

Tree Selection and Planting Guide

Practical direction for planting trees within private properties

Version 1 - June 2025



**Hamilton
City Council**
Te kaunihera o Kirikiriroa

Disclaimer

The following information is intended as introductory 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.

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Our guide

Aligned with our Operative District Plan (ODP), this guideline outlines how to best approach tree planting on private property to help ecosystems services such as:

- reducing urban heat island effects through ground cover and 'spongy' (permeable) surfaces
- managing stormwater runoff
- improving air quality and, in turn public health.

This guide is here to help with selecting and planting trees when a development is planned, but it doesn't cover every possible situation. In some cases, not following every suggestion might lead to a better result. Each project should be looked at based on the specific environmental conditions of the site.

When to use the guide

Landowners, developers, and Council staff could refer to this guide at all stages of the development process to ensure proper integration of trees from selection, preparation, planting, and maintenance.

For landowners and developers, this guide will be invaluable during the following development stages:

- **Project design** - layout of the site and landscape design.
- **Resource consenting** - preparing for pre-application meetings and reviewing development proposals before they are submitted to Council.

What the guide does not do

These guidelines will not:

- **Cover other design guides.** These can be found in the ODP.
- **Offer engineering solutions.** These should be referred to separately, such as through the Regional Infrastructure Technical Specifications (RITS).
- **Provide guidance for tree planting in the public spaces.** This guide is applicable only to private property and not to public or Council owned spaces such as parks, berms, and footpaths.
- Tree planting in road reserves needs to follow the **RITS and other Council policies and guidelines** such as the Streetscape and Gateways Policy, the proposed Tree Policy and associated Codes of Practice.

To view the Hamilton Operative District Plan, visit hamilton.govt.nz/districtplan

1 Introduction

- Guide topics
- Consenting support
- Intended outcomes

Growing with a goal

Maximize tree planting benefits by setting goals, knowing what plants you have, calculating needs, and exploring site ideas.

Waikato River

Navigating the guide

1 Introduction

Summarises why we have this document and the related strategies and policies that underpin a move towards a greener Hamilton.

2 Context

Considers the challenges and opportunities Hamilton faces in the context of climate change. This guide highlights how tree planting can help deliver outcomes sought in the ODP by understanding the benefits of enabling more trees in the city.

3 Site outcomes

Explores opportunities to increase tree canopy coverage in any site with information from our Tree Canopy Calculator available in the HCC website, which outlines what kind, how many, and potential location of trees suitable to each unique scenario. This section also explores urban design and frontage treatment for a well-functioning urban environment.

Aspects covered in this section include:

- **Deep Soil Area (DSA).** An identified area deeper than usual planting ground intended to accommodate plant and tree growth.
- **Tree Canopy Coverage.** Guidance on recommended size and number of trees within a site.
- **Tree placement.** Recommended ideal location of trees to maximise their benefits within a site.

4 Planting

Provides step-by-step instructions and guidance on planting trees and other small plants for the purpose of landscaping.

Aspects covered in this section include:

- **Landscape planting and suggested plant list.** The ideal location and layout of plants to complement a space.
- **Tree planting and maintenance.** The factors to consider and guidance in preparation for, during, and after planting a tree.

5 Appendix

Covers suggested tree species and sizes that are local and accessible. It is still recommended to consult with a qualified professional to ensure that the trees selected suit Hamilton's urban forest.

Aspects covered in this section include:

- **Suggested plant list.** The botanical and common names, whether native or exotic, and special features.
- **Suggested tree list.** The size, botanical and common names, form, mature height, growth rate, whether native or exotic, whether evergreen or deciduous, and special features.

Why we have this document

The ODP includes guidance for sites and encourages planting trees as part of new developments. This guide gives direction on how to include trees in the design to help create a greener, more resilient city. By increasing tree canopy cover, we can reduce the effects of urban heat and help manage stormwater, which can lower the risk of property damage.

Operative District Plan

We had a unique opportunity through the ODP to create more sustainable and climate resilient developments for all residential zones as a response to our changing climate.

When developing residential units, the ODP has rules on:

- having maximum impermeable areas
- requiring the provision of deep soil areas to support tree growth
- establish a minimum tree canopy coverage within the residential zones.

Council strategies and policies

Complimentary to the responses in the ODP, it is important to recognise the alignment with other Council strategies, such as:

- **Nature in the City** which is to achieve 10% native vegetation cover in Hamilton by 2050.
- **Our Climate Future** which encourages regeneration of our natural environment to reduce our climate risk exposure.

Landscape design and consenting support

Urban design can go hand in hand with landscape design to create livable and functional places that maximise positive outcomes of developments. Good integration of both can have a positive impact by improving the quality and safety of both public and private spaces.

It is important to apply good urban design principles as we develop the city to ensure that any development has a positive impact on the surrounding neighbourhood and the lives of Hamilton residents.

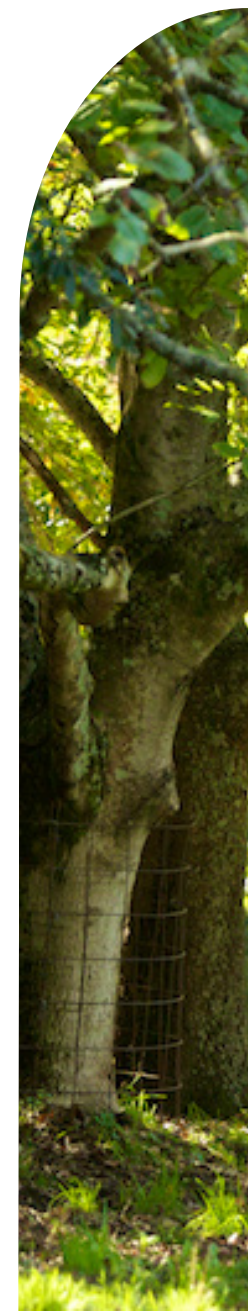
It is advised that developers and landowners meet with Council staff to discuss development projects, check what consenting requirements are needed in relation to tree planting and canopy coverage, and the expected process that will lead to better project outcomes.

To learn about pre-application meetings, visit hamilton.govt.nz/pre-application-meeting

Benefits of increased green cover

Increasing the number of trees and plants can have significant benefits when properly integrated with the built environment; with positive economic, environmental, cultural, and social wellbeing impacts such as:

- safer and more inviting neighbourhoods
- health benefits
- reduced urban heat island effects
- improved resilience to climate change
- increased value of land.



Intended outcomes



Inform and enable

Provide easy to understand information about tree planting within a site. Whether planting new trees and smaller plants, or taking care of existing trees on a site; the planting guide aims to provide developers and owners information on how to correctly do so.



Respect and restore the environment

Seeks to retain and expand Hamilton's green canopy while protecting its rich and diverse ecosystem. Both new and existing developments should endeavour to enhance and restore the natural environment.



Reduce urban heat island effects

Effectively help achieve Te Ture Whaimana (TTW) climate change responsibilities. Collectively, properties within an area that comply with the tree canopy requirement would see positive impacts to their neighbourhoods through cooler temperatures and a pleasant natural environment.



Aid in stormwater management

By striking a balance between permeable and impermeable surface areas, a site's resilience against flood hazard events can be maximised. Having trees within both new and existing developments would aid in addressing stormwater impacts by enabling seeping and natural drainage.



Create a harmonious urban landscape

Help to create a pleasant urban streetscape through landscaping considerations that would support increased density by providing a higher level of amenity both on site and within the public realm.



Ecosystem services

Highlight the benefits of tree planting to our ecosystem's circular function and ability to provide food, clean water, clean air, create soil, and pollinate in a sustainable manner. All of these directly impact our health, wellbeing, and safety.

2 Context

- Tree canopy coverage
- Deep Soil Area
- Site factors

Impactful location

Locate trees where they provide the most benefits such as shading for outdoor living space, foot paths, or cycleways

Hamilton Lake

Tree canopy coverage

Climate change is bringing hotter and wetter conditions to our cities. One way we can reduce its impact is by making our urban areas greener.

Because backyard gardens are mostly grass, they have less to offer environmentally with limited cooling, no shade provision, low diversity, and little support for native species¹. This makes it more imperative that tree canopies within private urban green spaces are preserved and increased.

Operative District Plan

The ODP now has a provision for tree canopies and subsequent surface treatment rules to support tree growth into maturity. Depending on the zone, all residential sites must provide an area of tree canopy cover that complies with the following:

20% of the site area
General Residential
Medium Density Residential

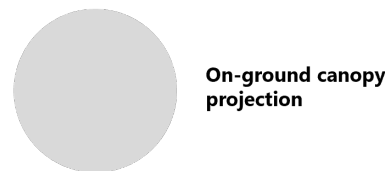
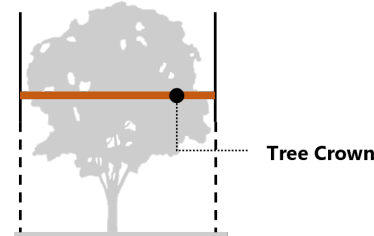
10% of the site area
High Density Residential



Tree canopy projection

Tree canopy cover is the total area of tree canopies on a property once the trees are fully grown. This cover can come from keeping existing trees or planting new ones as part of a residential development.

Single tree canopy

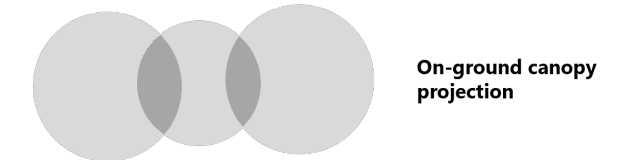
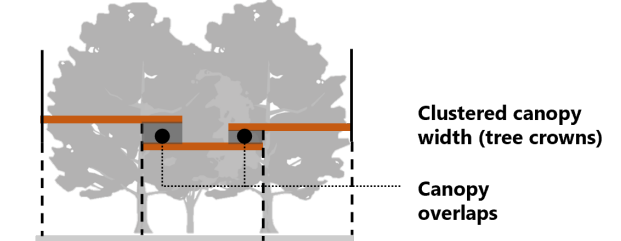


On-ground canopy projection

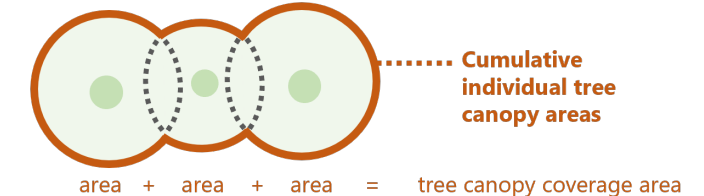


Canopy coverage area footprint for a single tree

Clustered tree canopy



On-ground canopy projection



Cumulative individual tree canopy areas

Figure 1. Individual projections of each tree is counted as part of the tree canopy coverage area even as they overlap each other.

¹Are we building harder, hotter cities? The vital importance of urban green spaces, Parliamentary Commissioner for the Environment (Te Kaitiaki Taiao a Te Whare), March 2023



Tree sizes

When calculating the required tree canopy coverage, this is done by either maintaining existing trees or planting new trees on the development site. Along with tree canopy size, the requirements to support healthy tree growth, such as sufficient soil volume, width, and depth, are set out in Table 1.

Tree size	Tree height at maturity (metres)	Tree canopy size at maturity (m ²)	Land area required (m ²)
Small	0-5	10	3.8
Medium	6-12	67	25.5
Large	13-20	186	70.8
Very Large	20+	250	95.4

Table 1. Soil volume required for a tree/tree roots (m³) equals the land area (m²) x 1m depth



Ample space for root growth

For each tree, volume of soil around the root ball must be provided to meet the requirements for each tree size.

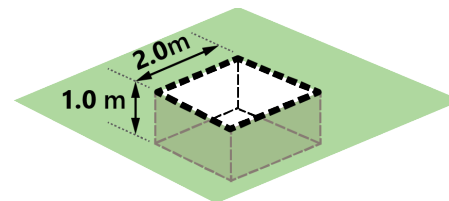


Figure 2. Minimum soil depth for root ball



Smaller sites, smaller trees

When developing a small site or a site with tight space constraints, consider using small trees to ensure they will grow properly with enough space for their root structure.

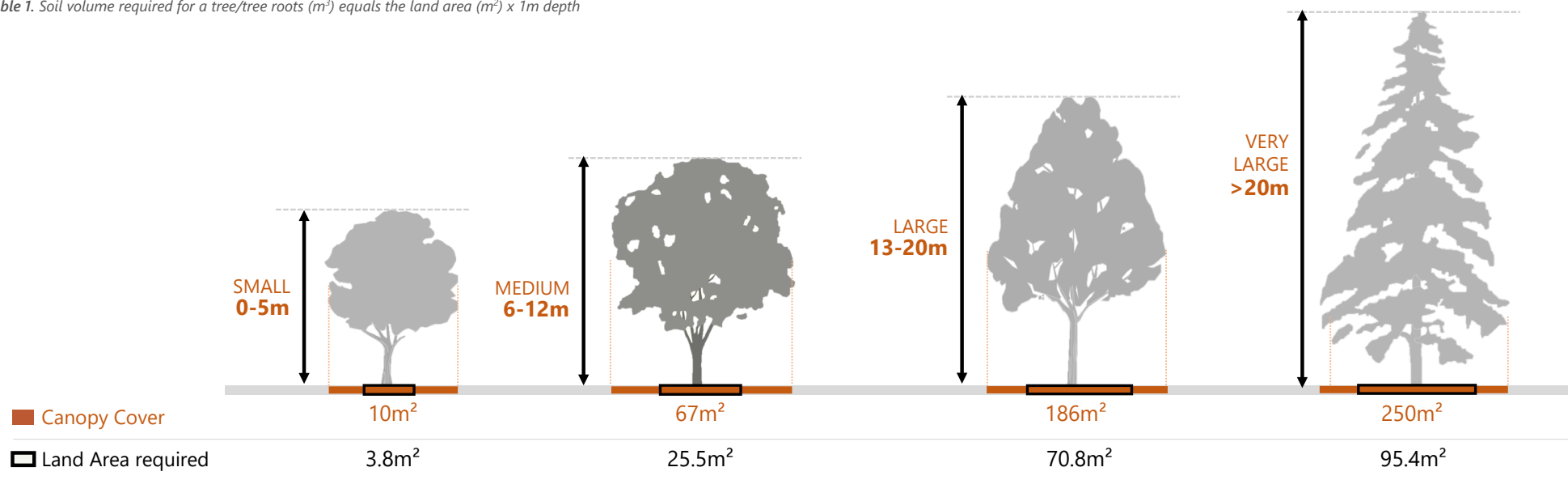


Figure 3. Approximate tree heights and canopy cover by size

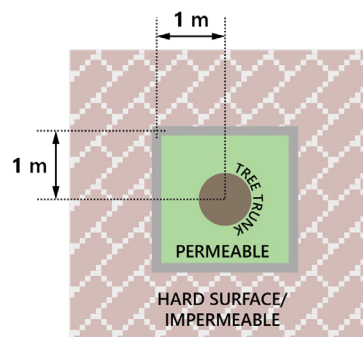


Things to remember

Trees can take up to 10 years to get to a size where the 20% total canopy area is calculated based on the tree species' mature state. The area allocated to trees can be relative to the size of the site and intended location, so it is important to consider the following points:

✓ Clear ground

Soil areas required for tree placement should not contain any impeding building structure, features or services, above or below ground, including hard surfaces such as concrete, asphalt, or pavers at least 1m from the centre of the tree trunk.



✓ Trees and streetscape

Trees on the front yard must have their roots planted within the site boundary. Some trees tend to grow wider with multi-branch systems which can contribute to the overall landscape quality of the footpath fronting the site.

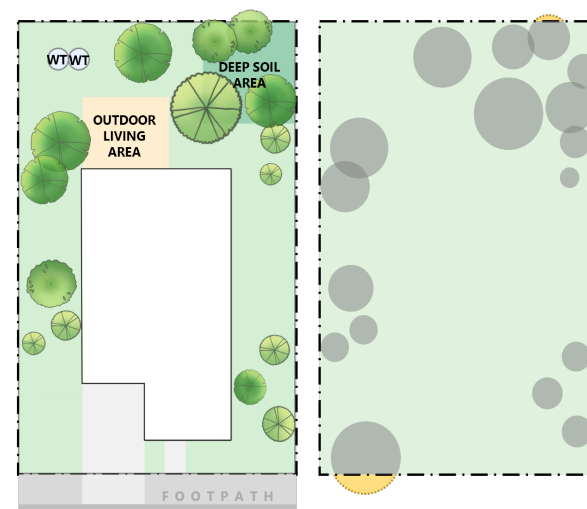


Tree overhang - outside the boundary

If a tree on a neighbouring property has branches that hang over into a new development, the area of the overhanging canopy will count toward the tree canopy cover of the property where the tree is planted.

✓ The bigger the space, the bigger the tree

It is important to remember that alongside tree height and canopy size, growth rate or time to reach maturity is also a consideration when selecting trees to plant. Some trees take longer to reach their potential maximum height and that can also be impacted by the soil quality and growing environment.



☀️ Tree canopies projecting outside the site boundary are included in the required tree canopy coverage



Tree overhang - within the site

It's important to consider the location when planting a tree, not just to encourage healthy growth, but also to minimise the encroachment of the tree canopy onto other properties. The ability to maintain trees needs to be considered when planting close to boundaries.



Over outdoor living areas

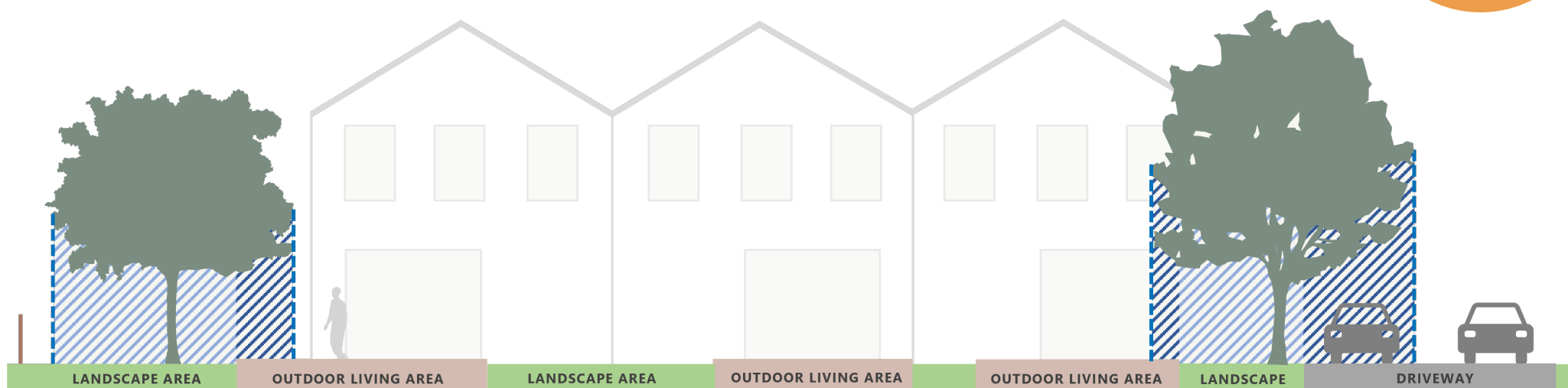
For each tree, provided that there is sufficient height underneath the tree crown and its branches.



Over driveways

For each tree, provided that any portion of the tree does not impede on vehicle or pedestrian circulation above ground.

Planning with trees in mind is another way we can create harmony in the built and natural environment



Tree Canopy cover

Deep soil areas

Deep soil areas (DSA) refer to an area within a lot that is capable of supporting growth of vegetation and trees, while providing capacity for stormwater infiltration. For any site, at least 50% of the landscape area shall be provided as DSA.

Landscape area

Zones require a ground floor unit to have a **landscaped area of a minimum 20% of the total site** within the property boundary and landscaped with grass or plants.

On front, corner, and through sites (except those in the Rotokauri North Residential Precinct), landscaping with grass, shrubs, and trees is required in front of the main building. The amount of landscaping needed is set out in the ODP.

To learn more about landscaped areas and what the ODP requires for your site, visit hamilton.govt.nz/property-rates-and-building/district-plan



DSA: 50% of landscape area

A development within any of the residential zones is required to provide a DSA that is at least 50% of the landscape area. While a single large neighbouring area is preferable as this provides greater resilience from climate extremes, several discrete areas are also acceptable.

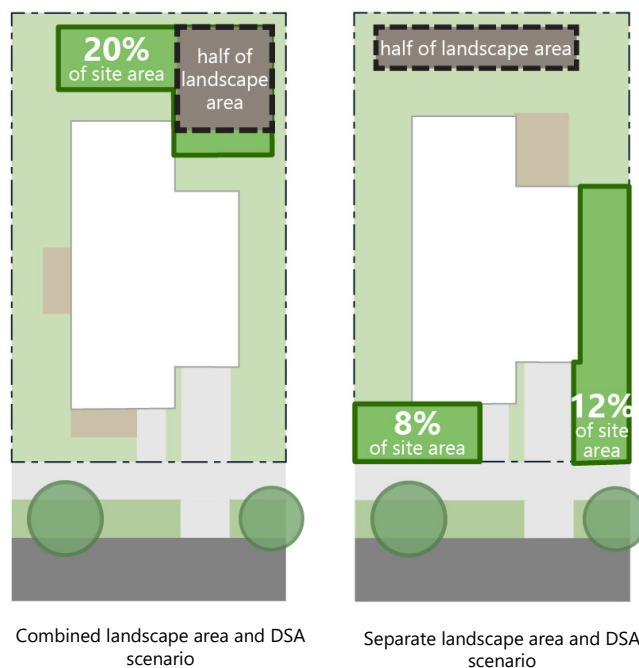


Figure 4. Example scenarios of landscape area distribution



For a DSA, a minimum area of 8m^2 with a minimum dimension of 2m is to ensure the area is able to support the growth of vegetation and trees.

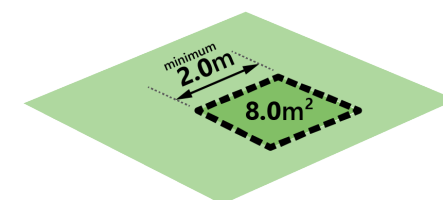
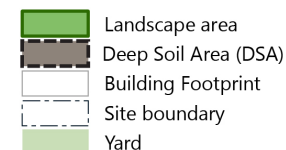


Figure 5. Minimum DSA width and area





Soil depth

DSA cannot contain any impeding building structure, features or services, above or below ground, including hard surfaces such as concrete, asphalt, or pavers. DSA must be permeable, uncompacted soil.

- ✓ For DSA, a minimum soil depth of 400mm is required for planting vegetation and can increase up to 1m when trees are planted.

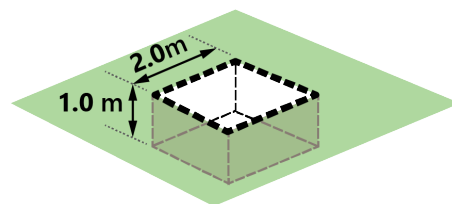


Figure 6. Minimum DSA width and depth

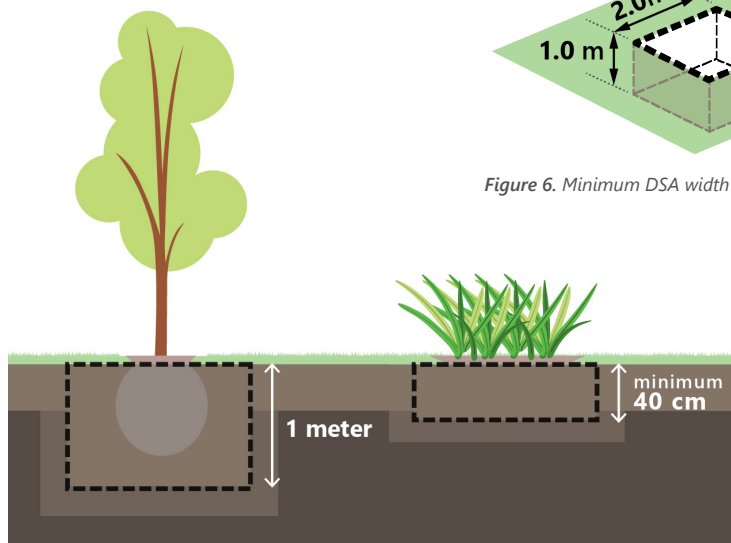


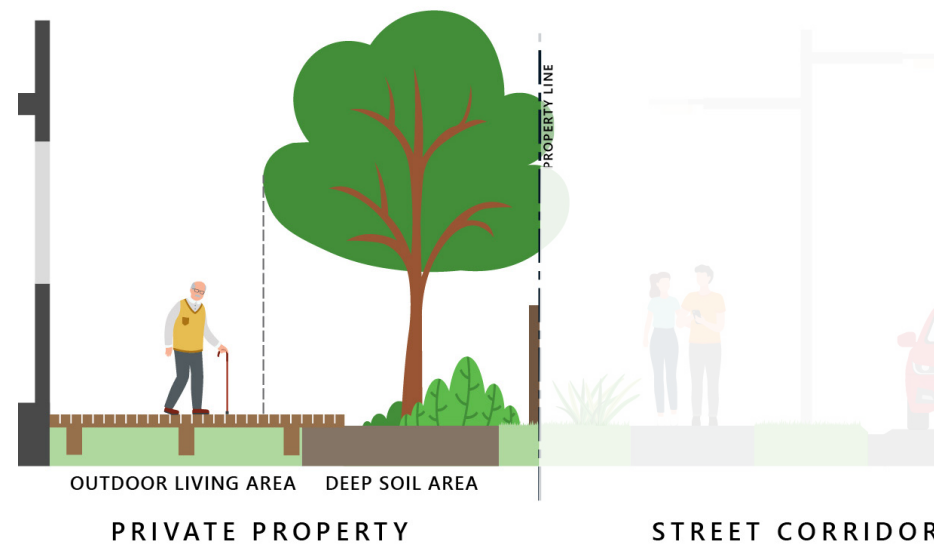
Figure 7. Deep Soil Area depth for trees and planting (groundcover, vegetation, shrubs, and hedges)



Flexible application

The DSA can form part of the landscape area or outdoor living area requirements.

- ✓ Up to 20% of the DSA may be covered with decking, providing it is constructed so no footing or foundations are encroaching into the DSA.
- ✓ DSA must be permeable, planted, and cannot be lawn.



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.



Height and width constraints

Consider how tall your tree will grow, keeping in mind not to plant large trees under overhead services such as powerlines or the eaves of a building. For more information on height constraints from overhead powerlines, visit wel.co.nz.

Consider how wide your tree will grow. There is a suitably shaped tree for all site variations; tall skinny trees, short wide trees, multi-branch, etc. It is always a good idea to allow a 1m gap between your tree canopy at maturity and the building to allow for maintenance through pruning.



Site boundaries

When planting close to boundaries, consider how far the tree will extend over the property boundary and potentially infringe on public accessways (driveways and footpaths) at full maturity. Your neighbour has the legal right to trim any planting that extends into their property, considering tree health and access.



Underground services

Where possible, plant trees away from any underground services within the property. 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

It is ideal to plant from May to September. Do not plant when the soil is waterlogged, or in drought, frosty, or windy conditions.



Natural environment

When the site is close to natural open spaces, such as the river and gullies, selecting certain trees can benefit from the proximity as they naturally attract birds.

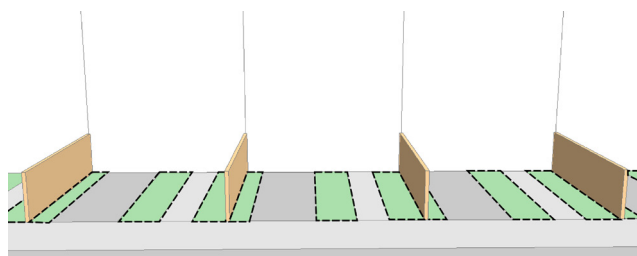


3 Site outcomes

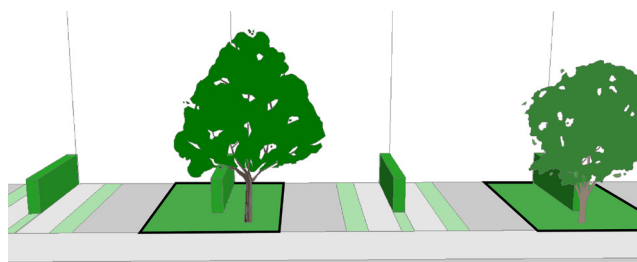
- Resources
- Urban design

Urban design

This section provides practical design solutions for landscape areas and tree placement including alternative solutions of where to locate trees within a wider development when space within single units is unavailable.



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



- ✓ Grouping landscapes provide more space for trees. Contrasting materials highlights driveway and pedestrian pathway. Low hedges set back from the property edge define boundaries more softly.

Public frontage planting

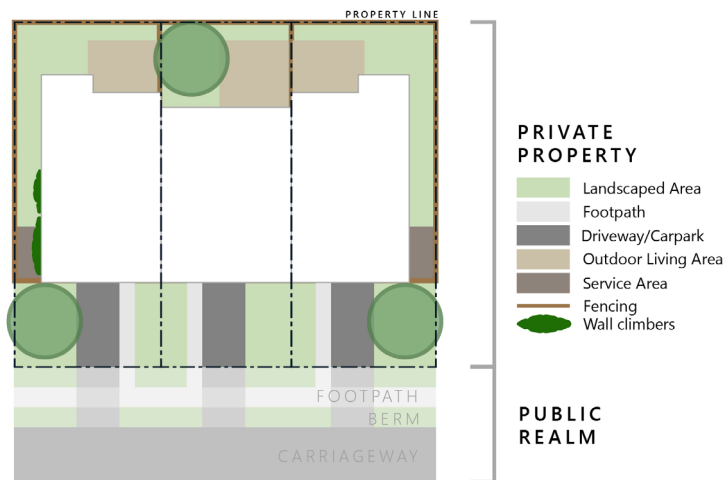
As a rule of thumb, public frontage of terrace housing benefit from a restricted pallet of plants used along the run of terrace properties for visual continuity. This could include grass species, ground covers, and small clipped planting. If carparking included in the front yard, selected plants should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

- ✓ Landscape areas should be 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 material rather than vegetation.

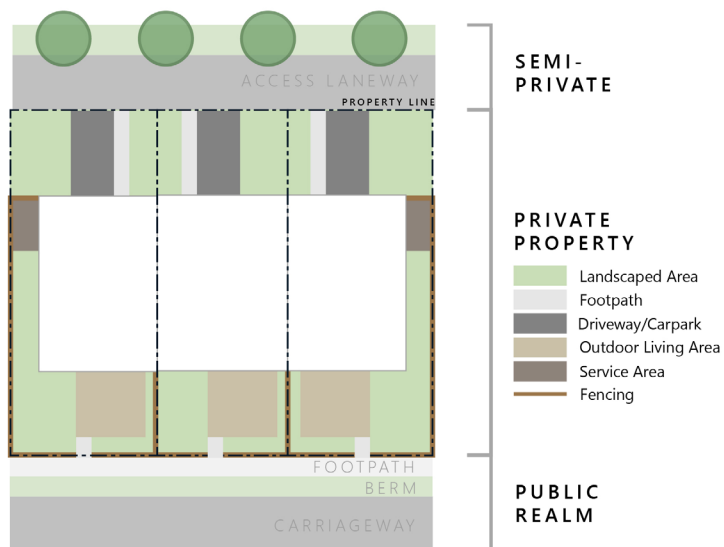
Front yard fencing

If the front yard isn't used as a main living area, it's best to avoid putting up fences in front of the building to keep the site feeling open. But if the front yard is part of the main living space, using permeable fencing can offer some privacy while still keeping a sense of openness in the overall development.

- ✓ 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.



- ✓ Location of the tree trunk indicates the site that owns it, but the tree roots still have access and space to grow under the neighbouring unit's soil.



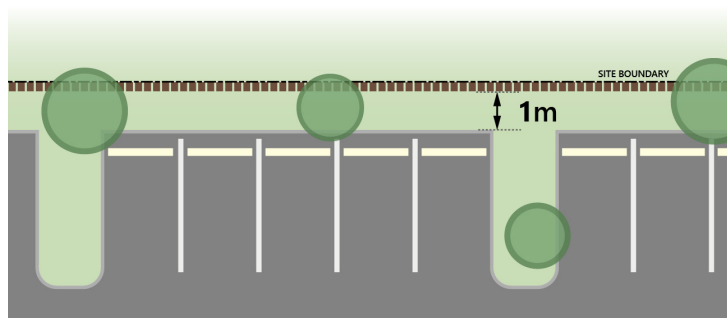
- ✓ Group trees within the wider development, such as a line of trees along the laneway

Tree placement

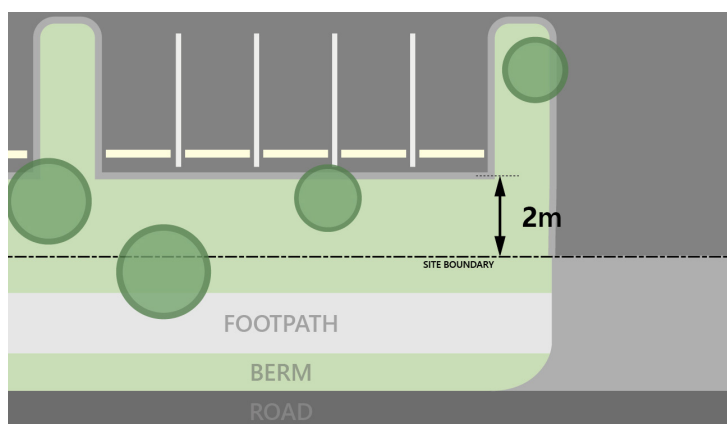
Placing trees in the front yard adds to public benefits while trees on back yards are great solutions for private properties and residents, offering shade in the summer months and an attractive outlook from main living areas. Tree areas are also good visual and sound buffers from roadside noise and air pollution.

Make sure there is sufficient space for the trees to grow to a mature size and select small species without impeding on vehicle and pedestrian access.

In multi-unit developments, the 20% canopy cover will be considered over the site. This provides opportunity to group trees in public spaces, or provide a few large canopy trees rather than many small trees. If there is no opportunity to meet the required coverage, the following solutions may be considered on a case by case basis. Other alternatives may also be considered.



- ✓ At least a 1m buffer strip along any side or rear boundary of Residential Zones
- Landscaped Area
 Footpath
 Driveway/Carpark



- ✓ A 2m planting strip along any boundary adjoining a transport corridor

Planting near parking areas

Planting trees adjacent to or beside parking areas provides shading, visual screening, and breaks up the impermeable expanse of paving and hard surfaces. To break up impermeable surfaces, internal planting within parking areas of **more than 10 parking spaces** should be landscaped with trees and groundcover at the following rate:

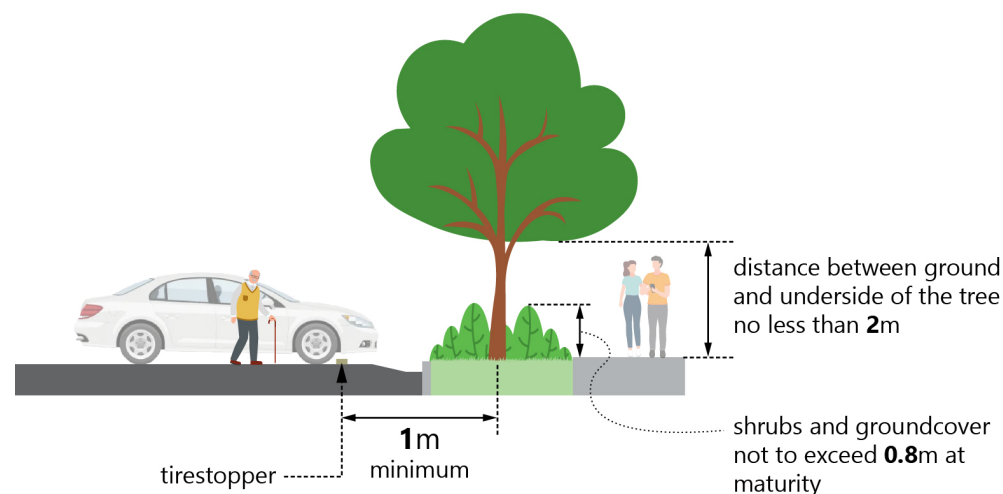
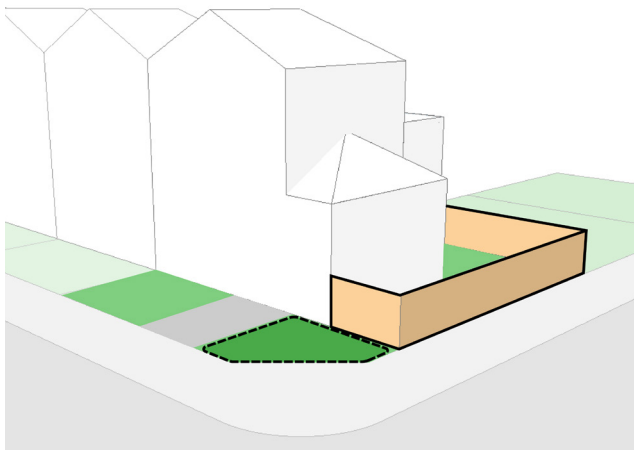


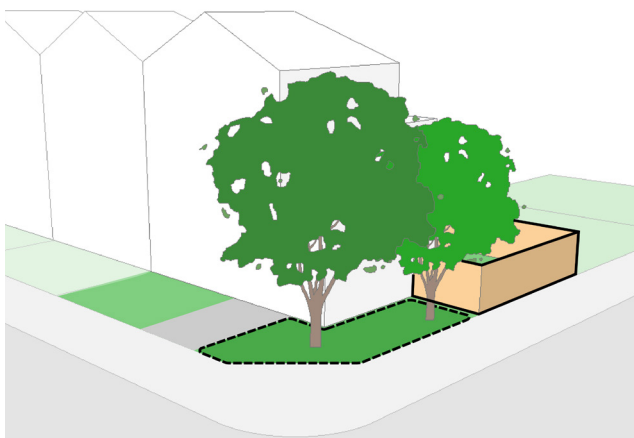
Figure 8. Example of trees within parking spaces observing minimum distances to hard surfaces (parking space and footpaths). ODP Chapter 25.5 City-wide, Landscaping and Screening.

✓ Keep it permeable

Buffer strips and landscaped areas would benefit more from being permeable; absorbing stormwater, enabling diverse planting, and provides space for tree roots to grow unhindered.



✗ It is not recommended to push fences almost the entire length of a property boundary as it creates an unfriendly streetscape.



✓ **Maximize a corner site's features**
Setting back the fence softens a corner site and creates an openness to the street.

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.

Placing trees and plants in the right spots makes cities healthier by cleaning the air, cooling down hot areas, and supporting wildlife.



4 Planting

- Landscape planting
- Factors to consider
- Planting a tree
- Maintenance
- Suggested plant list
- Suggested tree list

Inclusive growth

Careful consideration of where to plant the tree can help ensure it grows to full maturity and reduces any potential of uplifting hard surfaces such as footpaths and cycle lanes planned near or around it.

Heaphy Terrace, Claudelands

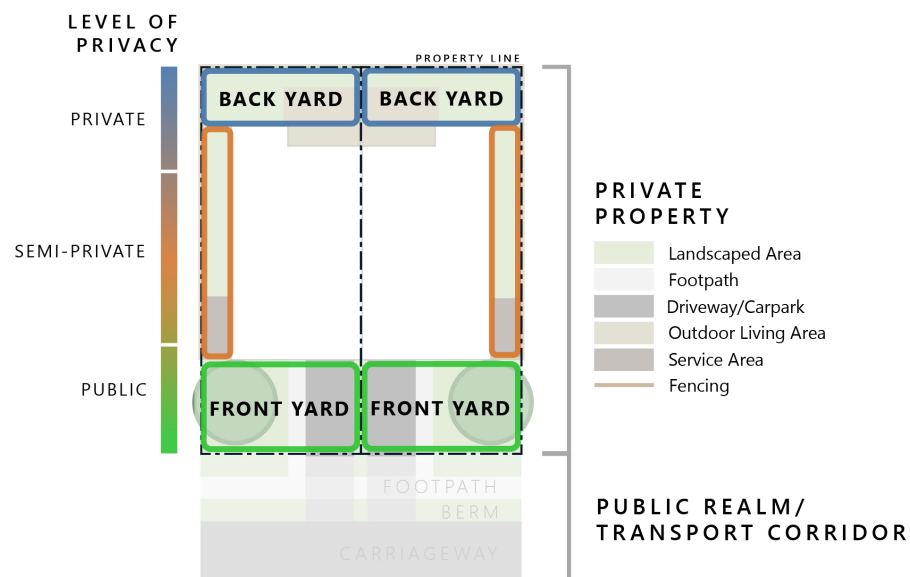
Landscape Planting



Outlining Private and Public spaces

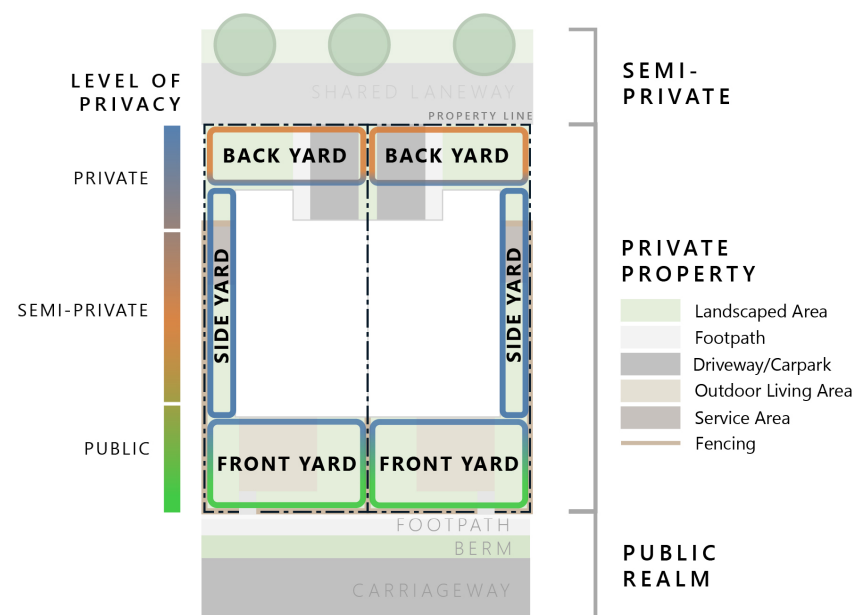
Public spaces are visible from the street and usually include the front yard, front door, letterbox, and driveway.

Private spaces are located in the side or rear yards, screened from the street, and designed to avoid overlooking neighbouring properties. These areas are typically at the back of the lot and have direct access from the home's main living area.

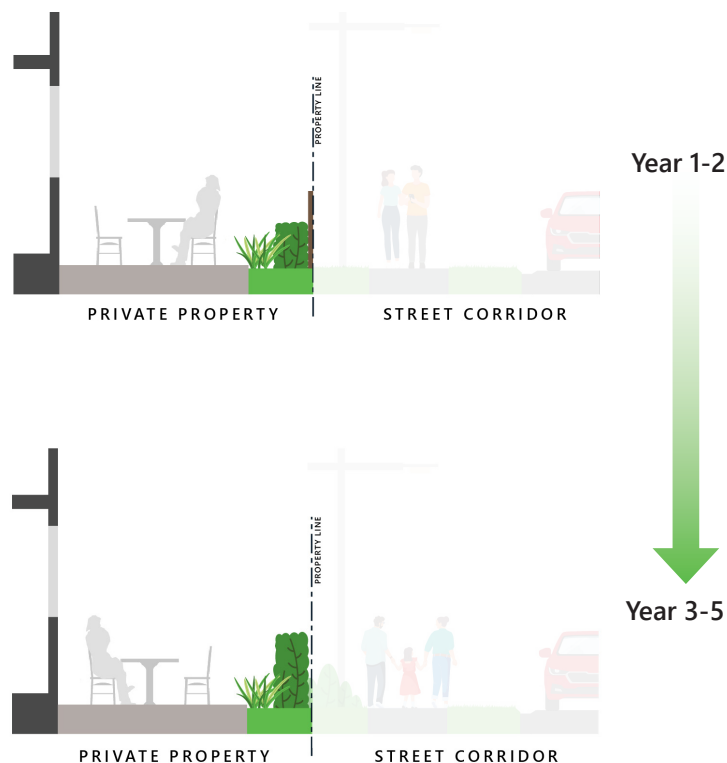


Scenario showing outdoor living space located at the back where fencing provides privacy and the front yard remains open

In some cases, the front yard can be used as a private outdoor living space. If this is the case, it's important to include adequate screening or landscaping to provide privacy and reduce traffic noise. Utility items like laundry lines and water tanks should be hidden from public view and placed in a service area within the private side or rear yard.



Scenario where the front yard becomes the main outdoor living space, a balance is needed between privacy and street openness.



Where the front yard becomes the main outdoor living area, a fence can provide immediate screening while hedges become established.

The fence should have a degree of permeability and have hedges planted on the public side of the fence.



Planting

Planting can be used to define front boundaries, reinforce entrances, soften hard edges, provide privacy screening, reduce road noise, and provide separation between lots. Where planting is required to be undertaken in the front yard, hedge 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 within the property boundary to provide greater interest.



Plant bed preparation

It is important to provide adequate soil volume for plants to thrive. 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. Narrow garden beds can usually be maintained from one side, however wider beds may require access from both sides or within the bed itself.

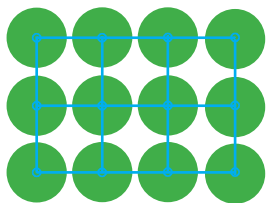


Plant selection

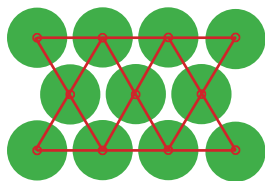
Plant species selected should be appropriate for the climate and conditions, and not require excessive maintenance to enable the plant to establish and thrive in the long term. The use of native plant species is encouraged. As with trees, ecosourcing different plant species is recommended as they are more suitable to the local environment. 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.



Figure 9. An example of different formal planting layouts



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 layout

The shape of the garden bed will influence how plants can be arranged. To create visual interest in a formal planting scheme, vary the height and texture of the plants:

- Place taller plants at the back of the garden bed, with shorter plants in front. Use ground covers to fill in gaps at the front.
- Avoid using too many single plants of different types, as this can look messy. Instead, plant in uneven-numbered groups (like 3, 5, or 7) of the same species. This creates a more balanced and attractive look.
- Think about the viewing angle—arrange plants based on where people will see them from most often

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.

Consider setbacks from thoroughfares such as footpaths, taking into account the plant future growth and spread.

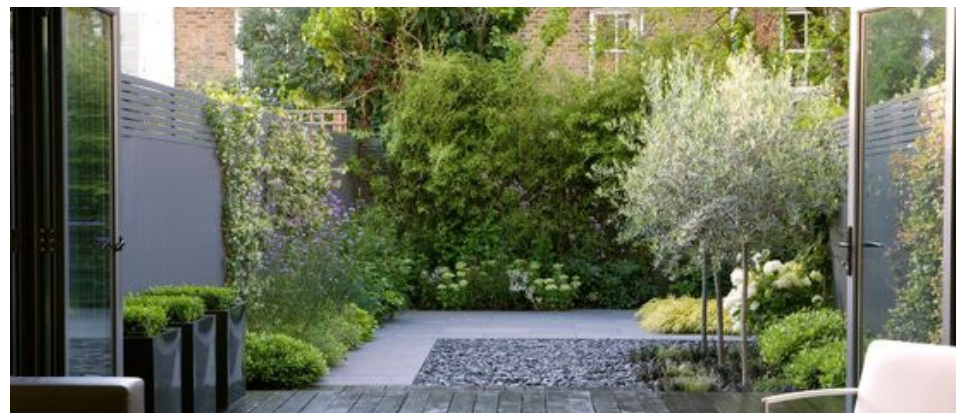
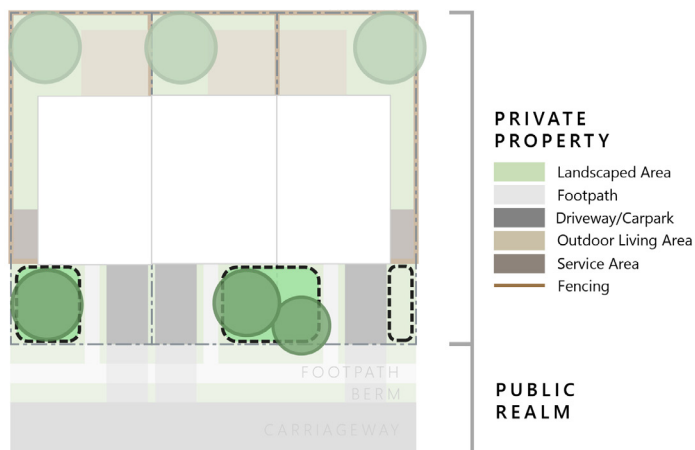
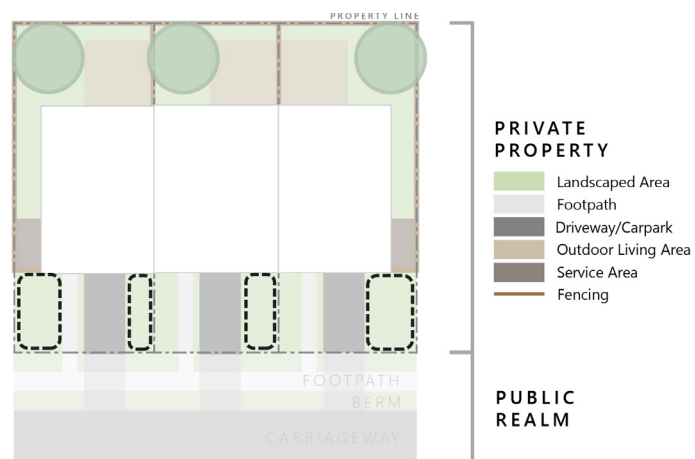


Figure 10. Despite only small areas available for planting, using variety of heights and layers, including climbers and trees, makes this courtyard feel intimate and lush. [Jet Black Garden, houzz.co.nz]



✓ Consolidate hard surfaces

Group hardscape elements such as driveways and mirror unit layouts to allow larger areas of uninterrupted landscaping and provide space for additional trees along the street frontage.

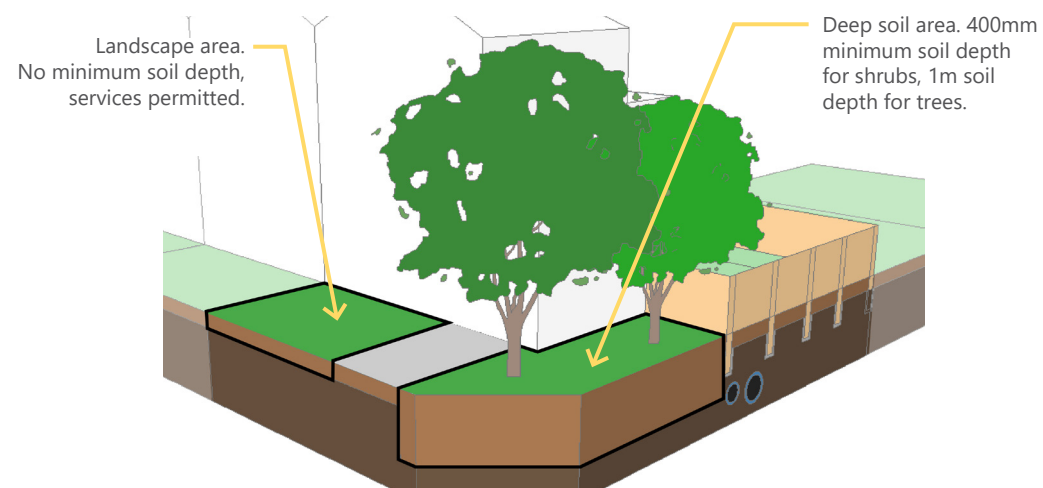


✗ Avoid hardscape arrangements that result in small, separated planting strips that limit potential for healthy plant and tree growth.



Planting bed location

- ✓ Group landscaped areas into one larger area rather 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.
- ✓ If carparking is included in the front yard, consider non-woody hardy plants that will not be damaged by or scratch a car door if it is opened onto.
- ✓ For formal planting styles, it's best to use a single plant species for hedges. In front yards, hedges should be kept at or below 1.2 metres in height. If the front yard is also used as a main living space, most plants should stay under 1.2 metres, but small sections of fencing, climbers, or hedges up to 1.5 metres can be used to provide extra privacy.



Deep soil areas

Additional soil depth and avoidance of structures and services in DSAs provide better conditions for tree development, and increased capacity for storm-water infiltration.

A photograph showing a person's hands, wearing a blue long-sleeved shirt, gently touching the bark of a large, textured tree trunk. The background is a soft-focus view of other trees and foliage.

Factors to consider

When considering the planting of specimen trees within a private property, several factors need to be considered.

Trees come in many shapes and sizes, and we recommend to ask experts about what species will suit your site best. Some considerations include the function and mature form of the tree, and 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.



Quality of the trees

Specimen trees should be planted at a minimum size of 80L. Choose healthy, well-grown trees which have:

- an exposed trunk free of wounds and damage.
- undamaged roots that grow straight out from the trunk not circling.
- no pests and diseases.
- while young trees may not have well-spaced branches, it is wise to choose a tree that has good form with a single leader at its maturity.

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



Evergreen or deciduous

Evergreen and deciduous trees can perform different functions.

- Plant **deciduous** trees where shade is required in the summer and sunlight is required during winter.
- Plant **evergreen** trees where you require permanent year-round screening, blocking light is not detrimental to the residents, and it provides a sound buffer from traffic noise. Evergreen trees also provide a good windbreak as they shed their leaves throughout the year, so the seasonal impact on gutters and drains is lessened.

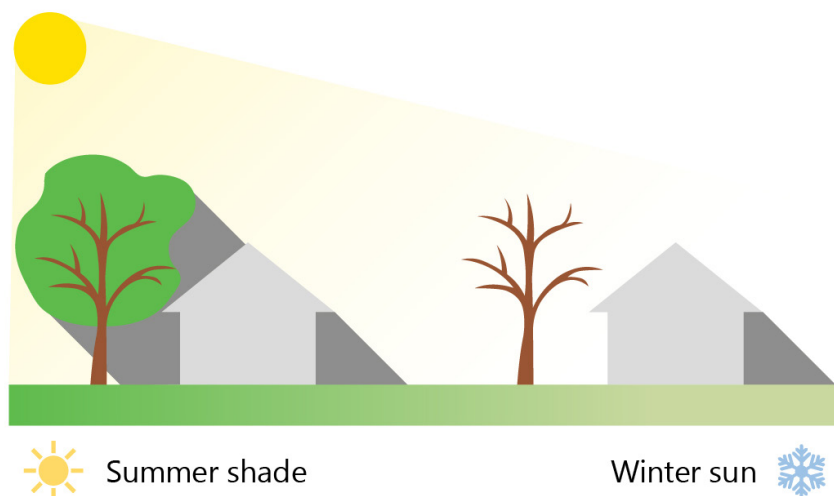


Figure 11. Deciduous trees lose their leaves in winter



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.

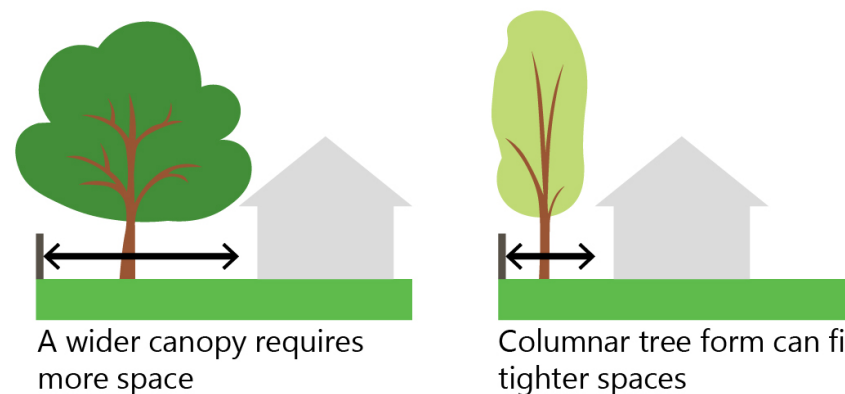


Figure 12. Selecting the right size and shape

Planting a tree

Tree pit preparation

It is crucial to prepare the site before planting a tree to ensure no contaminants will impede its growth. The following steps will help make the best conditions for a new tree to grow into.

1



Clear weeds and rubbish from the area to be planted prior to digging the tree pit.

2



Before digging, locate all underground utilities and consider the best placement for the tree(s). Generally, it is better to dig a separate pit for each tree.

3



Dig each tree pit in accordance with the deep soil requirements of each tree, as specified in Table 1 on page 9. Break up any compacted subsoil to a minimum depth of 1m to ensure root penetration and free drainage.

4



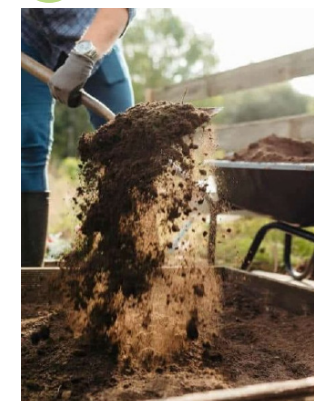
Break up or roughen any sides of the tree pit that are glazed (smooth from the digging).

5



Cover the bottom of the pit with 50-75mm topsoil.

6



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

*Photos from various sources listed in the reference section



Tree planting

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.

1



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.

2



Straighten the tree in the hole. Fill the hole gently but firmly. Pack soil around the base of the root ball to stabilise it.

3



Unless the soil is very wet, ensure trees are well watered to the depth of the root ball immediately after planting.

Planting trees correctly and helping them grow well can make our communities healthier, cooler, and more pleasant to live in.

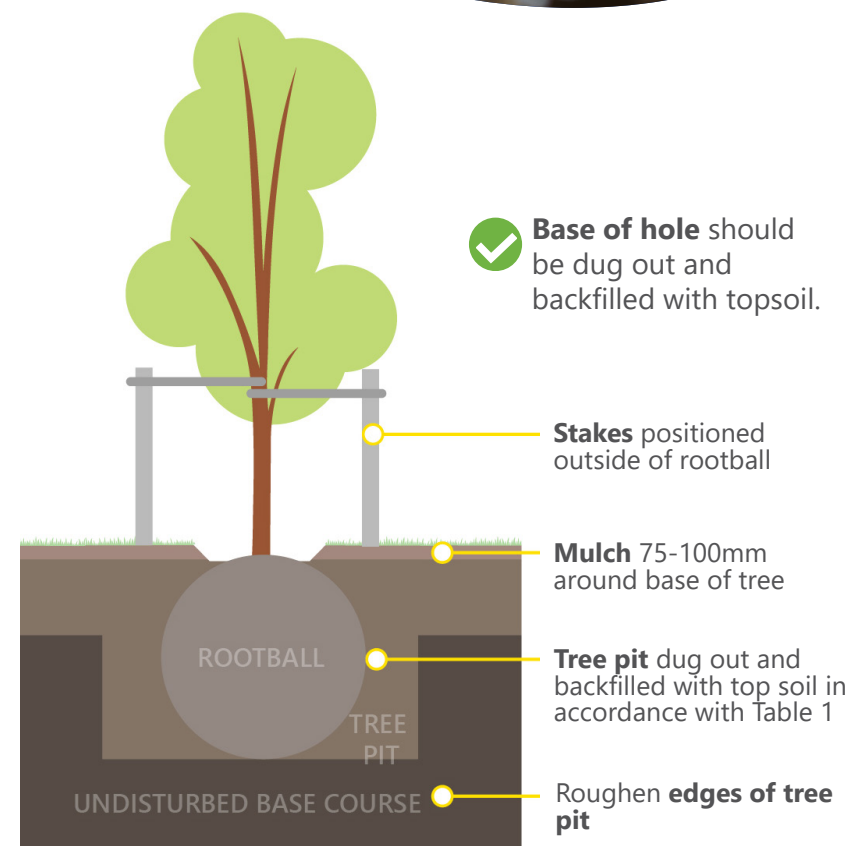


Figure 13. Indicative cross section of tree pit treatment on a permeable surface

*Photos from various sources listed in the reference section



Planting adjoining paving or concrete

In some instances it may be desirable to plant trees bordering paved areas (such as private pathways and driveways, and public footpaths within the transport corridor). It is important to install root directors/root barriers. They are designed to reduce the chance of tree roots uplifting paved surfaces, encourage deep root growth, improve drought tolerance, and enhance overall tree stability.

- ✓ If a tree is desired in an area within the property intended for vehicle movements, special 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 structural soils.
- ✓ If trees are required to be planted close to vehicle movement, install structural soil cell modules beneath the pavement to allow space for the healthy establishment of tree roots, while giving adequate support to the pavement.
- ✓ Consider the appropriate setbacks when planting trees, making sure that the root has space to grow, ideally within the property boundary.

Consistent character

Standard tree planting specifications need to follow the current best arboricultural practice. Some guidelines that will provide clarity include the Streetscape and Gateways Policy among other associated Codes of Practice.



Making sure trees are planted and grown properly next to roads can keep footpaths and cycle lanes safe and help the environment.

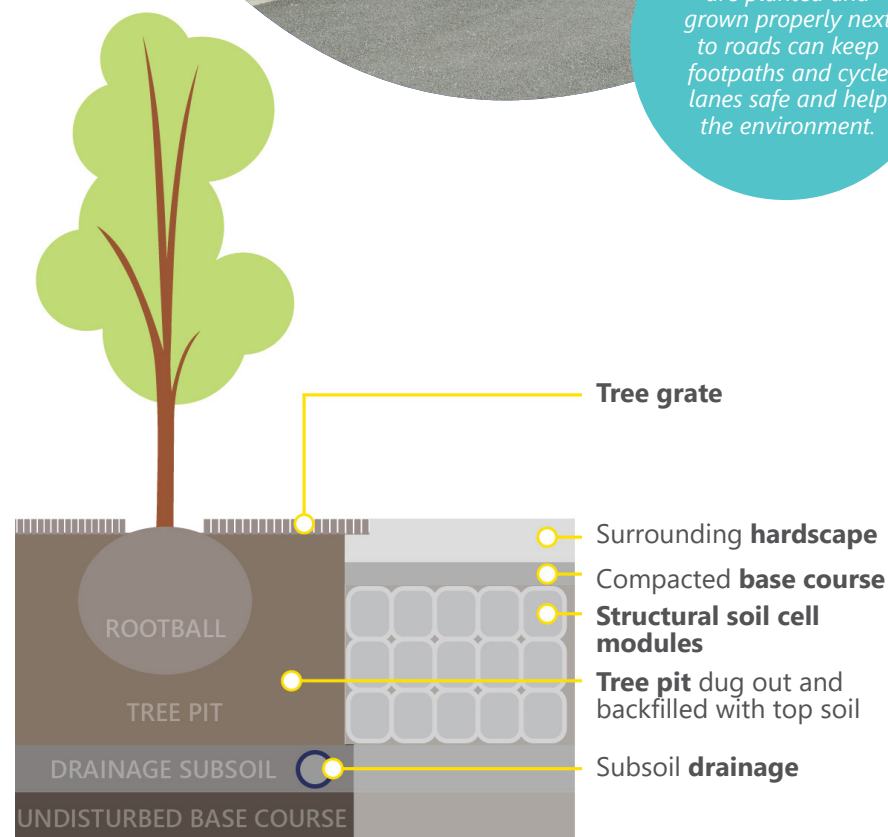


Figure 14. Indicative cross section of tree pit treatment on a semi-permeable surface adjoining an impermeable surface



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. natural, well-aged wood mulch has the advantage that it decomposes into the soil adding nutrients and improving soil structure. Avoid using treated mulch as it contains chemicals harmful to plants.
- **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. Avoid using grass clippings and plastic mats as they deteriorate into 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.



Root barriers

Tree roots can often spread and migrate at full maturity, specially larger deciduous trees, causing damage to footpaths, driveways, underground services, and structural building components. Contain root spread by installing root barriers at 0.5m-1m below ground depending on the size of the tree, locating it near the area that needs protecting.

It is recommended to consult with a landscape professional for the exact specifications appropriate for the tree and site.



Staking

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

Maintenance



Watering

Watering is important to tree establishment in the first spring and summer after planting. It is crucial to water trees thoroughly at least 50L per week, especially during dry periods.

Frequency. 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.

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



Mulch

Top up bark mulch as required to maintain a minimum depth of 75mm.

Taking good care of trees on your property keeps them healthy, benefits the neighborhood, and helps in managing floods



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 when the tree has established as it's ideal to retain 90% of live foliage. Continue formative pruning until the final shape of the tree is achieved.



Stakes

Some trees do not need stakes, some do. Consult with an expert if your selected tree species needs staking at its early stages of growth. If it is needed, 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.



Weed control

Keep any grass around the tree weed-free. Where mechanical trimmers and weed eaters are used, ensure that girdling of the trees does not occur.



Pests and diseases

Healthy trees are naturally able to resist pests and diseases, as these are part of their environment. However, young or newly planted trees are more vulnerable and can be seriously affected.

Check your trees each season for signs of poor health caused by pests or disease. If you notice anything unusual, it's a good idea to get advice from a gardening professional.

If a tree dies or becomes unhealthy, replace it with a different species. Replanting the same species can lead to the same disease returning.

Dieback. The plant will begin appearing unhealthy and lacking vigor. The tree may produce fewer flowers or they will fall off prematurely. Fruits may drop before they are fully developed and turn dark or exhibit unnatural colors.

Leaf deformities. These can take the form of spots of fungi, yellow or orange pustules, mildew, mosaic-like brightening on the leaves, leaf curls, and malformation among others. It is crucial to contact a local landscaping expert or arborist to have your plants and trees checked when they start manifesting these signs.

Tree diseases - Trees can spread these diseases to other nearby trees and it is important to spot signs early on to prevent spreading. Signs to look out for include:

- changes to the bark
- cracking or splitting trunk
- reduced foliage
- discoloured leaves
- deadwood
- root rot
- slime flux.



Figure 15. Bleeding gum of Kauri tree on a trunk lesion from Kauri dieback disease [kauriprotection.co.nz]

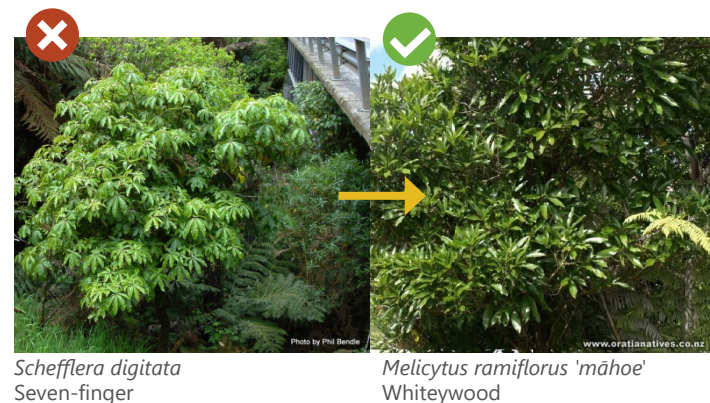


Figure 16. Replacing Seven-finger with Whiteywood is suitable as they are both shade trees of similar size, form, and texture

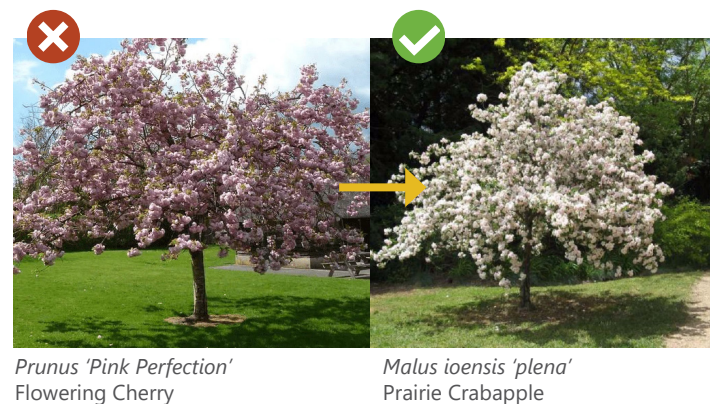


Figure 17. Replacing a flowering cherry with prairie crab apple is suitable as they are similar in size, form, and provides the feature of a flowering season

A close-up photograph of a person's hands holding a single green leaf. The person is wearing a brown, textured knit sweater. The background is a soft-focus view of many green leaves, suggesting a garden or forest setting. In the top right corner, there is a light blue circular graphic containing text.

5 Appendix

- Suggested plant list
- Suggested tree list
- Glossary
- Acronyms



Suggested plant list

While this plant list is extensive, it's not a full list of all options. There are numerous other exceptional plants that could complement your plans beautifully. Exploring new options can be quite rewarding, and consulting with a landscape professional can provide valuable insights. They can help you identify the best choices, especially if you're considering introducing something new.

TREE CLASSIFICATION

- Hamilton native
- NZ native
- Cultivar native
- Exotic

GROUND COVERS		
Botanical Name	Common Name	Special Features
 Acaena 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	
 Fuchsia procumbens	Creeping fuchsia	
 Coprosma kirkii	Groundcover coprosma	
 Leptinella dioica	Shore Leptinella	

GROUND FERNS		
Botanical Name	Common Name	Special Features
 Blechnum discolor		shade
 Asplenium bulbiferum	hen and chicken fern	shade
 Asplenium oblongifolium	huruwhenua, shining spleenwort	
 Doodia australis	rasp fern	
 Blechnum novae-zealandiae	koikoi	shade

TREE CLASSIFICATION

■	Hamilton native
■	NZ native
■	Cultivar native
■	Exotic

GRASS FLAXES

Botanical Name	Common Name	Special Features
■ Carex secta	Puurei	damp sites
■ Carex virgata	Puurei	damp sites
■ Carex testacea	Golden tussock	
■ Daniella nigra	Tuurutu	
■ Lomandra 'Little Lime'	Dwarf Lomandra	
■ Festuca glauca	Blue tussock	
■ Arthropodium cirratum	Renga renga/Rock Lilly	
■ Phormium cookianum	Wharaiki Flax	Nectar for birds
■ Phormium Green dwarf	Flax	Nectar for birds
■ Phormium tenax	Harakeke Flax	Nectar for birds
■ Poa Cita	Silver Tussock	
■ Libertia grandiflora	Mikoikoi	
■ Libertia peregrinans	NZ Golden Iris	
■ Machaerina sinclairii	Pepepe	
■ Ophiopogon japonicus	Mondo Grass	
■ Austroderia fulvida	Toe toe	can grow in dry and wet sites
■ Carex dipsaceae		damp sites, semi-shade
■ Libertia ixioides		
■ Astelia fragrans	kakaha	
■ Apodasmia similis	oioi	

CLIMBERS

Botanical Name	Common Name	Special Features
■ Clematis paniculata	Puawhananga	
■ Muehlenbeckia complexa	Small leaved Pohuehue	Can be groundcover too
■ Trachelospermum jasminoides	Star Jasmine	
■ Metrosideros perforata	akatea	Nectar for birds. Can be groundcover too
■ Hardenbergia rosea	Coral pea	
■ Pandorea jasminoides	Bower vine	

HEDGES

Botanical Name	Common Name	Special Features
■ Buxus 'Green Gem'	Dwarf box Hedge	
■ Corokia Blackberry & Lime	Green Corokia	
■ Griselinia littoralis 'Broadway Mint'	Kapuka	Fruit for birds
■ Pittosporum 'Sumo'	Compact Pittosporum	
■ Photinia 'Super Red'	Photinia	
■ Coprosma lucida	Shining karamu	Fruit for birds
■ Coprosma repens	Taupata	Fruit for birds
■ Coprosma robusta	Karamuu	Fruit for birds
■ Coprosma propinqua	Mingimingi	Fruit for birds
■ Corokia cheesemanii		
■ Hebe varieties		

SHRUBS

Botanical Name	Common Name	Special Features
■ Carmichaelia australis	NZ broom, Maakaka	
■ Choisya ternata	Mexican orange Blossom	
■ Coleonema pulchrum	Breath of Heaven	
■ Coprosma Black Cloud	Black leaved coprosma	Fruit for birds
■ Coprosma propinqua	Mingimingi	Fruit for birds
■ Hebe Wiri Cloud	Hebe	
■ Loropetalum Plum Delight	Loropetalum	
■ Nandina domestica	Nandina	
■ Pittosporum Golfball	Golfball	
■ Veronica stricta var. stricta	Koromiko	
■ Coprosma rhamnoides	Twiggy Coprosma	Fruit for birds

Suggested tree list

The following lists recommended tree species for planting on private property, excluding areas within the public transport corridor, such as berms. If you have a tree species not included in the table, you may submit it to Council for a determination of its canopy size. We encourage you to explore these options for a successful planting experience.

TREE SIZE

Extra Large - typically reach more than 20m in height at maturity

Large - typically reach 13-20m in height at maturity




Medium - typically reach 6-12m in height at maturity

Small - typically reach up to 5m in height at maturity




TREE CLASSIFICATION

- Hamilton native
- NZ native
- Cultivar native













TREE FORM

-  Conical
-  Pyramidal
-  Columnar
-  Oval
-  Round
-  Vase
-  Fan
-  Fastigate
-  Fountain
-  Irregular




Tree ferns

Botanical Name	Form	Evergreen/Deciduous	Common Name	Height (m)	Growth rate
■ Cyathea dealbata		Evergreen	Ponga, Silver fern	10	
■ Dicksonia fibrosa		Evergreen	Wheki ponga	10	Slow growing
■ Dicksonia squarrosa		Evergreen	Wheki	8	





Small trees

Botanical Name	Form	Evergreen/Deciduous	Common Name	Height	Growth rate	Special features
■ Coprosma lucida		Evergreen	Shining Karamu	6	Fast	Fruit for birds
■ Coprosma tenuicaulis			Hukihuki	5	Fast	Fruit for birds. Damp ground
■ Corokia buddleioides		Evergreen	Korokio	3	Fast	Fruit for birds
■ Corokia cotoneaster		Evergreen	Korokio, Wire-netting bush	3	Fast	Fruit for birds
■ Griselinia lucida		Evergreen	puka, akapuka	5		Fruit for birds. Frost sensitive
■ Olearia furfuracea		Evergreen	akepiro	5		
■ Olearia paniculata		Evergreen	Akiraho/Golden Akeake	6		Fruit for birds
■ Pennantia corymbosa		Evergreen	kaikomako	5	Medium	Fruit for birds
■ Pseudopanax crassifolius		Evergreen	Lancewood (juvenile form)	6		
■ Pseudopanax ferox		Evergreen	Horoeka, Fierce Toothed Lancewood	5		
■ Pseudopanax ferox		Evergreen	Lancewood (juvenile form)	5		
■ Pseudowintera colorata		Evergreen	Horopito, Pepper Tree	4		


Medium trees









































Botanical Name	Form	Evergreen/Deciduous	Common Name	Height	Growth rate	Special features
■ Alectryon excelsus		Evergreen	Titoki	10	Medium	Fruit for birds. Rongoa
■ Aristotelia serrata		Deciduous	Wineberry	10	Fast	Nectar and Fruit for birds. Kai, Rongoa
■ Brachyglottis repanda		Evergreen	Rangiora	7	Fast	Frost tender

TREE CLASSIFICATION















	Hamilton native
	NZ native
	Cultivar native
	Exotic

TREE FORM


















	Conical		Vase
	Pyramidal		Fan
	Columnar		Fastigate
	Oval		Fountain
	Round		Irregular

	<i>Carpodetus serratus</i>		Evergreen	<i>Putaputaweta</i>	10	Medium	Nectar and fruit for birds.
	<i>Coprosma repens</i>		Evergreen	<i>Taupata</i>	8	Fast	Fruit for birds
	<i>Cordyline australis</i>		Evergreen	<i>Cabbage Tree, Tii koouka</i>	20	Fast	Fruit for birds. Kai, Rongoaa, weaving
	<i>Griselinia littoralis</i>		Evergreen	<i>Kāpuka, Broadleaf</i>	10		Fruit for birds
	<i>Hoheria sexstylosa</i>		Evergreen	<i>Houhere, lacebark</i>	15	Fast	
	<i>Kunzea ericoides</i>		Evergreen	<i>Kanuka</i>	12		Nectar for insects
	<i>Kunzea robusta</i>		Evergreen	<i>Kanuka</i>	12		Nectar for insects. Kai, Rongoaa
	<i>Leptospermum repo</i>		Evergreen	<i>Swamp manuka</i>	8		suited to wet areas
	<i>Leptospermum scoparium</i>		Evergreen	<i>Manuka</i>	8		Nectar for insects. Kai, Rongoaa
	<i>Libocedrus plumosa</i>		Evergreen	<i>Kawaka</i>	15		
	<i>Melicytus ramiflorus</i>		Evergreen	<i>Maahoe</i>	15	Fast	Fruit for birds. Rongoaa
	<i>Myrsine australis</i>		Evergreen	<i>Red Mapou</i>	7		Fruit for birds
	<i>Pittosporum eugenioides</i>		Evergreen	<i>Tarata, Lemon-wood</i>	12		Fruit for birds
	<i>Pittosporum tenuifolium</i>		Evergreen	<i>Kohuhu</i>	10		
	<i>Plagianthus regius</i>		Semi Deciduous	<i>Manatu/ Ribbonwood</i>	12		
	<i>Pseudopanax arboreus</i>		Evergreen	<i>Whauwhaupaku, five finger</i>	8		Frost tender
	<i>Pseudopanax crassifolius</i>		Evergreen	<i>Horoeka, Lancewood</i>	12		
	<i>Rhopalostylis sapida</i>		Evergreen	<i>nikau</i>	6		palm
	<i>Sophora microphylla</i>		Semi Deciduous	<i>Kowhai</i>	10		
	<i>Sophora tetraptera</i>		Semi Deciduous	<i>Kowhai</i>	12		

Large trees

	Botanical Name	Form	Evergreen/Deciduous	Common Name	Height	Growth rate	Special features
	<i>Corynocarpus laevigatus</i>		Evergreen	<i>Karaka</i>	15	Medium	Spread by Maaori for kai. Poisonous
	<i>Dacrydium cupressinum</i>		Evergreen	<i>Rimu</i>	25	Slow growing	Fruit for birds. Rongoaa
	<i>Nestegis lanceolata</i>		Evergreen	<i>White maire</i>	20		Fruit for birds
	<i>Phyllocladus trichomanoides</i>		Evergreen	<i>Taanekaha</i>	25		
	<i>Podocarpus laetus</i>		Evergreen	<i>Hall's totara</i>	20		Fruit for birds
	<i>Podocarpus torata</i> 'Aurea'		Evergreen	<i>Golden totara</i>	20		
	<i>Vitex lucens</i>		Evergreen	<i>Pūriri</i>			Fruit for birds especially kereru. Kai,

Extra Large trees

	Botanical Name	Form	Evergreen/Deciduous	Common Name	Height	Growth rate	Special features
	<i>Agathis australis</i>		Evergreen	<i>Kauri</i>	30	Slow growing	
	<i>Beilschmiedia tarairi</i>		Evergreen	<i>Taraire</i>	22	Slow growing	Fruit for birds.
	<i>Beilschmiedia tawa</i>		Evergreen	<i>Tawa</i>	30	Slow growing	Fruit for birds. Kai
	<i>Dacrycarpus dacrydiodes</i>		Evergreen	<i>Kahikatea</i>	30	Slow growing	damp areas, fruit for birds
	<i>Knightia excelsa</i>		Evergreen	<i>Rewarewa</i>	30		Nectar for birds
	<i>Podocarpus totara</i>		Evergreen	<i>Totara</i>	25		Fruit for birds
	<i>Prumnopitys ferruginea</i>		Evergreen	<i>Miro</i>	25		Fruit for birds
	<i>Prumnopitys taxifolia</i>		Evergreen	<i>Matai</i>	25		Fruit for birds
	<i>Streblus heterophyllus</i>			<i>Turepo</i>			

Definition of terms

Cultivar	a variety, strain, selection or race that has originated and persisted under cultivation; subject to rules laid down in International Code of Nomenclature of Cultivated Plants.		
Deciduous	refers to trees that have a season for falling after completion of the normal function, i.e. petals after flowering, or leaves of summer-green perennial.		
Deep Soil Area	Means a continuous, uncompacted soil area of at least 1m deep soil with no impeding building or feature on, above, or below ground. Deep soil areas area capable of supporting the canopy of a tree and provide stormwater attenuation benefits to a site.		
Ecosourcing	Means plants which are grown from seeds or propagules collected from naturally occurring vegetation in a locality close to where they are replanted as part of a restoration or re-vegetation project.		
Ecosystem	An interacting system of living and non-living parts such as sunlight, air, water, minerals and nutrients. Ecosystems can be small and short-lived, for example, water-filled tree holes or rotting logs on a forest floor, or large and long-lived such as forests or lakes.		
Evergreen	having leaves all through the year.		
Infiltration	In the context of trees and the environment, refers to the rate at which soil can absorb water		
Kaitiakitanga	Referred to in the NPS-FM as the obligation of tangata whenua to preserve, restore, enhance, and sustainably use freshwater for the benefit of present and future generations.		
Landscape area	refers to an area intended for plant cover or gardening		
Landscape design	Means the functional layout and design of a site involving the planned use of open space, landform,		plant-form, water and artificial features for the purpose of beautifying or enhancing a site for human use and enjoyment.
		Lycophyte	class of spore-bearing vascular plants prevalent in tropic climates.
		MDRZ	Medium Density Residential Zone
		Native	not known to have been introduced by human agency
		Rush	any of various monocotyledonous often tufted marsh plants (as of the genera Juncus and Luzula of the family Juncaceae, the rush family) with cylindrical often hollow stems which are used in bottoming chairs and plaiting mats
		Shrub	a large plant smaller than a tree, with multiple stems of wood growing from the ground. It is also commonly referred to as a bush. (Oxford dictionary
		Stormwater	rainwater that runs off a surface into streams, waterways, underground aquifers, rivers and eventually, far beyond Hamilton's boundaries, ends up in the sea.
		Tree	A perennial plant having a self-supporting woody main stem or trunk (which usually develops woody branches at some distance from the ground), and growing to a considerable height and size.
		Tangata whenua	People of the land, local indigenous people. Māori are tangata whenua.
		Vegetation	refers to plant life or the total plant cover of an area
		Weed	A weed is a plant growing where it is not wanted and with a harmful impact. Environmental weeds are plants that invade native vegetation and are harmful to native ecosystems. Also referred to as pest plants or invasive plants.

Acronyms

DSA	Deep Soil Area
GFA	Gross Floor Area
ODP	Operative District Plan
RITS	Regional Infrastructure Technical Specifications
GRZ	General Residential Zone
MDRZ	Medium Density Residential Zone
HDRZ	High Density Residential Zone

References

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Page 28, Image 1	homertree.com
Page 28, Image 2	houzz.co.nz
Page 28, Image 3	newwoodtrees.co.uk


Figures

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- Figure 9** An example of different formal planting layouts
- Figure 10** Despite only small areas available for planting, using variety of heights and layers, including climbers and trees, makes this courtyard feel intimate and lush. [Jet Black Garden, houzz.co.nz]
- Figure 11** Deciduous trees loose their leaves in winter
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- Figure 15** Bleeding gum of Kauri tree on a trunk lesion from Kauri dieback disease [kauriprotection.co.nz]
- Figure 16** Replacing Seven-finger with Whiteywood is suitable as they are both shade trees of similar size, form, and texture
- Figure 17** Replacing a flowering cherry with prairie crab apple is suitable as they are similar in size, form, and provides the feature of a flowering season

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