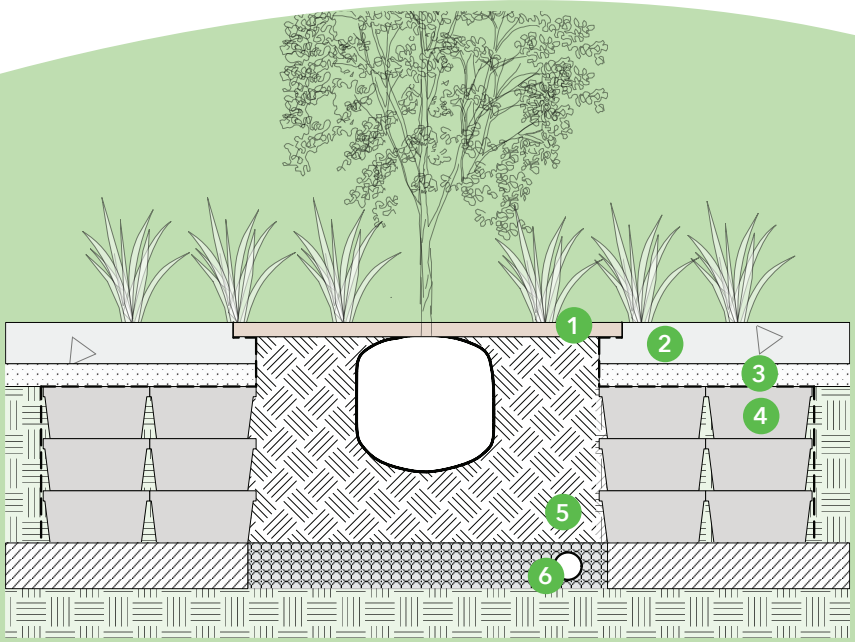


Figure 3. Tree planting within hardscape areas.

1. Tree grate
2. Surrounding hardscape
3. Compacted base course
4. Structural soil cell module – install as per the manufacturers instructions.
5. Excavated tree pit backfilled with top soil
6. Subsoil drainage

How to plant a tree

Tree pit preparation

Clear weeds and rubbish from the area to be planted prior to the excavation of the tree pit. Before digging, locate all underground utilities and consider the best placement for the tree(s). Excavate a separate pit for each tree.

Excavate each tree pit twice the diameter of the root ball. Break up any compacted subsoil to a minimum depth of 200mm beneath the base of the tree pit to ensure root penetration and free drainage.

Topsoil excavated from the tree pit should be set aside for reuse. Remove any excavated subsoil and do not mix with the topsoil.

Break up or roughen any sides of the tree pit that are glazed (smooth from the excavation). Cover the bottom of the pit with 50-75mm topsoil.

Before planting, ensure the root ball is saturated. Remove the planter bag or plant pot with minimal root disturbance before planting. Inspect the tree root ball for circling roots, straighten, and trim off any broken roots.

Tree planting

Plant trees upright in the centre of the pit and at the original soil depth. Plant the tree at the same level it was in the container. Planting too deep can be harmful to the tree.

Straighten the tree in the hole. Fill the hole gently but firmly. Pack soil around the base of the root ball to stabilize it. Fill the hole firmly, to eliminate air pockets. Further reduce air pockets by watering periodically while backfilling. Unless the soil is very wet, ensure trees are well watered to the depth of the root ball immediately after planting.

At the time of planting, remove any broken or dying branches, or any branches that are crossing and will rub against each other.

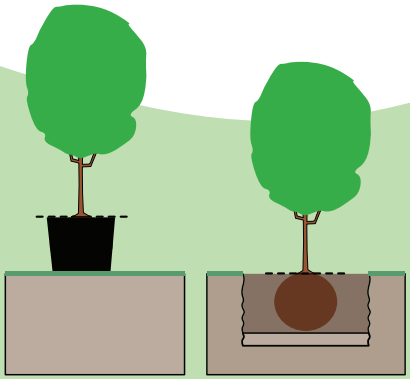
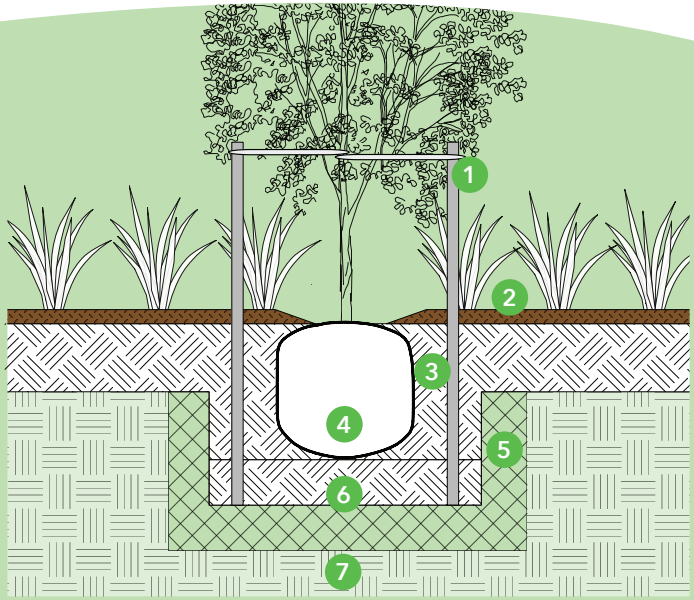


Figure 4. Plant the tree to the same depth as in the pot.

Figure 5. Tree pit standard detail.

1. Stakes positioned outside of rootball
2. Mulch 75-100mm with mulch-free area around base of tree
3. Tree pit excavated to two times the diameter of the rootball and backfilled with top soil
4. Rootball
5. Roughen edges of tree pit
6. Base of hole excavated to 200mm below rootball and backfilled with topsoil
7. Undisturbed base course



Fertiliser

Apply a general slow-release fertilizer or tree tablets to the backfill of each tree in accordance with the manufacturer's recommended rates. Mix the fertiliser with the soil, at the base of the prepared hole prior to placement of the root ball. Care should be taken to avoid the roots having direct contact with fertiliser.

Staking

Trees require staking to stabilize the root ball until the tree is established. Three stakes provide optimum support. Position the stakes immediately after planting to minimize root damage. Use wide ties that hold securely without chafing and ensure there is room for the trunk to increase in girth without constriction.

Mulching

Mulching is recommended to give the tree a higher chance of survival and quicker early growth. It retains moisture in the soil, controls soil temperature and reduces weed growth.

Organic mulch – e.g. bark mulch, has the advantage that it decomposes into the soil adding nutrients and improving soil structure, but will require replenishing annually.

Inorganic mulch- e.g. stones, do not decompose or need replenishing as often, but does not improve soil structure or provide nutrients to the soil.

Apply the mulch to a depth of 75-100mm around each tree to the diameter of the tree pit. Retain the mulch on the soil surface and do not incorporate it into the soil.

Apply the mulch near, but not touching the tree trunk. A mulch-free area of 50mm wide at the base of the tree will reduce the chances of decay of the tree trunk.

Suggested tree list

Suggested small trees that may be used on sites with tight size constraints.

Botanical name	Common name	Height x width (m)
Deciduous		
Acer palmatum 'Senkaki"	Coral Bark Maple	5x3
Acer japonicum 'Osakazuki	Maple	4x3
Carpinus betulus 'Fastigata'	Upright Hornbeam	12x4
Cercis canadensis 'Forest Pansy'	Eastern Redbud	5x5
Cercis canadensis 'Hearts of Gold	Eastern Redbud	4.5x3.5
Cornus 'Eddies White Wonder'	Dogwood	4x4
Cornus florida 'Cherokee Chief'	Dogwood	6x3
Lagerstromeria indica Crepe	Myrtle	6x3
Michelia doltsopa		9x6
Robinia Mop Top	Lollipop Tree	3x3
Robinia pseudoacacia 'Lady Lace' Twisted	Dwarf Acacia	4x3
Evergreen		
Alectryon excelsus	Titoki	10x4
Hoheria sexstylosa 'Purple Lace'	Houhere/ Lacebark	7x3
Magnolia 'Little Gem' Evergreen	Magnolia	10x3
Pseudopanax crassifolius	Lancewood (juvenile form)	6x2
Pseudopanax ferox	Lancewood (juvenile form)	5x2
Pseudopanax laetus	Large leaved five finger	5x3

Maintenance

Watering

Watering is important to tree establishment in the first spring and summer after planting. Water thoroughly during dry periods. Depending on tree species and location watering will be required for the first one to four years. The amount of water per plant will depend on the plant species, site location and soil type.

Water at least once per week (unless it has rained) and more frequently during hot, windy weather from November to April. Watering can be reduced during winter once temperatures drop.

The method of irrigation will depend on location, accessibility, and soil conditions. An irrigation system may be considered for trees planted in paved areas or in containers.

Fertiliser

Feed annually in spring, with a general slow-release fertiliser or tree tablets. Sprinkle evenly into the top 20-30mm of soil taking care not to damage surface roots.

Pruning

Pruning may be needed to control the growth and shape of the tree, or to enhance its performance or function.

Carry out any formative/corrective pruning in the tree's first late winter/early spring before new growth begins. Continue formative pruning until the final shape of the tree is achieved.

Stakes

Check stakes and ties for chafing and constriction The stakes can be removed as soon as plants are strong enough to withstand winds without damage. This may vary with each tree species.

Weed control

Keep the area around the tree weed free. Where mechanical trimmers and weed eaters are used, ensure that ringbarking of the trees does not occur.

Mulch

Bark mulch requires replenishing annually to maintain a minimum depth of 75mm.

Pests and diseases

Pests and diseases can have debilitating effects on young plants. Check every season and carry out necessary control measures as soon as possible.

Replace any trees that are dead or unhealthy with the same species or if this is unavailable, with a tree species that have similar requirements and characteristics as the original tree.

Main characteristics to consider are:

- Form/shape of the tree (is it triangular, is it a canopy tree to provide shade?).
- Size (what height and width does it grow to? How important is it to fill the space?).
- Deciduous/evergreen.
- Colour (consider both leaf colour, flower colour and if there are particular seasonal variations that are important).
- Texture (are the leaves large, like maple leaves; or needles, like pine leaves?).

You may not be able to find an alternative species that meets all of the characteristics, in which case, decide which characteristics are more or less important depending on context. For example, in a row of trees, consistency of size and form will be the most important. For a feature tree in a garden, the fact that it is deciduous, and provides orange autumn colour to complement spring bulbs might be the most important characteristic.

Figure 6. Replacing Seven-finger with Whiteywood is suitable as they are both shade trees of similar size, form and texture.

Schefflera digitata Seven-finger

Melicytus ramiflorus Whiteywood

Figure 7. Replacing a flowering cherry with prarie crab apple is suitable as they are similar in size, form and provides the feature flowering season.

Prunus 'Pink Perfection' Flowering Cherry

Malus ioensis 'plena' Prarie Crabapple

Landscape planting

District Plan landscape requirements

The District Plan requires minimum areas of landscaping per lot and unit. Refer to section 4.2.5.3 for general residential zone rules and 4.3.4.3 for medium density rules. Both zones require a ground floor unit to have a **landscaped area of a minimum of 20% of the total site**, landscaped with grass or plants.

It is also required that on front, corner and through sites, landscaping planted in grass, shrubs and trees is required forward of the front building line (except sites within the Rotokauri North Residential Precinct) at the rates set out below:

Single residential unit and duplex residential units and apartment buildings	Minimum 50%
Terrace housing with a residential unit frontage width 7.5m or greater	Minimum 40%
Terrace housing with a residential unit frontage width of less than 7.5m	Minimum 30%

Outdoor living spaces - private/public

Outdoor living spaces which are generally considered either 'public' and 'private' areas.

'Public' areas are those visible from the street, they form the front yard and includes elements such as the front door, letterbox and driveway.

'Private' areas are created within side and rear yards, are screened from the street, and avoid overlooking the private outdoor space of adjacent lots. Generally, private outdoor living spaces are located at the rear of the lot directly accessed from the dwellings primary living area.

In some instances front yard private outdoor living space can provide an alternative. If located on the street frontage of the property, adequate screening and/or landscaping design is recommended to ensure there is still a level of privacy available to the outdoor living area. Utility items, like laundry lines and water tanks, should be screened from public view, located within a service court within the private side or rear yard.

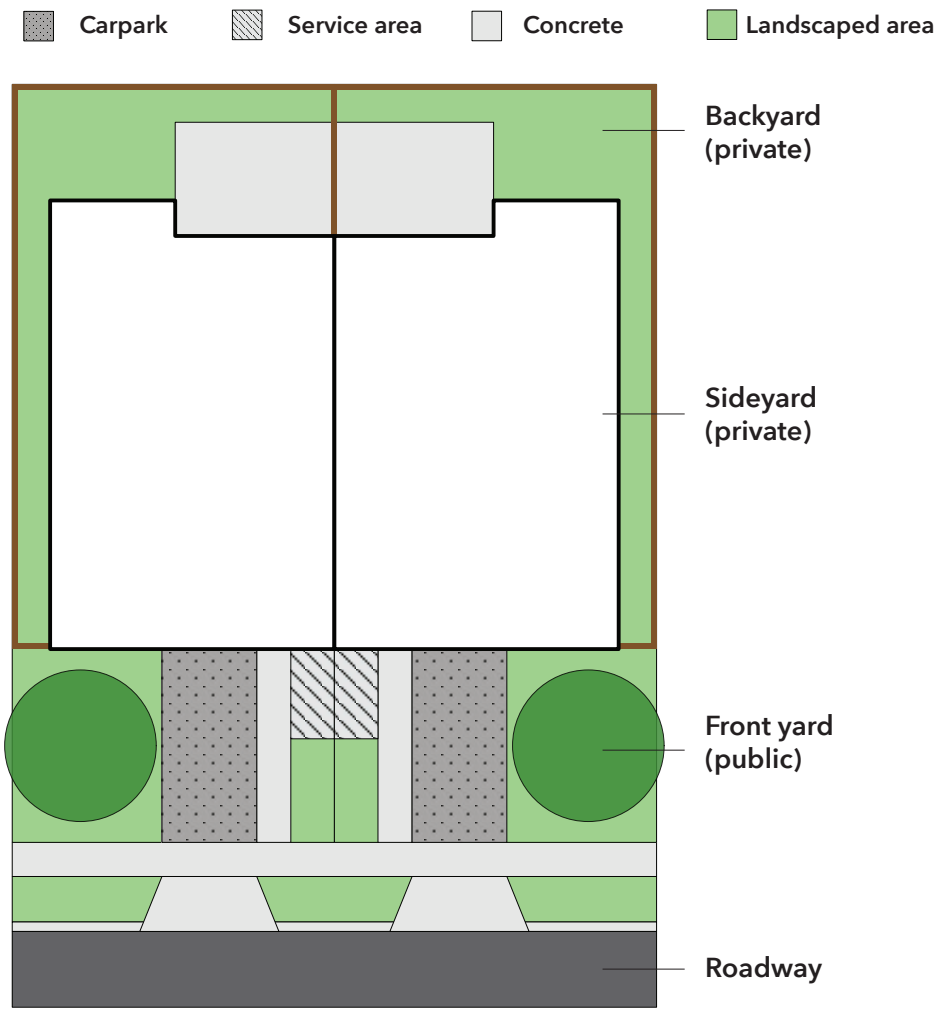


Figure 8. Outdoor living space located at the back. Fencing provides privacy. Front yard remains open.

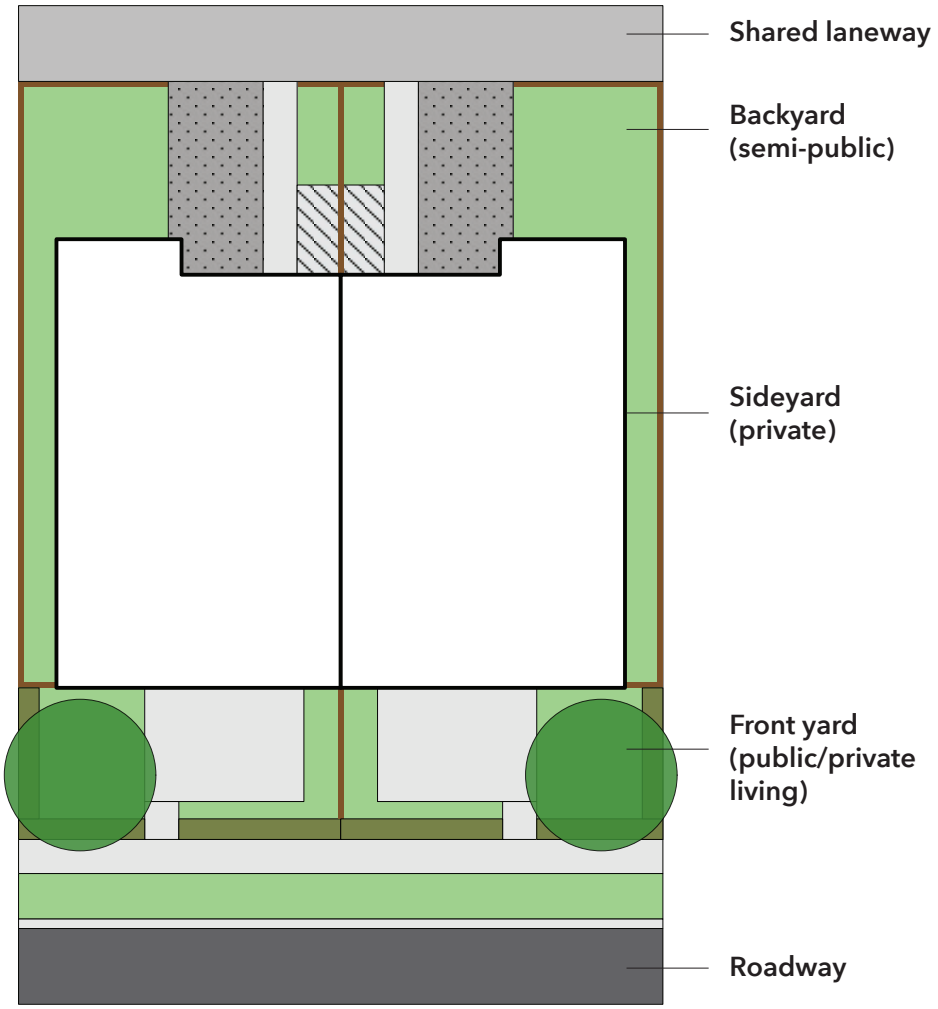


Figure 9. Where the front yard becomes the main outdoor living space. A balance is needed between privacy and street openness.

Planting

Planting can be used to define front boundaries, reinforce entrances, soften hard edges, provide privacy screening, and provide separation between lots. Where planting is required to be undertaken in the front yard, hedging planting is strongly recommended instead of fencing to promote an open and well-planted streetscape with good passive surveillance and activation. Additional planting can be undertaken on either side of hedging and provide greater interest.

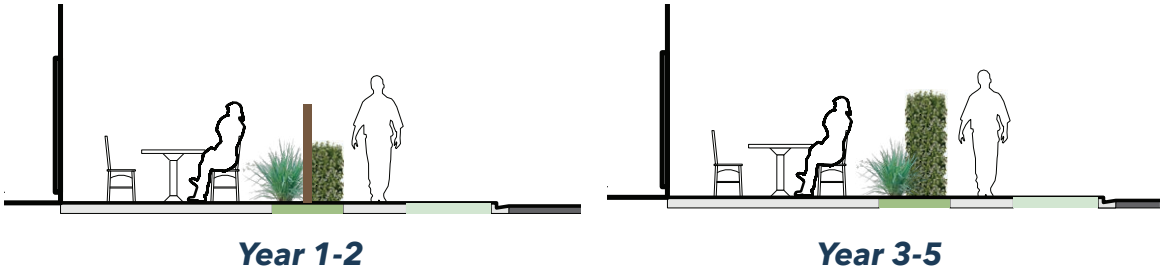
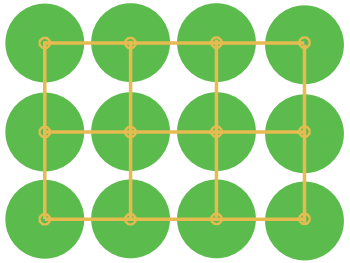


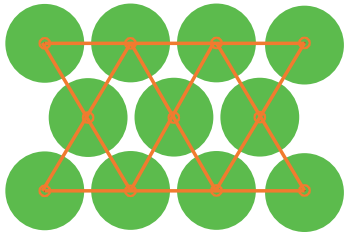
Figure 11. An example of different planting layouts.

Bed preparation

It is important to provide adequate soil volume for plants to thrive. Typically for garden beds 400mm depth of good quality topsoil is required. Ensure the soil is not over compacted and the bed is free draining. The soil should be free of contaminants and weeds. Consider access for maintenance of the garden. Where garden beds are narrow they can usually be maintained from one side, however wider beds may require access from both side or from within the bed itself.



Rectangular planting gives a formal effect to planting and should be used sparingly



Triangular planting is recommended in most situations. It gives a fuller, more natural appearance

Plant selection

Plant species selected should be appropriate for the climate and conditions, and not require excessive maintenance to enable the plant to establish and thrive in the long term. Planting should be predominantly evergreen to provide a vegetated presence year-round. The use of native plant species is encouraged. As with trees, different plant species have different requirements and growth habits. Consideration should be given to the plants mature size and height in both their selection and positioning, and what effect they will have on other plants within a bed.

Plant layout

The layout of plants is constrained by the shape of the garden bed, it is good to vary the height and texture of plants to create interest in the planting scheme. Taller species should be planted at the rear of a garden bed with shorter species to the front. Ground covers can be used to infill the spaces at the front of a garden bed. Too many individual specimen's looks discordant while groupings of uneven numbers of plants of the same species (three, five or seven) look well together. Consider where the plants will be viewed from.

It is better to group landscaped areas into one larger area than several small ones. In the case of attached housing, mirroring layouts may enable landscape areas to be beside each other, increasing the volume of soil area unbroken by hardscape. In these spaces, a restricted consistent palette of plants along terrace properties can provide visual continuity. This could include grass species, ground covers and small shrubs or clipped planting.

If carparking in included in the front yard, when considering plant selection consider non-woody hardy plants which will not be damaged by, or scratch a car door if it is opened onto them.

Single species plantings are recommended for hedges. Hedging in the front yard should be maintained at less than, or grow no higher than, 1200mm in height.

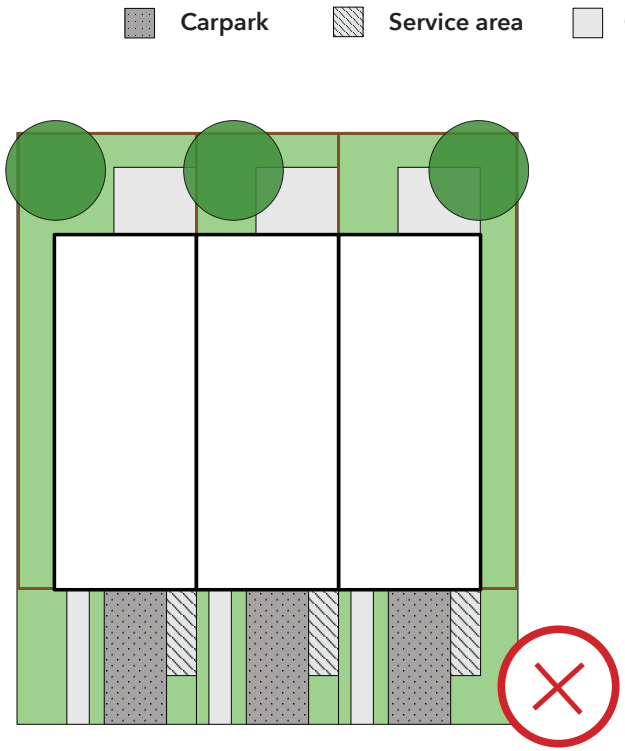


Figure 13. Planting is separated into small strips by the hardscape arrangement limiting potential for healthy plant growth.

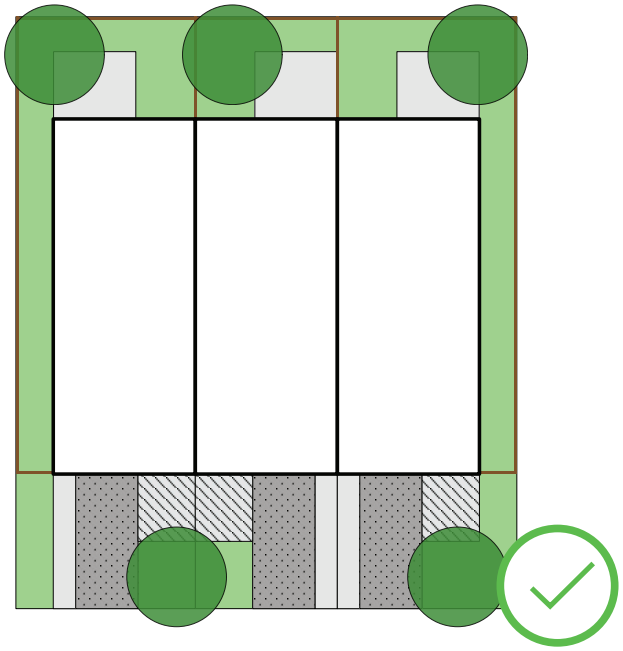


Figure 14. Grouping hardscape elements, and mirroring unit layout allows larger areas of uninterrupted landscaping and provides space for additional trees along the street rontage.

Where the front yard is also to be the main living area, it is recommended that most plants remain under 1.2m high, with opportunity to use small areas of fencing and climbers or hedges to 1.5m that provide increased opportunity for privacy.

When planting a back or side yard, it can be beneficial to provide taller planting to break up the greater height of the fence line. Consider opportunities for trellises with climbers, hedges and trees within the design. Where space is limited, consider whether lawns are appropriate, ground covers may provide a higher amenity value and do not require a lawn mower.

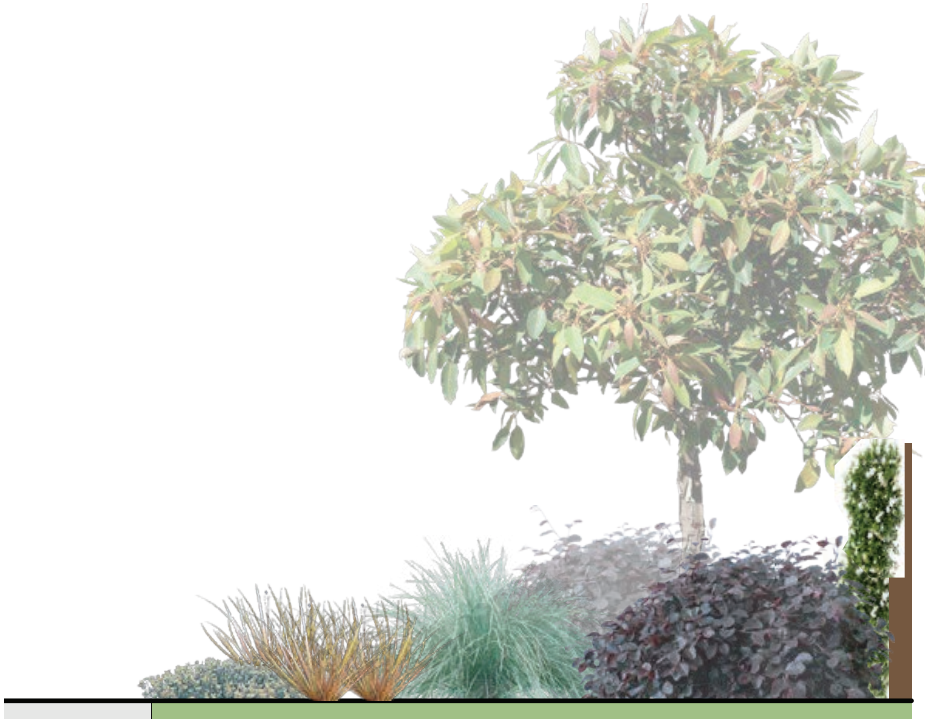


Figure 12. Within a garden bed, the height of plants should be tallest at the back and shortest at the front.

Figure 15. Simply adding a tree, climber and one larger plant in the right corner has transformed the planting in this courtyard.

Maintenance

Watering

Watering is important during establishment of plants and for the maintenance of the garden beds. Water thoroughly after planting, and at least once per week (unless it has rained). More frequent watering maybe required during hot, windy weather from November to April. Watering can be reduced during winter once temperatures drop.

The amount of water per plant will depend on the plant species, site location and soil type. The method of irrigation will depend on location, accessibility, and soil conditions. An irrigation system could be considered if the planting is extensive or planted in paved areas or in containers.

Fertiliser

Feed annually in spring, with a general slow-release fertiliser or an application of good quality compost. Apply evenly into the top 20-30mm of soil taking care not to damage surface roots.

Weed control

Keep the garden bed weed free. The application of a bark mulch annually can assist with reducing weed infiltration, ease of weeding and moisture retention during hot weather. Bark mulch requires replenishing annually to maintain a minimum depth of 75mm.

Pests and diseases

Pests and diseases can have debilitating effects on young plants. Check every season and carry out necessary control measures as soon as possible. Replace any plants that are dead or unhealthy with the same species.

Suggested plant species

This plant list is not exhaustive, and many other species may be suitable when considered appropriate with the overall intent of the planting approach.

Botanical Name	Common Name
Grasses Flaxes	-
Carex testacea	Golden tussock
Lomandra 'Little Lime'	Dwarf Lomandra
Festuca glauca	Blue tussock
Arthropodium cirratum	Renga renga/Rock Lilly
Phormium Green dwarf	Flax
Poa CIta	Silver Tussock
Libertia peregrinans	NZ Golden Iris
Ophiopogon japonicus	Mondo Grass

Ground Covers	
Aceana purpurea	Purple Bidbidi
Coprosma acerosa 'Hawera'	Groundcover coprosma
Lithodora diffusa 'Grace Ward'	Gromwell Graceward
Muehlenbeckia axillaris	Creeping wire vine
Pimelea prostrata	NZ Daphne
Pratia angulata	Panakenake

Shrubs	
Choisya ternata	Mexican orange Blossom
Coleonema pulchrum	Breath of Heaven
Coprosma Black Cloud	Black leaved coprosma
Hebe Wiri Cloud	Hebe
Loropetalum Plum Delight	Loropetalum
Nandina domestica	Nandina
Pittosporum Golfball	Golfball

Hedges	
Buxus 'Green Gem'	Dwarf box Hedeg
Corokia Blackberry & Lime	Green Corokia
Griselinia littoralis 'Broadway Mint'	Kapuka
Pittosporum 'Sumo'	Compact Pittosporum
Photinia 'Super Red'	Photinia

Climbers	
Clematis paniculata	Puawhananga
Ficus pumila	Creeping Fig
Muehlenbeckia complexa	Small leaved Pohuehue
Trachelospermum jasminoides	Start Jasmine

Design guidance for multi-unit developments

This section provides guidelines for developers who are building multi-unit developments within medium density areas. With larger flexibility, and control over the site as a whole, this guide will offer design solutions for landscape areas and tree placement including alternative solutions of where to locate trees within the wider development when space within single units is unavailable.

Public frontage planting

Public frontage of terrace housing benefit from a restricted pallet of plants used along the run of terrace properties for visual continuity. This could include grass species, ground covers and small clipped planting. If carparking in included in the front yard, selected plants should be non-rigid and hardy to accommodate the possibility of car doors being opened onto them.

Landscape areas should aim to have a minimum dimension of 400mm width and 400mm depth of soil uninterrupted by building foundations or other structures, in order to grow grasses or shrub vegetation.

When providing the required pedestrian access, it is best to differentiate between pedestrian and vehicle spaces through materiality rather than vegetation.

Front yard fencing

When the front yard is not the main living areas, it is best to avoid fencing forward of the building line to maintain openness within the wider site design. Where the front yard is also the main living area, permeable fencing can provide a sense of privacy while maintaining a degree of openness within the wider development.

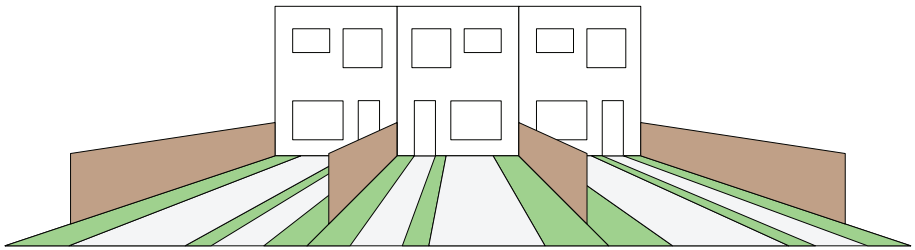


Figure 16. Thin strips of landscaping between hardscape doesn't support robust vegetation. Fences along property lines create harsh divisions.

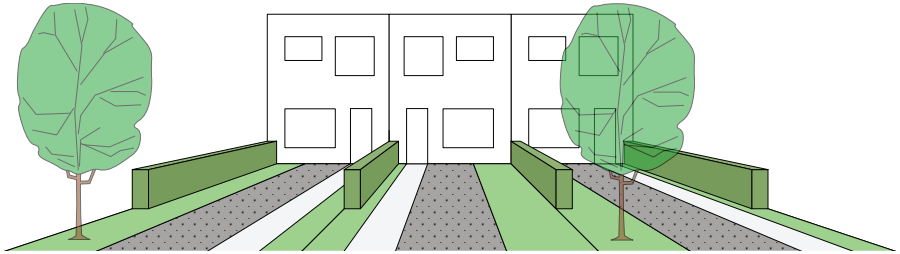


Figure 17. Grouping landscaping provides space for trees. Contrasting materials highlights driveway and pedestrian pathway. Low hedges set back from the property edge define boundaries more softly.

When the front yard is providing a service area, such as rubbish storage, fencing should be utilised to screen these areas.

Any fencing can be softened using climbers or a strip of planting to the public side of the fence line. It may be beneficial to use species known for producing pleasant scents near rubbish areas, such as jasmine, thyme or lavender.

If a clear edge is desired, an alternative to fencing is using a clipped hedge to provide a distinction of property lines.

Corner lots

Best practice is to locate the fencing set back from the front of the building to provide a landscaped area on the 'public' side of the lot, allowing the building to address the street and provide passive surveillance.

The front yard treatment should continue around the corner. Try to plant at least one tree in the front yard of corner lots.

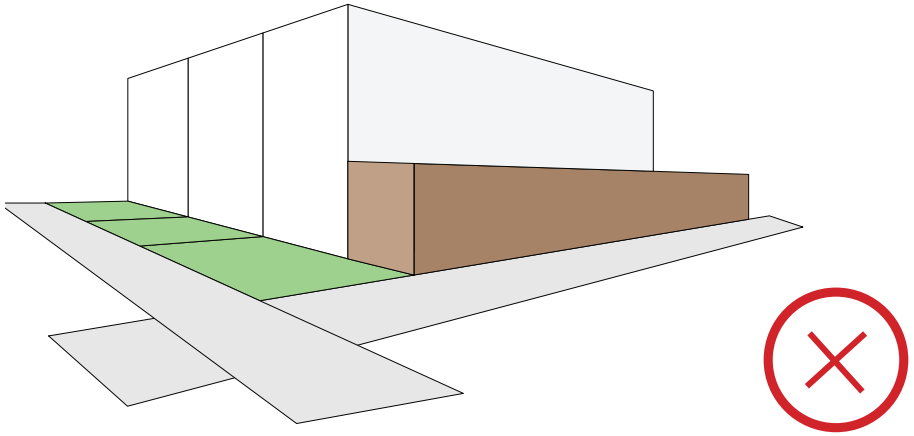


Figure 18. Tall fence creates unfriendly streetscape.

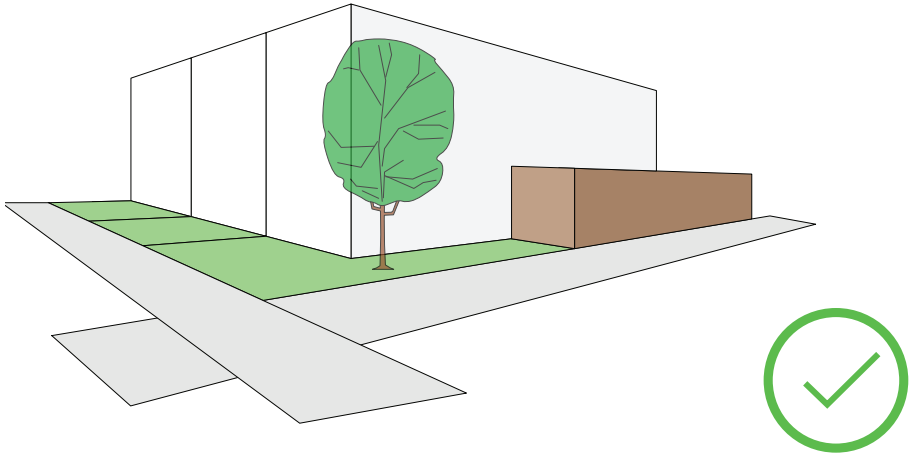


Figure 19. Set back fence softens corner and provides an openness to the street.

Trees

Placing trees in the front yard adds to the public amenity while trees in a back yards offer great amenity for residents, offering shade in the summer months and an attractive outlook from main living areas. Wherever the main outdoor area is, a tree should be included when possible. Make sure there is space for the trees mature size and select small species when necessary.

If there is no opportunity to fit a tree on a lot, the following solutions may be considered on a case by case basis. Other alternatives may also be considered.

1. In the case of permitted multi-unit buildings (terrace, duplex and apartments) one tree may be planted per two units providing the remaining units have climbers or green walls on the public facing boundary of the property. If climbers are used up a fence, the climber should be on the public facing side of the fenceline.
2. In units where no tree is provided, all landscaping space must be planted and not lawn.
3. Green roofs may be utilized towards the landscape areas and permeability areas required. They will generally be considered at a rate of 1m2 of green roof = 0.5m2 of landscaped area at ground level.
4. In the case of permitted multi block developments, trees may be placed in the wider development at a ratio of 1:1 in the case of trees to be planted with a mature size of under 6m tall or 3m diameter, or 2:1 in the case of trees to be planted with a mature size of over 6m tall or 3m diameter.
5. In the case of permitted multi-unit developments, the required outdoor living areas may be grouped cumulatively by area in one communally accessible location. This provides opportunity for the required trees for each unit to be grouped within this area.

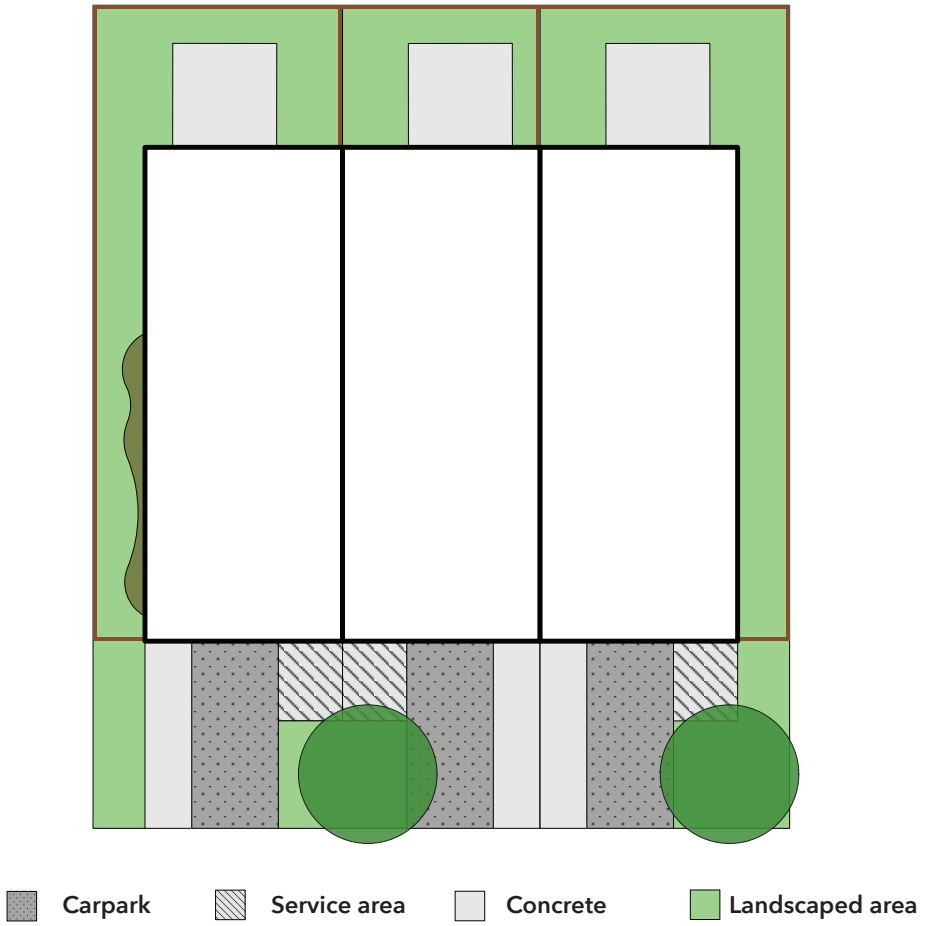


Figure 20. Example of alternative 1, climbers are provided on the two end walls, with two trees planted within the front landscape area. Note the trees are off centre to be clearly owned and maintained by a single unit, while the tree roots still have access to the neighbouring units soil.

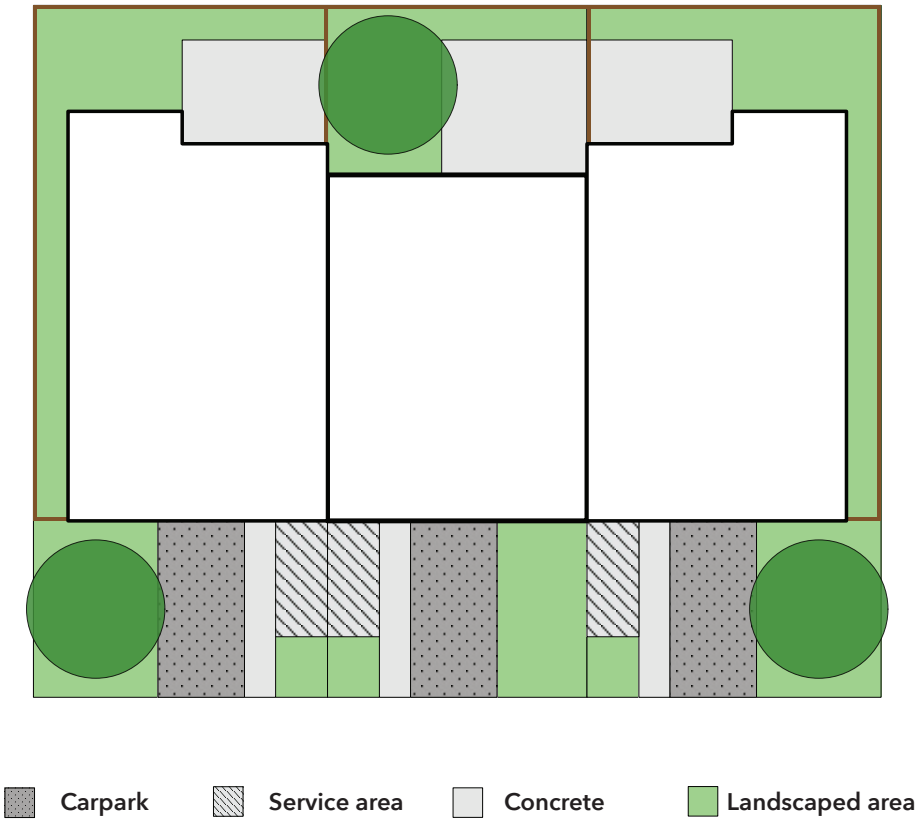


Figure 21 (above). Corner lots provide a larger area to plant trees in front gardens. The middle unit is configured differently to accommodate space for a tree in the back yard.

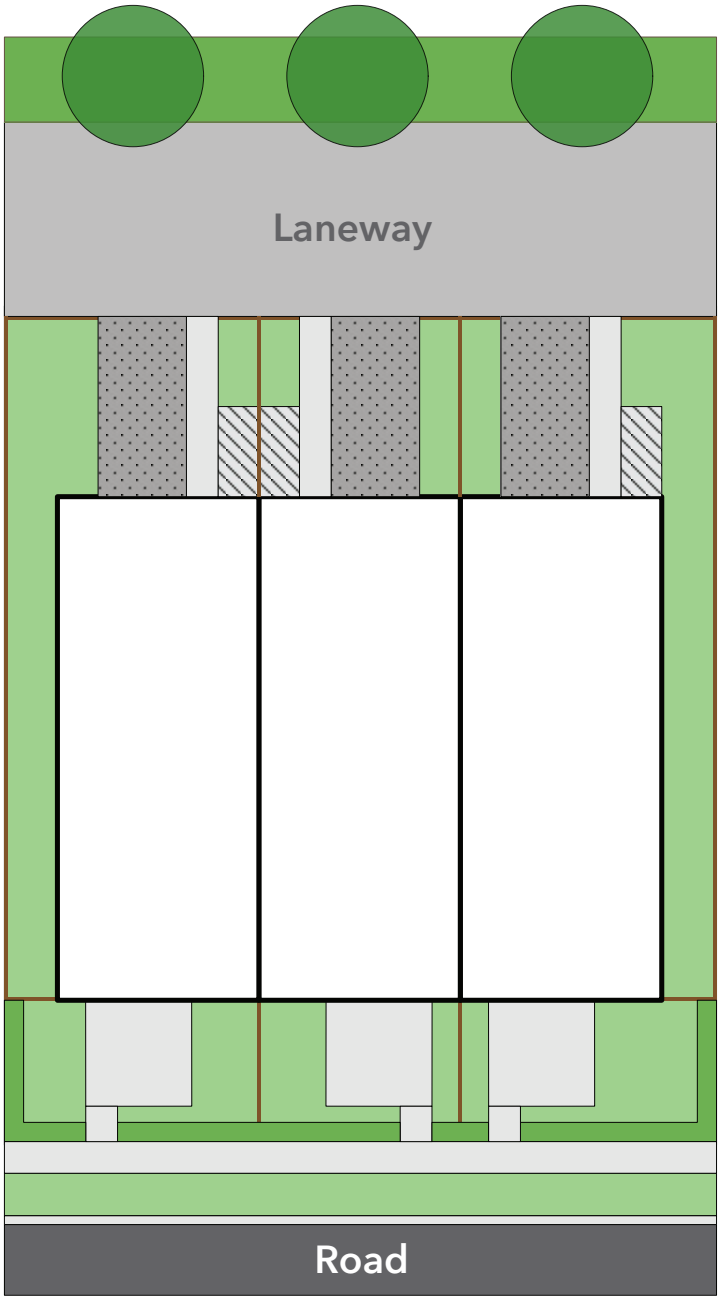


Figure 22 (right). Example of alternative 4. When trees cannot be placed within lots, the equivalent number of trees may be placed within the wider lot development, such as a line of trees along the laneway.

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